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/ PROLOGUE

PROLOGUE

The Second Session of the Economic Commission for Latin America adopted Resolution E/CN.12/150, on 13 June 1949, at Havana, which affirmed that one of the principal tasks of the Secretariat should be the annual preparation of basic studies on the economic situation of Latin America.

In accordance with the above resolution, I have the honour to present to the Commission the Second Economic Survey of Latin America. In complying with the wishes expressed by the Member Governments during the Second Session, special attention has been given to an analysis of the economic situation and the factors which have brought it about.

This Second Survey reflects the concern of both the Commission and the Economic and Social Council to have a systematic explanation of the problems of economic development in the Latin American countries. With this objective in view - of such vital importance to Latin America - the Secretariat has spared no effort in carrying out its task.

It is to be hoped that the result of these efforts and of the deliberations of the Commission, will lead not only to a more profound knowledge of Latin America's economic conditions, but also to a closer co-operation between all these countries, leading to solutions of common problems both within the American continent and the rest of the world.

The Survey which I have the honour to present to the Commission is the work of the Research Centre of the Secretariat, under the direction of Professor Raúl Prebish, who has been ably assisted by a small group of economists.

Gustavo Martínez Cabañas
Executive Secretary

LETTER OF TRANSMITTAL

5 May 1950

Dear Sir,

I am pleased to transmit to you the work of the Research Centre for the coming conference at Montevideo.

You will remember the considerations we had in mind in the preparation of the work. It has become clear in the short existence of the Commission that any study of the special problems of Latin America or an analysis of changes in the economic conditions of these countries, meet with a serious obstacle; the lack of knowledge of the economic structure of the different countries, the trends of their development and a clear definition of the problems of their economic growth.

This criterion having been formed, it still remained to be determined whether the limited resources of the Research Centre should be employed in a superficial study of all the Latin American countries or whether we should first concentrate on a limited number of countries and later consider the others, thus completing our work. The first course was adopted, and I think the decision is justified by the results achieved in the short eight months of working time at our disposal between the two conferences.

A collection of statistical series has been built up, which, apart from the originality of some of them, shows for the first time the trends of economic development in the Latin American countries during the last 25 years, together with the principal events through which these trends have manifested themselves.

These countries present very special problems of economic

development and require a certain amount of explanation before they can be understood. The studies on the economic development of the different countries are therefore preceded by an outline which sets forth several problems which the Centre should study at a later date.

These studies are accompanied by annexes containing the material which served as a basis of the Chapters on the economic development of the countries under consideration; this material deals with agriculture, mining, industry and finance. The same criterion has been followed here as in the previous case, that is, not to embark on a field too wide to yield useful results in so short a time and with such limited personnel.

There will also be a study on the recent developments in the economic situation of the Latin American countries. It has been decided to present this chapter immediately before the opening of the conference in order to examine the most recent information on what is happening in the economy of Latin America.

It is hoped at the same time, to present the preliminary results of the research on the cotton textile industry now being carried out by the Centre in several Latin American countries.

For the reasons given above it has only been possible to study the following countries: Argentina, Brazil, Cuba, Chile, Mexico and Uruguay. It had been planned to study Colombia, but the lack of time and the fact that the International Bank had undertaken a thorough review of the economic situation in that country, suggested that we should await the results of that review before beginning our work. Studies on the remaining Latin American countries should be made

after the Montevideo conference in order to complete the Commission's third economic survey. Use could also be made in this third survey of the background material collected by the Centre on the principal Latin American export commodities, in order to begin publishing special studies on them.

In transmitting you this work to you, I should like to acknowledge the cooperation of Dr. Raul Rey Alvarez, Head of Economic Studies in Santiago, in the preparation and analysis of the statistical material. As regards the basic studies mentioned above, I should also like to acknowledge the collaboration of Dr. Milic Kybal, J.D., Dr. Celso Furtado J.D., Dr. Regino Boti, J.D.M.S., in the studies on industry; of Dr. Bruno Leuschner in the study on mining; of Messrs. Emilio Alanis Patiño, Jorge Alcazar, Reinaldo Wilhelm, and Dr. Regino Boti in the studies on agriculture; of Dr. Elba Gomez del Rey, Ph.D., of the Fiscal Division of the Economic Department in the studies on Finance; and of the consultants who contributed to the work. I should also like to mention Dr. Jorge Rose and the personnel who collaborated with him in the preparation of the statistical material.

I remain,

Sir,

Your obedient servant,

Raúl Prebisch
Director
Research Centre

CHAPTER I

RECENT CHANGES IN THE LATIN AMERICAN ECONOMIC SITUATION

The economic situation of Latin America during recent years may be considered satisfactory in general terms. Compared with 1947 and 1948, however, there is a notable difference in degree as a result, in some cases, of adverse weather conditions, and more generally of the interruption of the boom which some countries had experienced in their international trade.

The sensitivity of Latin American economies to foreign trade difficulties was once more manifest.

Only in a few countries did these difficulties bring about a reduction of the level of income, but in many of them the slowing-down of the increase which had been experienced during former years created an atmosphere of insecurity. The maintenance of the value of exports, at least in terms of national currencies, became a basic point in the policy of these countries. Although the economic development which has taken place in the last twenty years, and more particularly in the last decade, has made Latin America more capable of defending its income from the pressure resulting from fluctuations in world markets, this same development, when not accompanied by a corresponding growth in the capacity to import, has brought with it phenomena of intense disequilibrium, which will be examined elsewhere in this report.

The inflationary process has probably weakened less in Latin America than in any other part of the world. The improvement in the supply of consumer goods has undoubtedly been less than in the United States, Canada, or Europe, while the rate of increase of income has been greater as the result of inflationary policies. The race between wages and prices cannot be considered as over yet, and resistance on the part of one to freeze the present situation when the other was the last to advance, has been the decisive obstacle to the stabilising policy of the

/authorities.

authorities. But the realisation in official quarters of the limitations of policies of excessive monetary expansion has engendered a growing resistance to them; however, this resistance has only met with complete success on few occasions.

Prices

If inflation is measured by the increase in the cost of living it is evident that it grew at a slower rate in 1949 than in the previous year. 1/ In 1947 and 1948 no Latin American country showed a drop in retail prices. However, in 1948 the increases tended to be less than in 1947. In 1949 the trends which could be faintly discerned in 1948 became accentuated, and there were substantial drops in Cuba, Ecuador, Panama, the Dominican Republic and Venezuela, with considerable reductions in the rate of increase in Colombia, Chile, Guatemala and Peru, while in other countries where the increase was moderate, such as Mexico and Uruguay, the 1948 rate persisted. Of those countries for which data are available, Paraguay is the only one where the cost of living shows a higher rate of increase than in previous years. It is worth mentioning that the majority of the countries where the cost of living dropped in 1949 are those which depend to a great extent on foreign trade for their supply of consumer goods or which have no foreign exchange controls, that is, countries very subject to the influence of international price fluctuations, such as Cuba, Ecuador, Panamá, the Dominican Republic and Venezuela. In Mexico, where prices continue to rise, this increase is moderate if the considerable devaluation in the currency is taken into account. It may also be said that although 1949 is characterised by a decided tendency towards a decline in the cost of living or a reduction in the rate of increase, in many countries prices have increased at a greater rate during the last few months of the year than during the first months, and during these months the declining trend noted earlier has been

1/ See Table 1

/reversed.

Table 1. Cost of living: per cent changes in relation to the previous Year a/

	Yearly averages				End of 1949 as per cent of end of 1948
	1946	1947	1948	1949	
Brazil	† 19	† 18	† 10	-	† 6
Colombia	† 9	† 18	† 16	† 7	† 4
Costa Rica	† 4	† 14	† 3	† 8	† 10
Cuba	† 9	† 17	† 9	-11 b/	- 9 b/
Chile	† 15	† 33	† 18	†10	† 20
Ecuador c/	† 20	† 14	† 7	† 1 d/	- 6 d/
El Salvador c/	- 18	† 12	† 33	-18	† 8
Guatemala	† 18 f/	† 11	† 11	† 9	-
México	† 25	† 13	† 6	† 6	† 7
Panamá	† 8	† 11	† 2	- 7	- 8
Paraguay	† 10	† 31	† 33	†34	† 38
Perú	† 9	† 29	† 30	†15	† 19
Dominican Republic e/	† 11	† 12	† 1	- 4	- 10
Uruguay	† 10	† 15	† 2	† 4	- 3
Venezuela	† 6	† 15	† 21	- 3	-
United States	† 9	† 13	† 7	- 1	- 3

Source: International Monetary Fund.

a/ For countries where there is no cost of living index, data that furnish similar information have been used, such as retail prices or prices of food.

b/ January - October.

c/ Prices of domestic consumption articles.

d/ January - November.

e/ The index comprises a few food items only and therefore fluctuates considerably.

f/ For 1946 only the index for the capital city is available.

reversed. This is the case in Brazil (where prices at the end of 1949 were 6 per cent higher than at the end of 1948, in spite of the fact that the average for 1949 was the same as in the preceding year), and in Chile, El Salvador, Peru, Venezuela, etc. The fact that prices of domestically produced articles, above all food and clothing, rise at a higher rate than the general price index, which is more influenced by the prices of imported products, is one of the consequences of the policy of monetary expansion. The drop in import prices has, undoubtedly, been a factor of considerable importance in the general level of prices. 1/

While agricultural production in Latin America was, to a certain extent, affected by bad weather conditions, this was not sufficient to create problems of scarcity. The rise in the prices of food products cannot be attributed entirely to this cause. In most cases, the increase in money income must have been a factor of equal or greater importance than the relative decline in agricultural production.

Monetary expansion

The statistical series relating to money supply in the Latin American countries during 1949 do not follow a uniform line which permits many generalisations. 2/ The first of these would be that the money supply has increased in all countries for which data are available, except Cuba 3/, Panama and Honduras, where, due to their monetary systems, the money supply follows closely changes in the balance of payments. The second generalisation possible is that in those countries where the money supply increased, its rate of increase was substantial; only in Uruguay was it less than 10 per cent. It was more than 17 per cent in ten countries, reaching 70 per cent in Paraguay and 24 per cent in Argentina. In the last three or four years only a few countries show a uniform development as regards money supply. Cuba, however, is among them, showing a constant drop in the rate of increase, which culminates in a net drop in 1949, as is also the case in Panama. In Paraguay, on the

1/ See Table 2.
2/ See Table 3.
3/ The estimates for the money supply in Cuba are unsatisfactory. The statistics show an increase in the money supply of 5.3 per cent, while it can be assumed that a contraction had taken place.

/other hand.

Table 2. Index numbers of the cost of food and clothing in selected Latin American countries

December 1947 = 100

	1948				1949			
	March	June	Sept.	Dec.	March	June	Sept.	Dec.
Colombia								
Food	95.7	99.2	100.9	104.9	108.7	112.2	115.2	117.4
Clothing	95.3	115.2	116.4	117.4	119.7	121.0	123.0	122.0
Costa Rica								
Food	101.3	101.4	96.3	97.8	97.1	98.2	100.0	106.3
Clothing	98.6	92.1	99.3	107.7	107.4	104.7	104.3	104.4
Chile								
Food	104.1	107.0	116.4	113.4	120.0	124.5	128.1	133.6 a/
Clothing	106.1	106.1	123.9	124.2	132.2	136.0	140.8	150.5 a/
Mexico								
Food	101.2	101.8	104.9	105.0	105.5	107.2	109.7	110.6
Clothing	106.1	107.7	109.7	111.9	114.1	117.0	122.2	124.5
Peru								
Food	101.4	101.7	103.4	108.1	110.3	118.4	126.1	131.0
Venezuela								
Food	111.8	110.2	113.5	111.8	105.9	107.0	106.4	110.3

Sources: Revista del Banco de la República, Colombia; Revista del Banco Nacional de Costa Rica; Estadística Chilena, Chile; Revista de Estadística, México; Boletín del Banco Central del Perú, Peru; International Financial Statistics, International Monetary Fund, Washington, D. C.

a/ October.

Table 3. Money supply : per cent changes in relation to the previous year

	1946	1947	1948	1949 a/
Argentina	+ 29.9	+ 21.4	+ 26.9	+ 24.3
Bolivia	+ 7.3	+ 4.6	+ 27.6	+ 17.2 b/
Brazil	+ 4.1	+ 10.3	+ 9.1	+ 17.4 c/
Colombia	+ 23.4	+ 9.8	+ 16.9	+ 22.0
Costa Rica	- .3	+ 18.8	+ 9.2	+ 23.1
Cuba	+ 17.4	+ 21.1	+ 8.7	+ 5.3 d/
Chile	+ 26.9	+ 21.1	+ 14.0	+ 19.5
Dominican Republic	+ 16.0	+ .8	+ 6.7	+ 25.2
Ecuador	+ 11.0	- 12.9	+ 6.5	+ 10.4
El Salvador	- .8	+ 5.4	+ 3.8	+ 17.7
Guatemala	+ 10.9	+ 1.2	+ 6.6	+ 4.7
Haiti	+ 7.6	- 22.7	-	-
Honduras	+ 8.2	- 3.3	+ 5.8	- 1.1
Mexico	- 3.2	+ .3	+ 13.8	+ 11.3 e/
Nicaragua	- 12.1	+ 14.2	+ 10.0	+ 26.4
Panama f/	- 13.7	- 10.9	- 11.0	- 17.2
Paraguay	+ 16.1	+ 12.3	+ 45.5	+ 70.0 g/
Peru	+ 26.8	+ 13.7	+ 12.4	+ 12.3 h/
Uruguay	+ 12.5	+ 2.0	+ 11.7	+ 6.9
Venezuela	+ 29.0	+ 9.7	+ 25.8	+ 11.4

Source: International Monetary Fund

a/ End of year figures or for latest month available compared with the same month of the previous year.
b/ October
c/ November
d/ November
e/ The series for 1949 is not comparable with those of previous years
f/ Deposits only
g/ June
h/ November

other hand, there is a progressive intensification of the increase.

In a few cases (Colombia, El Salvador, Mexico and Venezuela), the increase in money supply reflects the improvement in the country's international assets; in other countries internal factors were of greater significance in determining the expansion of the money supply. However, there is no means of ascertaining which of the two main domestic factors of monetary expansion predominate: credits to business and individuals, or credits to Government and official entities (deficits of public bodies financed by the banking system). Nevertheless, in absolute terms the prevailing factor has been credit to business and individuals. (See Table 4).

Government expenditure has continued to increase, in some cases mainly as the result of greater investments in development, and in others due to increases in the salaries of civil servants.[1] Fiscal reforms were frequent in 1949, for both direct and indirect taxes, but on many occasions they were insufficient to cover the increased expenditure, and the Governments had to resort to the banking system to cover the deficit. If the expenditure of the Central Government is added to that of official entities (and the dividing line between them is at times very faint), there are few countries which show any notable improvement. Nicaragua and Mexico are possibly the countries where, in relative terms, the situation has improved most; there was no news of a budget deficit in Mexico in 1949, for the first time in many years, and the financing of credits and investments of official entities by the Central Bank has practically ceased. The situation in Colombia, the Dominican Republic and Guatemala, for example, also improved in comparison with the preceding year; on the other hand, among others with a lower surplus than in 1948, in Venezuela, Brazil, Ecuador and Uruguay the situation was less favourable.

However, in the majority of the countries, the budget deficits in 1949, excluding autonomous bodies, have not caused any great increase, in relative terms, in the money supply [2].

1/ See Table 5.

2/ The Governments' resort to the banking system, that is the extent to which the deficit contributed to the money supply, cannot always be clearly inferred.

/This is

Table 4. Money supply and bank credits in Latin America

(In millions of domestic currencies)

Countries	Years	Money supply	Credits of the banking system				Credits of Central Bank to banking system
			To Government and official bodies			To business and individuals	Total	
			Government	Official bodies	Total			
Argentina	Dec. 1947	16,267	4.463	4,294	8,757 c/	10,921	19,678	13,737 e/
	1948	† 6,238	- 82	† 2,384	†2,302	† 5,532	† 7,734	5,158
	1949	† 5,475	..	..	..	† 3,663	† 3,663	† 5,131
	1950	..	..	..	..	..	..	† 37
Bolivia	Dec. 1947	2,619	1,094	337	1,431	948	2,379	69
	1948	† 724	† 413	† 55	† 468	† 278	† 746	- 1
	1949	† 355 b/	† 202 d/	† 52	† 254	† 215	† 469	† 96 f/
	1950	..	..	..	..	..	..	..
Brazil	Dec. 1947	44,410	2,540	1,650	4,190	41,630	45,820	1,010
	1948	† 4,020	- 410	† 30	- 380	† 4,230	† 3,850	† 710
	1949	† 8,750	† 1,920	330	†1,590	† 8,390	† 9,980	† 170
	1950	..	† 440	† 130	† 570	..	† 570	† 160
Colombia	Dec. 1947	641	103	38	141	440	581	109
	1948	† 108	† 28	† 4	† 32	† 75	† 107	† 36
	1949	† 165	† 8	† 9	† 17	† 58	† 75	† 29
	1950	† 23	† 1	- 19	- 18	† 16	- 2	- 66
Costa Rica	Dec. 1947	188	29	30	59	142	201	49,5
	1948	† 17	† 25	- 4	- 21	† 4	- 17	† 14.2
	1949	† 47	† 17	† 8	† 25	† 22	† 47	† 18
	1950	† 14	..	..	..	† 1	† 1	- 12.2
Cuba	Dec. 1947	941	-	-	-	174	174	-
	1948	† 82	-	-	-	† 21	† 21	-
	1949	† 55	-	-	-	- 3	- 3	-
	1950	..	..	..	-	..	..	-
Chile	Dec. 1947	11,642	3,201	1,090	4,291	11,466	15,757	1,249
	1948	† 1,633	- 296	† 277	- 19	† 3,616	† 3,597	† 513
	1949	† 2,583	- 199	† 378	† 179	† 3,582	† 3,761	† 878
	1950	- 284	..	..	..	- 475	- 475	† 18

Ecuador	Dec.	1947		613		104		44		148		634		782		12				
		1948	†	40	-	52	-	3	-	55	†	146	†	91	†	51				
		1949	†	68	-	1	†	1		-	†	70	†	70	†	153				
		1950	-	12	†	12	†	1	†	13	†	4	†	17	-	14				
El Salvador	Dec.	1947		85		3,35		..		..		50		..	-	9.85				
		1948	†	4	-	0.58		..		..		..		..	-	1,09				
		1949	†	15	-	0.10		..		..	†	2		..	-	2,27				
		1950	†	23		..		..		..	†	3		..	-	3,16				
Guatemala	Dec.	1947		51		3,60		..		..		23,3		..		3,7				
		1948	†	4	†	,50		..		..	†	7.0		..	†	1.9				
		1949	†	2	†	6,70		..		..	†	8,0		..	†	2,2				
		1950	†	2	†	,90		..		..		..		..	-	.7				
Honduras	Dec.	1947		42,36		..		..		..		15.9		..		-				
		1948	-	1.92		..		..		..	-	0.4		..		-				
		1949	†	.45		..		..		..	†	2.8		..		-				
		1950	-	1.54		..		..		..		..		..		-				
Mexico	Dec.	1947		3,496		..		..		..	†	131.0		..		..				
		1948	†	453		..		..		..	†	286		..		..				
		1949 a/	†	493		..		..		..	†	218		..		..				
		1950		..		..		..		..		..		..		..				
Nicaragua	Dec.	1947		81		36.5		6.6		43.10		45.7		88.8		21.1				
		1948	†	9	-	5	†	3.2	-	1.8	†	18.9	†	17.1	†	17.8				
		1949	†	23	†	7.4	†	3.7	†	11.10	†	0.4	†	11.14	-	7.0				
		1950	†	4	†	3.3	†	2.9	†	6.2	†	4.8	†	11.0	-	.2				
Panama	Dec.	1947		32.6		..		..		..		44.8		..		-				
		1948	-	3.6		..		..		..	†	1.2		..		—				
		1949	-	5.0		..		..		..	†	1.0		..		-				
		1950		..		..		..		..		..		..		-				
Paraguay	Dec.	1947		65.7		46.0		..		..		43.8		..		17.0				
		1948	†	29.9	†	27,5		..		..	†	11.3		..	†	48.6				
		1949		..	†	25.6		..		..		..		..	†	39.1				
		1950		..	-	1.1		..		..		..		..	†	1.8				
Peru	Dec.	1947		1,583		628		170		798		1,015		1,813		112				
		1948	†	197	†	47	-	19	†	28	†	177	†	205	†	6				
		1949	†	138	†	97	-	6	†	91		..		..	†	56				
		1950	-	53	-	13		..		..		..		..	†	1				
Dom. Rep.	Dec.	1947		40		14.78		0.71		15.48		8		23.48		-				
		1948	-	3	†	5.16	†	0.05	†	5.21	†	7	†	12.21		-				
		1949	†	9	†	2.80	-	0.09	†	2.71		..		..		..				
		1950		..	†	0.44	-	0.03	†	0.41		..		..		..				

Continuation

Table 4. Money supply and bank credits in Latin America

(In millions of domestic currencies)

Countries	Years	Money supply	Credits of the banking system			Credits of Central Bank to banking system
			To Government and official bodies		To business and individuals	
			Government	Official bodies	Total		
Uruguay	Dec. 1947	503	28.60	113.00	141.60	421	526.60	17.4
	1948	† 59	† 19.00	† 45.60	† 64.60	† 56	† 120.60	† 1.2
	1949	† 39	† 47.50	† 25.10	† 72.60	† 16	† 88.60	- 7.1
	1950	† 6	† 4.70	- 2.20	† 2.50	..	..	- 0.8
Venezuela	Dec. 1947	1,097	5.00	1.00	6.00	497	† 503.00	34
	1948	† 283	- 2.00	† 40.00	† 38.00	† 118	† 156.00	.. g/
	1949	† 157	- 1.00	- 14.00	- 15.00	† 97	† 82.00	..
	1950	- 38	† 2.00	† 74.00	† 76.00	† 31	† 107.00	..

Source: International Monetary Fund.

a/ The series for the last quarter of 1949 is not comparable to earlier data.
b/ In October.
c/ Data are available only until June 1948.
d/ In November.
e/ The data for Argentina have a different meaning compared to other countries due to the peculiarities of its banking system.
f/ In November.
g/ Did not operate in 1949.

Table 5: Government expenditure in 1947-1949 and budgeted expenditure for 1950

(In millions of domestic currencies)

	1947	1948	1949	1950 Budget
Argentina	4,135	6,948	8,396	7,486
Bolivia	1,306	1,985	2,125	..
Brazil	13,393	15,695	16,399	18,775
Chile	9,611	13,027	15,416	15,650
Colombia	364	412	384	422
Costa Rica	93	118	123	117
Cuba a/	266	241	206	216
Dominican Republic	73	89	67	73
Ecuador	725	775	..	..
Guatemala	37	52	51	..
Haiti	60	84	67	..
Honduras	21	26	27	20
Mexico	1,667	2,404	2,550	2,746
Nicaragua	82	73	55	..
Panamá	39	35	32	..
Paraguay	51	70	72	113
Peru	935	1,051	1,280	1,645
Uruguay	232	263	289	..
Venezuela	1,297	1,644	1,886	..

Sources: Official data or those published by international organisations.

Note: Data for some countries are for calendar years and in other cases for fiscal years ending during the calendar year stated.

a/ Receipts.

This is one of the causes of inflation in Latin America the importance of which has tended to be over-estimated in 1949, or else excessive generalisations have been made, because the cases where it has occurred stand out, owing to the relative importance of the countries concerned.

In order to finance increases of credits to business and individuals, some banking systems used the larger deposits resulting from the increases of international assets. However, failing an increase in international assets, most of them, in addition to using the larger deposits resulting from the financing of budget deficits, had to resort to the central banks for loans and re-discounts. The following cases of central bank credit expansion in favour of the banking system were of particular importance in 1949: Bolivia, with an increase of 145 million bolivianos (in 10 months); Chile, with an increase of 878 million pesos; Ecuador, with an increase of 153 million sucres, and Peru, with one of 56 million soles 1/. All these represent increases of importance or a reversal of the previous year's trend. Brazil, Guatemala and Mexico are among the countries where, in 1949, the recourse of the banking systems to the Central Bank was of slight importance. However, the first, owing to the fact that the Bank of Brazil itself was the main force in monetary expansion, providing sufficient means to other banks with which to finance the credit expansion carried out by them. In Colombia the expansion of credit was progressively weakening, the increase having amounted to 75 million pesos in 1947, 37 million in 1948 and 28 million in 1949, while in El Salvador, Nicaragua and Uruguay there were net decreases of credit.

Such a generalised process of monetary expansion as shown above, becomes more important when taking into account that in all Latin America an anti-inflationary attitude has arisen, partly as a result of the political and social repercussions provoked by the price increases, and partly by the desire to put an end to the pressure on the balance of payments. Nevertheless, intentions to stabilize and the better

1/ In the Argentine banking system, the significance of the Central Bank's loans to the banking system is different from that of the other countries.

understanding of the problems involved have not been sufficient to alter the basic results. At least this can be inferred from data relating to the money supply. It would appear that fear of the unfavourable consequences which the interruption of monetary expansion provokes in the economic system, is stronger than fear of the undesirable effects of the expansion itself. As a result of this, the degree of success in the efforts made at times can only be measured by the slowing-down of the expansion.

Some of the attempts to control the volume of credit made during the period under study were abandoned, at least partially, during that time. Thus the Peruvian Superintendencia de Bancos (Superintendency of Banks) again lowered the legal reserve requirements of the commercial banks to 15 per cent and 6 per cent for sight and savings deposits, respectively, apparently as a result of the improvement in the exchange situation and pressure from the Chambers of Commerce.

As a result of the difficulty of establishing quantitative restrictions, a greater emphasis was laid on selective or qualitative credit controls, at times in the sense of redistributing the total existing credit in order to make it more productive. This was achieved by giving a greater proportion of credit to productive activities, and a smaller to commerce or to semi-speculative activities. At other times an effort would be made to see that future expansion be directed towards aims considered more desirable. In order to achieve this, it was at times necessary to reform legal rules or regulations in the sense of extending the terms for which commercial banks were allowed to grant credits, and to offer them special re-discount facilities for this purpose. The case of Mexico, with an already old-established experience in such attempts, is perhaps the most typical of efforts at qualitative control: since September 1949 the banks have had to maintain a legal reserve of 100 per cent on any increase in their deposits, unless they loan or invest for agricultural aims at medium or long terms. In Colombia the banks were authorised to maintain up to 10 per cent of their sight deposits

/in medium-term

in medium-term credits (up to five years). On other occasions attempts at selective control have been made through using the moral suasion of the central banks. In every case the commercial banks opposed a change in the composition of their portfolio, which in times of currency expansion tends, in Latin America, to specialise in credits for working capital (accumulation of inventories) since such loans are more liquid and profitable.

Evidence that the monetary authorities have been duly impressed by the unfavourable consequences of monetary expansion, lies in the fact that in the coffee-growing countries of Latin America, the rise in the price of coffee and the consequent improvement in the balance of payments, has not been the signal for relaxing the efforts to control credit. In countries like Costa Rica and Guatemala, a constant concern to avoid expansion can be clearly seen; in Colombia, the increase in credit has on the whole been arrested since the rise in the price of coffee (between December 1948 and October 1949 credit increased by 80 million pesos, and between that last date and the end of January 1950, it declined by 18 million pesos, this drop not being entirely due to seasonal reasons). In Brazil, the increase of credit to business and individuals followed a uniform rate throughout 1949, that is, it did not expand at a greater rate after the increase in the price of coffee.

Undoubtedly, the most effective means of selective credit controls in Latin America, although not as a substitute (with the possible exception of Mexico) for commercial banking credit, but superimposed on this, is the use of specialised governmental agencies. These operate sometimes with budgetary funds, and at other times with loans and investments of the Central Bank, and more often with both, as well as international loans. For this reason, in the field of economic development, it is not possible to dissociate the action of autonomous credit and investment agencies from the action of the Governments as such. Both are interwoven and interchangeable, constituting a whole, that is, the plans for development.

Development plans

In almost all cases, during 1949 and the beginning of 1950, development plans reflect changes in foreign trade and the balance of payments in general. Some of these changes called for a greater emphasis on the development of production for export. On other occasions the expansion of expenditure had to be slowed down or a greater reliance had to be placed upon foreign loans. Generally, a greater effort may be noted than in previous years in the concentration of efforts on specific sectors. However, this is true in relative terms only, since it is also obvious that the difficulties of foreign trade have not reached the extreme of causing the basic development plans to be abandoned. Even those countries which are most conscious of the pressure on their balances of payment of development expenditures which do not result in rapid increases in production, have continued such outlays, prompted by long-term considerations.

In Argentina, particularly during the last few months, interest has been directed towards agriculture, since the problem of the alternate use of human resources is more obvious there than in other Latin American countries. The efforts to industrialise have created a problem of relative shortage or, in some districts, of excessive increase in the cost of agricultural labour, as well as a decrease of the cultivated area. This problem reached such proportions recently that it has drawn the attention of the government. The revision, early in 1950, of the policy of prices paid to farmers, putting a premium on increases in production [1], together with the devaluation of the peso, imports of equipment for the mechanisation of agriculture and a reduction of allocations to the autonomous bodies, indicate the relative change in direction of Argentine development plans.

1/ The Government has fixed for 1950 a consistent goal in increasing the area sown with wheat by 25 per cent and the area sown with maize by 50 per cent.

/ In Mexico

In Mexico, the general tendency to reduce temporarily the rate of industrial development was noted before it became evident in Argentina and was more marked than in the latter country. Furthermore, in Mexico industrial development depended to a certain extent on international loans which is not the case in Argentina. The plans for electrification and improvement of transport continue to progress with budget allocations supplemented by such loans. Owing to a lack of the latter, the increase in petroleum production is slow but continuous. Greater confidence in the currency, as a result of the stabilisation of the rate of exchange, permitted the Nacional Financiera, that is, the official industrial development organisation, to place among the public bonds and shares amounting to 150 million pesos. In this way, the Nacional Financiera was able to expand its operations to a certain extent through voluntary savings. In spite of this, the overall rate of industrial production was slower in 1949 than in previous years. Highways and irrigation formed the substance of economic development financed from domestic sources, together with the encouragement to agricultural production by means of credit, which it is desired to expand without inflationary consequences. The main difference between the Argentine and Mexican programmes lies perhaps in the fact that in the latter, agriculture receives more direct assistance in the sense that the sums from official sources assigned for that purpose are relatively greater.

In Chile, the Corporación de Fomento de la Producción (Production Development Corporation) has been receiving for the fulfillment of its programmes, in each of the last three years, a sum almost equal to the total allocations during the preceding nine years (1939-47), that is, slightly under 1,500 million pesos [1]. Foreign loans in 1949 played the same substantial role in the Corporation's programmes as during previous years. Electric power and petroleum are the two activities which accounted for most of the Corporation's expenditure. But it is evident both from the number of technical surveys which have been carried out in the last few months, as well as from public statements,

1/ Undoubtedly, with the rise in costs, an equal amount in the terms of pesos means a drop in real terms.

that agriculture is now receiving very preferential attention. In 1949 the premiums on the export of agricultural products, by means of preferential exchange rates, continued in force, and the credit operations of the Caja de Crédito Agrario (Agrarian Credit Institution) and the Caja de Colonización Agrícola (Agricultural Colonisation Institution) increased by slightly more than 300 million pesos; moreover, the Instituto de Economía Agrícola (Institute of Agricultural Economy) was in charge of a price support programme, and as a result became the main purchaser of wheat (particularly at the beginning of the year). The success of these efforts has been temporarily checked by a poor agricultural year, to judge from the preliminary estimates for the 1949-50 harvests. According to these estimates the production of wheat (8.8. million quintals) will be 20 per cent less than that for the previous year. Similarly, a drop (of 27 per cent) is expected in 1950 for the production of oats, as a result of lower yields. In the same way, market garden produce (beans, peas, chickpeas, lentils, etc.) showed a marked tendency to decline in 1949.

In Brazil , which has no specialised institutions such as exist in other Latin American countries, the development efforts in the last few months follow the outlines of the SALTE Plan to a certain extent, and the budget deficits of 1948, and above all, 1949, indicate the effort involved in its fulfilment. Increases in agricultural production in 1949, in almost all branches, are in accordance with the trends of the economic policy outlined by this Plan.

The development plans of Venezuela have not been restricted by any exchange shortage. With ample budget funds to carry out the work without inflationary consequences, the country in 1949 continued to develop the plans made by the Corporación de Fomento (Development Corporation) since its creation (no new ones having been published), with minor changes of emphasis in some of them. Thus, the rate of progress of the main colonisation plan (of "El Cenizo") has been reduced, and the policy of credit to farmers already established broadened, particularly for the production of rice, in which Venezuela hopes to achieve self-sufficiency. With regard to sugar, the plans of the Development

/ Corporation began

Corporation began to materialise in 1949, with a definite increase in production. The programme for installing motors in fishing vessels also followed its course (in 1948 it reached the figure of 1000 vessels), as well as the conditioning of ports for these. Among other programmes which began to bear fruit was that for the construction of silos, various units being finished, as well as that for producing building materials, when the installation of a brick factory was completed. In general, Venezuelan Development Corporation made satisfactory progress in the majority of the numerous fields in which it is engaged, and to this must be added the Government's work as such in non-reproductive development activities.

In countries whose activities in the field of economic development under official auspices are more recent, the criterion of selectivity which was already patent in previous years was intensified. Until recently, the idea of official banking institutions in these countries was rather to substitute cheaper credit for expensive private credit. There were, however, no great efforts on the part of official credit to determine which activities it would be more convenient to stimulate from a national point of view. In some of these countries new entitities were created, and began to function, while in others the necessary legislation for their establishment was approved. Although of little quantitative importance, these entities are of interest in that they indicate the recent trends of the institutional basis of Latin American economy.

In Guatemala, the Instituto de Fomento de la Producción (Production Development Institute) acted as an agricultural bank to a considerable degree during its first year of life (1949), because it was still not in a position to devote itself to investment tasks, which were more within its field. The Institute's plans for 1950, however, include (apart from an expansion of its credit operations for small farmers) the construction of silos, two housing projects and the creation of agricultural mechanisation centres (sales of machinery to farmers on an instalment plan). Although Guatemala's foreign exchange reserves

/have diminished

have diminished during the last few months, balance of payments considerations have not yet acted as a brake on the development programmes.

In Ecuador, until 1948 the only official development organisations were the Bancos de Fomento (Development Banks) created in 1944 through adding the branches of the old Central Bank to the Mortgage Bank. At the beginning of 1949 the Production Development Institute was created, a planning body which carries out its work through the Development Corporation and the system of Development Banks. The first is in charge of investments and the second of credit. By the beginning of December 1949, the Institute had spent 27.4 million sucres, had 56.3 millions for other purposes and had a free balance of 9.5 millions. However, the capital of the Institute did not reach the amount projected (150 million sucres), and for that reason the Corporation in 1950 will only have 22 million sucres, which it intends to invest in nineteen different projects. Of these, the projects which will absorb most funds are experimental stations (2 millions), development and cultivation of coffee (3 millions), cement institute (5 millions), and two electric plants (3 millions). The operation of the Development Banks reveals the direction of credits towards banana production instead of rice, leading to an increase in exports of the former commodity, as is shown by figures for the first months of 1950. The Institute itself has been functioning for too short a time for positive results to be evident; its many projects, however, are in active execution.

The Banco Nacional de Fomento of Honduras (National Development Bank), which is still in the organisational stage, is the latest creation of its type in Latin America. It will function with two departments, one for credit and the other for investments. The greater part of its available funds, in addition to its original capital, accumulated over a series of years on the basis of the receipts from an exchange surcharge, will in future be derived from the recently created income tax.

Two examples will serve to underline the direction of the development programmes and aims in Latin America in the last few years; the Cuban loan project and the loans received from the Export-Import Bank.

In Cuba, in the second half of 1949, Congress authorised the

/Government to

Government to contract a loan for 200 million pesos, to be allocated to seven groups of projects for economic development [1]. In turn, the loans received by Latin America from the Export-Import Bank underline the great importance of the construction of highways, railways and ports, that is communications, followed by the steel industry (only in three countries, Brazil, Chile and Mexico), and electric power. These three groups accounted for 71 per cent of all the loans used until the end of 1949, with loans for the establishment of industrial plans accounting for slightly over 10 per cent of the total. It should be pointed out, however, that the concentration of loans on certain activities may to a certain extent be due not only to the relative preference for the development of these, but partly to the fact that these were the activities for which loans could be obtained. [2]

1/ These projects refer to: "(a) The construction of feeder roads and highways to link centres of production with those of consumption, and consumption centres with places at present closed to agricultural activity through the lack of means of access; (b) the improvement of ports, in order to leave them in a condition to yield the greatest benefit as maritime terminals for loading and unloading; (c) the construction, completion and improvement of aqueducts and sewage, in order to attain a higher level of production through better human health; (d) to increase agricultural wealth through the construction of canals and financial and other assistance to new agricultural industries; to increase fisheries and the preservation of the catch through the construction of cold storage; (e) the development of the processing industries through the creation of an Industrial Credit Bank; (f) improvement of cheap housing and its extension to the whole country; (g) the development of tourism".

2/ Data on credits extended by the Export-Import Bank to the Latin American countries and their utilization are contained in Appendices A, B and C.

/Balance of

Balance of payments and reserves

The figures for the balance of payments between the United States and Latin America, plus the known trends of events in 1949, indicate changes in the total balance of Latin American payments in comparison with 1948, for which, however, it is not yet possible to make quantitative estimates.[1] These changes are: first, a heavy reduction in Latin America's surplus on trade account, and second, a relatively large drop in Latin American payments for the servicing of foreign investments, a drop which was accentuated by the difficulties which some investing countries encountered in withdrawing the profits earned by their investments in Argentina. No substantial changes have probably occurred in the other items of the current account. In the capital account, the most notable fact is the considerable drop in the amount assigned to repatriation of the Latin American external debts with Europe, which from the high levels of 1948 (probably over 650 million dollars) contracted to slightly over 100 million, consisting mainly of the purchase of foreign investments made by Brazil and Uruguay as well as by Mexico's payment of its petroleum debt installment and the gradual amortization of other debts by different countries. At the same time, Argentina and Brazil have liquidated part of their commercial indebtedness for an amount which, while not known, is believed to be important, plus lesser sums liquidated by Colombia. The banking data show, in general, a decline in the credits granted by North American exporters to Latin America, a decline which to a certain extent resulted from the contraction in imports from the United States, but also to greater promptness in effecting payments. Another significant change has been the cessation of trade credits previously granted by Latin America to Europe, which reached 500 million dollars in 1948. In 1949 part of these granted in the previous years had been used. By the end of April 1950 France will have liquidated its debt with Argentina, and the trade of the latter with Italy suggests a similar situation. At the same time, the data available for the utilization by Argentina of sterling balances show a drop equivalent to 80 millions dollars between February and May 1949. There has been no change in the amounts of official United States loans to Latin America, which are 42 million dollars in both years.

1/ See Table 6.

Table 6. Balance of payments of the Latin American countries with the United States, 1946-1949

(In millions of dollars)

Items	1946	1947	1948	1949
Merchandise and services				
Trade balance	- 252	- 1,574	- 585	- 264
Net financial services	- 332	- 395	- 488	- 368
Miscellaneous	- 53	- 35	- 27	- 10
Surplus or deficit on current account	- 627	- 2,004	- 1,100	- 642
Unilateral transfers and capital movements				
Unilateral transfers	50	33	- 37	- 25
Long-term capital movements	- 25	410	- 303	418
Total	25	443	- 340	- 443
Final surplus or deficit	- 602	- 1,561	- 680	- 199
Modes of payment				
Increase or decrease (-) of gold holdings	- 167	- 809	- 179	136
Increase or decrease of short-term net assets of Latin America in the United States	66	- 151	- 127	326
Payments to the U.S. a/	- 501	- 601	- 654	640

Source: Department of Commerce of the United States, The Balance of International Payments of the United States, 1946-1948; International Transactions of the United States, by Areas, 1949, Washington, D.C.

Note: For earlier years see Table 97 of the Economic Survey of Latin America, 1948, United Nations Economic Commission for Latin America, Lake Success, New York, 1949.

a/ With dollars obtained from other countries or payments to third countries with dollars derived from the net balance with the United States. Includes errors and omissions.

Latin America's international assets at the end of 1949 were approximately 3,090 million dollar equivalents [1], in comparison with 3,249 million dollars at the end of 1948. This drop is only half that for 1948, when they had declined by 320 million dollars. At the beginning of 1950 there was an upward trend in the reserves of coffee-growing countries, and several others. The only pronounced drop registered until the end of March is that of Venezuela, amounting to 53 million dollars. (See Table 7).

The drop of some 150 million dollars in international assets in 1949, contrasts with an increase of 310 million dollars in Latin American holdings of gold and dollars [2] from 2,744 million dollars at the end of 1948 to 3,054 million dollars at the end of 1949. A substantial part of these holdings should not be considered as part of the monetary reserves, but it does indicate a general improvement in the position of the countries as regards hard currencies, as well as the fact that the decline in soft currency holdings was more pronounced than the total decrease in reserves. Although there are no precise data concerning the composition of international assets according to currencies, the comparison of data on holdings (official and private) of gold and dollars with those relating to reserves suggest that the drop of 61 million dollars in the Argentine reserves was produced through a decline of some 120 million dollars in the holdings of currencies other than dollar since dollars and gold increased by 59 million. Similarly, the drop of some 60 million dollars in Brazil's international assets (figures for the beginning of September 1949) was produced also through a drop of approximately 130 million dollar equivalents in the holdings of exchange other than the dollar (since dollar exchange and gold increased by 70 millions) [3].

1/ This figure is based on an estimate in which the same method of computing was not followed for all the countries.

2/ In the first quarter of 1949, there was a drop of 23 million dollars in the gold and dollar holdings of Latin America, while in the last quarter the rise was 189 million dollars.

3/ These calculations are subject to an appreciable margin of error, since the comparison is made between figures for official reserves and figures on gold and foreign exchange on deposit in the United States by foreign residents, regardless whether these deposits are official or not.

/The international

Table 7. International assets of Latin America

(In millions of dollar equivalents)

	1946	1947	1948	1949 a/	1950	
Argentina	1,696	1,071	808	747 b/	734	February b/
Bolivia	34	31	31	29	..	
Brazil	760	785	757	620	..	
Chile	69	56	53	43	54	March
Colombia	176	111	84	111	128	February
Costa Rica	2	5	5	5	10	March
Cuba c/	489	625	583	547		
Dominican Republic c/	35	30	25	22	25	February
Ecuador	37	27	28	26	26	March
El Salvador	29	29	30	37	40	March
Guatemala	47	49	45	36	38	March
Haiti d/	17	14	9	7	..	
Honduras e/	34	29	32	31	29	March
Mexico f/	262	126	62	125	..	
Nicaragua	6	5	3	4	4	February
Panama g/	60	53	48	42	..	
Paraguay	11	9	6	3	4	March
Peru h/	13	7	13	16	11	January
Uruguay	291	255	241	216	230	January
Venezuela	252	255	386	445	392	March
Total	4,320	3,572	3,249	3,112		

Source: International Monetary Fund

a/ Figures for 1949 are for the end of December with the following exceptions: Bolivia - August; Brazil - September; Cuba - November; Haiti - October

b/ Gold holdings have been converted at the rate of 3.04 pesos per dollar and foreign exchange at the rate of 3,545 pesos per dollar. For 1946 and 1947 data of the International Financial Statistics (International Monetary Fund) have been used.

c/ Includes dollar assets of the commercial banks

d/ Includes foreign exchange assets of the National Bank and the estimated total of United States currency in circulation

e/ Includes all visible international assets of the country

f/ Estimate based upon official data

g/ Deposits in banks in Panama only

h/ According to series published by the Central Bank which excludes liabilities.

The international assets of the Latin American countries totalling over 3 million dollars in 1949, compare favourably with total imports to a value of 5,400 million dollars. This average ratio of 55 per cent, however, conceals very unfavourable situations of certain countries such as that of 9 per cent for Paraguay, 10 per cent for Peru, and 11 per cent for Costa Rica. Nor is the ratio for some countries always indicative of their true position. Thus in Argentina the proportion of reserves to imports was 69 per cent in 1949 as against 60 per cent for 1948, but this result was only achieved by means of a very strict exchange control, and does not therefore reflect a real improvement in the situation. The same could be said of Colombia or Nicaragua where the improvement is partly the result of the tightening of exchange controls during the first half of the year. Nevertheless, in 1949 there were certain drops in reserves both in absolute terms and in their relation to imports, in spite of the existence of import controls. This was the case of Brasil, Chile and Paraguay. Among countries without exchange controls, the relative position improved in Cuba, El Salvador, Honduras, Mexico, the Dominican Republic and Venezuela, that is, in all except Guatemala and Haití. (See Table 8).

In absolute terms the most important decline in international assets was that of Argentina and Brazil, followed by Cuba, which are higher than the total decrease in Latin America. This was due to the drop in the value of exports and also to the purchase of British assets (Brazil), as well as the payment of accumulated commercial debts (Argentina and Brazil). The greatest increase, both in absolute and relative terms, was perhaps that of Mexico, followed very closely by Venezuela, and then by Colombia, where the increase was considerably lower. The reserves of these three countries increased altogether by some 150 million dollars. There are several countries which show a continuous loss of international assets in the last few years. Venezuela and El Salvador are the only ones which show an uninterrupted rise, although in the case of Venezuela, there was a tendency for this to disappear; at the beginning of 1950 a marked decline took place in the latter country's assets.

/International trade

Table 8. Ratio between the Value of Imports and International Assets of the Latin American countries

(Based upon data calculated in dollar equivalents)

	1947	1948	1949
Argentina	80	60	69
Bolivia	52	45	37
Brazil	64	66	55
Colombia	30	25	42
Costa Rica	10	11	11
Cuba	111	102	111
Chile	21	19	14
Ecuador	52	53	49
El Salvador	78	73	90
Guatemala	86	66	51
Haiti	52	28	22
Honduras	91	76	86
Mexico	18	11	27
Nicaragua	21	11	16
Panama	61	69	60
Paraguay	36	22	9
Peru	4	8	10
Dominican Republic	52	34	50
Uruguay	119	120	120
Venezuela	41	50	57

Source: International Monetary Fund.

International trade

In the last few months, events in the field of foreign trade emphasised its importance for Latin American economies more than in previous years. That is to say, the reality of its decline in some cases and the danger of it in others, were factors of great importance for Latin American economic policy. To an increasing degree this policy has concentrated upon the maintenance of exports while the realisation of their importance as a source of employment was revived together with the notion of the necessity of imports for the preservation of the standard of living and the provision of the basic elements for its subsequent improvement. In 1948 the value of exports reached such a high level (6,500 million dollars) that attention was preferably focussed on the need for protection against excessive imports, brought about by the high levels of money income and stimulated in some cases by the inflationary process. In 1948 only five countries showed lower exports than the previous year, and of these five, the greatest drop, in absolute and relative terms, was that experienced by Cuba (amounting to 49 million dollars); however, with exports amounting to 720 million dollars, the country was still in a privileged position. In the other countries which suffered a drop in the value of their exports in 1948, it was insignificant. In 1949, on the other hand, the value of exports dropped to approximately 5,570 million dollars, that is by more than 900 million dollars in comparison with 1948, eleven countries being affected, the drop in some cases being considerable. Thus, Argentina had a drop of over 600 million dollars, Cuba, of over 100 million dollars, Chile, of almost 30 million dollars, and Venezuela of some 70 million dollars. Furthermore, in several of the countries which managed to maintain the value of their exports there were, during the year, justified fears of a change in the situation. These fears disappeared in the second half of 1949 in the case of the predominantly coffee-growing countries. (See Table 9).

In spite of such a substantial drop in the value of exports, Latin America's trade balance was not negative in 1949. However, the export

/surplus of

Table 9. Foreign trade of the Latin American countries, 1947-1949

(In millions of dollar equivalents)

Year	Exports (FOB)	Imports (CIF)	Balance	Exports (FOB)	Imports (CIF)	Balance
	Argentina				Haiti	
1947	1,614	1,345	+ 269	31	27	+ 4
1948	1,602	1,343	+ 259	31	32	- 1
1949	975 a/	1,080 a/	- 105	31	31	0
	Bolivia				Honduras	
1947	81	60	+ 21	28	32	- 4
1948	103 b/	69 b/	+ 34	35	42	- 7
1949	105 c/	78 b/	+ 27	20	37	-17
	Brazil				Mexico	
1947	1,145	1,232	- 87	408	693	-285
1948	1,173	1,134	+ 39	460	550	- 90
1949	1,098	1,116	- 27	453	441	+ 12
	Colombia				Nicaragua	
1947	255	365	- 110	13	24	- 11
1948	290	336	- 46	19	27	- 8
1949	305	256	+ 49	15	24	- 9
	Costa Rica				Panama	
1947	23	48	- 25	9	87	- 78
1948	32	42	- 10	10	74	- 64
1949	30	45	- 15	11	74	- 63
	Cuba				Paraguay	
1947	773	564	+ 209	21	25	- 4
1948	724	569	+ 155	28	27	+ 1
1949	610 c/	487 b/	+ 123	32	32	0
	Chile				Peru	
1947	277	266	+ 11	147	168	- 21
1948	328	269	+ 59	157	168	- 11
1949	299	303	- 4	152	167	- 15
	Ecuador				Dominican Republic	
1947	44	52	- 8	83	58	+ 25
1948	41	53	- 12	82	72	+ 10
1949	28	52	- 24	74	47	+ 27
	El Salvador				Uruguay	
1947	40	37	+ 5	163	215	- 52
1948	45	41	+ 18	178	200	- 22
1949	55	42	+ 16	192	184	+ 8
	Guatemala				Venezuela	
1947	52	57	- 5	692	625	+ 67
1948	50	68	- 18	1,114	768	+346
1949	52	68	- 16	1,040	749	+291

Source: International Monetary Fund.
a/ Estimate partly based on incomplete data.
b/ Estimate based upon data for January-October.
c/ Estimate based upon January-November.

surplus of over 600 million dollars for 1948, was reduced to slightly over 250 million in the past year, in spite of the drop of 570 million dollars in the value of imports, which declined to slightly under 5,300 million dollars. The better equilibrium in the trade balance was achieved at a lower level of international trade.

The total decline indicated is also significant when its division by geographic regions is examined. In the first place, the decline in exports to the United States is very slight (less than 50 million dollars, to a total of 2,300 million, while exports to Europe dropped by almost 800 million dollars (to a total of 1,490 million dollar equivalents)[1/]. That is to say, the drop in exports was almost entirely the consequence of smaller European purchases. On the import side, however, of the total reduction of 570 million dollar equivalents, 450 million correspond to the drop in imports from the United States, while the value of imports from Europe (1,462 million dollar equivalents) was scarcely altered in comparison with 1948. As a result of these changes, which underline the problem of the dollar shortage, the Latin American import balance with the United States, which amounted to 816 million dollars in 1948, was reduced to 398 million in 1949[2/] while the export balance with Europe, from 814 million dollar equivalents in 1948, disappeared almost entirely in 1949.[3/]

The drop in United States exports to Latin America was uneven and significant. In absolute and relative figures, the most important case was that of Argentina, whose imports from the United States dropped from 381 million dollars in 1948 to 129 million in 1949, followed by that of Brazil (a drop from 497 million dollars to 382

1/ According to United States and European figures respectively

2/ According to United States figures, which do not include freight.

3/ According to European figures, adjusted for freights to obtain f.o.b. values for Latin American exports and c.i.f. values for imports.

/million),

million), Cuba, (441 million dollars to 380 millions), Mexico (521 million dollars to 462) and Uruguay (from 60 million dollars to 35). In Latin American exports to the United States, the only country showing a substantial contraction is Argentina (from 180 million dollars in 1948 to 98 million in 1949). No other country suffered any important changes in its exports to the United States (the most important was an increase of 38 million dollars in Brazil's exports). (See Tables 10 and 11).

Modifications worth mentioning also took place in trade relations with Europe. The drop in Latin American exports was general (by percentage the greatest drop was in exports to Switzerland), and in imports, the increase in those from France was particularly noticeable. This is wholly explained by Argentine purchases. On the other hand, the much smaller increase in imports from Great Britain were more widespread. (See Tables 12 and

While the greater demand for dollars in comparison with other currencies has continued, in the course of 1949 and the first few months of 1950, a certain change of degree may be noted. The changes in foreign trade, however, exaggerate this situation, since the drop in Latin American imports of United States products was to a large extent the result of deliberate policies with a view to re-orienting the import trade towards other areas. Thus, the drop in Brazilian imports from the United States from an average of 40 million dollars in May and June of 1949 to an average of 20 million dollars in November and December was due to the control of imports by means of licences. The same was true of Argentina, where it was decided to restrict imports of United States products to 25 per cent of their 1947-48 value, with the result that, according to United States statistics, the drop was 70 per cent in relation to 1948 and 80 per cent in comparison with 1947.

The improvement in the relative position of the pound sterling and other European currencies may be seen, for example, in the increase of the Brazilian deficit with the United Kingdom and in the authorisation given to Brazilian exporters to accept Swedish payments in sterling (except for coffee exports). This can also be seen in the provision contained in the Peruvian-Argentine agreement of August 1949, according to which all Peruvian purchases from Argentina (except those for wheat)

/are to be

Table 10 United States exports to Latin America a/

(In millions of dollars)

	1936-38 (average)	1947	1948	1949	Feb.1950
Mexico	82.5	520.4	521.5	462.4	75.0
Central America	46.5	237.9	239.0	262.7	..
Cuba	78.7	440.9	441.0	380.3	59.8
Argentina	79.3	679.9	380.9	129.1	26.4
Bolivia	4.9	28.3	35.7	36.2	2.9
Brazil	59.9	643.2	497.3	381.9	38.2
Chile	9.3	125.3	105.5	142.2	13.1
Colombia	35.9	218.9	197.3	175.9	28.3
Peru	16.4	91.6	66.5	86.2	9.4
Uruguay	8.9	75.5	60.2	34.6	5.0
Venezuela	40.9	426.8	516.6	518.5	63.1
Total b/	486.6	3,857.8	3,165.6	2,712.4	321.2

Source: International Monetary Fund.

a/ According to United States data.
b/ Includes countries not listed.

Table 11 United States imports from Latin America [a]

(In millions of dollars)

	1936-38 (average)	1947	1948	1949	Feb.1950
Mexico	52.7	246.7	246.2	244.2	49.8
Central America	32.2	119.5	132.1	139.0	..
Cuba	127.1	509.6	375.0	387.5	49.4
Argentina	81.8	154.4	179.9	97.5	37.5
Bolivia	.9	-	48.3	48.5	4.9
Brazil	106.9	445.7	513.9	551.9	97.1
Chile	33.6	122.3	179.1	152.5	22.0
Colombia	48.3	205.5	236.5	241.5	58.3
Peru	12.8	41.7	34.9	40.3	7.4
Uruguay	10.3	37.8	57.7	54.1	16.4
Venezuela	23.0	173.5	270.8	278.7	54.0
Total [b]	524.4	2,149.9	2,351.9	2,303.8	396.8

Source: International Monetary Fund.

[a] According to United States data.
[b] Includes countries not listed.

Table 12 European imports from Latin America

(In millions of dollar equivalents)

	United Kingdom	France	Italy	Belgium-Luxemburg	Holland	Switzerland	Sweden	Other countries 1/	Total
Argentina									
1948	490.97	88.30	179.98	83.66	99.19	88.99	30.34	159.37	1220.8
1949	258.48	39.92	74.89	48.77	56.58	20.75	31.80 a/	89.55	620.7
Bolivia									
1948	37.96	.90	.07	1.51	.24	-	.04	.02	40.7
1949	31.05	2.29	.07	1.34	.09	-	-	.02	34.8
Brazil									
1948	95.67	31.70	33.70	50.73	25.85	22.30	30.88	137.74	428.5
1949	86.16	32.23	22.49	42.06	16.36	10.88	33.61 b/	102.19	345.9
Colombia									
1948	2.26	.90	.67	3.78	.80	1.28	3.58	.68	13.9
1949	.56	5.81	.93	3.78	1.35	.95	3.95	.31	17.6
Cuba									
1948	119.21	27.80	13.63	10.84	19.86	14.85	2.73	162.84	371.7
1949	82.82	18.67	1.88	4.04	21.31	5.11	.20 c/	21.83	155.8
Chile									
1948	31.60	25.50	14.39	3.37	5.04	6.33	2.71	12.80	101.7
1949	28.42	27.55	9.82	4.63	2.48	4.00	4.31	15.99	97.2
Central America									
1948	1.97	1.70	3.80	1.47	.99	3.99	1.28	2.19	17.2
1949	1.08	2.67	3.05	3.00	2.24	4.42	.34	2.57	18.7
Ecuador									
1948	.64	.03	1.59	1.21	.67	.81	.12	.18	6.2
1949	.27	.19	2.43	1.05	.20	.71	.13	.13	5.1
Dominican Republic and Haiti									
1948	29.05	1.20	2.00	4.03	1.79	1.61	.12	14.95	44.7
1949	39.50	.33	3.11	4.41	.91	1.45	-	4.32	54.0
Mexico									
1948	19.67	13.70	6.20	5.42	10.41	2.80	3.86	8.65	70.7
1949	15.01	11.28	8.74	9.97	8.50	4.68	1.31	4.47	63.9
Paraguay									
1948	7.05	.60	.32	.68	.31	.99	-	.44	10.3
1949	4.81	.17	.89	1.31	.40	.44	-	1.38	9.4
Peru									
1948	31.07	4.60	2.34	5.79	3.07	5.78	1.26	3.52	57.4
1949	32.03	3.35	1.63	7.29	2.17	3.67	.12	1.37	51.6
Uruguay									
1948	223.17	4.00	8.22	14.07	14.32	7.51	2.97	11.43	85.6
1949	52.20	3.97	8.84	7.40	3.80	5.41	2.58	33.75	117.9
Venezuela									
1948	12.05	55.70	2.81	4.33	12.55	2.46	16.94	19.10	125.9
1949	22.31	39.95	3.98	4.49	9.62	2.46	5.22	10.81	98.8
TOTAL									
1948	902.34	256.63	269.72	190.89	195.09	159.70	96.83	524.91	2596.1
1949	654.70	188.38	142.75	143.54	126.01	64.93	83.57	288.69	1692.5

/Ajuste por flete 2/

Table 12 (In millions of dollar equivalents)

	United Kingdom	France	Italy	Belgium-Luxemburg	Holland	Switzerland	Sweden	Other countries 1/	Total
juste por flete 2/									
1948	794.06	225.83	237.35	167.98	171.68	140.54	85.21	461.92	2284.58
1949	576.14	165.77	125.62	126.32	110.89	57.14	73.54	254.05	1489.46

1/ Includes Austria, Denmark, Germany (all zones), Iceland, Eire, Norway, Portugal, Spain, Greece, Turkey, Czechoslovakia, Finland and Poland.

2/ Value of European imports reduced by 12 per cent.

(millions of imports by)

a/ Includes:			b/	c/
$	17.35	Denmark	15.14	-
	22.48	Germany	20.26	138.38
	37.20	Eire	2.21	4.81
	12.84	Norway	16.80	4.23
	20.64	Portugal	7.50	2.00
	15.94	Czechoslovakia	11.18	-
	21.35	Finland	7.16	-
	-	Spain	27.74	10.59
	147.80		111.99	160.01

Source: European official statistics.

Table 13: European exports to Latin America [a]

(In millions of dollar equivalents)

	Principal countries [b]		Other countries [c]		Total	
	1948	1949	1948	1949	1948	1949
Argentina	569,03	526,05	34,43	28,26	603,46	554,31
Bolivia	7,55	8,25	,21	,16	7,76	8,41
Brazil	233,83	280,40	44,06	28,78	277,89	309,18
Chile	34,06	41,34	8,05	6,43	42,11	47,77
Colombia	48,04	35,78	3,02	2,36	51,06	38,14
Costa Rica	3,17	3,97	,10	,18	3,27	4,15
Cuba	26,06	21,18	11,46	9,61	37.52	30,76
Dominican Republic	5,20	3,31	1,03	1,63	6.23	4.94
Ecuador	7,96	8.12	,49	,31	8,45	8,43
El Salvador	3,32	4,54	,31	2,40	3,63	6,94
Guatemala	4,03	4,41	,75	,40	4.78	4,81
Haití	2,99	3,89	,17	,22	3,16	4,11
Honduras	1,21	1,42	,09	,02	1,30	1.44
México	47,93	35,48	6.07	2.71	54,00	37,19
Nicaragua	5,43	2,50	,06	,02	5,49	2,52
Panamá	9,42	10,30	1,40	1,15	10,82	11,45
Paraguay	6,05	5,91	,28	.18	6.33	6.09
Peru	15,42	27,93	1,42	1.24	16,84	29,17
Uruguay	53,22	74,58	4,68	4.87	57,90	79,45
Venezuela	104,69	110,52	6,35	5.80	111.04	116,32
Total	1,188,61	1,208,85	124,43	108,34	1,313,04	1,305,58
Adjustment for freight. [d]	1,331,24	1,299,91	139,36	108.34	1.470,60	1,408,25

Source: Official European statistics.

a/ According to European data.
b/ Includes: United Kingdom, France, Italy, Belgium, Luxembourg, Netherlands, Switzerland, and Sweden.
c/ Includes: Austria, Denmark, Germany (all zones) Iceland, Portugal, Spain, Greece, Turkey, Czechoslovakia, Finland and Poland.
d/ Addition of 12 per cent to value of European exports.

are to be paid for in sterling during the first two years in which the agreement is in force. Apart from these countries, Brazil accepted payments in sterling from Bolivia, Colombia, Denmark, Ecuador, Finland, Paraguay and Spain. The same relative improvement was obvious from the extraordinary increase in French and Italian exports to Argentina and other Latin American countries, to such an extent that France has almost entirely repaid the credits which she had received from Argentina in preceding years. Italy reached the stage of recommending its exporters to restrict credit to Argentine importers.

Brazil's blocked sterling balances declined in 1949, due to the purchase of the British railways, the payment of the coffee debt of 1930, also as a result of the fact that Brazil could not export to the United Kingdom the amount of commodities foreseen, as a result of crop yields being lower than was estimated. Before these purchases, Brazil's blocked sterling balances were estimated at 35 million pounds. From an attitude of encouraging British imports, Brazil had to change to adopting measures to restrict them and to limit payment in sterling for international transactions with third countries. However, at the end of April 1950 the scarcity of sterling was declared to be at an end. For Argentina the change of position relative to the pound in 1949 was above all due to the drop in exports to the United Kingdom (a drop of over 200 million dollar equivalents), and although no concrete data are available concerning the present position, officious reports indicate that Argentine reserves of sterling have reached very low levels. Uruguay also improved its position through the purchase of British investments, while in Peru the general shortage of exchange encouraged the utilisation of the available sterling, apart from the fact that agreements with other Latin American countries permitted payments for imports in this currency.

Inter-Latin American trade, which in 1948, amounted to approximately 488 million dollars, represented 7.5 per cent of the total value of exports, was in 1949 (based on incomplete data) 7.2 per cent, with 403 million dollars, that is, substantially the same proportion. The drop in inter-Latin American trade was a development

/affecting the

affecting the majority of the countries, both on the export and on the import side. (See Table 14).

In real terms, to the extent in which price indices of United States exports reflect the general changes of import prices of Latin America, the quantum of imports in 1949 was almost the same as that for 1948 (less than 1 per cent lower) while the quantum of exports was considerably lower. 1/

The available indices for import and export prices suggest that the terms of trade of Latin America improved in 1949 in relation to 1948 in the following countries: Belgium, Czechoslovakia, United States, Holland, United Kingdom and Sweden, while they deteriorated with Spain, Italy and Switzerland, remaining approximately the same as in 1948 with France and Norway. If more recent dates are taken, that is, those immediately prior to the devaluations, in comparison with the latest available, it will be found that, in the case of the United States, the unit price of its exports dropped between September 1949 and February 1950 from 176 to 170, while the unit price of its imports rose from 205 to 208 in the same period, after having passed through 202 and 203 in November and December. In the case of the United Kingdom, the price indices also show a relatively greater deterioration in the terms of trade of that country: the unit price of exports rose from 256 to 263 between September 1949 and February 1950, while the unit price of imports rose from 269 to 303 between the same dates (the rise in unit price of imports of raw materials being even greater). According to these figures, Latin America had improved its terms of trade with those two countries after the devaluations; the figures for the unit prices of Belgian, Finnish, French and Norwegian exports and imports show the same result. However, Italian, Dutch and Portuguese data, among others, indicate a contrary situation (with a heavier drop in the unit price of imports than of exports from those countries). There is no similar Latin American data covering a

1/ There was a decline of 8 per cent in the value of imports and 5 per cent in that for exports.

Table 14. Trade among the Latin American countries in 1948 and 1949

(In millions of dollar equivalents)

Exporting countries \ Importing countries		Brazil	Chile	Peru	Paraguay	Uruguay	Others	Total exports	Total imports (f.o.b)
Argentina	1948	80.89	25.86	29.56	8.25	16.59	4.28	165.43	141.57
	1949	94.69	12.30	6.50	-	1.91	2.02	117.42	98.74
		Argentina	Chile	Uruguay	Venezuela				
Brazil	1948	111.06	12.73	17.64	6.59	-	10.99	159.00	111.96
	1949	74.40	8.23	14.69	1.53	-	5.75	104.30	130.51
		Brazil	Chile	Peru					
Bolivia	1948	.12	.25	.16	-	-	-	.53	4.00
	1949	.14	.17	.03	-	-	.01	.35	8.16
		Argentina	Uruguay						
Paraguay	1948	9.29	2.12	-	-	-	.23	11.64	9.88
	1949	-	2.87	-	-	-	.51	3.38	2.98
		Argentina	Brazil						
Uruguay	1948	4.08	10.01	-	-	-	4.55	20.63	42.90
	1949	7.62	13.74	-	-	-	2.04	23.40	33.59
		Colombia	Venezuela	Peru	Chile				
Ecuador	1948	2.49	1.25	1.41	1.13	-	4.04	10.32	2.74
	1949	1.20	1.60	.24	1.19	-	2.66	6.89	1.80
		Cuba	Brazil						
Colombia	1948	.44	.16	-	-	-	.44	1.10	10.97
	1949	.27	.08	-	-	-	.19	.54	9.85
		Brazil	Uruguay						
Venezuela	1948	11.13	4.24	-	-	-	.51	15.88	23.76
	1949	6.57	9.36	-	-	-	1.56	17.49	14.80
		Cuba	Central America	Vene-zuela	Brazil				
Mexico	1948	12.35	7.39	3.91	2.03	-	5.36	31.04	3.70
	1949	5.70	6.34	2.92	1.52	-	1.95	18.43	2.84
		Venezuela	Mexico	Peru	Cuba				
Central America a/	1948	2.03	.67	.84	2.48	-	3.28b/	19.12c/	22.90c/
	1949	1.62	.82	1.01	0.13	-	2.08b/	15.38c/	21.92c/
		Venezuela	Mexico	Chile	Colombia				
Cuba	1948	7.77	.19	.69	.29	-	3.00	11.94	30.89
	1949	1.83	.06	2.76	.24	-	2.02	6.81	14.46
		Cuba	Central America	Chile					
Dominican Rep. and Haiti	1948	.13	.24	2.74	-	-	0.43d/	3.57e/	1.78e/
	1949	.33	.62	0.7	-	-	2.01d/	3.04e/	2.04e/
		Argentina	Bolivia	Colombia	Chile	Venezuela			
Peru	1948	-	-	-	-	-	1.23	1.23	36.12
	1949	4.61	4.74	5.69	25.57	2.23	6.21	49.05	10.87
		Argentina	Brazil	Bolivia	Cuba	Peru			
Chile	1948	13.04	7.42	2.48	4.69	3.06	5.17	36.66	44.92
	1949	11.11	12.16	2.59	4.16	1.94	5.10	37.06	50.98
							Totals	488.09	
								403.54	

Source: International Monetary Fund

a/ Includes Costa Rica, El Salvador, Honduras, Guatemala, Nicaragua and Panama.

b/ Other countries outside of Central America

c/ Includes trade among the Central American Republics

d/ Excludes trade between the two countries.

e/ Includes trade between the two countries.

sufficient number of countries for any opinion to be made on that basis.

The data from the United States and Europe cannot, however, be accepted as precise indicators of the general Latin American situation, since there are cases in which it is evident that the improvement of the terms of trade is under estimated, and other instances showing a result contrary to that obtained from the former. In the first place, there is a group of countries, the coffee-growing countries, for which it may be stated that the situation has improved more than the indices mentioned show, depending upon the relative importance of coffee within their total exports, and also to the degree to which they had not made advance sales at the prices which prevailed before the sudden rise during the second half of 1949 (particularly the Central American countries). For these countries while the devaluations may have modified the rise in the price of coffee, terms of trade in 1949 were favourable, since there was no drop in the price of the commodity and the prospects are excellent in spite of the slight drops which took place in March and April 1950. Thus the terms of trade of various countries are being determined (although not quantitatively), above all in the case of Brazil, Colombia, El Salvador, Guatemala and Costa Rica. To a lesser degree, this improvement affected also Nicaragua, Venezuela and Mexico, for which coffee represents a smaller part of the value of exports. On the other hand, those countries which are mainly producers of minerals, particularly Chile and Bolivia, have suffered a notable deterioration in the terms of trade (which, however, did not affect the value of Bolivian exports). To a lesser degree, since the proportion of minerals within total trade is lower, Peru and Mexico were unfavourably affected in this respect.

Export commodities

An analysis of Latin American export commodities and the changes they have experienced recently, indicates that the only items of any weight in total exports which suffered a substantial break were metals, particularly lead, copper and tin. In the case of the country whose foreign trade suffered most, Argentina, this was largely due to a drop in production and that it was less indispensable as a provider of basic commodities for Europe. This loss prevented Argentina from obtaining the prices of former years for some of its exports. Thus, the countries in which minerals formed a greater proportion of exports, and Argentina, were those which suffered most, in relative terms, as a result of the situation in foreign markets. 1/

The main difference with regard to 1947 and 1948 is not so much the accumulation of unexportable surpluses, which only occurred to a slight degree, but the interruption in a process of rising prices. Other factors were the drop - in a serious proportion for some countries, and slight for others - of some prices, the lack of security that future production would find a market abroad, and the knowledge of the degree to which exports depend on the level of income of the United States and other countries. This was sharpened by the amount of attention paid to the slight United States recession at the beginning of 1949, as well as the knowledge that for certain commodities the market has been maintained thanks to artificial stimuli, such as the purchases under the Marshall Plan or United States price support programmes, and the accumulations of stocks for strategic reasons. Finally, these were the difficulties derived from the fact that, with the continuation of the process of monetary expansion and the interruption of the rise in the price of exports, costs were approaching prices, whereas in previous years the price increases were in the lead over increases in costs. In summary, in the cases where there have been no real setbacks in the form of declines, the process of increase has been interrupted and the picutre of the difficulties which may arise in a not-so-distant future has been shown more sharply than in previous years.

The production of exportable products only declined in an abnormal way, causing considerable deficits, in the case of Argentine cereals, and, to a

1/ See Tables 15 and 16.

Table 15 Principal commodities in the trade between the United States and Latin America, 1947 - 1949

Imported by the United States

Commodities	Values in millions of dollars			Per cent change in 1949 as compared to		Per cent distribution in
	1947	1948	1949	1947	1948	1949
Coffee	590.7	685.2	780.6	+ 32.1	+ 13.9	34.0
Cane sugar	410.5	290.0	322.0	- 21.6	+ 11.0	14.0
Metals and manufactures	247.5	296.2	297.0	+ 20.0	+ 0.3	12.9
Copper	148.9	170.8	155.2	+ 4.2	- 9.1	6.8
Lead	25.5	47.4	65.4	+ 156.5	+ 38.0	2.8
Tin	30.7	38.0	38.1	+ 24.1	+ 0.3	1.7
Petroleum and derivatives	171.1	254.4	295.4	+ 72.6	+ 16.1	12.9
Crude petroleum	160.6	249.5	280.2	+ 74.5	+ 12.3	12.2
Textile fibres and their manufactures	131.9	194.7	148.5	+ 12.6	- 23.7	6.5
Wool	70.0	135.9	94.3	+ 34.7	- 30.6	4.1
Sisal and henequen	23.7	28.7	20.5	- 13.5	- 28.6	0.9
Cacao	71.1	85.9	53.5	- 24.8	37.7	2.3
Bananas	48.5	48.7	51.4	+ 6.0	+ 5.5	2.2
Vegetable oils and non-edible oil seeds	88.4	57.7	51.2	+ 42.1	- 11.3	2.2
Sodium nitrate	15.2	23.4	26.0	+ 71.1	+ 11.1	1.1
Vegetable products	36.7	30.0	24.7	- 32.7	- 35.0	1.1
Tobacco leaf	35.1	23.3	24.0	- 31.6	+ 3.0	1.0
Hides and skins	32.4	39.7	16.4	- 49.4	- 58.7	0.7
Others	261.8	286.0	205.2	- 21.6	- 28.3	8.9
Total	2,140.9	2,323.3	2,295.9	+ 7.2	- 1.2	100.0

Source: United States Chamber of Commerce.

Table 16. Principal commodities in the trade between the United States and Latin America, 1947 - 1949

United States Exports

Commodities	Value in millions of dollars			Per cent change in 1949 over		Per cent distribution in 1949
	1947	1948	1949	1947	1948	
Machinery, total [a]	830.6	795.9	665.8	- 19.8	- 16.3	24.7
Industrial	489.7	464.3	403.7	- 17.6	- 13.1	15.0
Electrical	259.4	238.1	182.6	- 29.6	- 23.3	6.8
Tractors	55.6	61.1	53.7	- 3.4	- 14.9	2.0
Agricultural	25.9	30.4	25.8	-	- 15.1	1.0
Automobiles, parts and accesories [b]	493.8	364.1	262.4	- 46.9	- 27.9	9.7
Iron and steel products [c]	333.6	228.5	230.1	- 31.0	+ .7	8.5
Chemicals and similar products	249.8	241.3	225.5	- 9.7	- 6.5	8.4
Rice, wheat and other vegetable foodstuffs	326.4	258.3	199.2	- 39.0	- 22.9	7.4
Textile manufactures [d]	327.1	245.6	187.3	- 42.7	- 23.7	7.0
Meat, fats, milk and other foodstuffs of animal origin	105.6	105.1	104.9	- .7	- .2	3.9
Ships	230.9	100.7	103.3	- 53.2	+ 2.6	3.8
Petroleum & derivatives	83.6	97.7	97.6	+ 16.7	- .1	3.6
Iron and steel manufactures	109.6	95.9	80.3	- 26.7	- 16.3	3.0
Other commodities	749.3	606.4	537.7	- 28.3	- 11.3	20.0
Total	3,830.2	3,139.5	2,694.1	- 29.7	- 14.2	100.0

Source: Department of Commerce of the United States.

a/ Excludes office machines and equipment and printing and binding machinery.
b/ Excludes "Special Category" exports in 1949.
c/ Excludes scrap iron.
d/ Includes semi-processed textiles.

lesser degree, wool, as well as in the case of copper in Chile. 1/ In comparison with 1948, Argentine exports in 1949 (unofficial figures) dropped by 340,000 tons in the case of wheat, by 1,450,000 tons in the case of maize and by 400,000 in the case of barley. The lower production of Cuban sugar in 1949 was not of an abnormal nature, neither was the drop in Venezuelan petroleum production in the first half of the year. It is interesting to note that the reason for the drops in cereal production and wool in Argentina seem to have been to a large extent the result of domestic factors which are mainly due to the relative cost of production for export products. On the other hand, the drop in the Chilean production of copper (from an average of 37,000 tons a month in 1948 to 25,000 tons in 1949) is largely the result of planning; it is considered that production could have been maintained at its previous levels, but there was the fear that if it continued at such levels the customs tariff in the United States would rise and this would cause the situation to deteriorate even more. The drop in wool production in Argentina, which is concentrated especially in the low-grade varieties, was explained above all by the scarcity of labour and high wages, but it was less than the drop in exports, which declined from a monthly average of 17,000 tons in 1948 to one of 9,000 tons in 1949, as a result of the high prices charged by Argentina; following Argentine devaluation, exports recovered considerably.

In the same way that the drops in the production of export commodities, although significant, were small, so the increases have been few and none so significant as the declines. The examples which may be cited are rather marginal exports of those countries where they occurred. The most important would be the case of cotton in Mexico where, as a result of the irrigation programmes, production increased from 570,000 bales in 1948 to over 900,000 in 1949, and there will probably be a further increase in 1950. This increase is all the more important since it compensated for the drop in the foreign exchange receipts as a result of the loss of markets for textiles, just as the increase in the export of canned meats

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1/ The very poor coffee harvest in Costa Rica and, above all, Nicaragua, should also be mentioned.

compensated for the loss of the United States market for cattle on the hoof after the outbreak of foot and mouth disease. The increase in Brazilian production of cotton for 1949 over 1948 was not sufficient (1.6 million bales to 1.9 million bales) to bring the figure to the levels of 1940-44 (2.2 millions), but in 1950 further increases are expected. In the case of cotton, Latin American increases in production have been stimulated by the price support policy of the United States, a policy which in 1950 will require a reduction in the sown are of that country from 27 million acres to 20 or 22 million. In the same way, the production of sugar, which declined in Cuba and remained more or less stationary in the other traditional exporting countries, increased not only in the Latin American countries that are net importers of this commodity but also in others that are small exporters, such as Mexico, aided by official development policies or semi-monopolistic situations in the domestic market. In fact, since before the war, Latin America has been the area of the world where sugar production has increased the most, stimulated by the increase in domestic and foreign demand resulting from the increase of population and improvement in standards of living.

The accumulation of unexportable stocks only occurred in a few cases of slight importance within the total trade, although relatively important for the countries affected (rice in Ecuador, sesame in Nicaragua), but they did not last long. Those products which are traditionally affected in difficult times by such accumulation were not affected. Cuba at the end of 1949 had only some 307,000 tons of sugar which were sold at the beginning of 1950; and Dominican stocks were also very low; by the middle of October 1949 Peru had sold its estimated production of sugar for the first five or six months of 1950. Brazilian stocks of coffee, accumulated during the war, disappeared in 1949. Argentina, for its part, had by the end of the year disposed of its accumulated stocks of cereals,[1/] and Argentine exports of cereals in the first third of 1950 have been so great that if the reserves required to meet obligations to Brazil are added to them, there would be nothing left for new exports, providing that the

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1/ The sale between November and December of over 680,000 tons of maize to the United Kingdom, France, Switzerland and Belgium, and of 740 tons of wheat to India, Germany, Switzerland, Japan, Portugal and Sweden, as well as Paraguay and Peru.

private statistics available are correct. In Mexico, where silver had become a problem, extraordinary sales to the Near and Far East reduced to normal proportions the stocks accumulated by the Central Bank.

An examination of the prices of sixteen Latin American export products (cacao, coffee, sugar, wheat, hard fibres, cotton, wool, copper, lead, silver, tin, fuel oil, petrol, linseed, nitrate and tobacco) in the United States, shows that the greater part of them dropped before the devaluations in September. In August of 1949 the prices of cacao, wheat, hard fibres, cotton, copper, lead, silver, fuel oil and linseed, had dropped in the United States in comparison with those for 1948. By November of 1949, that is, after the devaluations, the decline only became pronounced in the case of tin, and many prices in the United States had risen in comparison with the month of August 1949, although in general terms they continued to be lower than in 1948.1/ But from November 1949 to March 1950, the general movement in the United States was once again downward, although not to the same degree as during the first half of 1949. Only four products rose in price in regard to November 1949 (wheat, cotton, wool, and copper), and of the sixteen products studied, ten showed lower prices than in 1948 and eight showed prices lower than in August 1949. An examination of the series of United Kingdom prices converted into dollars (less complete than those available for the United States), reveals a more pronounced downward trend, although without the same discrepancies between 1948 and August 1949 as stand out in the United States series. Only three products showed increases, slight ones, in prices for the month of March 1950 in comparison with those for August 1949, but there was not, as in the United States, a drop in March 1950 in comparison with November 1949 (except for lead and tin), but rather a recovery; thus, the prices of hard fibres, cotton, copper and linseed rose in comparison with November, while the rest remained the same. In summary, the general trend in the United

1/ The prices of sugar, wool, petrol, nitrates and tobacco in the United States were higher than in 1948.

States was downward in the first half of 1949, with a rise in the second half and a new drop in the first months of 1950, while prices in the United Kingdom showed relative stability in the first half of 1949, with a market drop after the devaluation and a tendency toward recovery in the first months of 1950.

The commodities whose price has dropped most on the United States market from 1948 to March 1950 have been cacao (44 per cent), lead (40 per cent), linseed (39 per cent) and tin (24 per cent); and those which dropped most since August 1949 are lead (27 per cent), tin (26 per cent) and linseed (17 per cent). The principal declines on the British market from August 1949 to March 1950, in dollars have been linseed (33 per cent), nitrate, (31 per cent), lead (30 per cent) and tin (27 per cent).

It should be pointed out, in the case of several commodities, the drop in prices occurred not so much because of an increase in production but because deferred demand had been satisfied; this led to purchases for the accumulation of stocks (tin is the most notable example of this situation).

As the same time, it should be emphasized that the prices indicated do not include the drops which took place in the prices asked by Argentina, which in this sense constituted a separate problem. The impulse received by Argentine exports in the last third of 1949 and the beginning of 1950 is largely the result of the partial change of the export price policy, in terms of dollars, which followed the devaluation of the peso; thus, wheat and maize prices dropped by 25 and 15 per cent respectively, declining almost to the level of the other exporting countries. In January 1950 there were sales of wheat to Brasil at prices representing a decline of 27 per cent in relation to those previously charged. The decision to sell cereals at prices able to compete with those from other sources appeared inevitable after the devaluations, since their maintenance would have meant such an increase in prices in terms of devalued currencies that it would have been difficult to expect that they would prove acceptable to the countries which devalued, even independently of factors of supply.[1/] The British counter-proposals to reduce the price of meat by 8 per cent, to the Argentine proposals to increase it by 40 per cent, also appear

1/ See Table 17.

/indicative of

Table 17. Wheat production and trade in Latin America

	Area sown (In thousands of hectares)				Production (In thousand metric tons)			
	1934-38	1947	1948	1949	1934-38	1947	1948	1949
Argentina	.783	4.717	4.860 a/	5.000 a/	6,634	6.664	5.100 a/	5.500 a/
Brazil	151	395	535	..	144	358	411	472
Chile	800	819	867	835	851	1.071	1.114	905
Mexico	489	499	577	535	374	422	477	503
Uruguay	484	505	502	481	365	424	518	..

Trade
(In thousand metric tons)

	1946	1947	1948	1949
Argentine exports	1.455	2.240	2.149	1.837
Imports of:				
Cuba	221	241	158	207
Mexico	341	332	271	258
Brazil	588	960	794	833
Peru	116	139	163	232
Venezuela	102	119	128	124

Source: International Monetary Fund.

a/ Non-official data.

indicative of an improvement in Europe's bargaining position with Latin America. This was due to the greater real difficulties on the part of the European buyers to pay the same prices in dollar equivalents as before. For instance, the foreign meat packing plants located in the State of Rio Grande do Sul, in Brazil, discovered at the beginning of 1950 that their costs were high in comparison with the prices they could obtain in Europe.

The case of coffee is exceptional, owing to the number of countries affected by it, the magnitude of the improvement, and its importance in terms of foreign exchange receipts, since it is the principal Latin American export commodity. The slight improvement in price in the first half of 1949 was followed by a very rapid rise in the second half; in January 1950, the price of coffee in the United States was 82 per cent higher than the average from January to August 1949, and in March 1950 it was still 69 per cent higher. The rise was brought about by the exhaustion of the Brazilian stocks accumulated during the war: the news of a poor crop in that country arrived too late for the Latin American countries to take full advantage of it. Nevertheless the increase in the value of United States imports from Latin America in the last quarter of 1949 was, to a certain extent, a reflection of the poor crop. The value of coffee imports rose by almost 100 million dollars, to 780.6 million dollars, in 1949 in comparison with 1948. The countries which benefited least from the increase in price in 1949 and which will not be able to take full advantage of it in 1950, are the Central American countries, first because their crop was already sold when the 1949 increase occurred, and secondly because the 1949-50 crop was sold on the future market to a large extent, at the former prices. Two countries, moreover, had exceptionally low crops in 1949, namely Nicaragua and Costa Rica. The prices of coffee have shown a downward trend in the last three months, but it is not expected that they will return to the levels prior to the rise in September 1949. Assuming that United States imports of coffee in 1950 will be of the same volume as in 1947 or 1948 and that the price will remain at its March 1950 level, the value of those imports during this year

/would be

would be 1,070 million dollars or even 1,200 million dollars respectively, that is, between 290 and 420 million dollars more than in 1949. The Colombian situation has improved most in relative terms, due to the high percentage of coffee within its total exports and also to the fact that this country, like Brazil, had not sold its crop at the former prices. In fact, the value of Colombian exports to the United States during the first two months of 1950 was 58.3 million dollars, that is, an annual rate of 350 million dollars, as against 242 million dollars in 1949. 1/

Consequences of the devaluations of September 1949

It is not possible to estimate the influence which the September devaluations have had until now on Latin American exports. It is nevertheless true that these have not contributed to any of the small price increases which have taken place, and that the only favourable influence may have been a contribution to the lowering of Latin American imports. The only favourable short range effect that can be expected from the devaluations, is an increase in the demand for certain Latin American export products, to the extent they are used in the manufacture of European goods. The demand for the latter in foreign markets increases when the finished product is cheaper through a relative drop in domestic costs. It has been thought that this might favour Latin American exports of textile fibres. It is also surmised that this is the reason for the increase in British purchases of Cuban raw sugar during the last few months. It is probable, however, that this trend is more than offset by the decline of the demand in countries which devalued, due to the increased prices of these commodities in terms of local currencies.

It cannot be proved to what extent the drops in prices which took place since the devaluations, have been due to the latter and to what extent they are the result of other factors. Nevertheless, there can be little doubt that the devaluations have had some influence, even if events in this field show that the strong initial impact on European prices expressed in dollars has lost strength, there having been recoveries in prices, which tend in Europe to approach those of the United States.

The inelasticity over a short period of time in the supply of

1/ See Table 18.

Table 18. Index numbers of coffee exports

(1937 = 100)

	Brazil	Colombia	Costa Rica	El Salvador	Guatemala	Nicaragua	Dominican Republic
1938	141	102	93	79	103	90	76
1939	135	90	76	81	93	110	128
1940	99	108	77	83	88	97	78
1941	92	71	91	61	89	80	110
1942	61	104	87	77	106	81	71
1943	83	127	102	82	101	76	96
1944	112	119	70	92	103	83	75
1945	117	125	92	85	114	78	161
1946	128	137	67	71	106	75	95
1947	122	129	78	93	118	63	83
1948	144	135	100	88	103	90	105
1949	160	131	70	115	119	38	131

Source: International Monetary Fund.

exports from the countries which have devalued, would appear to indicate that the effects felt up to now do not exhaust the possibilities of adverse repercussions for Latin America due to greater competition. The cases of sugar and petroleum are examples of the European decision not to limit the effects of devaluation on demand to those which would normally take place, but to restrict it even further.

In the case of sugar, the individual ration in the United Kingdom was reduced twice in 1949. A consumption of 1,991,000 metric tons is planned for 1950, that is 142,000 tons less than in 1949 whereas the potential consumption is estimated at 2.6 million metric tons. British policy consists in not relaxing controls until the supply of sugar from the sterling area shall be sufficient to meet the demand, and with this object, in the Commonwealth Sugar Discussions which took place in November and December 1949, the United Kingdom offered to guarantee a market for sugar exporting countries in the sterling area, at reasonably remunerative prices, for exports amounting to 1,550,000 tons per year for a period of five years, starting in 1952.

At the beginning of 1950, the United Kingdom decided to restrict the consumption of petroleum produced by enterprises not controlled by British interests. The restriction is designed to do away with 30 per cent of the imports of petroleum to the sterling area payable in dollars. The importance of this decision is all the greater when it is considered that the most reliable estimates indicate that after 1951 an annual increase in world consumption of petroleum may be expected amounting to from 5 to 6 per cent, while British and Dutch plans envisage an annual production increase of from 9 to 10 per cent.[1/] The least that can be foreseen as a result of British and Dutch policies will be a decline in the rate increase of Latin American production; moreover, the interruption or merely the decline in the new United States petroleum investments in Latin America,

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1/ The European devaluations, in reducing the price of coal in relative terms, have, at least momentarily, upset the trend to substitute petroleum for coal.

/as the result

as the result of European plans to expand in other areas and to restrict imports originating in the dollar area, would seem to indicate a drop in total Latin American receipts of exchange derived from petroleum.

But the most positive of all the effects of the devaluations have been the new elements of insecurity which have been introduced; insecurity in regard to the possibility of competing in domestic markets, that is, a revival of protectionist tendencies, and insecurity in regard to the future of the export markets.

/Trade policy

Trade policy

Economic development in general, and the continuation of inflationary pressure, have in certain cases maintained the demand for imports in many Latin American countries at levels higher than those which the capacity to obtain exchange and international reserves permit, with the result that there have been few countries which could lift restrictions on imports or relax them in any way. These facts, and the desire to protect existing economic activities, which form part of the development programmes or policies, caused the trade treaties with the United States which freeze customs tariffs applicable to exports, to be considered increasingly restrictive of the freedom of action of the different countries. Mexico did not continue with its re-negotiation of the treaty with the United States, Colombia denounced its treaty and Costa Rica left its negotiations in suspense (March 1950) for a period of six months. Guatemala announced the possible need for a revision, in view of the substantial drop in its international reserves.

The main difference in regard to the previous months, as has already been seen, has been the tendency to improve the position of exports. In the field of trade policy, this tendency is shown by the change made in the foreign exchange systems and the signing of bi-lateral agreements.

As regards the exchange systems the emphasis on the protection of exports of secondary products is also significant. Interest in improving the position of these secondary activities or indeed to prevent their disappearance is, undoubtedly, an important obstacle to the wishes of many Governments to simplify their foreign exchange systems. In all the changes which have been made in exchange legislation, this tendency which had existed for some time, is maintained or accentuated, and it is an integral part of the policy of diversification, which protects an incipient industry even in the international field.

In nearly all the changes which have occurred in 1949 and in 1950, the tendency is the same. There are few Latin American countries which have modified their foreign exchange systems and which have limited themselves to imposing greater restrictions on imports. The foreign exchange methods

/adopted to

adopted to improve the position of imports, have not always been simple. This is partly due to the fact that the abandoning of a previous parity has political implications and provokes psychological reactions with which the Governments naturally are concerned, and also because the maintenance of new parities without controls would require, in many instances, the adoption of compensatory fiscal measures which not all countries can adopt in a short time, even supposing these were politically feasible.

The simplest of all the devaluations which have taken place was that of Peru where the exchange policy initiated December 1948, was continued and a fluctuating rate of exchange established which freed exporters from the need to deliver a certain percentage of the value of exports to the Central Bank at the official rate of 6.50 soles per dollar. The control of capital movements through the use of exchange certificates 1/ and the subsidy on wheat imports 2/ are carry-overs from the previous system. Since the system was introduced, the exchange rate of the sol has improved; from a minimum of more than 20 soles per dollar in July 1949, the rate rose to 15 soles per dollar in February 1950.

Although the depreciation of the Mexican peso took place in July 1948, in 1949 it continued to depreciate until it was stabilized in June of that year at 8.65 pesos to the dollar. While they may appear more orthodox than the rest, the complementary measures in the form of export taxes, together with duties, subsidies and prohibitions on imports, do in fact have the same meaning as a complex system of multiple rates. The 15 per cent tax on exports, introduced when the parity of 4.85 pesos to the dollar was abandoned, was for the purpose of recovering for the Government half of the profits which exporters would obtain from devaluation 3/ as well as to

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1/ Exporters deposit exchange in the Central Bank and receive an exchange certificate for the equivalent. This certificate is freely negotiable and the exchange may be used by the purchaser to make authorized payments.

2/ Under the previous system, exchange delivered by the exporters at the official rate was sold, also at the official rate, for Government requirements and for the import of essential goods.

3/ The rate of exchange was in fact stabilized around 6.90 per dollar during the first months after parity was abandoned.

/prevent all

prevent all the devaluation being reflected in an increase in domestic prices of export products. This percentage has been reduced for a growing number of exports (although it was re-instituted for coffee, after the rise in the price of this product) in spite of the fact that the final stabilization took place at a rate of 8.65 instead of 6.90, at which rate the tax had been calculated. At the same time, the subsidies on wheat and lard continued, and import duties of many goods considered as essential, such as raw materials for industry, have been reduced (others have been increased, following the same protectionist tendency.

In Nicaragua (December 1949), Ecuador (December 1949) and Bolivia (October 1949) the promotion of exports through exchange measures took the form of improvements in the fixed rates which are given for exchange derived from exports. Furthermore, differential premiums gave an advantage to certain exporters of goods which meet with difficulties in foreign markets, allowing them to retain certain percentages (which vary according to the article) of the product of their exports, and which they may sell on the free market. In Nicaragua and Ecuador a system of private compensations was also introduced; exporters are permitted to retain the whole or part of the value of exports so that they themselves may import. In the three countries foreign exchange has become more expensive, at least for a part of imports.

The exchange reforms in Paraguay are similar, in the sense of improving the position of exports through differential exchange rates and restricting imports by the same procedure. However, the measures taken in November 1949 imply a simplification of the former complex system of compensations, auction sales, mixed rates, and tolerated black market.

Chile moved in the same direction, establishing a new temporary rate of 60 pesos per dollar in January 1950, for a group of exports which had previously been allocated a lower and mixed rate (part of the product of exports at one rate and part at another).

The Argentine reforms (October 1949) and the Uruguayan reforms, although their scope is very different, have the same significance. The first, to a greater degree than that of Uruguay, reflects the need for adaptation to the

September devaluations, but in both cases the promotion of exports, improving their competitive position in competitive markets, has been the motivating force.

Costa Rica is perhaps the only country which adopted foreign exchange (March 1950) of some importance without making an effort to better the position of exports. The system of differential exchange adopted is designed to alleviate the pressure on imports, to pay the debts accumulated over the last few years and to carry out a programme of reinforcing the currency with the product of the exchange surcharges. This system is similar to the programme carried out by Ecuador in 1948. Costa Rica's position on the international markets as a coffee exporter, and the importance of its banana exports, which are in the hands of a foreign concern which receives good profits at the present rates, easily explain this difference.

The relaxation of the quantitative restrictions in Colombia in 1950 following their strict reinforcement in the middle of 1949 may also be explained by the rise in the price of coffee and the consequent increase expected in foreign exchange receipts.

Completing the efforts to improve the position of exports through the foreign exchange systems, an increase in bilateral agreements of compensation, payments and barter is particularly noticeable in the last few months. Although this increase may also be one more consequence of the dollar shortage, which has existed for some years, it is to be noted that in the last few months the desire to negotiate such agreements has been passed (at least in relative terms) from Europe to Latin America; since 1949, bilateral agreements of compensation have become a relief for the Latin American countries, in increasing the hope that they may find an outlet for their exports and obtain payment for them in imported goods.

Argentina, Brazil and Uruguay have been the main protagonists of this policy. Between January 1949 and March 1950, Argentine concluded no less than sixteen agreements of this nature with European countries; Brazil concluded not less than six with Europe, plus one with Japan; Uruguay concluded seven, plus one with Japan and another with Israel. Apart from these, Argentina concluded another four agreements of that type with Latin

/American countries

American countries, Uruguay three and Brazil another three. Other Latin American countries have signed no less than twenty agreements with countries outside the Western Hemisphere, between January 1949 and March 1950. Altogether, about sixty agreements covering payments and compensations have been signed between Latin American countries and others outside this hemisphere in a period of fifteen months, not counting those of a semi-governmental nature.

Circumstances have imposed bilateralism on Argentina's trade policy. Between 1946 and 1948 when there was no difficulty in finding an outlet for its agricultural products at high prices, Argentina followed the policy of granting credits through bilateral agreements. In the majority of agreements concluded in 1949 and the beginning of 1950, however, the emphasis was on a trade balanced at the highest possible level. The Argentine international credit policy is now bilateral instead of being unilateral as it was before 1949. Argentina's agreements with ten European countries (excluding the United Kingdom) in 1949 and the first few months of 1950, envisage an annual trade of almost 400 million U.S. dollars. The products which enter into agreements are similar for all the countries. Argentina offers to export cereals of all kinds, skins, hides, wools, cotton, meat, quebracho extract and vegetable oils, that is, typical Argentine export products, plus, in some cases, secondary exports, such as fertilisers and dried fruits. Argentine imports under these same agreements are electric motors and equipment, agricultural machinery, tractors, automobiles, iron and steel, timber, paper of different kinds, cement, railway material etc., plus some products more typical of a particular country, such as fish from Norway, cork and turpentine from Portugal, jute sacks from India, etc.

The emphasis on the essentiality of Argentine imports is characteristic and would appear to indicate a substantial change of attitude when compared with the previous years of prosperity. In March 1949 Argentina offered to buy non-essential products from Spain to a value of 70 millions pesos; but in the agreement of August of the same year it was laid down that Argentina would only authorize the import of non-essential goods from Spain after that country had supplied a certain quantity of essential products. In

the case of the agreement with the United Kingdom, it appears that Argentina has not agreed to import non-essential goods to the extent which had been foreseen. Argentina has not given permission for the import of non-essential goods from France during the last seven months (September 1949 to March 1950) 1/. That is, together with the growing emphasis on the essential nature of imports, there is also a tendency to do away with non-essential purchases established in older agreements.

The bilateral agreements covering payments and compensations with other countries have the same characteristics as the Argentine ones, that is, in all of them the interest in finding an outlet for exports is noticeable, as well as the desire to obtain essential imports. Lists of products are established, maximum margins of reciprocal credit are fixed, the exchange at which balances shall be liquidated is established, and at times, the value of the trade which it is hoped to attain under the agreement. It should also be noted that in the essentially coffee-growing countries, the number of bilateral agreements does not exist. Colombia has not signed any since the month of June 1949, and only Costa Rica, of all the Central American countries, concluded one in that year. In fact, Mexico is the only country in the dollar area of Latin America where agreements on payments reached a growing importance in the last few months; the diversification of Mexican exports and a gradual return to their geographic distribution, following the prewar rule, has been the motivating force of this policy.

The success of the bilateral agreements is difficult to measure through the experience of the last few months. That is, it is not possible to decide the extent to which trade between the countries signing them would have been carried on without them. It appears, however, that these agreements have in some cases permitted a breaking down of the psychological resistance to exporting to soft currency countries and that in few or no cases has the mutual trade of the two countries concerned been reduced. It is probable, moreover, that in view of these agreements, certain Latin American countries may have obtained in Europe a range of imports more in harmony with their needs than could have been obtained without the agreements. Argentina has managed to include petroleum among the products to be paid in

1/ New York Times, 31st March, 1950. /sterling in

sterling in the United Kingdom, a country which demands payment in dollars for petroleum to other countries (Chile, Brazil), included in the list of "transferable account", (that is to say, unconvertible). The agreements have shown themselves to be unilateral in the case of certain countries with persistent difficulties of payment (Spain) and in certain cases the differences in European prices have not allowed them to achieve results (agreement between Finland and Colombia, and Spain and Mexico). A fact which should be borne in mind, and which may suggest new consequences of bilateralism, is the appearance in the last few months of arbitration operations with Latin American goods. France offers Argentine meat to the United Kingdom and Argentine wheat to Germany in exchange for coal; a French enterprise offers the Chilean Government 20,000 tons of Argentine wheat in exchange for copper and nitrates; Sweden has offered Argentine grains to the Government at Bonn.

APPENDIX A

CREDITS TO LATIN AMERICAN COUNTRIES EXTENDED OR GUARANTEED BY THE EXPORT-IMPORT BANK

(In millions of dollars)

Country	Authorized			Utilized as of December 1949	Repaid as of December 1949
	1947	1948	1949		
Argentina	93.7	93.7	93.7	.6	.1
Bolivia	20.7	21.0	37.0	20.9	2.2
Brazil	263.4	283.7	287.5	164.3	64.0
Colombia	51.7	61.7	65.3	45.3	23.0
Costa Rica	8.7	8.7	8.7	7.3	.7
Cuba	90.4	90.4	90.4	56.2	45.6
Chile	89.7	111.3	141.6	89.4	32.9
Ecuador	20.3	20.3	27.6	13.3	2.5
El Salvador	1.7	1.7	1.7	1.5	.5
Haiti	13.4	17.4	17.4	10.7	5.7
Honduras	2.7	2.7	2.7	1.0	.7
Mexico	154.1	155.6	155.7	119.8	42.1
Nicaragua	5.2	5.2	5.2	4.7	3.1
Panama	4.5	6.5	6.5	3.6	2.5
Paraguay	7.8	7.8	7.8	6.2	2.2
Peru	37.4	37.4	37.4	.4	.1
Dominican Republic	3.3	3.3	3.3	3.3	2.9
Uruguay	43.6	43.7	43.7	14.3	.7
Venezuela	42.5	47.3	52.5	6.0	4.3

Source: Export-Import Bank of Washington, Ninth Semiannual Report to Congress for the Period July-December, 1949.

APPENDIX B

CREDITS GRANTED TO LATIN AMERICAN COUNTRIES
BY THE EXPORT-IMPORT BANK IN 1949

Highway building equipment:	
Bolivia	U.S. $ 16,000,000
Ecuador	1,500,000
Electric power:	
Venezuela	5,158,000
Hotel Construction:	
Colombia	3,057,600
Railways:	
Ecuador	1,500,000
Mexico	17,900,000
Chile	2,750,000
Machinery and equipment:	
Ecuador	4,000,000
Chile	26,200,000
Water transport:	
Brazil	3,806,200
Water works:	
Mexico	1,518,875
Raw materials:	
Mexico	1,500,000

Source: Export-Import Bank of Washington, Ninth Semiannual Report to Congress for the period July-December, 1949.

Appendix C

	Authorized credits	Cancelations	Balances not used to date	Amounts drawn	Authorized principal	Principal not used
Building materials	34.6	4.7	4.9	25.1	11.6	13.5
Costa Rica	7.0	..	..	7.0	.4	5.6
Haiti	9.5	..	4.0	5.5	4.7	.8
Dominican Republic	3.0	..	..	3.0	2.6	.4
Nicaragua	2.0	..	.	2.0	.5	1.5
Panama	2.0	..	.9	1.1	..	1.1
Paraguay c/	3.4	.4	..	3.0	1.8	1.2
El Salvador	1.7	.3	..	1.5	.5	1.0
Venezuela	6.0	4.0	..	2.0	1.1	.9
Blast furnace equipment	101.8	.5	10.4	90.9	6.2	84.7
Brazil	45.0	..	..	45.0	3.7	41.3
Chile	48.0	..	10.0	38.0	..	38.0
Mexico	8.8	.5	.4	7.9	2.5	5.4
Manufacturing plans and equipment	53.2	.1	4.5	48.5	31.3	17.1
Chile	30.0	..	1.7	28.3	20.8	7.4
Mexico	23.0	.1	2.8	20.0	10.4	9.6
Uruguay	.2	..	..	.2	.1	.1
Tropical products	6.1	..	..	6.1	1.8	4.3
Brazil	1.1	..	..	1.1	1.0	.1
Haiti	5.0	..	..	5.0	.8	4.2
Airway equipment	3.0	.7	..	2.3	1.3	.9
Brazil	3.0	.7	..	2.3	1.3	.9
Pan-American and Intercontinental Hotels	19.6	..	19.6	..	..	..
	19.6	..	19.6	..	..	..
City construction projects (urbanization etc.)	1.1	..	..	1.1	.1	1.0
Venezuela	1.1	..	..	1.1	.1	1.0

/Agricultural development

APPENDIX C

Export-Import Bank
Lines of credit to Latin America, according to purposes and country, as of December 1949

	Authorized credits	Cancelations	Balances not used to date	Amounts drawn	Authorized principal	Principal not used
Highway construction	112.0	6.2	23.7	82.2	31.3	51.0
Bolivia a/	34.8	..	16.1	18.8	.1	18.7
Paraguay	3.0	..	..	3.0	.2	2.8
Ecuador	1.5	..	1.5	..	..	..
Colombia	30.0	.5	6.1	23.4	9.1	14.4
Mexico	40.0	4.0	..	36.0	21.2	14.8
Honduras	2.7	1.7	..	1.0	.7	.3
Railway equipment	105.5	.3	54.5	50.6	11.5	39.1
Brazil	5.0	..	..	5.0	..	5.0
Chile	45.7	.3	31.1	14.3	4.7	9.5
Colombia	5.4	..	..	5.3	1.7	3.7
Ecuador	5.5	..	5.5	..	..	..
Mexico	43.9	..	17.9	25.0	5.1	20.9
Mining equipment	21.5	..	15.9	5.5	..	5.5
Brazil	21.5	..	15.9	5.5	..	5.5
Harbour equipment and ships b/	44.1	..	3.8	40.3	13.6	26.7
Argentina	.2	..	..	.2	..	.2
Brazil	41.9	..	3.8	38.1	13.2	24.9
Colombia	2.0	..	..	2.0	.4	1.6
Electrical equipment	99.7	20.8	16.8	62.0	10.1	51.9
Brazil	23.9	1.3	3.4	19.2	6.6	12.6
Mexico	31.1	1.5	7.1	22.5	1.6	20.9
Peru	.5	..	..	.4	.1	.3
Uruguay	32.0	17.7	.2	14.1	.7	13.4
Venezuela	7.1	.1	5.2	1.8	..	1.8
Colombia	2.3	.2	..	2.1	.6	1.5
Chile	2.8	..	.9	1.9	.5	1.4

/Building materials

Appendix C

	Authorized credits	Cancelations	Balances not used to date	Amounts drawn	Authorized principal	Principal not used
Agricultural development	25.0	7.3	..	17.7	7.1	10.6
Cuba	25.0	7.3	..	17.7	7.1	10.6
Water works (equipment)	23.5	..	10.2	13.3	2.5	10.8
Ecuador	23.5	..	10.2	13.3	2.5	10.8
Goods and services for hotel construction	5.4	..	5.4	..	..	..
Colombia	3.1	..	3.1	..	..	..
Venezuela	2.3	..	2.3	..	..	..
Agricultural equipment	15.0	..	8.5	6.6	.8	5.8
Mexico	5.0	..	.2	4.9	.3	4.6
Colombia	10.0	..	8.3	1.7	.5	1.2
Raw materials	1.5	..	..	1.5	..	1.5
Mexico	1.5	..	..	1.5	..	1.5
Motor-buses	3.7	.5	..	3.2	.4	2.8
Brazil	3.7	.5	..	3.2	.4	2.8
Dollar exchange	.3	..	..	.3	.1	.2
Chile	.3	..	..	.3	.1	.2
Unappropriated	.9	.9	..	..	..	..
Colombia	.9	.9	..	..	..	..
Total credits	677.5	42.0	178.2	457.2	129.7	327.4

Source: Export-Import Bank.

a/ Includes 8 million dollars for the petroleum industry.
b/ Includes harbour equipment, Liberty ships and dredges.
c/ Includes highway construction and maintenance.

CHAPTER II. THE EXTENSION OF TECHNICAL PROGRESS IN LATIN AMERICA AND THE PROBLEMS INVOLVED

A new stage in the extension of technical progress

1. The extension of technical progress from the countries in which it originated to the rest of the world has, from the point of view of each generation, been relatively slow and irregular. During the long period which elapsed between the industrial revolution and the First World War, the new methods of production in which technique has constantly played a part, have only reached a small proportion of world population.

The movement began in Great Britain, continued in varying degrees of intensity in Europe, assumed an extraordinary impulse in the United States and finally reached Japan, which deliberately set about to assimilate rapidly Western methods of production. In this way, the great industrial centres of the world grew up, while but a small share of the improved productivity fell to the vast and heterogeneous periphery of the new system.

Technical progress only covers small sectors of the vast population of the periphery, as it usually only penetrates there when it is needed to produce foodstuffs and raw materials at low cost to be sent to the great industrial centres.

If the economic pattern which the world had reached before the First World War could be considered the ideal system of the international division of labour, it is obvious that any departure from its precepts must be considered as a deviation from the economy's normal way of functioning. However, there is no scientific reason to believe that this pattern is final. During that period a singularly important stage in the growth of world economy was accomplished, which, however significant its effects, could hardly be taken as final since to a certain extent it did not include

/ the vast

the vast area of the periphery, with its enormous potentiality to assimilate technical progress and thus raise the very inadequate standard of living of the great masses of its population.

Carefully considered, the economic development of the peripheral countries is a new stage in the world-wide extension of the new forms of productive technique, or, if preferred, in the organic development of world economy. A few early signs of this new stage had already appeared in the primary producer countries before the First World War. But it needed the War and the consequent difficulties of maintaining imports to reveal the industrial possibilities of those countries, and the great economic depression of the thirties to confirm the belief that these possibilities should be used in order to compensate through internal development for the manifest failure of the external impulse which had until then stimulated Latin American economy; this conviction was ratified during the Second World War, when Latin American industry, in spite of all its improvisations and difficulties, became a source of employment and of consumption for a large and increasing part of the population.

Latin America has, therefore, entered into a new stage of the process of the universal extension of technique, while it is still far from having assimilated it completely in primary production; and, as has just been seen, the new production methods penetrate preferably into the activities connected in one way or another with the exportation of foodstuffs and raw materials. As regards the execution of this primary task, which in fact falls to Latin America, there was from the beginning a scrupulous assessment of aptitudes. Vast regions were added to the world economic system while others as large and generally more densely populated, remained outside its sphere until present times. The phenomenon thus develops in a very uneven manner. New and fertile lands, which became accessible during the second half of the last century through the development of transport, were given men, technique and capital with which to undertake agricultural and mineral production to satisfy the ever increasing European demand; but the impressive process of the extension of capitalist technique and economy by-passes other lands which

/ had long

had long been in use and which had supported their populations for centuries, because of their low level of productivity or difficulties of access. Thus in Latin America there are extensive regions, with relatively large populations, in which the methods of exploiting the land, and consequently the standard of living of the people, are essentially pre-capitalist. The problem of economic development there is above all a fundamental need for technical progress in agriculture and other related activities, including transportation.

Experience has repeatedly shown, however, that as modern technique increases productivity, a surplus of labour, no longer needed by agriculture, is created. It then devolves upon industry and other activities to absorb this labour productively. Hence agricultural improvement and industrial development are two aspects of the problem of economic development. One need only consider the large number of people engaged in agriculture in Latin America, with the exception of a few countries, to realise the size of this problem and the vast effort which will be necessary to solve it.

An increasing proportion of the active population of Latin America, as part of the periphery, will automatically be diverted from agriculture towards industry and other urban occupations, as technical progress continues. However, the problem does not consist only of the evolution of certain pre-capitalist or semi-capitalist methods of production, still used by a large part of the population, towards methods characterised by a high level of capitalization per man and high productivity. Though this is indeed very important, the problem cannot be limited to these terms, unless other fundamental aspects are to be ignored. This is not surprising, for if there are certain common denominators in the way of looking at the problem in the different countries, there are also specific differences which must be examined to avoid unjustified generalizations.

Two different cases of economic development

2. First of all, as already stated, one of these differences lies in the manner in which technical progress penetrates. In order to illustrate this

/aspect of

aspect of the problem, let us consider two extreme cases: those of Mexico and Argentina. Argentina is a peripheral country into whose lands, only recently cultivated, the technique of capitalist production penetrated deeply during the second half of the nineteenth century. Except for a few centres, there was no long-established agriculture and the land, till then deserted or scantily populated, attracted large numbers of immigrants and capital. The population grew in strict relation to the technical and economical development, which in turn was due to a strong and continuous stimulation from abroad. The growth of Argentine economy depended almost exclusively upon that external stimulation until the beginning of the world economic crisis.

When this type of economic and demographic growth began in Argentina, Mexico was already relatively well populated, with an agricultural tradition; its land, already exhausted by the pressure of a constantly increasing population, could not compete with the new agricultural areas. There was no incentive to bring new methods from outside to Mexican agriculture, which thus tended to keep its pre-capitalist ways with their very low coefficient of productivity per man. Mexico, therefore, entered the world system not by means of its age-old subsistence agriculture, but by means of the mining industry and the exportation of Yucatan henequen, especially the former, which in the course of time became more important than the exploitation of precious metals, of legendary fame. Mining and the activities which directly or indirectly depend from it, only absorb a very small proportion of the Mexican population. A large part remains stagnant in long-established ways of life and activities with no direct connection with the outside world, so that these sectors of the population are not very strongly influenced by the external stimulus of development. Despite the recent addition of other strong internal stimuli, those groups of the population continue to mark that country's economy as under-developed. In fact, 65 per cent of the active population is still engaged in agriculture, which represents barely per cent of the value of Mexican exports, while in the Argentine, where exports are still essentially agricultural, only 36 per cent of the active population works on the land.

/Consequently the

Consequently the problem of economic development which Mexico is trying with such great effort to solve, consists of replacing the old agriculture with its low productivity by a new one with a higher yield per man. Then the surplus of labour already mentioned occurs, for which a place must also be found within the sphere of capitalist technique. Moreover, as the increase in population in Mexico is one of the largest ever registered, the extent of the problem is easily realized.

The Argentine case is different. It is not a question of a large population in a pre-capitalist state, nor of one growing at a rate comparable to that of Mexico, though technique is certainly far from having reached a satisfactory state in Argentina, even in the field of agriculture, and there is therefore room for considerable improvement. The problem of economic growth here lies fundamentally in the considerable weakening of the external impulse, which had exercised such a strong influence until the beginning of the great world crisis. The ever increasing world demand for its exports during this first stage of Argentine development, was not only the means of absorbing the natural growth of the population, very high at that time, but also of attracting and settling there large masses of the European population. During the thirties, however, the volume of Argentine exports, instead of continuing to rise, tended actually to decline, so that if after that time it was possible to absorb the population increase and improve productivity, it was because the weakened external stimulus was replaced by the deliberate one of industrialisation.

The common denominator referred to above lies precisely in the facts imposed by industrialisation. Exports are not sufficient to absorb the increase in population, still less the surplus, real or potential, of the active population engaged in agriculture or other activities. This fact thus constitutes a characteristic common to the economic development problem of Mexico, Argentine, and the other Latin American countries. Not even Venezuela can be counted an exception, in spite of its swiftly increasing rate of exports, as will be seen later.

Variables in the problem of economic development

3 It is clear that the problem differs in each country according to a

series of factors, of which we shall only mention those which directly concern us. In order to increase productivity, in addition to the natural resources and the aptitude of the population to assimilate technical progress, the amount of capital per man employed must be increased, in agriculture as well as in industry and transportation; this means that the greater population in a pre-capitalist or semi-capitalist state and the higher its rate of growth, the greater is the need of capital. In most of these countries there are serious difficulties in the way of forming internally the necessary savings to accumulate this capital; in addition to this, there is another equally important limiting factor: the amount of exports, upon which these countries depend to transform their savings into imports of capital goods, of which the greater part must be brought from the great industrial centres. Here too there are outstanding differences between one country and another, which, together with the capital needs and other factors, contribute towards the divergence in the terms of the problem of development.

Without touching here upon the second section and for the sole purpose of pointing out some of the differences, the following table shows dollar exports "per capita", the average rate of the annual population increase, and the proportion of people employed in agriculture, in order to give an idea of the population, which in most cases, is still in a pre- or semi-capitalist state.

Returning to the case of Mexico, it is easy to see the pressing terms in which the economic development problem is presented there. On the one hand, the rate of the population increase is high and the proportion of people employed in agriculture very high indeed: the potential needs for capital are therefore enormous; on the other hand, the exports with which they must be satisfied are amongst the lowest "per capita". Brazil is in a similar position. These are the two most densely populated countries of Latin America, which renders the problem all the more urgent. Cuba, on the other hand, is in a more favourable situation. The rate of the population increase there is lower and so is the proportion of people employed in agriculture, so that the "per capita" exports are amongst the highest, together with those of Venezuela. From this point of view

/there is

Table 1 Increase of total Population, Active Population by Groups and per capita Exports in Dollars of Latin America

Countries	Increase of population 1937-49 % per annum	Percentage of total active population		Per capita exports in Dollars	
		Of those engaged in agricultural activities	Of those engaged in primary production	1935-39	1945-48
Argentina	15.4	36		38.5	79.1
Bolivia	18.8			10.3	18.7
Brazil	23.3	67	70.2	7.9	16.7
Chile	20.7	36	41.0	29.8	47.0
Colombia	23.0	74	75.6	9.1	21.3
Costa Rica	31.8			14.8	26.1
Cuba	11.7	41	41.8	34.5	118.8
Dominican Rep.	36.3			10.2	32.3
Ecuador	18.5			4.4	11.3
El Salvador	24.1			10.7	16.1
Guatemala	30.6			6.0	11.7
Haití	25.9			2.7	7.3
Honduras	21.2			8.6	14.5
México	25.4	65	67.2	9.5	15.6
Nicaragua	23.2	73	74.2	5.6	11.1
Panamá	25.9	72	52.4	6.6	10.4
Paraguay	30.6			7.4	19.6
Perú	21.4	62	64.2	13.5	20.3
Uruguay	10.8			25.9	66.4
Venezuela	27.4	51	53.1	69.7	155.4
Total	22.2			15.9	34.9

Source: Research Centre Economic Commission for Latin America.

Notes: The basic data was secured from official sources of each country; The Foreign Trade of Latin America, U.S. Tariff Commission; Statistical Yearbook and Demographic Yearbook, United Nations; Foreign Commerce Weekly, U.S. Department of Commerce; and Economic Survey of Latin America, Economic Commission for Latin America.

The figures referring to the percentages of population engaged in agricultural activities and primary production correspond to the following years: Colombia: 1938; Brazil, Chile, Mexico, Nicaragua and Perú: 1940; Venezuela: 1941; Cuba: 1943; Panama: 1945; and Argentine: 1947.

there is a certain resemblance between the two countries, though in Venezuela imports are increasing at a very great rate, while Cuba has been subject to the depressive factors common to the majority of the Latin American countries.

Finally, not to enter into too much detail, in Argentina the rate of increase of population is lower and the proportion of people employed in agriculture equal to that in Chile and lower than that in the other countries; Argentine exports despite a tendency to decline in volume since the world economic crisis, as already stated, still represent a high "per capita" value, though not equal to that of Venezuela and Cuba. But since this value expressed in dollars at a constant purchasing power, is tending to decrease, it is not surprising to find that the insufficiency of these exports constitutes a serious obstacle in the way of Argentine economic development. This shows that it is not enough to take into account the amount of exports at a given time in order to judge the terms of the problem of the economic development; their rate of increase must also be considered. Exports which seem very satisfactory may soon no longer be so, if the rate of internal increase is rapid. This aspect will be discussed later; it is only necessary to add here that if the above mentioned case of Venezuela is excepted, the increase in the volume of its exports does not appear sufficient on the whole, to supply the need for imports which economic development brings with it.1/

If the above case is excepted, we come here to the second common denominator. The first, as already stated, consists of the insufficiency of exports to absorb the population increase together with the surplus resulting from technical progress. The second is that exports are also inadequate to meet the demands of the economic development. This gives rise to a very important phenomenon: the tendency towards persistent disequilibrium on the balance of payments, a phenomenon generally inherent in the process of economic development. Let us now attempt to analyse it.

1/ For the sake of simplicity, the analysis will be limited to exports and imports without reference to other items of the balance of payments which it would be easy to include.

/The increase

The increase in income and disequilibrium

4. The fundamental economic problem of Latin America lies in increasing its real "per capita" income, by virtue of an increase in productivity, since the raising of the standards of living of the masses by means of the redistribution of income is very narrowly limited. An increase in "per capita" income means that total income must increase at a greater rate than the population. When this occurs, imports likewise tend to rise at a greater rate than population. If exports do not follow suit there will of course be a disequilibrium in the balance of payments, with consequent effects upon internal economy.

To understand this phenomenon, let us take an ideal case of dynamic equilibrium in which exports and total income increase at the same steady rate as population and imports in turn rise in the same proportion as exports. Dynamic equilibrium therefore in this case means that productivity remains constant and consequently there is no increase in "per capita" income. Let us now assume that technical improvements are introduced into agriculture for domestic consumption, increasing productivity and thence income; and let us examine the consequences.

By means of these improvements it is possible to increase production with less labour employed. Two immediate consequences arise: an increase in productivity per man and a surplus of labour in agriculture. There will have been an increase in the real income of the community arising from agriculture, as the increased productivity will either have benefited the producers by increasing their profits, or the consumers, through lower prices. At the same time, the employment of the surplus manpower in other activities means a further increase of real income, which together with the previous one makes up the total increase of income.

The disequilibrium of the increase of total income becomes apparent immediately: a part of it will tend to be spent on imports, raising them above the normal increase and causing them to be greater than exports. The import coefficient need not necessarily have varied; however, it is probable that it will have increased, for two reasons: first, because there must be greater imports of capital goods in order to increase productivity; and secondly, because of certain typical reactions of a

/peripheral country.

peripheral country. In fact, observation shows that at a given moment the import coefficient is very low in sections of low productivity or low level of income per person, and that it rises in relation to the income group; thus, when there is a rise in income per person of either the primary producers or the consumers, the favoured sectors will increase their import coefficient and contribute to a rise in the total coefficient. If this should occur, the disequilibrium between imports and exports would be still greater.

The disequilibrium in the internal demand is closely linked with the preceding one. It is obvious that the increase in income has its counterpart in the value of the goods and services from which it derives, 1/ so that if a part of the increase in income is spent in imports, an equal amount of internal demand will disappear, thereby causing a disequilibrium with regard to the greater production offered.

Such a disequilibrium would not occur in the ideal case of steady development mentioned above, as there imports rose at the same rate as total income and exports, and the strict correlation between the two was assured. At the same time, the fall in internal demand caused by greater imports would be compensated by the normal increase in the income of export industries and by the internal demand deriving from it.

This suggests that if the manpower displaced from agriculture for internal consumption were subsequently employed in increasing exports, the disequilibrium would not arise. This possibility is carefully examined at the end of the chapter. Meanwhile other aspects of the problem must first be considered to maintain the sequence of the argument.

So far it has been assumed that technical progress has only been introduced into agriculture for domestic consumption. What would happen if it had been applied to industries producing for export? In this case, as in the preceding one, it is assumed that the external demand for the exports of the country in question increase at the same regular and constant rate as the population of that country and that the demand does not allow the exports to increase at any greater rate. This being so, the surplus of manpower caused by technical progress cannot

1/ This statement is theoretically incorrect, as in any process of increasing production the income accounted for is always greater than the value of the finished production. However, it is a theoretical nicety which is not necessary for the purpose of the matter under discussion.

be employed in the export industry. If domestic industries and other activities are developed in order to absorb it, there will also occur an increase in real income, as in the previous case, with the same effects upon the balance of payments and internal activity.

It is obvious that if, when the national income of a country increases at a greater rate than its population, exports do the same, there will be no disequilibrium. However, this has not been the general rule in the Latin American countries during the last twenty-five years, as will be seen in the next chapter. It now becomes easy to understand the reason for certain tendencies towards a chronic disequilibrium in the balance of payments which can be observed in some of these countries, anxious to increase productivity and raise the standard of living of the population. It is true that inflation plays a part here, often a leading one; but in order to arrive at the truth, the organic phenomenon of economic development must be distinguished from the circumstancial phenomenon of inflation. To the degree that the import coefficient remains in one way or another unadjusted — when total income increases at a greater rate than exports and when no foreign investments are made to cover the time lag until readjustment takes place — the tendency toward disequilibrium will be constant and will inevitably create monetary consequences whether inflation is present or not.

Since inflation is usually accompanied by a notable increase in the imports of capital goods, it might be thought that if these were paid for with real savings and not with inflationary resources, no disequilibrium would occur. It would however occur even if the capitalization were effected without inflation, since, whereas according to the coefficient only a part of the income formerly consumed and now saved, was spent in imports, now the whole is spent.

The surplus of manpower in primary production, and exports

5. It has just been explained how, when income increases at a greater rate than population, economic development is accompanied by phenomena of disequilibrium, which occur because exports are not then

adequate to meet the demands of that development. In other words, the capacity to import does not grow in proportion to the necessity to import. It was also explained above that in the same way exports are insufficient to absorb the increase in population plus the surplus deriving from the technical progress which took place in primary production.

There are, however, other possibilities in international economy, whereby Latin American exports could be very much greater than they actually are. It is sometimes thought that the primary producing countries might perhaps, as in former times, have continued to increase their exports, had they still been disposed to accept as payment imports from the industrial centres, and had the latter acted reciprocally; in this case, there would have been no reason for the above mentioned phenomena of disequilibrium.

The nature of this report precludes the discussion of economic policies and the indication of the advantages and disadvantages of alternative solutions. There is, however, an objective question which may be asked and which concerns the analysis undertaken in these pages: if the typical primary-producer countries which include those of Latin America, were to employ in the export industries both the surplus of manpower arising from technical progress and the natural increase of population, would the import capacity of the industrial centres be sufficient to absorb the considerable increase of Latin American exports?

In order to answer this question, we must first examine the consequences of technical progress in regard to the distribution of employment of the population.

It is a well-known fact that with a low technical standard the proportion of people employed in agriculture and other branches of primary production is very high; as technique improves, this proportion diminishes and there is an increase in the relative importance of the population employed in industry, trade, transport and public services.

/In the United States

In the United States about a century ago 67 per cent of the gainfully employed population was engaged in primary production, while today there is scarcely 27 per cent. In Argentina, as already seen, the proportion has fallen to 36 per cent, even though primary production continues to be the chief source of exports. On the other hand, in countries where agriculture is still almost entirely in the pre-capitalist stage, the proportion is generally over 50 per cent and in some cases nearly 70 per cent.

The pattern of the distribution of employment is not arbitrary. In each country and epoch it depends principally upon the state of productive technique and upon the quantity and quality of the resources of all kinds which render it profitable. When technique is in a primitive state, it is logical that in view of the low productivity, a large part of the gainfully employed population should be engaged in producing foodstuffs and raw materials, and elementary processing. As technique improves and fewer people are needed to obtain more primary products, the surplus of gainfully employed population, together with the natural increase, become employed in industry, transport and trade, as a natural consequence of the expanding markets and specialization and diversification of production. In the same way, with the growth of productivity and real income per person, there is an increase in the demand for certain personal services; furthermore the state, as its functions expand, absorbs an increasing proportion of the increment to this real income and also of the gainfully employed population.

Thus, as technical progress is extended to the peripheral countries and especially when it penetrates the pre-capitalist and semi-capitalist sectors of their economy, the distribution of the gainfully employed population necessarily undergoes substantial changes.

Are there any special reasons for supposing that the consequences of the phenomenon of the extension of technique in the periphery would be different from those which took place in the countries in

/which technical

which technical progress had previously developed?

Let us suppose for a moment that the peripheral countries decided, as productivity in primary production rose, to continue to employ therein the same proportion of people. The result would be that throughout the world there would be a surplus of primary products which could not be processed, transported or distributed according to the technical standards reached, because there would not be sufficient gainfully employed population to do so; there would be a surplus of labour in primary production and a lack of it in secondary production.

This is inadmissible, both from a logical and an empirical point of view; technical progress forges links of interdependence between the various branches of the economic activity which cannot be altered lightly. Just as the development of industry, transport and trade, as well as services, needs the labour which is no longer necessary to primary production, the latter in its turn could not increase further without a corresponding development of these other activities.

Hence the problem is not whether industry and similar activities should or should not be developed when productivity rises in primary production, but whether the increase in industry, resulting from the extension of technical progress, should take place in the existing industrial centres or in the new centres which are appearing.

The mobility of productive factors

6. A good many of the peripheral countries, including those of Latin America, appear to have decided to include the development of industry within their economies, but it is not without interest to discuss briefly the conditions with which it would be necessary to comply in order to carry out the opposite policy: namely, that the existing industrial centres should continue increasing their industries, while the periphery continues to devote itself to primary production.

It has already been seen that when technical progress is

/extended to

extended to primary production, it produces a surplus of gainfully employed population in that sector, which can be absorbed by industry and other activities. If these other activities were not developed in the periphery, they would automatically have to develop in the centres which would consequently have to absorb the surplus manpower, in addition to that part of the natural increase in population which could not be absorbed in their own primary production.

This would mean complete mobility of population; in other words it would mean that the surplus which cannot be absorbed by primary production must be willing to emigrate from the periphery, overcoming natural reluctance, while the countries of the centre must be prepared to admit large masses of immigrants who, accustomed to relatively low wages, would compete to advantage with the workers of the centre.

This demonstrates that the idea that the peripheral countries should continue to carry out the role of primary production which fell to them during a particular stage in the process of the extension of technique, according to the precepts of the international division of labour, is based upon certain assumptions which do not appear compatible with the economic and social realities of the world, as it seemed when the process was started.

The logical consequences of the assumption of mobility of productive factors, which is essential to the theoretical concept of the international division of labour, are very far reaching and must be borne in mind when an attempt is made to interpret the significance of world conditions by means of theory.

If these assumptions of mobility had been fully carried out, the economic and social effects of technical progress, and the way in which it was extended, would certainly have been very different from what actually took place. This point will be discussed again in the following chapters.

CHAPTER III. THE WEAKENING OF LATIN AMERICA'S CAPACITY TO IMPORT DURING THE PAST TWENTY-FIVE YEARS

The volume of Latin American exports and their comparative prices

1. It has been shown that with the increase of per capita income deriving from increased productivity, total income increases at a greater rate than population, and that the rate of imports also tends to be higher.

In order to avoid a constantly unfavourable balance of payments in a newly developing country, its capacity to import should increase proportionately to this tendency of imports, or, failing this, the import coefficient should be lowered as much as is necessary.

In the second part of this report, we will consider the manner in which this phenomenon has occurred in the various Latin American countries during the last twenty five years. However, continuing our analysis, let us see how far the capacity to import has increased in relation to the growth of the population within Latin America.

The capacity to import depends fundamentally upon the volume of the country's exports and the price relationship between its exports and imports. There is little need to stress the fact that foreign capital investments affect import capacity; but the ability to service such investments also depends on the total volume of exports and their relative prices. However, we will not go into this aspect of the problem here.

Let us first trace the development of Latin America's exports. For this purpose, indices have been prepared showing the fluctuations in their total volume, calculating at constant prices the exports of those countries which comprise 95 per cent of total Latin American exports. This index is compared with the growth of population in curves 2 and 1, respectively, of Chart 1. In order to simplify the comparison, the two curves have been superimposed during the five year period 1925-29. The corresponding figures are shown in Table 2 A, which also includes other data mentioned

/further ahead

Table 2 A: Population, Exports and Capacity to Import of Latin America, 1925 - 1949

A - Yearly Variations

Years	Population	Qunatum index of exports		Price Index		Terms of trade	Index of capacity to import	
	Millions	Total	Per capita	Export	Import		Total	Per capita
				BASE: 1937 = 100				
1925	97.0	84.6	103.8	135.9	134.0	101.4	85.8	105.3
1926	98.9	88.4	106.4	124.7	131.0	95.2	84.2	101.3
1927	100.7	99.0	117.0	121.7	120.0	101.4	100.4	118.7
1928	102.6	103.0	119.5	122.9	119.0	103.3	106.4	123.4
1929	104.3	108.7	124.1	113.2	117.0	96.7	105.1	120.0
1930	105.9	90.4	101.6	90.2	113.0	79.8	72.1	81.0
1931	107.4	98.1	108.6	61.6	95.0	64.8	63.6	70.4
1932	109.3	82.0	89.3	53.4	76.0	70.3	57.6	62.7
1933	111.0	84.7	90.8	57.8	80.0	72.3	61.2	65.6
1934	112.8	85.6	90.3	81.5	91.0	89.6	76.7	80.9
1935	114.9	93.8	97.1	77.6	92.0	84.3	79.1	81.9
1936	117.2	90.3	91.7	87.6	94.0	93.2	84.2	85.5
1937	119.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1938	121.6	91.1	89.1	83.4	99.0	84.2	76.7	75.0
1939	124.3	97.0	92.9	81.5	99.0	82.3	79.8	76.4
1940	126.5	85.7	80.6	85.5	109.0	78.4	67.2	63.2
1941	129.2	93.3	85.9	93.4	117.0	79.8	74.4	68.5
1942	131.5	77.6	70.2	113.9	141.0	80.8	62.7	56.7
1943	134.2	88.9	78.8	124.7	154.0	80.9	71.9	63.7
1944	136.9	99.8	86.8	130.7	169.0	77.3	77.1	67.0
1945	139.9	104.5	88.9	133.8	167.0	80.1	83.7	71.2
1946	142.6	111.6	93.2	171.3	163.0	105.1	117.3	97.9
1947	145.2	115.6	94.8	217.5	191.0	113.9	131.7	108.0
1948	148.3	120.8	97.0	229.5	208.4	110.1	133.0	106.7
1949	150.7	109.8	86.7	218.1	195.5	111.6	122.5	96.8

Source: Research Centre - United Nations Economic Commission for Latin America.

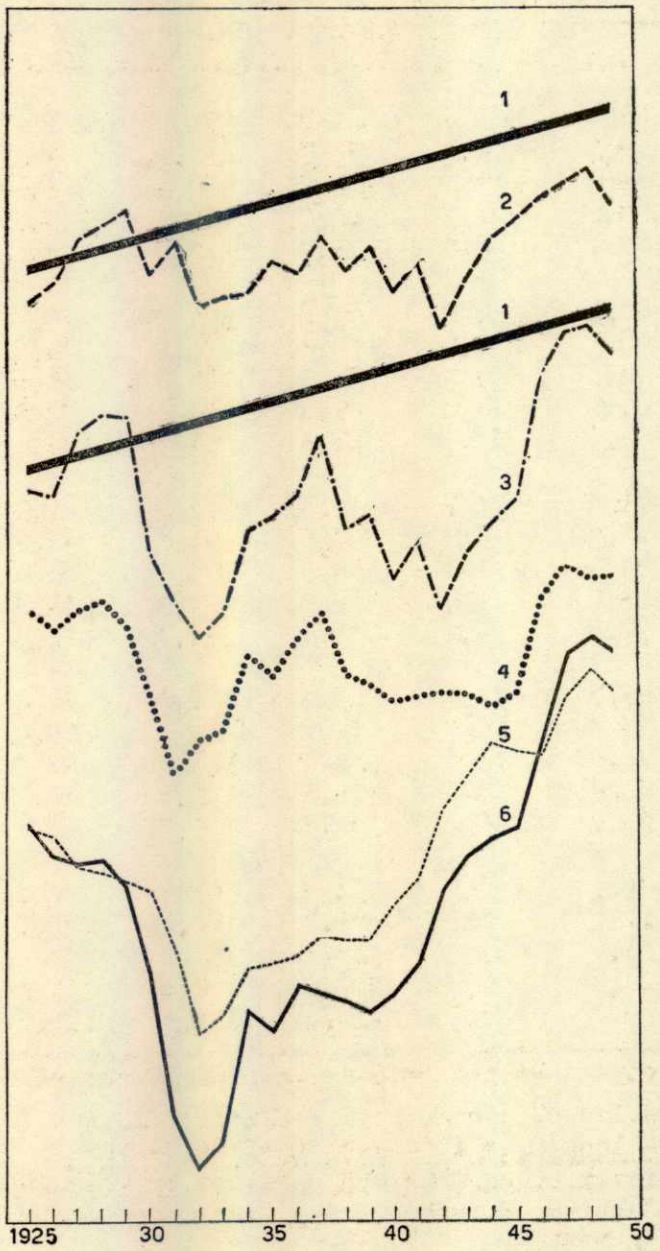
Notes: Population estimated according to official figures for each country, and the United Nations Monthly Bulletin of Statistics.
The quantum index of exports was obtained by weighin the quantum index of domestic production of each country according to the U.S. dollar value of its exports in 1937.
The price index of exports has been arrived at by dividing the index value of Latin American exports in U.S. dollars by the quantum index of exports.
The import price index corresponds to the direct arithmetic average of the export price index of the United Kingdom in United States dollar equivalents and the export price index of finished products of the United States.
The index of the capacity to import is the product of the terms of trade and the quantum index of exports.

GRAFICO 1

POBLACION, EXPORTACIONES Y CAPACIDAD PARA IMPORTAR DE LA AMERICA LATINA.

1 Población
2 Volumen físico de las exportaciones.
3 Capacidad para importar de la América Latina.
4 Términos del intercambio de América Latina.
5 Precios de importación de América Latina.
6 Precios de exportación de América Latina.

Escala logarítmica



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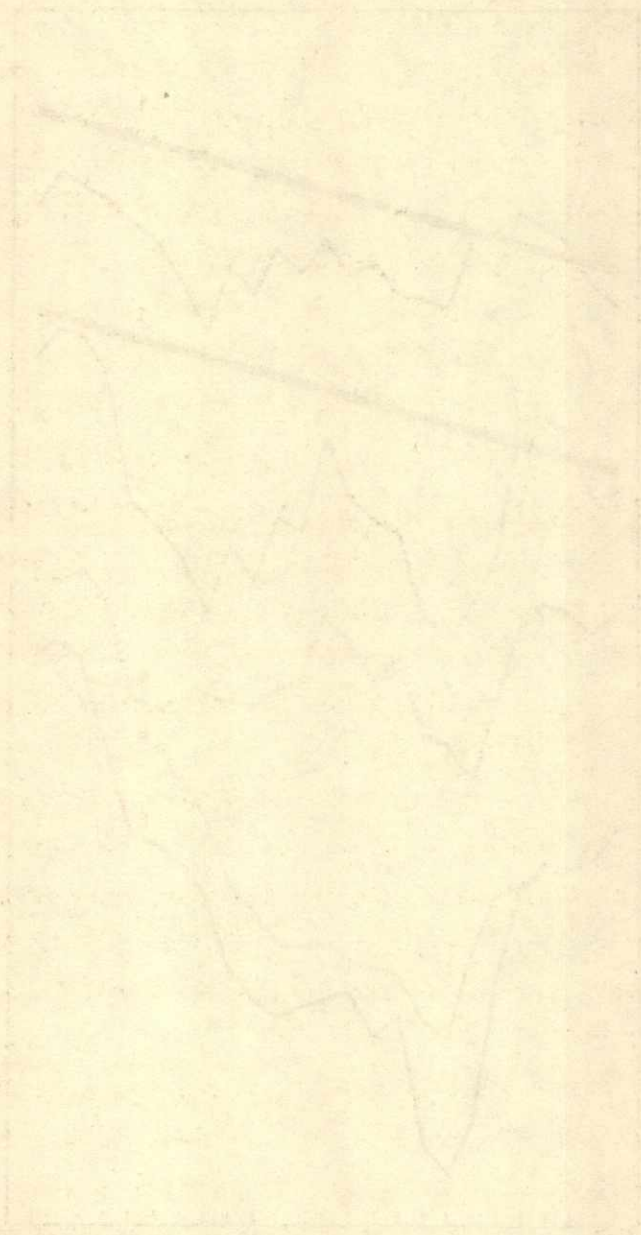

further ahead in this section. These curves, together with all those on the charts attached to this chapter, have been prepared with the use of a logarithmic scale in order to simplify comparison of the degree of fluctuation of the phenomena. The adverse effect of the world economic crisis upon exports is impressive: in the early thirties the index falls drastically and though some of the loss is made up, the curve remains very low for the rest of the decade in comparison with population, so much so that the marked increase shown by exports in the next decade was barely enough to surpass the levelling prevailing before the crisis. During the five year period 1945-49, exports were only 16.3 per cent higher than during the five year period 1925-29, whereas Latin America's total population increased 44.3 per cent. The quantum of per capita exports was thus reduced by 19.4 per cent during these twenty-five years.

Unfortunately, the terms of trade, far from compensating for this movement, tended to sharpen its effects. In order to measure these variations, a price index of Latin American exports has been calculated, and its fluctuations are represented by curve 6 on the aforesaid chart. It would have been useful to compare these prices with those of imports but adequate data for all the countries concerned are not available. Whilst this enquiry is being carried out, the average prices of exports from the United States and Great Britain have been used as a tentative indication of the cost of Latin America's imports. These are indicated by curve 5 on the chart.

The ratio of export to import prices, thus computed, gives us the Latin American terms of trade, shown by curve 4 on the chart. It should be noted that after the high level reached during the 1925-29 period, these terms deteriorated considerably during the crisis; a fair part of the loss was made up, but this improvement was short-lived. The terms of trade fell again in the early forties, and remained at a low level until the end of the decade, when they rose and finally surpassed the level of the late twenties. Thus, the average for the five-year period 1945-49 is 4.6 per cent higher than the 1925-29 average.

From this analysis, it is now possible to calculate an index of the fluctuations in Latin America's capacity to import. For this purpose, the index of quantum of exports was multiplied by the index of the terms of trade,

/and the

and the resultant index gives us an idea of the fluctuations of the volume of goods which Latin America could import, as a function of the volume exported and the relative prices of these exports. The fluctuations of this new index are indicated on curve 3.

During the period under observation, capacity to import decreased even more than the volume of exports, due to the unfavourable trend of the terms of trade. Thus despite its fluctuations the index remained far below that of population, and only in the last few years do we find the capacity to import rising to what it might have been, had it continued to increase at the same rate as the population. In 1945-49, it was only 22.1 per cent higher than in 1925-29, whereas the population, as has already been pointed out, increased by 44.3 per cent, and per capita capacity to import was thus reduced by 15.6 per cent.

In order to simplify comparison, the following table has been prepared to show the five yearly averages corresponding to the annual figures given in Table 2 A.

Table 2 B: Population, exports and capacity to import of Latin America, 1925-49

Percentages of variation on the 1925-29 yearly average

Years	Population	Quantum of index of exports		Price Indices		Terms of Trade	Index of capacity to import	
		Total	Per capita	Export	Import		Total	Per capita
	Percentage of the variation on the 1925-29 average							
1930-34	8.5	- 8.8	- 15.8	- 44.3	- 26.7	- 24.3	- 31.3	- 36.6
1933-39	18.6	- 2.4	- 17.5	- 36.5	- 22.1	- 19.8	- 12.9	- 26.3
1940-44	30.8	- 7.9	- 29.5	- 11.4	11.1	- 20.3	- 26.7	- 44.9
1945-49	44.5	16.3	- 19.4	58.8	49.0	4.6	22.1	- 15.6
1949	49.6	13.5	- 24.2	76.3	57.4	12.0	27.1	- 14.9

Note: For source and annotations, see Table 2 A.

The data are not sufficient for the satisfactory measurement of the phenomena. This would require very detailed investigation, demanding time and labour not available at present. It is not merely a question of analysing export and import prices: in addition it would be interesting

/to determine

to determine the percentage of the export price that remains within the exporting country. For instance, statistics appended to another chapter show that Chile is now receiving a greater proportion of the international price of copper than was the case at the beginning of the quarter century under review; the same applies to Venezuelan petroleum exports. Facts such as these, possibly of considerable importance, are not immediately apparent from the price relations we have analysed. On the other hand, the price indices of industrial exports, used in calculating those relations, do not allow for the improvement in quality of such goods, and yet this has certainly been much greater than in the case of raw materials. The foregoing conclusions should therefore be regarded as provisional, until wider investigations can be made.

The importation of Latin American products into the United States

2. Despite certain specific cases, there can be no doubt, however, that during the past twenty five years, the volume of Latin American exports has not increased as much as the population and that the movement of price relations has not tended to offset this disparity. Ever since Latin America appeared on the international trade market, about the middle of the nineteenth century, no similar phenomenon of like significance has occurred. Yet it is highly important in relation to problems of economic development and justifies detailed analysis. Let us therefore examine the movement during the last quarter century of Latin American exports to the United States and Great Britain, since these countries absorb a considerable proportion of the total export volume.

We will first investigate Latin American exports to the United States. For this purpose, Chart 2 was prepared, showing the fluctuations of real income in that country, at constant prices represented by curve 3, in relation to imports (also at constant prices), that is, in relation to the volume represented by curve 2. The curves are superimposed during the 1925-29 period and the corresponding statistics will be found in Table 3 A.

Looking at the curves of this chart, we see that during the past twenty five years, the fluctuation of real income in the United States has been the dominant factor in the rise and fall of imports from Latin America. This correlation is not absolute, since in the thirties imports fluctuate

/more sharply

more sharply than income, and over the whole period they reveal minor fluctuations which do not follow the movement of income. There is, however, a definite connection between these factors which seems to indicate that the fluctuations of income outweigh those of other factors in their influence upon the volume of imports.1/

By multiplying the index of the quantum of imports, mentioned above, by the terms of trade, we obtain the index of the capacity to import of Latin America, as a function of the products which it exports to the United States, and their relative prices. This new index is represented by curve 5 of the aforesaid chart.

In order to calculate the terms of trade, a special index was first computed based upon the prices of the fourteen principal Latin American commodities imported by the United States; this was then divided by United States export prices of finished manufactures. These data are all indicated on the above-mentioned chart.

Let us now see what conclusiones can be drawn from these indices. It should be especially noted that during the thirties the quantum of Latin American products imported by the United States decreased remarkably in relation to the five year period, 1925-29, prior to the great world crisis, whereas population continued to increase at the same rate as before. The capacity to import was subject to a still greater reduction owing to the deterioration of the terms of trade, as can be seen from the following summarised table.

1/ It would be interesting, nevertheless, to study each commodity separately, in order to observe the effect of increased customs tariffs and other restrictive measures which are known to have exerted considerable influence in some cases. The consequences of restrictions formerly applied to some goods may possibly have been neutralised by the increased importation of other articles, especially during the forties under the pressure of war and post-war demand.

/Table 3 B

GRAFICO 2

RELACION ENTRE EL INGRESO REAL DE ESTADOS UNIDOS, LAS IMPORTACIONES PROVENIENTES DE AMERICA LATINA Y LA CAPACIDAD PARA IMPORTAR DE ESTA EN FUNCION DE LAS EXPORTACIONES A ESTADOS UNIDOS Y SUS PRECIOS RELATIVOS.

1 Población de América Latina.
2 Importaciones provenientes de América Latina.
3 Ingreso Nacional de Estados Unidos.
4 Términos del intercambio de América Latina con Estados Unidos.
5 Capacidad de América Latina para importar de Estados Unidos.
Escala logarítmica

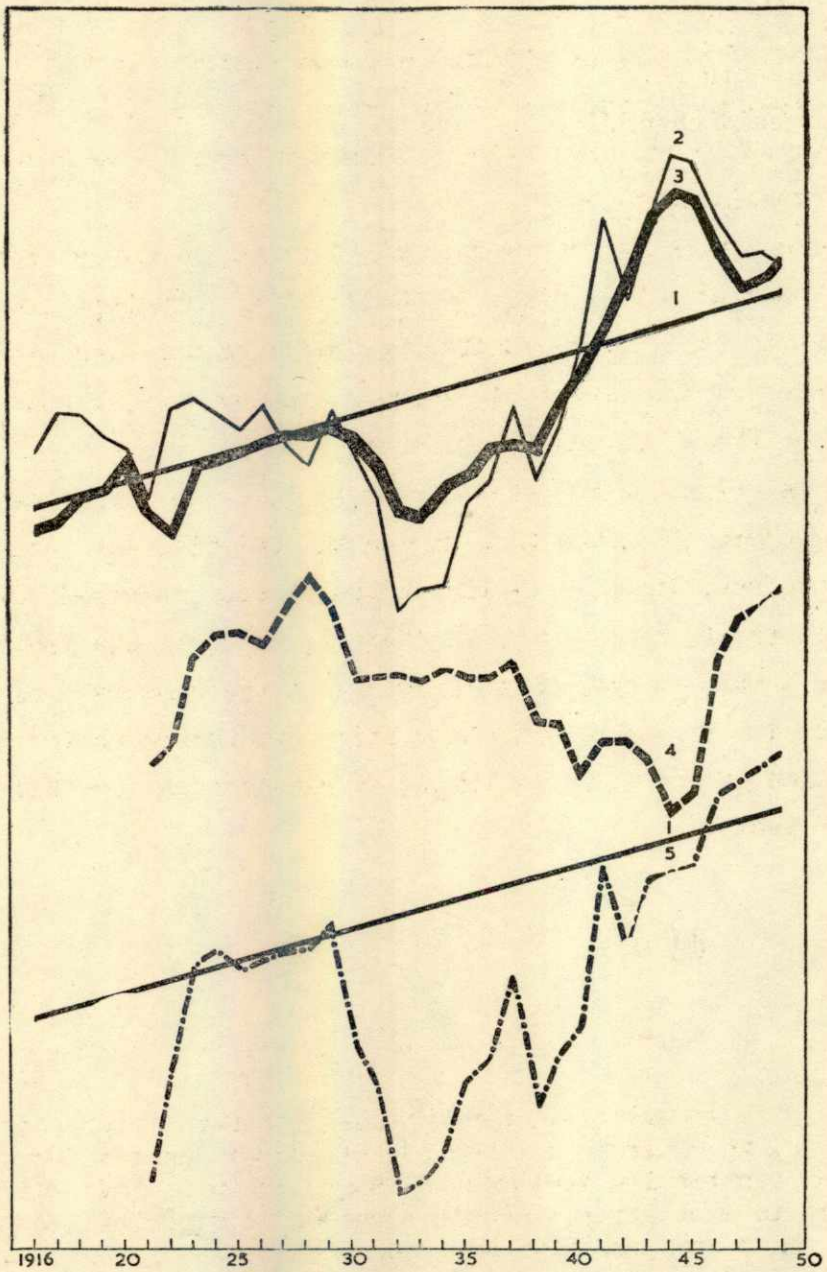

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Table 3 A: Real income of the United States, in relation to its imports from Latin America and the latter's capacity to import as a function of its exports and its relative prices

Yearly variations

Years	Real income of the United States	United States imports from Latin America	Import coefficient from Latin America %	Price indices		Terms of trade of Latin America with U.S.	Latin America's capacity to imprt from United States
				Exports	Imports		
	Millions of dollars of 1937			Base: 1937 = 100			
1916	53,067	576.3	2.12	142.9	..		
1917	53,926	646.5	2.22	159.4	..		
1918	58,118	650.9	1.94	170.0	..		
1919	58,827	613.3	2.09	215.0	..		
1920	65,362	592.3	2.25	290.2	..		
1921	56,128	498.0	1.22	138.8	186	74.6	55.2
1922	52,215	655.9	1.55	120.8	153	79.0	77.0
1923	64,374	675.8	1.56	151.8	147	103.3	103.8
1924	65,051	645.7	1.54	160.3	144	111.3	106.8
1925	66,086	624.2	1.44	161.2	145	111.2	103.2
1926	69,361	673.3	1.42	154.7	146	106.0	106.1
1927	69,779	604.8	1.30	158.6	132	120.2	108.0
1928	69,637	564.7	1.25	167.9	130	129.2	108.5
1929	71,620	662.0	1.28	153.1	129	118.7	116.8
1930	69,613	580.3	0.94	116.8	123	94.9	81.9
1931	64,734	506.5	0.79	94.4	98	96.3	72.5
1932	56,961	371.4	0.69	87.0	90	96.7	53.4
1933	55,891	387.1	0.71	81.6	86	94.9	54.7
1934	60,659	400.1	0.71	91.8	93	98.7	58.7
1935	62,504	509.5	0.83	91.2	94	97.0	73.5
1936	67,964	541.7	0.77	92.4	95	97.3	78.4
1937	69,419	672.5	0.97	100.0	100	100.0	100.0
1938	68,446	544.7	0.73	83.2	98	84.9	68.8
1939	77,202	632.6	0.75	81.8	97	84.3	79.3
1940	84,681	796.1	0.80	77.8	106	73.4	86.9
1941	97,388	1,158.5	1.02	87.0	109	79.8	137.5
1942	113,149	901.4	0.76	108.4	135	80.3	107.6
1943	133,945	1,168.8	0.83	112.8	149	75.7	131.6
1944	142,690	1,389.6	0.92	114.7	175	65.5	135.3
1945	140,792	1,359.1	0.94	119.7	174	68.8	139.0
1946	120,581	1,136.1	1.04	154.9	152	101.9	172.1
1947	109,046	1,030.6	1.12	208.6	180	115.9	177.8
1948	112,199	1,038.8	1.10	226.4	188	120.4	186.0
1949	117,989	1,003.0	1.09	229.7	180	127.8	190.5

Source: Research Centre, Economic Commission for Latin America, United Nations.

Note: Basic data for the calculation of real income, of imports and of the coefficient of imports, correspond to: National Income in the United States; Robert Martin; Statistical Abstract of the United States: Statistical Yearbook, United Nations and Historical Statistics of the United States.
The export price index has been calculated by the Economic Commission for Latin America on a basis of the 14 principal products exported by Latin America to the United States. Import prices were based on the export price indices for manufactured products finished in the United States.

Table 3 B: Real income of the United States, in relation to its imports from Latin America and the latter's capacity to import as a function of its exports and its relative prices

Percentage of variation on the 1925-29 yearly average

Years	Real income of the United States	United States imports from Latin America	Import Coefficient from Latin America	Price indices		Terms of trade of Latin America with U.S.	Latin America's capacity to import from United States
				Exports	Imports		
	Percentages of variation on 1925-29 average						
1930-34	- 11.2	- 28.3	- 42.5	- 40.7	- 28.2	- 17.8	- 40.8
1935-39	- 0.3	7.4	- 39.6	- 43.6	- 29.0	- 20.8	- 26.3
1940-44	65.0	73.0	- 35.1	- 37.1	- 1.2	- 36.1	10.4
1945-49	73.3	77.9	- 20.9	18.1	28.2	- 8.6	59.5
1949	70.3	60.2	- 18.7	44.4	32.0	9.1	75.6

Note: For source and notes, see Table 3 A.

During the forties imports rapidly made up the ground they had lost, and surpassed the growth of the population. But the capacity to import did not improve to the same extent. Whereas in the five-year period 1940-44, the index of imports reached 173 and that of population 130.8 in relation to the 1925-29 level, the index of the capacity to import only rose to 110.4, the index of the terms of trade having reached its lowest point, 63.9, during that five-year period. However, in the following period, 1945-49, the index of the terms of trade improved, rising to 91.4, whilst that of export rose to 177.9. Consequently the index of the capacity to import was raised to 159.5 and for the first time in the whole twenty-five years was higher than the growth of population.

United Kingdom imports from Latin America

3. We will now observe the course of British imports of Latin American goods. For this purpose, Chart 3 and Table 4 A have been drawn up along the same lines as those relating to the United States.

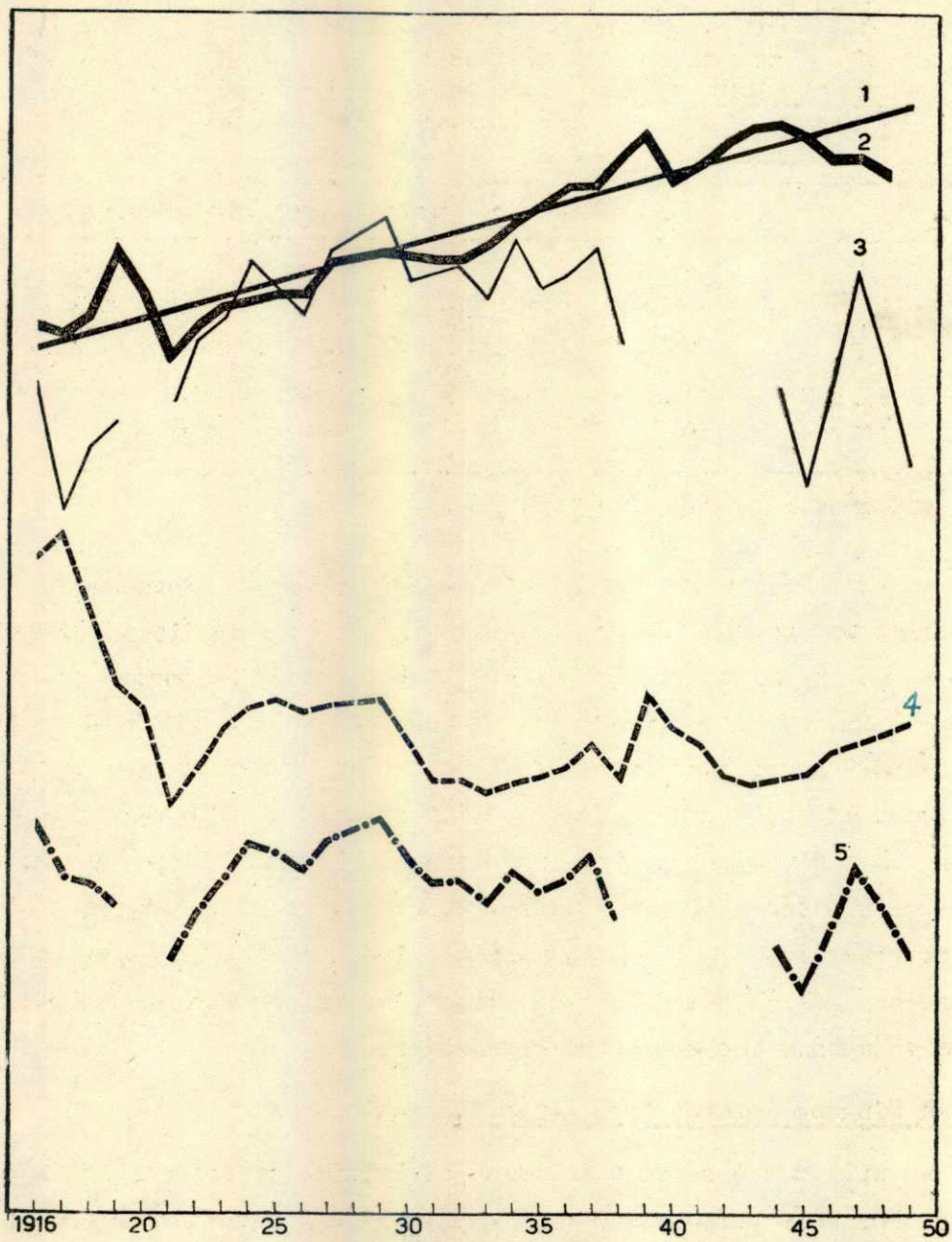
It will be seen at once that the close connection between real income and imports existing in the United States does not obtain in Great Britain.

/On the contrary,

GRAFICO 3

RELACION ENTRE EL INGRESO REAL DEL REINO UNIDO, LAS IMPORTACIONES PROVENIENTES DE AMERICA LATINA Y LA CAPACIDAD PARA IMPORTAR DE ESTA EN FUNCION DE LAS EXPORTACIONES ~~DEL~~ AL REINO UNIDO Y SUS PRECIOS RELATIVOS.

1 Población de América Latina.
2 Ingreso real del Reino Unido.
3 Importaciones provenientes de América Latina.
4 Términos del intercambio del Reino Unido.
5 Capacidad para importar desde el Reino Unido. de América Latina.
Escala logarítmica



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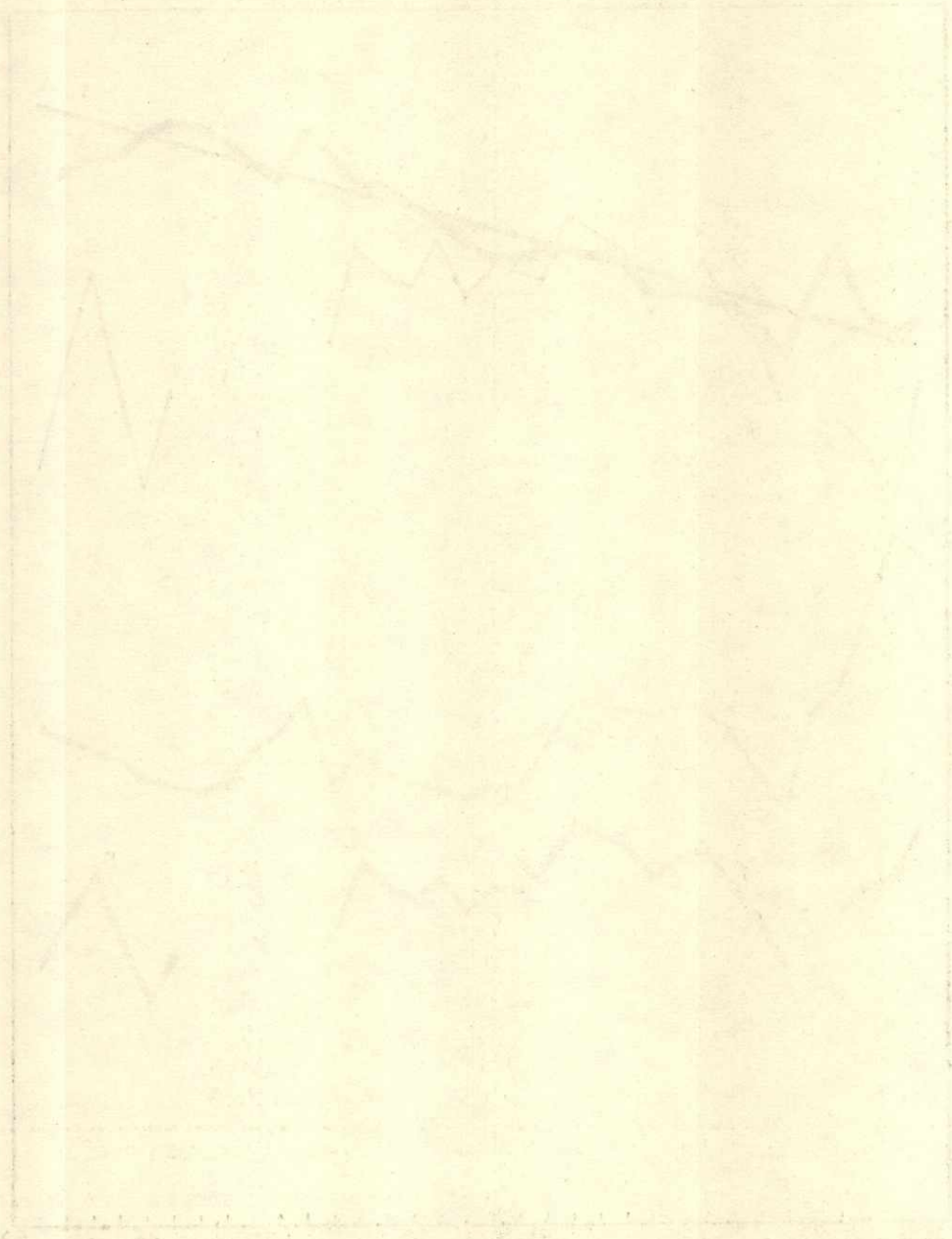

Table 4 A: Real income of the United Kingdom in relation to its imports from Latin America and the latter's capacity to import as a function of its exports and relative prices

Yearly variations

Years	Income of the U.K.	Imports from Latin America	Coefficient of imports from Latin America	Terms of trade of U.K.	Latin America's capacity to import from the U.K.
	In millions of pounds sterling			Base: 1937 - 100	
1916	3,212	72.8	3.27	159.8	114.6
1917	3,157	53.4	2.74	169.6	89.2
1918	3,317	62.1	3.16	141.4	86.4
1919	3,892	66.9	2.76	116.9	77.0
1920	3,518	..		109.2	
1921	3,051	68.7	2.56	86.9	55.8
1922	3,246	80.6	2.80	94.8	75.3
1923	3,402	85.3	2.95	104.6	87.9
1924	3,450	98.9	3.54	109.8	106.9
1925	3,504	92.5	3.22	111.2	101.3
1926	3,504	86.9	2.82	108.0	92.4
1927	3,824	101.2	2.97	110.1	109.8
1928	3,853	105.3	3.12	111.5	115.6
1929	3,943	110.6	3.19	111.7	121.7
1930	3,883	94.6	2.57	101.4	94.5
1931	3,843	96.2	2.28	91.8	87.0
1932	3,845	97.6	2.21	91.6	88.0
1933	4,097	90.7	1.86	88.1	78.7
1934	4,237	103.7	2.10	90.6	92.6
1935	4,428	92.4	1.88	92.2	83.9
1936	4,600	95.6	1.91	94.6	89.1
1937	4,616	101.5	2.20	100.0	100.0
1938	5,022	79.9	1.61	92.4	72.7
1939	5,302	..		113.7	
1940	4,746	..		105.9	
1941	4,958	..		99.9	
1942	5,214	..		93.0	
1943	5,447	..		91.1	
1944	5,468	71.6	1.58	91.7	64.7
1945	5,381	57.0	1.26	93.2	52.3
1946	5,086	72.0	1.85	98.4	69.9
1947	5,006	96.7	2.72	99.9	95.2
1948	4,840	77.0	2.28	103.4	78.4
1949	...	58.9		106.9	62.0

Source: Research Centre of the United Nations Economic Commission for Latin America.

Note: The basic data for the calculation of income and imports are taken from: Economic Journal, Royal EconomicSociety; Statistical Yearbook, United Nations; The Statesman's Yearbook and Accounts Relating to Trade and Navigation of the United Kingdom.
The price indices, by means of which the terms of trade are determined, correspond to figures supplied by the U.K. Board of Trade and Schlote in "Entwicklung und Struktunmand lungen des englischen Aussenhandels von 1700 bis zur Gegenwort", basing exports on the indices of finished products and imports on the average indices for foodstuffs and raw materials.

On the contrary, there is a notable difference between the two curves. Thus, while real income in Great Britain rose from 100 in 1925-29 to 136.3 in 1945-49, the index of goods imported from Latin America fell to 76.2. It is not surprising, therefore, that Latin America's total exports, as indicated at the beginning of this chapter, did not increase at the same rate as the population during the past twenty-five years. Meanwhile, the increase in the total exports to the United States was not sufficiently great to compensate for the reduction of exports to other countries, among which Great Britain is one of the most important.

Table 4 B: Real income of the United Kingdom in relation to its imports from Latin America and the latter's capacity to import as a function of its exports and relative prices

Years	Real income of the U.K.	U.K. imports from Latin America	Import coefficient from Latin America	Terms of trade of U.K.	Latin American capacity to import from the U.K.
	Percentages of variations on 1925-29 average				
1930-34	6.8	- 2.7	- 28.1	- 16.1	- 18.5
1935-39	28.7	- 25.6 a/	- 37.9 a/	- 10.8	- 20.2 a/
1940-44	38.7	...	...	- 12.9	...
1945-49	36.3 b/	- 27.2	- 33.6 b/	- 9.2	- 33.8
1949	29.9 c/	- 40.7	- 25.5 c/	- 3.3	- 42.7

Note: For source and annotations, see Table 4 A.

a/ 1935-38 average.
b/ 1945-48 average.
c/1948.

It is likely that the import restrictions imposed by Great Britain as a result of the world economic crisis, were the principal cause of the great difference between income and imports during the thirties. To their influence were added, during the forties, the wartime restrictions, and the post-war disequilibrium.

It should be pointed out that these restrictions similarly affected imports not only from Latin America but also from other countries. Great Britain, in order to pursue its natural development after the great depression,

/was compelled

was compelled to lower its import coefficient, since it obviously could not afford to maintain its high level of imports in proportion to its income, when its power to increase exports had weakened considerably.

This chart also shows Latin America's capacity to import. As before, the corresponding index has been obtained by multiplying the index of the quantum of imports by that of the terms of trade with the United Kingdom. As already explained, this index does not alter the conclusions arrived at regarding the relations between British imports from Latin America and the growth of the population in the latter area. It merely serves to emphasize the difference already pointed out.

The terms of trade and the import coefficient

4. In the second section of this chapter it will be shown that the fluctuations of real income in the United States seems to constitute the dominating factor in the fluctuations of that country's imports of Latin American goods. More ample proof than that apparent in the curves of Chart 2 has been furnished by Chart 5, wherein the relationship between the two factors is shown and the coefficient of correlation has been calculated. The coefficient obtained is 0.94, which may be considered satisfactory.

That this coefficient does not equal one unit means that other factors also influence the fluctuation of imports. It might be surmised that the terms of trade are to a certain extent responsible. If, in fact, imports of Latin American goods decrease in relation to export prices of goods manufactured in the United States, that is to say, if the terms of trade improve for that country, it is to be expected that such imports would be stimulated. However, statistical analysis does not indicate a satisfactory correlation between the fluctuations of imports and the terms of trade. This is evident from the wide dispersal of points on Chart 6, which shows the relationship between the two factors. Furthermore, the coefficient of correlation is a mere 0.42, which is far too low to be considered of any decisive significance.

This does not mean that the terms of trade have no influence at all on imports, but only that their influence in any case would be far less perceptible than that of real income. The influence of the terms of trade is felt rather in the share of monetary income which the United States

/apportions to

apportions to the importation of Latin American goods, as will be observed from the following Table.

Table 5 B: Terms of trade and import coefficient of the United States

Five-year averages

Years	Terms of trade	Import coefficient
1925-29	123.8	5.82
1930-34	99.5	3.40
1935-39	96.6	3.66
1940-44	95.7	2.66
1945-49	107.4	3.00
1949	117.4	3.14
Percentages of variations on 1925-29 average		
1930-34	- 19.6	- 41.6
1935-39	- 22.0	- 37.1
1940-44	- 22.7	- 54.3
1945-49	- 13.2	- 49.3
1949	- 5.2	- 46.0

Source: Research Centre - Economic Commission for Latin America, United Nations.
Note: For sources and annotations, see Table 5 A.

It should be noted that in the thirties, imports of Latin American goods by the United States fell to a greater extent than that country's real income, despite the fact that the terms of trade deteriorated noticeably in relation to the five-year period 1925-29. As a result of this deterioration, the United States was able to acquire goods from Latin America with a much smaller proportion of its monetary income than formerly, as can be seen from the marked decrease in the import coefficient. On the other hand, during the first five years of the forties, imports increased once more, and at a greater rate than real income. This could be attributed to the further deterioration of the terms of trade, which then touched their lowest level of the whole quarter-century. Had this influence of prices existed, its effect would not have been felt during the following five-year period, since the terms of trade improved considerably, yet imports increased

/again, at an

GRAFICO 4

RELACION ENTRE LOS TERMINOS DE INTERCAMBIO DE AMERICA LATINA Y EL REINO UNIDO Y LOS COEFICIENTES DE IMPORTACION DE ESTADOS UNIDOS Y EL REINO UNIDO.

1 Términos del intercambio de América Latina con Estados Unidos.
2 Coeficiente de importaciones provenientes de América Latina de Estados Unidos.
3 Términos del intercambio del Reino Unido.
4 Coeficiente de importaciones provenientes de América Latina del Reino Unido.
Escala logarítmica

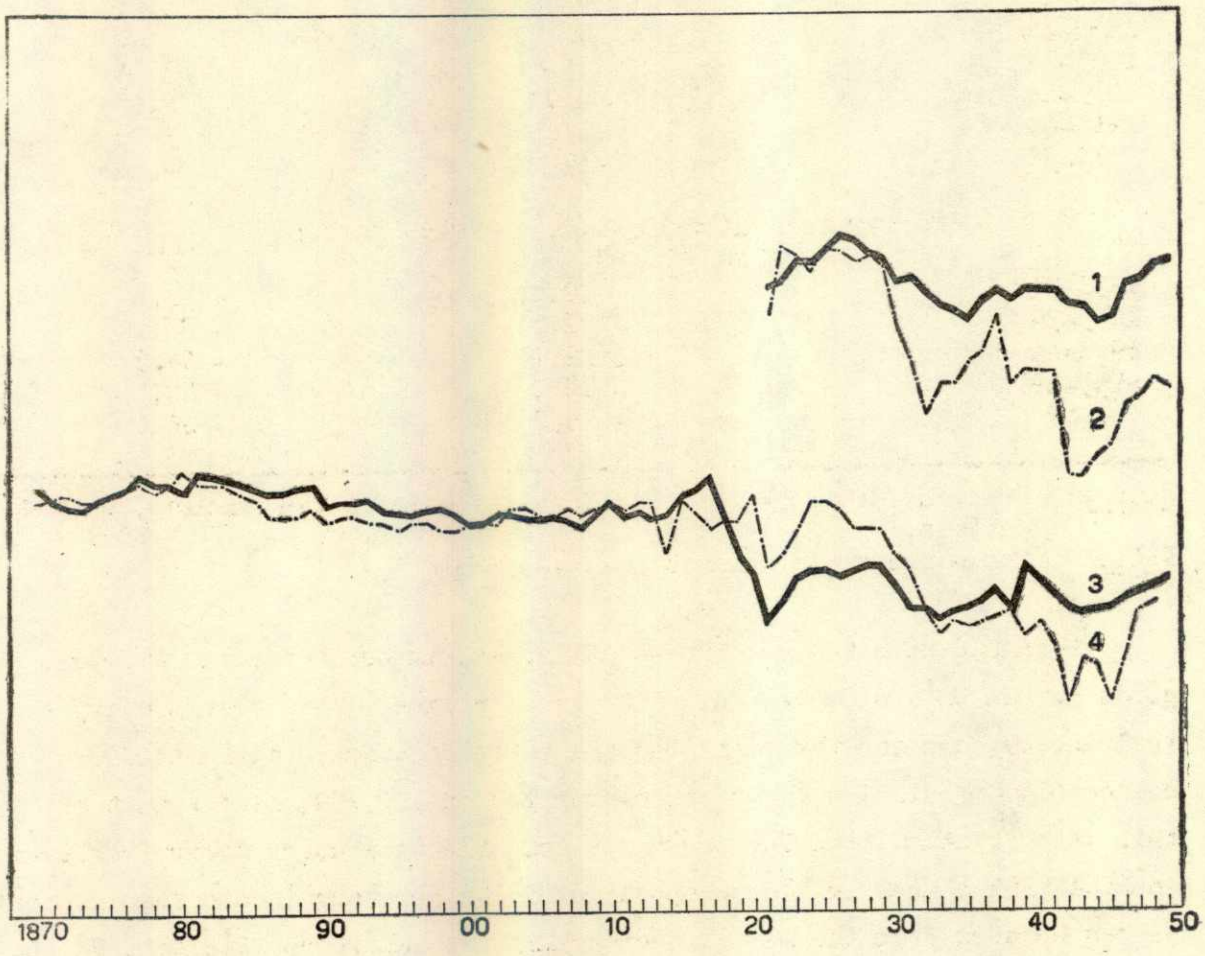

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GRAFICO 5.

RELACION ENTRE EL VOLUMEN FISICO DEL INGRESO NACIONAL DE ESTADOS UNIDOS Y SUS IMPORTACIONES PROVENIENTES DE AMERICA LATINA.

y = Volumen Físico de las importaciones provenientes de América Latina.
x = Volumen Físico del ingreso nacional de Estados Unidos.

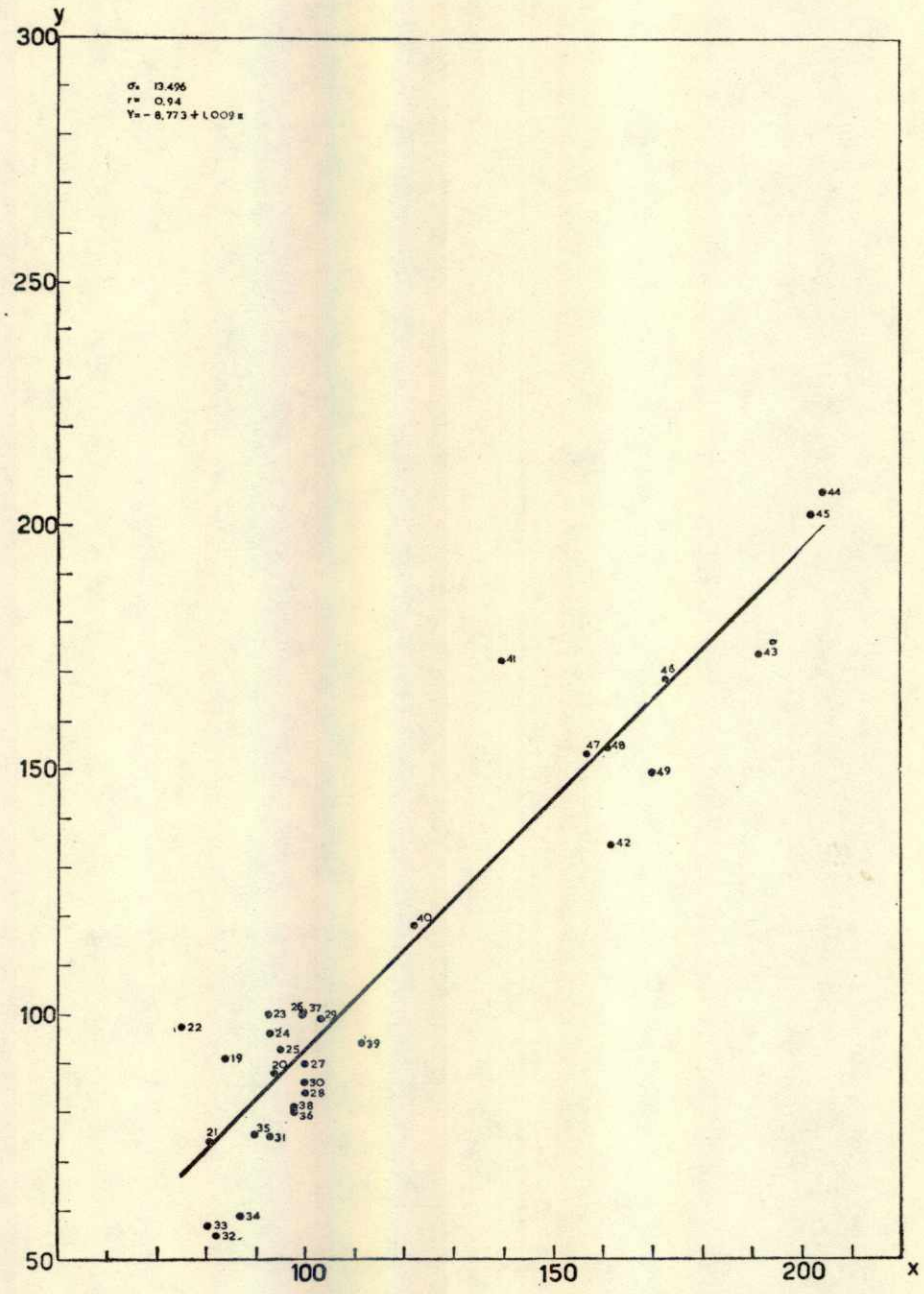

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GRAFICO 6.

RELACION ENTRE LOS TERMINOS DEL INTERCAMBIO DE ESTADOS UNIDOS CON AMERICA LATINA Y EL VOLUMEN FISICO DE SUS IMPORTACIONES PROVENIENTES DE AMERICA LATINA.

y = Volumen físico de las importaciones de Estados Unidos provenientes de América Latina.
x = Términos del intercambio de Estados Unidos con América Latina.

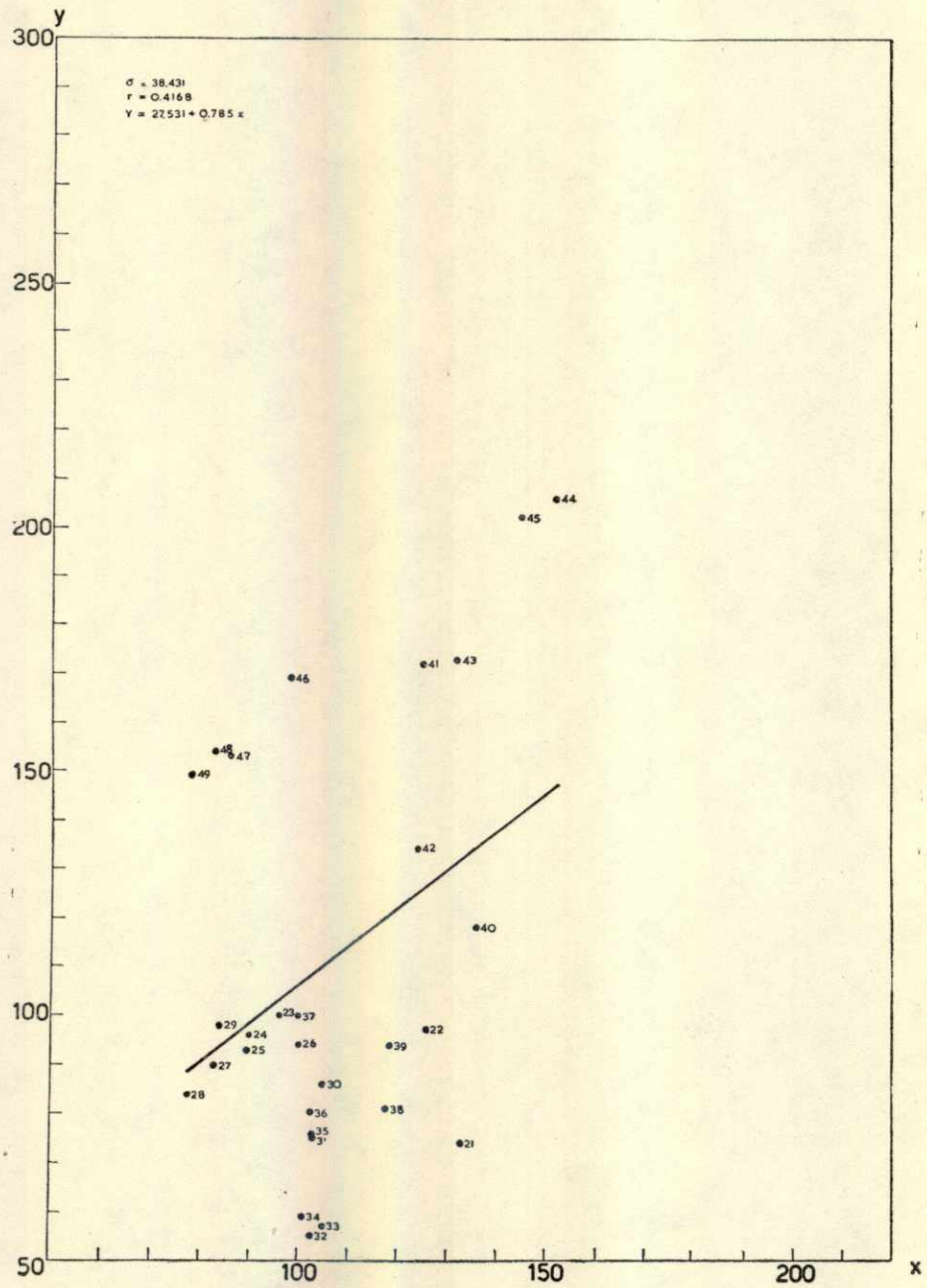

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Table 5A. Terms of trade and coefficient of total imports of the United States

Years	Terms of trade 1937=100	Import coefficient	Years	Terms of trade 1937-100	Import coefficient
1900	..	5,26	1925	122,4	6.03
1901	..	4.79	1926	129.8	6.03
1902	..	4.89	1927	128.4	5.66
1903	..	5.23	1928	121,4	5.87
1904	..	4.93	1929	118.9	5.53
1905	..	5.22	1930	106.3	4.23
1906	..	5.29	1931	107.0	3.47
1907	..	5.88	1932	98.6	2.83
1908	..	5.09	1933	98.5	3.24
1909	..	4.96	1934	92.2	3.21
1910	..	5.53	1935	89.2	3.64
1911	..	5.43	1936	95,7	3.71
1912	..	5.62	1937	100.0	4.44
1913	125.8	5.76	1938	96.8	3.15
1914	..	6.07	1939	101.1	3.37
1915	..	5.15	1940	101.0	3.41
1916	..	6.17	1941	101.0	3.40
1917	..	6.37	1942	94.5	2.12
1918	..	5.32	1943	94.3	2.12
1919	101.0	6.20	1944	87.5	2.27
1920	115.7	6.73	1945	90.6	2.39
1921	100.7	4.43	1946	106.0	2.91
1922	104.5	6.08	1947	107.6	2.99
1923	114.6	5.77	1948	115.2	3.32
1924	113.5	5.39	1949	117.4	3.14

Source: Research Centre, United Nations Economic Commission for Latin America.

Note: The terms of trade have been calculated from the Latin American viewpoint, as a quotient between the index prices of imports and exports.

Table 6 A: Terms of Trade and Total Import Coefficient of the United Kingdom

Years	Terms of trade	Import coefficient
1870	157.5	32.64
1871	150.3	33.54
1872	147.1	34.07
1873	145.3	32.77
1874	150.0	32.66
1875	151.8	34.46
1876	159.8	34.48
1877	170.1	36.09
1878	161.8	34.43
1879	162.4	35.59
1880	156.0	38.32
1881	172.2	35.67
1882	170.4	35.73
1883	167.7	36.06
1884	164.2	34.33
1885	159.2	33.18
1886	156.4	30.82
1887	155.4	31.12
1888	159.2	31.11
1889	161.0	32.08
1890	148.4	30.07
1891	150.1	31.42
1892	149.4	31.14
1893	150.7	30.43
1894	144.5	29.65
1895	142.6	28.90
1896	142.4	30.06
1897	144.5	29.69
1898	146.4	29.39
1899	142.5	29.01
1900	137.2	29.79
1901	136.9	30.28
1902	142.9	30.40
1903	142.8	31.66
1904	140.0	31.63
1905	140.0	31.08
1906	140.6	31.35
1907	139.3	31.74
1908	135.1	30.79
1909	142.8	31.66
1910	149.9	32.88
1911	141.7	31.78
1912	143.9	32.83
1913	141.0	32.46
1914	142.6	26.33
1915	154.2	32.88
1916	159.8	30.96
1917	169.6	29.31
1918	141.4	30.10
1919	116.9	29.78
1920	109.2	34.12
1921	86.9	24.34
1922	94.8	26.10
1923	104.6	28.52
1924	109.8	32.60
1925	111.2	33.18
1926	108.0	31.72
1927	110.1	29.39
1928	111.5	28.72
1929	111.7	29.22
1930	101.4	26.38
1931	91.8	23.49
1932	91.6	19.66
1933	88.1	18.11
1934	90.6	18.85
1935	92.2	18.40
1936	94.6	19.32
1937	100.0	22.27
1938	92.4	19.68
1939	113.7	17.58
1940	105.9	19.27
1941	99.9	16.50
1942	93.0	13.00
1943	91.1	15.80
1944	91.7	15.62
1945	93.2	13.23
1946	98.4	15.85
1947	99,9	20.37
1948	103.4	21.27
1949	106.9	

Source: Research Centre - United Nations, Economic Commission for Latin America.

again, at an equal pace with real income.

In any case, it is certain that in both five-year periods, as a consequence of Latin America's unfavourable terms of trade its export coefficient to the United States was maintained at an extremely low level.

An examination of the British statistics brings us to the same conclusions. In fact, concomitant with the deterioration of the terms of trade, there appear other phenomena which sharpen the decrease of the coefficient of imports from Latin America. The following is a summary of the five-yearly statistics:

Table 6 B: Terms of trade and import coefficient of the United Kingdom.

Five-year averages

Years	Terms of trade	Import coefficient
1925-29	110.5	30.46
1930-34	92.7	21.29
1935-39	98.5	19.43
1940-44	96.3	16.02
1945-49	100.4	17.67 a/
1949	106.9	21.27 b/
	Percentages of the variation on the 1925-29 average	
1930-34	- 16.1	- 30.1
1935-39	- 10.8	- 36.2
1940-44	- 12.9	- 47.4
1945-49	- 9.2	- 42.0 a/
1949	- 3.3	- 30.2 b/

Note: For source and annotations, see Table 6 A.

a/ Average 1945-48
b/ 1948.

The phenomenon which we have described is certainly not limited to imports of Latin American goods. On the contrary, it is to be found to a greater extent in the total imports of the United States. In this case a greater variety of goods is involved, and therefore the individual factors weighing on the small number of Latin American exports do not make

/themselves felt

themselves felt to the same degree.

The following Chart and its corresponding table, 6 A, make this quite evident. The terms of trade of the rest of the world with the United States are shown on curve 1, while curve 2 represents the total volume of goods imported by that country. Note the close relationship between the curves: the trend of the terms of trade which is unfavourable to the rest of the world during the great economic crisis; its subsequent brief improvement until 1937, followed by a further deterioration lasting until the end of the thirties; finally, an improvement in the forties which strongly affects the coefficient of imports. It will be seen, however, that whereas during the latter part of the forties the terms of trade tend to reassume the position they had held before the world crisis, the import coefficient in its continual fluctuations, tends to fall persistently. Consequently, during the five-year period 1945-49 the terms of trade only fell 13.2 per cent in relation to the 1925-29 level, whereas the import coefficient of total imports fell 46.0 per cent in the same period.

A similar phenomenon can be observe in connection with Great Britain, over a longer period of time, on the above-mentioned chart. The period falls clearly into two separate phases. The first lasts until the First World War (1914-18) when Great Britain ceased to be the principal cyclical centre. The second phase dates from then until the present time, and points to the manifest vulnerability of British economy vis-a-vis the fluctuations of the new principal centre. The contrast between these two phases is remarkable. During the first stage, the terms of trade deteriorate relatively slowly and the fall of the import coefficient is also gradual. Between the 1870's and the first decade of the twentieth century, the terms of trade deteriorated 10.2 per cent for the rest of the world. Furthermore, the proportion of monetary income which Great Britain employed to acquire its imports was reduced by 9 per cent. In the second stage, however, after the First World War, there are violent fluctuations in both curves, the drastic deterioration of the terms of trade visibly affected the import coefficient as did their subsequent improvement. The same thing occurs during later fluctuations. The movement generally is more marked in the import coefficient, which is also affected by other factors, including import restrictions

/imposed after

imposed after the world economic crisis, and to which were later added other restrictions during the Second World War. The average British import coefficient for the period 1945-48 was 17.7 per cent, whereas in 1900-09, it had been 31 per cent. This meant a decrease of 43 per cent, which undoubtedly contributed to a considerable extent to the deterioration by 29.5 per cent of United Kingdom's terms of trade during that period.

The readjustment of the import coefficient in Latin America

5. It has been shown above that the coefficient for the total imports made by the United States during the last five-year period was reduced by 46 per cent, which is almost half the level prior to the world crisis, whereas the coefficient for goods imported from Latin America was reduced by 18.7 per cent. This does not imply that Latin America's position in international trade was any more favourable during the past twenty-five years. Even though the direct effect of the reduction of the United States import coefficient was less intense in Latin America than in the rest of the world, the indirect effect of its fall was equally serious, since other countries, finding their exports to the United States restricted, were also compelled to restrict imports from Latin America, as has just been shown in the case of Great Britain.

These events obliged Latin America to readjust its import coefficient in order to be able, during the great depression, to mitigate the effects of the reduction of its exports and of their prices on real income and also to enable it to continue to develop, despite the considerable decrease of its capacity to import.

Thanks to these readjustments, the Latin American countries in general had been able to check the disequilibrium of their balances of payments by the beginning of the Second World War. This fact, together with the vast monetary reserves accumulated as a result of the difficulties of importing during the war, perhaps gave the impression that the problem of disequilibrium had been definitely solved.

However, if one keeps in mind that the persistent tendency toward disequilibrium is ultimately a result of economic evolution, as was shown in the first chapter, it is not surprising that most countries, once they had spent a great part of these reserves, found themselves faced with new

problems of disequilibrium as acute as those of the thirties. Such problems will arise whenever the capacity to import does not increase together with real income. Moreover, however often an adjustment may be made which seems to correct the tendency towards disequilibrium, it will be found that the tendency will reappear in time, if the capacity to import does not increase proportionately with real income[1/].

Conclusion

6. Two fundamental conclusions emerge from our analysis. Firstly, that the deterioration of the terms of trade has been one of the primary factors contributing to the decrease in the import coefficients of the United States and Great Britain, with serious repercussions on the economic development of the Latin American countries and of the rest of the world, which caused them to reduce their own coefficient to the detriment of their international trade. Secondly, if because of a decrease in income or because of the imposition of any sort of restriction, imports to such countries are reduced, the relative fall of import prices does not seem to cause imports to rise again. Rather this fall of prices allows the centres to set aside a smaller portion of their monetary income for the acquisition of such imports.

It therefore does not seem that Latin America, considered as a whole, can increase its import capacity to any extent by increasing its exports to the great centres beyond the limits set by the increase of real income in these centres, and by the restrictions binding Latin American exports. To try to exceed such limits would, in fact, be forcing imports to the detriment of the terms of trade, and it would not result in any substantial increase in the volume of exports.

1/ Obviously, in many cases inflation has aggravated disequilibrium, but it is generally associated with phenomena of growth. When inflation is used to obtain the resources required to capitalize, and when a part of such resources are set aside for the importation of capital goods, the resultant disequilibrium is typical of economic development. But when inflation leads to an increase in the income of the social classes which it favours, and this increase expands imports, then the resultant disequilibrium is not characteristic of economic development but simply an inflationary manifestation. It is evident that the frequent occurrence of these inflationary phases in Latin America is not sufficient to allow one to attribute the disequilibrium of the balances of payments exclusively to inflation, without any knwledge of the fundamental factors which cause disequilibrium in the absence of inflation.

/If instead of

If instead of observing Latin America as a whole, one considers the case of a single country, it is conceivable that a fall in the price of one product would eliminate other Latin American exports, but we are not concerned with this problem. It might also be possible that in the case of certain products, as has in fact actually occurred, that Latin American exports to the United States could be increased by taking advantage of special circumstances reigning in the market. But as imports in the United States are to a great extent a function of real income, it is difficult to see how such imports could attain any importance in trade as a whole, independently of real income, except when vital changes take place in demand or when the present difficulties are attenuated or when they reappear.1/

1/ There are also cases where exports do not increase sufficiently due to the weakening of the capacity to export, either because the potential productivity of the country has been improperly applied or because the increase in domestic consumption has been made at the expense of exports. Moreover, this increase in domestic consumption may derive from an increase in real per capita income, due to increased productivity, or, again, it may be due to inflationary disturbances in the distribution of income. To what extent may such examples lead us to believe that the decrease in Latin America's capacity to import is the result of a decrease in its capacity to export? It is impossible to answer this question satisfactorily without examining what has occurred in the case of the leading items of exports. However, the fact that a country could have exported more does not mean that the great industrial centres would have extended their capacity to import nor that this could have been done to the disadvantage of the terms of trade.

II

Sensitivity of the principal centre of external impetus.

7. The marked fall of the United States import coefficient during the world economic crisis caused the effects of this depression to be felt even more acutely in other parts of the world. A number of countries were obliged to reduce their imports from the United States, besides curtailing trade with one another. Consequently, the decline of the import coefficient was accompanied by a similar drop in the export coefficient of the United States. The former decreased from 5.82 per cent in 1925-29 to 3.40 per cent in 1930-34, while the second fell from 6.69 per cent to 4.14 per cent during the same period. Despite the changes brought about by war, both coefficients remained at relatively low levels in comparison with the high coefficients maintained by Great Britain before the latter country ceased to be the principal cyclical centre. This fact is of great importance to world economy, since it is of considerable influence in determining how the principal cyclical centre functions and its relations with other countries. It affects both the centre's capacity to transmit to other centres and the periphery its impetus of expansion and contraction and the effects upon the centre of the impetus transmitted to it by the rest of the world. We will not dwell upon the former, since it is beyond the scope of this report, but rather study the effects of any external impetus upon the cyclical centre and the way in which this centre returns it or retransmits it to the rest of the world.

It is evident that the greater the export coefficient, the greater will be the influence of its fluctuations upon the national income. Hence, when Great Britain was the principal cyclical centre, its exports, representing as they did a high percentage of total income, fulfilled a dynamical function similar to that of capital investments. Thus, should the cyclical upswing be initiated elsewhere than in Great Britain, or develop there more intensely than in Great Britain, the increased income in the other centre and the extension of this phenomena to other countries would react favourably on British exports. This increase in British exports would, in turn, be quick to stimulate domestic activity and consequently to effect an increase in the total income of Great Britain, brought about

/by its effects

by its effects both upon consumption and upon capital investment, first in the export industries and later in the others. On the other hand, since in the United States exports comprise a much smaller proportion of the national income, as a dynamic element they are not comparable to capital investment, which, as we all know, is of decisive influence in economic activity. If these investments are scarce, there is little likelihood that increased exports will be able to act as a dynamic factor effecting domestic activity, at least with sufficient vigour to make up for the deficiency of investments.

However, the British centre not only was more sensitive to external impetus than the United States, but also its capacity to return an external impetus was much greater, a fact chiefly due to the difference in magnitude of their respective import coefficients.

Time and intensity required by centre to retransmit external impetus

8. Every country, whether great or small, whether its import coefficient be large or small, tends to send back any external impetus. However, the time and the intensity with which it does so are of the greatest practical importance. The time factor has not yet been ascribed all the importance it merits in the dynamics of the economy, and in order to illustrate this importance, we offer the following simple hypothetical example. Let us take two countries, namely A and B, where there is not full employment and the exports of which increase by 100; this represents a constant and continuous rate of increase which augments the real and monetary incomes of their respective countries, over consecutive circulatory periods. In A, the import coefficient equals 25 per cent, while in B it is only 5 per cent. In both cases, the duration of the circulatory period is six months. The circulatory process of such increments is well known and needs no more than passing reference. In the first phase, a part of the first increment is absorbed by imports and the remainder flows into the internal economic system. The second increment is added to the remainder of the first increment and a part of the sum of these two is canalised into imports and the remainder flows into the third period, and so on, ad infinitum. In this way, income is gradually increased by an accumulative process,

/imports increasing

imports increasing proportionately, given a stable coefficient. A time comes when income has increased to such an extent that the amount absorbed by imports will equal the constant and periodic increments of 100 of exports. It is obvious that the lower the import coefficient, the longer it will take to achieve equality between the periodic increase of exports and the increase which in time occurs in imports. The following figures have been computed to clarify the problem.

In country A, where the import coefficient is 25 per cent, by the end of 2.11 cyclical periods, i.e., in a little more than twelve months, imports will already have achieved 50 per cent of the periodic increase of exports; whereas in country B, the import coefficient of which is only 5 per cent, it will take 13.5 periods, in other words, 6 and a half years to obtain the same results. In the same way, in order that imports should reach 95 per cent of the periodic increase of exports, in other words, practically equal them, country A would require a period of five years whereas in B more than a quarter of a century would be needed.

As a matter of fact, events do not follow the mathematical formula set forth here, and as regards the accumulative increase of income, not only must we consider the income springing from periodic repetition of the increase of exports but also income deriving from increased production as a result of a general increase of demand. Furthermore, though imports tend to expand as has been shown here, they are not balanced by exports, since there come into play certain forces which provoke the characteristic rise and fall in the process of increase. However, the figures given above, as a first approach to the problem, give some notion of the way in which the time factor operates.

Period of transmission and disequilibrium

9. All other factors being equal, the lower the import coefficient, the lower a centre's capacity to transmit in a given period the impetus received. It is clear that in time, whatever the coefficient, it will transmit the impetus received in its entirety. But whether this occurs in a short period or over a much longer one has decisive influence on the concrete factors of the economy.

Indeed, while imports into the centre do not equal exports, the rest

of the world will be in a constantly unbalanced state, in which it is compelled to release a part of its gold reserves, this portion increasing in direct ratio to the original impetus received by the centre, while transmission of the effects of such impetus back to the rest of the world, whence it originated, will be proportionately slower.

The above analysis affords sufficient basis to enquire as to whether the tendency to an unfavourable balance which has made itself evident in Latin America's economic development might conceivably generate counter currents in the world economic system which would make it possible to reverse this trend and eventually reestablish equilibrium. There are two aspects of this problem which will be dealt with successively.

If Latin America were to continue to buy more than it sells to the United States (without reference to other items of the balance of payments) it is conceivable that at the end of a prolonged period, exports to the United States would approach the level of imports because of the effect which such an increase would have had upon that country, as has just been shown. In the meantime, however, the disequilibrium would have provoked serious monetary difficulties in Latin America.

Nor is that all. Economic development, whilst the process runs its course, does not suffer from a single period of unbalance but rather, from a series of such periods. Thus, whilst pressure is slowly being brought to bear in order to correct the first one, another arises immediately and is added to the first, and so on. Ultimately the loss of reserves becomes so great that economic development must either be reduced or batted, or else, if economic development is to continue, import coefficients must be progressively lowered.

The classical theory regarding the balance of payments and the international movement of gold had the merit of perceiving the forces actually at work. But whether in its primitive and archaic form, or in the more recent adaptations of the formula, the theory has always tended to limit itself to the static, merely registering the fact that each disturbance represents transition from one period of equilibrium to another, without attributing any significance to the duration of such a transitional period. Thus focused, the theory could not be satisfactorily applied to problems of economic development, since in such a process,

/disturbances follow

disturbances follow one another closely and their duration is of outstanding importance.

That this weakness of the theory in respect to the dynamic aspect should not have been noticeable when Great Britain acted as the principal cyclical centre is easy to understand, for, as has been seen, the function of exports in the economic life of the country and its high import coefficient rendered it highly sensitive to any external impetus, and these were therefore returned to the rest of the world relatively quickly. Therefore, in the subsequent development of other great industrial powers, there was no manifest tendency to a chronic unfavourable balance. There are various contributory factors, the complexity and interdependence of which must not be overlooked; nevertheless, it is obvious that the activity of the British centre exercised a very strong influence at the time. In fact, those countries whose economic development followed that of Great Britain, were able to expand their exports successively, as the increase of their income compelled them to import more. This ability to export was brought about by the favourable influence which imports from these countries exercised on the British centres' national income, and because by virtue of its high import coefficient this centre was able to return the stimulus received with great intensity and in a relatively short time.

When a country's exports are sufficient to enable it to obtain in exchange the imports essential to its economic progress, and when such exports can be constantly augmented in harmony with its development, it is relatively simple to counteract the tendency towards disequilibrium which such development generally entails. Such was the case in the past. The British market, unhampered by any restriction, was free to import all that was offered from abroad on favourable terms of competition, whether from countries beginning to develop industrially, or from others definitely belonging to the periphery, where the former also acquired their raw materials, thus strengthening their ability to buy in the larger industrial centres. Without passing judgment on such methods, it is useful to point out that on the whole, the phenomenon under consideration

/furnished the

furnished the principal cyclical centre with an extraordinary capacity not only to extend to the rest of the world the impetus emanating from its own economy but also to assimilate such external impetus as reached it, and to return it without delay.

The principal cyclical centre and the hypothesis of its full employment

10. In the foregoing analysis, it has been assumed that the increase of income in the cyclical centre, resulting from the expansion of exports, has been effected without any difficulties, due to the existence of unemployed factors of production. It should now be interesting to see whether, given full employment of these factors, the cyclical centre's capacity to return external stimuli would be noticeably increased.

It is quite easy to understand that if under these circumstances exports were to increase, the subsequent increase of income and demand would cause prices to rise,[1/] for if the factors of production were fully employed, it would not be possible to increase production for domestic consumption in order to meet the increased demand. The problem, therefore, is to know whether the rise in prices would be great enough for imports to increase rapidly and to the extent necessary to compensate for the increase in exports, thus returning to the rest of the world the impetus received from it.

A simple example will help us to find the solution. Let us take coefficients which are fairly close to those made use of above, in relation to the United States. We shall assume a country which has full employment and during a given initial period of the trade cycle, has income equal to 100,000 with its exports and imports balanced, representing 4 per cent of the income; in the following period, exports increase from 4,000 to 6,000 and absorb the total increase of productive factors. Thus there will be an increase of 2,000 in income, which in turn will increase domestic demand; but since production cannot be increased, its factors being fully employed, prices will rise by 2 per cent. In order that imports and exports be balanced, the former must also increase from 4,000 to 6,000, that is, by 50 per cent. It cannot be expected that a price rise of 2 per cent

1/ Prices will also rise without full employment, but to a lesser degree.

/would multiply

would multiply imports 25 times in the second cyclical period. However, prices will continue to rise in subsequent periods unless they are influenced by opposing factors. Actually, the rise in price which takes place during the second period represents increased returns for the entrepreneurs and part of this goes into higher wages; and if this increase in income is fully absorbed during the third period, the balance attained between supply and demand in the second period will be maintained, so that if we assume that exports again prove to be greater than imports, the former will once again exert pressure, causing prices to rise, and the process repeats itself. It is, therefore, conceivable that given time, a rise in internal prices may lead to an expansion of imports, thus tending to balance these with exports.

In this case, as in others, the problem has been expressed in its simplest form and, therefore, does not take into account a number of complex factors which obtain in actual practice. On the other hand, the price rise depends on the proportion to which the increase in income is absorbed by consumption or investment; on the other, this rise in prices, besides affecting export and import prices, also produces other effects which alter the intensity and form of the phenomenon. Be that as it may, the fact is that the slighter the relationship between exports and income the longer it will take prices to rise and consequently affect imports. In the meantime, the disequilibrium brought about by excess purchases abroad will cause the countries thus affected to release part of their gold reserves. Since, as has been previously shown, this unfavourable balance is not reflected in a single increase in the particular country's exports in relation to its imports, but in a series of increases, as soon as a readjustment has been made for one increase, the need arises for another readjustment, and so on, ad infinitum.

From the above it can be seen that when the principal cyclical centre reacts weakly to any external impetus and delays considerably in returning it, whether or not the centre is fully employed, the disequilibrium caused by economic evolution conspires against monetary stability in countries which are beginning to develop, by virtue of the persistent tendency of the cyclical centre to attract the gold reserves of such countries.

/Conditions under

Conditions under which the gold standard operates

11. Given this marked tendency to absorb gold but not release it again to be redistributed to the rest of the world, it is obvious that a country's capacity to correct an unfavourable balance by making use of its monetary resources, is limited. In order to avoid exhausting these reserves it is compelled to take measures which, in one way or another, tend to lower the import coefficient.

The repercussion of this is visible in the fiscal policy. When the principal cyclical centre's capacity to receive and return any external impetus allowed it to send forth the gold it accumulated, the adoption of a gold standard was expedient. This is no longer possible, however, since the cyclical centre, by reason of its economic structure, has to a great extent lost this capacity to transmit the gold which it attracted.

A centre such as was Great Britain, which through the increase of its exports and foreign investments during the cyclical upswing expelled a large part of the gold accumulated during the downswing, evidently contributed considerably to the smooth working of the monetary system in other countries. It was not enough that the free inflow and outflow of gold should be permitted in accordance with the well known rules of the game. The centre at which gold reserves accumulated by natural gravitation must in turn expel it, regularly and systematically for the reasons set out above. In other words, it is essential that such reserves be able to leave the centre again, but the mere existence of such channels does not ensure that the gold really does flow outward. For this there must be a constant stimulus from some dynamic element which will force it to leave the centre.

The principles which were gradually deduced from Great Britain's experience and from the perfectioning of its monetary and financial procedure did not create a reality but rather illustrated a phase of it. Consequently, when the status changed radically, these principles were no longer fitted to serve the purpose they fulfilled before.

The new cyclical centre does not possess the same strength to expel gold. It is less sensitive to an external impetus than was the British

/centre and far

centre and far slower in transmitting it to the rest of the world by means of increased imports; hence the fact that the international monetary system works on lines very different to those followed prior to the First World War. Because of this and of other factors analysed elsewhere,1/ gold tends to become concentrated in the United States thus creating the problem of a dollar shortage. It must be pointed out, nevertheless, that the present scarcity of this currency is also influenced by European reconstruction requirements, as well as by inflation. These transitory factors must therefore be recognized together with the persistent tendency of gold to accumulate in the United States. However, the weakness of the expelling mechanism also tends to retain gold in that country thereby impeding the reconstruction the the monetary reserves of the rest of the world. Little wonder, then, that new measures of control are adopted in order to limit the extent of this phenomenon.

Rather than being the mere effect of a particular monetary policy, these facts have far deeper roots. However favourable to the United States the credit of its balance of payments may be, its volume in relation to the national incomes is quite small and the increase of this income, accruing from the favourable balance of payments would, in the light of the foregoing, require considerable time before effecting an increase in imports and in other items on the debit side of the balance of payments, sufficient, ultimately, to achieve a true balance.

Throughout this analysis we have disregarded the exceptional circumstances which contributed further to the concentration of the vast gold reserves in the United States during the thirties, and others leading to similar results in the recent past. The foregoing investigation was solely intended to prove the existence of certain constant factors conducive to an unfavourable balance which are entirely independent of any circumstantial causes which may intensify the tendency. Apart from these, the process of ecnomic development in Latin American and other countries of the periphery tends to produce persistent disequilibrium and the influences which might reverse this tendency operate extremely slowly, chiefly because of the way in which the principal cyclical centre

1/ See Economic Survey of Latin America, United Nations, Chapter 8.

/operates.

operates.

The breakdown of the multilateral system

12. Changes are taking place which, though frequently accompanied by circumstantial or accessory elements likely to disappear in the course of a short time, are indeed the result not of fortuitous events but of the fundamental modifications analysed above. Of these, one of the outstanding is the break-up of the multilateral system. In the period prior to the aforesaid changes, when the gold standard worked with great fluidity, a given country M could continue to trade with another, N, - despite a permanent deficit, purchasing more from N than it sold, (because of the particular nature of their reciprocal trade) since N could use the gold received from M to purchase, from the rest of the world, a greater volume of goods than that which it, N, sold there. However, if N is a leading cyclical centre and does not use the gold it receives in this way, - because its own economic structure does not allow it, - the gold cannot eventually flow back to M. As a result, the multilateral system will be seriously affected.

It would not be surprising to find that under these circumstances, M finds itself compelled to curtail its purchases from N, in order to lessen, if not cancel, the unfavourable balance between them, according to the volume of its monetary reserves or to its share in the supply of gold bullion which flows yearly from the mines. Since, the hypothetical case in point, the source of the disequilibrium lies solely in N, there is no need for M to restrict its imports from other countries. Should it do so, the chronic unfavourable balance between M and N would affect not only trade between these two countries, but the whole chain of world commerce, thus reducing the classic advantages of multilateral trade. However, if M seeks to trade its goods, as heretofore, with the rest of the world, in order to continue to enjoy these advantages, it will find itself compelled to set up a complex system of bilateral compensatory agreements with each of the principal countries with which it trades. Multilateral trade can continue to feature as a characteristic of M's economy but experience shows us that such a system cannot arise spontaneously once the multilateral compensation system - typical of the gold standard era -

/is broken up.

is broken up.

Certainly, multilateralism was not characteristic of a static order of things but of an economic structure, whose steady development was due to the impetus generated by the cyclical centre. We have already seen how this affected the primary phase of development in Latin America. Let us now briefly examine the influence of multilateralism on reciprocal trade relations between the Latin American countries. If, in the course of time, one Latin American country bought increasingly large quantities of goods from another, and the latter bought from the former regardless of the balance of trade, this was not because the one had brought about an increase of purchasing power in the other, which could in turn transmit the impetus, for the volume of trade between the Latin American countries in general has not been sufficiently high to allow for such results. There is another explanation: it is that the increase of reciprocal buying was derived from the increase in Latin America's exports to the great industrial centres; that is to say, the former converged upon the latter, and through these were set up currents of trade among the Latin American countries themselves.

This system could develop unhindered whilst the Latin American countries were able to continue increasing their exports. But when, as occurred in the thirties, these fell considerably, or at least did not increase at a rate sufficient to meet the requirements springing from this growth, serious difficulties began to hamper inter-Latin American trade. These transactions had, until them, been settled in gold or in other convertible currencies supplied by the industrial powers. When these currencies became scarce because of the comparative insufficiency of Latin American exports to the sources of convertible monetary resources - and it became necessary to restrict imports - such restrictions also affected reciprocal trade between the Latin American countries. This happened despite the fact that within these same countries nothing occurred which itself would have lowered consumption of the goods involved in such trade, at least not to the extent imposed by the restrictions. It thus became necessary to resort in this case too, to bilateral agreements, in order either to maintain or develop reciprocal trade; this then is a specific example of the general consequences which we had previously been examining.

/It has been

It has been satisfactorily shown, with the aid of considerable documentary evidence, that such expedients entail serious disadvantags, especially compared with the multilateral system formerly adopted. One must, nevertheless, emphasize that as a general rule, it is only a question of payments agreements arranged temporarily or for specific circumstances, in which there is no perceptible intention of adapting trade in Latin America, especially between those countries with a common frontier, to a permanent pattern adapted to the new conditions of world economy. The analysis of this will be undertaken in the following chapter.

Disequilibrium and the classical theory

13. We have thus completed the task we set ourselves at the beginning of this chapter. An analysis of conditions has allowed us to show that Latin America's import capacity has increased less than its population, whereas its economic development requires, on the contrary, that the increase of import capacity should be much greater. Secondly, we have seen that the tendency to a chronically unfavourable balance, deriving from the foregoing fact, cannot be corrected quickly and effectively because of the way in which the principal cyclical centre functions.

The classical monetary theory solved the problem of unfavourable balances by simple means. Disequilibrium demands the export of gold reserves, which causes a fall in prices and lowered economic activity within the country until such time as imports shall again have reached the level of exports. There is no doubt that the need to restrict economic activity, in order to correct an unfavourable balance, would seem incompatible with the requirements of economic development. However, according to the same theory, in those countries which become depositaries of such gold reserves, certain reactions take place which tend to reestablish equilibrium, since the inflow of gold causes prices to rise with a consequent increase of imports and decrease of exports, and the process continues until equilibrium has once again been achieved.

From what has gone before, it is not surprising that the belief in this sort of automatic reaction should have remained uncontested until the First World War. Nor is it strange that doubts were finally

/voiced at a

voiced at a later date with regard to the validity of the theory, especially after the incidence of the world economic crisis, when the facts of the situation differed widely from the conclusions it put forward.

It is possible that the confusion which still persists in regard to this subject is due partly to the fact that the influence of the time element on the actions and reactions of the cyclical centre has not been adequately emphasized, as we have sought to do. In drawing this chapter to a close, let it suffice to say that until the significance and consequences of the changes which in this respect have taken place in the international economy have been fully interpreted, it will be impossible to throw further light on the problems of disequilibrium and its monetary implications.

/ CHAPTER IV.

CHAPTER IV. THE EXTENSION OF TECHNICAL PROGRESS AND THE TERMS OF TRADE.

Dynamic significance of the deterioration of the terms of trade

1. In the preceding chapter, we sought to show that the improvement in the terms of trade of the great industrial countries, and the corresponding deterioration in the periphery, has been one of the principal factors responsible for the decrease of the import coefficient of the former. We have also pointed out the adverse influence of this phenomenon on the import capacity of Latin America, which had just reached a point in its economic development where imports tend to increase constantly.

The relation between import coefficients in the great industrial countries and the terms of trade is no more than the statement of a fact, whatever the interpretation one may wish to give it. It is, however, a fact which is of the greatest importance to Latin America and one is therefore justified in devoting this chapter to a theoretical examination of it with a view not only to a better understanding of its nature but also in order to clear away some of the doubts and confusion which arise in this connection.

It is even more necessary that it should be done since we are dealing with a factor which is closely linked to methods of extending technical progress throughout the world. From the outset, we have stated that it is not possible to understand the problems connected with Latin America's economic development without first investigating this process and its consequences. One of these consequences, without a doubt, is the constant tendency of the terms of trade to deteriorate. This phenomenon is purely dynamic and we hope to prove that ultimately it can be explained by the relative slowness of the world's industrial development to absorb the real or potential surplus of population gainfully employed in primary occupations. Technical progress as we have seen, tends to decrease the amount of labour engaged in primary production. However, this decrease has been extremely slight over the years. In the meantime, new productive techniques are revolved

/making [illegible]

making further readjustments necessary in the distribution of the employed population.

Thus there is a relative abundance of potential labour in primary occupations, tending constantly to exert pressure upon wages and the prices of primary products and preventing the periphery from sharing with the industrial centres the advantages of the technical progress attained by the latter. Furthermore, the periphery is unable to retain a part of the benefits of its own technical progress.

Significance of the price relations between primary industrial goods

2. From the outset one must be careful not to attribute to this statement implications which can only be understood later. Therefore, a short explanatory note will be useful before going deeper into the subject. If prices reflected only decreasing costs resulting from technical progress, then prices of manufactured goods should fall more than those of primary goods, since as is generally recognised, the increment of productivity is greater in the former than in the latter. The price relation would thus seem to swing in favour of primary production, and its index or that of its equivalent, that is, the terms of trade, would consequently rise from say 100 to 150, thus indicating that the same amount of primary products as before can purchase 50 per cent more manufactured goods. Primary producers would then be able to share equally with the manufacturers the profits derived from technical progress, but purchasing larger amounts of higher quality goods. If despite the greater decreasing costs of manufactured goods, the index of the price relation were to remain at 100, it would mean that producers of manufactured goods would have retained for themselves the advantages of greater quantity and higher quality of manufactured goods. Should the index fall below 100, then not only would primary producers not have received any share from increased industrial productivity but they would have been unable to retain for themselves the full profits of their own technical progress, since they would have surrendered a part of it to the manufacturers. This does not mean that primary producers are worse off than they were before. It depends

/on the degree

on the degree of increased productivity reached and the extent to which it is transferred to industrial manufacturers. If the index falls to 80, for instance, primary producers will be able to obtain 20 per cent less manufactured goods than they did before, for the same amount of primary goods. However, if to obtain that same amount, they need work only half as long as before, one hour's labour would now allow them to purchase 60 per cent more manufactured goods, instead of 100 per cent more, as would have been the case had they received the full benefits of their own technical progress; or an even greater quantity had they been able to share a part of the benefits of technical progress achieved in the industrial sector, should such progress be greater than that achieved in the field of primary production.[1/]

The indices given in the preceding chapter seem to indicate that in the past seventy-five years something of this sort has occurred; that is to say, if, as is likely, technical progress in primary production at the periphery had been less than that of industry at the centre, then the periphery will have transferred to the centre part of the benefits of its own technical progress. Unfortunately, due to the lack of data concerning the increment of productivity in primary production it is not possible to ascertain the extent of such benefits and what part of them has remained in the primary producer countries. We will return to this aspect of the question later. Meanwhile, we shall try to explain the causes of this phenomenon of outstanding importance in the economic development of Latin America.

The real or potential surplus of gainfully employed population and the terms of trade

3. It has been previously put forward that primary production generally tends to acquire a surplus of gainfully employed population bringing an unfavourable pressure to bear on primary wages and costs. This tendency derives on the one hand from the relatively large increase of population in the regions of primary production and on the other from technical progress, which reduces the number of persons required to obtain the same quantity of primary products. The absorption of such a surplus becomes the task of industry and the occupations depending either

1/ The Economic Development of Latin America and its Principal Problems, (Document E/CN.12/89) Page 2.

/directly or

directly or indirectly on the development of industry.

The surplus in question may either be real or potential, that is to say, it may already have become a reality through the application of new techniques in primary production or arise upon the introduction of the new methods which may be spontaneous, or the consequence of industry's labour requirements which, by drawing labour from primary production, cause wages to rise and compels an improvement in productive methods. This latter case seems to have occurred frequently in the United States where industrial areas attract population from the peripheral zones of primary production in the country. A real surplus of gainfully employed population could occur if technical progress in primary production were not accompanied by either prior or simultaneous development of industry and its related occupations; neither would it then be capable of absorbing the excess labour, as it arises.

In either case, if the gainfully employed population were perfectly mobile and did not show reluctance or deliberate opposition to migration, so that rapid development of industry and its related occupations might immediately absorb the aforesaid real or potential excess, then there would be a marked tendency towards a levelling of primary and industrial wages, even making allowance for differences in skill. Both would jointly benefit from the general increment to productivity if instead of wages rising with the increase of productivity, prices fell together with costs.

However, an examination of the situation shows that both industry and its related occupations have developed relatively slowly throughout the world, so that absorption of the real or potential surplus of gainfully employed population has only occurred with any intensity in primary production of the great industrial powers; it is only just beginning in Latin America and the rest of the periphery.

The great countries, given the present structure of the world's economy, limit the process of their own population. Within their frontiers, industry and its associated activities do not develop in such a manner as to absorb the population of the periphery, so that

the peripheral countries have no means of absorbing the surplus of their gainfully employed population other than the development of their own industrial activity. It is not possible for them to employ this surplus in expanding primary production since the distribution of the population is not arbitrary but depends on productive technique as has been shown in the first chapter.

Consequently, the relative slowness with which technical progress has been extended throughout the world has weighed heavily amongst the factors which tend to make a very uneven division of the benefits of technical progress, and the periphery not only has been generally unable to share with the industrial centres in the advantages derived from the latter's technical progress but has even been compelled to cede to the latter a part of the benefits deriving from its own progress, due to insistent pressure of the real or potential surplus of gainfully employed population.

Degree to which the benefits of technical progress are transferred

4. This transfer from the periphery towards the centre, of a part of the benefits derived from technical progress in primary production is not effected with uniform intensity. On the contrary, the intensity of the movement varies in proportion to the strength of two opposing forces. On the one hand we have the growth of primary production and on the other, demand for primary goods in the industrial centres. Should the latter increase more than the former, the degree of transfer decreases; and the centres might even transfer to the periphery a part of the benefits of their technical progress, a phenomenon which would become manifest in the improvement of the terms of reciprocal trade. However, if demand in the industrial centres increases relatively less than primary production, or is slow to recuperate its powers after an acute depression, the price relation will deteriorate, and the degree of the periphery's transfer to the centre increases in inverse ratio to the proportional or absolute weakening of the dynamic industrial factor.

There is, in fact, a dynamic element in industry which is not

found to a comparable extent in primary production. The latter, as its name would imply, covers the initial phases of the productive process, while industry accounts for subsequent stages. Because of this relative position of the two activities, the increase in industrial activity stimulates primary production, but the latter has not the power to generate industrial production. When industrial entrepreneurs, stimulated by the normal economic impetus, or by extraordinary forces in times of war, undertake to increase production, demand for primary products increases, as profits are consequently greater entrepreneurs in the periphery seek to increase primary production. The spontaneous increase of the latter on the other hand, does not cause a similar rise in industrial demand which would be capable of absorbing that increase, as can easily be seen from the following example. Let us assume, exaggerating the proportions to simplify matters, that in a total selling price of 1000 units for a finished product, 500 correspond to the periphery and the rest represents values added during the various stages of the productive process corresponding to industrial sectors. Let it further be assumed that the periphery of its own initiative intends to increase its production by 10 per cent, giving its productive factors an added income of 50. To simplify even further let it be assumed that this increase of income is entirely absorbed by the consumption of finished goods from the centre. It is clear that the demand for such goods will only increase by 5 per cent at most, whereas primary production will have increased by 10 per cent. There would, therefore, be no increase of industrial demand sufficient to absorb the increased primary production and the latter's terms of trade would deteriorate. In actual fact, the share of primary production in the value of finished goods is less than that given in our example and the increase in income is not absorbed entirely and immediately by the consumption of finished goods. In reality, the periphery's influence on the centre would be weaker and the consequent disequilibrium would be correspondingly greater.

The foregoing affords us a better understanding of the effects of increased production in the periphery deriving from either increased population or from improved technical progress, and shows that if such

an increase of production is not accompanied by an equivalent increase in the demand for primary goods in the industrial centres, the position of the periphery is weakened and it cannot resist the pressure of factors which tend to take from it the benefits of its own productivity.

Dynamic importance of industrial growth

5. From what has been said above in connection with the dynamic significance of industrial development it may be seen that the latter affects manufacturing in two ways: one we have called demand from the centre and which includes both raw materials for industry as well as goodstuffs required by the centre, and second, the absorption of surplus hands from primary production. Let us now look at this latter problem.

It has been shown that the centres absorb their own surplus but not that of the periphery. However, they may bear an indirect influence on the gainfully employed population of the periphery by means of demand from the centre. If industry and other activities at the centre develop to such an extent that they not only absorb the resultant surplus of their own primary production but also the population which that production requires in order to continue developing in accordance with demand from the centre, then the centres would tend to import from the periphery a greater proportion of primary goods to meet the increase of their own requirements. In this way the periphery would obtain relief from the pressure of its surplus population and at the same time the tendency of the price relation to become worse would be reduced.

Phenomena of this nature must have occurred in the development of those countries which have now become great industrial centres. But there are other and more outstanding aspects, perhaps of greater importance of the way in which industrial growth has functioned as a dynamic factor, absorbing surplus population from primary production. It is a well known fact that when the Industrial Revolution was in full swing in the 19th century, the European population increased considerably. An increasingly large part of this population was absorbed by industry and other related occupations developing at the time, and the rest was engaged in primary production not only at the centre but also in

/ the new

the new countries overseas which technical progress in transport had thrown open to international economy, especially in the latter half of the century. Noteworthy currents of emigration began to flow from the older regions of primary production in Europe (which were gradually becoming more and ore industrialised), to the newer areas which had become either complements or substitutes in the production of primary goods. Looking at the phenomenon as a whole, however, the proportion of persons gainfully employed in primary production tends to decrease whereas that in industry and related economic activities tends to increase. Nevertheless, the decrease is not sufficient to avoid a relative drop in primary prices.

Productivity in the new areas is higher per capita than in the older regions and progress in transport enables goods from the former to reach the European markets easily and cheaply. It is possible that this increase in production, probably greater than that of demand at the centre, greatly influenced the deterioration of the terms of trade which occurred after the seventies of the last century and continued until the First World War.

Then, as now, the growth of industry probably did not have sufficient impetus to prevent the terms of trade from turning against the periphery. If the absorption by industry and its related occupations of the population employed in primary production had been more intense at the centres, emigration toward new countries would have been relatively less and consequently they would have had fewer people available to increase primary production; thus it would have been in a more favourable position with regard to demand from the centre.

Much room for conjecture will remain on this subject until more detailed investigation has been undertaken. Nor must one lose sight of the possibility that, in the case of some primary goods at least, the increase of productivity which was indirectly attained when the new countries were opened to world trade by technical progress in transport, may have been greater than that attained by certain industrial sectors. Nevertheless, this need not invalidate the analysis contained in this chapter since if a part of the benefits of technical progress in primary

production in the periphery is transferred to the industrial centres, both when the productivity of primary occupations increases more than in industry, and when the increase is inferior, it is probably due to the fact that the real or potential surplus of gainfully employed population engaged in primary production exerts constant pressure on wages and prices.

Not all the countries opened at that period to international economy are best exploited by labour imported from the older regions of Europe. In the Latin American countries already occupied by ancient populations, settled there before or after the Spanish Conquest, there is more than ample potential labour to work the land, whether in agriculture or mining. For this and other reasons, these countries do not attract immigrants from Europe, or at least not to the same extent as do other countries. This fact cannot be overlooked when examining the variations of the terms of trade of the various primary products, according to their particular nature, type of production and degree of technical progress. It will, nevertheless, be necessary to overlook it in this diagrammatic explanation which at present has no other purpose than to focus certain fundamental concepts in order to make the problem of terms of trade more understandable.

The period during which the new lands were opened up on a large scale in Latin America may be taken as ending somewhere between the First World War and the Great Depression. There are remarkable contrasts between this period and the following ones. During the latter the deterioration of the terms of trade was much more pronounced than before, since the initial drop which followed the First World War was followed by the fall after the crisis. There is no further transference to the centre of the benefits accruing from technical progress in transport, which enabled the better utilisation of the increased productivity of the new lands; the only transference made is that of the increase in productivity directly obtained from improved technical methods of exploitation, or perhaps more than the increase itself, as may even have occurred in some cases.

Exports, which in the previous period had generally increased more

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than the population, continued increasing but at a slower rate than that of the population: the serious consequences of this fact in conjunction with the adverse trend of the terms of trade, have been pointed out in the preceding chapter. In addition, land rent, expressed in a constant monetary term, decreased instead of increasing which together with the characteristics mentioned above renders the economic problem of development in Latin America very different to that previously faced in other countries.

The dynamic element of the large centre no longer functions as it did during the decade of the Great Depression and, in primary production especially, one notes the surplus population; an imperative need is felt to supply the deficiency of that traditional dynamic factor by means of a new one springing from the growth of domestic industry. The extension of technical progress in Latin America thus enters a new stage.

Land rent and wages in the development of the periphery

6. In this first analysis of the terms of trade, it can be stated that in Latin America the export industries which are affected by these terms as a general rule represent a fairly low wage level when compared with those at the centres, even in cases where there has been an appreciable increase of productivity. We should not forget, however, that there have always been marked differences between one country and another, and that in recent times, increases have been made where labour is organised and where other favourable factors made this possible, as will be shown in another chapter. There are various factors responsible for such differences between the wage levels, and among these is the extent to which the industrial development of each country has been able to absorb the surplus population, tending to improve wages relatively when competitive conditions in the international sphere made this possible.

The fact that wages have remained at comparatively low levels during the primary development of the Latin American periphery does not mean that technical progress has not been able to increase other sources of income considerably. In those areas which are opened up to

agricultural or mining exploitation, there is a sharp increase in land rent thus considerably increasing the value of the land itself, previously worth little or practically nothing. The returns from the economically new areas are, ultimately, the expression of their greater productivity as compared with the older exploited areas. Technical progress in transport is largely responsible for this increase of land rent. A part of the benefits derived from this progress remains in the hands of the landowners whilst another part flows into the industrial centres, by means of a relative lowering of prices.

The social and economic repercussions of this fact are indeed vast. It would appear that increasing returns from the soil impart very special form to the penetration of capitalist technique in the export industries of the periphery countries.

The relatively low level of wages in primary production was therefore compatible with the high increase in land rent, to the advantage of certain social classes.

Thus we find considerable sources of income springing up during the primary development of certain countries in which more advanced forms of economic structure may later thrive, whereas in other countries, even though the increase of land rent is considerable, an appreciable part flows into the industrial centres, especially in the development of certain mining enterprises.

The terms of trade in this new stage of extension of technical progress

7. It was shown in the first chapter that technical progress tended to penetrate through Latin America's primary export activities rather than in other occupations, though with varying intensity. There is still much room for technical improvement in these occupations. Should the conditions at present obtaining in world economy persist, however, it is possible that the carrying out of such improvements would not guarantee the permanent raising of the wage levels. On the contrary, these might even be lowered and a large part of the profits derived from technical progress lost, if the surplus population created by these very improvements cannot simultaneously be absorbed into industry and its

/associated occupations.

associated occupations.

On the other hand, the periphery is immense and the population which would have to be absorbed by its industry and associated occupations, as modern technique expands, is proportionately large. If a country determines to raise its wage levels by increasing the productivity of its export occupations and absorbing into industry the surplus of gainfully employed population accruing therefrom, it might be seriously hindered by other countries, also engaged in improving their techniques, but making no effort to raise the very low level of their wages.

This might be the case of areas which are at present engaged in a process of primary development similar to that which occurred about the middle of the last century in the Latin American periphery. In these areas there is no industrial development to absorb the surplus population and this lack may contribute to the maintenance of low wage levels.

This is one of Latin America's most serious problems, especially with regard to its influence on the terms of trade of certain outstanding products.

The same does not occur in the case of primary production directed to domestic consumption in these same countries where, in general, little technical progress has been introduced, as compared with export industries. It is obvious that if the surplus cannot be absorbed there, prices will drop as productivity rises, to the advantage of other social groups. But in this case the phenomenon can be counteracted by the development of industry and its related occupations, ensuring that primary producers obtain all the benefits deriving from technical progress without interference from competitor countries.

Nevertheless, even in the case where the benefits of technical progress in export industries flow abroad, a net increase of income would be possible by employing in industry and its associated occupations the surplus of labour created by technical progress in primary production. In other words, despite the possible deterioration of the terms of trade, the peripheral countries can obtain for themselves the

full benefits accruing from technical progress in primary production destined to the domestic market, as well as from technical progress in industry, as applied to the surplus population. But it is obvious that the net increase in income will be proportionately greater in accordance with the country's ability to counteract the tendency of the terms of trade to worsen.

Another form of transfer of the benefits of technical progress

8. At the beginning of this chapter, the reader was warned against any tendency to attribute to the terms of trade any implication other than a mere statement of fact before considering the problem more carefully. The preceding analysis now permits us to study such implications, beginning with those which seem unacceptable.

In the first place, let us take the ethical implications that the centres in withholding the benefits derived from their own technical progress are not thereby retaining something that does not rightfully belong to them. From the ethical standpoint, there might be more than one justification for this procedure. However, that point is alien to this report. Our purpose is rather to point out that this method of withholding the benefits was not envisaged by the theorists who propounded a doctrine of great importance in certain currents of economic thought. According to them the benefits accruing from technical progress should flow equally to the whole community in the form of lower prices or increased incomes. This latter is what has, in point of fact, generally taken place; but only in the industrial centres where the benefits of their technical progress remained. The same theorists furthermore assumed absolute mobility of factors and products and the abstract world thus created is substantially different from the one in which we live. It would, therefore, be necessary to revise the theory ab initio before applying it to the study of problems of economic development in the periphery. If the world division of labour had been effected according to this theory the distribution of economic activities throughout the world would probably have been very different from what it is today and the problems presented by differences in the

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rate of increase of productivity and income - of outstanding importance in world economy - would not have assumed the proportions they have attained. The difficulties would have been of another kind, perhaps far more serious than those with which we are now faced.

This same difference between the abstract world of absolute mobility and of levelling tendencies, on the one hand, and the complex reality of the present day economic organisation, on the other, makes easy comparison impossible between results which, in given circumstances, would correspond to that theory and those which do, in fact, follow.

It might be argued that if the centres did not withhold the benefits of their own technical progress, the peripheral country A or B would be able to attain far higher terms of trade than at present and that their income level would approach that of the centres. But it might similarly be debated that A derives a lower income than that of the centres from its export industries because its productivity is lower. According to the above mentioned theory no country, region or industry could maintain itself - in a state of absolute mobility of the factors of production - if its technique were inferior to that of other countries, regions or industries, since it would no longer be able to export and would transfer its factors of production to other countries, or else to other regions or industries within that same country.

Furthermore, according to the same theory, if the benefits derived from technical progress flow from one party to another, similarly, benefits derived from greater productivity in the latter must flow towards the former. There is reciprocity in this movement and in no case could the benefits flow towards productive inefficiency.

Since the theory must not be applied only in part, we will do no more than keep it in mind when investigating the differences between the facts and its assumptions in order to acquire wider knowledge of actual conditions.

Conclusions drawn from the preceding analysis

The foregoing leads to a first conclusion. The theory as outlined above assumes reciprocity of transfer whereas, in fact, such reciprocity

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does not appear to exist. Given the dynamic changes which are constantly taking place in the field of world economy, the slight mobility of the factors of production and the slow development of such occupations as can absorb the surplus of gainfully employed persons, the periphery tends to transfer a part of the benefits accruing from its technical progress to the centres whilst these latter retain for themselves their own benefits. The more the periphery seeks to increase its productivity, thus aggravating the surplus of gainfully employed persons, the more intense will be the transfer, other things remaining equal. Therefore, in order to raise the income level in primary production in Latin America it is not sufficient merely to increase productivity; it also involves the problem of absorbing the surplus of gainfully employed persons in expanding industry and its allied occupations.

There is also a second conclusion to be drawn relative to the economies of the developing industry. The theory based on logical argument demonstrates, with unimpeachable logic, the economic advantages to be derived from a natural division of international labour, given perfect mobility of the factors of production. It is evident that if a country obtains all the advantages of technical progress achieved by other countries, and in return affords them the advantages of its own productivity, it will not obtain any additional advantage if, by means of protective measures, it undertakes the production of goods already produced by others. On the contrary, it can be proved decisively that economic upheaval will follow. However, if there is not absolute mobility of the factors of production between the countries, the development of industry may contribute to bring incomes in the primary producer countries to the level of that in industrial countries. Insofar as this occurs there will be a net profit for the primary producer. Nevertheless, in order that this levelling may take place, it would be necessary for other competitor countries not to force competition in their own favour by lowering wages. That is precisely the great difficulty facing the periphery, as has been indicated elsewhere in this chapter. But there is another source of net profit which is less problematic, since industry and its allied occupations add a net increase to incomes previously

/earned when

earned when employing the surplus population formerly gainfully employed in primary production and dislodged therefrom by technical progress. This increase will be proportionately greater as the productivity of the new industries reaches that of countries which are more advanced technically and it represents a net profit even though productivity be inferior. Consequently the lack of international mobility of the factor of production must lead us to formulate a criterion from the standpoint of economic advantage as regards the economic development of the periphery, differing from that which might be deduced from the reasoning discussed above.

The third deals with the method of extending technical progress. In the theoretical argument we have been examining, the fact that a group of occupations increases productivity presupposes that the resultant lowering of prices will immediately benefit all other activities, creating an additional margin of income available to increase demand or savings. On the other hand, if prices do not fall in the great centres as productivity increases and income rises, then greater demand and savings capacity will be developed only in the centres. Thus it will be seen that the peripheral countries have, on the one hand, remained unaffected by such advantages while, on the other, they are faced with the problem of assimilating an advanced industrial technique which requires extensive development of both demand and savings. This, however, will be dealt with in another chapter.

In brief, the discrepancy existing between the theoretic argument based upon absolute mobility of productive factors and the realities of economic experience is of vital significance to the theory of economic development in Latin America in particular, and the periphery in general. It compels a serious effort towards a revision of this aspect of the existing theories which, based upon premises closer to reality, may help to formulate, upon a firm foundation, the essential lines of a policy of economic development.

The Economic Cycle and the Fluctuation of the Terms of Trade.

10. In reviewing the theory, from the point of view of the development of the periphery, the economic cycle must be given special consideration

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since, if the scant mobility of the factors of production as technical progress extends, suffices to explain the great differences between incomes at the centre and those of the periphery, these differences are created precisely during the cyclical movement. In other words, the cycle is, in fact, the process of evolution of capitalist economy. These phenomena are of great interest to the Latin American countries, and we will end this chapter by examining them.

It is a well-known fact that during the cycle, prices move in favour of primary products during the upswing, but during the downswing they generally tend to fall more than they had previously risen. Thus, as the price level falls during each depression more than it had risen during the preceding period of prosperity, we find that over a number of cycles, there is a continuous tendency for the terms of trade to become worse, as has been shown above.

These periodic falls in the price relations are the result of the way in which, in cyclical downswings, the benefits of technical progress are transferred to other social groups. During the upswing, despite increased productivity, prices rise and the profits of the entrepreneurs rise concurrently. If increased productivity brought immediate improvements to wages and salaries, these would have to rise more than prices. This does not usually occur during the upswing, prices then frequently rising more than wages so that the benefits accruing from technical progress remain in the hands of the entrepreneurs. It is during the cyclical downswing that these benefits are transferred to wages, which decrease less than prices, thus establishing a more favourable scale for wages; and greater advantage is taken of this as a new phase of prosperity absorbs the unemployed elements typical of the cyclical downswing.

In other words, during the depression, wages lose only a part of the benefits obtained during the period of prosperity and thus can reap the benefits of technical progress. Naturally, the whole of the benefits do not go into wages. With time the State has taken an increasing proportion of the benefits derived from technical progress, and has thus been able to widen the sphere of its activities. Other social classes

/also take their

also take their share, to a greater or lesser extent, and, furthermore, the limitations created by competition between entrepreneurs leaves them with a greater share than they would otherwise have had. However, we are not concerned with the distribution of benefits in the centres but rather in the sum of the respective increments of productivity which remains there, as compared with that remaining in the periphery.

Let us assume that after a period of depression, the net increment to income at the centres is equivalent to the increase or production obtained by greater productivity. It is evident that if the full benefits remain in the centres, the periphery will obtain no share at all. Now let us assume that the net increase in income is greater than the increase of production at the centre; in this case the periphery will have been compelled to share its increased productivity with the centre, or, alternatively, cede to the latter part of the real income which it formerly had.

The question now arises: What are the forces which allow the industrial centres to exert such pressure on the periphery, retaining the profits of their own technical progress or even absorbing a part of the benefits accruing to the periphery?

In answer to this question, let us recall some observations made in document E/CN.12/89 regarding certain manifestations of cyclical phenomena at the centres and in the periphery. During the cyclical upswing, demand for finished goods in the centres is greater than supply. There exists, therefore, an excess demand increasing profits for the entrepreneurs and giving rise to phenomena; these phenomena in which the periphery plays an important part, eventually transform this excess into insufficient demand, in this way bringing about the downswing, wherein demand becomes less than the aggregate supply price of finished production. As the aggregate supply price, swollen by the increase of profits previously accrued in the various stages of the productive process, cannot be easily reduced by lowering prices, stocks of finished goods temporarily unsaleable at those various stages are accumulated.

Then there follow a series of reactions which tend to constrict the aggregate supply price until demand once again begins to absorb current production.

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This way of decreasing the aggregate supply price of finished goods is of great importance to the periphery. In fact, this price, as has already been said, was augmented by the addition of profits. However, a part of these were converted into increases in wages and other forms of income. For the sake of brevity, and to avoid entering upon any unnecessary complexities, we will refer merely to the increase of wages, this being the more significant phenomenon. If the aforesaid constriction were affected in proportion to increases of profits and wages, which had previously raised the aggregate supply price, one would simply return to the point of departure, and both the centres and the periphery would share equally in the benefits of technical progress, whatever their amount in either place.

However, this is not the case, owing to the mechanism of cyclical contraction and the nature of the forces affecting it. The accumulation of surplus stocks reduces the demand of the retailers of finished goods for the goods of those who precede them in the economic process, and of these latter for the goods of those preceding them, and so on successively, until we reach the entrepreneurs of primary production in the periphery. In each of these stages, through which the cyclical contraction is transmitted, employment and profits decrease.

It is a recognised fact, however, that at the centres there is great resistance to any lowering of wages, despite unemployment, and in some sectors to the reduction of profits. This constitutes an obstacle to the lowering of the aggregate supply price and when it cannot take place to the extent necessary to bring it nearer into line with aggregate demand, surplus stocks will continue to accumulate. It then follows that the greater the volume of these surplus stocks, the greater the need to curtail production and re, demand for primary products: and the greater the fall in the price of these primary products.

In the periphery, lower prices for primary goods naturally mean lower profits and adverse pressure on wages in communities in which labour organizations, where they exist, are far less powerful than in the cyclical centres.

The greater part of productions costs corresponding to the productive stages completed in the industrial centres is made up of the wages paid

/ therein.

therein. Therefore, the fact that wages are subject to a relatively small decrease means inevitably that it falls to the periphery to reduce the aggregate supply price, so that the greater the wage increase during the cyclical upswing and the more rigid they become during downswing, the greater will be the pressure exerted by the centres on the periphery, through the reduction of their demand for primary goods, and the consequent lowering of the price of these goods.

This occurs, other factors which might influence the intensity and duration of the cyclical downswing remaining equal. For instance, if during the upswing, only a relatively small part of the profits has flowed into wages, the fact that during the downswing profits are inelastic will have even more serious consequences than the rigidity of wages, since the former, during the depression, are the most important source of hoarding, to the detriment of demand.

Having made this qualification, let us continue the analysis. If on the one hand we have this relationship between the net increase in wages at the centres and their resistance to any lowering tendency, and, on the other hand, we have the intensity of the pressure exerted by the centre on the periphery, it is not difficult to understand that if the net increase of wages is greater than that of productivity, in accordance with a previous assumption, then pressure on the periphery will be so great that the lowering of prices will take from the periphery an ever increasing share of the benefits of its own technical progress, or even more, as has been shown above.

How far does experience show that the periphery can resist this pressure? There have been cases in which large stocks of primary products have been accumulated in the periphery in preference to selling at prices considered too low. But when the periphery resists the constriction of its own supply price, the total supply price of finished goods at the centre does not fall sufficiently to eliminate the difference between it and demand. Thus there is continued accumulation of stocks of finished goods as well as of those being manufactured and there is an intensified reduction in the demand for primary products.

Though this explanation is fairly general and each individual case would have to be examined separately, the Great Depression which occurred

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in the thirties showed clearly that the pressure on the primary producer countries can be so great as to compel them to depreciate their currency in order to be able to adapt themselves to the fall in prices caused by contraction demand in the cyclical centres. In this way, the whole population is affected by the consequences of a readjustment which would otherwise be catastrophic for those who derive their income from primary production.

It would not be admissible to generalize this implication in order to maintain that the chronic tendency towards monetary depreciation, recorded in the annals of some of the Latin American countries, can be attributed to the peculiar manner in which this constriction of selling prices occurs during the cyclical depressions. But neither would it be reasonable to suggest that financial upheaval and the resulting inflation are exclusively to blame for this phenomenon, without admitting the influence of the pressure which is automatically brought to bear on the periphery during the cyclical downswing. The whole problem offers a most interesting field for study.

It is evident that if there had been notable increases of productivity in the periphery, this area would have been better prepared to withstand the effects of such pressure by surrendering to the centres the benefits recently acquired as a result of the increased productivity. But if there were no such advantages, the periphery would find itself compelled to surrender a part of the benefits acquired in the previous phase of development. This is precisely one of the reasons why the world economic crisis affected Latin America and other peripheral countries so seriously. Depressions prior to the First World War had been shorter and far less intense. One must go back to the seventies of last century to find as long a depression, though less intense. However, the downswing of the seventies coincided with a period during which Latin America was rapidly increasing its indirect productivity, by incorporating new areas into international productive activity, as has been indicated above. There was, therefore, a wider margin of benefits derived from technical progress in the periphery to be shared with the centres.

Here we have another case where the course of events subsequent to

/the world

the world economic crisis when contrasted with those leading up to it, offers us a better vantage point from which to analyse the problem of economic development in Latin America. Yet this is not the only important comparison, as was shown in the preceding chapter.

CAPTER V. CONTRASTS AND DIFFERENCES IN THE PROCESS OF ECONOMIC DEVELOPMENT.

High degree of capitalization and low level of income.

1. We have defined the economic development of Latin America as a new stage in world-wide extension of capitalist technique in production. To a certain extent we are now witnessing a process similar to that which took place in the 19th century, when countries which today are great centres, began their industrial development. The phenomena are not, however, identical, for conditions of the international economy which now prevail are, as has already been shown, very different from those which obtained then; the later phenomena present unique characteristics which had no cause to develop in the earlier centres, at least not in so manifest a form. We will consider this aspect of the problem in the present chapter.

These particular traits are, in fact, the expression of the contrast between the very advanced stage of capitalist development in the great centres and the pre- or semi-capitalist state of a considerable part of Latin America. 1/

Contrasts of this type are due to the long period which has transpired since the Industrial Revolution. They could not have arisen at the beginning of the process, since conditions in those countries which followed the example of industrialization set by Great Britain were very similar to conditions obtaining in the latter country. At that time, capitalist technique was only beginning to develop and the British national income had hardly grown. Furthermore, all these countries founded their new-born industry on the solid historic base of an artisan class..

1/ Undoubtedly there are many intermediary stages to be found within Latin America in the industrial sectors which, as far as productivity is concerned, are closer to the great centres than to other Latin American sectors where production is primary and productivity extremely low. Therefore, in examining the concrete facts one must keep in mind the different stages of evolution existing in the region.

/Industrial progress

Industrial progress since then has been very great and consequently has widened the gap between the highly developed centres and the peripheral countries, in which modern technique generally has only been introduced into export activities. In the more highly developed countries, productive technique requires a high capital investment per man employed. However, the gradual increase in productivity brought about by this technique, enabled these countries to attain a high level of per capita income, thus making it possible for them to set aside the savings required to create this capital. On the other hand, savings are scarce in the majority of the Latin American countries because of the low income level. When the present-day great industrial centres were in a position comparable to that of present-day peripheral areas, and the per capita income in such centres was relatively low, productive technique also required only a relatively low capital investment per man. Careful study shows that savings are neither great nor small of themselves, but only in relation to the density of capital, i.e. ratio of capitalization per worker, resulting from technical progress. In this sense, savings in Latin America are, on the whole, very low in relation to the requirements of modern technique. Certainly in the early stages of the Industrial Revolution of the great centres, voluntary savings were not very great either, but neither did technique require the large capital coefficient per man needed nowadays. Technical improvements were only brought into use as increases in productivity, income and savings made them economically possible and practical. In other words, one must go back several decades, if not a whole century, to find per capita incomes equivalent to those generally obtaining in Latin American countries nowadays.

In that period capitalist technique was still in the first stages of its development, whereas now it manifests itself in a high degree of capitalization, not easily within the reach of the scanty savings provided by the low incomes prevalent in Latin America.

It follows, therefore, that the later modern technique is introduced into a peripheral country, the sharper will be the contrast between its low total income and the large amount of capital necessary to increase

this income rapidly; so that had similar contrasts appeared in the development of the great centres, they would have been less sharp than those observed now. 1/

Consequently, countries which have recently begun their industrial development have, on the one hand, the advantage of finding a degree of technique in the great centres which required time and sacrifice to acquire. On the other hand, they encounter all the disadvantages inherent in being countries which have lagged behind in the course of evolution.

2. Low incomes and insufficient demand

Another important consequence of the disparity between the degree of growth of income and that of productive technique is the low level of demand which generally characterizes the greater part of the Latin American populations, despite their numerical greatness. Not only does lack of capital or skill in managing it obstruct the adoption of advanced methods of technique but, in addition, low demand makes it impossible to reap the benefits of mass production. Industrial development in the great centres cannot have been hindered by limitations of this kind. There, the originally low income coincided with production on a correspondingly small scale. This scale grew in time, as greater productivity raised incomes and with them, demand, which in turn absorbed production increases in quantity, quality and variety.

The situation is very different in those countries which are now adopting modern industrial technique. Here demand is low because productivity is low; this in turn is low because weak demand is one of the factors impeding the utilization of more advanced technique.

Nevertheless, in the great industrial countries such as the United States for instance, there are regions which began to industrialize at a comparatively late stage in their development. One may ask if they, too, faced the problem of low demand, as does the Latin American periphery. The answer does not lack interest since it brings before us another of the

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1/ Situations similar in this and other aspects may have occurred in the economic history of Japan; it would be very interesting to compare them with conditions in Latin America.

consequences of the distribution of the benefits of technical progress. It is a known fact that the great mobility of labour in the United States tends to make all income rise, as productivity increases, so that income rises not only in those occupations where technical progress is greatest, but also in those where it is low or non-existent. The increase of income is, therefore, a general phenomenon which occurs in all the sectors of the country, as envisaged by the classical theorists. When productivity is increased in the industrial sector, for instance, the resultant increase of income is extended to others and therefore the capacity to increase demand develops not only in that sector but throughout the whole economic sphere. The same may be said of the capacity to save, and as both these capacities are essential elements of industrial development, it is not surprising that industry has not remained within the limits of its original sector but rather has extended itself progressively during the course of time. If the original sector had been able to retain all the benefits of technical progress, there would have arisen a growing disparity between the income and capacity to consume and to save of that sector, and the corresponding factors of the periphery of the United States; and the latter would probably have been faced with problems similar to those arising today in the international periphery.

3. Technical progress and unemployment

It is also a well-known fact that one of the greatest spurs to technical progress in agriculture and other forms of primary production in the United States has been the increase in wages deriving from constantly increasing industrial productivity. The development of manufacturing and other activities, as has been said before, absorbed a growing portion of the increasing population, compelling primary production constantly to improve its technical methods. Thus technical progress in agriculture was to a great extent the consequence of industrial development. Agriculture in Latin America also requires considerable technical progress if it is to raise the standard of living of the masses. But if for this purpose it were to dispense with industry,

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we would be faced with another phenomenon which did not occur in the development of the great industrial centres. There, industry furnished the stimulus for technical progress in agriculture, as has just been indicated, whereas in Latin America progress would spring from agriculture itself. It is not difficult to foresee the consequences of this if here the unemployed workers from the land are not absorbed by industry and other occupations, as they were in the centres. The unemployment brought about by technical progress would prevent the raising of wages, or might even lower them, and the benefits of such progress would be lost in the deterioration of the price relation, for reasons which we need not repeat in view of the explanations contained in Chapter IV.

These unfavourable influences on employment and wages have often led to adverse reactions to technical progress in the development of the great industrial powers. Nevertheless, this same technical progress, by requiring increasing capital investments, develops in these countries a powerful factor of absorption of unemployed workers through development of capital goods industries. Thus we see that technical progress creates unemployment but at the same time tends to re-absorb the displaced workers by means of increased investments. Such was the function spontaneously discharged by the latter in the development of the industrial centres, at least until the world crisis.

The element of expansion, the effects of which are felt in all sectors of the economic activity of the great centres, is lacking in the peripheral countries; consequently their exports are not sufficiently great to offer gainful employment to those unemployed as a result of technical improvements. It is not surprising, therefore, to find fear of unemployment ever present, at times motivating a strong opposition to the use of more advanced capital equipment, the immediate consequence of which is to reduce the labour requirements of primary and industrial production. The absence of this spontaneous element of development does, in fact, lead to extraordinary conditions. Technical progress is accompanied by unemployment here as in the great centres, but the demand for capital goods coincident with such progress does not operate, since here there are no capital industries. Consequently, this demand, instead

of being reflected in the economy of the developing country, transfers its effects to the industrial centres where such goods are produced.

If these centres do not compensate for the demand thus made, by means of a corresponding increase of their imports from the Latin American countries, the unemployment caused by technical progress will persist unless it can be countered by a policy of economic development. This is another of the fundamental differences between the problem of economic development at the centres and in the periphery.

4. Available capital and the extent of its utilization

The problem is more involved than would at first appear, and in fact deserves more careful study. In nearly all the Latin American countries there are frequent examples of production employing antiquated machinery, already obsolete in other countries where it has been replaced by types yielding much greater productivity. If this modern machinery could be introduced into important sections of primary and industrial production and transport in Latin America, increased productivity would cause the formation of an additional surplus of labour. The employment of this surplus would require a capital investment per man equal to that obtaining in the modernized sections, always bearing in mind the different nature of the various occupations. The same requirements would prevail if technical progress were similarly to be extended to all the economic sectors. At this point a problem of undeniable importance arises. Would there be sufficient capital for the intensive equipment of all the sectors? If there were not, and the capital available were only sufficient to allow of a very small investment per man, how could it best be applied in order to obtain the greatest net increase of production, that is to say, of the real total income?

A problem of this nature could not have arisen in identical terms in the great industrial countries by reason of the continuity of their development, as we will now try to show. It is recognized that modern equipment, requiring a greater capital outlay per man is only economical when the total amount paid in interest and amortization is less than the reduction of other costs brought about by the new outlay. For brevity's

sake, let us merely consider the reduction in labour. The progressive rise in wages, caused by the increase in productivity, was perhaps the most important factor in establishing the economic advantage of increasing the capital investment per man by successive technical improvements. Once the new capital outlay had been absorbed, and because of the new level of wages, it would not have been economic for a new undertaking to make lower capital outlays since these would have resulted in a lower wage level.

On the other hand, as the mobility of the factors of production extends wage increases to other occupations, it seems inconceivable that, in the long run, certain industries should raise the capital investment per man considerably by making use of increasingly modernized equipment whilst others continue to operate with a relatively lower capital outlay, in spite of the fact that this is perhaps the more economical solution inasmuch as technical progress would also be extended to these industries. The greater the mobility of the factors of production, the more closely will the development of the different types of economic activity be correlated with capital outlay per man employed.

5. Optimum capital investment in the periphery

The same does not occur when we examine the relationships in the development of an industrial centre and that of a peripheral country. The fact that at the centre new capital equipment is more economical because the additional saving in labour more than compensates for the corresponding cost of amortization and interest does not mean that the same would occur in a peripheral country where wages are lower, and where equipment must be imported from the aforesaid centre. In the centre, the cost of the machinery is determined by wage levels similar to those of the labour dispensed with, while in a country where wages are lower than those at the centre, the total saving will be proportionately less. In other words, the peripheral country imports capital equipment manufactured by high wage-earners in order to obtain a lowering of costs computed in low wages.

/Furthermore,

Furthermore, the relatively high savings at the centres enables them to acquire the amount of savings necessary for a high density of capital per man without putting too great a strain on the interest rate. In countries where savings are scarce, an increase in the density of capital would cause a considerable increase in the interest rates. Thus we find that in the peripheral countries, the cost of capital rises more than at the centres, as the density of capital per man increases, while at the same time the reduction in the cost of labour is less because of the low wage level. 1/ Therefore it appears that the optimum relation between labour and capital equipment in the less developed countries requires a lower density of capital per man than in the highly developed industrial countries; the greater the differences between the respective wage and interest levels, the lower should be the degree of capital density — other factors remaining equal, which we will not consider here in order not to complicate the problem further.

The foregoing analysis enables us to reply to the queries made previously. Let us take a country where the average optimum density of capital is half that of a developed industrial centre; this average is obtained by the combination of the optimum densities in the various industries and occupations, which densities differ more or less from their counterparts in the centre according to their individual characteristics. According to widespread theoretical beliefs, in each of the optimum densities the last increase of capital in any investment should promote a marginal increase of production equivalent to that of outlays in other economic sectors and equal to the cost of the amortization and interest corresponding to the capital increase. If the density of capital is increased by new increments, its cost will be higher than the new increases of production; it would not, therefore, be economical. Thus, to go beyond the optimum degree in a given industry, in order to reach the optimum level obtaining in the centres, would not be to the good of the general economy, since there would be an excess of capital in industry and a lack of it in other occupations; consequently, the

1/ When inflation occurs, the collective cost to the people rises in proportion to the amount of compulsory savings which the population is obliged to make.

/total production

total production would be lower than could be obtained by means of an optimum distribution of capital. These then, are some of the characteristic differences between economic development in the periphery and at the centres, and despite their undoubted importance they have not yet been studied with the attention they deserve.

6. Distortion in the optimum combinations

This simple theoretical presentation does not by itself throw enough light on the realities of the Latin American problem. The factors affecting the optimum arrangement are hidden or distorted by others, among which inflation is perhaps the most important.

In order to understand this aspect of the situation, let us analyze a very simple example. Let us assume the case of an industry in which new capital investments are required in order to meet growing demand. Our entrepreneur is faced with two alternatives, both of which would enable him to obtain the same additional increment of production. One solution requires him to employ 3,000 labourers and invest 6 million units of capital. The other means employing only 2,400 labourers but requires 18 million units of capital. In either case he must have recourse to the market to obtain his capital. The annual wage per labourer amounts to 2,000 units of capital and amortization and interest absorb 10 per cent. The second solution means the utilization of an extra 1,200,000 units of capital, which exactly equals the saving on labour. Therefore, both alternatives represent equal production costs and, consequently, equal profits. However, since the entrepreneur must obtain his capital from the market, in the favourable event that he can obtain the larger amount required at the same rate of interest, he will nevertheless prefer the first alternative, since with a debt which is only one-third of the other he can obtain the same production and identical profits.

The situation would be very different if the same entrepreneur had previously obtained high profits through inflation or if imports of the goods he manufactured had been restricted either because of currency shortages or some other motive. If the profits accruing to the entrepreneur were sufficient to cover the amount required by the second solution, he

/might well

might well adopt it, since besides obtaining profits equivalent to those deriving from the first alternative, it would represent a profitable investment for his surplus capital and he would retain for himself the interest and amortization which in other circumstances he would be compelled to assign to a third party.

It is true that in this case the entrepreneur could combine it with the first alternative, using the surplus profits in making interest-bearing loans, but he would hardly wish to be a creditor at the height of an inflation and would therefore probably adopt the second alternative.

If there are other industries equally accessible and yielding greater profits, it is obvious that the entrepreneur will prefer to invest his capital in them. However, he will probably be faced with cases similar to the one described above, and in this eventuality he would probably again be inclined to an over-investment of capital.

Could there, however, be over-investment of capital if this phenomenon did not apply only to certain industries, but covered the whole range of economic activity? Could not a general increase of productivity be obtained in this way, approaching that of the great industrial countries and which would make it possible to raise the wage level and so justify a greater density of capital investment per man? It is precisely this which it is difficult to foresee in Latin America for the following reasons.

In the first place, inflation and import restrictions do not affect all occupations equally. Profits are there not strictly proportioned to the real increase of productivity obtained by the latest capital investments, but to the extent to which this and other factors affect each occupation, so that investments do not correspond to a rigid concept of productivity essential to the optimum distribution of available capital. Thus investments are made which yield greater profits, to which consequently greater amounts of capital flow. This is undoubtedly a propitious field for over-investment, with an artificially high density of capital. On the other hand, there are occupations which, because they were not protected by restrictions on imports or inflationary deviations of demand, yield much

/lower profits

lower profits and though a larger investment in these might lead to greater productivity, the incentive and the resources available are, in this case, much smaller than in the preceding example. In the same way, there are exceptionally important activities, such as transport, for instance, which because they do not share in the high profits accruing from inflation, far from attracting new capital, have capital withdrawn from them.

Hence the increase in the density of capital in certain occupations does not necessarily mean a general increase in all of them approaching the optimum density of capital of the larger countries. It signifies rather a definite distortion in the series of optimum combinations applicable to a country that is developing.

7. Over capitalization and the terms of trade

On the other hand, one must not overlook the fact that the majority of the Latin American countries, as has been repeatedly pointed out, are contending with the serious problem of supplying an adequate density of capital to the mass of the population in a pre- or semi-capitalist state. This is an essential part of the problem and the question arises whether the increase of productivity would not be greater when capital is distributed rationally among the sections where productivity could be considerably increased, rather than to intensify the density of capital in certain activities which are over-stimulated by inflation and the limitation of trade.

Again, in the extreme supposition that it were socially possible and advisable to create the necessary savings by means of inflation, the enormous amount of capital needed in these countries to increase rapidly its density would create insoluble problems of transport abroad.

In fact, the greater part of the capital goods must be imported, and no matter how much domestic consumption is restricted and the population compelled to save, the foreign exchange deriving from exports would soon be insufficient to cover the demand for capital goods, as well as other essential imports. The monetary aspect of the problem of expansion and capitalization need not concern us here. It will suffice to note other

characteristics which occur, in this respect, in the development of the Latin American countries, which should induce us once more not to examine these problems as if they were similar to those which occur in different types of development.

There are two aspects in the formation of capital, which have just been indicated: the domestic accumulation of savings, and the limitation of exports which transform these savings into imports of capital goods. If this limitation were to be abolished and exports forced by monetary devaluation or other means, in order to import more capital goods, the terms of trade would inevitably deteriorate because of the factors analyzed in Chapter IV.

Capital formation in those countries which are now great industrial centres does not seem to have encountered obstacles of this nature. On the one hand, a considerable part of their capital goods are manufactured within the sphere of their own economy, so that even forcing the process by means of inflation did not imply the same external consequences as in the Latin American countries. On the other hand, when the centres were compelled to expand their exports, in order to cover the shortage of domestic production of capital goods, they exported manufactured goods under far more advantageious conditions than those obtaining in countries of primary production, since by exporting manufactured goods they were able to retain the benefits of technical progress more easily in the form of higher income. The goods manufactured as a result of the investment of this high income were exchanged for capital goods, also deriving from the investment of equally high incomes. This is the opposite of what occurs in the periphery. Furthermore, in exporting these goods the countries of the centre generally met with a very elastic demand, since the increase of real income in the various industrial countries was accompanied by a corresponding increase in reciprocal demand for these goods, as can be seen from the statistics showing the growing industrial trade of these countries before the First World War. Consequently when one of the countries of the centre exported in order to be able to import capital goods, there was no adverse effect on its terms of trade.

/The position

The position of the Latin American countries as exporters of primary products, raises the problem of partial over-capitalization or else the rapid increase in the density of capital, making it worth careful study both as regards fact and theory. The forcing of exports in order to capitalize to an extraordinary degree, in the absence of foreign investment might lead a country to sacrifice its real income unnecessarily, precisely when it was seeking to increase it. In fact, if the process is carried to the extreme, the additional amount of labour employed in order to increase exports at lower prices, might be less productive than if it had been employed in activities supplying domestic consumption, with a lower density of capital than that which it was attempting to force. In other words, an uneconomic increase of density of capital might result because of the deterioration of the terms of trade caused by the additional exports.

All these characteristic differences, which distinguish the problems of Latin American development are in the last analysis, the result of the distribution of the benefits of technical progress and of the differences in the degree of evolution of these countries, in relation to the great industrial centres.

8. Other aspects of technical progress and productivity

So far, we have limited ourselves to the study of these characteristic differences in relation to capitalization. To increase the capital per man is an essential condition for the increasing of productivity, but it is not the only one. The ability to organize, manage and administrate on the one hand, and the technical skill of labour on the other, are also factors of great importance. One of the most significant conclusions drawn from a study of Latin America's textile industry being carried out by the Commission's experts, is connected with these factors. In important countries where industry generally is using antiquated equipment, productivity could be considerably increased, using the same equipment but with better organization and administration and a more rational utilization of their man-power. In the majority of the cases examined, the increase of productivity which could be achieved in this way would be greater than that obtainable by modernizing the

machinery and the plant.

The possession of adequate equipment is doubtless of great importance, but knowing how to make the best use of it is equally important. In this respect, it has also been proved that in certain cases the equipment being used was comparable to that in use in countries where the textile industry is most advanced, yet productivity was extremely low precisely because of deficient organization and administration.

An inflation may suddenly afford the entrepreneur the necessary resources for the purchase of modern equipment, but it could hardly offer him as swiftly the required skilled labour, which naturally takes time to develop.

Here we find another of the contrasts which arise as a result of the very uneven degrees of development. In the great industrial countries, this skill, as well as the efficiency of labour, developed progressively, at the same rate as productive technique. Skill, efficiency and technique were, in fact, forms of the same general phenomenon which, though it emerged with the industrial revolution, had been evolving throughout centuries of artisan work and the growth of trade experience.

On the other hand, in the peripheral countries, where the technique and the organization of the great centres only penetrates superficially as a rule, and where populations are in a pre-capitalist phase or merely in a rudimentary state of capitalism, a sudden awakening to the complex processes involved by such technique and organization would necessarily cause reaction and consequences which had not marked the industrial development of the great countries.

The problem of productivity reveals itself in two closely connected aspects: first, the investment of savings in capital goods, and second, the investment of savings in the training of men who can make the best use of these goods in the various stages of production. One of the points requiring most attention in the development of the Latin American countries is the judicious distribution between the two fields of investment of the scanty increase in savings in order to obtain the maximum increase in productivity.

/9. Differences in

9. Differences in the capacity to consume

Differences are not only found in the sphere of production; they also appear in the capacity to consume with important consequences for the former. Technical progress has enabled the population of the great industrial centres to diversify their consumption remarkably, constantly offering these communities new articles or improving existing ones, making daily life easier, or creating new tastes to replace those already satisfied by means of their constant increase in income. These are types of consumption corresponding to the more advanced stages of economic development, but which in themselves develop an extraordinary power of diffusion, and tend to spread to the populations of countries which, because they are less advanced, have a lower level of productivity and therefore smaller incomes with which to acquire these goods.

In other words, countries where per capita income is comparable to that of the great industrial centres a long time ago tend to imitate types of consumption prevailing at the centres today. As at the same time they are seeking to assimilate the productive technique of the industrial centres, which requires considerable per capita savings; as income is relatively low in these countries, it is not surprising to find them torn between the greater propensity to consume and the imperative necessity to capitalize. The result frequently is inflation, which is further aggravated if these advanced forms of direct consumption coincide with the increase of services of the state equally susceptible by force of circumstances to the example of new forms of expenditure in the high income countries, if not desirous of adopting modern defence measures which make it even more necessary to increase the general productivity of these countries.

10. Characteristic developments and common elements in the problem of economic development

We have sought in this chapter to explain briefly the causes of some of the characteristic aspects of the expansion of technical progress to Latin America. Ultimately, though the primary intention of raising productivity has, on the one hand, the great advantage of being able to

make use of the experience of the great nations, avoiding their trials and errors, it meets, on the other, with difficulties arising from the fact that those countries which developed first are more advanced as regards income, productivity and capitalization. Thus, though it seems paradoxical, it may be said the high productivity of the great industrial countries is one of the greatest obstacles which the peripheral countries must overcome in order to attain a similar degree of productivity.

When other countries followed the example of Great Britain's industrial development, they met similar obstacles, but to a much lesser extent, than those found nowadays by newly developing countries. Despite these obstacles, the country which then was first to possess modern technique had obvious advantages over those who strove to attain it later, to such an extent that, without any exception, all the countries that developed subsequently to the United Kingdom were compelled to adopt measures to stimulate and protect the industries they wished to establish.

Despite the comparisons and contrasts already mentioned, this last factor provides an element common to the problem of the economic development of Latin America and the initial and successive stages of that same development in those countries which are now great centres, with the exception that the reciprocal differences of productivity between the most and the least advanced of these countries were then less than those existing today between the centre and the periphery.

There is a further common element. The assimilation of modern productive technique with its increasing complexity was not spontaneous but deliberate, and required considerable effort and persistence. This is all of great importance to the development of Latin America, since the differences in the standard of living between the developed and the developing countries does not only depend on the differences between their respective natural resources but to a great extent on the effective capacity to assimilate technique, build up the necessary savings and make the best use of both. The development of this capacity will therefore be a predominating factor in the economic evolution of these countries which are now in the growing stage.

CHAPTER VI. CONSEQUENCE OF THE DIFFERENCES IN INCOME AND PRODUCTIVITY AS BETWEEN NATIONS

Reactions caused by the differences of income.

1. The relatively slow rate at which modern technique has been extended throughout the world, and the way in which the benefits are distributed, have resulted in considerable differences in per capita income and productivity in the various economic regions of the world. There are, without doubt, natural forces at work which tend gradually to eliminate these differences, though considering the course of events from a historical point of view they are perhaps still too slow. On the other hand, there is a school of thought which believes in the free play of these forces, and builds an abstract world wherein the mobility of the factors of production and their free and easy displacement, plays a decisive role. The premise of these abstractions does not coincide with realities obtaining in the economic world, as they appear concretely to us. This tendency toward the relative levelling of incomes, which would offer similar opportunities for increasing productivity in the various international sectors is, in fact, a fallacy; there is not even an approach to any levelling such as is propounded by these theorists. But this does not mean that they do not assist us in obtaining a better understanding of the facts, for they do, in fact, emphasize the difference existing between the propositions put forward by their theory and the reality of the situation.

In any case, these differences in the levels of per capita income and productivity have, in various countries, led to the passing of certain measures which, despite their diversity, aim either deliberately or involuntarily at one of the following objectives according to each case: countries with a relatively high income seek to avoid, as is quite understandable, the pressure of low income in other countries which would be detrimental to them; whereas the low-income countries

/attempt to

attempt to raise their income, by overcoming certain adverse reactions deriving from the measures taken by the high income countries, or deriving from the operation of the economic system itself in the high income countries.

Defense of the high income level

2. The way in which the United States attempts to protect its high income level, obtained by an intensive and systematic effort to increase productivity by means of technical progress, is very illuminating, and allows us to draw conclusions which are well in keeping with the object of this Report.

The process has already been explained elsewhere. We need only recall that technical progress does not occur to the same extent in the various branches of productive activity. The tendency toward increasing income on the other hand, is general. Thus if wages rise in one of the main sectors of industry, as the result of a considerable increase in productivity, the rise tends to become generalized throughout all other activities, even when the increase in these latter has been relatively lower, or even non-existent. Then, though in that sector costs do not rise, and prices may even fall, in other activities the rise in wages, which is greater than the increase of productivity, will increase costs, and consequently the prices of the respective articles or services.

Thus, industries producing goods which could previously compete favourably with the imported foreign article, either because of greater efficiency or because of protective tariffs, must establish protective customs barriers, or else increase them, in order to be able to defend themselves against this competition. It is conceivable that the productivity of foreign industry may be lower than that of the United States, as is probably true in the majority of cases; but lower salaries will compensate for the difference in productivity, and allow the foreign industry to place its production in the United States at a lower price than that of its own industry.

/The foundation

The foundation of the argument for tariff protection in this case is well-known; did these tariffs not exist, foreign competition would destroy activities of a high monetary cost, despite their greater productivity, thus causing unemployment, which would react adversely on the high wage level of other industries.

Measures to correct differences in the level of certain incomes.

3. Protective tariffs are raised so that foreign competition shall not impair the high wage level obtained by technical progress. Let us now consider another case, in which measures are adopted not in order to defend the high wage level, but to raise it in various branches of economic activity in which it has lagged behind because it lacked the spontaneous economic force to attain the levels of other activities. A typical example can be found in agriculture in the United States during the thirties. As elsewhere, cyclical pressure during the world crisis bore adversely on agriculture in the periphery of that country, lowering incomes in this activity to a greater extent than in industry. Later, when conditions improved, agricultural income remained relatively behind, since income in industry and other activities did not increase sufficiently to absorb the surplus population which technical progress and the increase of population had created in agriculture. Thus, for the first time, there was a check in the decline of people gainfully employed in this activity, in relation to the total of the gainfully employed population during the thirties. This failure of industry to absorb the surplus population was one of the factors which prevented agricultural income from rising in proportion to that of industry. 1/ If industry and other activities had been able to absorb this surplus population, income in agriculture would have increased more and its terms of trade would have improved.

1/ This phenomenon is of great interest to the Latin American countries, since it confirms what has been said elsewhere with regard to the adverse consequences which might be provoked by technical progress in primary production, should employment in industry and its related activities not develop to the extent required to absorb the excess of gainfully employed population.

/Since this

Since this did not occur, and the terms of trade deteriorated considerably for the farmer, a subsidy system was introduced which was intended to compensate for the low prices obtained for agricultural products and establish between them and those obtaining in industry a relationship similar to that which existed previously. This system, which because of the latter objective was called the "Parity Prices", consisted in proportioning to agriculture an income similar to that which it would have received had the benefits of technical progress been evenly distributed between agriculture and industry, in the preceding period, whose relationships it sought to restore.

It is therefore evident that since it was impossible to raise income in agriculture proportionately to income in industry, it was necessary to employ artificial means to attain results which were not brought about by the normal functioning of the economic system. However, had agricultural income risen proportionately with that of industry, agricultural prices would also have been higher than they were, and many items would no doubt have been unable to compete on the international market. The parity price system allowed this competition, for although the farmer received the international price for certain products, he also received a subsidy from the state. The subsidy thus makes it possible to raise agricultural income and at the same time enables certain products to compete favourably on foreign markets, without detriment to that income.

We have thus shown how, by deliberate action, a high level of income is protected against the effects of foreign competition. In the first of the examples cited, foreign competition by low income countries is reflected in domestic consumption, whereas in the second case, these effects influence exports. The similarity between the two lies in the fact that they both have recourse to subsidies in order to maintain in the respective activities incomes higher than those in the competing countries. In the one case, the subsidy takes the form of custom duties, while in the other, the method adopted is that of compensatory payments in order to bring prices to the same level.

/There are other

There are other examples of less importance, but equally significant, in which the same results are obtained without state assistance. For instance, there is the example of North-American steel which before the second World War competed in the foreign markets with "European export prices, irrespective of the prices obtaining in the American domestic market. In the home market, where the overwhelming proportion of the American production was generally sold, prices did not fall to the very low level reached in the export markets". 1/

These facts have been mentioned with strict objectivity. It is not a question of judging the policy which these measures involve, but of intepreting its significance, as regards economic facts, as this may enable us to understand more clearly certain aspects of the problem of the economic development of Latin America.

Competition of low income countries

4. The classic theory, however, envisaged a different solution to these problems. The consequences of the mobility of the factors of production and the free distribution of products would have been very different, for they would have tended to level down incomes instead of levelling them up, which is what in fact gradually occurs as technical progress and industrialization are extended. At this point it is necessary to analyse the case of Japanese competition in view of its significance in the economic development of the periphery. Japan was able to assimilate modern technique rapidly but did not increase wages in proportion to those obtaining in the great industrial countries. Perhaps the pressure of the vast numbers employed in primary production with a low level of productivity, together with the considerable increase of population, contributed to weakening the tendency towards rising wages. Be that as it may, one of the reasons for Japan's strong competitive position in world markets, principally in the British market lies in the fact that the benefits of technical progress tended in this case to be transferred to the rest of the world to a greater

1/ United Nations Economic Commission for Europe, European Steel Trends, Geneva, 1949.

extent than occurred in the case of other industrial countries. Japanese incomes thus remained lower than those of other industrial countries; nevertheless through industrialization Japan was able to increase considerably per-capita productivity with an evident net increase in income which would probably not have been possible without the expansion of exports.

To be able to compete favourably with Japan in certain branches of activity, other industrial countries would have had to lower their wage levels, thus provoking serious economic and social disturbances. In order to avoid these consequences, they were compelled to defend their income level by tariff barriers protecting the industries affected, when this competition entered their domestic market, though on the international market they were unable to carry the defense further than certain bilateral compensation agreements, between the two World Wars.

Measures to avoid the drop in income and stimulate its increase

5. This is not the only interesting aspects of the problems presented by the differences in income and productivity. The experience of Great Britain between the two wars includes much that is of interest concerning peripheral economic development. It is well-known that chronic unemployment in Britain occurred principally in those branches of the export industry which could not continue to compete with other countries, either because of the latter's greater technical progress or because of their lower income. Furthermore, the United Kingdom's export industries were hampered by the growing obstacles placed in their way by industrial development in the periphery. This unemployment, which was aggravated by the world crisis, represented an enormous loss of income. Great Britain was thus compelled to resort to protective tariffs and other restrictive measures, in order to stimulate primary and industrial activity, the subsequent development of which enabled it to make up the loss of income in a relatively short time. So, even though productivity in the new industries or in agriculture was less than in either the United States or in Argentine, for instance, there was nevertheless a

/considerable

considerable increase in real income. Needless to say, this increase would have been still greater had productivity also increased. This, however, is another aspect of the problem, though it is none the less of considerable importance.

It might be feasible to enter into a lengthy theoretical analysis, which would show that if British wages had declined as a result of unemployment, the resultant lowering in the cost of production would have permitted the establishment of new industries and guaranteed those already in existence, without need for a deliberate reduction of the import coefficient, as has already been explained. But even had the reduction of wages increased employment - which is very doubtful - it would also have meant a corresponding reduction in the price of all British exports, in order to stimulate some of them, a measure implying considerable loss to the country's real income.

We would not enter into discussions of this kind, did they not throw some light on the problem of the economic development of Latin America. The Latin American countries have also found it necessary to stimulate their industry in order to absorb both the increment of gainfully employed population, and the surplus which technical progress gradually displaces from primary production and other activities. The differences in productivity in the periphery and at the centre are such that though Latin American incomes are low in relation to the United States and Western Europe, the cost of production does not permit these countries to meet foreign competition. It is evident that in this case, as in the case of Great Britain, the industries thus developed are economical insofar as they represent a net increase to real income which would be much greater if improvements were made in productive technique including the organization and administration of enterprises.

It might also be argued in the present case that the free play of economic forces would be sufficient to solve the problem of unemployment or that of employment of low productivity. This freedom occurs of course within the internal economy since it is not possible to envisage the displacement from the periphery to the centres of great numbers

/of the population

of the population seeking industrial employment. Abstract argument could show that the lowering of wages, brought about by the increase and surplus of population referred to above, would permit costs to decrease to a point where it would be possible to compete with foreign imports. The import coefficient would thus be lowered automatically and not deliberately as occurs when restrictive measures are adopted.

However, the consequences would be most unfavourable to the periphery. In fact, its income, already very low in comparison with that of the industrial countries, would be reduced even further and would lead to a fall not only in the monetary cost of domestic production but also in that of exports thereby seriously impairing the terms of trade. Moreover, the aggravation of the difference between the income of the periphery and that of the industrial centres would not only augment the relative cost of consumer goods but also the amounts necessary for the importation of capital goods. The opposition to industrialization would thus be strengthened and the ratio between fixed capital and wages would tend to fall even further away from the optimum attained at the centre.

In short, besides involving consideragle complications, this type of natural adjustment would greatly reduce the larger net income deriving from industrialization. Furthermore, it might even cause a real loss in total income in the event that the net income produced by the surplus population added to industrial activity were not sufficient to compensate for the loss caused by the deterioration of the terms of trade.

Consequently, import restrictions deliberately intended to lower the import coefficient are, in fact, equivalent to the granting of an internal subsidy to the industries which it is intended to stimulate or create in order to enable them to yield an income at least equal to those generally prevailing in the country while at the same time increasing the total volume of income. Thus we come to the second category of measures mentioned at the beginning of

/this chapter.

this chapter. Countries enjoying a high income level take measures intended to prevent any detrimental competition on the part of countries with lower incomes where lower income or greater productivity or a favourable combination of both gives them an advantage in certain branches of production. Meanwhile the countries with a lower income also take measures governing other branches of production in order to prevent the great industrial countries with their greater productivity and despite their high incomes from hindering the development of their industries and lowering their income, thereby augmenting the difference between their income and that at the centre.

One must also note another form of competition; that exercised by countries which, by efficiently assimilating the productive technique of the centres and by maintaining a lower income than that of other countries are able to cause unemployment in both the centres and the developing countries, provoking unfavourable reactions on their respective income levels.

The difference in incomes and the play of economic forces.

6. The conclusion would seem evident. The disparities or differences in income and productivity brought about by the uneven development of productive technique and the methods of distributing its benefits, present problems which, since they cannot be solved automatically and satisfactorily by the free play of economic forces within each country, have necessitated the application of measures which, despite their diversity, all tend to protect the level of income attained in the country, and to increase it. If the free play of economic forces is not limited to the sphere of national economies but is extended to the international as well one could in the abstract conceive of a state of affairs in which the absolute mobility of the factors of production and the free distribution of products would tend to bring about a relative levelling of income, in the course of time. However, the economic world of today is very different from that abstract creation, and in reality the premise of the mobility of the factors of production is not purely economic but involves values of another kind

/which are

which are generally considered more important than the strictly economic.

Nevertheless, the time spent in recording the consequences of this abstract reasoning is not entirely lost, for in speaking of the free play of economic forces one does not always remember that the theory drawn from such reasoning has a universal sense. Therefore, in the consideration of concrete examples the theory can hardly be divided arbitrarily in order to apply it to the national aspect, ignoring the far-reaching consequences which it involves in the international aspect.

Herein lies the justification of the effort made in these pages to throw light on the peculiar complexities of economic development and its disparities and discrepancies. These considerations which are too diagrammatic and general are naturally not adequate. Both a deeper theoretical analysis and a careful investigation of the facts are lacking.

Special cases of high income in Latin American export activities.

7. In addition to the general problem common to all the Latin American countries which has compelled them to adopt protective tariffs of one kind or another in order to sustain their economic development, there are several individual examples which, apart from their inherent interest, lend themselves to a theoretical interpretation which enables us to discern the presence of elements of great importance in relation to our former analyses. There are two Latin American countries, namely Cuba and Venezuela, which have not devalued their currency and whose wages in terms of dollars have been maintained at a high level in their respective export industries. These high wages when expressed in the terms of devalued currencies are considerably higher than those obtaining in the majority of the Latin American countries. But since in these two countries productivity is relatively low in the industries which they attempt to develop in order to absorb the population as occurs with other countries they find themselves compelled to raise tariff barriers. This greater protection is undoubtedly one of the

/factors which

factors which explain the relatively higher prices obtaining in these two countries in comparison with other Latin American states that have devalued their currency.

The following conclusion might be drawn from this fact: incomes being equal, the higher the wage level the higher must be the subsidy which protective customs policy implies.

As will be seen in due time, Cuba having learned from its experience of catastrophic repercussions caused by cyclical depressions on its mono-productive economy has resorted since 1927 to customs tariffs to protect its agriculture and industry, thus enabling these activities to absorb the manpower which the sugar industry could not have employed. Here we have one of the many examples of a peripheral country hampered by setbacks which are beyond its control and which compel it to adjust policy to prevailing conditions. Given its natural facilities and its high productivity, there is no doubt that Cuba would produce a great deal more sugar, for better or for worse, and so employ a great many more people in this activity or, alternatively, obtain a much higher rate of productivity from those at present engaged in the industry. One could even conceive of Cuba depressing sugar prices in the United States and supplying the greater portion of consumption, if not its totality, at the expense of American production as well as that of other competitor countries. Cuba would, of course, have to lower its wage level to do this; but it is possible, though not certain, that the total increment of real income obtained by the employment of more factors in undertakings of great productivity would be greater than that obtained at present by employing part of these factors in activities which because of their lower productivity require the protection of customs barriers.

However, it is well known that even should Cuba wish to follow such a course it could not do so because of the United States' restrictions on the imports of foreign sugar. This is evidently a case of protection which cannot be attributed to lower income in the competitor country so much as to its greater productivity. In this case the protective measure takes the form of a quota as well as customs dues.

/The quota system

The quota system allows Cuban sugar exports to obtain a higher price on the American market than on the world market, as high in fact as the United States judges adequate to protect its high income level.

Under these circumstances, Cuba obtains terms of trade for its sugar which are probably more favourable than those obtainable on the free market open to other producer countries with lower wage levels. But Cuba must seek other activities in which to employ its surplus manpower. It is evident that the higher the rate of productivity it attains in such activities the greater will be the increment of its real income.

Venezuela's experience is of equal interest both from the theoretical point of view and from that of political economy. Venezuela's petroleum industry pays wages which in terms of dollars are extremely high in comparison with other Latin American countries. Furthermore, the Venezuelan Government draws a very high income from petroleum which, in fact, amounts to above 50 per cent of the profits earned by the producer companies. The direct effect of the reflection of high petroleum industry wages on other activities is perhaps not very strong (much less than that of the sugar industry in Cuba, without any doubt) since this industry only absorbs about 3 per cent of the gainfully employed population. However, the indirect effect which the spending of these wages presupposes together with the disbursement of the large sums which the Government derives from petroleum has been reflected in a great demand for labour, causing a rise in income; and both these consequences have been extended to all branches of economic activity in the country.

This would seem to be one of the factors which has contributed to placing certain exports such as coffee and cocoa, as will be shown later, in an unfavourable position as regards competition from other exporter countries. It explains the subsidy established by the Venezuelan Government for the export of these products which takes the form of a better exchange rate. This can, to a certain extent, be

/compared with

compared with the subsidy which, during the thirties, protected against price differentials under the "parity price" system in the United States of America. The resemblance is only partial, however, since it would appear that both coffee and cocoa are cultivated by primitive methods whereas technical progress in agriculture in the United States of America is very advanced.

Thus the level of Venezuelan wages, just as in Cuba, is higher than in other Latin American countries, making it necessary to establish relatively high tariffs in order to protect industry. Petroleum is far from absorbing the additional population of Venezuela and still less the surplus which might accrue from technical progress in primary production. It has in fact created other problems which will be mentioned in due time.

Our only purpose here was to indicate, within the limits of this chapter, the conditions that determine the creation of a high income export industry, in such low income countries as were formerly Cuba and Venezuela. Thus in the field of domestic economy we are faced with differences of levels which in time will be corrected by the mobility of the factors of production requiring the enactment of measures which will tend to protect the new level of incomes.

Difficulties involved in raising income in export industries.

8. These problems are to a certain extent new to the Latin American periphery where wages in export activities have remained relatively low. It is therefore advisable to mention briefly the consequences to which these problems give rise in the great industrial countries. In the case of the United States where, as we have so often pointed out in this report, imports represent a very small proportion of the national income the increase of incomes in the export activities of supplier countries has relatively little effect. For instance, if given a coefficient of 3 per cent imports become dearer by let us say 50 per cent, this would merely represent 1.5 per cent of the United States' national income. On the other hand, in countries with a higher coefficient, say 20 per cent, this could represent 10 per cent of the national income. Thus, one can understand the anxiety of

/countries

countries which find themselves in this situation in the event of any important improvement in the terms of trade of the peripheral countries.

Consequently, except in special cases such as those outlined above, the attempt to raise income in the Latin American countries by means of exports may encounter serious difficulties caused by competition from other countries or regions in the periphery developing primary production, whilst others have entered the phase of industrial evolution. Moreover, even in the exceptions referred to above complications of another sort may arise; a recognised authority on petroleum has dealt precisely with the case of Venezuela stressing the possibly adverse effects upon the country of the lower taxes and wages paid in other highly productive exporting areas. (See Joseph Poque).

Consequences of the differences in income and productivity in reciprocal trade in Latin America.

9. The effects of the differences of income and productivity are not only evident between the periphery and the great industrial countries, or amomgst these latter themselves, but also amomgst the peripheral countries themselves. The latter can of course be considered on the whole as countries of relatively low income. However there are differences, and sometimes very great differences, amomgst the peripheral countries themselves with regard to both income and productivity. These differences, in conjunction with other factors, constitute one of the obstacles to reciprocal economic understanding, especially in the case of neighbouring states.

A Customs Union has often been proposed as a means of widening narrow markets, thus contributing to the increase of productivity which mass production usually involves. However, differences of income or productivity can create unfavourable competitive conditions similar to those analysed above. Furthermore, differences of income could become aggravated by devaluation in one country or by varying levels of devaluation in different countries.

/It is thus

It is thus conceivable that a country in an unfavourable competitive position either permanently or temporarily, might find its own domestic production impaired by the increase of imports from another. It is obvious that if the latter employed the increased purchasing power it thus obtained in the former country, exports would increase together with imports, and the disadvantage caused by displacing the factors of production would be amply compensated by the advantages accruing from the additional trade. However, as has been explained in another chapter, there is nothing in the free play of economic forces which will ensure this result automatically except in cases where the volume of trade is extremely large in proportion to national income, which does not occur in the Latin American countries. On the contrary, the problems of disequilibrium and scarcity of foreign exchange which handicap practically all these countries are such that any Latin American country could employ the excess amount derived from sales to another Latin American country to import capital goods from the centres, for instance, thus subtracting that excess amount from reciprocal trade.

As already stated, bilateral treaties have often attempted to avoid such effects. Their nature has generally been temporary. But they have not sought to attain a wider objective [1] such as stimulating the exchange of industrial goods, so as to ensure a market in a given country for certain industrial goods deriving from the other in exchange for reciprocal concessions to an equivalent amount.

Little has been done in this direction. Meanwhile it generally occurs in the process of industrialisation that each country within its own frontiers attempts to develop both industrial and agricultural production of a type similar to that carried on across the frontier without regard either for specialisation or consumption capacity.

Such extremes were not reached in the industrial development of Europe due to several factors, one of the most important being the

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1/ With the exception of the Brazilian-Argentine Treaty.

fact that at that time there was no general scarcity of exchange, as has already been pointed out. Those countries which were then developing could therefore increase their exports continuously in order to compensate for the constant increase of their imports. However, when exchange did become scarce, during the thirties, trade between industrial countries was seriously affected and the consequences were extremely grave for Western Europe. One can therefore understand the far reaching results of the efforts made insistently by the United States to stimulate their reciprocal trade.

The object of this chapter has been to point out the problems which have led to the existing differences in the income and productivity of highly developed countries as well as of those which are much less advanced and those in the intermediary stages between these two extremes. These difficulties have brought about the adoption of certain deliberate measures which, despite their diversity, have a common feature since in the light of experience they can all be attributed to the fact that no automatic solution of the problem occurred in the economic world where conditions are vastly different from those described by the classical theorists.

Amongst these measures are those of a protective nature which have always been adopted by countries which are developing. The stating of this fact does not imply the recommendation of a given policy since to do so would exceed the scope of this report. Our intention is merely to show that since there is no other way of absorbing the gainfully employed population and increasing its productivity, the activities which can be developed by protective tariffs do, within certain limits, give rise to an increase of the real income. Last year's Report established these limits. 1/ It can only be noted here that once this limit has been surpassed, contrary to the purpose pursued, real income diminishes rather than increases.

1/ The Economic Development of Latin America and its Principal Problems (Document E/CN.12/89).

CHAPTER VII. THE ECONOMIC DEVELOPMENT OF ARGENTINA

I. INTRODUCTION

The broad lines of the economic development of Argentina are clearly shown in the simple curves of the following graph. There are two distinct periods divided by the world crisis of the 'thirties. First, the period of the outward growth of Argentine economy, under the influence of the powerful forces of the world economy. Second, the present period of inward growth, when, in view of the weakening of those external forces, the country seeks within its own economy the impulse necessary for its development.

During the first period, which began in the second half of the last century, Argentina was closely tied to the world economic system. The rapid extension of the railways made accessible vast areas of fertile land, where large numbers of immigrants developed agriculture and increased exports with great rapidity. The country developed swiftly, its production increasing at a higher rate than the population. The latter, in its turn was able to absorb increasing imports, scarcely affected by the occasional depreciation of the currency, or tariffs, carefully devised so that international trade should not be prejudiced.

However, this rapid growth was not maintained throughout the years without interruption. It tended to slow down before the world crisis. New land could not be brought under cultivation to the same extent as before, nor did European demand continue to expand at its previous rate. The need became evident of other stimuli to make up the insufficiency of the external forces in the development of the country.

Argentina had probably reached that stage in the development of primary produser countries in which the extension of technological progress, as was explained in the first section of this survey, imposes new forms of economic activity. In any case, the great changes brought by the world crisis were certainly a decisive stimuli to these new activities. During the 'thirties, exports showed a declining trend for the first time. The terms of trade became extremely unfavourable, while the population continued to increase, though at a slower rate. In addition to all this, foreign investments decreased considerably. The problem of

/development therefore

Table 1. Argentina : Indices of economic activity

Years	Population (in thousands)	Net cumulative immigration (in thousands)	Length of railway track laid (in kilometres)	Quantum index of exports 1937 = 100	Total area under cereals and forage crops (thousand hectares)
1875	2,162	364.4			340.0
1876		381.8			
1877		399.8			
1878		427.9			
1879		459.4			
1880		480.6	2,516		
1881		505.8			
1882		548.6			
1883		602.3			
1884		665.6			
1885		759.8			
1886		839.0			
1887		946.2			
1888		1,085.0			
1889		1,305.2			
1890		1,335.6	9,432		
1891		1,305.8			
1892		1,335.2			
1893		1,370.8			
1894		1,410.1			
1895		1,454.3			
1896		1,543.6			
1897		1,591.3			
1898		1,632.9			
1899		1,681.8			
1900	4,607	1,732.2	16,563	27	5,957
1901	4,741	1,778.0	16,907	32	6,840
1902	4,872	1,794.6	17,377	30	7,203
1903	4,976	1,832.5	18,404	41	8,604
1904	5,104	1,927.0	19,428	47	10,168
1905	5,290	2,065.8	19,794	51	10,878
1906	5,524	2,264.2	20,560	44	12,525
1907	5,822	2,384.1	22.126	45	13,473
1908	6,046	2,560.2	23,741	57	15,017
1909	6,331	2,700.8	24,781	54	15,957
1910	6,586	2,903.2	27,994	48	15,650
1911	6,914	3,012.8	30,059	43	17,258
1912	7,148	3,218.9	31,461	63	18,708
1913	7,482	3,364.3	32,494	65	19,823
1914	7,940	3,303.3	33.510	49	20,705
1915	8,148	3,237.8	33,710	62	20,977
1916	8,354	3,190.9	33,821	54	21,112
1917	8,561	3,158.6	33,841	39	20,314

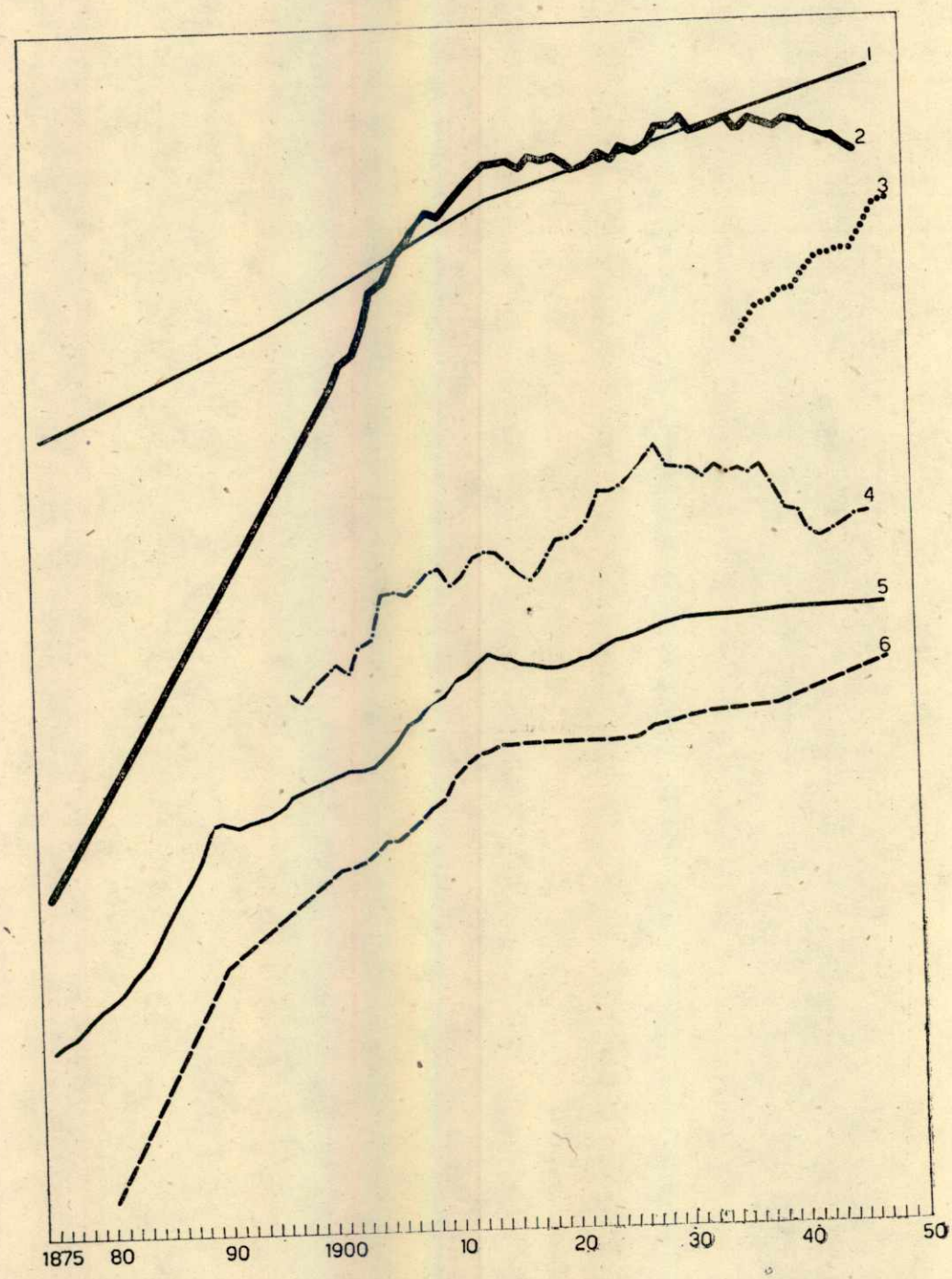
/Table 1

GRAFICO 1

ARGENTINA

INDICES DE LA ACTIVIDAD ECONOMICA

Escala logarítmica.



1.— Población.
2.— Total área sembrada de granos y forrajes.
3.— Indice volumen físico de la Producción industrial.
4.— Indice volumen físico de las exportaciones.
5.— Saldos migratorios acumulados.
6.— Longitud de líneas férreas construídas.

Centro de Investigaciones, Comisión Económica para América Latina.



Table 1. Argentina : Indices of economic activity

Years	Population (in thousands)	Net cumulative immigration (in thousands)	Length of railway track laid (in kilometres)	Quantum index of exports 1937 = 100	Total area under cereals and forage crops (thousand hectares)
1918	8,775	3,149.3	33,841	56	21,771
1919	8,990	3,151.5	33,884	66	21,239
1920	9,220	3,186.5	33,884	64	21,782
1921	9,451	3,246.0	33,907	60	20,905
1922	9,681	3,334.2	34,024	73	20,023
1923	9,928	3,490.2	34,054	76	20,883
1924	10,174	3,605.8	34,220	94	22,076
1925	10,429	3,681.1	34,468	75	21,169
1926	10,691	3,771.6	34,623	84	22,461
1927	10,954	3,883.4	36,649	112	22,538
1928	11,231	3,969.6	36,986	104	23,149
1929	11,510	4,058.9	37,583	104	25,207
1930	11,804	4,132.3	38,634	72	25,182
1931	12,098	4,148.1	39,191	100	26,547
1932	12,400	4,151.3	39,645	92	24,587
1933	12,710	4,155.7	40,101	88	25,071
1934	13,028	4,161.0	40,191	90	25,818
1935	13,354	4,182.1	40,587	95	26,622
1936	13,688	4,209.3	40,914	84	24,465
1937	14,093	4,253.2	41,215	100	26,634
1938	14,298	4,293.5	41,480	66	26,232
1939	14,686	4,299.6		83	27,686
1940	14,865	4,314.0		69	26,612
1941	14,985	4,331.0	42,889	63	27,852
1942	15,102	4,350.3		61	25,167
1943	15,318	4,357.0		63	24,439
1944	15,554	4,361.4		69	25,426
1945	15,787	4,364.5		69	24,138
1946	16,029	4,368.2		73	23,435
1947	16,108	4,414.3	43,666	79.4	24,431
1948	16,506				
1949	16,696				

Source: Research Centre, United Nations Economic Commission for Latin America

Notes: The population figures for 1937 to 1947 were obtained from Sintesis Estadística: for the preceding years they were adjusted according to the growth of population between the 1914 and 1947 census.
The net number of migrants was calculated from the Sintesis Estadística, Anuario de la Sociedad Rural 1928 and the Anuario de Comercio Exterior de la República Argentina, 1943-44.
The length of railway track was calculated from the Anuarios de la Sociedad Rural 1928, Economía Argentina, by Emilio Llorens and Rafael Garcia Matta, and from the Estudio Económico de América Latina, 1948, United Nations Economic Commission for Latin America.

development therefore bore a very different aspect, which became clearer as the events of the 'thirties showed the difference between basic changes and those which were merely temporary and circumstantial.

The external dynamic impulse having slackened during those years, it was no longer feasible to continue to receive new immigrants; in fact, the spontaneous economic development was not able to absorb the natural growth of the active population. The traditional policy of free immigration gave way therefore to restrictive controls. At the same time, the import coefficient was compressed and the composition of exports altered in order to develop domestic industry and thus renew the impulse necessary to the economy 1/.

Industry prospered on a wide and firm basis and this was achieved with the domestic savings of the country, since during those difficult times foreign investments became greatly reduced.

The period of outward growth, however, had profoundly influenced economic thinking; the new attitudes gave rise to antagonism and opposition which, if they still persist in the field of theory, are being eliminated in practice by the intransigent demands of reality.

One of these demands led to the introduction of foreign exchange controls. Employed first as a temporary measure, it became an instrument of economic policy with the object of strengthening the protection afforded to industry and of guiding Argentine foreign trade through the unaccustomed channels of bilateralism.

2. The industrial progress made during these vast changes in Argentine economy were already evident at the end of the 'thirties. The Second World War was to put the new structure to a severe test. It passed this test well and Argentina was able to measure the progress made since the world depression in its determination to become less vulnerable to external fluctuations and uncertainties. At the same time, however, the events of these years revealed the weak points of the system. Critical situations arose as regards fuel, transport, iron, machinery and spare parts, chemical products, and other essential commodities, which would have become extremely serious had an Argentine merchant fleet not been

1/ The theoretical explanation of these phenomena of economic growth was given in the first part of this survey and there is, therefore, no need to enlarge upon it here.

built up at the beginning of the emergency.

The emergency once over, it was natural that the need of further efforts to strengthen the economy be recognized. There was at this time a boom in foreign trade and evident prosperity in internal activities: an atmosphere propitious to conceive and carry out plans, to revive old projects and formulate new ones of a wider scope.

The large monetary reserves accumulated during the preceding years of low imports, and which continued to accumulate by reason of exceptionally large exports, encouraged the intention to speed up industrialization of the country in order to meet the enormous potential capacity to consume and raise the standard of living. In order to do this every possible measure was taken: protection, easy credit, a large measure of State intervention, and facilities for considerable imports of capital goods. These and many other imports which reflected the pent-up demand of the war years, did not prevent the repatriation of the foreign debt; this had been begun before the war for the purpose of eliminating another of the vulnerable factors which the economic crisis of the 'thirties had pointed out in Argentine economy. After the war this was possible on a larger scale when large assets of blocked sterling enabled the realization of the old Argentine ambition to own its railway system.

The remarkable contrast between the present situation and those fairly recent years, despite the characteristics peculiar to Argentina, can be found in a great number of the Latin American countries which are also subject to violent fluctuations of an external origin in their balances of payments. The events of the war and post-war years had, in fact, hidden the fundamental problem of development which had faced them during the 'thirties. The more intensely a country develops, the greater is its tendency towards disequilibrium in its balance of payments, if its internal development is not accompanied by a proportional increase of its capacity to export, as already explained in the first part of this survey.

This is the basic problem of disequilibrium facing Argentina today, aggravated by certain circumstantial factors which will be examined later.

/It is

It is therefore not surprising that now, as in those years, measures are being taken to compress the import coefficient and further alter the composition of imports, while at the same time striving to increase exports in accordance with an evident condition existing in these countries: exports must be increased, in order to purchase more capital goods and other commodities that are essential to economic development.

While these objectives are still in the stage of achievement, investment necessarily declined. In any case, after such progress the field of fact, ideas, and ambitions, a pause was necessary in order to review and consolidate the achievements made, and to determine which branches of economic activity had progressed perhaps too rapidly and in which others the impulse had not been sufficient. There is much to be done in a country in the process of growth and such a pause affords time to strike a balance between the vast requirements of investment and consumption, and the limited resources with which they are to be satisfied.

Circumstances have thus imposed a selective process, by reason of which agriculture is receiving particular attention. Industrialization seems to have assumed such proportions during the last few years that agriculture has not been able, by means of an adequate mechanization, to compensate for the attractions offered to workers by industry. For these and other reasons, agricultural production has declined, and Argentina has not been able to export as much as would have been possible under circumstances more favourable to these activities. On the other hand, industrialization requires exports, and the Government has declared its intention to foster agriculture by means of higher prices and facilities for the importation of essential machinery.

After many years of reduced imports, the requirements of farm machinery are, in fact very great. The same applies to transport equipment, the obsolescence of which has been progressing for many years and which requires considerable investment if, in addition to improving the services, large savings of fuel are to be effected. Considerable investment is also necessary to increase the production of petroleum which has suffered from lack of equipment, as well as hydro-electric power; this is particularly important in a country which imports a

/large part

large part of the energy it consumes. To this must be added the investment necessary for essential industries such as paper and chemical products and the large amounts required for the establishment of an iron and steel industry. These investments add to an amount which, in view of the limited available resources, would have to be spread over a period of time in order to satisfy all the requirements and ambitions. As regards the order which the multiplicity of the needs makes necessary that preference be given to those activities which represent the greatest savings of foreign exchange in relation to the investment made, at least in the cases in which economic considerations predominate, since foreign exchange for the import of capital goods will become available in the measure in which it is saved on imports of other commodities.

3. Owing to the lack of recent statistical data, it is not possible to see the problems clearly nor to formulate an opinion on the sound basis of facts. However, it must be remembered that in the field of investment, Argentina had reached a stage in which it could forego foreign investments, if not completely, at least enough so as not to make them essential to further economic development.

Real per capita income in Argentina is high and its population is not as large as that of other Latin American countries. Although Argentina is essentially an exporter of agricultural products, the proportion of the gainfully-employed population engaged in agriculture is relatively low. Furthermore, in spite of recent decreases, exports per capita continue to be among the highest of Latin America. The problem of investment in the Argentine is therefore approaching that of the more highly developed countries. Moreover, as already stated, the efforts to industrialize during the 'thirties were achieved to a large extent by means of domestic savings which were not derived from inflationary sources. At present, with the level of employment much higher than at that time, a large number of ill-employed persons having been absorbed by industry, Argentina's real income would probably enable a sufficient volume of savings to be attained to satisfy current investment requirements; all the more so, if labour productivity can be raised and

/if the

if the propensity to consume does not prevail too soon over the need for investment.

Whatever the solution circumstances may indicate, to ease the present pressure on the balance of payments, the intention to dispense with foreign loans is based on fundamental facts which are independent of temporary considerations[1/].

All depends on the rate at which the economic development is to take place. Should Argentina wish to remedy in a short time all of its deficiencies of capital, and further all its plans by increasing investment to an extraordinary level, its own resources would doubtless prove insufficient. However, even if it had large amounts of foreign capital at its disposal, the question would arise how far investment can be prompted without disrupting an orderly development of the economy and to what extent in the future the increased financial services could be met without too great a strain on the balance of payments.

Argentina is therefore faced with very interesting problems of development which must be examined in order to see its present difficulties in their proper perspective. In fact, the Argentine experience proves that difficulties of this nature are not incompatible with constructive action. During the serious crisis of the 'seventies of the last century,

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1/ At the time of writing, the Export-Import Bank has announced the granting of a loan of 125 million dollars to Argentine banks, guaranteed by the Central Bank, for the payment of arrears on imports from the United States and other debts. The liquidation of this bank loan required the payment of excessive sums and has now been eased by the extension of the term for fourteen years. This is the second loan granted by the Bank to Argentina. The first was granted in 1940, for 60 million dollars, to which were added an advance of 50 million dollars from the Treasury of the United States in order to relieve the pressure on the balance of payments at that time. As a result of the subsequent increase of exports it was not necessary to draw on these credits. It should be mentioned that Argentina had recourse to them shortly after having repatriated 142 million dollars of the foreign debt, which reveals the extreme fluctuations of its balance of payments. The present credit has also been granted after the recent repatriation of foreign debts and investments in the Argentine equivalent to 293 million dollars in freely convertible currencies.

/the cultivation

the cultivation of wheat was begun under tariff protection, in view of the impossibility of importing it. Another serious crisis, that of the nineties, gave rise to the first steps towards industrialization. The First World War gave rise to new industries, which were developed during the great depression and the following war. The country's vast potential resources and the determination to use them effectively have always overcome even the most serious obstacles.

II. THE RATE OF ECONOMIC DEVELOPMENT AND ITS PROBLEMS

1. Characteristics of Argentine development

The two periods of Argentine economic development mentioned in the beginning of this chapter are characterized by the course of foreign trade: a sharp increase of the quantum of exports and imports before the great depression, followed by a persistent decline; this decline continued from the 'thirties until the present day with all the fluctuations peculiar to an economy which, despite its internal strengthening, continues to be subject to external pressures.

Within these variations the quantum of exports has been able during the last few years to regain part of the considerable amount of ground lost, first during the depression and afterwards during the Second World War. This can be seen in Chart 2. The quantum of exports reached its highest post-war level in 1947, but even so it was still 17.3 per cent lower than the 1925-29 average. 1/ Subsequently exports again declined.

The resumption of the upward trend during the post war years affected the volume of imports more strongly than exports, due to the pent-up demand of the war years. Consequently, the fact that the peak levels reached by imports in 1947 and 1948 surpassed those of 1925-29 for the first time does not prove that the tendency of imports to decline is ended. The index certainly seems to have fallen since then but it is early yet to make any conclusions as to the direction that will probably be taken by the international forces which determine the demand for Argentine products.

This contrast between the period which precedes and that which follows the great depression, like the uncertainty of recent tendencies, are not peculiar only to the economy of Argentina. They are also to be found in the development of the other Latin American countries, included in the present survey, as they are manifestations of international events of a general character. In each country the fundamental problem of development appears in similar terms: the increase of employment and real income have brought with them growing demand for imports of capital and consumer goods; this growing demand is the cause of the persistent tendency towards disequilibrium in the balance of payments, since the capacity to import has

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1/ All the comparisons made in this and the following chapters refer to the annual averages of the periods of time compares.

/not increased

Table 2: Argentina. Quantum of exports and imports, terms of trade, and capacity to import
Index numbers; 1937 = 100

Years	Population (thousands)	Quantum of exports	Quantum of imports	Export prices	Import prices	Terms of trade	Capacity to import
1910	6,586	48	81.9	79,8	67.5	118.2	56.7
1911	6,914	43	85.5	78.4	69.1	113.4	48.8
1912	7,148	63	89.7	78.2	72.7	107.6	67.8
1913	7,482	65	98.2	78.6	73.7	106.6	69.3
1914	7,949	49	63.4	80.8	74.3	108.7	53.3
1915	8,148	62	52.9	92.4	84.3	109.6	68.0
1916	8,354	54	50.7	104.4	105.3	99.1	53.5
1917	8,561	39	42.9	138.7	129.4	107.2	41.8
1918	8,775	56	38.6	140.7	189.1	74.4	41.7
1919	8,990	66	53.5	153.6	178.9	85.8	56.6
1920	9,220	64	70.2	160.5	194.3	82.6	52.9
1921	,451	59	65.4	111.9	167.3	66.9	39.1
1922	9,681	75	72.5	88.7	138.8	63.9	47.9
1923	9,928	76	89.3	99.9	141.9	70.4	53.5
1924	10,174	94	88.6	105.8	136.4	77.6	72.9
1925	10,429	75	96.7	113.9	132.3	86.1	64.6
1926	10,691	84	101.2	92.7	118.6	78.2	65.7
1927	10,954	112	108.3	88.7	115.4	76.9	86.1
1928	11,231	104	119.6	99.7	102.1	97.6	101.5
1929	11,510	104	125.0	90.2	100.6	89.7	93.3
1930	11,804	72	109.6	83.9	98.4	85.3	61.4
1931	12,098	100	75.6	63.0	99.7	63.2	63.2
1932	12,400	92	57.6	60.5	93.2	64.9	59.7
1933	12,710	88	65.0	55.1	88.6	62.2	54.7
1934	13,028	90	69.2	69.1	102.9	67.2	60.5
1935	13,354	95	73.6	71.5	102.4	69.8	66.3
1936	13,688	84	77.6	85.2	92.4	92.2	77.4
1937	14,093	100	100.0	100.0	100.0	100.0	100.0
1938	14,298	66	92.4	91.8	101.5	90.4	59.7
1939	14,686	83	81.4	82.0	105.5	77.7	64.5
1940	14,865	69	69.9	89.6	137.6	65.1	44.9
1941	14,985	63	55.9	100.6	146.5	68.7	43.3
1942	15,102	61	44.8	126.9	183.4	69.2	42.2
1943	15,318	63	30.7	150.6	197.1	76.4	48.1
1944	15,554	69	30.2	148.0	214.2	69.1	47.7
1945	15,787	69	32.7	156.7	226.6	69.2	47.7
1946	16,029	73	68.3	235.5	219.2	107.4	78.4
1947	16,108	79.4	134.4	229.9	255.5	117.3	93.1
1948	16,506	71.5	154.6	335.4	257.0	130.5	93.3

Source: Research Centre, United Nations Economic Commission for Latin America.

Notes: The quantum indices of exports and imports from 1910 to 1924 were taken directly from the Foreign Trade Yearbooks. From 1925 to 1948 they were calculated by the Research Centre from basic data from the Foreign Trade Yearbooks, the Síntesis Estadística Mensual and the Review of the River Plate. The indices of export and import prices were calculated with data from the Foreign Trade Yearbooks. Terms of trade are the quotient between export and import prices. Capacity to import is the product of the quantum of exports multiplied by the terms of trade.

not increased at the same rate as the demand for imports. On the contrary, the decrease in the quantum of exports and the deterioration of the terms of trade have tended to reduce the capacity to import.

It has already been pointed out in the introduction that this problem of balance of payments disequilibrium has reappeared in Argentina, as in other countries, in terms similar to those of the thirties. These countries are, therefore faced with the same necessity of altering the composition of their imports and of adjusting their total in relation to real income so that the latter can continue to rise without bringing about a disequilibrium in the balance of payments.

However, though the need is general, the problem is presented in each particular case in different terms, which depend on the resources of the country, its investment requirements and the nature of its foreign trade. In other words, these countries are all affected by a common denominator of development in relation to the conditions peculiar to world economy, but in each case there is a different situation which cannot be appraised correctly by means of broad generalizations.

Thus, while the other countries of Latin America, hampered by the decrease of their capacity to import, sought to develop their agricultural production in order to contract or at least not to increase their imports of foodstuffs in too great a measure, the case was quite different in Argentina. The problem there is not one of imports but of exports: the fact that exports declined enabled domestic consumption to increase more than production, so that this increase of consumption, from being a consequence of decreasing exports has, in some cases, become a determining factor. On the other hand, Argentina has no accesible source of iron and coal and has not been able to develop an iron and steel industry like other Latin American countries. Some of the latter, though they must import foodstuffs and will probably continue to have to do so, have been able to reduce imports of iron and steel and will doubtless be able to reduce them still further.

The changes in the composition of imports will be dealt with later. A few of the specific traits of the problem can be mentioned here, the better to understand the particularities of the economic development of each country.

Moreover, to the balance of payments disequilibrium which Argentina is

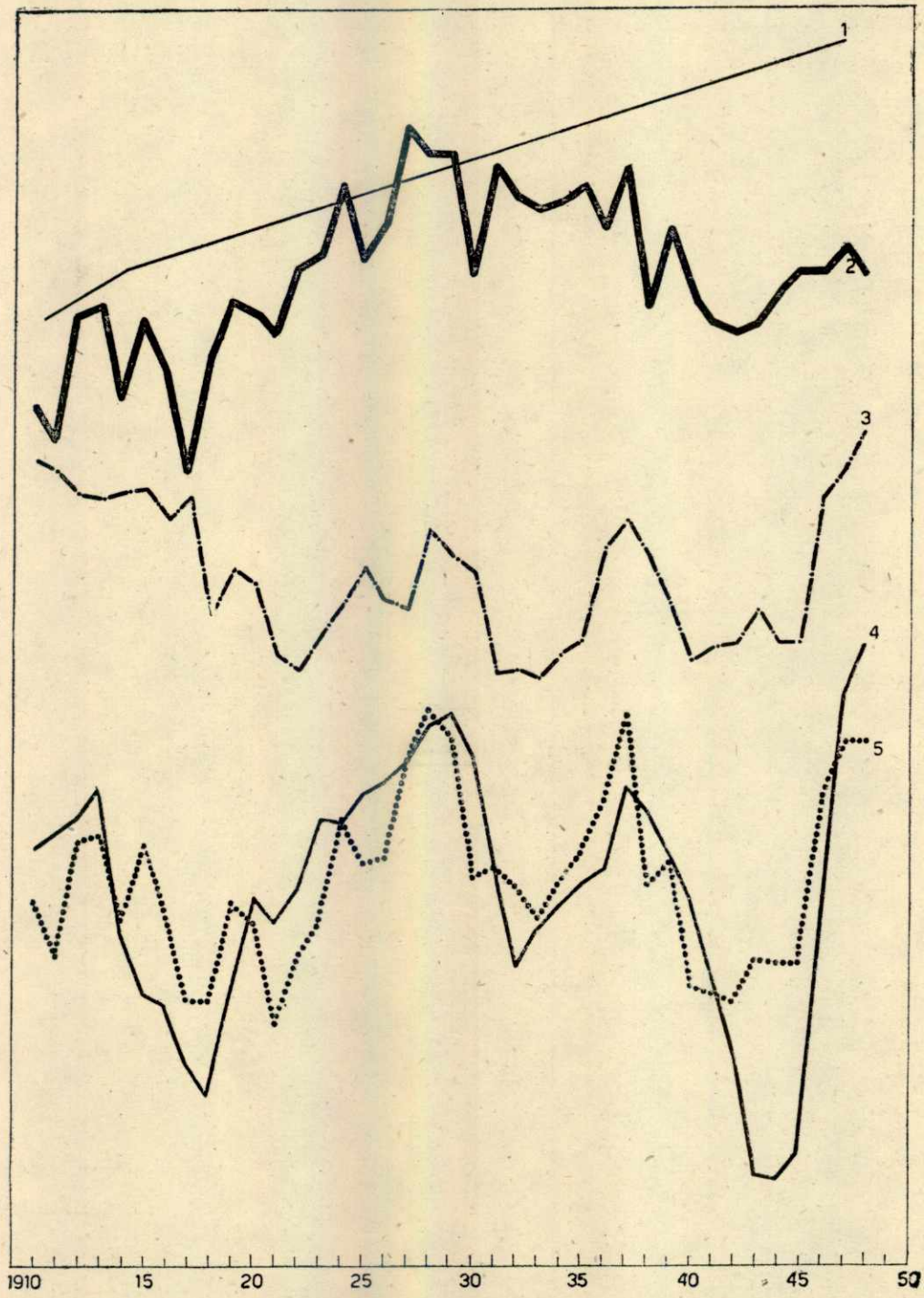
/trying to remedy

GRAFICO 2

ARGENTINA

VOLUMEN FISICO DE LAS EXPORTACIONES E IMPORTACIONES, TERMINOS DEL INTERCAMBIO Y CAPACIDAD PARA IMPORTAR.

1937 = 100



1.— Población.
2.— Indice del volumen físico de las exportaciones.
3.— Términos del intercambio.
4.— Indice de volumen físico de las importaciones.
5.— Capacidad para importar.

Centro de Investigaciones, Comisión Económica para América Latina.

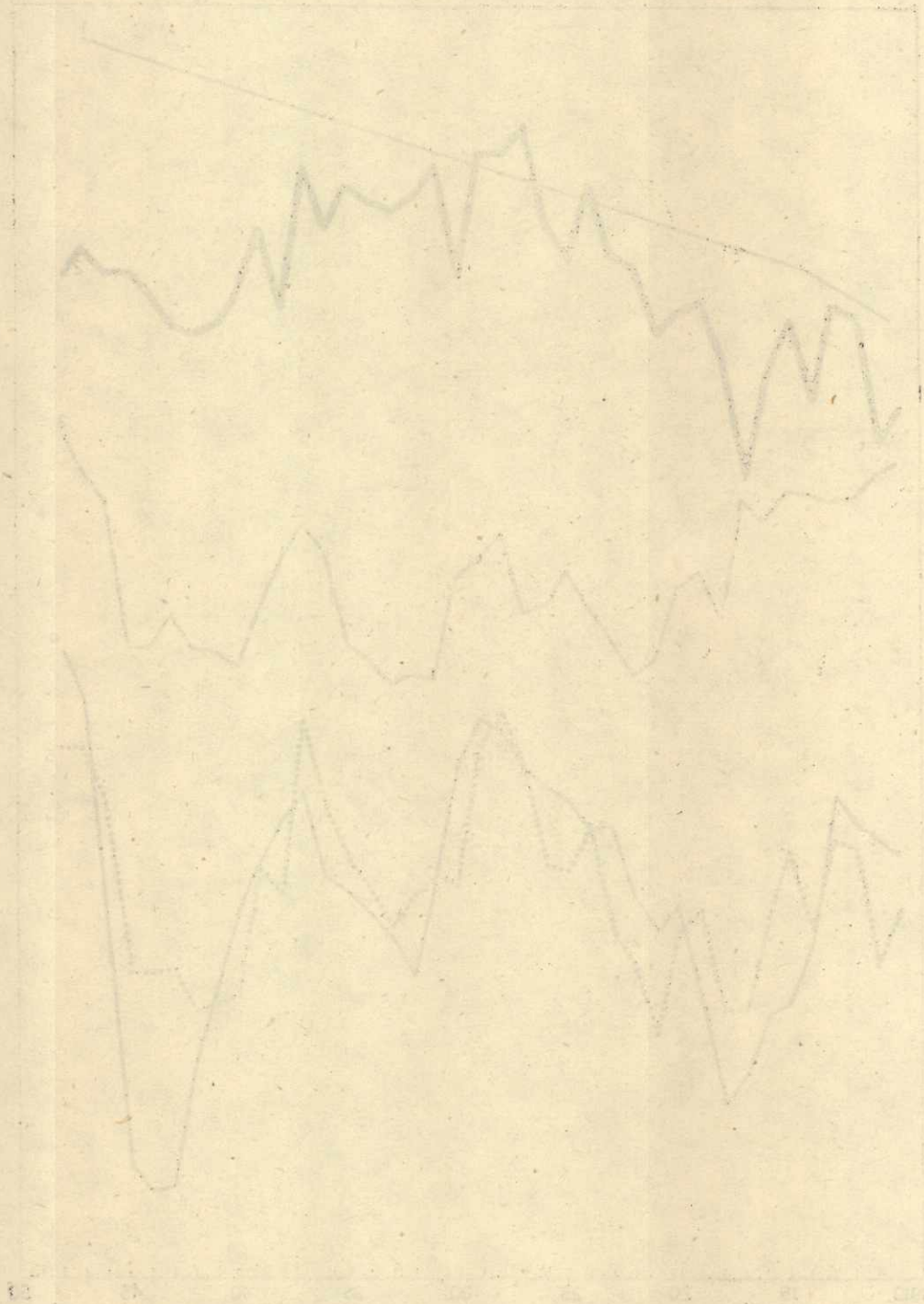
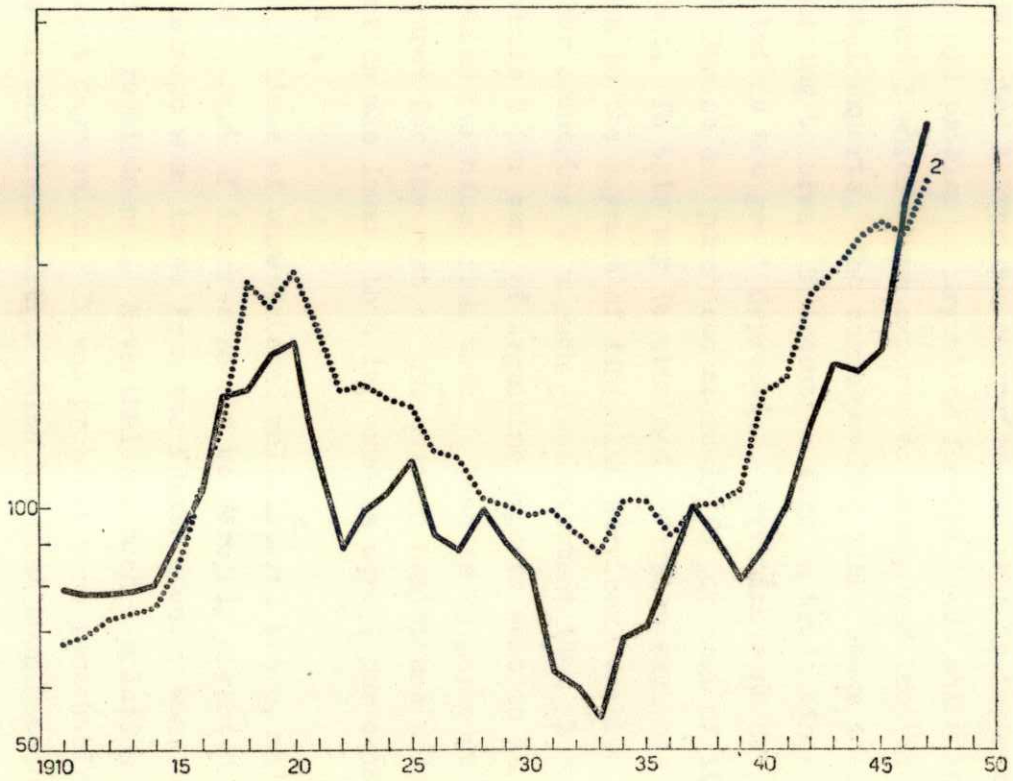


GRAFICO 2-A

ARGENTINA

INDICES DE PRECIOS DE EXPORTACION E IMPORTACION

1937 = 100.



1.— Indice de precios de las exportaciones
2.— Indice de precio de las importaciones.

Centro de Investigaciones, Comisión Económica para América Latina.

Table 3: Argentina. Foreign Trade, by areas

Years	United States		Europe		Western Hemisphere (excluding United States)	
	Exports	Imports	Exports	Imports	Exports	Imports
1927	8.3	25.4	82.6	57.2	6.6	11.9
1928	8.3	23.2	83.8	60.5	6.5	10.7
1929	9.8	26.3	81.5	56.9	7.3	11.7
1930	9.7	22.1	80.1	60.8	8.5	12.7
1931	6.0	15.8	87.2	63.2	5.7	18.9
1932	3.4	13.5	91.6	63.0	3.8	15.2
1933	7.8	11.9	82.2	65.1	7.2	14.3
1934	5.5	13.2	85.0	64.7	8.3	13.0
1935	12.0	13.6	76.0	61.9	9.2	14.0
1936	12.2	14.4	73.6	62.1	11.5	13.3
1937	12.8	16.1	74.0	62.3	11.2	12.6
1938	8.5	17.5	76.6	59.8	11.7	14.3
1939	12.0	16.4	76.3	60.3	9.3	16.1
1940	17.7	30.0	65.0	38.1	13.3	22.0
1941	37.0	35.2	41.3	27.6	16.6	26.7
1942	28.5	31.2	44.6	31.0	21.2	30.8
1943	24.3	19.0	43.1	37.5	24.5	36.4
1944	22.7	15.1	49.0	22.5	25.4	51.8
1945	22.2	13.8	46.9	30.2	27.5	37.2
1946	15.0	28.5	62.3	35.0	16.1	30.8
1947 a/	10.0	44.6	77.0	35.5	12.3	19.3
1948 a/	9.8	38.0	78.5	40.6	11.0	20.7
1949 a/	10.8	14.8	69.0	60.0	20.0	20.0

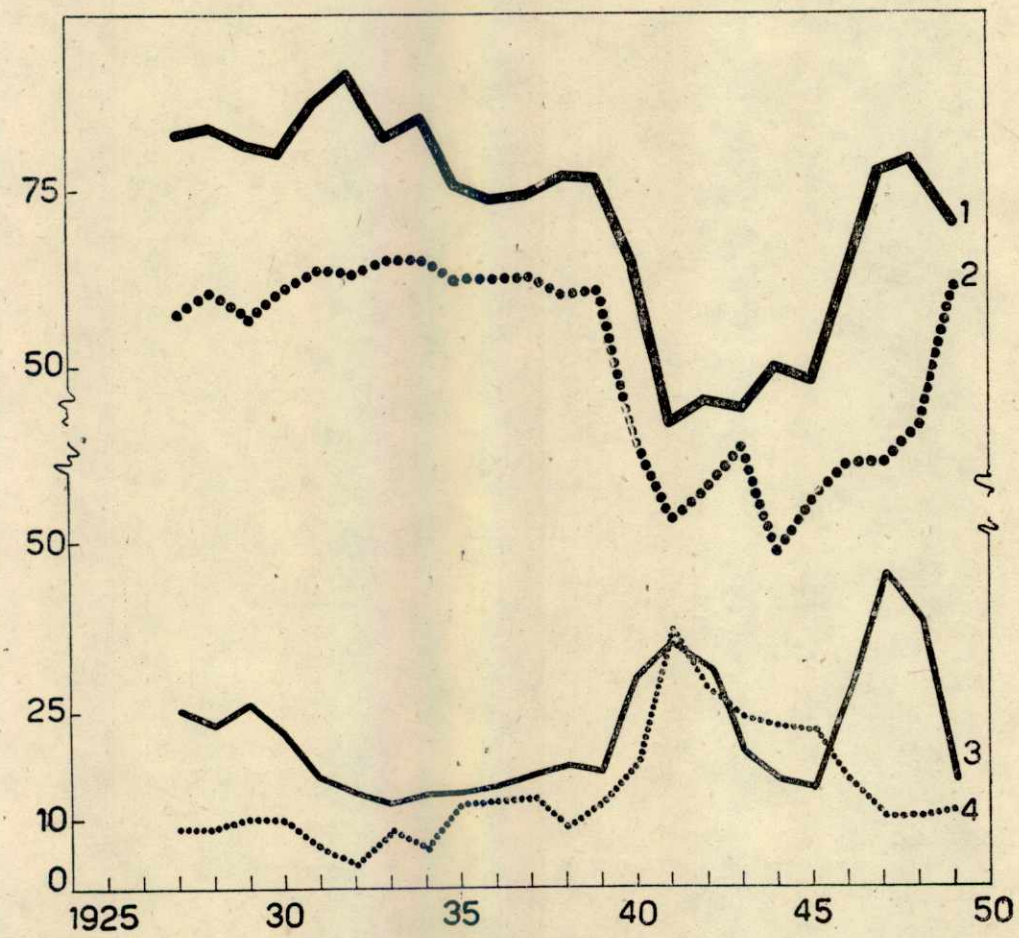
Source: Until 1946, Dirección Nacional de Estadística y Censos.

a/ 1947 to 1948, Banco Central de la República Argentina;
1949, estimate based on partial data included in the Presidential Message to Congress, of 1 May 1950.

GRAFICO 3

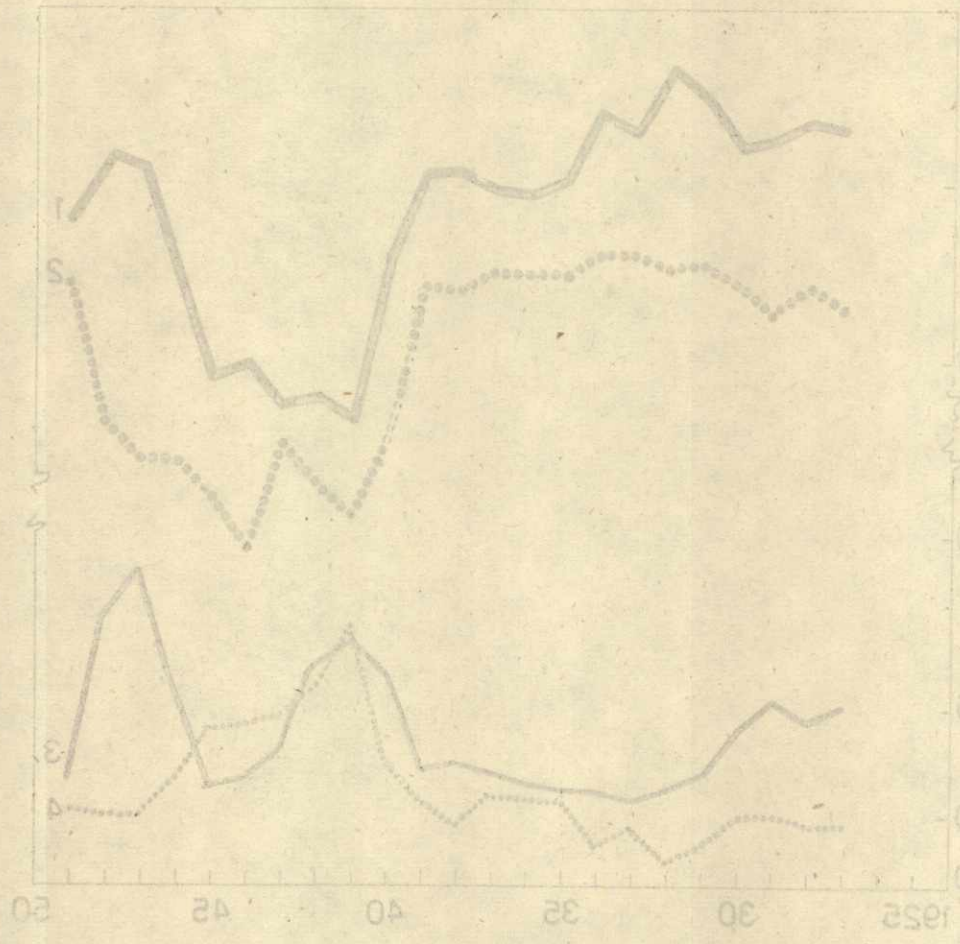
ARGENTINA

PARTICIPACION DE EUROPA Y ESTADOS UNIDOS EN EL COMERCIO EXTERIOR ARGENTINO.



1.— Exportaciones a Europa, por ciento del total exportado.
2.— Importaciones de Europa, por ciento del valor total importado.
3.— Importaciones de Estados Unidos, por ciento del valor total importado.
4.— Exportaciones de Estados Unidos, por ciento del valor total exportado.

Fuentes: Centro de Investigaciones, Comisión Económica para América Latina.



This situation has not, of course, prevailed during recent years. The considerable disequilibrium which again arose as soon as the United States was able to export in unlimited quantities soon lead to consequences too well known to need further comment. It is sufficient to recall that these consequences imposed measures similar to those of the 'thirties, though even more severe, in order to effect the essential adjustments. The results of these measures were evident in 1949 and will probably become still more so during the course of 1950 in view of the way in which the general problem of the dollar shortage has affected Argentina. Thus, in 1949 the volume of imports from Europe had nearly reached their depression level, while exports had decreased. At the same time, exports to the United States had returned to their former level while imports had dropped considerably. As regards the other countries of America, their trade with Argentina increased notably.

However, the problem is by no means solved, since a solution of this kind aggravates the effects of the disparity between the necessity for higher imports caused by economic development, and the diminishing capacity to import. Imports from one country are not easily replaced by those from others. Furthermore, under the system of separate channels similar to those of the 'thirties, to which trade has returned, Argentina, in order to continue exporting, is compelled to purchase consumer goods which it could well produce itself or dispense with, in order to acquire capital goods and other essential commodities. Multilateral trade enabled it to do this amongst other advantages; but the position of Argentina today and a few years ago is clear proof that the adoption of the most advantageous policy for its trade does not depend on one country.

This situation is also significant from the point of view of foreign investments. While Argentina cannot effect any appreciable increase in its exports to the United States or find a permanent source of dollars in any other part of the world, the possibility of large dollar investments to speed up Argentine economic development [1] is limited by bilateralism.

1/ See the introduction to this chapter concerning the role of foreign investments.

/Argentina seems

Argentina seems to have reached a point in its economic development where the necessity to increase investment is not as great as in other countries of a lower degree of development. The necessity to increase investment is determined by three factors: first, the growth of the population; second, the diversion of under-employed labour into more productive occupations which require a greater amount of real capital per man; and finally, the increase of real capital per man in order to raise productivity.

As regards the first case, Argentina's population, which had increased at an annual cummulative rate of 3.0 per cent between the census of 1869 and that of 1895, and by 3.7 per cent between the latter and that of 1914, only rose 2.2 per cent between this last census and that of 1947. From this point of view, therefore, the necessity for investment is lower than formerly.

The difference involved in the second condition is more important. As yet no detailed figures have been published of the last census, but it seems that in Argentina the number of gainfully employed persons engaged in activities with a low level of productivity is relatively small owing to the absorption of such labour by the process of industrialization and the simultaneous expansion of other activities. It is estimated that of the increase of 600,000 persons which took place in industrial employment between 1937 and 1947, only a small number corresponded to the natural growth of the population in the industrial zones. The remainder derive from the absorbtion into industry, of women and of persons from rural zones or small towns. Immigrants also account for a part of the increase.

During those years agriculture contributed and continues to contribute a part of the labour force for the development of industry and other activities. Thus there is no real surplus of labour in agriculture; on the contrary, there is a lack of it and efforts are now being made to remedy the situation by means of mechanization. It is difficult to say whether a high degree of mechanization would render more labour available. However that may be, in Argentina the proportion of labour employed in primary activities is relatively low, judging from the sharp decline of the rural population in relation to the urban population. According to the census of 1914, 52.7 per cent of the population lived in the country or in towns of fewer than 2,000 inhabitants, while in 1947, this proportion was 38.6

per cent. The growth of urbanization is rapid. In the United States the population living in the country or in towns of fewer than 2,500 inhabitants was 65 per cent of the total in 1890 and 43.5 in 1940. In Brazil in 1940, 68.8 per cent of the population was rural; in Mexico in 1940, the corresponding figure was 64.9 per cent and in Canada in 1941, it was 45.7 per cent. 1/

Thus in Argentina the problem of transferring active population from primary activities of a low productivity to others of a higher productivity is not very great. For the same reason, though still great, the need for investment in Argentina is smaller than in other Latin American countries.

Finally, though there is no statistical data to confirm this, it is believed that production technique has progressed efficiently in Argentina and that though much remains to be done in comparison with the highly-developed countries, this margin is lower than in the case of other Latin American countries. This, too, means lower investment requirements than in those countries, even though those of Argentina are still high. It is clear that if immigration were to be increased on a large scale, the problem of investment would be presented in different terms.

These are, among others which cannot be dealt with in this summary, the principal specific traits which characterise the problem of economic development in Argentina, apart from the common denominator found in the majority of the Latin American countries. These characteristics having been indicated, it is now possible to examine the rate of development, in which, as in other countries, the expansion of manufacturing has prevailed.

2. The development of production and the supply of goods

In Argentina there are no data for annual industrial production before 1935, so that this analysis of development of production must start in that year, though estimates for previous years will be commented later.

Between 1935 and 1948, the last year for which official data have been published, the total increase of production has been somewhat more than double that of the population. While the latter increased by 23.6 per cent, the index of total production rose 53.9 per cent. This sharp increase was due principally to the growth of manufacturing production as can be seen in Chart 4 and the corresponding Table 4, which

1/ United Nations, Demographic Yearbook, 1948

/include the main

include the main goods-producing activities. The index of manufacturing production shows an increase of 118.2 per cent in the period under review, though the rate of development was irregular as can be seen from the Chart.

In 1935, manufacturing production was almost equal to agricultural production, but in 1948 it was nearly double, if both are calculated at constant prices. The reason for this can be found in the Chart. Agricultural production was nearly the same in 1948 as in 1935, having reached higher levels in the intervening years. In fact, within the wide characteristic fluctuations, it showed a slight tendency to rise until the middle 'forties, but the figures for the last few years are again relatively low as a result of the reduction of the area under cereals. The production of the livestock industry, on the other hand, was 42.5 per cent higher in 1948 that in 1935; its growth has also been irregular, since the index rises until 1943 and then remains at practically the same level until 1948. As regards the building industry, the increase has been greater in the post-war years. After the strong impulse in the second half of the 'thirties, the scarcity of materials during the war caused the index to fall until 1943; after this, it rose sharply as a result especially of the important public works projects. The growth of the building industry between 1935 and 1948 is 71.4 per cent.

Finally, the production index includes mining, which, though it is a relatively unimportant part of total production, is significant in that it consists chiefly of the production of petroleum; due chiefly to this, the mining index rose 96.1 per cent during the years under consideration.

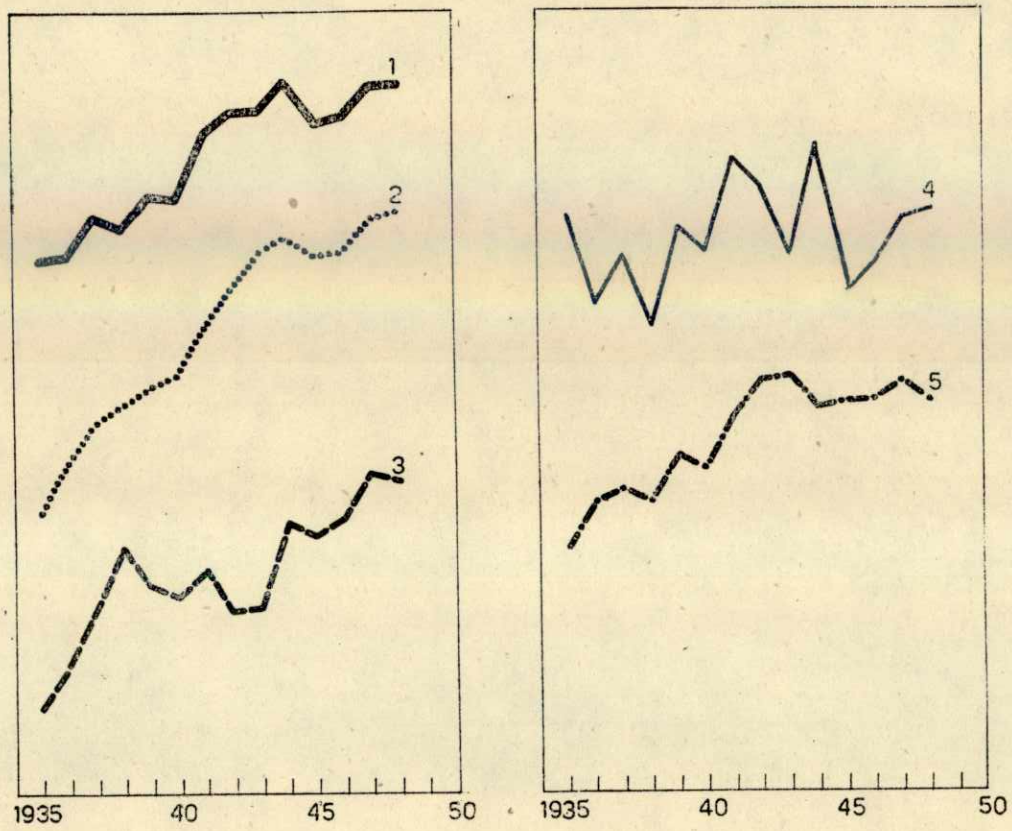
Table 4. Argentina:

GRAFICO 4

ARGENTINA

LA PRODUCCION Y SU COMPOSICION.

Escala logarítmica.



1.— Producción total.
2.— Producción industrial.
3.— Construcción.
4.— Producción agrícola.
5.— Producción ganadera.

Centro de Investigaciones, Comisión Económica para América Latina.

Table 4: Argentina. Quantum of production

In millions of 1935 pesos

Years	Agricultural Production	Livestock	Mining	Manufacturing	Building	Total
1935	1,230	800	102	1,251	175	3,557
1936	1,000	890	112	1,400	192	3,589
1937	1,120	920	126	1,540	220	3,919
1938	940	890	133	1,610	257	3,833
1939	1,190	1,000	149	1,680	235	4,260
1940	1,130	970	170	1,730	229	4,230
1941	1,400	1,100	181	1,930	242	4,846
1942	1,310	1,200	194	2,130	220	5,049
1943	1,110	1,210	201	2,330	222	5,072
1944	1,450	1,130	207	2,410	272	5,462
1945	1,020	1,140	208	2,306	262	4,936
1946	1,095	1,140	191	2,322	275	5,023
1947 a/	1,210	1,195	198	2,505	305	5,413
1948 a/	1,235	1,140	200	2,540	300	5,475

Source: La Renta Nacional de la República Argentina, Banco Central, 1946; Síntesis Estadística Mensual de la República Argentina, July, 1949; Memorias of the Central Bank for 1946, 1947 and 1948.

a/ Recalculated with the indices published in the Memorias of the Central Bank.

Production and the supply of goods are not of course approximately equivalent magnitudes in countries where foreign trade represents an important part of economic activity. Part of the goods are exported and thus pay for imports, but there is no constant relation between exports and imports. On the contrary, the terms of trade vary considerably which largely explains why, when those terms deteriorate, fewer imports can be purchased with the same amount of exports and the supply of goods is lower than production, while the opposite occurs when the terms of trade improve.

It has been said above that the per capita supply of goods increased considerably between 1935 and 1948, due principally to the growth of manufacturing. This fact, however, could lead to mistaken conclusions concerning the rate of economic growth during the last twenty-five years under review. Nevertheless, it must not be forgotten that 1935 was the beginning of the recovery which followed the world depression, so that

/during these years

Table 5-A: Argentina. Supply of goods and their composition

(In millions of 1935 pesos)

Years	Production	Exports	Imports	Total supply of goods	Imports as per cent of the supply of goods
1925	2.814	1.238	1.540	3.116	49.4
1926	2.684	1.387	1.616	2.913	55.5
1927	4.032	1.850	1.728	2.910	59.4
1928	3.566	1.718	1.909	3.757	50.8
1929	3.494	1.718	1.995	3.771	52.9
1930	2.852	1.189	1.750	3.413	51.3
1931	2.899	1.652	1.207	2.454	49.2
1932	3.235	1.519	920	2.636	34.9
1933	2.951	1.453	1.037	2.535	40.9
1934	3.552	1.486	1.104	3.170	34.8
1935	3.557	1.569	1.175	3.163	37.1
1936	3.589	1.387	1.238	3.440	36.0
1937	3.919	1.652	1.597	3.864	41.3
1938	3.833	1.091	1.475	4.217	34.9
1939	4.260	1.392	1.299	4.187	31.0
1940	4.230	1.139	1.116	4.207	26.5
1941	4.846	1.040	892	4.698	19.0
1942	5.049	1.007	712	4.754	14.9
1943	5.072	1.040	490	4.522	10.8
1944	5.462	1.039	482	4.805	10.0
1945	4.936	1.139	522	4.319	12.1
1946	5.023	1.205	1.090	4.908	22.2
1947	5.413	1.312	2.146	6.247	34.3
1948	5.475	1.181	2.468	6.762	36.5

Source: Research Centre, United Nations Economic Commission for Latin America.

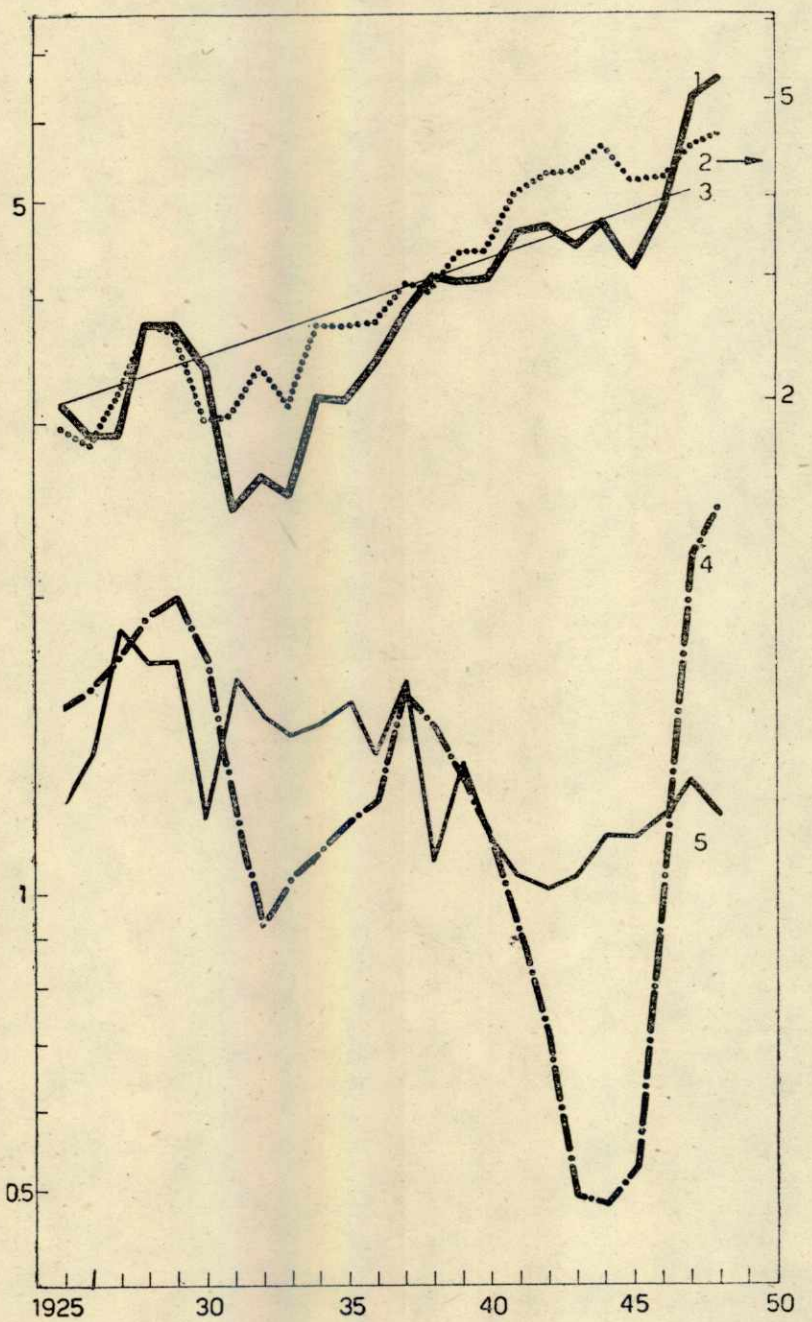
Notes: As from 1935, the series of net production at constant prices published by the Central Bank was taken. For 1925-34, the series of gross production of the Revista de Economía Argentina was taken and converted to the net value by deflating the series by the cost of living index (1935 = 100) and adjusting it to the previous series in accordance with the average of the ratios between the two in 1935-37.

GRAFICO 15

ARGENTINA

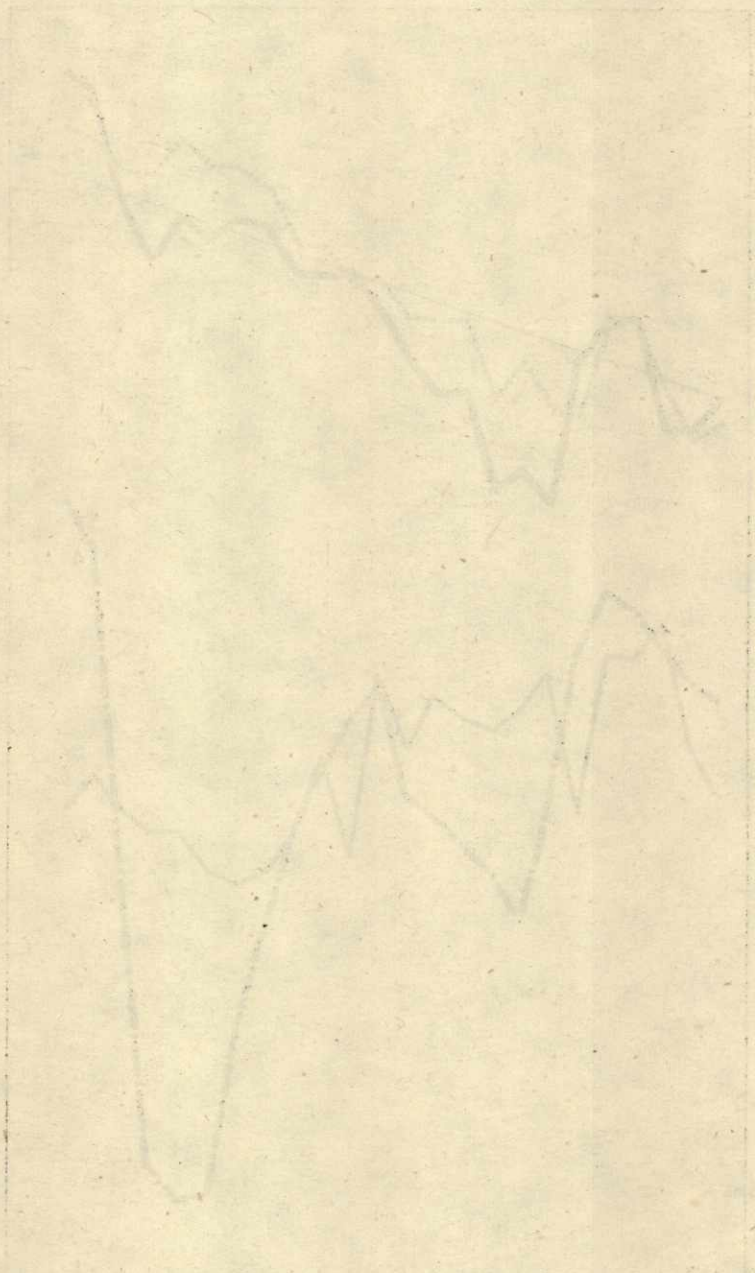
BIENES DISPONIBLES Y SU COMPOSICION.

Valores a precios 1935.



1.— Total bienes disponibles.
2.— Producción
3.— Población.
4.— Importación.
5.— Exportación.

Centro de Investigaciones, Comisión Económica para América Latina.



during those years the indices of economic activity of all the Latin American countries are regaining to a large extent the ground previously lost. In order to examine this development in better perspective, the indices of production and the supply of goods will be studied as from 1925.[1/] Both indices are superimposed during the period 1925-29, which is taken as a base; the curve representing the growth of population has also been drawn on the same base.

These two indices show that after the decline during the depression several years elapsed before they reached levels similar to those before the crisis and until the relation existing between them and production was reestablished.

Consequently, if production and the supply of goods increased much more sharply than population after 1935, it must be remembered that during the depression they had declined while the population continued to grow. This affects considerably the comparison made between the figures for recent years and those preceding the world crisis. In fact, if the increment of 67.2 per cent to total production between 1925-29 and 1945-48 be compared with the population increase of 46.9 per cent, the rate of growth is more moderate than that of the period following 1925. The growth of production per capita was only 13.8 per cent and that of the supply of goods, 14.9 per cent, as can be seen from the following summary table:

Table 5 B: Argentina. The supply of goods and their composition
Values at 1935 prices
(Millions of pesos)

	Yearly averages			Per cent change over 1925-29	
	1925-29	1945-48	1948	1945-48	1948
Production	3,118	5,212	5,475	67,2	75,6
Exports	1,582	1,209	1,181	- 23,6	- 25,4
Imports	1,758	1,556	2,468	- 11,5	40,4
Supply of goods	3,294	5,559	6,762	68,8	105,3
Imports as per cent of the supply of goods	53,6	26,3	36,5	- 50,9	- 31,9

Note: For sources and notes see Table 5-A.

1/ The index of total production between 1925 and 1935 has been based on the figures of Bunge, in which the data for industrial production are estimates. From 1935 on, official figures have been used.

/The data above

The data above are a brief and expressive reflection of the adverse effects of the great depression upon Argentine economy. Despite the wide scope of manufacturing development, the increase of per capita production, though by no means small, is not what it might have been in a country resting essentially upon domestic forces. There are several reasons for this. The growth of manufacturing production did not signify a corresponding increase in the supply of goods available to the population, but to a large extent went to fill the gap left by imports. These had diminished first owing to the adverse circumstances of the 'thirties and later because of the shortages of the Second War. The volume of imports increased sharply during the last few years. In spite of this, however, the average imports for 1945-48 was still 11.5 per cent lower than for 1925-29. This meant that per capita imports were 40.8 per cent lower, as is shown by the following indices:

Table 6: Argentina. Imports and population

(Index numbers: 1925-29 = 100)

Averages	Quantum of imports	Population	Quantum of imports per capita
1925-29	100,0	100,0	100,0
1930-34	68,4	113,2	60,4
1935-39	77,1	127,9	60,3
1940-44	42,0	138,3	30,4
1945-48	88,5	146,9	60,2

Source: Research Centre, United Nations Economic Commission for Latin America.

The causes of the decline of imports since 1925-29 were mainly the following: a) the fall in the quantum of exports; b) the deterioration of the terms of trade; c) the shortages imposed by the war.

The combination of the first two factors determined the fluctuations of the country's capacity to import in function of exports and the terms of trade.

/The corresponding

The corresponding indices are given below:

Table 7: Argentina. Capacity to import

(Index numbers; 1925-29 = 100)

Averages	Quantum of exports	Terms of trade	Capacity to import	Quantum of imports
1925-29	100,0	100,0	100,0	100,0
1930-34	92,3	80,0	73,8	68,4
1935-39	89,4	100,4	89,8	77,1
1940-44	67,8	81,3	55,1	42,0
1945-48	76,2	122,9	93,6	88,6

Source: Research Centre, United Nations Economic Commission for Latin America.

The contraction of exports after 1925-29 and the deterioration of their prices in relation to imports both explain why the capacity to import contracted so sharply during the following fifteen years, including the Second World War. During the war, the quantum of exports fell much more than the capacity to import because of the difficulties of supply which marked that period. During the years 1945-48, on the other hand, the level of imports approached the capacity to import but did not overtake it. During 1945 and 1946, the war industries of the industrialised countries were being converted for peacetime production and it was not yet possible to purchase the goods that the country was able and wished to import. It should be noted that from 1946 to 1948, the terms of trade improved appreciably; this strengthened the capacity to import which rose very nearly to its pre-depression level. This last development can be seen in Chart 2 at the beginning of this section. The terms of trade, which during the war had fallen to levels nearly as low as those of the great depression, improved so rapidly that in 1947 they were 22.9 per cent higher than during the five-year pre-depression period.

This improvement in the terms of trade was doubtless greater than that which occurred at the same time in other Latin American countries. In addition to its direct significance it entails another equally interesting implication. This improvement though very great, was

/barely sufficient

barely sufficient to raise the Argentine terms of trade to the position they held before the First World War, according to the official statistics for those years. In this connection, the Chart shows how during the First War and the years following it, the terms of trade suffered their first serious setback of the century. Though during the 'twenties they made good part of the loss, the great depression brought a second serious setback followed by a further recovery, which was overtaken by the third setback of the Second World War. The fluctuations of the curve are characteristic. After the high levels reached by the terms of trade in 1947 and 1948, they again deteriorate. The question arises whether in this fourth setback they will fall to levels as low as those which had such an adverse effect on Argentine economy during the preceding crises, or if this time the forces of the world economy will be more favourable to Argentina.

The coefficient of imports

It is evident that the supply of goods having increased as has already been seen, while imports fell, the ratio of the latter to the former must have decreased during the period under review. However, the decrease was not regular as can be seen in the corresponding chart. The coefficient, which had been fairly high before the crisis, fell during the depression, after which it rose but without attaining its previous level. It fell sharply during the Second World War and during the postwar years it rose again equally sharply. This high level of the coefficient has not been able to be maintained recently. Apart from the special circumstances affecting this development, it is probable that the country cannot maintain such a coefficient given the intensity of its economic development and its limited capacity to import.(See Chart 6).

Level of investment

Until now, the supply of goods has been considered as a whole without distinguishing between those intended for consumption and those for investment. Unfortunately, as regards the latter, the only complete data available are those for the import of capital goods;

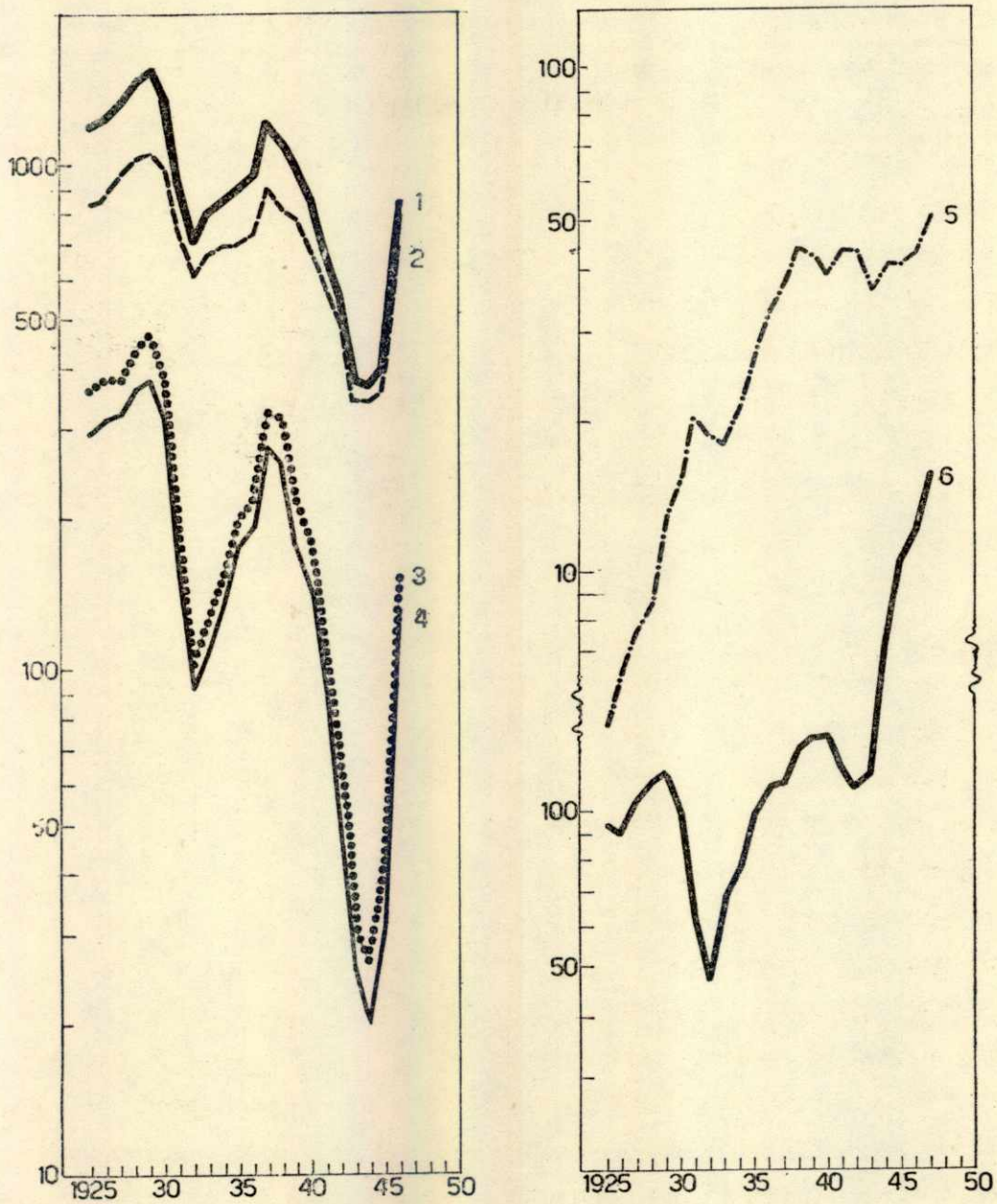
/and where domestic

GRAFICO 7

ARGENTINA

INDICES DE CAPITALIZACION.

Valores a precios 1935.



1.— Importación total.
2.— Importación demás bienes.
3.— Importación bienes duraderos.
4.— Importación bienes de capital.
5.— Producción de cemento.
6.— Indice del valor agregado por la industria de metales y de maquinarias y vehículos.

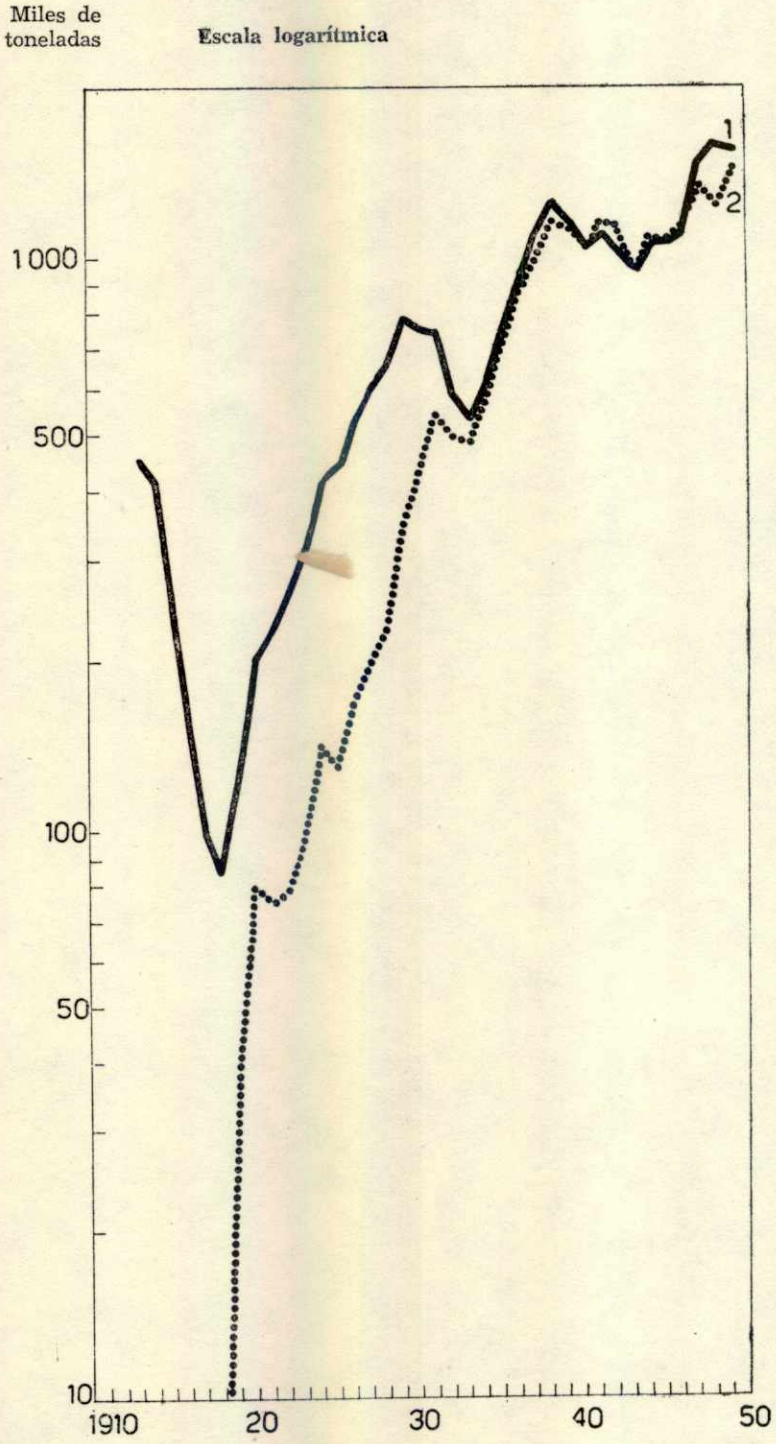
NOTA: **Excepto por la curva 6, que es un índice con base en 1935, las escalas corresponden a millones de pesos a precios de 1935.**

Centro de Investigaciones, Comisión Económica para América Latina.

GRAFICO 7-A

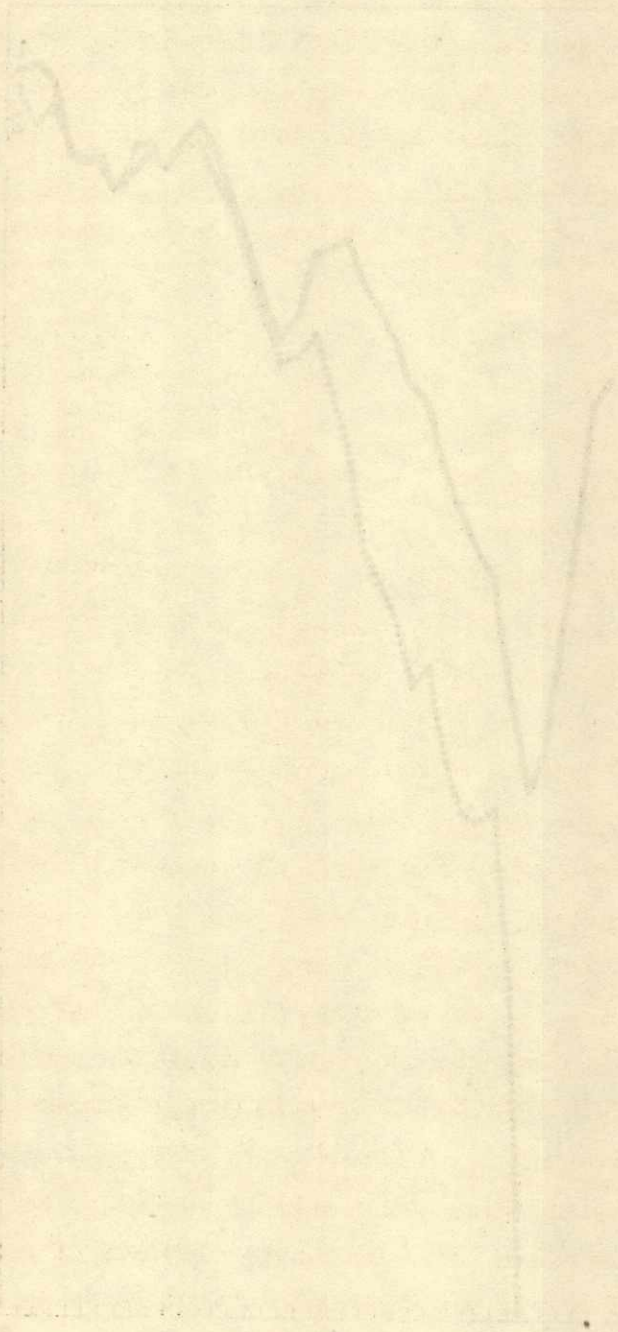
ARGENTINA

CONSUMO DE CEMENTO.



1.— Consumo de cemento.
2.— Producción de cemento.

Centro de Investigaciones, Comisión Económica para América Latina.



and where domestic production is concerned there are only data for cement and some incomplete figures for the production of iron and steel from imported scrap, and a small quantity of Argentine iron. Nevertheless, the production of machinery has been developing for some time in Argentina and assumed importance during the Second World War, spurred by necessity as were several other branches of the metallurgical industry which also produces capital goods. There are data relating to employment in these industries as from 1935. They are not sufficient, however, to build up an index of investment in Argentina. For this reason, the following graph only shows separate curves as follows: Imports of capital goods, domestic production of cement, and the index of the aggregate value of output of the metallurgical, machinery and vehicles industries. (See Table 8)

These curves suggest the conclusion that already in the 'thirties the considerable reduction of capital goods was partly compensated by domestic production which increased appreciably during the war. It is not possible, however, to determine to what extent local production has compensated the decrease of imports. A rough idea of the aggregate value of metallurgical production can be gained if to the official figure of the 1937 census, which was 238.4 million pesos, the percentage increase in employment between that year and 1948 is added; this gives an aggregate value of about 308 millions. However, metallurgical production includes many articles which cannot be considered as capital goods, for which reason it cannot be compared to the 380,3 millions which, at 1937 prices, represented imports of capital goods.

As regards these imports, the Chart shows the extent to which world prices affected investment in Argentina. Though there has been a considerable substitution, it is evident that this only took place in certain aspects, and that fundamentally Argentina had to continue to import vast quantities of these goods. Imports of capital goods in 1932, in the trough of the depression, were scarcely a quarter of the peak reached in 1929. In 1937 and 1938, they again reached high levels, but still considerably lower than those before the depression.

/During the war,

Table 8: Argentina. Changes in investment

(In terms of volume)

Years	Imports				Domestic production of cement	Aggregate value of the metallurgical machinery and vehicles industries 1935 = 100
	Total	Capital goods	Durable goods	Other goods		
	(In Millions of pesos at 1935 prices)					
1925	1.194.0	294.6	359.9	834.1	5.0	94.4
1926	1.248.9	319.3	380.1	868.8	6.4	91.2
1927	1.337.2	328.7	382.0	955.2	7.6	104.4
1928	1.476.2	362.9	433.6	1.042.6	8.6	115.2
1929	1.544.0	378.8	467.1	1.076.9	12.9	122.3
1930	1.353.9	320.0	374.1	979.8	15.6	101.2
1931	933.5	164.8	188.8	744.6	20.3	62.4
1932	711.8	92.2	102.5	609.3	19.0	47.6
1933	803.0	111.3	125.1	766.9	18.4	68.2
1934	854.4	140.0	154.7	699.7	21.4	77.4
1935	909.0	178.6	201.2	707.8	27.3	100.0
1936	958.4	196.7	222.3	736.1	32.9	115.6
1937	1.234.7	281.9	327.7	907.0	38.2	117.1
1938	1.140.5	261.8	319.3	821.2	44.6	135.8
1939	1.004.8	182.7	220.8	784.0	42.7	142.7
1940	862.7	147.6	177.5	685.2	39.6	143.7
1941	690.2	90.6	105.9	584.2	43.9	126.2
1942	550.4	51.7	61.0	439.4	43.3	113.5
1943	379.6	26.0	31.1	348.4	36.3	120.8
1944	373.1	20.4	26.9	346.3	41.4	216.8
1945	403.5	32.0	43.2	360.3	41.4	313.1
1946	843.0	133.6	153.5	689.5	43.5	358.7
1947					51.2	471.6

Source: Research Centre, United Nations Economic Commission for Latin America.

During the war, only very small quantities of capital goods could be imported, so that when the supply was renewed these imports increased rapidly. In 1947, after a lapse of eighteen years, the 1929 level was reached.

In spite of this, imports of capital goods have not attained the position they held before the depression in relation to the total supply of goods, because of the growth of the latter. Thus, while in 1925-29 they represented 10.2 per cent of the total, in 1947 they fell to 5.6 per cent.

III. THE DEVELOPMENT OF AGRICULTURE

Agriculture and industrial development

1. The forces of world economy in their long period of expansion lasting until the great depression combined to make out of Argentina's agriculture an example of the international division of labour. This was facilitated by the fact that all of the favourable conditions for large-scale production were present: an abundance of fertile land well situated geographically; the absence of an ancient population that might cultivate it with traditional methods for its own subsistence; and a temperate climate. These circumstances attracted large numbers of immigrants from the over-populated countries of Europe and made foreign investment attractive.

In this way an essentially capitalistic agriculture developed. This character was given to it by its ability to adopt the best machinery and breeding cattle available as well as by other conditions required by production essentially directed towards the world market: a great flexibility to adjust itself to the changing circumstances of this market and a great mobility of the factors of production. This was further encouraged by the character of the producers who followed closely the changes in prices so that the profit motive was equally strong in the production of crops as well as in cattle raising; depending upon price changes more manpower would be used to cultivate the land or more cattle would be raised, displacing surplus labour in order to increase the output of meat, or vice-versa. In this way the mobility of the factors of production was great, and the population's roots in the land were not too strong. This mobility was not limited to the internal sector of the economy but spread into the international sphere: at harvest time, particularly before the First World War a large number of labourers from Southern Europe used to come to Argentina to work in the fields and then return with their savings.

Under such favourable circumstances the expansion of agricultural production was considerable and before the great depression 25.8 million hectares were under cultivation whereas at the beginning of the century only 6.5 million hectares were so used. The experiment in the international

/division of labour

division of labour was a successful one: Argentina possessed a great production capacity that was ready to respond to the growing stimulus of foreign demand. The great depression, however, marked the end of this experiment. For the first time since it had become part of the world market, Argentina, after having increased uninterruptedly its capacity to produce cereals and meat found itself in a position in which its expansion could not continue at the previous rate; even worse, the production capacity it had attained, both in terms of manpower and of land, was greater than world demand required.

In the unfavourable economic circumstances of the 'thirties a better balance between the two interdependent branches of the economic system, agriculture and industry, was established and the industrialization process gained force. Agriculture and cattle raising had no longer need to increase their labour force; on the contrary they could dispense with part of it due to a reduction of the area sown and to mechanization. (The latter continued to progress, though at a slower pace than before). Thus manufacturing entered into the phase in which it absorbed manpower from other occupations so that despite the continued expansion of industrial production during the war and immediate postwar years agricultural output was not affected by the draining away of some of its labour. However, the war interrupted the expansion of mechanization in agriculture while in the following years it did not receive a sufficient incentive to recuperate this loss and to regain its prewar growth. In this way the time came when the draining off of farming population into other occupations became a decidedly unfavourable factor for agriculture. In other words, an equilibrium between manufacturing and agriculture had already been reached under existing technological conditions, so that the continuation of the process was bound to work to the detriment of agricultural output. Industrialization, which tended to correct the serious disequilibrium of the 'thirties, had led to a disequilibrium in the opposite direction.

Yet, considering the needs of the country, it should not be concluded that Argentina was being over-industrialized. On the contrary, Argentina needs to increase its manufacturing production to improve the the standard of living of its population and to strengthen its economic

/structure which,

structure which, though in a smaller measure than before, is still vulnerable to external fluctuations and emergencies. To achieve this, however, it must import capital goods which it also needs to improve its transport facilities and expand energy production. Furthermore, it must re-equip its agriculture. Economic realities, however, have demonstrated once more that the country's capacity to import such goods is limited, so that the necessity could not be avoided of selecting imports in a manner that would best meet the requirements of increased production and of an adequate balance between its various branches.

In this way the development of Argentine agriculture is substantially different from that in the other Latin American countries. In the other Republics economic development is hampered by the generally known limitations of agriculture to expand and to supply the population with an increasing volume of foodstuffs. In contrast, in Argentina, after the temporary difficulties affecting agriculture have been removed, the volume of output should be large enough to meet domestic requirements and foreign demand as well, unless basic changes in the world economy take place which would give it equally strong and constant stimuli as had operated before. The characteristics of agricultural development of Argentina will become clearer after the following analysis of the conditions in which it developed.

a) Conditions of agriculture

In 1948 total cultivated area was estimated at about 21.7 million hectares after having reached a high of 24.4 million in 1939. Several years ago the Ministry of Agriculture calculated that cultivated area could expand to 64 million hectares; however this increase could be attained mainly at the expense of pasture land already used by cattle-raising so that only the remaining 7.3 million would consist of new lands to be gained for production by means of irrigation and other improvements. (See Table 9).

/Table 9.

Table 9. Present and potential cultivated area

Land Utilization	Present Area Millions of hectares	Per cent of total	Potential area Millions of hectares	Per cent of total
Agriculture	144	51.6	152	54.5
Under cultivation	22	7,9	64	22.9
Pasture land	122	43.7	88	31.6
Forests	90	32.3	90	32.3
Unproductive land	45	16.1	37	13.2
Total	279	100.0	279	100.0

Source: Argentine Ministry of Agriculture.

According to the above data, total agricultural area (under cultivation and pasture land) was estimated at some 144.6 million hectares. This considerable expanse is utilized by two well differentiated types of agriculture: the production of cereals and meat which takes place along the Atlantic seaboard and in the centre of the country, and the production of industrial and special crops which has developed in the northern regions and in the vicinity of the Andes.

It is the production of cereals and meat which gave Argentina its outstanding position as an exporting country. This type of agriculture utilizes 55 million hectares, where a number of favourable conditions for large-scale production are combined: a) the soil is rich and deep; b) the annual rainfall is between 600 and 900 millimetres, making irrigation unnecessary[1/]; c) weather conditions are favourable and only in exceptional years are there frosts; consequently the cattle is in the open during the entire year and is fed with green fodder;

1/ Irrigation by means of pumps is used on small plots growing fruits and vegetables in the neighbourhood of the cities. On the other hand in some areas drainage works are necessary. There are nevertheless periodic droughts which in 1949-50 caused serious damage to agriculture.

d) the soil is even and is exceptionally well suited to mechanization; e) no fertilisers are required, at least not in the present stage of extensive cultivation; the natural fertility of the soil is maintained by the continuous rotation of crops and pastures; f) erosion is not as important as in other countries except in marginal regions, because of high prices or because inexperienced land which should always have been used for pastures, had been put under cultivation. The Ministry of Agriculture is paying serious attention to this problem.

The sector of agriculture dedicated to special crops exists under different ecological conditions which vary according to latitude, climate and soil types. It comprises productive areas irregularly scattered throughout the vast territory beyond the belt occupied by cereal and meat production. It does not combine all of the favourable factors for this type of production: either rainfall is insufficient, or the temperatures are extreme or the land surface is too broken or covered by forests or marshes. It is there that irrigation has brought under cultivation 900,000 hectares of formerly unproductive land. In general the methods of production are intensive and fertilisers are used on irrigated land.

From the economic standpoint there is also a substantial difference between the two types of agriculture. Whereas the extensive production of cereals and meat has developed principally under the stimulus of foreign demand, the production of industrial and special crops has been chiefly oriented to the domestic market. This accounts for the fact that whereas there has been a decrease in the area utilised by the first type of agriculture since the great depression, it has increased considerably in the second type, even though the latter constitutes only a small part of the total cultivated area in the country. This has affected the immigration current. Those who before the First World War sought agricultural occupation went preferably into the production of cereals and meat which at that time was in full growth; since then it has been mainly the production of industrial and special crops that has attracted new immigrants.

/The mechanisation of

The mechanisation of agriculture

Mechanisation had made great progress in export sectors of agriculture before the great depression, particularly in the twenties. There were a number of favourable conditions: a) the flat land, as already indicated; b) the extensive character of agricultural production and the growing demand, which stimulated the cultivation of the greatest possible area of land: c) the system of land tenure which permitted the selection of suitable areas for the use of machines, without the limitations imposed in other countries by too small holdings; and d) the prosperity of agriculture, where at that time the necessary savings could be made for a satisfactory volume of production.

However, there were limitations of an economic nature which contributed to restrict the use of tractors. On the one hand, the relatively abundant and cheap labour which was available to Argentine farming until a few years ago; and on the other, the relative advantage of using draught horses. This explains why the tractor has been used less in Argentine agriculture than threshing machines, harvesters and other machinery. The absorption of labour by the cities, to which reference has already been made, finally increased farm wages so that draught animals became uneconomical in relation to labour costs, requiring their replacement by tractors. But it should not be forgotten that Argentina has a serious fuel problem, and while the horse consumes energy produced at a very low cost on pasture lands, the increase of tractors will require more imports of liquid fuel, at least as long as domestic production is not considerably increased. On the other hand, the substitution of horses will make available the pasture land which supports them.

The mechanisation of agriculture has a long history. Even before the First World War harvesters were brought, first from Australia and later from the United States, but it was in the twenties that mechanisation became widespread. This is seen in Table 10, which shows imports of tractors, harvesters and other agricultural machinery.

During the great depression, imports dropped to very low figures. But as soon as agricultural prices improved during the subsequent

/recovery, imports

Table 10. Argentina: Imports of the Principal Agricultural Machines

Years	Tractors	Grain-drills	Harvest-threshers	Butter-making machines and spares	Shearing machines and spares	Fanning mills
	Units	Units	Units	Units (tons)	Units (tons)	Units
1925	2,952	29,576	1,352	520	58	154
1926	2,676	28,119	4,565	538	49	788
1927	1,213	14,496	5,033	381	52	287
1928	1,439	12,851	1,240	331	169	430
1929	2,754	31,743	3,000	302	109	591
1930	2,041	27,378	2,011	162	60	421
1931	253	2,418	305	78	8	32
1932	4	207	176	65	5	3
1933	7	451	7	40	6	2
1934	26	1,228	497	45	10	225
1935	82	3,227	1,500	52	28	250
1936	682	6,633	580	77	23	213
1937	3,300	10,149	1,443	100	25	151
1938	5,041	15,088	3,212	52	25	375
1939	1,070	4,340	2,342	58	12	135
1940	934	1,644	1,098	22	22	150
1941	366	134	60	70	14	-
1942	98	161	-	115	22	1
1943	-	-	5	6	25	-
1944	2	-	-	8	18	-
1945	-	1	32	39	9	-
1946	765	480	268	36	15	=

Source: Argentine Foreign Trade Yearbooks (Anuarios de Comercio Exterior Argentina).

(Continuation) Table 10. Argentina: Imports of the Principal Agricultural Machines

Year	Grain shellers and cutters - steam power	Fumigating machines	Threshers	Spares for Agricultural machinery	Shellers
	Units	Units	Units	Units (tons)	Units
1925	512	5,050	948	4,051	270
1926	733	7,170	653	7,366	435
1927	395	9,339	751	5,209	393
1928	90	11,332	810	63	797
1929	137	10,685	650	336	1,307
1930	106	4,295	110	2,571	579
1931	25	2,196	3	506	344
1932	2	732	2	554	163
1933	-	651	2	1,362	177
1934	1	468	2	1,714	85
1935	-	1,359	4	3,264	211
1936	1	1,087	21	2,645	218
1937	8	1,387	72	4,536	476
1938	4	1,064	138	5,613	243
1939	2	863	181	3,619	131
1940	1	454	3	2,396	103
1941	7	197	1	1,350	98
1942	-	241	-	558	43
1943	-	-	-	666	10
1944	-	-	-	1,038	-
1945	-	169	-	810	13
1946	2	1,080	32	1,350	94

recovery, imports of machinery were renewed, as the farmers possibly believed that there would be a return once more to the prosperous pre-depression days. During 1935-39, the quantum index for all imported agricultural machinery exceeded the average for the twenties; moreover, in that five year period these imports were 7.7 per cent of total capital goods, while in the twenties they only accounted for 6.1 per cent.

This shows that, even after such adverse conditions as prevailed during the thirties, Argentine agriculture was ready to continue its process of mechanisation as soon as favourable circumstances would permit. In fact, it can be observed from the table below, that in 1933, the worst year of the crisis, 102 tons of cereals were necessary to buy a tractor as against 47 tons in 1928. In 1937 the ratio was favourable once more, having declined to 67 tons, although not to the same extent as formerly, and at that time the incentive to mechanise was revived.

Table 11: Price of one tractor in terms of grain

Years	Tractor factory price FOB. a/	Local price	Price of cereals	Tons of cereals per tractor
	U.S. dollars	Pesos	Pesos per ton	Metric tons
1928	1,020	4,500	95.40	47
1933	850	4,900	47.80	102
1937	975	6,465	96.60	67
1940	940	8,650	59.00	146
1947	1,660	15,525	140.50	110
1950	2,450	36,745	190.20	193

Source: The prices of the tractors have been supplied by the main distributors; those for grains are from official sources.

a/ Tractor of 30-40 H.P.

The war once again interrupted the trend toward mechanisation. Afterwards, there were years of extraordinary prosperity for agricultural exports. But, as is known, the rise in foreign prices has only been reflected slightly in those paid to the producers. Consequently, to buy the same tractor as before, 110 tons of grain were required in 1947

/and 193 in 1950,

and 193 in 1950, (before the recent price rise), that is, four times as much as in 1928. Imports of agricultural machinery in 1947, the last year for which statistics are available, while they represent a considerable increase over former years, do not reach the volume necessary to compensate for the consequences of long years of disinvestment.

It is estimated that about 85 per cent of the farmers use combine harvesters and 30 per cent have tractors. But a large part of this machinery has been subject to long and intense use which seriously reduces efficiency in agricultural work. According to an authoritative sample survey, of the tractors in existence, two thirds were acquired before the war; for ploughs, this proportion was 87 per cent; for combine harvesters, a similar proportion; and for agricultural machinery as a whole, around 84 per cent. From another side, the lack of spare parts aggravated the consequences of the obsolescence of the machinery.

While domestically produced machinery is making its appearance in ever increasing numbers, it is not made in sufficient volume to remedy the deficiency of imports. At any rate, it is necessary to import motors and essential parts.

To offset this unfavourable situation and its effects on agricultural production, the State has recently adopted two measures: raising the prices of agricultural commodities by reducing the margin obtained in its State trading operations, (this margin has already declined appreciably due to the drop in world prices), and by granting import permits amounting to 27 million dollars for the most urgently required machinery and spare parts.

It is recognised, however, that a broad programme of re-equipment and expansion of the mechanisation of agriculture would require a considerably greater outlay. As can be inferred from Table 12, there are at present some 27,000 tractors in operation and some 40,000 combine harvesters. It is estimated that it would be necessary to import an additional 40,000 tractors in the present decade, together with their complement of ploughs, cultivators, and grain drills. Moreover, from 15,000 to 20,000 combine harvesters and from 10,000

/to 15,000 corn

to 15,000 corn harvesters would be necessary. The import of this machinery would require from 300 to 350 million dollars, according to authoritative commercial circles.

Attempts are being made at the present time to stimulate the domestic production of machinery, which at present supplies hardly 8 per cent of requirements, and if these efforts are realised, a large part of needed imports could be eliminated.

Should these imports be carried out, there would be a tractor for every 350 to 400 hectares, instead of the present average of one for every 878 hectares. In the United States there is a tractor for every 80 hectares.

Table 12: Number of tractors in relation to the cultivated area

Years	Hectares cultivated (millions)	Number of machines in use		Hectares per tractor
		Tractors	Harvesters	
1919-20	23.0	253	797	90,909
1929-30	26.7	16,220	28,656	1,646
1939-40	28.4	23,540	42,729	1,206
1949-50	23.7	27,000	40,000	878

Maize harvesters which are included in import data have only been used experimentally up to now and all the harvesting is carried out entirely by hand. But experts believe that, in view of the labour shortage, it will be necessary to use these machines in order to continue exporting maize. However, there are some difficulties to be overcome; on the one hand this machine has been perfected in the United States to harvest high-yielding hybrid maize; on the other, there would have to be a greater distance between rows than is customary in Argentina,
required. It will, therefore, be necessary to expand the use of hybrid maize and modify cultural practices, so that large-scale mechanisation could be introduced. It is estimated that the use of the maize harvester could reduce the cost of harvesting by 50 per cent, with yields of 2,500 per hectare, and more still with higher yields. It is reported that recent experiments have been made with domestic harvesters, with

/satisfactory results.

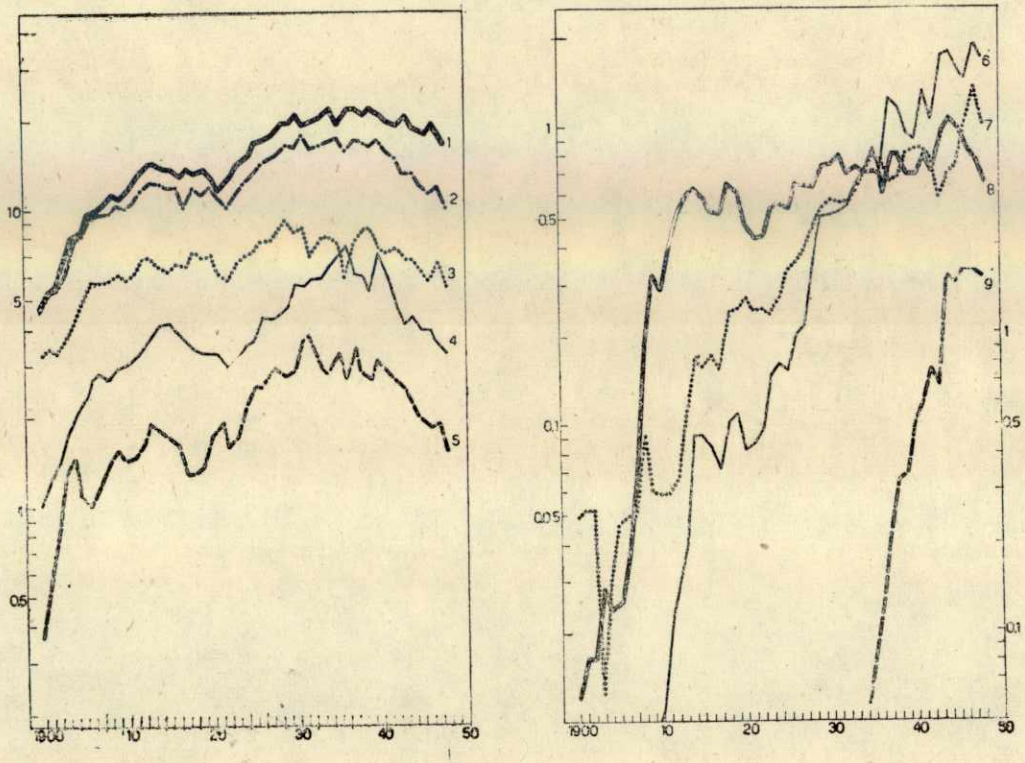
GRAFICO 8

ARGENTINA

AREA SEMBRADA CON GRANOS

En millones de hectáreas.

Escala logarítmica.



1.— Total área sembrada con granos.
2.— Area sembrada de trigo, lino y maíz.
3.— Area sembrada de trigo.
4.— Area sembrada de maíz.
5.— Area sembrada de lino.
6.— Area sembrada de centeno.
7.— Area sembrada de cebada.
8.— Area sembrada de avena.
9.— Area sembrada de girasol.

Centro de Investigaciones, Comisión Económica para América Latina.

satisfactory results.

The harvesting of cotton, like that of maize, is also carried out by hand. This has recently been a source of concern owing to the labour shortage. Experiments are also being made to use mechanical picking machines, which would help to free a considerable portion of the labour force.

The development of production

a) Grains (including linseed and sunflower seed)

In an analysis of the development of Argentine agricultural production, its two sectors indicated above can be considered separately. One of them comprises the production of grains and meat, both directed mainly towards the foreign market, and the other comprising industrial crops, directed mainly to the domestic market. (See Table 13).

Changes in the production of grains may be noted first. For this purpose Chart 8 (Table 14-A) has been prepared. In it are shown, first, the curves of the sown area of the grains as a whole, and second, the curves of the sown area for the main grains. In Table 14-B the pertinent figures are shown in a summarised form.

The total area sown, reflects the events already referred to, that is, a vigorous growth which was interrupted by the First World War, and which began again in the twenties until the impact of the great depression.

From the other curves it can be seen how these events affected the principal grains. The sown area increased for all of them before the depression with its characteristic variations. However, it did not affect all of them to the same degree: while maize continues to rise for a while, wheat, which had already been suffering due to world over-production, shows an immediate drop, as does linseed; in the second half of the thirties there is a reaction mainly due to the drought in the United States and the general recovery of the Argentine economy; but this was a temporary event and the forties are characterised by a definite and persistent decline which has led to the very low levels of recent years.

But while the area utilized by the three basic crops, wheat, maize and linseed, shows a decline, cereals for fodder, i.e. oats, barley and even rye become more important. This may be due to the growth of the

Table 13. Argentina: Quantum of agricultural production at 1937 prices

Changes between 1925-29 and 1945-48

	Average 1925-29	Average 1945-48	1948	Per cent change 1945-48 / 1925-29	Per cent change 1948 / 1925-29
	(thousands of pesos)				
Grains and meats:	2,605,889	2,488,325	2,839,387	- 4.5	8.9
Grains:	1,758,583	1,457,563	1,774,356	- 17.1	0.9
Wheat	894,274	669,426	880,182	- 25.1	- 1.6
Maize	480,440	309,868	400,610	- 35.5	-16.6
Linseed	285,079	144,421	146,010	- 49.3	-48.8
Sunflower	183	148,037	157,669		
Oats	57,169	52,387	49,600	- 8.4	-13.2
Barley	24,286	64,521	63,050	165.7	159.6
Rye	15,300	40,096	53,715	162.1	251.1
Rice	1,852	28,807	23,520	1,455.4	1,170.0
Slaughter and exports of live animals:	847,306	1,030,762	1,065,031	21.6	25.7
Slaughter:	828,095	983,984	1,018,988	18.8	23.0
Cattle	753,115	799,957	882,156	6.2	17.1
Sheep	52,490	100,237	79,846	91.0	52.1
Hogs	22,490	83,790	56,986	272.6	53.4
Exports of live animals:	19,211	46,778	46,043	143.5	139.7
Wool:	231,008	361,038	322,590	56.3	39.6
Industrial crops:	138,060	265,801	275,967	92.5	99.9
Sugar cane	63,328	90,464	88,913	42.8	40.4
Wine	33,347	42,350	42,350	27.0	27.0
Peanuts	11,123	25,559	23,400	129.8	110.4
Tobacco	3,993	12,540	7,865	214.0	97.0
Yerba maté	3,065	17,982	19,656	486.7	541.3
Cotton	23,204	76,906	93,783	231.4	304.2
Grand total: a/	3,022,277	3,179,518	3,503,048	5.2	39.6

Source: Research Centre, Economic Commission for Latin America.

a/ Includes potato production

Table 14-A . Argentina : Area sown with grains

(Thousands of hectares)

Years	Total a/	Wheat. linseed, maize	Wheat	Maize	Linseed	Rye	Barley	Oats	Sunflower
1900	4,689	4,614.3	3,250.0	1,009.0	355.3	1.3	49.5	23.4	
1901	5,328	5,242.3	3,379.7	1,255.3	607.3	1.3	52.0	32.5	
1902	5,571	5,484.8	3,296.1	1,405.8	782.9	2.2	52.0	32.5	
1903	6,874	6,804.1	3,695.3	1,801.6	1,307.2	0.9	12.6	56.5	
1904	7,995	7,914.6	4,320.0	2,106.8	1,487.8	2.5	30.5	47.8	
1905	8,375	8,273.9	4,903.1	2,287.0	1,082.9	3.8	47.6	50.6	
1906	9,541	9,415.4	5,675.3	2,717.3	1,022.8	3.9	50.0	72.1	
1907	9,936	9,734.2	5,692.3	2,851.3	1,190.6	5.5	50.0	146.4	
1908	10,360	9,870.8	5,760.0	2,719.3	1,391.5	9.4	93.7	386.3	
1909	11,275	10,571.3	6,063.1	2,973.9	1,534.3	9.5	60.6	633.3	
1910	10,943	10,297.2	5,836.6	3,005.0	1,455.6	11.1	60.0	574.5	
1911	11,857	10,972.3	6,253.2	3,215.3	1,503.8	23.0	60.2	801.4	
1912	13,078	11,949.0	6,897.0	3,422.0	1,630.0	30.0	67.7	1031.0	
1913	13,989	12,648.4	6,918.4	3,830.0	1,900.0	39.9	107.9	1192.4	
1914	14,070	12,559.5	6,573.5	4,152.0	1,834.0	92.3	169.3	1249.3	
1915	13,604	12,187.0	6,261.0	4,203.0	1,723.0	92.6	160.5	1161.0	
1916	13,587	12,281.8	6,645.0	4,017.8	1,619.0	85.6	174.5	1038.0	
1917	12,695	10,438.6	6,511.0	2,629.6	1,298.0	72.8	157.0	1022.0	
1918	13,718	12,069.6	7,234.0	3,527.0	1,308.6	102.4	244.4	1295.0	
1919	13,166	11,593.1	6,870.0	3,339.5	1,383.6	110.7	248.8	1206.0	
1920	13,415	12,123.0	7,045.0	3,312.0	1,766.0	83.1	270.9	931.0	
1921	12,462	11,280.0	6,076.1	3,273.9	1,930.0	88.4	249.5	834.0	
1922	11,521	10,319.8	5,763.0	2,971.8	1,575.0	97.8	251.0	852.0	
1923	12,958	11,502.1	6,578.0	3,177.1	1,747.0	148.0	242.5	1059.3	
1924	14,125	12,568.8	6,951.5	3,435.4	2,181.9	163.5	277.2	1111,8	
1925	15,034	13,466.9	7,200.5	3,707.7	2,558.7	157	334	1,071	
1926	16,440	14,575.4	7,769.0	4,297.0	2,509.4	203	364	1,293	
1927	16,942	15,038.5	7,800.0	4,289.0	2,949.5	220	396	1,283	
1928	17,699	15,574.0	8,373.0	4,346.0	2,855.0	362	480	1,279	
1929	19,366	16,816.9	9,219.0	4,788.0	2,809.9	516	543	1,487	
1930	19,427	16,802.5	8,285.6	5,647.4	2,869.5	522	587	1,511	
1931	20,836	18,127.7	8,613.0	5,575.0	3,939.7	535	576	1,593	
1932	18,901	16,350.5	6,999.0	5,855.0	3,496.5	558	582	1,404	
1933	19,665	16,888.0	8,009.0	5,884.0	2,995.0	657	629	1,478	
1934	20,201	17,244.8	7,957.3	6,514.0	2,773.5	716	721	1,443	57
1935	21,127	17,920.9	7,613.0	7,028.9	3,279.0	864	815	1,428	84
1936	18,910	16,040.0	5,750.0	7,630.0	2,660.0	708	785	1,195	124
1937	21,237	17,383.2	7,792.8	6,091.2	3,499.7	1,269	679	1,619	207
1938	21,224	17,313.4	8,384.8	6,065.9	2,863.5	1,199	693	1,608	319
1939	20,265	16,628.3	8,620.9	5,300.0	2,707.4	976	835	1,401	333
1940	21,264	17,492.3	7,216.8	7,200.0	3,075.5	929	857	1,395	506
1941	20,532	16,057.0	7,084.8	6,097.6	2,874.6	1,346	868	1,596	574
1942	19,167	15,030.0	7,300.0	5,000.0	2,730.0	1,077	798	1,424	750
1943	18,541	13,485.5	6,873.0	4,138.5	2,474.0	1,767	589	1,936	674
1944	19,874	13,507.0	6,811.0	4,412.0	2,284.0	1,825	718	2,147	1,574
1945	18,234	12,245.0	6,232.0	4,017.0	1,996.0	1,615	761	2,011	1,492
1946	17,585	11,573.0	5,762.0	3,951.0	1,865.0	1,504	1,043	1,708	1,638
1947	18,781	12,190.0	6,673.0	3,612.0	1,905.0	1,944	1,371	1,570	1,609
1948	16,154	10,396.0	5,462.0	3,351.0	1,583.0	1,766	1,049	1,317	1,533

Source: Research Centre, United Nations Economic Commission for Latin America

a/ The total for the area sown with grains includes that sown with rice and birdseed.

Table 14B. Area sown and production of grains

a) Area Sown

Thousands of hectares

	Averages				Per cent change		
	1905-09	1925-29	1945-48	1948	1925-29 over 1905-09	1945-48 over 1925-29	1948 over 1925-29
Grains:							
Wheat, linseed, maize	9,572.8	15,094.3	11,602.2	10,396.0	57.7	- 23.1	- 31.1
Wheat	5,618.7	8,072.0	6,032.2	5,462.0	43.7	- 25.3	- 32.3
Maize	2,709.7	4,285.5	3,732.7	3,351.0	58.2	- 12.9	- 21.8
Linseed	1,244.4	2,736.5	1,837.3	1,583.0	119.9	- 32.9	- 42.2
Rye	6.4	291.6	1,707.3	1,766.0	4,556.2	485.5	505.6
Barley	60.4	423.4	1,056.0	1,049.0	601.0	149.4	147.8
Oats	257.7	1,282.6	1,651.5	1,317.0	397.7	28.8	2.7
Sunflower	-	-	1,568.0	1,533.0	...	...	...
TOTAL a/	9,897.4	17,096.2	17,688.5	16,154.0	72.7	3.5	- 5.5

b) Production

Thousands of tons

Grains:							
Wheat, linseed, maize	8,824.0	15,684.5	10,562.9	13,505.0	77.7	- 32.7	- 13.9
Wheat	4,301.8	6,769.6	5,067.5	6,663.0	57.4	- 25.1	- 1.6
Maize	3,660.8	7,075.7	4,563.6	5,900.0	93.3	- 35.5	- 16.6
Linseed	861.4	1,839.2	931.8	942.0	113.5	- 49.3	- 48.8
Rye	1.4	148.4	388.9	521.0	1,050.0	162.1	251.1
Barley	25.9	321.2	853.4	834.0	1,140.0	165.7	159.6
Oats	253.6	922.1	844.9	800.0	263.6	- 8.4	- 13.2
Sunflower	-	1.1	873.4	930.2	-	79,300.0	84,463.6
TOTAL a/	9,104.9	17,086.1	13,660.7	16,702.2	87.6	- 20.0	- 2.2

Source: Research Centre, United Nations Economic Commission for Latin America.

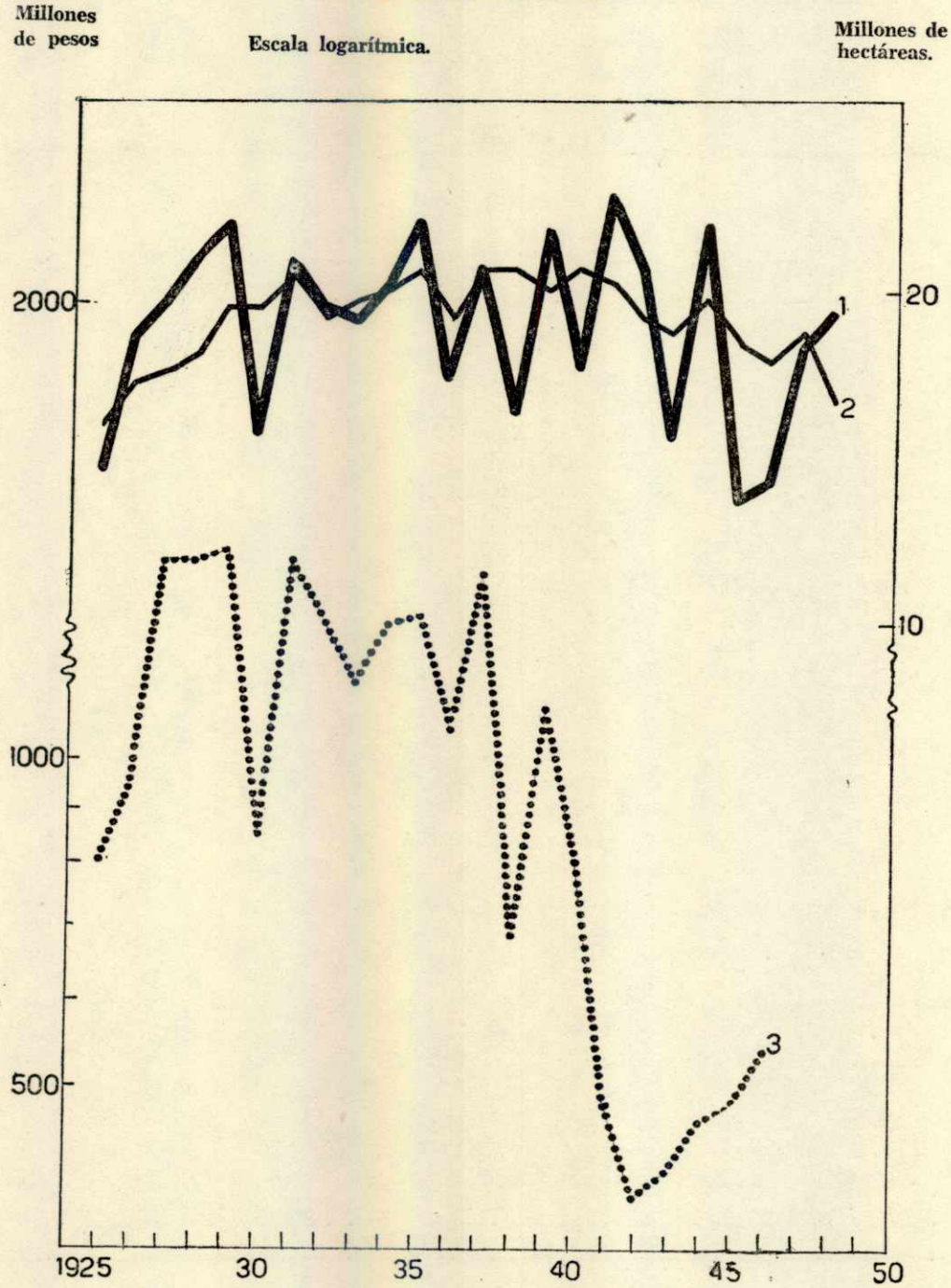
a/ Includes area sown and production of rice and birdseed.

GRAFICO 9

ARGENTINA

AREA SEMBRADA Y VALOR DE LA PRODUCCION Y EXPORTACION DE GRANOS.

Valores a precios de 1937



1.— Valor total de la producción de granos.
2.— Area sembrada de granos.
3.— Valor total de la exportación de granos.

Centro de Investigaciones, Comisión Económica para América Latina.

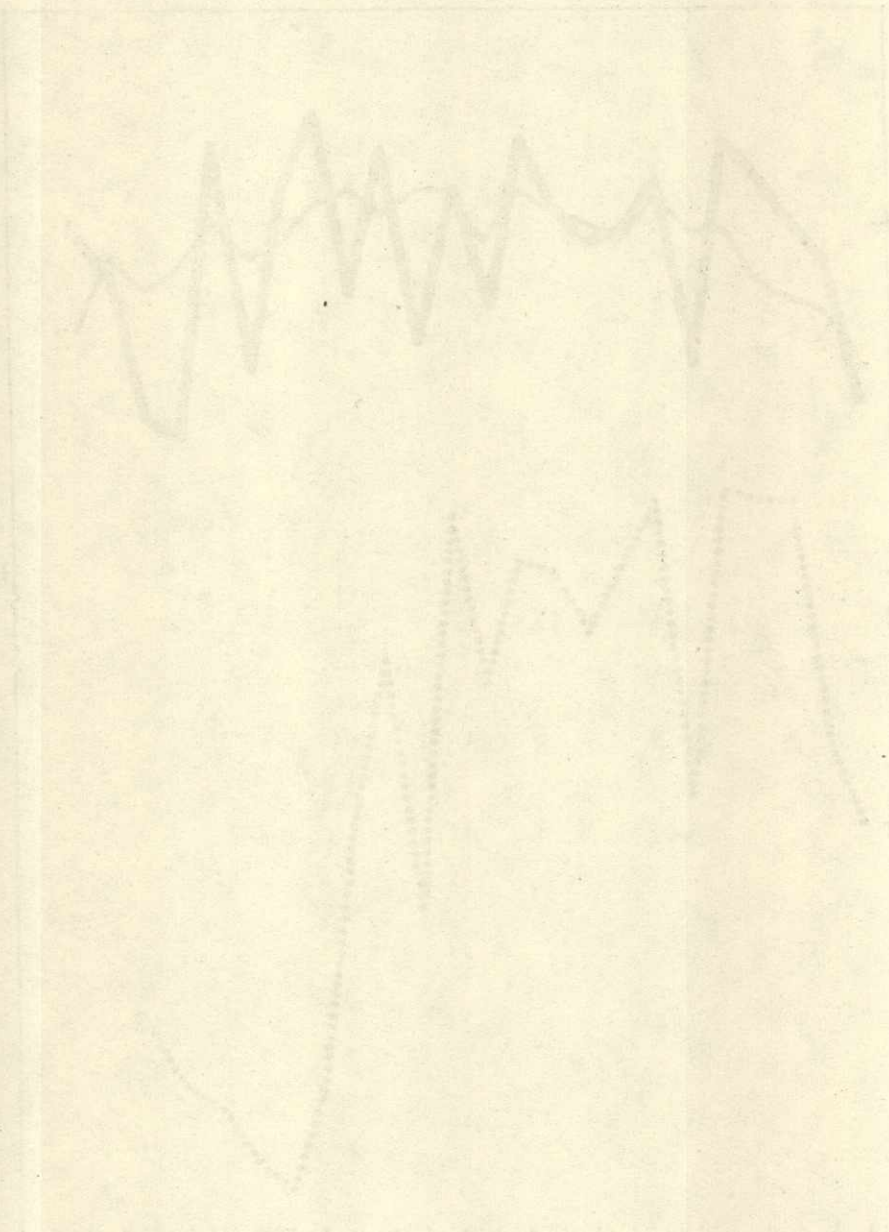
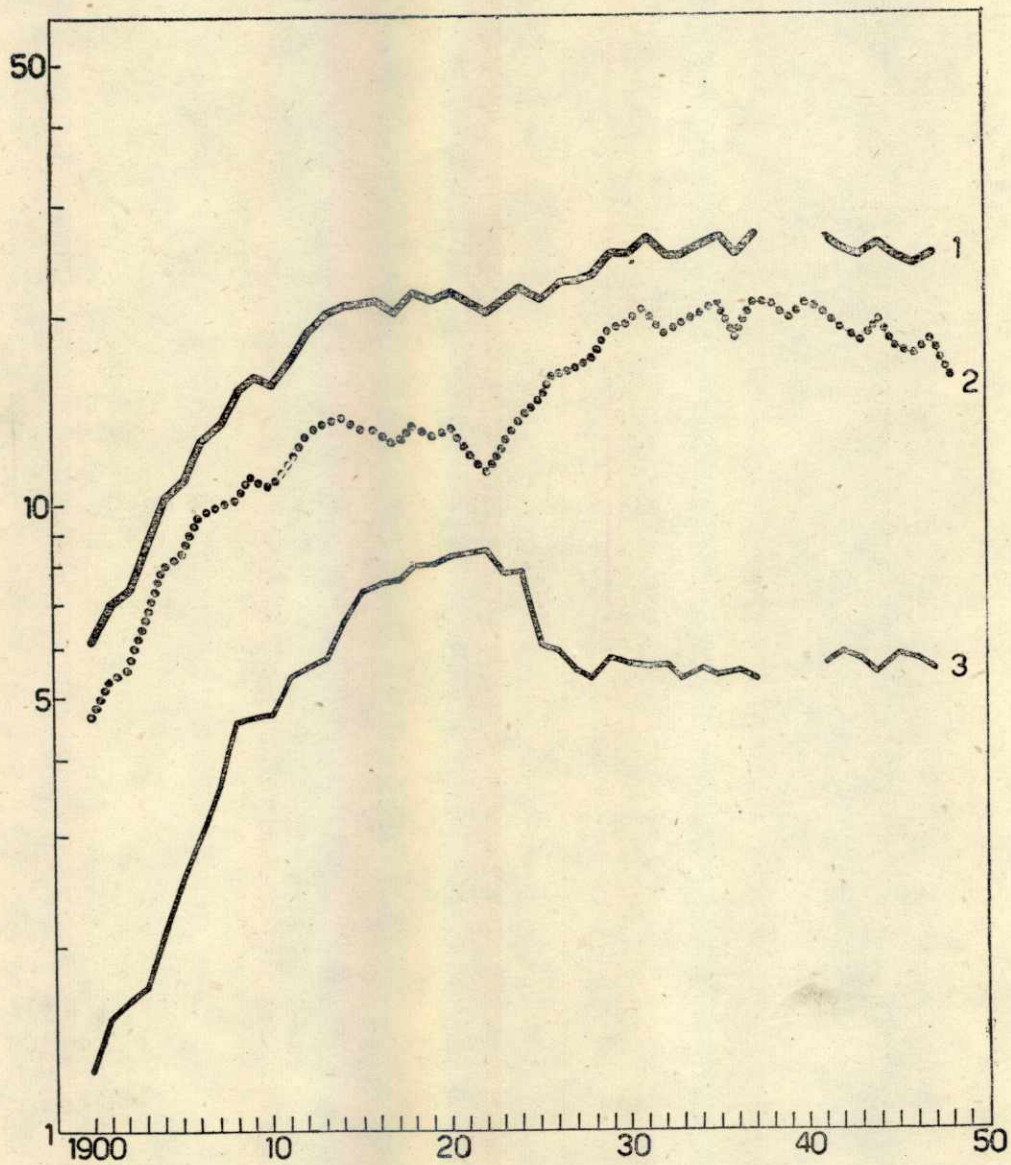


GRAFICO 9-A

ARGENTINA

AREA SEMBRADA TOTAL, DE CEREALES Y DE FORRAJERAS

Millones de hectáreas.



1.— Area sembrada total.
2.— Area sembrada de cereales.
3.— Area sembrada de alfalfa y otras forrajeras.

Centro de Investigaciones, Comisión Económica para América Latina.

livestock industry and dairying in that period. On the other hand, the cultivation of sunflower expanded rapidly to meet the domestic demand for edible oils, as a result of the development of this important industry.

The expansion of these and other crops, (which until then occupied a very secondary place),at the expense of staple crops, has contributed to a greater diversification of agriculture, making it less vulnerable to climatic and economic factors, and contributing in turn, in a considerable degree, to the better supplying of the country's needs.

The sown area for all grains (cereals and oilseeds) reached a peak of slightly more than 21 million hectares in the thirties. In 1948, according to the figures available, the total has been reduced to some 16 million hectares. It would appear that this decline has continued subsequently, although it is hoped that with the recent steps taken to encourage agriculture, this trend will be reversed. The influence of these developments on production are shown in Chart 9.

Argentina, before the great depression, was characterised by the rapid outflow of its surplus grains to the international market. The depression, however, and the Second World War brought, among others, a serious problem: that of the accumulation of temporarily unsaleable stocks. The State was obliged to acquire the harvests until it was possible to export them or divert them into domestic consumption. As regards the latter, it should be remembered that during the war large quantities of the maize as well as a part of the wheat surpluses, with the object of attenuating the serious shortage of fuel during those years.

To give an idea of the degree to which part of agricultural production was used as fuel, the "Comité Argentino de la Energía" indicates that in 1943 100,000 tons of maize, 1,700,000 tons of wheat and 1,500,000 tons of linseed were burnt, and that the electric power plants during the Second World War used about 3 million tons of cereals, 600,000 tons of flax and linseed, and 150,000 tons of linseed oil.

Production figures show a trend similar to that of the sown area, except for changes resulting from weather changes, since there has been no tendency to increase yields, except in the case of wheat. A

summarised table in which the averages for the years 1935-39 and 1945-47 are compared with the average for 1925-29 is given below:

Table 15: Grain Yields

(kilogrammes per hectare harvested)

	1925-29	1935-39	1945-47	Per cent change 1945-47 / 1925-29
Wheat	883	942	1,125	27.4
Maize	1,987	1,760	1,982	- 0,3
Linseed	718	626	688	- 4.2
Sunflower	..	885	759	- 14.2 a/

Source: Research Centre, United Nations Economic Commission for Latin America.

a/ 1945-47 over 1935-39

It has been stated elsewhere that agriculture, since the last war has not been stimulated by the extraordinarily favourable conditions of the international market. In view of the relatively low prices paid locally for its products, agriculture could not compete favourably with industry to keep the labour which migrated from rural areas, nor could it, as was seen above, substitute machinery for labour. The State has recently proposed to obtain a 35 per cent increase in agricultural production, and with this aim it has raised the purchasing prices of grains from between 20 to 30 per cent (wheat: 19.1 per cent; linseed: 20.6 per cent; maize: 31.2 per cent; sunflower: 1.7 per cent), it has stimulated the extension of credit and has granted exchange for importing machinery, as described above.

/b) Meat production

b) Meat production

The area which in the forties ceased to be used for grain production was utilised by the livestock industry and part of it was sown for this purpose with alfalfa and other forage crops. Consequently, in the last few years there has been a trend similar to that which had taken place during the second decade of this century, above all as a result of the First World War: the area under grains declined and the area destined to pastures increased although not to a great extent. Nevertheless, this development did not take place in the case of the area under alfalfa to the same extent as in the second decade, since that area does not equal the decline of the grain area. This would imply that part of the land was left with natural grasses or forage crops not included in the statistics.

Cattle and sheep number indicate this change, as will be seen from following table. Cattle numbers rose by 24 per cent between 1937 and 1947, and those of sheep by 16 per cent. On the other hand, hogs, which are much less important, declined by 26 per cent. Stimulated by the favourable situation created by the low price of maize, hog raising increased to an extraordinary degree. When the situation was reversed in 1945 and 1946, the hog numbers were greatly reduced and with them slaughtering, which fell to very low levels in recent years. Recently there has been a trend towards restoring hogs numbers, but this was delayed as a result of the drop in prices resulting from the decline in foreign demand.

Table 16. Livestock numbers

(in thousands of head)

	Cattle	Sheep	Hogs
1922	37,065	36,209	1,437
1930	32,212	44,413	3,769
1937	33,207	43,883	3,966
1942	31,460	50,902	5,707
1947	41,268	50,857	2,931

Source: Official statistics.

The increase of 7.4 million head for cattle between the years referred to, required a corresponding area for their support so that the land under crops diminished from 25.7 million hectares in 1936-37 to 18.5 million

/ in 1946-47.

in 1946-47. After that year the cultivated area appears to have continued to decline sharply for the reasons explained elsewhere, but there are no recent figures to verify the proportion by which this decline could have been compensated by the increase of livestock numbers.

Table 17: Cultivated area and livestock numbers in the principal agricultural provinces

	Cultivated area (millions of hectares)			Increase of cattle between 1937 and 1947 (Millions of head)	Hypothetical requirement of pasture for livestock increase (Millions of hectares)
	1936-37	1946-47	Decline		
Buenos Aires	10.7	8.4	- 2.3	3.7	3.7
Cordoba	6.4	4.6	- 1.8	1.1	1.3
Santa Fe	4.7	2.8	- 1.9	1.8	1.8
La Pampa	2.0	1.4	- 0.6	-	0.6
Entre Ríos	1.9	1.3	- 0.6	0.8	0.8
Total	25.7	18.5	- 7.2	7.4	8.2

Source: Official statistics.

The 41.3 million head of cattle calculated in 1947 constitute the highest figure since the first census some sixty years ago.

As a result of the increase in cattle and sheep, the total production of the livestock industry has increased, as well as the export of meat and by-products, and wool, as shown in Chart 10. The principal groups of agricultural production are shown in the summary table below.

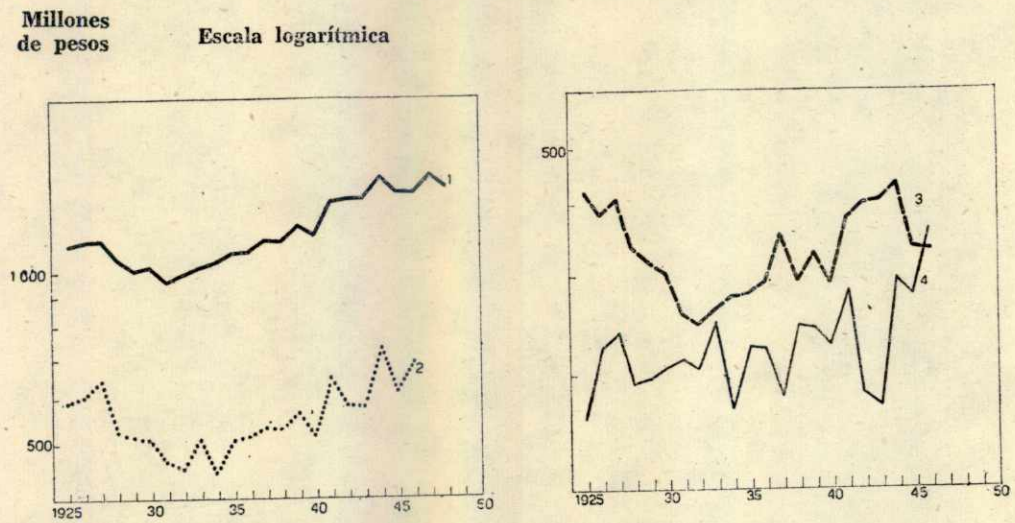
/ Table 18:

GRAFICO 10

ARGENTINA

VOLUMEN FISICO DE LA PRODUCCION GANADERA

Valores a precios de 1937



1.— Producción ganadera total.
2.— Volumen físico de las exportaciones totales agropecuarias.
3.— Volumen físico de las exportaciones de carne, derivados y animales vivos.
4.— Volumen físico de las exportaciones de lanas.

Centro de Investigaciones, Comisión Económica para América Latina.

GRAFICO 10-A

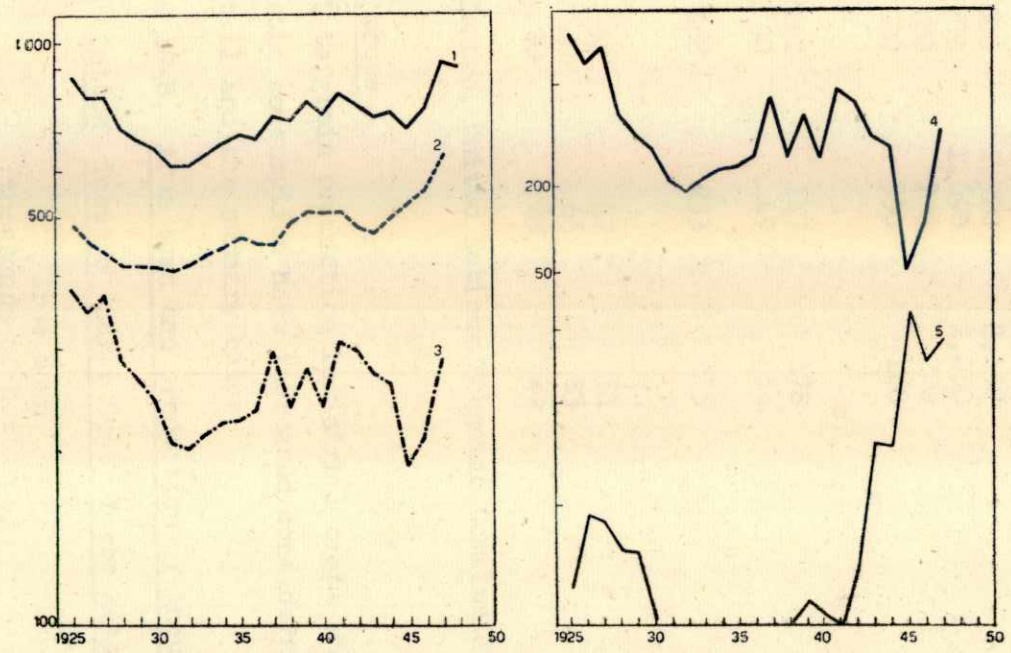
ARGENTINA

PRODUCCION GANADERA.

Valores a precios de 1937

Millones de pesos

Escala logarítmica



1.— Producción de carne vacuna.
2.— Consumo de carne vacuna.
3.— Exportación total de carne vacuna.
4.— Exportación de carne vacuna.
5.—Exportación de vacunos en pié.

Centro de Investigaciones, Comisión Económica para América Latina.

Table 19-A: Cultivated Area

Industrial crops

(thousands of hectares)

Year	Sugar cane	Wine	Peanuts	Tobacco	Yerba mate	Cotton	Total
1925	122	137	53	8	9	105	434
1926	131	114	60	9	19	110	443
1927	122	120	53	5	34	72	406
1928	122	131	56	9	33	85	436
1929	141	136	54	11	34	99	475
1930	142	142	46	13	36	122	501
1931	143	144	50	13	37	127	514
1932	144	147	51	15	49	136	542
1933	145	148	86	14	45	138	576
1934	145	150	90	12	46	195	638
1935	147	150	80	22	50	286	735
1936	148	150	99	16	63	368	844
1937	188	127	127	11	63	376	892
1938	188	126	122	12	63	424	935
1939	187	136	81	19	63	407	893
1940	188	138	89	20	63	365	863
1941	190	139	75	22	65	337	828
1942	187	139	74	17	65	330	812
1943	213	141	124	19	66	364	927
1944	230	145	159	20	66	403	1,023
1945	240	148	177	22	66	382	1,035
1946	252	157	182	28	66	375	1,060
1947	250	159	146	30	66	397	1,048
1948	250	159	190	23	66	412	1,100

Source: Research Centre, United Nations Economic Commission for Latin America.

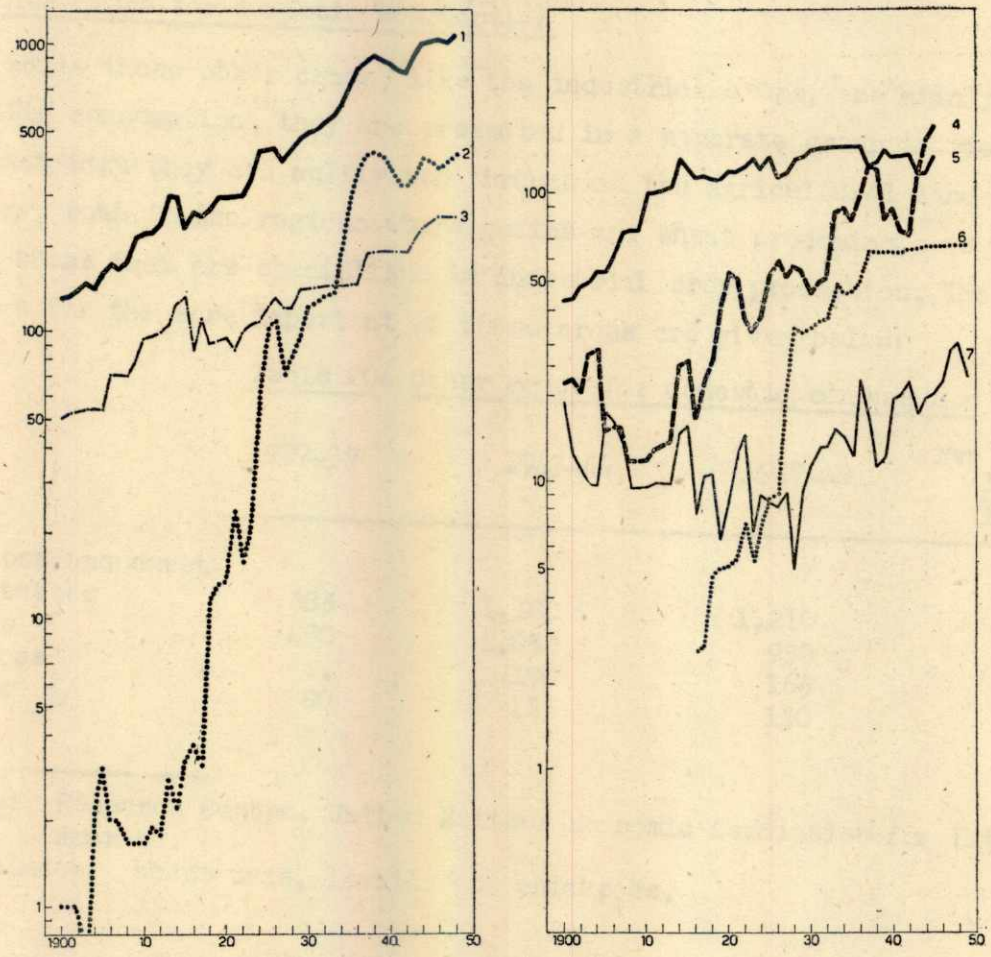
/The significance

GRAFICO 11

ARGENTINA

AREA SEMBRADA CON CULTIVOS INDUSTRIALES

Miles de hectáreas. **Escala logarítmica**



1.— Cultivos industriales.
2.— Algodón.
3.— Azúcar.
4.— Maní.
5.— Viñas.
6.— Yerba Mate.
7.— Tabacos.

Centro de Investigaciones, Comisión Económica para América Latina.

Table 18. Estimated livestock production

(thousands of tons)

	1936-39	1943	1948	Per cent change 1948 / 1936-39
Meat	2,000	2,320	2,450	22.5
Beef	1,700	1,690	2,050	20.6
Mutton	180	280	220	22.2
Pork	120	350	180	50.0
Hides				
Cattle	162	147	178	9.9
Sheep	30	49	54	80.0
Wool	168	233	215	28.0
Dairy products				
Butter	32	47	51	59.4
Cheese	40	66	83	107.5
Casein	20	29	25	25.0

Source: Research Centre, United Nations Economic Commission for Latin America.

c) Industrial crops

In contrast to grain production industrial crops which are directed mainly to domestic consumption have increased considerably, as can be seen from Chart 11 and the summary below:

Table 19-B. Area sown and production of industrial crops

	Peanuts	Cotton	Tobacco	Sugar Cane	Yerba Mate	Vineyards	Total
			Area sown (thousands of hectares)				
1905-09	13.8	2.1	13.5	69.1	0.1	67.7	166.3
1925-29	55.2	94.1	7.9	127.8	20.7	127.6	430.4
1945-48	173.7	391.5	25.8	248.0	66.0	155.8	1060.8
			Production (thousands of tons)				
1905-09	..	..	..	..	..	321.8	..
1925-29	57.0	73.1	7.3	5115.4	16.8	866.2	6135.8
1945-48	131.1	205.3	22.8	7307.3	98.8	1100.0	8865.3

Source: Research Centre, United Nations Economic Commission for Latin America

/Table 19-A

Table 19-A: Cultivated Area

Industrial crops

(thousands of hectares)

Year	Sugar cane	Wine	Peanuts	Tobacco	Yerba mate	Cotton	Total
1925	122	137	53	8	9	105	434
1926	131	114	60	9	19	110	443
1927	122	120	53	5	34	72	406
1928	122	131	56	9	33	85	436
1929	141	136	54	11	34	99	475
1930	142	142	46	13	36	122	501
1931	143	144	50	13	37	127	514
1932	144	147	51	15	49	136	542
1933	145	148	86	14	45	138	576
1934	145	150	90	12	46	195	638
1935	147	150	80	22	50	286	735
1936	148	150	99	16	63	368	844
1937	188	127	127	11	63	376	892
1938	188	126	122	12	63	424	935
1939	187	136	81	19	63	407	893
1940	188	138	89	20	63	365	863
1941	190	139	75	22	65	337	828
1942	187	139	74	17	65	330	812
1943	213	141	124	19	66	364	927
1944	230	145	159	20	66	403	1,023
1945	240	148	177	22	66	382	1,035
1946	252	157	182	28	66	375	1,060
1947	250	159	146	30	66	397	1,048
1948	250	159	190	23	66	412	1,100

Source: Research Centre, United Nations Economic Commission for Latin America.

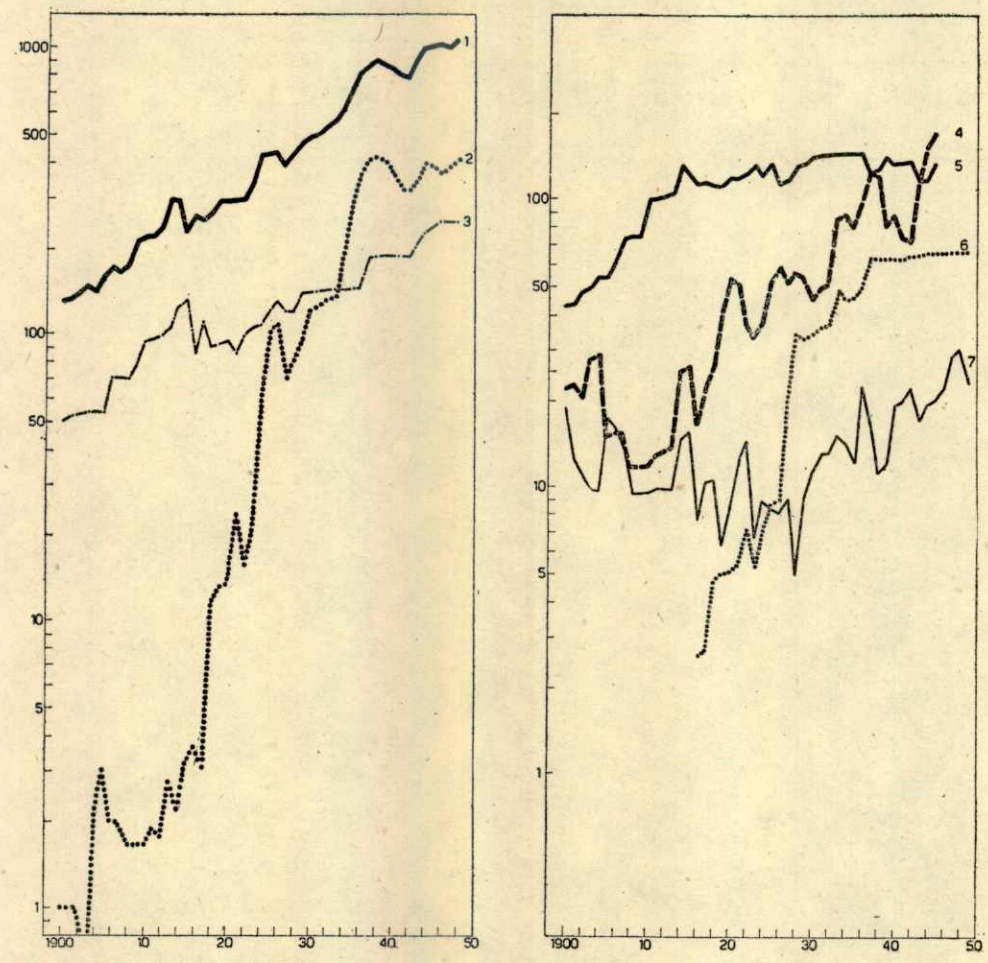
/The significance

GRAFICO 11

ARGENTINA

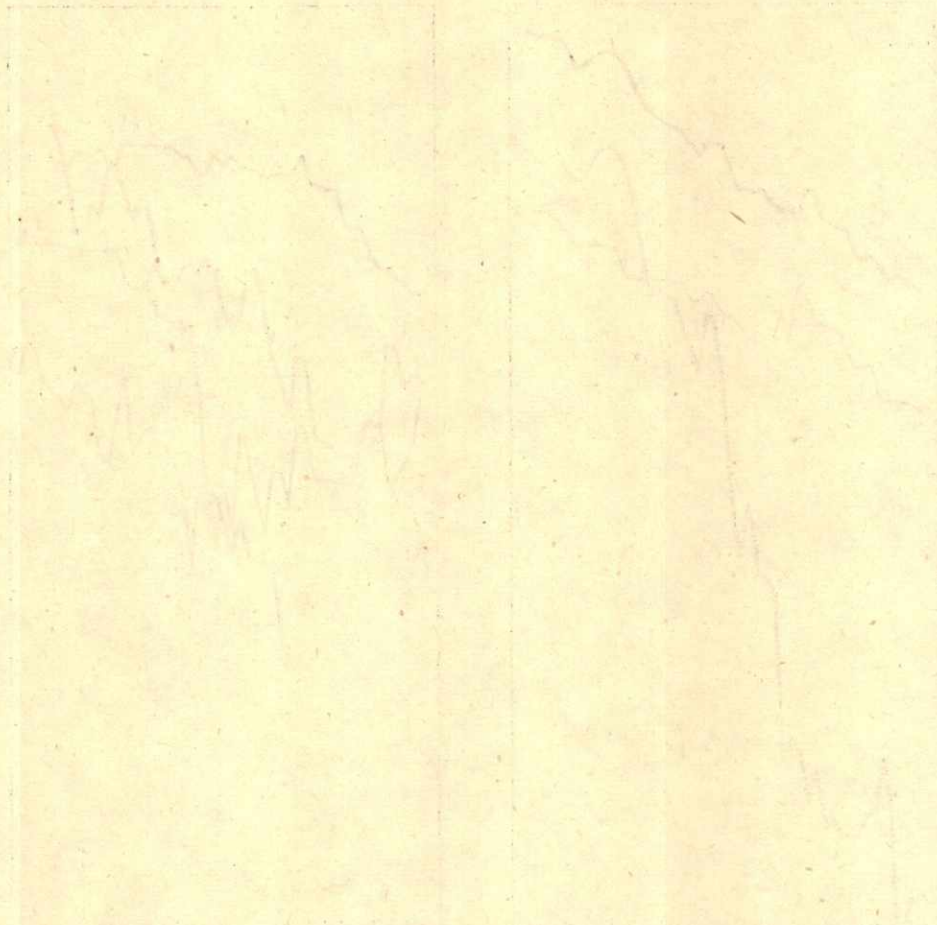
AREA SEMBRADA CON CULTIVOS INDUSTRIALES

Miles de hectáreas. **Escala logarítmica**



1.— Cultivos industriales.
2.— Algodón.
3.— Azúcar.
4.— Maní.
5.— Viñas.
6.— Yerba Mate.
7.— Tabacos.

Centro de Investigaciones, Comisión Económica para América Latina.



The significance of these increases will be commented upon in section devoted to the processing of agricultural products.

d) Other crops for domestic consumption

While these other crops, like the industrial crops, are mainly for domestic consumption, they are presented in a separate group in view of the fact that they are cultivated throughout the agricultural land of the country, both in the regions where grains and wheat predominate as well as in those that are specialised in industrial crop production. The figures for the more important of these crops are given below:

Table 20: Other crops for domestic consumption

	1937-39	1943-44	1947-48	Per cent change 1947-48 / 1937-39
Potatoes and sweet potatoes	885	1,180	1,210	36.7
Fruits	480	1,050	930	93.8
Tomatoes	..	190	165	..
Pulses a/	80	125	130	62.5

Source: Research Centre, United Nations Economic Commission for Latin America.

a/ Includes: beans peas, lentils and chickpeas.

/Table 21 A.

Table 21 A. Argentina: Area sown, production and consumption of grains

Years	Sown area Thousands of hectares	Production	Exports	Consumption
		Values in millions of 1937 pesos		
1925	15,034	1,252.3	801.8	450.5
1926	16,440	1,652.5	940.8	711.7
1927	16,942	1,805.3	1,524.6	280.7
1928	17,699	1,972.8	1,519.3	453.5
1929	19,366	2,110.1	1,557.9	552.2
1930	19,427	1,366.5	850.9	515.6
1931	20,836	1,957.4	1,513.4	444.0
1932	18,901	1,783.5	1,346.7	436.8
1933	19,665	1,728.2	1,174.8	553.4
1934	20,201	1,857.4	1,322.1	535.3
1935	21,127	2,132.3	1,361.2	771.1
1936	18,867	1,528.0	1,071.4	456.6
1937	21,174	1,922.7	1,482.0	440.7
1938	21,155	1,428.2	688.3	739.9
1939	20,206	2,108.1	1,109.9	998.2
1940	21,213	1,568.7	802.9	765.8
1941	20,473	2,261.1	491.2	1,769.9
1942	19,113	1,924.9	400.0	1,524.9
1943	18,493	1,356.2	423.4	932.8
1944	19,837	2,116.3	468.7	1,647.6
1945	18,176	1,190.1	485.6	704.5
1946	17,520	1,235.0	544.2	690.8
1947	18,733	1,630.8	688.0	942.8
1948	16,110	1,774.3	582.4	1,191.9

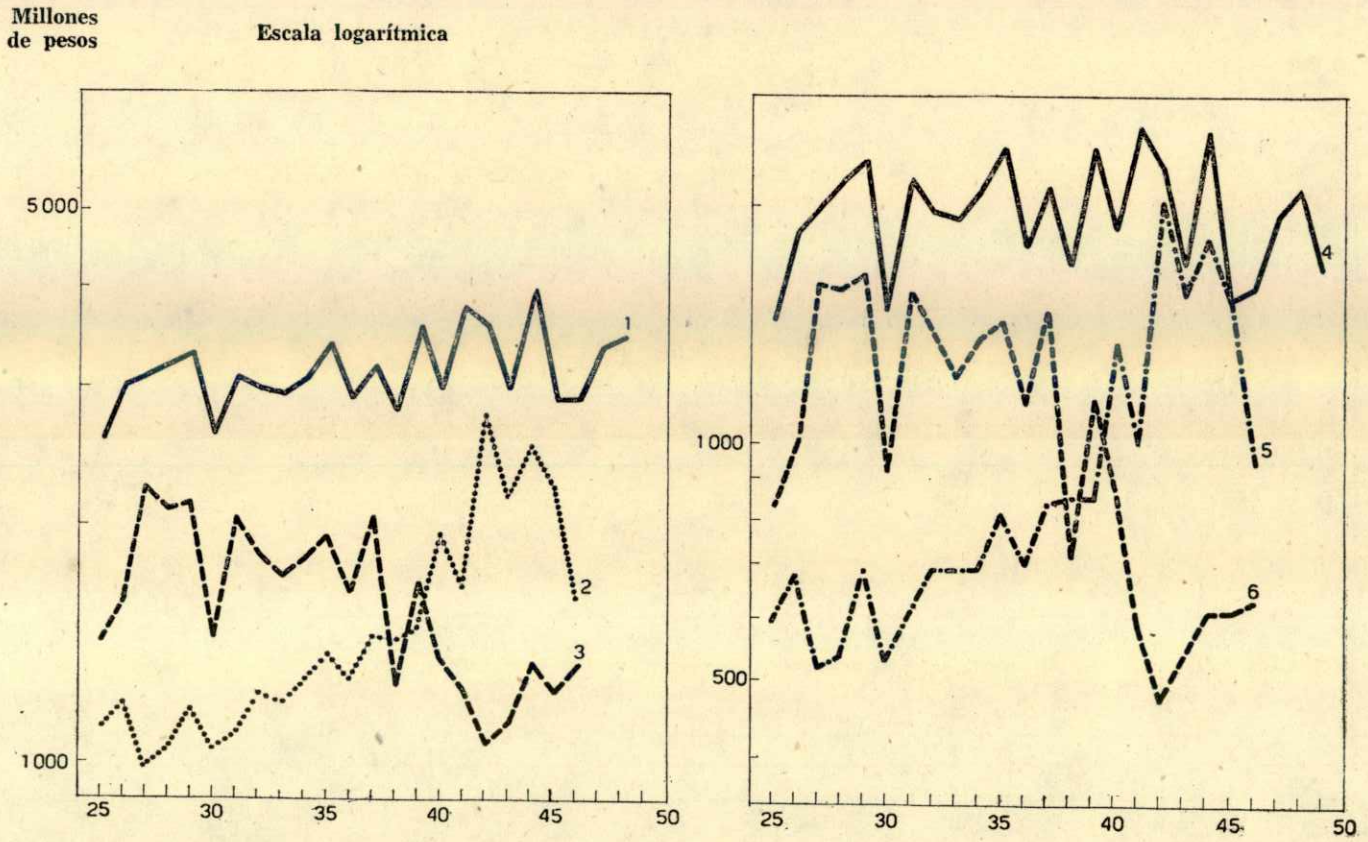
Source: Research Centre, United Nations Economic Commission for Latin America.

GRAFICO 12

ARGENTINA

PRODUCCION Y CONSUMO AGROPECUARIO.

Valores a precios de 1937



1.— Total de la producción agropecuaria.
2.— Consumo total agropecuario.
3.— Total exportaciones agropecuarias.
4.— Producción agrícola total.
5.— Consumo agrícola.
6.— Exportación agrícola.

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Export and domestic consumption of agricultural commodities

It has been seen that the production of grains had declined considerably in 1945-48 in comparison with 1925-29. But since exports show a more pronounced decrease, it is still not surprising that domestic consumption of these products should have been able to increase as is shownin Chart 9 and in the following table:

Table 21 B. Area sown, production and consumption of grains

Values in millions of 1937 pesos

	1925-29	1945-48	1948	1945-48	1948
Area sown (Thousands of hectares)	17,096	17,635	16,110	3.2	- 5.8
Production (Value)	1,759	1,458	1,774	- 17.1	0.8
Exports (Value)	1,269	575	582	- 54.7	-54.1
Consumption (Value)	490	883	1,191.9	80.2	143.2

Source: Research Centre, United Nations Economic Commission for Latin America.

Between 1925-29 and 1945-48 the domestic consumption of grains increased by 117.4 per cent. It should be noted, however, that sunflower is included among these grains, and is used to manufacture oils which substitute for imports; rice is also included, displacing imports. Without these two products, the growth of domestic consumption amounts to 82.1 per cent.

The increase in domestic consumption has been more pronounced than production in the case of meats, at the expense of exports.

Among industrial crops, if the increase in consumption was less intense than that of production, this was due to exports of cotton and peanuts. The chart below shows the breakdown of agricultural and livestock production and consumption (Tables 22 A and 22 B).

/Table 22 A.

Table 22 A. Argentina: Agricultural and livestock production and consumption

Values in millions of 1937 pesos

	Total crop and livestock production	Total crop and livestock consumption	Total crop and livestock exports	Total crop production	Total crop consumption	Total crop exports
1925	2,538.4	1,110.9	1,427.5	1,429.4	592.2	837.2
6	2,967.9	1,194.5	1,616.5	1,843.9	677.1	1,009.9
7	3,108.1	989.8	2,244.3	1,987.6	517.3	1,596.3
8	3,199.0	1,050.0	2,103.0	2,161.8	536.3	1,579.5
9	3,297.9	1,174.3	2,134.8	2,297.1	685.5	1,622.8
1930	2,582.3	1,038.2	1,432.5	1,568.1	532.0	923.7
1	3,126.9	1,086.2	2,033.8	2,175.8	602.7	1,566.2
2	2,950.4	1,220.9	1,849.5	1,966.1	687.6	1,398.5
3	2,941.5	1,189.1	1,726.8	1,931.1	688.6	1,216.9
4	3,116.7	1,273.6	1,819.0	2,085.9	692.4	1,369.4
1935	3,437.5	1,373.1	1,932.0	2,370.3	808.8	1,429.1
6	2,870.6	1,270.9	1,641.6	1,788.8	702.1	1,128.6
7	3,249.6	1,440.8	2,032.5	2,118.5	844.1	1,497.3
8	2,809.4	1,431.3	1,252.4	1,689.9	846.5	1,717.7
9	3,563.6	1,469.6	1,707.3	2,377.6	851.5	1,139.4
1940	3,010.4	1,964.4	1,379.3	1,867,0	1,336.7	863.6
1	3,841.8	1,666.0	1,242.1	2,527.3	1,007.7	585.9
2	3,576.1	2,774.6	1,060.7	2,247.0	2,030.9	475.3
3	3,030.0	2,292.5	1,126.3	1,696.4	1,540.1	545.1
4	3,950.2	2,529.0	1,338.9	2,510.8	1,818.5	610.8
1945	2,868.8	2,259.5	1,223.5	1,506.5	1,508.7	612.0
6	2,933.7	1,603.8	1,324.9	1,578.6	945.2	633.4
7	3,412.5	1,972.9	1,439.6	1,950.3	1,209.8	740.5
8	3,503.0	2,122.4	1,380.6	2,115.4	1,484.1	631.3

Source: Research Centre, United Nations Economic Commission for Latin America

Note: Consumption is adjusted for changes in stocks.

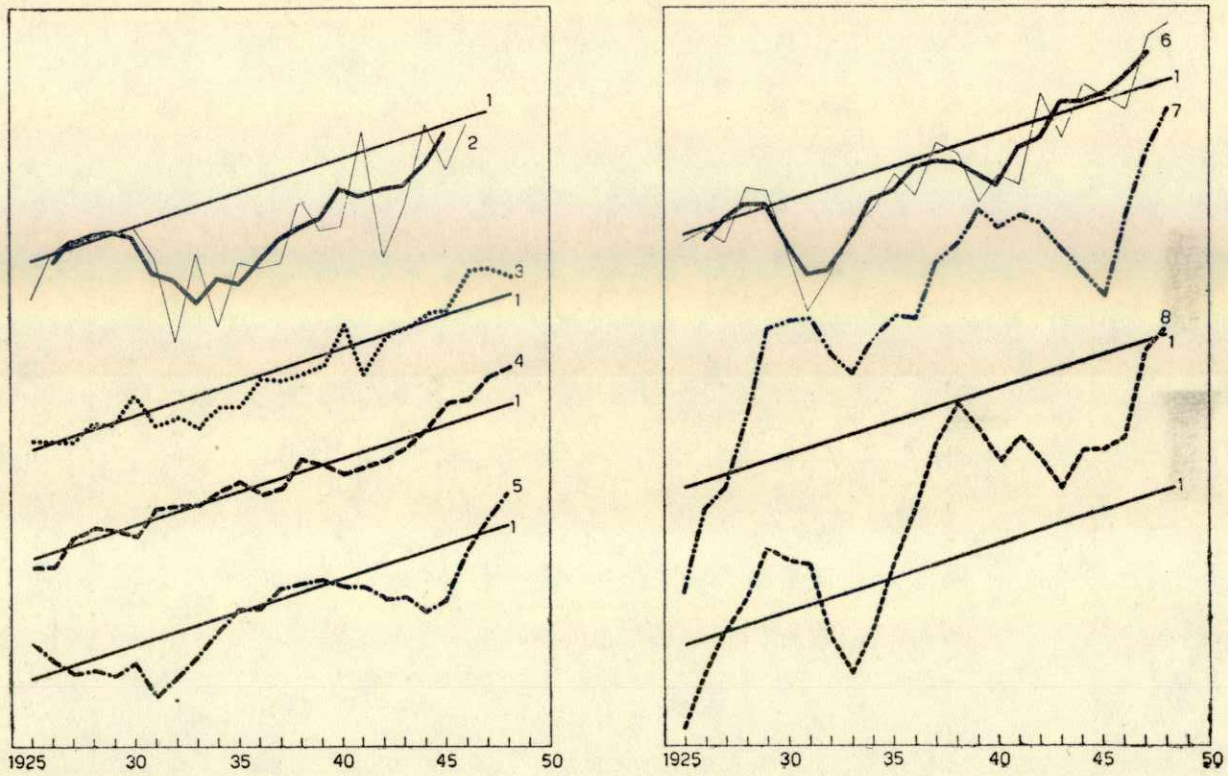
/The graph

GRAFICO 13

ARGENTINA

INDICE DE CONSUMO.

Escala logarítmica.



1.— Población.
2.— Consumo de café, miles de toneladas.
3.— Consumo de azúcar, miles de toneladas.
4.— Consumo de harina de trigo, miles de toneladas.
5.— Consumo de carnes, miles de toneladas.
6.— Consumo de tejidos de algodón, miles de toneladas.
7.— Consumo de gasolina, miles de m3.
8.— Consumo de cemento, miles de toneladas.

Centro de Investigaciones, Comisión Económica para América Latina.

The following graph shows the breakdown of agricultural and livestock consumption (Table 22 B).

Table 22 B Argentina: Agricultural and livestock production and consumption

Values in millions of 1937 pesos

	Annual averages			Per cent change over 1925-29	
	1925-29	1945-48	1948	1945-48	1948
Agricultural and livestock production	3,022.3	3,179.5	3,503.0	5.2	15.9
Agricultural and livestock exports	1,905.2	1,342.2	1,380.6	-29.6	-27.5
Agricultural and livestock consumption	1,103.9	1,190.9	2,122.4	80.4	92.3
Crop production	1,944.0	1,787.7	2,115.4	- 8.0	8.8
Crop exports	1,329.1	654.3	631.3	-50.8	-52.5
Crop consumption	601.7	1,287.0	1,484.1	113.9	146.6

Source: Research Centre, United Nations Economic Commission for Latin America

Note: Consumption is adjusted for changes in grain stocks.

An additional chart shows the consumption of some of the agricultural commodities compared with others of industrial origin. The pertinent data may be found in Table 23.

/Table 23.

Table 23. Argentina: Indices of consumption

Years	Consumption of industrial products: Cotton textiles (tons)	Petrol (thousand cubic metres)	Cement (thousand tons	Consumption of food products: Meat	Sugar	Wheat flour	Coffee
				thousand tons			
1925	45,854	400	443.9	1,200	330	1,018	20.1
1926	47,272	522	527.3	1,133	330	1,022	23.3
1927	45,669	561	601.2	1,093	330	1,125	24.5
1928	54,340	695	669.0	1,105	350	1,162	24.5
1929	53,853	929	787.5	1,078	350	1,152	24.8
1930	44,784	950	755.3	1,124	385	1,126	25.4
1931	36,712	959	744.7	1,020	347	1,226	22.9
1932	40,089	855	588.2	1,076	358	1,237	17.6
1933	47,676	805	530.0	1,150	346	1,241	23.3
1934	50,452	902	605.8	1,253	370	1,305	18.4
1935	56,921	964	752.4	1,340	371	1,347	22.6
1936	53,183	955	892.8	1,348	404	1,294	22.3
1937	62,984	1,157	1,109.4	1,428	404	1,324	22.7
1938	60,451	1,219	1,254.3	1,456	412	1,451	27.7
1939	52,200	1,372	1,155.3	1,476	425	1,430	25.1
1940	56,901	1,286	1,049.7	1,449	480	1,385	25.4
1941	55,194	1,342	1,128.3	1,448	415	1,423	34.6
1942	73,195	1,309	1,050.3	1,396	465	1,455	23.1
1943	64,465	1,199	959.5	1,400	478	1,509	27.2
1944	75,904	1,108	1,073.8	1,429	502	1,602	35.2
1945	72,543	1,038	1,084.1	1,483	507	1,727	30.5
1946	70,254	1,344	1,120.3	1,624	574	1,765	35.3
1947	88,500	1,637	1,481.2	1,782	581	1,889	
1948	92,832	1,887	1,593.8	1,955	567 a/	1,957	

Source: Research Centre, United Nations Economic Commission for Latin America

Notes: The data prior to 1940 correspond to those of "El sub-consumo de alimentos en America del Sur" by Emilio Llorens. From that year on, they have been completed with data from various official sources. The figures for meat consumption for 1912-28 and 1940-48 are estimated on the basis of the number of animals slaughtered for domestic consumption and considering a meat yield of 270 kilogrammes per head of cattle, 16 for sheep and 80 for hogs.

a/ Estimated on the basis of production.

IV. THE DEVELOPMENT OF IMPORTS

1. In the case of Argentina it has not been possible to carry the analysis of imports to 1948 or even 1949, as has been done with the other Latin American countries, owing to the fact that no statistics have been published since 1947. The data available for the post-war period are therefore insufficient to be able to draw conclusions concerning imports during those years compared with those which preceded the great depression and other representative periods. During 1947, the volume of imports was exceptional, due to the pent-up demand of the war years; it cannot therefore be taken as representative of Argentina's normal import requirements. Foreign exchange for imports was granted very liberally that year and many categories increased which subsequently had to be reduced, either to stimulate domestic production or simply to postpone such imports until better times. The lack of data for 1948 and 1949 prevents the study of these interesting developments, nor is it possible to ascertain the changes taking place in the composition of Argentine imports compared to representative preceding periods. This analysis will therefore be incomplete, but it will at least give an idea of the most important trends which have appeared in the process of reducing imports after the world depression.

These changes were determined by a highly important fact which has already been pointed out: the contraction of the capacity to import following the world depression. In view of this, Argentina has been compelled to make severe reductions in certain imports, in order to increase others which were indispensable, or to reduce less drastically imports which could not be replaced by domestic production. An approximate idea of this reduction is given in the following table and Chart 14, calculated at 1937 prices:

/Table 24-A.

Table 24-A. Argentina: Changes in the quantum of commodities other than capital goods

(In thousands of pesos at 1937 prices)

Years	Foodstuffs Beverages and Tobacco	Textiles and their manufactures	Chemicals and similar products	Metals and their manufactures	Wood pulp, paper and cardboard	Fuels and lubricants	Rubber and manufactures	Others	Total of other goods
1925	132,949	192,194	36,516	38,147	53,316	221,517	22,602	136,871	834,116
1926	124,753	197,875	37,437	40,546	51,921	245,758	26,071	144,432	868,793
1927	129,495	194,242	39,500	50,623	56,488	276,940	33,793	174,132	955,213
1928	137,444	227,243	45,654	60,872	65,089	289,293	33,401	183,616	1,042,612
1929	143,545	217,319	48,119	58,028	66,831	326,936	39,577	176,581	1,076,936
1930	138,545	182,978	42,663	55,594	62,928	322,301	31,666	132,180	979,855
1931	124,537	154,358	37,009	46,047	52,150	229,469	24,173	76,909	744,652
1932	88,912	148,537	32,282	25,438	49,795	156,281	19,741	88,290	609,276
1933	105,122	182,070	38,749	34,172	53,339	193,207	23,213	48,054	677,926
1934	79,444	189,007	40,525	38,545	58,510	163,813	28,701	101,138	699,683
1935	65,297	196,235	44,360	35,372	59,524	177,382	25,081	104,555	707,806
1936	89,792	187,154	44,966	41,537	64,912	184,109	26,279	97,395	736,144
1937	108,665	221,641	52,167	54,560	79,870	220,089	40,369	129,600	906,961
1938	92,320	186,971	45,111	43,269	64,150	230,682	32,784	125,933	821,220
1939	86,398	141,325	50,046	52,242	68,424	231,601	39,357	114,568	783,961
1940	81,966	124,533	47,685	51,423	62,941	185,819	37,197	93,626	685,190
1941	76,042	81,382	39,435	47,662	54,072	151,107	44,185	90,356	534,241
1942	61,866	100,678	43,402	36,407	63,936	85,705	12,094	85,017	489,355
1943	59,746	51,673	47,784	17,119	49,128	55,012	2,403	65,552	348,417
1944	79,242	45,599	28,039	11,738	53,652	48,912	2,751	76,332	346,265
1945	68,927	34,111	37,227	25,561	57,663	57,842	3,528	75,474	360,333
1946	69,464	42,713	45,996	42,616	87,694	260,690	59,814	80,504	689,491
1947	114,641	177,313	90,144	100,936	115,172	339,157	69,832	116,716	1,223,911

Source: Research Centre, United Nations Economic Commission for Latin America.

Note: The values correspond to the customs valuations of 1937 according to the Argentine Yearbooks of Foreign Trade.

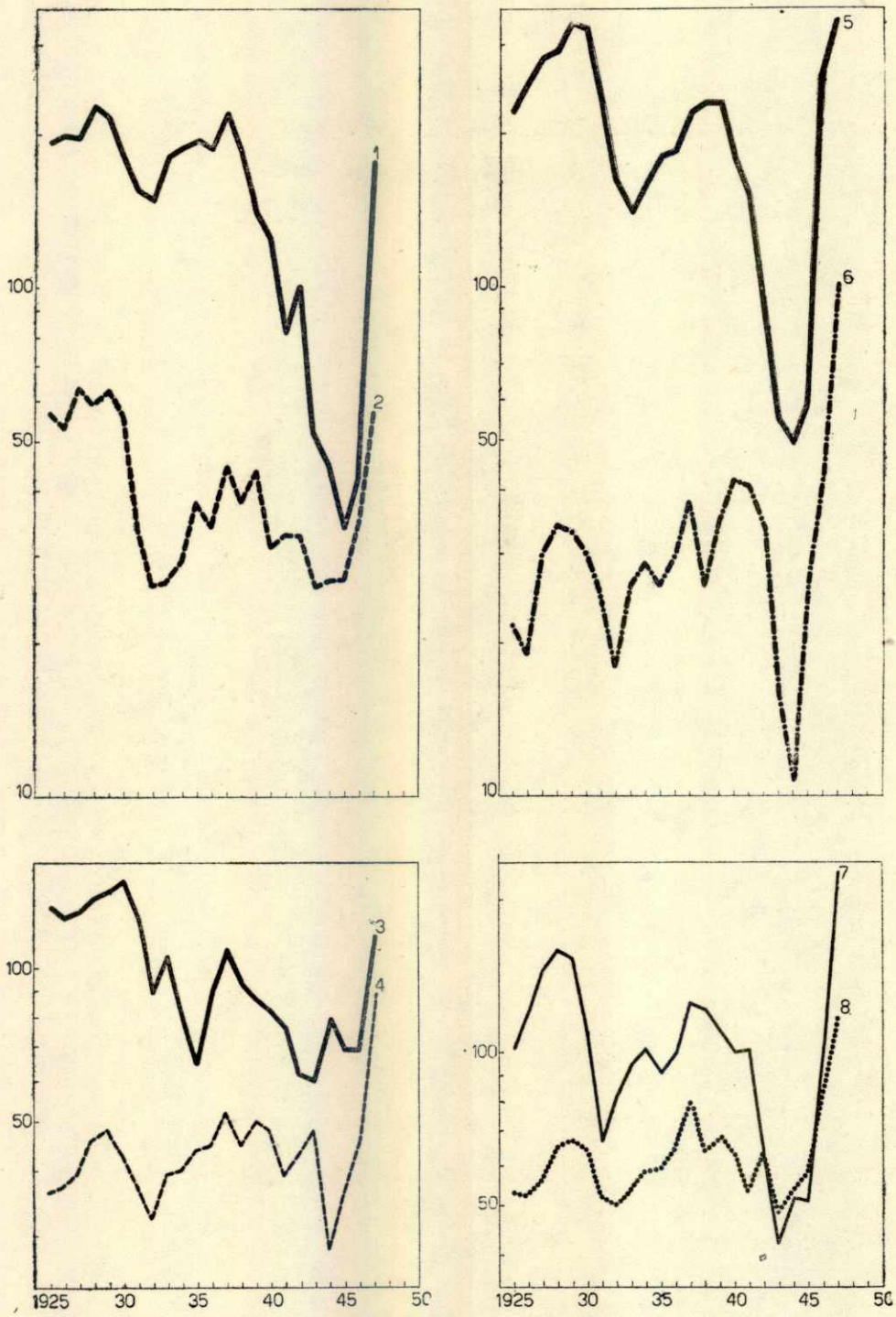
GRAFICO 14

ARGENTINA

VOLUMEN FISICO DE LAS IMPORTACIONES DE LOS DEMAS BIENES.

Millones de pesos — Valores a precios de 1937

Escala logarítmica.



1.— Importación de textiles y sus manufacturas.
2.— Importación de maderas y sus manufacturas.
3.— Alimentos, bebidas y tabacos.
4.— Productos químicos y similares.
5.— Combustibles y lubricantes.
6.— Metales y sus manufacturas.
7.— Varios.
8.— Importación de papel, cartón y sus manufacturas.

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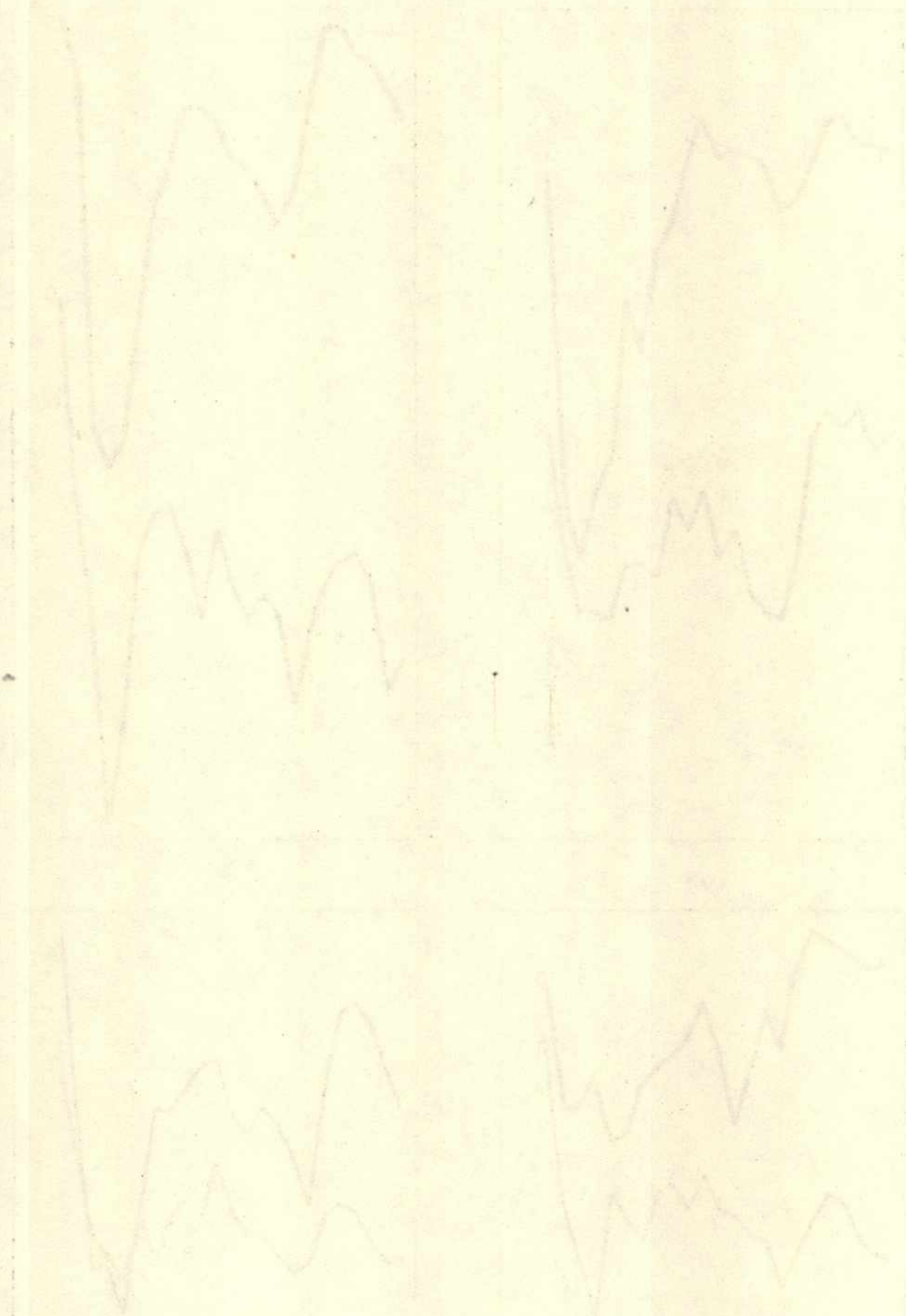


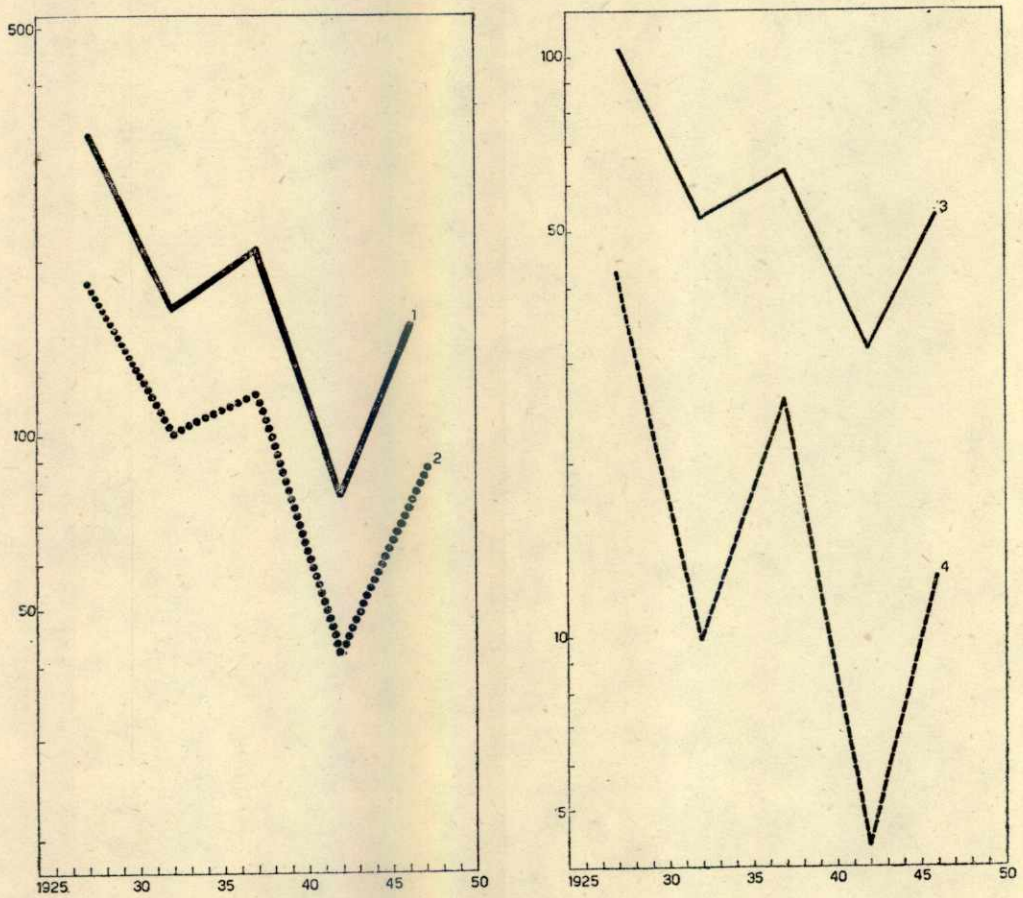
GRAFICO 15-A

ARGENTINA

IMPORTACION DE BIENES DE CAPITAL.

Valores a precios de 1937

Millones de pesos. **Escala logarítmica**



1.— Importación total de bienes de capital.
2.— Importación de materiales.
3.— Importación de maquinaria en general (sin automotores).
4.— Importación de maquinaria agrícola.

Centro de Investigaciones, Comisión Económica para América Latina.

NOTA: Promedios quinquenales desde 1925-29 a 1940-44.
Promedio trianual para 1945-1947.

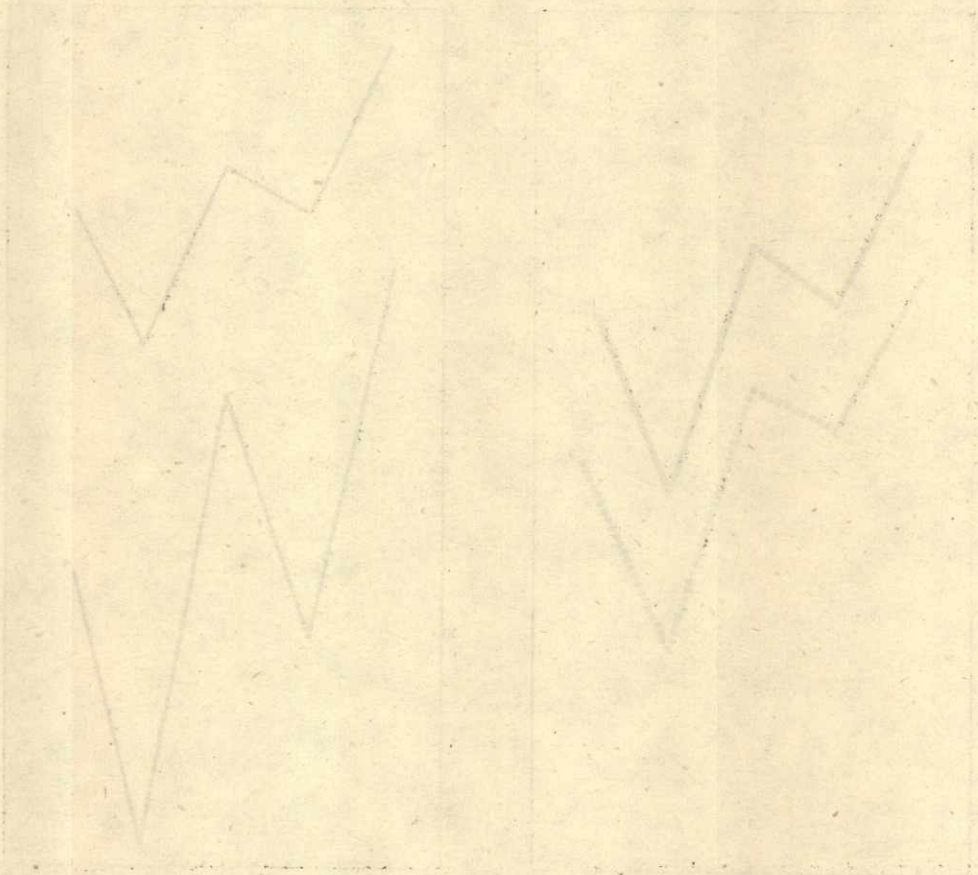


Table 24-B. Quantum of Imports

Averages for 1925-29 as compared to 1941-47

	1925-29	1945-47	Increase or decrease
Commodity groups which increased:			
Fuels and lubricants	272,088	219,229	- 19.4
Pulp, paper, etc.	58,729	84,129	43.3
Chemical products	41,445	57,789	39.4
Rubber and its manufactures	31,089	77,725	150.0
Metals	49,643	56,371	13.6
Imports which decreased as a result of the development of domestic industry:			
Textiles	205,775	84,712	- 58.8
Foodstuffs	133,637	84,344	- 36.9
Skins and hides	6,762	5,498	- 18.7
Oils and fats	4,446	4,121	- 7.3
Miscellaneous	83,844	28,321	- 66.3
Durable Goods			
Capital goods	336,852	181,950	- 46.0
Other durable goods	67,675	28,774	- 57.5
Total Imports	1,360,069	968,635	- 28.8

Note: For source and notes, see Table 24-A.

Imports which have increased

2. An analysis will first be made of the imports which increased in volume notwithstanding the contraction of the capacity to import.

The most important category comprises fuels and lubricants. As can be seen from the following table, it is true that average imports of this category were lower in 1945-47 than in 1925-29, but this is because imports were abnormally low during 1945 and 1946, for well-known reasons. In 1947, according to partial information they reached a level more in proportion with the requirements of economic development and remained high in 1948 and 1949, despite the severe limitations imposed on other commodities. It is therefore obvious that this group will be found among the imports which increased.

/Table 25.

Table 25. Imports of Fuels and Lubricants

(In millions of pesos at 1937 prices)

	Yearly averages			% change over 1925-29	
	1925-29	1945-47	1947	1945-47	1947
Crude oil	35.6	107.7	169.8	202.5	376.9
Fuel, diesel and gas oil	21.9	64.6	94.3	195.0	330.6
Coal	79.9	26.5	30.9	- 66.8	- 61.3
Motor spirit and kerosene	105.0	13.4	32.0	- 87.2	- 69.5
Lubricants	27.3	5.8	9.8	- 78.8	- 64.1
Total	269.7	218.0	336.8	- 19.2	24.6

Source: Research Centre, United Nations Economic Commission for Latin America.

The group which follows fuels in importance is that comprising paper, cardboard, and woodpulp for its manufacture. These are products which have increased to a greater or lesser extent as a function of economic development in all the Latin American countries reviewed in this survey. In the case of Argentina, the increase of 1945-47 over 1925-29 was 43.3 per cent, distributed as follows:

Table 26. Imports of Paper, Cardboard and Manufactures thereof

(In millions of pesos at 1937 prices)

	Yearly averages			% change over 1925-29	
	1925-29	1945-47	1947	1945-47	1947
Newsprint	23.7	32.5	44.8	37.1	89.0
Printing paper	15.2	17.5	21.7	15.1	42.8
Wrapping paper	2.8	14.5	17.0	417.8	507.1
Cardboard	4.1	5.7	7.4	39.0	80.5
Cigarette paper	1.1	1.4	1.8	27.3	63.6
Wood pulp	2.3	5.0	6.5	117.4	182.6
Others	9.5	7.5	7.8	- 21.1	- 17.9
Total	58.7	84.1	107.0	43.3	82.3

Source: Research Centre, United Nations Economic Commission for Latin America.

Note: The total given for 1947 is slightly lower than actual figures, owing to lack of data relating to several rather insignificant items.

/As yet no

As yet no newsprint is manufactured in Argentina, which explains the increase of imports. On the other hand, printing and wrapping paper, as well as cardboard are made in the country, and in these cases the increases show that domestic production has been insufficient to meet the growth of consumption. This is a problem of concern to the country, which it is attempting to solve in the way indicated in the Section on Industry.

The next group of imports to increase intensely is that of rubber and rubber manufactures; in 1945-47 they were 150 per cent higher than the average in 1925-29. This is a change in composition typical of the cases where it is not possible to develop all the stages of production within the country, owing to the lack of domestic crude rubber, as can be seen from the following table. There has been a sharp increase in the imports of raw materials, and at the same time of tyres and inner-tubes for motor cars, and other rubber manufacturers, as a result of the development of manufacturing. It is interesting to note the low level to which imports of this group fell during 1940-44, due to the wartime shortages - 19.7 million pesos at 1937 prices, as against 31.1 million in 1925-29, which explains the sharp rise to 76.0 million in 1945-47 in order to satisfy pent-up demand.

Table 27. Imports of rubber and its manufactures

(In millions of pesos at 1937 prices)

	Yearly averages				% change over 1925-29	
	1925-29	1940-44	1945-47	1947	1945-47	1947
Motor-tyres	18.6	0.6	28.8	51.6	54.8	177.4
Inner-tubes	6.5	-	3.9	7.0	- 40.0	7.7
Raw rubber	1.3	17.8	40.8	102.9	3.038.5	7815.4
Others	4.7	1.3	2.5	3.2	- 46.8	- 31.9
Total	31.1	19.7	76.0	164.7	144.4	429.6

Source: Research Centre, United Nations Economic Commission for Latin America.

Chemical and pharmaceutical products comprise another group which usually increases in countries in the process of development. This has occurred in Argentina despite the reduction or disappearance of several items which been replaced by domestic production, as can be seen from

/Chart 15.

Chart 15. If each of the items or groups are examined separately, there are no very large amounts. Apart from the fact that the total is considerable, the importance of many of these products is that they are essential not to one specific industry, but to a group of industries. A shortage therefore causes serious difficulties.of which there was frequent evidence during the war. In this connection it is easy to understand the concern of Argentina to develop the production of sulphuric acid without having to depend on imported sulphur, as will be seen later. The same occurs in the case of caustic soda, the imports of which continue to rise despite the development of domestic production. Imports of dips show a persistent rise which is explained by the requirement of the livestock industry.

There have been similar changes in the composition of imports of pharmaceutical products; some branches of domestic production have prospered while in others imports have increased or new imports have appeared. Details of this group are given below:

Table 28. Imports of Chemical and Pharmaceutical Products

(In millions of pesos at 1937 prices)

	Yearly averages			% change over 1925-29	
	1925-29	1945-47	1947	1945-47	1947
Dips	11.1	13.9	15.7	25.2	41.4
Ammonia	1.0	0.3 a/	-	- 70.0 a/	-
Sulphur	1.5	3.7	5.2	146.7	246.7
Caustic Soda	1.8	3.6	3.9	100.0	116.7
Solvay soda	2.6	4.6	6.8	76.9	161.5
Resin	4.0	1.3	1.8	- 67.5	- 55.0
Calcium carbide	1.3	1.8 a/	-	38.5 a/	-
Dyes	1.4	4.1	5.3	192.8	278.6
Tartaric acid	3.1	-	-	-	-
Paints	2.2	1.3 a/	-	- 40.9 a/	-
Others	11.4	9.8	11.2 b/	- 14.0	- 1.8
Total	41.4	44.4	49.9 b/	7.2	20.5

Source: Research Centre, United Nations Economic Commission for Latin America.

a/ Average 1945-46
b/ Estimated.

/The increase

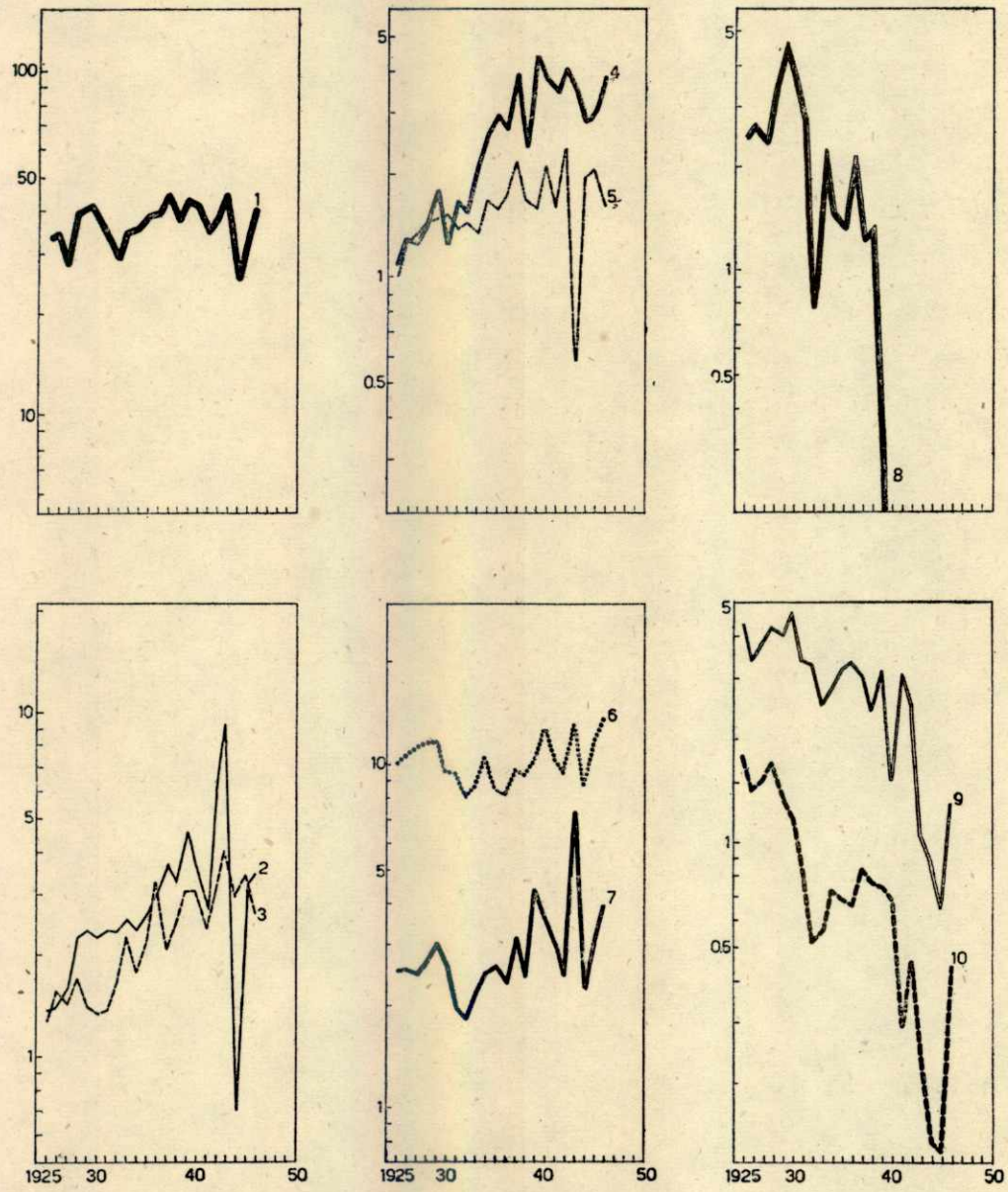
GRAFICO 15

ARGENTINA

IMPORTACION DE PRODUCTOS QUIMICOS Y SIMILARES.

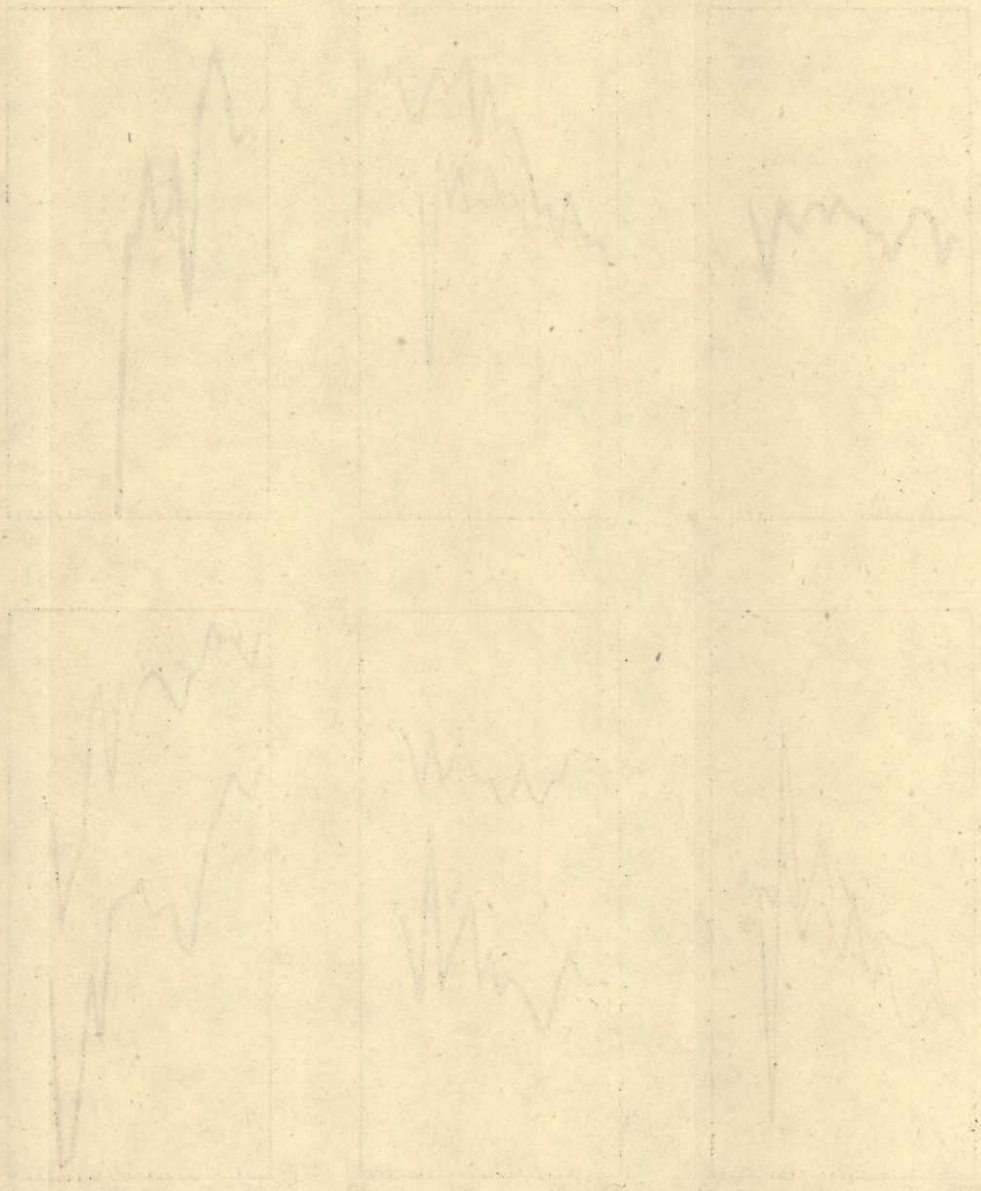
Valores a precios de 1937

Millones de pesos **Escala logarítmica**



1.— Total importación de productos químicos y similares.
2.— Importación de soda cáustica.
3.— Importación de azufre.
4.— Importación de Anilinas.
5.— Importación de carburo de calcio.
6.— Importación de anti-sárnicos.
7.— Importación de carbonato de sodio.
8.— Importación de ácido tartárico.
9.— Importación de pez de resina oscura y clara.
10.— Importación de barnices.

Centro de Investigaciones, Comisión Económica para América Latina.



The increase in the group of metals and metal manufactures are less marked than those of other groups between 1925-29 and 1945-47. Here too, the diversion of imports from manufactures to raw materials or semi-manufactured goods has enabled the growing requirements to be met without a corresponding increase in the value of imports expressed in constant prices. The following table shows the principal items; it should be noted that iron and steel have not been included in this group but in that of capital goods.

Table 29. Imports of metals and manufactures

(In millions of pesos at 1937 prices)

	Yearly averages			% change over 1925-29	
	1925-29	1945-47	1947	1945-47	1947
Tinplate sheet	10.5	14.4	22.6	37.1	115.2
Copper wire	16.7	3.7	2.5	- 77.8	- 85.0
Copper and bronze tubes	2.5	0.4	1.5	- 84.0	- 40.0
Copper and bronze ingots	2.9	15.2	28.2	424.1	872.4
Lead ingots and sheets	8.0	6.2	14.5	- 22.5	81.2
Tin bars	1.6	0.5	1.0	- 66.8	- 37.5
Zinc ingots	2.8	2.1	2.8	- 25.0	-
Other products	4.7	14.6	29.7	210.6	531.9
Total	49.7	57.1	102.8	14.9	106.8

Source: Research Centre, United Nations Economic Commission for Latin America.

Imports which have decreased as a result of the increase of domestic production

An important distinction must be made in the imports that have decreased. On the one hand there are those of which the reduction was to a great extent or even more than compensated by the development of domestic production. The most important of these, namely, textiles and foodstuffs will be analysed below. On the other hand, there are the imports of capital and durable goods which have been reduced owing to the contraction of the capacity to import.

It is surprising to find in the textile group that though there are cotton and woollen textile industries already developed in the country, imports of these commodities during 1945-47, and especially during 1947,

/were considerable.

were considerable. This is due to two reasons: the inability of domestic industry to meet the increase in demand deriving from the rise in real income; and the satisfying of the pent-up demand for items which are not produced in the country. Since then capacity has expanded appreciably and the problem now is rather how to employ this capacity when the importation of certain textiles must continue under the agreement signed with supplier countries. Imports of rayon yarn were heavy; although its manufacture was begun during the war with local cellulose, this is not yet sufficient to meet domestic requirements.

Imports of jute and sacking, on the other hand, showed a notable decline, since before the world depression, for two reasons: on the one hand, cereals are now transported in bulk and stored in elevators, with no necessity of an extensive use of sacks as formerly; and on the other, instead of the sack-cloth previously used, cotton sacks manufactured in the country are employed.

As regards the group including foodstuffs, tobacco and beverages, imports declined considerably between 1925-29 and 1945-47, but still represent an important amount of total imports. For obvious reasons, imports such as coffee, cocoa and tea cannot be reduced, nor those of certain fresh fruit, which are imported principally from neighbouring countries with which Argentina is anxious to maintain a high volume of trade. Details of the principal items are given in the following table:

/Table 30.

Table 30. Changes in the Imports of Foodstuffs, Beverages and Tobacco

(in millions of pesos at 1937 prices)

	Yearly Averages			Per cent change over 1925-29	
	1925-29	1945-47	1947	1945-47	1947
Commodities which increased	.2	.6	.2	3.1	4.
Coffee	10.2	14.6	15.2	43.1	49.0
Cocoa	3.0	6.4	6.0	113.3	100.0
Tea	3.8	3.9	5.4	2.6	42.1
Bananas	1.2	1.8	2.3	50.0	91.7
Oranges and tangerines	1.4	10.4	10.4	642.8	642.8
Commodities which decreased					
Edible oils	28.3	-	-	-	-
Rice	18.3	-	-	-	-
Sugar	3.6	7.2 a/	-	100.0 a/	-
Yerba mate	28.9	10.1	11.4	- 65.1	- 60.6
Apples and pears	4.9	-	-	-	-
Tobacco					
Leaf tobacco	16.9	11.4	11.2	- 32.6	- 33.7
Tobacco products	1.4	1.1	1.8	- 21.4	28.6
Other commodities	11.7	3.5	9.0	- 70.1	- 23.1
Total	133.6	70.4	72.7	- 47.3	- 45.6

Source: Research Centre, Economic Commission for Latin America, United Nations.

Note: The figures for other commodities and the total for 1947 are slightly below actual figures, since there are no data available for certain small items.

a/ Average, 1945-46.

In contrast to those commodities which increased for the reasons given above, there are others which showed a sharp drop in imports as a result of domestic production of commodities such as edible oils, rice and yerba mate. The same has occurred in the case of sugar, with the exception of the special circumstances of the last few years when despite the considerable expansion of production, it was not able to meet the growing demand.

/As regards tobacco,

As regards tobacco, domestic consumption has increased to a very large extent, but it is still necessary to import special types for mixtures.

Where beverages are concerned, the domestic production of wines had already reduced imports to an insignificant proportion of consumption in 1925-29; this accounts for the small importance of this item.

Imports of capital goods and other durable goods

The changes which have taken place in the imports of capital goods have already been dealt with in another section. Only the main items of this category of capital goods will be examined here, together with consumer durable goods, as shown in Table 31.

It should be noted that notwithstanding the sharp rise of imports in 1947, in the period 1945-47 none of the sub-groups were able to attain the average of 1925-29. In spite of the fact that it is an exceptional year, 1947 gives an idea of the magnitude of unsatisfied demand during the war and of its connection with the recent development of Argentine economy. Thus, within the sub-group of transport equipment and communications, passenger--cars showed a heavy increase in that year compared to the average for 1925-29. Within the machinery sub-group, machines and spare parts also increased considerably, but less than the population, while engines and dynamos decreased; this can probably be explained by the development of domestic industry. The increase of iron and steel imports is very small; here the effects of the development of the metallurgical industries are apparent, since there is a large increase in raw materials and a decline in the imports of fabricated iron and steel.

All the sub-groups of capital goods which have been mentioned, show an increase. Imports of farm machinery and building materials, on the other hand, decreased during 1947 as compared with the average of 1925-29. The case of farm machinery has been explained elsewhere. As regards building materials, with the exception of iron which has already been considered, the reduction, both of cement and the other items, is due to the development of domestic production.

/As regards durable

Table 31: Argentina: Quantum of imports of durable goods

In millions of 1937 pesos

	Yearly averages			Per cent change over 1925-29	
	1925-29	1945-47	1947	1945-47	1947
Capital goods e/	336.8	182.0	380.3	- 46.0	12.9
Machinery in general	58.0	34.5b/	67.9a/	- 40.5 b/	17.1a
Motors and generators	7.0	2.4	4.6	- 65.7	-34.3
Miscellaneous machinery and spares	36.1	26.0	51.0	- 28.0	41.3
Various	14.9	6.1	12.3a/	- 59.1 b/	-17.4a
Agricultural machinery	36.4	10.5	23.4c/	- 71.2	-35.7c
Tractors	8.0	6.1	15.6	- 23.8	95.0
Harvesters and threshers	17.5	2.2	4.9	- 87.4	-72.0
Spares	4.2	1.9	2.9	- 54.8	-31.0
Various	6.7	0.3	- c/	- 95.5	- c
Transport and communications material	45.3	33.4	88.2	- 26.3	94.7
Railroad material	36.6	4.0	8.2	- 89.1	-77.6
Lorries, and spares	7.0	23.5	63.4	235.7	805.7
Various	1.7	5.9	16.6	247.0	876.5
Iron and steel	117.1	64.4	120.2	- 45.0	2.6
Plates, bars and sheets	41.8	15.8	30.8	- 62.2	-26.3
Ingots	1.3	4.1	7.9	215.4	507.7
Non-fabricated steel	6.2	8.5	16.6	37.1	167.7
Wire	15.4	12.8	22.3	- 16.9	44.8
Structural steel	20.9	5.9	10.6	- 71.8	-49.3
Pipes	27.7	10.8	23.7	- 61.0	-14.4
Various	3.8	6.5	8.3	71.0	118.4
Other building material	38.2	7.7	8.9d/	- 79.8	-76.7
Cement	16.7	-	-	-	-
Sand	5.6	4.7	5.7	- 16.1	1.8
Plate glass	3.4	2.0	3.2	- 41.2	- 5.9
Various	12.5	1.0	..	- 92.0	..
Other durable goods	66.7	28.7	55.2	- 57.0	-17.2
Passenger automobiles	55.5	10.6	25.3	- 80.9	-54.4
Various	11.2	18.1	29.9	61.6	167.0
TOTAL DURABLE GOODS	404.5	210.7	435.5	- 47.1	7.6

Source: Research Centre, United Nations Economic Commission for Latin America.

a/ Excludes mining machinery and equipment, and boilers.
b/ Mining machinery and equipment for 1945-46 only.
c/ Excludes plows and spare parts.
d/ Excludes marble, colour glass and wall tiles.
e/ Figures are for total capital goods and are therefore greater than the sum of the sub-totals which correspond to samples only.

As regards durable goods as distinct from capital goods, there was also a decline in 1947 in comparison to the pre-depression five-year period. It is interesting to note that despite pent-up demand, imports of passenger-cars in 1947 were only half those of the previous period, while imports of other durable goods, chiefly refrigerators, electrical household goods, etc., increased considerably.

V. DEVELOPMENT OF ENERGY

1. Consumption of energy

a) Estimated consumption

The problem of energy in Argentina is characterised by two facts which make its solution difficult: on the one hand, energy consumption has always been greater than domestic production; on the other, both the existing and potential sources of energy, are located at great distances from the main centres of consumption, which in turn are the most densely populated areas of the country.

The country's industrial development, together with the rising of the standards of living, also increased demand for energy to a greater degree than the growth of the population and than the domestic production of fuels, as may be seen in Chart 16.

In 1944-48, the consumption of energy measured in petroleum equivalents, has reached an average of 12,950,000 tons, that is, 70.4 per cent more than in 1925-29. During the same period the population increased by 46.5 per cent.

Of the quantity consumed in the post-war years (1926 to 1949), it may be estimated that about 40 per cent was accounted for by imported fuel. Argentina has always been deficient in sources of energy and in the last quarter of the century has had to import between 40 and 50 per cent of its consumption, except during the most severe phase of the great depression and during the war, using its own sources intensively.

In this sense, the period of the Second World War is a good illustration of the effort imposed by necessity: domestic production at that time supplied almost the whole of consumption, in spite of the steady increase of the latter. In order to achieve this, it was necessary to turn to sources which it would not have been economical to use in normal times, such as the asphaltites of the Province of Mendoza or the unexportable surpluses of cereals and oils seeds. It was also necessary to intensify the consumption of fuel wood, to the detriment of the already reduced forest reserves, [1] apart from rationing the consumption of energy.

1/ According to the "Comité Argentino de Energía" 100,000 tons of maize were burnt in 1943, 1,700,000 tons of wheat and 1,500,000 tons of flax and linseed. From 1939 to 1945, according to the same source, the electric power plants used about 3 million tons of cereals and 600,000 tons of linseed and oil seeds.

/Once normal

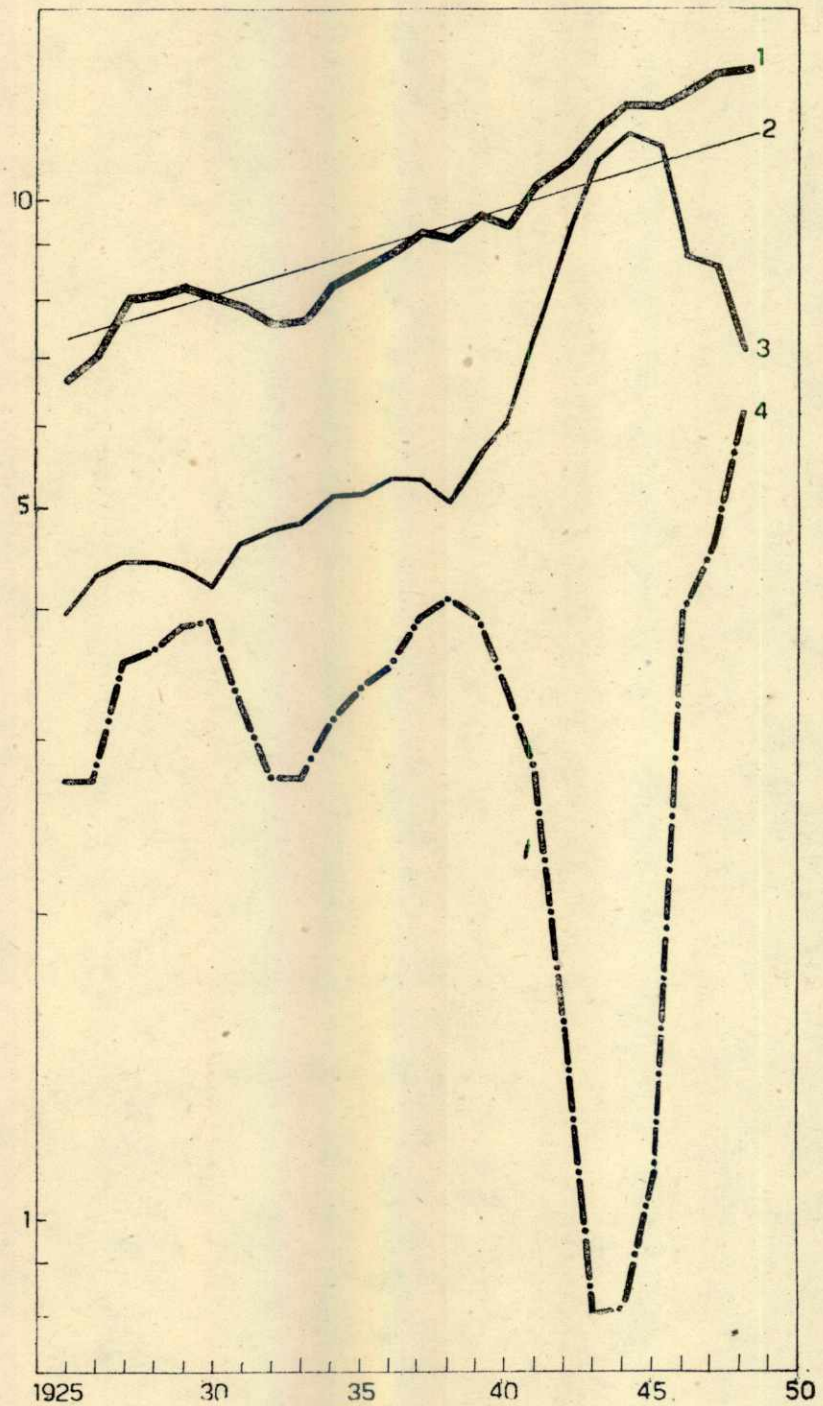
GRAFICO 16

ARGENTINA

CONSUMO DE ENERGIA

Millones de toneladas en su equivalencia de petróleo.

Escala logarítmica



1.— Consumo total de energía.
2.— Población.
3.— Consumo de combustibles de producción interna.
4.— Consumo de combustibles importados.

Centro de Investigaciones, Comisión Económica para América Latina.

Once normal conditions were re-established, since the substitution of petroleum and coal by vegetable fuels was not convenient for the country either from the technical or the economic point of view, imports were renewed as soon as it was possible to do so. Thus they once more constitute almost half the consumption of energy and entail a considerable outlay of exchange, which has contributed to the foreign disequilibrium of the country. Thus the Government's preoccupation with this subject can be understood, together with the preferential place accorded to it in economic plans.

b) Comparison with other countries

In order to compare Argentina's energy consumption with that of the rest of the world, the information contained in Energy Resources of the World a publication of the United States Department of State, can be used. Even though the data contained therein are somewhat incomplete as regards Argentina, since they do not comprise all the fuels of vegetable origin (fuel wood, charcoal and waste products), the comparison with other countries is sufficiently valid to give an approximate idea of Argentina's position in the world. The source mentioned above estimated energy consumption in Argentina at 17,455 million kilowatt-hours in 1937, which is approximately equivalent to 7.1 million tons of petroleum, instead of the 9.3 millions estimated by the most reliable estimates in the country. Argentine consumption therefore represents about 0.5 per cent of world consumption, estimated at 3,000 billion kilowatt-hours electricity equivalent for that same year. Argentina would have consumed then, per inhabitant, 1,366 kilowatt-hours. (Actually, the readjusted figure for Argentina would give a per capita consumption of 1,630 kilowatt-hours). Argentina would thus occupy a prominent place in South America, but would be considerably out-distanced by the United States (10,236 kilowatt-hours per inhabitant); Canada (8,263 kilowatt-hours) and some of the European countries (France, 3,642; Switzerland, 3,009 kilowatt-hours).

/Table 32

Table 32. Fuel consumption
(Petroleum equivalents)

Years	Fuels			Percentage distribution	
	Produced in the country	Imported	Total	Domestic fuels	Imported fuels
	(in thousands of tons)			(Per cent of total)	
1925	3,943	2,711	6,654	59.2	40.8
1926	4,293	2,709	7,002	61.3	38.7
1927	4,467	3,528	7,995	55.8	44.2
1928	4,462	3,625	8,087	55.1	44.9
1929	4,388	3,834	8,222	53.4	46.6
1930	4,178	3,877	8,055	51.8	48.2
1931	4,636	3,213	7,849	59.0	41.0
1932	4,791	2,726	7,517	63.7	36.3
1933	4,874	2,732	7,606	64.0	36.0
1934	5,131	3,109	8,240	62.5	37.5
1935	5,191	3,342	8,533	60.8	39.2
1936	5,375	3,512	8,887	60.4	39.6
1937	5,391	3,911	9,302	57.9	42.1
1938	5,088	4,107	9,195	55.3	44.7
1939	5,719	3,929	9,648	59.2	40.8
1940	6,140	3,342	9,482	64.7	35.3
1941	7,597	2,797	10,394	73.1	26.9
1942	9,351	1,529	10,880	86.0	14.0
1943	11,026	802	11,828	93.2	6.8
1944	11,660	814	12,474	93.5	6.5
1945	11,400	1,100	12,500	91.2	8.8
1946 a/	8,900	4,000	12,900	69.0	31.0
1947 a/	8,700	4,700	13,400	64.9	35.1
1948 a/	7,200	6,300	13,500	53.6	46.1

Sources: From 1925 to 1942 inclusive, "Instituto de Estudios Económicos del Transportes"; from 1943 to 1945, "Comité Argentino de la Conferencia (Argentine Committee of the World Energy Conference),1948, Estimate of Ingeniero D. Levin in his report: "Explotación de Combustibles en la República Argentina"; 1946 and 1947; Total consumption calculated bu interpolation by the Research Centre, United Nations, Economic Commission of Latin America; import of fuels calculated according to information from the Dirección Nacional de Investigaciones, Estadísticas y Censos.

a/ Provisional.

The publication mentioned above also estimated the consumption of animate energy, produced by the inhabitants engaged in productive work and the animals used. During 1937, the consumption of this source of energy in Argentina would have been equivalent to 6.736 kilowatt-hours. Calculating the total energy used for productive purposes (for which the energy consumed for domestic and commercial purposes, in public services, a small part of the energy used in agriculture, and the losses and amounts in stocks are all subtracted), the following figures would be reached:

Table 33: Consumption of energy for productive purposes

Sources of energy	Total consumption (Millions of KW-HRS equivalent	Percent of total	Consumption per capita KW-HRS
Animate	6,736	33	528
Inanimate	13,687	67	1,072
Total	20,423	100	1,600

Source: Energy Resources of the World, Department of State, Washington, D.C., 1949.

Total energy, animate and inanimate, consumed in the world was 1,250 kilowatt hours per capita; 87.6 per cent of this total corresponded to inanimate energy. In the United States, the average was 6,996 kilowatt-hours, with 97.6 per cent of inanimate energy.

These figures reveal the relatively small degree of mechanisation in Argentina, and show the progress still to be achieved there in the field of inanimate energy.

c) Types of fuel consumed.

The sources of the energy consumed in Argentina may be classified in five groups: a) liquid mineral fuels; b) solid minerals; c) vegetable fuels; d) gases; e) hydro-electric power.

Table 34: Distribution of the energy consumed by type of fuel

	Quantities (petroleum equivalents in thousands of tons)					Percent distribution				
	Liquid minerals	Solid minerals	Vegetable fuel	Gases	Hydro-electric power	Liquid minerals	Solid minerals	Vegetable fuel	Gases	Hydro-electric power
1925	1,561	2,024	2,929	140	-	23.4	30.5	44.0	2.1	-
1930	3,015	2,148	2,704	194	-	37.4	26.6	33.6	2.4	-
1935	3,365	1,887	2,829	452	-	39.4	22.2	33.1	5.3	-
1940	4,707	1,426	2,955	394	-	49.6	15.1	31.2	4.1	-
1944	3,500	749	7,582	594	49	28.1	6.0	60.7	4.8	0.4
1948	8,300	1,000	3,500	650	50	62.0	7.0	26.0	5.0	less than 0.5

Sources: 1925 to 1940 - Instituto de Estudios Económicos del Transporte;
1944 "Balance of calories", for that year, calculated by the Argentine Committee of the World Conference on Energy;
1948 Estimate by Ingeniero D. Levin, op. cit.

As may be seen from the table above, with the sole exception of 1944, which represented the period of world war, a clear trend towards rapid increase may be observed, both in absolute as well as relative terms, in the consumption of liquid mineral fuels, which comprise petroleum and its derivatives. On the other hand, the consumption of solid mineral fuels (coal and coke) declined. This trend is not the result of any policy. On the contrary, on repeated occasions, attention had been called to the high percentage represented by petroleum in the consumption of fuels, and attempts had been made to reduce it.

While the ratio of coal to petroleum consumption averaged 3.5 in the world, in Argentina it averaged 0.5 during the last ten years prior to the last war, mainly due to the excessive use of fuel-oil by the railways and in industries where experts consider that from the national standpoint preference should be given to the use of vegetable fuel and coal. On the other hand, the ratio of fuel-oil to motor spirits consumption declined during the last decade from 5.1 to 2.7 while in the other consuming countries, the

/average was

average was 3 to 5.[1/]

The preference for fuel-oil, apart from being founded on the convenience and ease with which this fuel can be used and stored, also stems from the fact that Argentina lacks coal resources which can be worked economically, and that fuel-oil is more convenient to import than coal. This is one of the determining factors in the policy of fuel imports, shown by the granting of exchange and in the compensation agreements.

d) Distribution of consumption.

There are no complete statistics regarding the distribution of fuel consumption in Argentine, according to use. The partial estimates available, however, make it possible to obtain an idea of this distribution. In 1925, according to the "Instituto de Estudios Económicos del Transporte", the railways accounted for 23.2 per cent of the total, road transport 4.4 per cent and the remainder corresponded to industry and household uses. For 1935 and 1937, the same Institute gave the following distribution:

Users	1935	1937
	Percentages	
Railways	18.2	18.2
Motor transport	7.8	8.7
Petroleum fields	5.3	4.8
Electric power plants	7.7	8.3
Industries	16.4	17.2
Household and other uses	44.6	43.6
	100.	100.

This distribution differs slightly from that calculated in Energy Resources of the World, for 1937, where the consumption assigned to commercial and domestic uses would appear to have been under-estimated, while that corresponding to industries and railways would be over-estimated, through the consumption of vegetable fuels had not been taken into account.

1/ M. Vila and E. Cánepa, in "Necesidades de Energía del país", report submitted to the Third Argentine Engineering Congress, Córdoba, 1942.

/There are also

There are also private estimates for 1942, and a forecast for 1955: 1/

Users	1942	Forecast 1955
	Percentages	
Railways	18.1	14.6
Motor vehicles (incl. aircraft)	8.1	14.4
Electric power plants	12.6	11.4
Navigation	4.1	5.5
Petroleum fields and distilleries	6.3	4.6
Building industry	3.6	9.3
Industry and agriculture	25.0	22.1
Household uses	15.0	12.1
Various	7.2	6.0
	100.	100.

From the foregoing data it can be inferred that the main consumption is by goods-producing activities (industry and agriculture), with transports occupying the second place.

2. Petroleum

a) Production

Argentine produces part of the petroleum it consumes. In 1907, petroleum was found for the first time in Argentine territory; the deposit was located at Comodoro Rivadavia, Patagonia, a region which continues to be the main petroleum-bearing area in the country. Later new sources were discovered in the territory of Neuquén and in the provinces of Salta, Jujuy and Mendoza. Proven reserves amount to 50 million cubic metres, but authorised sources estimated in 1942 the country's petroleum wealth at 955 million cubic metres. Subtracting from this figure the petroleum extracted up to 1940, a reserve of 920 million cubic metres is obtained. 2/

1/ J. O. Martínez: "Planificación general para el aprovisionamiento de combustibles en la Argentina en los próximos diez años, 1945-55", Buenos Aires, 1945.

2/ E. Cánepa, "La reposición de las fuentes de energía en la Argentina", submitted at the Third Argentine Engineering Congress, Cordoba, 1942.

/Production has

Production has increased constantly, up to 1943; since then, mainly due to the difficulty in obtaining equipment, production has declined. However, since the end of the war, it has tended to rise again.

Table 35: Petroleum production

(thousands of cubic metres)

Years	Production
1910	3.3
1915	81.6
1920	262.5
1925	952.2
1930	1,431.1
1935	2,273.0
1940	3,276.5
1941	3,499.7
1942	3,768.5
1943	3,948.4
1944	3,852.1
1945	3,637.5
1946	3,307.2
1947	3,473.3
1948	3,692.1

Sources: Until 1947, Dirección General de Estadísticas y Census; for 1948, Report of the Ministerio de Industria y Comercio, for August 1949.

At the present time, over 70 per cent of production is derived from "Yacimientos Petrolíferos Fiscales" (Y.P.F.), a State entity, and the rest from private enterprises, in some of which foreign capital participates. The State share in extracting petroleum has been increasing since 1934, when it represented 58.4 per cent of the total. 1/

"Yacimientos Petrolíferos Fiscales", which with an initial capital of 8.6 million pesos, has been able to reinvest 354 millions pesos of profits and to form reserves of over 800 million pesos

1/ This trend should logically have continued to increase, since the new Constitution, sanctioned in 1949, stipulated in Article 40: "Minerals, water falls, petroleum coal and water deposits, as well as other natural sources of energy, with the exception of vegetable sources, are the unalienable property of the Nation, with the corresponding share in their produce which may be agreed with the Provinces."

/(at the end of

(at the end of 1947), has drilled 4,417 wells, of which 2,695 produce petroleum, 15 gas, 1,023 are abandoned or about to be abandoned, and the remainder are being drilled or surveyed, or are in reserve. 1/ The entity possesses refineries, installed in various parts of the country, and a fleet of tankers, to import the necessary crude oil.

b) Imports and consumption.

The deficit between consumption and production is covered by imports of crude petroleum and various derivatives, particularly fuel-oil.

Imports of crude petroleum have tended to rise, but with sharp fluctuations, owing to supply difficulties which, during the war, were due to lack of transport and after the war to foreign exchange shortage.

Table 36: Imports of crude petroleum
(thousands of cubic metres)

Years or Yearly Averages	Imports
1925-29	294
1930-34	350
1935-39	664
1940-44	376
1945-48	1,176
-	
1945	170
1946	1,084
1947	1,370
1948	2,080

Source: Dirección de Estadística y Censos, years 1940 to 1948. Report of the Ministerio de Industria y Comercio, August 1949.

The imported crude petroleum is processed, together with that from the local deposits, in the Y.P.F. refineries, and in those

1/ In order to speed the drilling of wells, and taking into account the difficulty of obtaining the necessary equipment, Yacimientos Petrolíferos Fiscales contracted with the Drilling Exploration Company of Nevada, for drilling a minimum of 40 wells with a depth of up to 3,500 metres.

of the privately-owned companies. The refining capacity of the former, which was some 8,000 cubic metres daily in 1943, has been increased to 10,000 cubic metres. With the additions which are being carried out, it is expected to reach 17,000 cubic metres daily by the middle of 1950, and 22,000 by the beginning of 1951. Taking into account the refineries belonging to privately-owned companies, there will be in Argentina at that time a capacity for processing 8,500,000 cubic metres per year, which amount is much greater than those of the last ten years.

Table 37: Crude petroleum processed by the refineries

(In thousands of cubic metres)

Years	Government refineries	Privately-owned refineries	Total
1940	2,041	1,849	3,890
1941	2,259	1,915	4,174
1942	2,403	1,688	4,091
1943	2,716	1,360	4,076
1944	2,585	1,327	3,913
1945	2,526	1,307	3,833
1946	2,433	1,959	4,392
1947	2,687	2,093	4,780
1948	3,232	2,386	5,618

Source: Ministry report submitted to the Chamber of Deputies, on 25th August, 1949.

Until the afore-mentioned capacity is reached - the present capacity being estimated at 6.5 million cubic metres - Argentina has to import important amounts of petroleum derivatives as well, in order to meet the growing consumption.

Table 38: Imports of petroleum fuels

(thousands of cubic metres)

Years	Fuel Oil	Diesel Oil	Gas Oil	Motor Spirits
1940	1,082	239	184	2.7
1941	1,101	262	46	0.7
1942	642	70	16	0.2
1943	248	53	-	-
1944	249	9	-	-
1945	379	21	2	0.4
1946	2,135	222	3	20.2
1947	2,508	76	7	136.3
1948	2,734	86	17	254.2

Source: Argentine Foreign Trade Yearbooks for 1947 and 1948.

/Until 1949,

Until 1949, imports of petroleum and derivatives came from the Dutch Antilles, Venezuela, Colombia, Peru, the United States and Arabia, and were, in general, payable in dollars. Since the signing of the last Anglo-Argentine agreement, imports come from the Near East (Iran and Iraq), and payments are made in pounds sterling. This is an advantage for Argentina, since it possesses surpluses of that exchange, thanks to its favourable terms of trade with the sterling area. However, from the technical point of view, petroleum from the Near East has the disadvantage of its sulphur content (1.4 per cent) being higher than that of American petroleum (1.0 per cent). The Argentine Government is trying to remedy this difficulty by building refining units with a capacity for 4,000 cubic metres per day, specially adapted for the processing of crude petroleum with a high sulphur content.

3. Other fuels.

a) Solid mineral fuels.

As regards solid mineral fuels, particularly coal, the situation in Argentina is much less favourable than that of petroleum. Almost the entire consumption of coal has to be covered through imports. These remained at about 3 million tons per year, between 1925 and 1939, and on an average represented 25 per cent of the total fuel consumption. Before that, coal occupied a more important place. The maximum volume imported, including coke, was 3,8 million tons, in 1913. During the First World War, net imports dropped to 626,500 tons, in 1917. From 1918, they increased, until a new high was reached in 1927, with 3.3 million tons. The great depression reduced imports to 2.3 million tons in 1932, and the recovery which followed passed the 3 million ton mark again in 1937. During the Second World War, supplies from abroad decreased, until they dropped to a minimum of 560,000 tons, in 1942.

This lack of supplies led to the working of domestic deposits, without taking economic considerations into account. In Neuquén and Mendoza, small coal and asphaltite mines were worked, with the

/following results:

following results:

Table 39: Production of solid mineral fuels

(In thousands of tons)

Years	Coal	Asphaltite
1940	9.1	-
1941	17.2	-
1942	56.4	-
1943	7.5	113.1
1944	4.6	98.6
1945	3.3	135.3
1946	2.5	83.8
1947	13.9	80.9

Source: Dirección General de Estadística y Censos.

Coal imports were re-established after the war, although they did not reach the pre-war volume. In 1947, the last year for which statistics have been published, 1.2 million tons of coal were imported. In the last Anglo-Argentine agreement, imports of 1.5 million tons of coal were stipulated for the period between July 1949 and July 1950.

The Argentine Government bases great hopes on increasing domestic coal production, through the working of the Rio Turbio deposits, located in the Territory of Santa Cruz, whose proven reserves are around 250 million tons. The quality of the Rio Turbio coal are satisfactory; its heating valve exceeds 6,200 calores per kilogramme and its ash content is about 12 per cent. The location of the deposit, in the far southwest of the country, far from consuming centres, and some 400 kilometres from the nearest harbour, constitutes the main difficulty for economic production. 1/

b) Vegetable fuels

Fuelwood, charcoal and vegetable waste products are included in this group. Under exceptional circumstances, during periods of emergency, wheat, maize and linseed oil have been burnt, as has already been indicated.

Fuelwood, which has always represented a high percentage id the

1/ In the Presidential Message addressed to the National Congress on 1st May 1950, it was stated that in 1949, owing to transport difficulties in the region, 25,885 tons of coal were extracted to fill local needs. To prevent this drawback, the Government hopes in the course of 1951 to build a railway line of 0.75 metres gauge, which would permit the shipping of 12,000 tons of coal daily.

energy consumed, comes from the forest regions of the North and Northeast of the country. The total area covered with exploitable forests is estimated at 32 million hectares, with a potential volume of 700 million tons of fuelwood. It has been calculated that by rational exploitation and reforestation, 14 million tons of fuelwood per year could be extracted.

Actual consumption is very close to that figure, but the exploitation has been carried out without any reforestation. In 1942, during the war emergency, 11.7 million tons of fuelwood and charcoal were consumed (the latter being expressed in its fuelwood equivalent), and the energy so generated represented 31.2 per cent of total consumption. In 1943, the consumption of fuelwood and charcoal was 16.5 million tons, or 37.2 per cent of total energy consumption. In 1947, the last year for which statistics are available, the consumption of fuelwood and charcoal declined to 9.5 million tons.

The consumption of fuelwood, which tends to increase slowly in normal times, presents two problems: that of transport and that of maintaining the forest reserves. These problems which have not failed to be recognised by the Argentine Government, but their solution presents difficulties.

The other vegetable fuels come under the category of waste products and are consumed locally. They consist mainly of waste matter from the manufacture of industrial and agricultural products. Altogether, this group of fuels represented a sixth of the total consumed in Argentina, and was equivalent to 1.2 million tons of petroleum. 1/

There is another vegetable fuel which tends to acquire importance in consumption, through the Government's efforts to

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1/ To calculate the consumption of these fuels, the "Instituto de Estudios Económicos del Transporte" used the following averages:

Bagasse: 27 per cent of the cane ground in the sugar mills;
Bran: 25 per cent of the production of maize as grain;
Quebracho sawdust: 3 times the quebracho extract exported;
Sunflower husks: 46 per cent of the seed used by the oil industry;
Peanut husks: 50 per cent of the seed used by the oil industry;
Rice husks: 25 per cent of the clean rice.

/encourage its

encourage its production and use. This is alcohol, obtained from distilling vegetable matter. Up to now, its consumption has not been of any great importance with the total (its peak in 1941, of 15.205 tons, was equivalent to 9.100 tons of petroleum). The Government hopes to promote the use of this fuel and has planned steps for achieving this. One of these consists in the manufacture of ethylic alcohol from maize; it is hoped to produce 250 million litres of alcohol, to be mixed with petrol in a proportion of 20 per cent with the object of obtaining a domestic motor spirit which will permit a reduction of imports. Through an international tender in which companies from the United States, Brazil and Europe participated, the building of five distilleries in various parts of the country was awarded to take place over a period of four years. The cost of these plants will be 320 million pesos; through the production thus obtained, it is estimated that it will be possible to save some 66 millions in exchange per year, at the present price of imported petrol. 1/

e) Gas fuels.

The consumption of natural gas has represented about 4 per cent of the fuel consumption. Apart from natural gas, residual gas is used in Argentina, derived from the petroleum distilleries, liquid gas, and artificial gas. These gas fuels have accounted for between 6 and 5 per cent of total consumption.

Since the State took charge of the different enterprises producing and distributing gas, sales to private users has increased, so that in the Federal Capital alone 386,000 consumers are serviced, as against 155,000 in 1945, when the British gas company was expropriated.

One of the first measures was to use gas from the petroleum distilleries, transporting it by short gaspipes built between La Plata and Buenos Aires and between Tupungato and Mendoza, to the consumption centres. However, the work of major importance carried out has doubtless been

1/ Ministry Report of 25th August 1949.

/the building of

the building of the gaspipe from Comodoro Rivadavia to Buenos Aires, for the transport of natural gas, which formerly was partly consumed locally, or was wasted, to the extent of some 350,000 cubic metres daily. The pipe line is some 1,600 kilometres long, with only one repressuring plant, and a capacity of 340,000 cubic metres daily. When 15 intermediate repressuring plants have been installed, capacity will be able to reach 1,200,000 cubic metres per day.

According to official estimate, in 1951, the year in which it is planned to distribute 188 million cubic metres, or 1,8 billion calories, an economy of 62 per cent will be achieved, through replacing other fuels used in households such as kerosene, charcoal, fuelwood and electricity, by natural gas. The consumption of these other fuels would have entailed a use of 5 billion calories, if the proportions consumed of each fuel remained the same. 1/

The Argentine Government proposes to continue building gas pipes and oil pipes, the network of which will be extended over a length of 3,200 kilometres, when those in course of construction are completed. At present 1,980 kilometres of that network are already in operation.

4. Electric power.

a) Hydro-electric power.

Argentina is not as advanced in the matter of water power as in the use of other sources of energy. Nevertheless, the Argentine hydro-electric potential has been calculated at 20 million kilowatts, many years ago. This estimate has been verified by new surveys, which distribute the country's hydro-electric resources as follows:

Northern region	2.5	million kilowatts
Western region	3.2	" "
River region	3.8	" "
Central region	0.5	" "
Southern region	10.0	" "
	20.0	" "

1/ Estimate based on the fact that household consumption requires 100 calories of natural gas, 167 calories of manufactured gas, 238 of kerosene, 400 of charcoal, and 485 of electricity, in order to obtain the same heating valve.

/Naturally, this

Naturally, this is a theoretical potential. Taking into consideration the permanent water flows, the potential would be reduced to 3 million kilowatts, which, used at the rate of 4,000 hours per year, could generate 12,000 million kilowatt hours, equivalent to 4.2 million tons of petroleum. The Department of State of the United States has estimated that the full use of Argentina's hydro-electric reserves would yield 32,240 million kilowatt hours. 1/

Whatever the figure at which all the reserves are finally estimated, experts agree that a million kilowatts might be installed without difficulty, with a possible production of 4,000 million kilowatt hours. It is surprising that with resources of such magnitude, in 1945 there was an installed capacity of only 46,000 kilowatts. There are two reasons for this small development. In the first place, the fact that the main waterfalls (Iguazú, Apipé, Salto Grande) are situated at relatively great distances from the most important centres of population, entails the building of extensive transmission lines so that until a few years ago, the technical-economic problem could not have been solved. In the second place, the installation of electricity generating facilities requires heavy capital investments, which would have made it necessary to postpone other more urgent requirements.

The Government, in its Five Year Plan, has included various electricity projects. The capacity of the works already built or under construction (August 1949) amounted to 159,500 kilowatts. The projects approved comprise a total of 595,000 kilowatts, corresponding to an annual production of 711 millions and 2,084 million kilowatt-hours respectively. The total production calculated is equivalent to 1.4 millions tons of coal and represents an annual saving of 125.8 million pesos, with a corresponding saving in foreign exchange. 2/

b) Thermo-electricity.

As has been shown above, hydro-electric energy is not of any

1/ Energy Resources of the World, op. cit.

2/ Ministry report of 25th August 1949.

/great importance

great importance in Argentina at the present time. Since thermo-electricity constitutes a transformation of the energy contained in the fuels required to generate it, it would not be relevant to deal with it here. Nevertheless, it is interesting to consider it as an indicator of the country's economic development.

Until the end of the First World War, there was very little electrification in Argentina. In 1900, the total production of electric power has been estimated at 30 million kilowatt hours, which would give an average of only 6.5 kilowatt hours per capita. In 1910, electricity production was estimated at 200 million kilowatt hours, and in 1920 at 520 millions, that is, a per capita consumption of 30 and 61 kilowatt-hours, respectively. Since then, the production of electric power has developed rapidly.

Table 40: Production of electric power

Periods	Yearly average (millions of KWH)	Yearly increase Per cent
1925-29	1,128	-
1930-34	1,563	7.7
1935-39	2,171	7.8
1940-44	2,803	5.8
1945-48	3,460	5.8

Sources: United Nations Economic Commission for Latin America, based on reports from the Asociacion de Productores y Distribuidores de Electricidad; Dirección General de Estadística y Censos.

The Second World War, created supply difficulties, since the electric plants depend to a large extent on imported mineral fuels, lessened the growing electricity production, somewhat. But from 1945 on, a new development took place, which partly offset the lower rate of increase of the war years. Production in 1949 can be estimated at 4,125 million kilowatt-hours, that is, practically double the power produced in 1936. The per capita consumption was 250 kilowatt hours, which can be considered low. To the power produced by public utilities should be added that produced for private use, which is important, particularly in industry.

According to the 1937 Industrial Census, electric power used

/by manufacturing

by manufacturing establishments during that year consisted of 385.6 million kilowatt-hours generated in their own plants and 510 million were purchased from public utilities, that is, a proportion of 43 and 57 per cent respectively. This proportion has remained almost stable. In 1941, the last year for which data are available, power produced by the industrial consumers themselves was 593 million kilowatt-hours, and that purchased was 670 million kilowatt hours, or 47 and 53 per cent respectively.

There are no data available for recent years, but there are reasons to believe that the consumption of electric power produced for private use increased considerably, because of the difficulties encountered by public utilities in meeting the demand, since they have been unable to expand their installations in the necessary measure.

Altogether, the degree of electrification in Argentina is slight, in comparison with other countries, since only 10 per cent of the total consumption of energy corresponds to electricity. It may be supposed that this degree of electrification will tend to rise in the next few years, as the handicaps encountered by the electric plants for the enlargement of their installations disappear and, above all, as the plan for using hydro-electric sources is put into practice. Then electricity could represent between 15 and 20 per cent of the energy consumed.

According to the trend shown by the statistics for 1924 and 1942, it has been calculated that by 1955, production would be 6,350 million kilowatt-hours. 1/ It is estimated that by rationalising the consumption of energy, another 1,880 million kilowatt-hours could be added to this supply, with which to replace the consumption of certain fuels, electrify the railways and increase the use of electricity in homes. All this would mean a probable total consumption of 8,230 million kilowatt-hours, that is, a per capita consumption of 500 kilowatt-hours, a goal which the experts believe can be

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1/ Ingeniero G. Serejevich: "Planificación general para el aprovechamiento de combustible y energías en la República Argentina en los próximos 10 años," Buenos Aires 1945.

/reached between

reached between 1955 and 1960 1/.

5. Prospects.

The prospects for the supply of energy in Argentina for the near future may be summed up as follows:

1. By 1955 total consumption will amount to the equivalent of about 16 million tons of petroleum. In 1945, experts calculated the consumption for that year as being equivalent to 16.4 million 2/ and 16.0 million 3/ tons of petroleum.

2. The amount of fuel which should be imported in that year will vary between the equivalent of 6 and 7 million tons of petroleum. The minimum amount to be imported will be equivalent to 5.6 million 3/tons of petroleum, in the event of intensive exploration, drilling of wells and production of domestic petroleum is successfully carried out, even though this might be under present circumstances.

3. Faced by the problem presented by the high proportion of fuels to be imported, Argentina can be expected to develop its local sources to the best of its ability. In this sense the development of hydro-electric resources can be particularly expected in the next few years, the Government paying special attention to this.

4. Argentine experts advocate rationalization in the consumption of fuels. According to the Ministerio de Industria y Comercio, only by rationalising the use of fuels, it would be possible annually to save 2,565,000 tons of petroleum or their equivalent. The Ministry proposes to achieve this rationalization through the rapid renewal and modernisation of the locomotives. Among the measures projected are the following:

1/ Ingeniero J.O. Martinez: a study with the title of "Planificación general para el aprovechamiento de combustible y energías en la República Argentina en los próximos 10 años", Buenos Aires 1945.
2/ Ingeniero G. Serejovich: a study with the same title as the above.
3/ Ingeniero J.O. Martínez: a study with the same title as footnote 1.

a. Substitution

a. Substitution for the consumption of motor spirits by "Diesel oil" in vehicles whose carrying capacity is 5 tons or more; b. rational use of the electric power, used in transport, and the modernisation of the railway system; c. the substitution for railway freight in the regions close to the river coastline (Paraná and Uruguay Rivers) by river transport; d. promotion at the installation of charcoal gazogenes; e. promotion at the installation of steam generators and other burners which can use either solid mineral fuels, vegetable fuels or waste products indiscriminately; f. regulations to the effect that every new building shall have generators of this type which would also be connected with the gas distribution system; g. reforestation; h. compulsory use of domestic motor spirits (a mixture of petrol and alcohol); i. the interlinking of hydro-electric plants, in Greater Buenos Aires.

5. Given the tendency clearly indicated in Table 2, of the growing predominance of petroleum derivatives in total fuels used, and given that neither hydro-electric power nor gas fuels can satisfy more than a maximum each of 8 per cent of the country's requirements, it can be expected that during the next ten years at least, the fuel policy will be mainly concentrated on petroleum, both as regards domestic production and the obtaining abroad of the amount necessary to meet the deficit with imports.

VI. THE DEVELOPMENT OF INDUSTRY

1. Rate of industrial growth

The significance of the 'thirties in the development of Argentine industry has been described elsewhere. Unfortunately no annual data are available prior to 1935 with which to compare the different phases of growth over a period of time. It is known, however, that the substantial increases in customs tariffs introduced in 1931, the year in which a definite protectionist policy was adopted, and the exchange restrictions imposed at the end of 1933, acted as a powerful factor in stimulating manufacturing production. The 1935 census showed that of the 34,700 establishments investigated 9,700, or 20 per cent, were established between 1930 and that year.

However, it would be a mistake to believe that Argentine industry began to develop in those years. The 1914 census, in fact, had already registered some 362,300 persons as employed in industry; this category was increased by barely 28 per cent in the twenty-one years between 1914 and 1935, reaching 463,000 persons, while in the brief period between 1935 and 1940, the number of persons gainfully employed in industry rose to 710,400, thus showing a 53 per cent increase. It is estimated that this figure will exceed 1,250,000 persons in 1950, revealing a further increase of 76 per cent.

It should be observed, however, that the relatively slow rate of increase between 1914 and 1935 is not representative of industry in general, but of some of its branches, that is, food products, beverages and tobaccos; forestry products; hides; stones; clays and ceramics. The influence of export activities is evident in several of these branches. On the other hand, the textile and other industries grew with considerable intensity.

During the 'thirties, therefore a certain amount of industrial experience was already available which facilitated the growth of production, when the great decline of imports and the deterioration

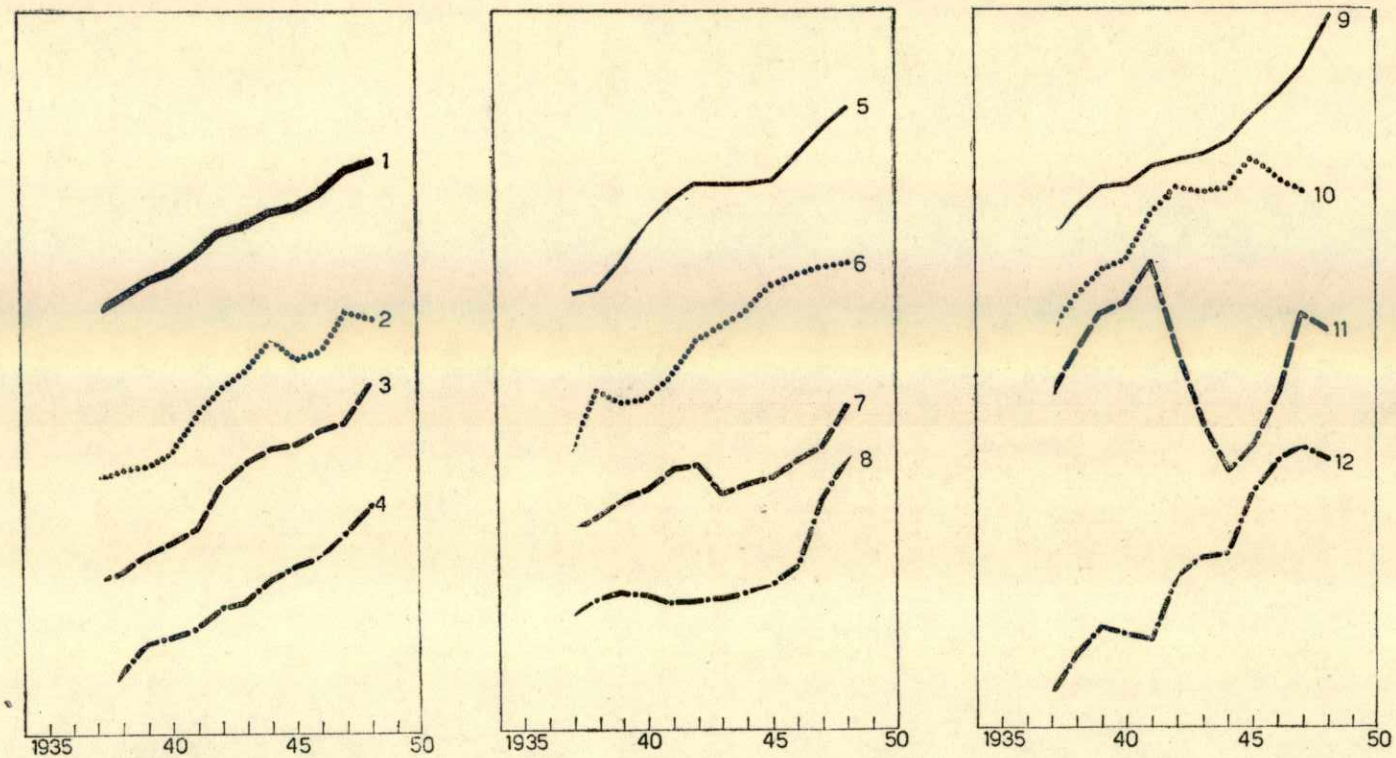
/in the

GRAFICO 17

ARGENTINA

INDICE DE OCUPACION INDUSTRIAL.

1943 = 100



1.— Indice ocupación industrial total.
2.— Substancias alimenticias, bebidas y tabacos.
3.— Textiles y sus manufacturas.
4.— Cueros y sus manufacturas.
5.— Papel, cartón y sus manufacturas.
6.— Piedras, tierras, vidrios y cerámica.
7.— Metales y sus manufacturas.
8.— Maquinaria y vehículos.
9.— Petróleo, carbón y sus derivados.
10.— Yacimientos, canteras y minas.
11.— Caucho y sus manufacturas.
12.— Productos químicos, aceites y pinturas.

Centro de Investigaciones, Comisión Económica para América Latina.

in the terms of trade forced the country to dispense with a considerable part of its usual imports.

The attempts at an anti-cyclic policy, hitherto untried in Argentina, constituted another favourable factor in industrial expansion during these years. This policy, which in developed countries is put into practice by means of public works, in Argentina took the form of crop purchases. Whenever exports of the principal cereals were hindered by the adverse situation of the international market, both during the 'thirties and the Second World War, the State either purchased the crops for re-sale at a more favourable period, or else diverted them to the domestic market; this occurred principally with maize, which as it could not be exported during the war, had to be used as fuel and for feeding livestock. If aggregate purchasing power had not been maintained in this way, the contraction of demand would have had a very unfavourable effect on the newly-developing industry, in view of the direct and indirect importance of the demand of the farming population.

The Second World War offered new incentives to the process of industrialisation. On the one hand, the closing of important markets which had been the source of Argentina's imports, opened the entire domestic market and that of neighbouring countries to domestic production of certain manufactures. On the other hand, the large numbers of refugees of all kinds and of varied technical qualifications, constituted a valuable contribution. This flow of immigration also led to the establishment of new factories with equipment brought into the country by the immigrants themselves. This explains why, at the end of 1946, according to the figures of the 1947 preliminary census survey, there were 100,000 industrial establishments, that is, twice the number which existed in the country ten years before.

Finally, in the post-war period, assisted by a definitely protectionist policy and encouraged by the Government and the considerable imports of capital goods, Argentine industry entered upon its phase of final consolidation.

/The convergence

The convergence of all these favourable factors explains the sustained growth observed in the total index of manufacturing production and its main branches. This growth has not proceeded at a constant rate, as may be observed in the following chart. From the earliest date of the index, that is 1935, until 1944, the quantum of production was increased by 56.2 per cent, that is at a cumulative rate of 6.0 per cent annually. In the years 1945 and 1946 the impetus was momentarily interrupted, but was later renewed with great intensity; in 1947, in fact, an increase of 14 per cent was noted in relation to the previous year. Thus, between 1944 and 1948, a growth of 29.7 per cent was reported, implying a cumulative rate of increase of 6.7 per cent annually.

It is likely that this first interruption in the impetus of the index, was principally caused by the wear and tear to which industrial equipment was subject during the war, when it could neither be renewed nor enlarged sufficiently. Only after 1946, and particularly in 1947 and 1948 was it possible to resume imports of machinery and motors for industrial use. Not all of this new equipment had influenced production by 1948. Consequently, this fact, together with the lower productivity of labour under conditions of full employment, difficulties of supply and various other factors, explains why the average output per worker declined to such an extent that the Government was forced to deal with the problem.

2. Some characteristics of Industry

The most recent and complete data which can be used to analyse Argentina's industrial structure are those provided by the 1941 industrial statistics. According to this source, in approximately 60,000 establishments, or 70 per cent of the total, were small workshops or factories operated directly by the owner himself or with less than five workers. The rest, which included 90 per cent of the total workers employed, were distributed as follows:

/Table 41.

Table 41. Industrial establishments according to the number of workers employed in 1941 a/

Number of workers employed	Number of establishments	Percentage of total	Total workers (thousands)
From 6 to 25	11,987	72.8	134,6
26 to 50	2,163	13.1	76.7
51 to 100	1,197	7.3	83.8
101 to 250	773	4.7	118,9
251 to 500	211	1.3	73.6
501 to 1,000	90	0.5	60.9
1,001 and over	56	0.3	113,5
Totals	16,477	100.0	662.0

Source: Dirección Nacional de Estadísticas y Censos.

Some 40 per cent of the workers employed by industry were in those branches which supplied the basic needs of the population, that is food and clothing, their gross value of production corresponding to 55 per cent of the total. In order of importance, both by reason of the number of workers employed and the value of production, these were followed by metal manufacture and machinery and vehicles. It is not possible to establish in what direction and to what extent this structural composition of Argentine industry has been modified since 1941, but according to certain indications, it is probable that the importance of establishments engaged in the manufacture of metals, machinery and chemical products has increased.

Table 42. Relative importance of the principal groups of manufacturing in 1941 and 1942 a/

(Establishments with 5 or more workers)

Industries	Workers employed		Value of production	
	1941	1943	1941	1943
	(per cent of total)			
Food products, beverages and tobaccos	23.0	22.6	37.9	37.1
Textiles and their manufactures	17.6	17.9	16.5	18.4
Forestry products and their manufactures	8.2	9.7	3.7	4.6
Paper, cardboard and their manufactures	2.0	2.0	1.9	2.1
Printing, publishing, etc.	3.9	3.4	3.6	3.2
Chemical and pharmaceutical goods, oils and paints	3.4	3.9	5.3	5.8

/Petroleum, coal

Table 42. (Continued)

Industries	Workers employed		Value of production	
	1941	1943	1941	1943
	(per cent of total)			
Petroleum, coal and derivatives	0.7	0.6	4.4	3.1
Rubber and its manufactures	1.4	0.5	1.4	0.7
Leather and its manufactures	4.0	4.4	3.5	4.1
Stone, sand, glass and ceramics	4.5	4.7	2.8	3.2
Metals and their manufactures, excluding machinery	9.7	8.8	8.0	7.3
Machinery and vehicles	11.2	10.5	7.5	6.6
Miscellaneous	10.4	11.0	3.5	3.8
Totals	100.0	100.0	100.0	100.0

Source: Dirección Nacional de Estadísticas y Censos.

a/ Excluding electric power plants, building enterprises, quarries and mines.

It may also be assumed that when the new establishments which have been recently installed or are in process of installation, enter into full production, the relative contribution of the food industry will decline, since it appears to have reached saturation point, while textiles and other manufactures will increase.

The predominance of the food and clothing industries is reflected in the proportion of raw materials of foreign origin which Argentine industry consumes and which, owing to conditions brought about by the war, gradually declined until they represented less than 17 per cent of total raw materials in 1943. It is possible that once the flow of imports is re-established, the proportion of imported raw material will rise again, though not to the pre-war relative levels, in view of the undoubtedly strong development of domestic production which will partly or totally replace raw materials formerly imported. However, at present, it is probable that in spite of present restrictions, the proportion of raw materials of foreign origin will be greater than in 1943, when industry in its effort to fill the gaps which imports left in the local market, had to resort to substitutes and waste products which are no longer used.

/Table 43.

Table 43. Proportion of materials of domestic origin utilized by Argentine industry

Industries	1939	1943
	(percentage)	
Foods, beverages and tobacco	93.5	95.6
Textiles and their manufactures	62.2	80.2
Forestry products	51.2	56.5
Paper, cardboard and their manufactures	55.6	71.0
Printing	33.9	41.3
Chemical products	69.5	73.4
Petroleum	63.4	90.9
Rubber and its manufactures	29.0	46.6
Leather and its manufactures	94.1	96.8
Stones, sand, glass and ceramics	64.1	78.8
Metals and their manufactures	31.7	59.1
Machinery and vehicles	25.8	56.8
Total	71.6	83.4

Source: Dirección Nacional de Estadísticas y Censos.

It is obvious that these ratios which reflect the dependence of industry in relation to imported raw material [1] cannot be regarded as all-important. There have been many instances of highly industrialised countries possessing on their own territory only a part of the raw materials which they require. Nevertheless, a large proportion of the raw materials required by Argentine manufacturing is found on the national territory, and it may be assumed that eventually the exploration and development of its natural wealth will permit the increase of their production in emergencies, as in the case of iron, which will be examined later.

The value added by the manufacturing industry varies considerably in its different branches. Thus, in foods, beverages and tobaccos, where the processing of agricultural products is not complicated, it barely exceeeds 10 per cent of the gross value of the finished

1/ In certain cases the lack of a product of slight volume and value within the whole could paralyse important sectors of industry.

/products, whereas

products, whereas at the other end of the scale stand the manufacture of machinery and vehicles, and the printing industry, in which the value added exceeds 50 per cent. On the average, the net value contributed by manufacturing is approximately 35 per cent, of which salaries and wages constitute 55 per cent.

Table 44. Value added by manufacturing as per cent of the gross value of output

Years	Value added	Wages and salaries as per cent of value added
1937	35.1	57.8
1939	37.7	55.5
1941	34.4	57.8
1943	34.5	55.1

Source: Dirección General de Estadísticas y Censos.

A brief consideration of the main branches of Argentine industry follows, in which their recent development or possibilities thereof will be examined.

3. Textile industry

All three branches of the textile industry are highly developed in Argentina. They depend only to a very slight extent on imports of raw materials and are in a position to meet almost all demand except that for high grade textiles. The manufacture of the latter is not economic because of their limited market; furthermore it has been thought necessary to maintain imports of such textiles in view of the country's trade commitments.

a) Cotton

The cotton textile industry was established in Argentina long before the First World War, with imports of yarns used in weaving the coarse fabrics for alpargatas (canvas sandals) and making of wicks for candles. Later, progress was gradually made in other textiles, and during the First World War, in order to fill the gap in imports, the first yarn

factory was established. During the 'twenties, the production of cotton was developed, so that at the beginning of the great depression there were five spinning mills in the country. On the whole, development has been relatively slow, as can be seen from the fact that in 1930 domestic production of these textiles barely covered 8.8 per cent of total consumption.

In this, as in other instances, intense development coincided with the depression and was accentuated later. Before the Second World War the number of spinning mills exceeded 22, ten more being added during the conflict, and others later. The 8.8 per cent of total consumption supplied by domestic industry in 1930 expanded to such an extent that in 1940, its output equalled 56.9 per cent of total consumption and in 1945, 86.4 per cent. By 1950, total demand for textiles was met by domestic production, except for certain fine fabrics made with yarns of higher than 30 counts.

Table 45. Cotton textile consumption
(Per cent of total)

	1930	1935	1940	1945
Domestic production	8.8	26.2	56.5	84.5
Imports	91.2	73.8	43.5	13.6

Source: Dirección del Algodón, Secretaría de Industria y Comercio: "La industrialización de fibra de algodón en la República Argentina", 1947.

It was only recently that the cotton textile industry concluded its period of intense expansion, by satisfying the bulk of the domestic demand and substituting its products for goods which the country could not continue importing, for reasons which have already been explained. It has entered at present upon a stage of gradual development in proportion with the increase of the population and of industry, and the progressive adoption of new technical methods.

An appreciable effort in the direction of investment was required on the part of industry in order to complete this first stage, as these figures show: the 215,000 spindles installed in 1935 were increased to

/480,000 in 1947,

480,000 in 1947 and at the same time the number of looms was also increased considerably - from 3,650 in 1935 to 14,250 in 1945; this expanding tendency persisted still later although no data are available for the more recent period. Production was estimated at 63,000 tons of yarn in 1946, and the goal fixed by the Government plan for 1951 is 80,000 tons.

This rapid development shows that Argentine, unlike other Latin American countries, has no fundamental problem of obsolete equipment, since 90 per cent of the spindles were installed after 1930. Nevertheless, during the war there was a certain reduction in the number of looms, the effort to increase their quantity being made principally in common looms, with the result that the proportion of the latter to automatic looms rose from 54.2 per cent in 1939 to 32.9 per cent in 1945. The heavy imports in recent years have tended to correct this fact and the over-aged looms have given the industry a certain reserve capacity for periods of emergency.

An interesting feature is observed in studying the organization of the industry. Small spinning establishments of less than 10,000 spindles, which constitute half of the total number of spinning mills, account for barely 18 per cent of production, whereas 97.6 per cent of the weaving mills are small establishments which contribute a third of production, the other two-thirds being contributed by the remaining 2.4 per cent of establishments. These small independent establishments work for the large ones, which in this way simplify their administrative problems to a certain extent, without any reduction of technical efficiency, since it is said that the productivity of the small weaving mills is satisfactory

No data are available for the productivity of the Argentine textile industry such as those contained in the textile survey which is being carried out by the United Nations in various Latin American countries. Some details of the preliminary results of this survey are given in the chapters on Brazil, Chile and Mexico. However, it would appear that in Argentina the productivity of labour has declined, judging from official concern in this field. Labour productivity declined by about 20 per cent between 1939 and 1947. On the other hand, that of equipment increased by 23 per cent between those years, due to the fact that the need for

greater production and the shortage of machinery led the factories to work three shifts, and even to over-work equipment by using it constantly without proper maintenance thereby subjecting it to undue wear and tear.

b) Wool

In the woollen textile industry the process of development and integration has been similar to that for cotton. The following table shows the quantities of washed wool, its domestic consumption and the production of woollen yarns.

Table 46. Wool

Years	Production of washed wool	Domestic consumption of washed wool	Production of woollen yarns
		(thousands of tons)	
1935	23.6	7.4	
1936	24.7	11.8	
1937	22.8	10.9	
1938	25.1	11.4	
1939	31.7	13.2	12.3
1940	38.6	12.9	
1941	44.8	14.2	
1942	52.8	19.4	16.2
1943	60.6	23.8	19.5
1944	60.5	25.6	20.7
1945	65.6	26.5	22.5
1946	67.3	31.8	25.4
1947	60.8	33.1	26.5

Source: Dirección Nacional de Estadísticas y Censos.

Though the increase in the number of spindles was not as great as in the cotton industry during the war years, it has been very great recently. These totalled 146,500 in 1935 and amounted to 211,000 ten years later. In 1947 this figure had risen to 280,000, and when all the machinery imported has been installed, it is estimated that the total number of spindles will attain the 540,000 mark. The woollen industry will thus be in a position to satisfy the greater part of the demand for worsteds, except for very fine qualities, which are mainly imported from Great Britain. Before the war, the woollen textile industry's principal

/output consisted

output consisted of carded fabrics; with the development of combed fabrics the integration of this industry will be complete.

c) Rayon

The rayon textile industry began in Argentina before the great depression, with yarn imports. However, their manufacture was only undertaken in the second half of the 'thirties. In 1937 the first acetate rayon yarn factory began operations, and was followed in 1938 by a viscose yarn factory using imported raw materials. The best technique was adopted in both establishments, but soon after they began production, war broke out, giving rise to considerable difficulties in connection with supplies of their essential raw material. The paper industry, which had long since been established in Argentina, came to the assistance of the new rayon industry undertaking the manufacture of cellulose with floss from cotton seed linters for the production of viscose yarns. Cellulose production reached 4,200 tons yet this proved insufficient, as will be seen from the fact that as soon as imports could be resumed, they expanded considerably, but did not attain pre-war levels.

At the present time, the production capacity of the viscose yarn factory is being enlarged, and is expected to reach 6,000 tons. Production of nylon and cellophane is also envisaged for the near future.

Total consumption of rayon textiles was estimated in 1947 at slightly under 8,000 tons, as against 6,000 tons ten years earlier. The difficulties created by the war and the limited capacity for the production of raw material contributed to the fact that for articles of this order, the increase, comparatively speaking, has not been very great. Undoubtedly there is a very large potential market, since rayon consumption per capita, in comparison with other Latin American countries, is still very low in Argentina.

4. Metallurgical industries

The metallurgical industries, comparatively speaking, revealed the most intense development recorded for industry in the 'thirties, and

considerable future expansion is anticipated in this sector in view of factors mentioned elsewhere. There are three branches in which this development has taken place: a) iron and steel; b) other metals, and c) engineering.

a) Iron and steel

It was calculated that before the war Argentina's annual consumption of iron and steel was one million tons, of which about half consisted of rolled products to be used directly or indirectly as raw material, 30 per cent of articles manufactured with rolled steel and 20 per cent of ingots, manufactured articles and machinery.

The drastic decline of imports during the Second World War created a serious supply problem. The country, however, had been acquiring experience in iron and steel manufacturing. The import restrictions of the 'thirties multiplied the number of small establishments, in which technical skill and the training of labour were developed gradually but did not affect the large shops that had been established for many years. Large stocks of scrap-iron were accumulated in the country, their export having been prohibited by farsighted measures. Consequently, when the shortages caused by the Second World War were felt, the establishments that were in existence together with those that were created under the pressure of the emergency had to improvise the production of articles, in steel or other metals, as well as of machinery, which made it possible for manufacturing production as a whole and for the building industry to reach the high levels described elsewhere.

Production of rolled iron in relation to this development, as a whole, is remarkable, not only by reason of its growth in the past, but also because of its present achievements. The total output of rolled products, which in 1939 was 18,000 tons, by 1944 had already reached 150,000 tons. It should be noted that this was obtained exclusively by use of the scrap-iron stocks. In 1949, production of rolled steel had risen to 250,000, according to rough estimates.

Two modern rolling mills are under construction or else in operation

/already

already, further to wire drawing and seamless and other pipe manufacturing plants which should raise production between 1952 and 1953 to over 500,000 tons. These estimates are as follows:

	Tons
Rolled products	250,000
Drawn wire products	75,000
Pipes	136,000
Drums	15,000
Structural steel	35,000
Total	511,000

Whilst fully recognizing the significance of such progress, which has enabled domestic production to meet demand and in some cases, such as the production of pipes, even surpass its limits, at the same time, it is necessary to remember that the iron and steel industry is still confronted by a serious difficulty. An attempt to solve this problem has been made in the Steel Plan, to which further reference will be made. This plan envisages the production of pig-iron.

In view of the desirability of assessing the country's resources for the purposes of any such scheme, various investigations were carried out, particularly just before the eve of the outbreak of the last war. Although all these surveys contained discouraging reports regarding deposits of the exploitable iron ore required for the installation of a basic industry, the establishment of secondary industries, such as rolling was viewed with favour. This attitude was justified by the substantial reserves of scrap, domestic production of liquid fuels and imports of iron ingots and other essential materials.

The Fábrica Militar de Aceros (Military Steel Plant) was established in 1937, on the basis of these reports, and soon after the whole steel rolling industry began to expand. With the introduction of this industry, an increasing supply of pig-iron became even more essential. Consequently, regardless of costs, the Dirección General de Fabricaciones Militares (General Administration of Military Manufactures) pressed forward its attempts to develop the iron ore deposits discovered in the Cerro de Zapla (Jujuy) and mining started there in 1945. Deposits of

/all the

all the necessary raw materials, excepting coal, were located in the vicinity. The fuel problem was solved by adapting the results of successful experiments carried out in Sweden and other countries involving the use of charcoal from adjacent forests.

The annual productive capacity of the blast furnace established in the Zapla region is 25,000 tons of pig-iron (in practice some 20,000 tons), which is obviously highly insufficient in relation to total domestic demand 1/. Two additional blast furnaces of a similar type will be built there, enabling the total output to be trebled. Notwithstanding, Argentina's steel plan regards this blast furnace simply as a pilot plant, to be the forerunner of the great basic industry which it is planned to establish in San Nicolás (Province of Buenos Aires) along the lines set forth in the Steel Plan. This plan, fundamentally, consists of three parts:

First: Production of pig-iron (ingots for smelting purposes). Since it is considered that the cost of production of domestic pig-iron is greater than that of imported raw materials, the Plan envisages the use of domestic raw materials in the manufacture of pig-iron, and also the installation of two blast furnaces, in the litoral. These would use metallurgical coke. In this respect the Zapla blast furnace would represent a guarantee that Argentina would not be completely deprived of raw material, even if imports thereof were to be completely suspended.

Second: Production of about 315,000 tons of steel a year, in semi-finished articles. The figure mentioned corresponds to initial production, which would be gradually raised to 600,000 tons, and then to one million tons, when the whole Plan has been executed. This manufacture would be obtained by using three Siemens-Martin furnaces, with a capacity of 165 tons each.

Three: Processing of semi-finished products (steel ingots), in the production of articles of general use (structural steel bars, plates, sheet, pipes, tin-plate, etc.). This final section of the Plan will depend mainly on private enterprise. The previous stages should supply material for the production of finished goods, at prices comparable to

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1/ In 1949 according to estimates, imports of pig iron amounted to 100,000 tons.

those for imported semi-manufactures. The Plan proposes to compensate producers for differences between cost and selling prices; it has been estimated that these subsidies will entail an outlay of 85 million pesos, over a period of ten years. It should be noted that in the Joint Corporation organised for this purpose by the iron and steel manufacturers and ARMCO, (the United States firm supplying technical advice and equipment) 51 per cent of this capital is held by the Dirección General de Fabricaciones Militares 1/.

The future position with regard to obtaining pig-iron may be improved in Argentina, since the discovery of a new iron deposit at Sierra Grande, close to the sea (Gobernación de Río Negro) 2/.

Until 1940, when a steel mill added two 20 ton-capacity Siemens-Martin furnaces to its rolling mills, there were only two similar enterprises in Argentina, established under exceptional circumstances. One, founded in 1908, had a furnace of 9 tons per charge, to roll double-T shapes exclusively, and relied on the protection of the existing high tariff. The other was the Fábrica Militar de Aceros, with a furnace of 12 tons per charge, created in 1937 to supply specific requirements of the Argentine Army. Some attempts made between these two dates failed and in view of the almost total disappearance of foreign competition on the outbreak of the war, the incipient domestic industry was left to meet demand by itself.

1/ The Presidential Message of 1 May 1950, refers to the present development of the Plan in the following terms: "The programme of work established in Argentina's "Steel Plan" is being actively carried out with the aid of the steel manufacturers, who are collaborating with substantial investments and a positive attitude as regards the re-equipping and modernization of their plants, or, alternatively, of the need to build new factories for the processing and finishing of goods. "The difficulties involved in acquiring the substantial amount of foreign exchange required to install the basic plant and another for plate, sheet and tin-plate, have thus far prevented the contracting of the respective machinery". "Attempts are being made to obtain deferred payment terms for these installations, so that they will only have a limited influence on the availability of exchange."

2/ The afore-mentioned message adds:- "On the basis of present information, it may be stated that its reserves are considerable. The ore content is higher than 58 per cent. The veins discovered extend for more than ten kilometres and their depth varies from 6 to 20 metres." "The programme established for the first stages called for twenty-two borings with Sullivan machines, that is, 2,600 metres of sounding; these drillings reveal a mineral mass of great volume, which was later confirmed by magneto-metric findings. It is proposed to start the first mining operations at the end of the present year (1950).

In 1941 another undertaking put a 15-ton Siemens-Martin furnace into operation,[1] with its corresponding rolling equipment. To give an idea of the way in which equipment had to be improvised, it is sufficient to point out that only one of the new enterprises managed to import its complete equipment; others acquired parts in Brazil and Chile and completed the installations in Argentina. When used equipment was unobtainable either inside or outside the country, it had to be manufactured under difficult conditions.

Table 47: Production of rolled steel

(In thousands of tons)

	Rods		Structural Steel				
Years	For Concrete	Drawn wire	Sheet	Small plates	Other rods	Strip iron	Total
1939	7.0	-	-	2.0	9.0	-	18.0
1940	12.0	-	-	4.0	8.0	-	24.0
1941	33.0	-	-	4.0	8.0	-	45.0
1942	38.5	-	3.0	5.0	7.0	-	53.5
1943	47.0	4.0	5.0	8.0	8.0	1.5	73.5
1944	105.0	15.0	8.0	11.5	8.0	2.5	150.0

Source: Banco Central of the Argentine Republic, Informe preliminar sobre los efectos que tendría en las actividades industriales internas la libre reanudación de las importaciones, Buenos Aires, 1945, page 31.

Annual requirements of rolled iron and steel, expressed in terms of average pre-war imports, were as follows:

Rolled products	Tons	Per cent of total
Rods for concrete	180,000	36
Sheet	110,000	22
Rods for wire-drawing	75,000	15
Miscellaneous Structural Steel	67,000	13
Other rolled products	68,000	14
Total	500,000	100

1/ The capacity of Siemens-Martin furnaces, is given in tons per charge.

As may be seen, the consumption of rods for concrete is the most important item. If requirements for rolled products are also considered according to the source of demand, it will be seen that two thirds were accounted for by the building industry. Secondly, the iron and steel industry consumed a certain amount of round structural steel for different manufactures, and, finally, total availabilities of rails and certain quantities of other rolled products were supplied to transport undertakings. In its early stages, this industry's main task was to meet demand by satisfying the requirements of its most substantial sector, that is, of the consumers of steel rods for concrete. On the other hand, it was only natural this should be the case since building is precisely the most simple process and marks the period at which industrialization generally begins. It is, moreover, the branch of highest consumption, concentrated within narrow limits. Certain types of rolled products were only produced in small quantities, and it was not possible to manufacture certain others with the equipment available. This led, for instance, to a marked shortage of sheet, strip iron and tin-plate during this whole period. The industry's expansion in the post-war period has followed the trend of its structure, even though the volume of production has increased year by year.

The Argentine rolling mills, like the country's textile mills are still increasing their production capacity. According to available information, no new enterprises are contemplated. Since the end of the war, almost all the rolling mills have renewed and modernized their equipment. The most notable examples, in that they also entail the addition of modern equipment of high productive capacity, are provided by the expansion of two enterprises, both of which are in progress. One of them has recently installed a new Siemens-Martin furnace with a 30 ton capacity and the other is increasing the capacity of its 25-ton furnace to 35 tons. Moreover, the installation of two additional furnaces, of the same size, is under consideration. If the existing furnace capacity of the Argentine sheet steel industry is considered together with the additions that have been made or are under consideration, a 35 per cent increase of capacity can be expected by 1952.

/This is only

This is only a rough estimate since due to the improvised manner in which this industry developed and also since its postwar reorganization has not yet been completed, there is no exact correspondence between the capacity of the furnaces and of its rolling equipment. This lack of balance has been increased further by the fact that imports of sheet steel as raw material have been relatively easy increasing production in a disproportionate manner.

On the other hand, if the increased capacity that is expected to be installed in the next few years is taken into account, Argentine production of sheet steel in 1952-53 will amount to slightly more than 500,000 tons, as has been indicated above.

b) Other branches of the metal industry

In addition to the processing of steel, the rolling of copper and the wire-drawing have also expanded on the basis of imported raw materials, together with other subsidiary industries processing this metal. Similar efforts have been made in the case of other metals. In this way a modern plant producing aluminum sheet and shapes will be able to satisfy total domestic demand which amounts to about 6,000 tons. The present consumption of some 15,000 tons of electro-thermic and electrolytic zinc will be also met by domestic production using Argentine raw materials.

c) Machinery production

At the beginning of the Second World War, Argentina had a large number of shops where several types of simple machines were being built, where repairs were carried out, and various machine parts were manufactured. Progress had been made particularly in the production of reapers and other agricultural machinery, utilizing imported motors and a number of parts. It is for this reason that such enterprises could not expand production as did other branches of the machine industry during the war. In any case, a certain amount of machine-building experience had been accumulated which proved to be extremely useful when import shortages made it necessary to copy foreign machinery of all kinds and to recondition existing equipment in order to meet the demand of the manufacturing industry and of transport.

The most significant achievements in this improvised expansion of capital goods production were in the field of textile machinery, electric motors (up to 30 horse-power) and in lathes and other simple machine-tools. To

/this should be

this should be added the progress in certain lines of production which were already in existence before the war, particularly in machinery and equipment for the following industries: wheat mills, grain elevators, bakeries and the sugar, wine, cigarettes and oil processing factories. Similar progress was made in the production of machinery and equipment for elevators, graphic arts, pumps, internal combustion engines, weights, etc.

The Argentine metallurgical industries are particularly sensitive to foreign trade due their great dependence upon imports as can be seen when the incidence of raw materials upon production costs, and the proportion of imported raw materials in their total requirements, are taken into account.

Table 48: Imported raw materials and total raw materials as per cent of production costs in selected industries

	Imported raw materials	Total raw materials	Wages
Foodstuff industries	78.0	11.3	5.0
Textiles	67.5	19.0	28.8
Metallurgy	61.5	21.8	62.8

Source: Estadistica Industrial (1941).

The above figures show that metallurgy depends upon imports to a much higher degree than the two other great branches of the manufacturing industry. At present this dependence is increasing as a result of a growing shortage of local scrap, caused by the extensive use made of this material. The dependence of metallurgy upon foreign sources would be even greater if account were also taken of its equipment which to a large extent is obtained from abroad, whereas several sectors of the food-processing and of the textile industries can rely to a greater extent upon domestic sources in this respect.

5. Cement Industry

The effects of Argentine cement production on domestic consumption acquired significance in 1919, when a large modern plant was installed as a subsidiary of a United States concern. It expanded rapidly until it was able to meet a large part of domestic demand during the thirties. At present there are in Argentina six enterprises with eleven plants located

/in six provinces.

in six provinces. The development of cement production and consumption during the last twenty years is shown below.

Table 49. Cement production and consumption

(In thousands of tons)

Years	Production	Consumption
1930	412.2	755.3
1931	537.8	744.7
1932	502.3	588.2
1933	486.9	529.9
1934	566.3	605.9
1935	721.6	752.4
1936	869.3	892.8
1937	1,010.3	1,109.4
1938	1,179.4	1,254.3
1939	1,130.5	1,155.3
1940	1,048.7	1,049.7
1941	1,160.1	1,128.3
1942	1,145.4	1,050.3
1943	959.5	959.5
1944	1,095.3	1,078.8
1945	1,095.6	1,084.1
1946	1,150.3	1,120.3
1947	1,353.2	1,481.2
1948	1,251.8	1,593.8
1949	1,445.9	1,538.1

Source: Argentine Foreign Trade Yearbooks (Anuarios de Comercio Exterior) and La Industria del Cemento Portland en la Argentina

It should be noted that during the 'thirties cement imports were completely exempted from customs duties, since they were intended for certain public works or for privately-owned railways which had been granted this privilege by special laws. In 1939-1946 demand was met completely by the Argentine cement industry, despite the serious difficulties encountered when it became necessary to replace fuel oil by other fuels. However, in subsequent years, this industry could no longer meet total demand and relatively large amounts of cement had to be imported. This was due to several factors. On the one hand, demand increased considerably because of large scale public works and industrial construction. At present supply, including imports, does not meet demand, which is estimated at between 1.8 and 2.0 million tons. On the other hand, on several occasions during the war the industry could not have its output transported to consumers and at the same time it could not store cement for a long period of time without impairing its quality. Furthermore, the ceiling

prices that have been established for cement did not make it profitable for the industry to expand. This, together with the present difficulty in obtaining refractory materials, equipment and spare parts resulting from foreign exchange shortag s, explains the fact that actual output of the cement industry in 1949 amounted to only 1,445,900 tons, despite its theoretical capacity of 2,000,000 tons per year and its working capacity of 1.7 million tons.

6. Paper industry

The paper industry in Argentina is one of the oldest in the country, having been est blished at the end of the XIX century for the production of wrapping paper and cardboard.

In the same way as several other industries, the paper industry at first comprised only the final stages of the manufacturing process. Production of the raw materials was undertaken only recently. This dependence upon imported raw materials explains the specialization of the industry in those grades of paper which allow a greater utilization of waste-paper as raw material. Furthermore, certain structural characteristics of the enterprises which constitute the bulk of the industry should be noted, as well as the situation brought about in the Argentine paper market in customs tariffs. When the present tariffs were put into effect, the protection of wrapping paper production was borne in mind since igh specific tariffs upon imports of this commodity were established. Actually the degree of tariff protection was considerably higher than had been foreseen since the tariffs established for the various grades of paper were always higher than their actual import values. Thus, for instance, the 42 per cent "ad valorem" tariff upon the official value of imports represented a 71 per cent surcharge upon its actual import value.[1/] This degree of protection favoured the development of the production of low grade paper and cardboard since the incidence of the customs tariff was highest on low-cost grades.

It should not be assumed however that the Argentine paper industry

1/ Industria del papel y las posibilidades de expansión a base de materias primas nacionales, page 85.

developed without foreign competition. On the contrary, the exemptions granted since 1917 to imports of newsprint gave rise to a large volume of imports of paper which instead of being used for printing was diverted into commercial channels as wrappping paper. This was precisely the product which constituted the major part of the output of the growing domestic industry.

During the last war, domestic paper industry had already taken firm root, and was able to expand in the face of Swedish competition, on the Argentine market. The production of mechanical and chemical pulp in Argentina is much more recent than the paper industry itself, even though attempts at producing pulp from esparto grass were made when the first paper factory was established. This attempt was abandoned in 1893 but in 1931 the production of chemical pulp was started by a factory utilizing wheat straw and other domestic raw materials, and adopting a process of Italian origin. On various occasions the production of mechanical pulp was also attempted using willow and poplar wood. This process was started in 1913 and was interrupted after the First World War. The second attempt in 1917 failed again, the factory being dismantled and subsequently sold to Chile. At present, production of mechanical pulp is carried out in conjunction with chemical pulp and the expansion of its output is largely due to the considerable increase of customs tariffs upon imports of wood pulp in 1931. Estimated production of imports and consumption of paper are shown below:

Table 50. Consumption of paper

	Consumption	Production	Imports
	(In thousands of tons)		
Newsprint	130.0	7.0	123.0
Printing paper	60.0	42.0	18.0
Wrapping paper	80.0	72.0	8.0
Cardboard	60.0	55.0	5.0
Special grades of paper	20.0	8.0	12.0
	350.0	184.0	166.0

Sources: Banco Central de la República Argentina, Informe preliminar sobre efectos que tendría en las actividades industriales internas la libre reanudación de las importaciones, Buenos Aires, pages 14-16.

As can be seen above, domestic production of wrapping paper and

/cardboard needs

cardboard needs a considerable part of demand, this share being much smaller in the case of printing paper and of special grades of paper. On the other hand almost all the newsprint consumed is imported. Such imports reached their peak in 1947 with 153,000 tons of newsprint. Foreign exchange shortages made it necessary to reduce newsprint imports to slightly over 100,000 tons in 1949. This circumstance has led the government to study the possibility of newsprint manufacture in Argentina. At present experiments are being carried out with various raw materials such as sugar-cane bagasse.

7. Chemical and pharmaceutical industry

Taken as a whole, the chemical industry in Argentina started with the more common household items such as soap, candles, matches, dyes, lyes and similar products. Many of these industries had already been established during the past century. In numerous cases the raw materials were imported and subsequent development of these industries tended to encompass the production of such materials. Consequently, Argentina's economic development has stimulated a further integration of the production processes of the old chemical industries. However, in various sectors of its chemical industry, dependence upon imported raw materials is a characteristic. Before the Second World War it was estimated that one-third of the raw materials used by the chemical industry as a whole were imported. The table below shows the changes in imports of chemicals and pharmaceutical products at constant prices and the increase of employment in the Argentine chemical industry since 1937.

Table 51. Chemical and pharmaceutical industry

(Index numbers: 1937 = 100)

Years	Employment in the chemical industry a/	Quantum of imports of chemical and pharmaceutical products b/
1937	100.0	100.0
1938	..	86.5
1939	119.6	95.9
1940	116.6	91.4
1941	115.3	75.6
1942	134.4	83.2
1943	142.8	91.6
1944	143.8	53.7
1945	170.0	71.4
1946	186.4	88.2
1947	194.6	172.8

Source: a/ Memorias of the Central Bank of the Argentine Republic.
b/ Research Centre, United Nations Economic Commission for Latin America.

/Among basic

Among basic chemical industries only the production of sulphuric acid is worth-mentioning, and among alkalis only caustic soda, since there is no production of commercial soda ash. The following table shows production, imports and consumption of caustic soda and of solvay soda.

Table 52. Production, imports and consumption of caustic soda and solvay soda

(In metric tons)

Years	Caustic soda			Solvay soda
	Production	Imports	Consumption	Consumption (Imports)
1925	-	7,666	7,666	22,925
1926	-	7,768	7,768	23,102
1927	-	8,826	8,826	22,530
1928	-	12,454	12,454	24,562
1929	-	13,016	13,016	27,409
1930	-	12,431	12,431	24,150
1931	-	13,048	13,048	17,867
1932	-	13,025	13,025	16,737
1933	-	14,022	14,022	20,159
1934	-	13,138	13,138	22,733
1935	-	14,834	14,834	23,798
1936	-	16,832	16,832	21,434
1937	-	20,609	20,609	28,747
1938	1,790	18,138	19,928	22,336
1939	3,000	25,003	28,003	38,894
1940	4,430	20,224	24,654	32,687
1941	4,380	15,072	19,452	27,408
1942	5,250	33,297	38,547	22,561
1943	4,800	50,609	55,409	65,796
1944	5,052	3,955	9,007	20,568
1945	6,061	17,998	24,059	30,034
1946	9,800	19,268	29,068	35,902

Source: Research Centre, United Nations Economic Commission for Latin America.

Sulphuric acid production has developed entirely upon the basis of sulphur imports due to the fact that domestic sulphur deposits are small. Moreover, their distant location contributes to the high cost of the domestic raw material. It seems however that the shortage of domestically produced sulphur will be eliminated by utilizing by-products from the roasting of zinc produced in the country. Actually, a corporation has been organised with the participation of the Government, the United States enterprise which owns the zinc mine and Argentine capital, which will produce electrolytic zinc and obtain sulphuric acid in the process.

/Caustic soda

Caustic soda is produced by the electrolytic process. Further to the high production cost resulting from its considerable consumption of electric power, the small demand for the chloride thereby obtained is limiting increased production of caustic soda. Thus domestic production accounted for only one-third of the estimated 40,000 tons of caustic soda consumed in 1949.

There are various projects calling for the expansion of existing caustic soda plants and for the installation of new ones. Among the latter, one is to be located in Buenos Aires, another near the hydro-electric plant in the province of Córdoba, a third in the Gobernación de Rio Negro, and a fourth in the province of Tucumán. Should these projects be carried out it can be expected that domestic production will shortly be able to meet demand.

Output of pharmaceutical products has expanded considerably and it is estimated that it meets a very appreciable part of consumption. Among the principal items organo-therapeutic products should be specially mentioned since abundant supplies of raw materials for their manufacture are available from the meat-packing industry. The production of penicillin was started recently and now entirely meets domestic demand.

VII. NOTES ON THE ECONOMIC DEVELOPMENT OF ARGENTINA.

1. In Argentina, after the post-war boom, the problems of economic development have reappeared in a way which does not differ substantially from that of the thirties, in spite of the intensive growth of the country. The conditions imposed by these problems could be summarized as follows: a) The need to change the composition of imports and reduce their coefficient in relation to real income, in order to increase investment; to increase income and strengthen the economic structure, rendering it less vulnerable to external fluctuations and emergencies; b) The need to increase imports from those areas of the world to which Argentina can export its competitive products; c) The need to enter into economic agreements with neighbouring countries in order to expand their respective markets for the purposes of industrial development.

The reappearance of these problems has revealed the persistence of certain fundamental facts in the absence of which it would be difficult to explain some long-run trends of economic policy, despite the radical changes which have taken place in other aspects of the national life.

This continuity was already evident at the beginning of the war, when, the experience of the thirties still fresh in the memory, it was attempted to make reasonable provision for future events. This is the impression given by certain authorized opinions of those times, which when compared with more recent ones, indicate the underlying conditions of Argentina's economic development. In 1942 a publication of the Central Bank of Argentina stated that: "the country will find that an important part of its consumption and of the requirements necessary for its economic activity will be obtained through the efforts of its own industry." It was added that "it would no longer be necessary to continue to import as before those goods that can be reasonably produced at home. But we shall still have to import large quantities of other goods not only because we need them, but also because it is essential to continue to import in order to continue to export. The problem does not therefore consist of reducing exports, but in changing their composition; in

/other words, the

other words, the structure of imports must be altered in such a way that, without prejudice to its industry, the country might import the many goods that it needs and does not produce, and in as wide a measure as its exports will permit."

"Thus, our industrial development and foreign trade, far from being incompatible, can complement each other in order to further the national economy and insure condition favourable for a more intensive population expansion through immigration and the natural growth of its inhabitants." Further on the nature of the problem was discussed: "the problem concerns the best use of the foreign exchange earned by our exports: since it is no longer necessary to import the same amount as before of manufactured goods or of the materials now produced in the country, it will be possible to devote a greater amount of foreign exchange to the importation of capital goods necessary to the development of industry, of transport and of economic activity in general. This is necessary both on account of its organic growth and in order to offset the great disinvestment to which the means of production and the transport system are now subject: railway and city transport equipment, motor vehicles, commercial aviation equipment; machinery and implements for industry and agriculture and other materials essential to the development and security of the country." 1/

A few years later, when the war was over it was stated in the annual report of the Central Bank for 1946 that there would be "considerable import requirements, but which would evidently not be of the same nature as formerly when industry had not reached its present level of development and before the existence of public works projects and private construction which have already been put into execution."

Later on, the notion of altering the composition of imports is stressed even more clearly when it is said that "inview of the heavey requirements for imports of raw materials and equipment for industry and transport for purposes of renovation and expansion,

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1/ Memoria del Banco Central de la República Argentina, for 1942 pp. 30, 31 and 32.

/it is logical

it is logical that the available foreign exchange should not be employed to import goods which can be satisfactorily provided by domestic industry. In this way not only is the best use made of monetary reserves, but Argentine labour is protected..." It is finally added that this policy regarding imports "tends to create in the country, on the basis of more diversified and highly developed industries, conditions which will permit full employment for existing labour and a sound basis upon which immigrant labour can maintain a high level of wages without prejudice to the industrial economy..."[1/]

2. The experience of the thirties showed that the country was able to rely on its own resources to increase investment. In this connection the annual report for 1942 pointed out that "the greater the proportion of foreign exchange spent on importing capital goods or real capital, the smaller the need to seek additional exchange by means of foreign loans or to rely upon foreign investments in order to promote greater economic development. In Argentina a large part of foreign investments have been made, in the last analysis, in the form of imports of capital goods. If we were to devote to the latter an increasing part of our own foreign exchange while expanding local production of other goods, we should achieve the same results together with a considerable strengthening of the national economy." Finally, the relation between this selective policy relative to foreign exchange and the necessity to render the economy of the country less vulnerable to external variations was pointed out: "The better utilization of foreign exchange is of still further significance in a country, the exports of which are subject to continuous and wide fluctuations. If the country were to produce the greater part of the manufactured goods required for consumption and normal activities, our imports during the times of foreign exchange, shortages such as it has gone through, could be limited to a great extent to the materials essential to industry and economic activity, as is the case today for other reasons. Imports of capital goods, could be made during periods of

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1/ Memoria del Banco Central de la República Argentina, for 1946, p. 36.

prosperity and of abundant foreign exchange, at the same time it would be possible to import the unessential goods which it was not possible to purchase when there was a shortage of exchange. We must learn from the lessons of the present emergency, concerning both imports and the possibilities afforded by monetary and financial policy to bring about gradually the maintainance of an intensive rate of economic activity with the minimum repercussions of external fluctuations."1/

The same notion reappears in the report for 1946 when it is stated that, by means of the policy of imports and industrialization, it would be possible to achieve "the strengthening of the internal market in order to avoid the disequilibria and maladjustments resulting from the country's dependence on foreign markets for the sale of agricultural products."2/

3. Argentina's economic problems therefore revolve about certain basic facts, imposed to a great extent by external circumstances. After the events of the depression years Argentina's foreign trade assumed a different aspect. The report for 1941 included an interpretation of the facts which, since these have remained unchanged, corresponds faithfully to present circumstances.

Argentina, like other Latin American countries, and without taking into account some principal countries of the world, has been compelled to return to the system of bilateral trade which it had begun during the thirties. The following quotations show clearly that this was imposed by circumstances rather than adopted by choice. They state that bilateral agreements "were due not so much to a deliberate intention to adjust trade and international payments to new patterns different from those that had prevailed for a long time, as to the force of circumstances." The same report added that barter or compensation agreements "are considered in economic negotiations when the purchasing countries lay down as a condition for the continuation of their purchases that the supplying country purchase from them, in exchange, merchandise which together with financial services is to represent an equivalent

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1/ Memoria del Banco Central de la República Argentina, for 1942, pp.32, 33.

2/ Memoria for 1946, op. cit., p. 37.

amount. In this way, an attempt is being made at bringing in equilibrium the trade balance or the balance of payments between pairs of countries. The fact that this is as absurd from the theoretical standpoint as it is cumbersome from the practical point of view did not prevent the gradual expansion of the bilateral system. In the countries which started upon this course, the principal aim was to secure markets for their exports where they carried weight as important buyers. It is possible that specific interchange problems between pairs of countries were solved in this way. However, in the measure in which the system expanded a new limiting factor was added to those that already before were depressing world trade."

"Thus, our imports ceased in good part to be oriented by considerations relative to price, quality or consumer preference, being forcibly directed to those countries where we had available foreign exchange assets. This foreign exchange no longer could be used freely to make payments or purchases in other countries, but had to be used in the country where it had been earned as a result of the purchases of the latter. In this way the foreign exchange permit, in addition to being an instrument for the restriction of imports, also became a selective instrument, and on the basis of experience, it can be asserted that the latter function became often more important than the former."

"Consequently, since foreign balances could not be used in other countries, the only logical solution imposed by bilateralism was to restrict imports from those countries which did not purchase Argentine products in sufficient amounts as to pay our imports and financial services with the exchange thus earned. Such was, in brief, the story of our economic relations with the United States since the great depression until recent times. The restrictions varied in intensity: they would be eased when larger exports were made or abundant investments were forthcoming and they would be tightened when circumstances were unfavorable, either by means of direct controls or by exchange rate fluctuations." 1/

The influence of these developments in Argentina had been so deep that already in those years it was doubted whether a rapid

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1/ Memoria for 1941, Pages 9, 11 and 12.

/return to

return to multilateralism could be made at the conclusion of the war. In this way, in addition to these considerations it was queried whether "Great Britain after the enormous financial effort made during this war will be disposed to abandon rapidly the system of blocked sterling and to do without compensation agreements, the technique of which is being progressively perfected." It was also stated that if such agreements were continued the country would again be obliged "to divert as much as possible its import requirements to Great Britain to the detriment of the competition other countries might offer." This would be necessary even though from the Argentine standpoint "the convenience of buying as is seen fit, as long as means for such payments are available" was evident. It was further added that the same would take place with the principal countries of the European continent with which Argentina had maintained important trade relations: "we would return thus, under the pressure of circumstances, to the system of balancing our foreign trade in separate channels, and to use foreign exchange permits for restrictive and selective purposes."

Actually, a few years later, it was necessary to return to bilateralism under the pressure of events. This was explained in the Memoria for 1948 where it was stated that circumstances "are compelling us at present to channel imports from those countries which are purchasing Argentine products, since this is the only way in which we can supply ourselves with goods without loss to our gold and foreign exchange assets. In this sense it must be recognized that the basic structure of our foreign trade and the present inconvertibility of the exchange we receive in payment for our exports lead us by necessity to make the best use possible of bilateral commercial agreements, even though we are aware of the fact that by such a policy the country cannot attain all of the benefits which the restoration of multilateralism in international trade would make possible. In fact, this policy of bilateral agreements which stems from the necessity of selling our exports and of maintaining our imports, is not without some detriment to

the development of our national economy." 1/

4. The agreements with neighboring countries pursue different objectives than the broad lines of Argentina's economic policy. Argentina has an enormous capacity for the production of cereals and meat, and if the experience of the last twenty years is taken into account, it is understandable that it should seek markets in neighboring countries and in other Latin American republics, as a partial compensation at least for the insufficient outlets found in the great manufacturing countries. The problem of food is becoming more acute in various Latin American countries as standards of living are being raised by industrialization. It is true that they can increase foodstuff production, although at relatively high costs, in the same way as Argentina might develop certain high-cost lines of production, such as iron and coal, for instance. There exists, therefore, obvious possibilities for complementary trade which improve together with industrialization. The interchange of foodstuffs and raw materials for manufactures, as had taken place in times of a relatively free world trade could hardly offer a permanent solution for such problems among the Latin American countries. Actually there is no basic reason preventing a growing interchange of manufactured goods which on a reciprocal basis would open to each country the market of the other for its specialized products. Such is the case of the products of those industries which have shown their competitive ability, and which could count with the vast potential market of the Latin American countries.

Of course, trade with Europe is still a problem of primary importance for Argentina. Also in this case, circumstances have demonstrated again how many complex aspects are connected with economic development. It is very natural that Argentina should attempt to promote certain industries which, such as that of textiles, could easily expand by means of new investments and

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1/ Memoria for 1948, pages 10 and 11.

utilize the plentiful supply of domestic raw materials, in order to reduce imports of such commodities and replace them by imports of capital and other essential goods. It can also be expected, however, that important purchasing countries of Argentine products should try to continue exporting textiles in order to utilize their existing production capacity. Even more, the long standing aim of Argentina to export processed commodities instead of its staple raw materials meets with understandable resistence among purchasing countries which intend to retain the relatively high incomes derived from industrial processing.

As a result, Argentina, together with the other Latin American countries, is meeting with difficulties in its attempt at changing the composition of its imports as well as its exports in order to meet better the requirements of economic development. These difficulties, however, are inherent to the present modes of economic development of the Latin American countries, which as has been stated in the first part of this survey, are determined by the propagation process of production techniques. Previous forms of development have already been surpassed with the exception of regions which in other parts of the world are open to the economic expansion of the great countries. It could not be expected, therefore, that in order to avoid such difficulties, a return can be made to a bygone system of international trade in which the Latin American countries were dedicated to the exportation of primary commodities in exchange for those goods which the industrial centers found profitable to sell.

A general and explicit acknowledgement of this fact, of the unavoidable need to grow from within the present stage of the world economy, implies therefore these difficulties and complexities. For their solution there is, together with each country's experience, a vast field for the new instruments of international economic cooperation.

CHAPTER VIII. ECONOMIC DEVELOPMENT OF BRAZIL

I. Introduction

Brazil is perhaps the Latin American country in which one finds the most characteristic manifestation of the dynamic phenomena of an economic system in full development.

The country's growth has been intensive. Though the population increases at a relatively high rate, the rate of increase of real income during the past twenty-five years has been much higher. Between the five-year period 1925-29, prior to the world crisis, and the last five-year period, 1945-49, Brazil's population has increased by 41.3 per cent, whereas real income increased by approximately 70.4 per cent, if one considers its fluctuations to be represented by the total index for available consumer and capital goods.

It is evident that an increase such as that registered in real income must serve as a powerful stimulus to the demand for imports. But since the capacity to import increased very slightly between the two five-year periods, it is not surprising that during this period Brazil's economy was marked by a constant tendency towards disequilibrium in the balance of payments which, though it lessened or disappeared in periods of swelling exports or substantial foreign investments, only reappeared in a subsequent downswing.

In order to counteract this tendency towards disequilibrium and at the same time to ensure increased imports of certain types of goods, Brazil has found it necessary to an increasing degree to replace other imported goods with substitutes of domestic production. This does not mean that total imports are reduced to a level below that of the country's capacity to import, but that the composition of imports is altered to fit the needs of economic development. Only in this way was Brazil able to extend its imports of fuel, chemical and pharmaceutical products, paper and other goods. It would not have been possible to do this if the

/imports of

imports of foodstuffs and textiles had not been markedly reduced, thanks to the development of domestic production. Early in the century foodstuffs and textiles accounted for about 50 per cent of the country's imports; during the last five-year period they constituted only 21.8 per cent of total imports. The gap thus left in imports was profitably filled by the first-mentioned group above, so essential to intensive development. But it was not only at the expense of textiles and foodstuffs that the country was able to expand imports to such an extent; imports of capital goods and motor vehicles were also reduced. The quantum index of these latter increased by only 15.6 per cent 1/, whereas fuel, chemical products and paper increased 101 per cent between the two five year periods.

What is the explanation for the relatively small increase in the importation of capital goods which has taken place in a country of such intensive development ? First, let us note that this group represented 39 per cent 2/ of imports during 1945-49; thus Brazil employed a considerable share of its capacity to import in the purchase of capital goods. If it was able to restrict the increase in imports of those goods within the limits just mentioned, it was due to the fact that care was taken to augment rapidly the domestic production of the primary capital goods essential to a developing country; that is, steel and cement. If one adds the quantum index for imports of capital goods to domestic production of steel and cement, the resulting index of capitalization shows an increase of 58.3 per cent in 1945-49 in relation to 1925-29, as compared with the increase of 41.3 per cent in the population. This composite index

1/ Including motor vehicles, since it is impossible to classify those that correspond to capital goods; if these are excluded, the increase is 19.1 per cent.

2/ The same applies again; if motor vehicles are excluded, the figure would be 31.5 per cent.

of capitalization is of course incomplete, since it does not include the manufacture of machinery and tools, which has been greatly stimulated since the thirties, nor the separate incomes which make up the aggregate value of the investments. However, it may be taken to represent a satisfactory initial approximation of the growth of capitalization.

Despite the extraordinary increase indicated by this index, it is in fact somewhat lower than the total of available goods mentioned at the beginning. This is the explanation of the effort which Brazil is now making to increase production of iron and cement, and to develop the manufacture of other capital goods which its limited capacity to import does not permit it to obtain abroad.

Despite this, Brazil is still far from being in a condition to solve, once and for all, the problem of disequilibrium which springs from the constant increase of certain imports in response to the rise in real income and the standard of living. In fact, this problem is bound to re-occur systematically in any expanding economy, since disequilibrium is essentially a dynamic factor and can only be resolved decisively if a country resigns itself to growing within the narrow limitations of its capacity to import, while it is furthermore subjected to the sharp fluctuations of international economy.

Having been taught by experience, Brazil is now attempting to forestall future events and avoid future disequilibrium by developing certain domestic activities which will replace, or at least reduce, the growth of other imports. If the increase in the price of coffee and the selective policy of import restriction has now enabled the country to approach a position of equilibrium in the balance of payments, the increase which can be foreseen within a short time in imports of fuel, chemical products and paper, together with certain capital goods, motor vehicles and other products, wil not

/fail to bring

fail to bring heavy pressure to bear on the balance of payments, making new adjustments essential. The measures now being taken to produce certain basic products, in addition to the steps just mentioned with regard to cement, steel and other capital goods, reveal competent understanding of the phenomenon of disequilibrium which development carries in its wake.

In this respect, the recent establishment of a modern iron and steel industry, using coke, to exploit the vast reserves of iron in Brazil, (added to the very considerable effort which has been made in this field since the thirties, when charcoal was used), is an achievement of great importance not only for that country's economic development but for that of the whole of Latin America, for two fundamental reasons.

First, an industry of a very high capitalist technique is thus established in a country in which about 65 per cent of the gainfully employed are engaged in agriculture where very primitive methods are the general rule. It has been estimated that about three quarters of this population cultivate the soil with their physical strength alone, with the hoe almost their sole capital. Thus a very advanced form of production is found in violent contrast with the hazardous methods of pre-capitalist technique.

Secondly, the iron and steel industry, which is the foundation for the internal development of Brazil's economy, constitutes a new approach for foreign investment and technique. It is no longer a case of investing to stimulate the development of an economy focused outward on the production and transport of primary goods to the great industrial centres; it is rather that utilization of capital now has its sights trained on the Brazilian consumer.

This is because Brazil requires large quantities of iron and steel, among other materials, in order to raise the standard of living of the great mass of its population. Since the country did

/not and could

not and could not obtain sufficient quantities by means of its foreign trade, it has been compelled to produce these materials domestically - at first by force of circumstance, and later for purposes of economic policy.

Iron and steel are essential, above all, to satisfy the growing capital requirements of an expanding industry, in order that the latter may absorb not only the increase of gainfully employed population in the urban centres but also an increasingly large part of the growth of rural population. If it cannot in this way absorb the surplus of people employed in agriculture, industry will continue to lack the real incentives towards technical progress — above all, in the form of domestic consumption. In its turn, the technical evolution of agriculture requires supplies of iron and steel in the form of machinery and tools; they are constantly required for transport purposes and, furthermore, iron and cement are the basic materials for building in the industrial centres, to house both the increment of industrial population and the agricultural population displaced from the land.

In short, Brazil needs agricultural and industrial equipment as well as material for transport, in order to carry out the immense effort toward capitalization demanded by its economic development. Since the country's capacity to import is limited and other imports are prime essentials as has been shown above, the country has been compelled to develop its production of iron and steel. It will thus be enabled, in the course of time, to supply itself with those capital goods which it cannot procure abroad.

When the problem of economic development arises in such terms as in Brazil, a modern iron and steel industry which appears to be in contradiction with primitive agriculture is in fact the primary and essential step which will transform agricultural labour and increase its productivity. The belief that a country must first

improve its agriculture and then attempt light industries before undertaking the establishment of heavy industries, indispensable to capitalization, is no more than mere theorizing which experience has often proved false. Take for instance the case of United States. There, technical progress in agriculture did not precede industrial progress. Quite the contrary; to a considerable extent the development of industry imposed the introduction of modern techniques upon agriculture by diverting human labour from it. The introduction of such techniques was facilitated by the prior development of the iron and steel industry and others springing from capital goods.

When one begins to interpret the facts in this manner, one must be careful to avoid any confusion. Brazil requires a high degree of capitalization in view of the high rate of increase of its population and the great lack of capital of the majority of the population. That it should produce domestically a part of the goods it requires is the inevitable result of the facts, rather than an idealogical preference. If Brazil had occasion to choose between producing a part of its capital goods and obtaining them through international trade it might give thought to such a choice. However, the truth is that the option lies between obtaining a part of these capital goods from domestic production or doing without them altogether. This is what we will attempt to show in the following analysis of Brazil's economic development:

II. Population increase, agricultural population and industrialization

Brazil is one of the Latin American countries with the highest percentage of persons employed in agriculture. It is estimated that 65 per cent of the economically active population is engaged in agricultural work of very low productivity. There is therefore a vast field for technical progress in agriculture; however, the more advanced the methods adopted, the greater will be the surplus of

population unable to obtain productive employment on the land, all other factors remaining equal. This surplus will consequently be compelled to seek employment in industry and other occupations. This would seem to be the case in Brazil, judging from the scanty data available on the subject. In the period between the census of 1920 and 1940, as can be seen from the following table the population gainfully employed in agriculture increased by 18 per cent whereas in industry the increase was 166 per cent, showing that agriculture was unable to retain the entire increment to the gainfully employed rural population. It is for this reason that the proportion of persons working in agriculture has been reduced from 72.6 per cent of the total gainfully employed population in 1920 to 67.5 per cent in 1940.

Census	Agriculture	Industry	Agriculture plus Industry
	(Population in thousands)		
1920	6,378	294	6,672
1940	7,551	781	8,332

Unfortunately, there are no accurate data to indicate the course of events during the past ten years, but it has been estimated that the population gainfully employed in industry reached a total of 1,200,000 in 1948, which means an annual increase of 8.3 per cent since 1940,[1/] equivalent to that of the period between 1920 and 1940. The migration of labour from agriculture to industry and other activities has therefore continued. In order that the displacement of the population be effected without seriously endangering the development of agriculture, an increase in productivity was necessary in this activity. This would appear to have occurred, judging from the data on the increase in the production of agricultural goods and

1/ Some adjustment has been made in the figures given by the 1940 census, in order to enable comparison with those of the census taken by "Instituto de Pensoes e Aposentadorias dos Industriários", for the year 1948.

stockbreeding; between 1920 and 1940, indices show that these increased 62 per cent whereas the total of gainfully employed persons in agriculture was only increased by 18 per cent, as has already been seen.

It was nevertheless clear that an increase in productivity was insufficient for this purpose, since unless industry and other activities were able to absorb the surplus population deriving from both greater productivity and the increment of population, a serious problem would arise in Brazilian economy.

This evolution obtains to a higher degree in the State of Sao Paulo, where the agricultural population by 1940 had fallen to 58 per cent of total gainfully employed population. If the development of agriculture, industry and other branches of economy together with their respective productivities, were to continue at the same rate as during the past twenty-five years, a period of approximately thirty-seven years would be required for the total gainfully employed population of Brazil to reach a similar distribution.

In computing the above, the only object was to indicate the immensity of the problem and the considerable time which would be required for its progressive solution. There is no doubt that it might be shortened if industrial development, and accordingly its related activities, could be effected at a greater rate. This, however, is not an easy task when one considers that the increment of the country's industrial production has been remarkable in the past quarter century, as will be shown below.

III. The rate of economic development

1. Goods available for consumption and capitalization

It was pointed out in the introduction that in Brazil during the last twenty-five years the volume of available goods has increased more than the population. In order to obtain an approximate

/idea of the

idea of the rate of this growth a quantum index of such goods has been prepared. It was computed by estimating the different classes of goods according to their value in 1939, in order to neutralize the influence of price fluctuations. One cannot assume a high degree of accuracy in such an index, in view of the nature of the statistics on which this calculation was based;[1/] however, the index does offer a satisfactory notion of the rate of growth of economic activity and the direction and relative extent of its fluctuations.

In Chart 1, plotted to logarithmic scale, the better to point out the rate of increase, and in the corresponding Table 1, the index of available goods is represented by curve 5 and compared with curve 1, which traces the increase of population; these curves have been superimposed for the five year period 1945-49, as a basis for comparison. After the world crisis when the index fell below that of the increase in population, a constantly rising trend began in 1932, with only brief interruptions nearly always due to the influence of international factors. Thus by 1949 we find that the quantum of available consumer and capital goods in Brazil is over 90.5 per cent higher than the average for the five-yearly period (1925-29) preceding the crisis. During this same period, the increase of population registered was 41.3 per cent so that the per capita volume of goods had increased by 34.8 per cent.

1/ In the corresponding appendix the methods of calculation are set forth, together with the restrictions which must be observed in interpreting the results. Values for 1939 serve as a basis since it was in this year that the last industrial survey was carried out in Brazil.

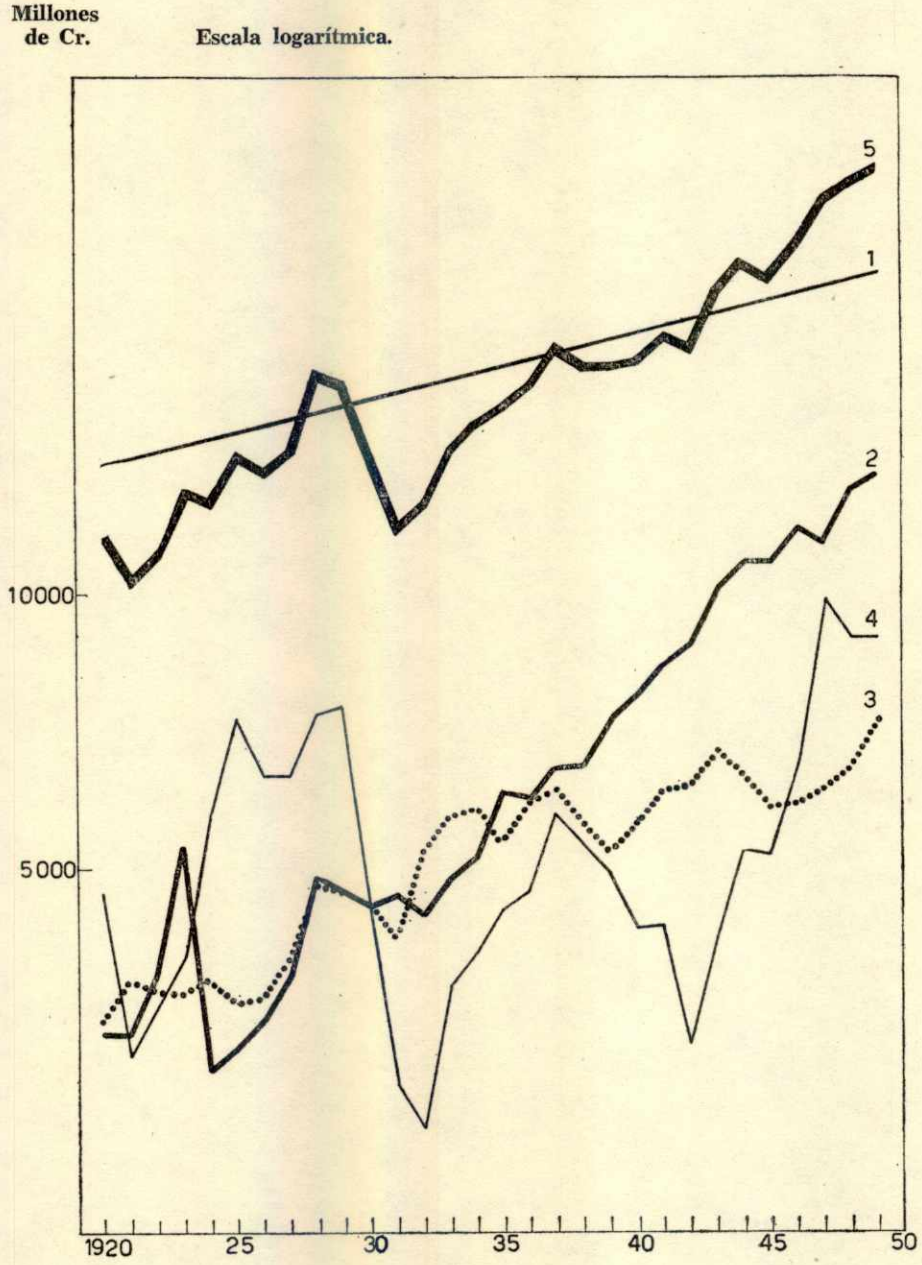
/Table 1 B.

GRAFICO 1

BRASIL

BIENES DISPONIBLES Y SU COMPOSICION

Valores a precios de 1939.



1.— Población.
2.— Producción industrial, excluyendo exportación.
3.— Producción agropecuaria, excluyendo exportación.
4.— Importación total.
5.— Total de bienes disponibles.

Centro de Investigaciones, Comisión Económica para América Latina.

Table 1-B. Available goods and their composition

Values at 1939 prices

	Yearly averages			% of variation in relation to 1925-29	
	1925-29	1945-49	1949	1945-49	1949
	(Millions of cruzeiros)				
Industrial production Minus exports	4,026	11,914	13,247	195.9	229.0
Agricultural and livestock Minus exports	4,136	6,295	7,212	52.2	74.4
Imports	6,952	7,550	8,330	8.6	19.8
Total available goods	15,115	25,759	28,789	70.4	90.5
Ratio of imports to available goods	46.2	29.0	28.9	- 37.2	- 37.5

Note: For source and annotations see Table 1 A: Brazil.

The other curves on the chart indicate the way in which domestic production and imports influenced the structure of available goods. It is evident that the entire domestic production does not go into the composition of this category: a large share of agricultural production is exported, as is a part of industrial production though the latter is relatively small. Exports have therefore been deducted from the quantum indices of production and the remainder available for domestic consumption and capitalization is indicated by curves 3 and 4 respectively. If the quantum of imported goods is added to the remainder of both these productions, adequately weighted, the total quantum index for available goods will be obtained.

On Chart 2 and the corresponding Table 2 are shown complete indices of agricultural and industrial production, (curves 4 and 3 respectively) from which nothing has been deducted, in order to show more clearly the rate of growth of those activities. Let us

/first make

Table 2-A. Brazil : Agricultural and Industrial Production

Value at 1939 prices

(Millions of cruzeiros)

Years	Agricultural Production			Industrial Production			Total Production
	Production for domestic consumption	Exports	Total	Production for domestic consumption	Exports	Total	
1920	3,404	1,512	4,916	3,301		3,301	8,217
1921	3,757	1,568	5,325	3,301		3,301	8,626
1922	3,584	1,659	5,243	3,883		3,883	9,126
1923	3,536	1,789	5,325	5,373		5,373	10,698
1924	3,789	1,618	5,407	3,068		3,068	8,475
1925	3,585	1,577	5,142	3,170		3,170	8,332
1926	3,591	1,488	5,079	3,432		3,432	8,511
1927	3,967	1,686	5,653	3,817		3,817	9,470
1928	4,814	1,577	6,391	4,988		4,988	11,379
1929	4,727	1,745	6,472	4,726		4,726	11,198
1930	4,647	1,907	6,554	4,595		4,595	11,149
1931	4,180	2,046	6,226	4,661		4,661	10,887
1932	5,254	1,382	6,636	4,464		4,464	11,100
1933	5,737	1,718	7,455	4,857		4,857	12,312
1934	5,802	1,981	7,783	5,112		5,112	12,895
1935	5,299	2,238	7,537	6,020		6,020	13,557
1936	5,945	2,330	8,275	5,955		5,955	14,230
1937	6,078	2,197	8,275	6,455	16	6,471	14,746
1938	5,607	2,832	8,439	6,445	19	6,464	14,903
1939	5,240	2,953	4,193	7,246	25	7,271	15,464
1940	5,612	2,253	7,865	7,661	46	7,707	15,572
1941	6,645	2,285	8,930	8,325	77	8,402	17,332
1942	6,172	1,530	7,702	8,716	102	8,820	16,522
1943	6,784	1,491	8,275	10,010	104	10,114	18,389
1944	6,396	1,961	8,857	10,884	81	10,965	19,322
1945	5,859	2,088	7,947	10,806	100	10,906	18,853
1946	5,882	2,885	8,767	11,535	62	11,597	20,364
1947	6,082	2,684	8,766	11,140	72	11,212	19,978
1948	6,440	2,982	9,422	12,845	54	12,899	22,321
1949	7,212	2,702	9,914	13,247	37	13,284	23,198

Source: Research Centre, Economic Commission for Latin American of the United Nations.

/Notes

Table 2-A. Brazil (Continuation)

Notes: Agricultural production has been obtained by applying the quantum index of agricultural production calculated by the Research Centre to the 1939 value of 22 products representing 90 per cent of the value of total agricultural production plus meat included in the aforesaid index, as reported by the IBGE.
Industrial production has been obtained by applying the quantum index of industrial production, calculated by the Research Centre, and on the Industrial development of Brazil - to the net value of Industrial production as reported by Synopsis of the Industrial Census of Brazil, IBGE.
All exports have been computed at factory cost prices, and those for exports of industrial production only since 1937 in view of their reduced volume before that date.

first make it clear that the index for industrial production is an estimate of value added through the manufacturing process to the value of the original raw materials involved, whereas the index of agricultural production represents the total value of the goods derived therefrom. The most outstanding feature observed is the remarkable increase of industrial production compared with the relatively slow development of agricultural production. The latter was considerably higher than the former earlier in the quarter century under review, but the difference has gradually become smaller, so that by the beginning of the thirties the indices for industrial production were higher than those for agricultural production and have remained so ever since. It will be noted that during the ten years from 1935 to 1945, agricultural production seems to have remained stationary, but later it begins to increase again and the difference between agricultural and industrial production does not widen at the same rate as previously. However, during the five year period 1945-49 the index of industrial production exceeded that of agriculture by 33.7 per cent, whereas in 1925-29 the latter was 37.4 per cent higher than the former. A summarised form of the preceding table is presented below, in which it is easy to see the changes which occurred between 1929 and 1945.

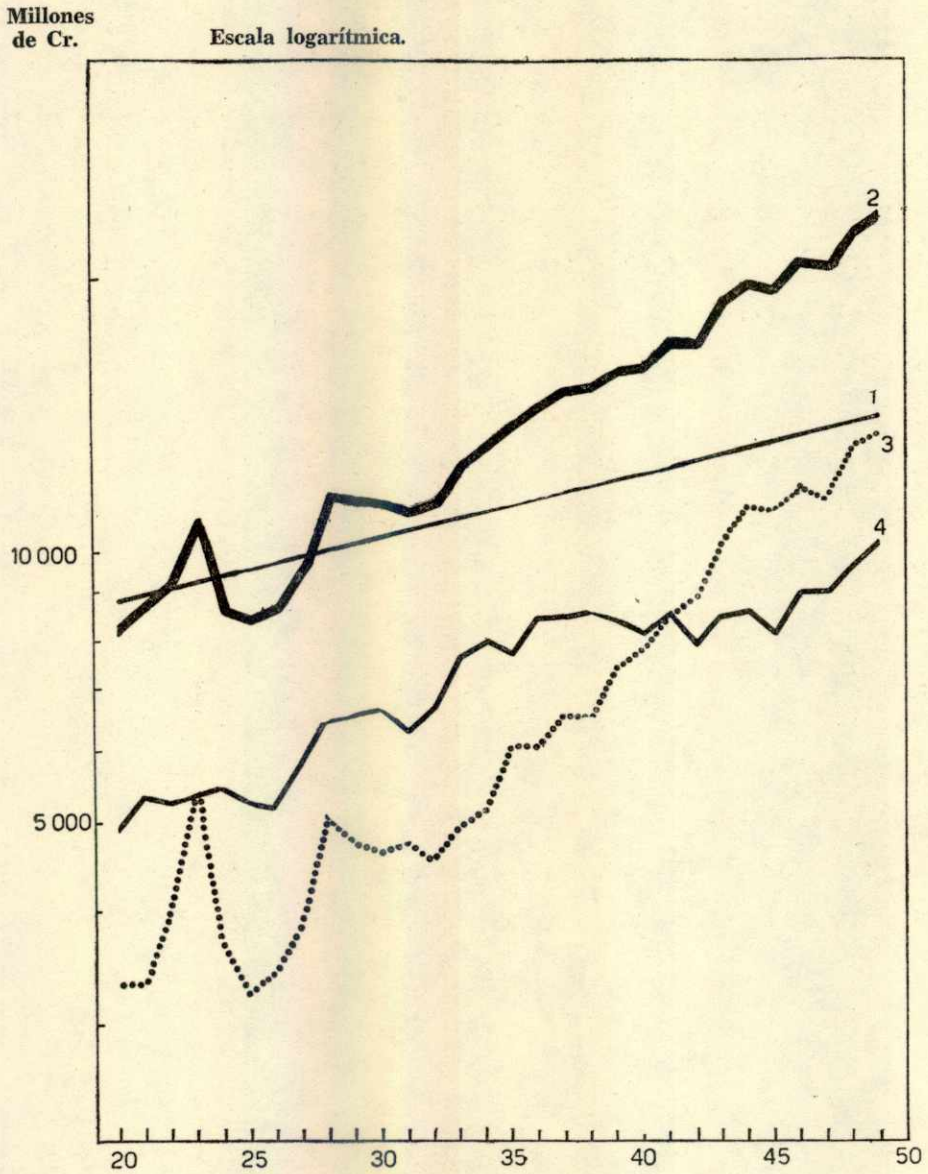
/Table 2 B.

GRAFICO 2

BRASIL

PRODUCCION AGROPECUARIA E INDUSTRIAL

Valores a precios de 1939.



1.— Población.
2.— Producción total.
3.— Producción industrial.
4.— Producción agropecuaria.

Centro de Investigaciones, Comisión Económica para América Latina.

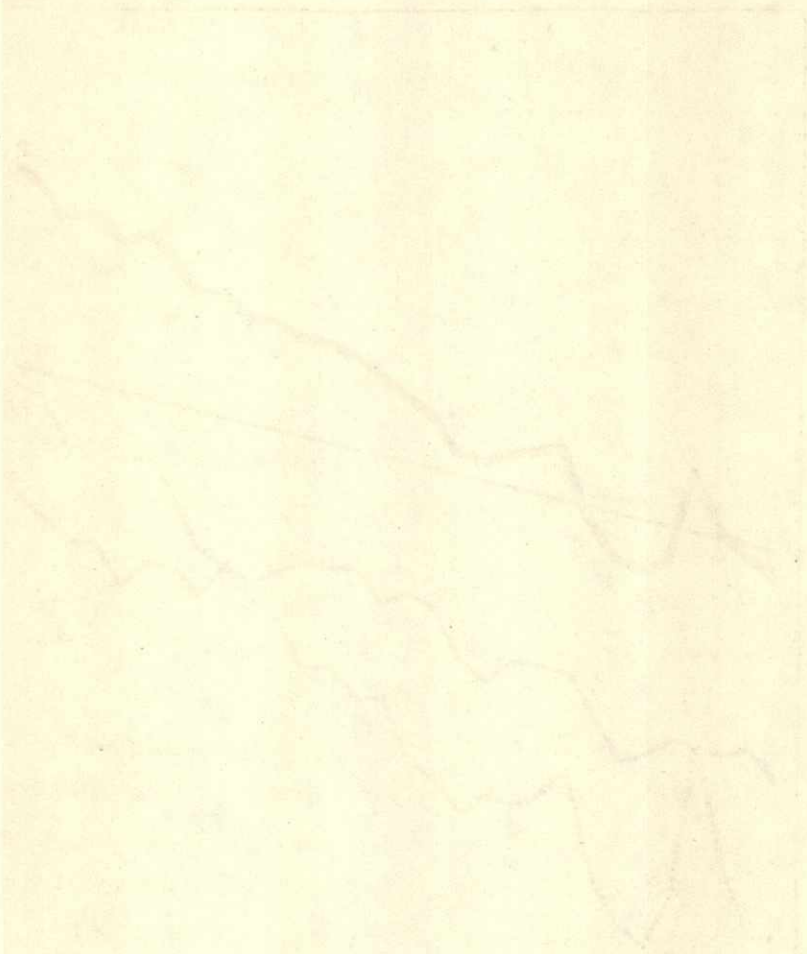


Table 2 B. Agricultural and industrial production

Values at 1939 prices

	Yearly averages			% of variation in relation to 1925-29	
	1925-29	1945-49	1949	1945-49	1949
	Millions of cruzeiros				
Agricultural production					
Production for domestic consumption	4,136.8	6,295	7,212	52.1	74.3
Exports	1,614.6	2,668.2	2,702.0	65.2	67.3
Total	5,751.4	8,963.2	9,914.0	55.8	72.4
Industrial production					
Production for domestic consumption	4,026.6	11,914.6	13,247.0	195.9	228.9
Exports	-	65	37	-	-
Total	4,026.6	11,979.6	13,284.0	197.5	229.9
Total production	9,778	20,942.8	23,198	114.2	137.2

Note: For source and annotations see Table 2 A, Brazil.

From this table it can be seen that between the two five year periods industrial production increased 197.5 per cent whereas agricultural production increased 55.8 per cent and the total population 41.3 per cent. Total production represented by curve 4 1/ shows an increase of 114.2 per cent, this being much greater than the increase of available goods. The reason for this discrepancy is of great importance to Brazil. ~~The~~ The index of available goods, obviously, is given for the total production, less the part exported, plus imports, as has been shown above. If the ratio of export to import prices had not altered between the first five year period and the end of the quarter century, the increase of exports - not included in the index of available goods -

1/ The total is obtained by adding the index of agricultural and industrial production, plus the wild animal and vegetable products which are exported.

/would have

would have been approximately compensated 1/ for by the increase in imports included in the index. Consequently the index of available goods would have increased almost at the same rate as that of total production. The fact that the increase was smaller can be attributed to the fact that price relations were extremely unfavourable to Brazil, and it obtained a smaller volume of imports for the same volume of exports as formerly. This is the principal explanation of the fact that whilst the quantum of exports increased by 69.9 per cent between the two five year periods, that of imports only rose 12.3 per cent. If the terms of trade had not deteriorated, the per capita available goods, other factors being equal, would have increased to a greater extent during the two five year periods than the 20.6 per cent upswing which actually took place.

Turning for a moment to Chart No. 1, and comparing Curve No. 5 with Curve No. 4, note how the sharp fluctuations in the quantum of imported goods, (to which further reference will be made) affect the index of available goods to a constantly diminishing extent. In view of the growth of industrial production, and of the changes occurring in the composition of imports, it would seem that the volume of available goods in Brazil, especially of consumer goods, is much less affected than before by the influence of external fluctuations. Rather, these affect capitalization as will be seen below, but they have increasingly less effect on occupations supplying current consumer goods to the population.

This aspect of the problem deserves a more detailed analysis which will be included in another report on the economic cycle. The following summary will suffice for the present: between 1929 and 1932 the cyclical decrease provoked from abroad caused the quantum of Brazilian imports to fall by 64.5 per cent, with an unfavourable effect of 27.7 per cent on the volume of available goods. Some years later the new downswing which began in 1937 and lasted until 1942 again radically

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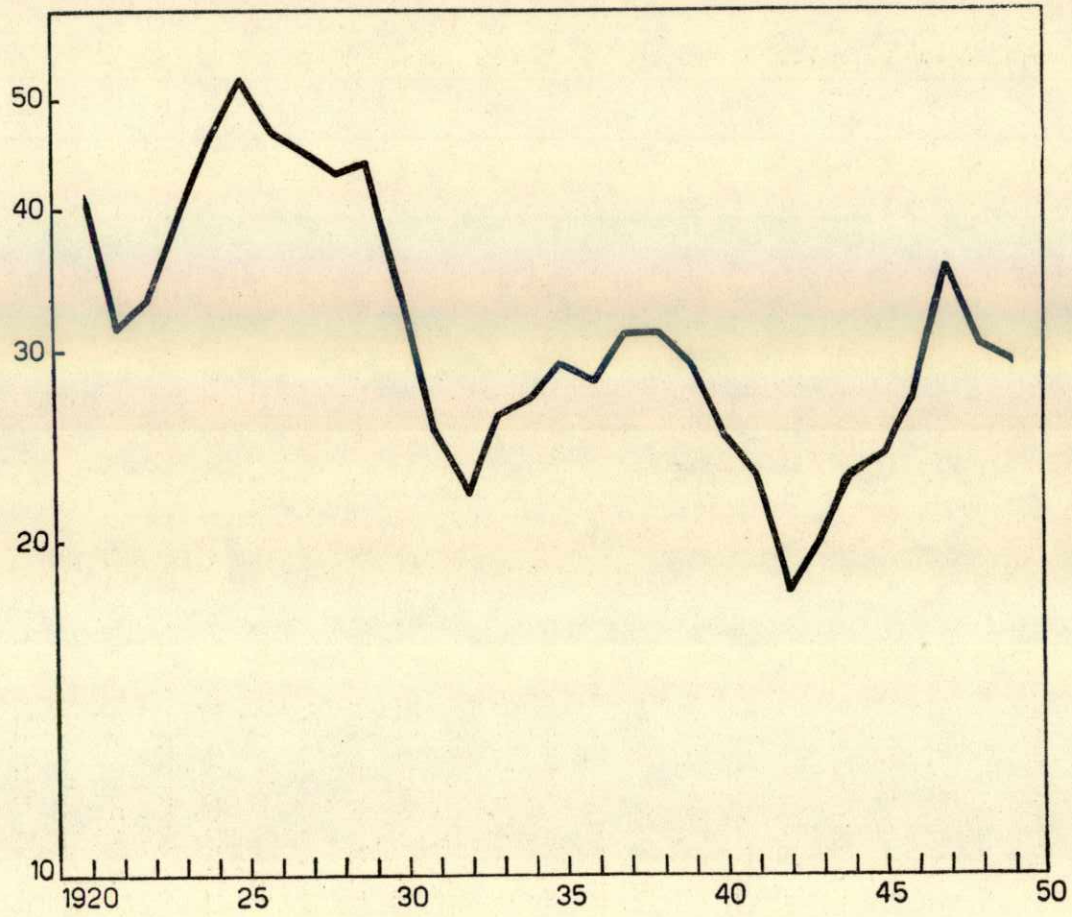
1/ Approximately, but not equivalent because of other factors intervening in the balance of payments.

GRAFICO 3

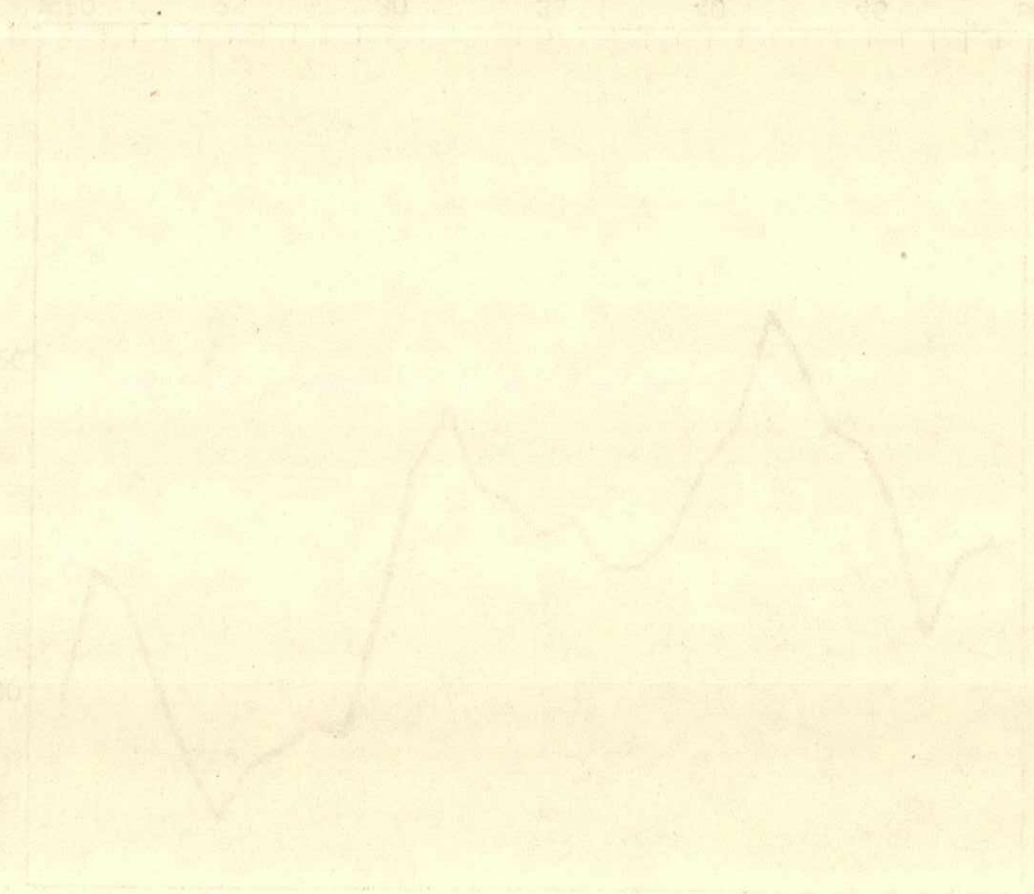
BRASIL

RELACION ENTRE IMPORTACIONES Y BIENES DISPONIBLES

Escala logarítmica.



Centro de Investigaciones, Comisión Económica para América Latina.



reduced imports by 44.9 per cent, but in this case the index of available goods displayed practically no change between the two years. The increase of industrial production has varied effects; during the second decrease of imports, it did not greatly affect the index of industrial production, which rose 36.3 per cent whilst in the first downswing, when industry was as yet unprepared to resist the impact of foreign influences, the index decreased 5.6 per cent. Likewise in 1948 and 1949, imports fell whilst the index of available goods continued to rise.

This fact is of great importance in Brazil's economic stability, or rather to the steady development of its economy, since stability and growth are for the most part incompatible in the dynamics of a country in full development. The same applies to another factor which requires no emphasis, since a theoretical explanation of it has been set forth in the first part of this report. Brazil has imported as much as it was able, but it has not adjusted the growth of its economy to its capacity to import, as can be easily seen in Chart No. 3. Whilst the quantum of imports has taken a long time to recover the level it had prior to the world crisis, available goods increased to a market extent, as has already been remarked. In other words, the import coefficient tends to decrease if one is to judge by the diminishing relationship between imports and available goods, since there are no figures for inceom which will make comparison possible. 1/ In Chart No. 3 and the last column of Table No. 1 the decreasing trend to which we have referred is evident through the cyclical fluctuations of this relationship and its connection with imports. The maximum ratio during the twenty-five year period was 51.9 per cent in 1925; from there it fell to 21.5 per cent during the crisis and rose again to 31.3 per cent in 1937. In 1942 it showed a new low of 17.9 per cent, after which it rose again in 1947

1/ Amongst other differences existing between available goods and income, it should be pointed out that the latter includes services which of course do not occur in the former. As services tend to increase within income, the import coefficient must have declined more when calculated in relation to income than in relation to available goods.

/to 35.3

Table 3-A Brasil: Quantum indices of exports and imports, terms of trade and capacity to import

(Base: 1937 = 100)

Years	Population (000 inhabitants)	Quantum of Exports	Export prices	Import prices	Terms of Trade	Capacity to import	Quantum of Imports
1900	17,318	-					
1901	17,821	67.1					
1902	18,339	63.8					
1903	18,872	59.9					
1904	19,422	48.1					
1905	19,988	52.0					
1906	20,570	66.2					
1907	21,164	71.1					
1908	21,851	58.4					
1909	22,491	75.8					
1910	23,152	49.4					
1911	23,963	54.0					
1912	24,535	57.5					
1913	25,253	63.9	30	13	231	148	145.7
1914	25,993	56.9	26	14	186	106	75.5
1915	26,755	79.4	25	23	109	87	47.2
1916	27,541	67.6	33	30	110	74	51.2
1917	28,350	67.0	34	37	92	62	43.0
1918	29,185	57.0	39	42	93	53	44.0
1919	30,046	74.3	58	41	141	105	61.2
1920	30,838	68.0	50	48	104	71	82.8
1921	31,223	69.0	49	58	84	58	55.0
1922	31,613	72.8	63	50	126	92	62.8
1923	32,008	80.1	81	60	135	108	70.6
1924	32,408	72.1	105	52	202	146	100.0
1925	32,813	70.3	112	50	224	157	127.5
1926	33,223	68.1	92	46	200	136.2	110.8
1927	33,638	76.8	94	56	167	128	110.8
1928	34,058	72.3	108	54	200	144	128.6
1929	34,484	76.8	99	51	194	149	130.1
1930	34,915	84.2	68	56	121	102	79.0
1931	35,351	90.9	74	68	109	99	51.9
1932	35,793	62.0	81	61	133	82	46.6
1933	36,240	77.3	71	63	112	86	64.7
1934	36,693	84.8	80	66	121	102	71.3
1935	37,152	98.3	82	91	90	88	79.5
1936	37,616	105.5	91	97	94	99	82.5
1937	38,550	100.0	100	100	100	100	100.0
1938	39,450	121.6	82	105	78	95	93.4
1939	40,350	127.9	86	108	79	101	87.3
1940	31,236	103.1	94	122	77	79	76.7

/1941

Table 3-A (Continued)

Years	Population (000 inhabitants)	Quantum of Exports	Export prices	Import prices	Terms of Trade	Capacity to import	Quantum of Imports
1941	42,150	111.4	118	137	86	96	75.8
1942	43,050	84.2	175	156	112	94	56.6
1943	43,950	86.7	197	159	124	107	73.6
1944	44,850	101.1	209	166	126	127	92.2
1945	45,750	110.8	216	182	118	131	90.3
1946	46,650	134.6	266	215	124	167	114.0
1947	47,550	126.4	329	260	126	159	164.5
1948	48,450	131.9	323	271	119	157	145.5
1949	49,350	117.0	350	270	130	152	145.6

Source: Research Centre, Economic Commission for Latin America.

Notes: The basic data used to calculate the prices and quantum indices were taken from: Serviço de Estatística Economica e Financeira, of the Brazilian Finance Ministry. The figures referring to population were taken from I

to 35.3 per cent; this latter figure, increased by the pent-up demand of the war years, was higher than that for 1937, but is nevertheless a marked decrease in relation to the initial coefficient.

2. Capacity to import and capitalization.

Brazil has great natural resources for its economic development. This development has been considerable as has been shown above and may become even more intensive. One of the greatest obstacles is the relative shortage of capital goods. Brazil is compelled to import a considerable proportion of the capital goods it requires and consequently, the rate of its economic growth and the elevation of its standard of living depends to a great extent on its capacity to import.

Brazil's index of capacity to import, as a function of its exports and of the terms of trade, was subject to so marked a deterioration during the thirties that despite a period of recovery in the forties, it is only slightly higher in the past few years than the level it had reached before the world economic crisis, as can be seen from curve 4 of Chart No. 4 and Table No. 3 A. The annual average for the 1945-49 index exceeds that of 1925-29 by 6.7 per cent, whereas the increase of population was 41.3 per cent. The per capita capacity to import has thus decreased by 23.8 per cent.

Table 3 B. Quantum indices of exports and imports, terms of trade and capacity to import

	Five yearly averages			% of variation in relation to 1925-29	
	1925-29	1945-49	1949	1945-49	1949
	1,000 inhabitants				
Population	33,643	47,550	49,350	41.3	46.7
	Indices				
Quantum of exports	73	124	117	69.9	60.3
Export prices	102	297	350	191.2	243.1
Import prices	51	236	254	362.7	398.0
Terms of trade	197	125	138	- 36.6	- 30.0
Capacity to import	144	155	161	7.6	11.8
Quantum of imports	122	137	133	12.3	9.0

Note: For source and notes see Table 3-A, Brazil.

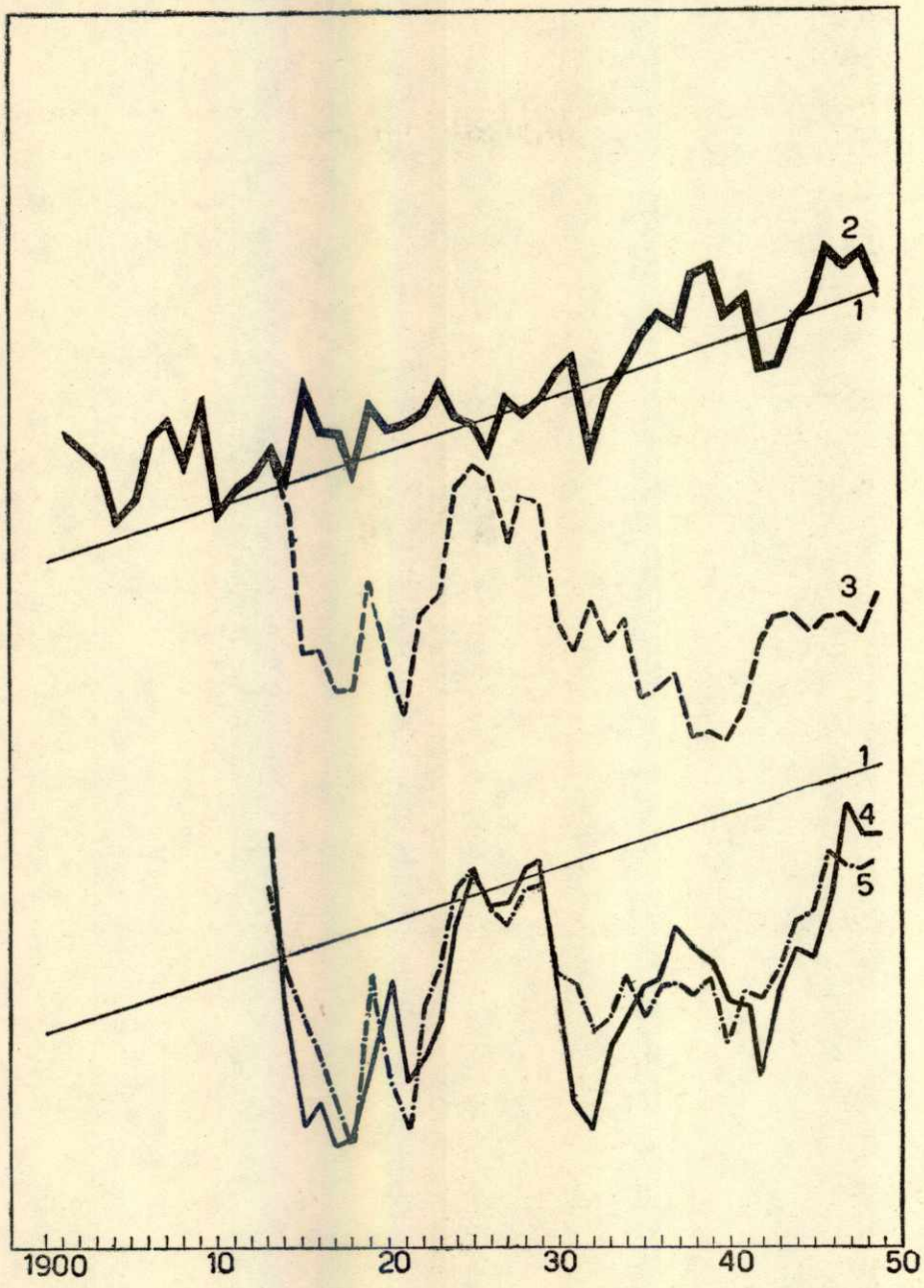
/The same chart

GRAFICO 4

BRASIL

VOLUMEN FISICO DE LAS EXPORTACIONES E IMPORTACIONES, TERMINOS DEL INTERCAMBIO Y CAPACIDAD PARA IMPORTAR.

Escala logarítmica



1.— Población.
2.— Volumen físico de las exportaciones.
3.— Términos del intercambio.
4.— Capacidad para importar.
5.— Volumen físico de las importaciones.

Centro de Investigaciones, Comisión Económica para América Latina.

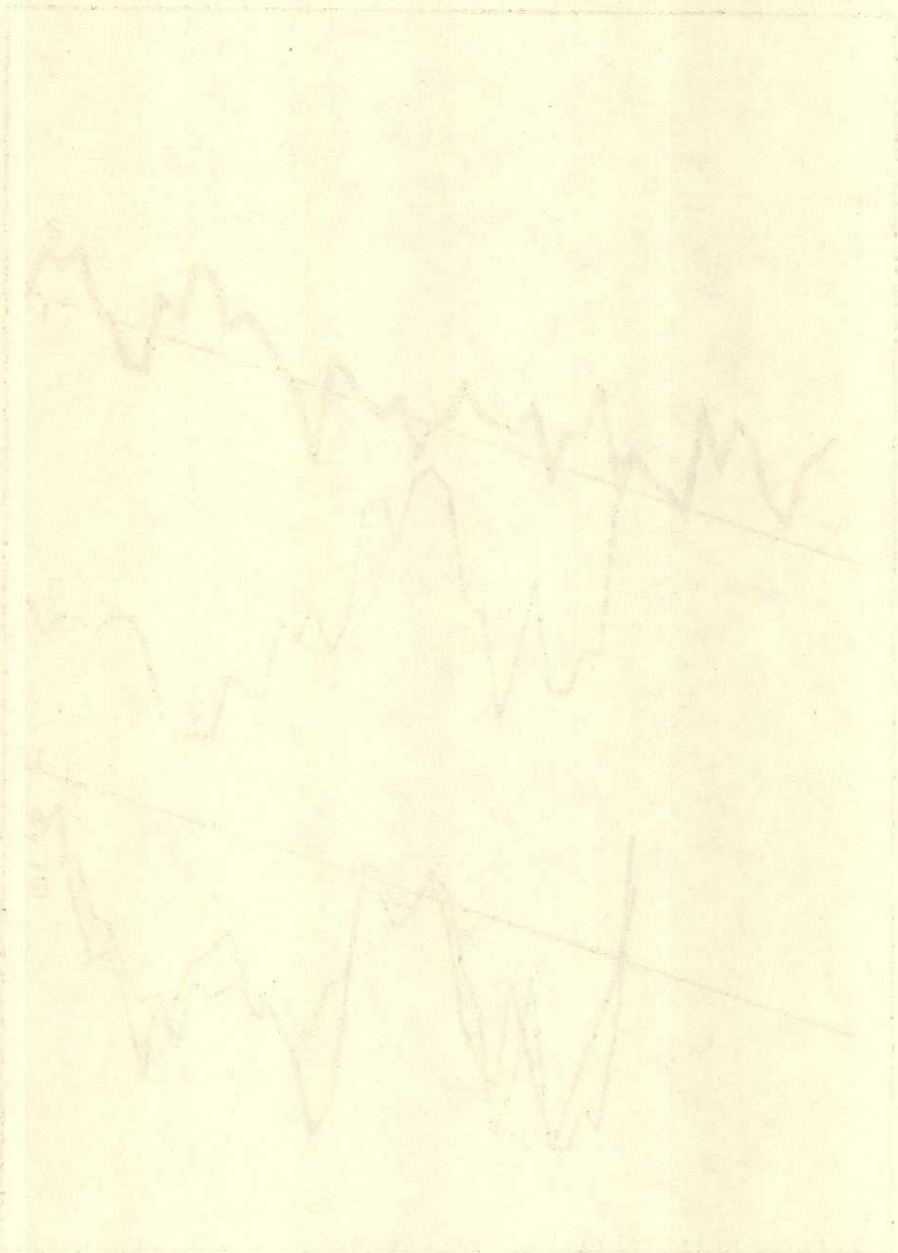
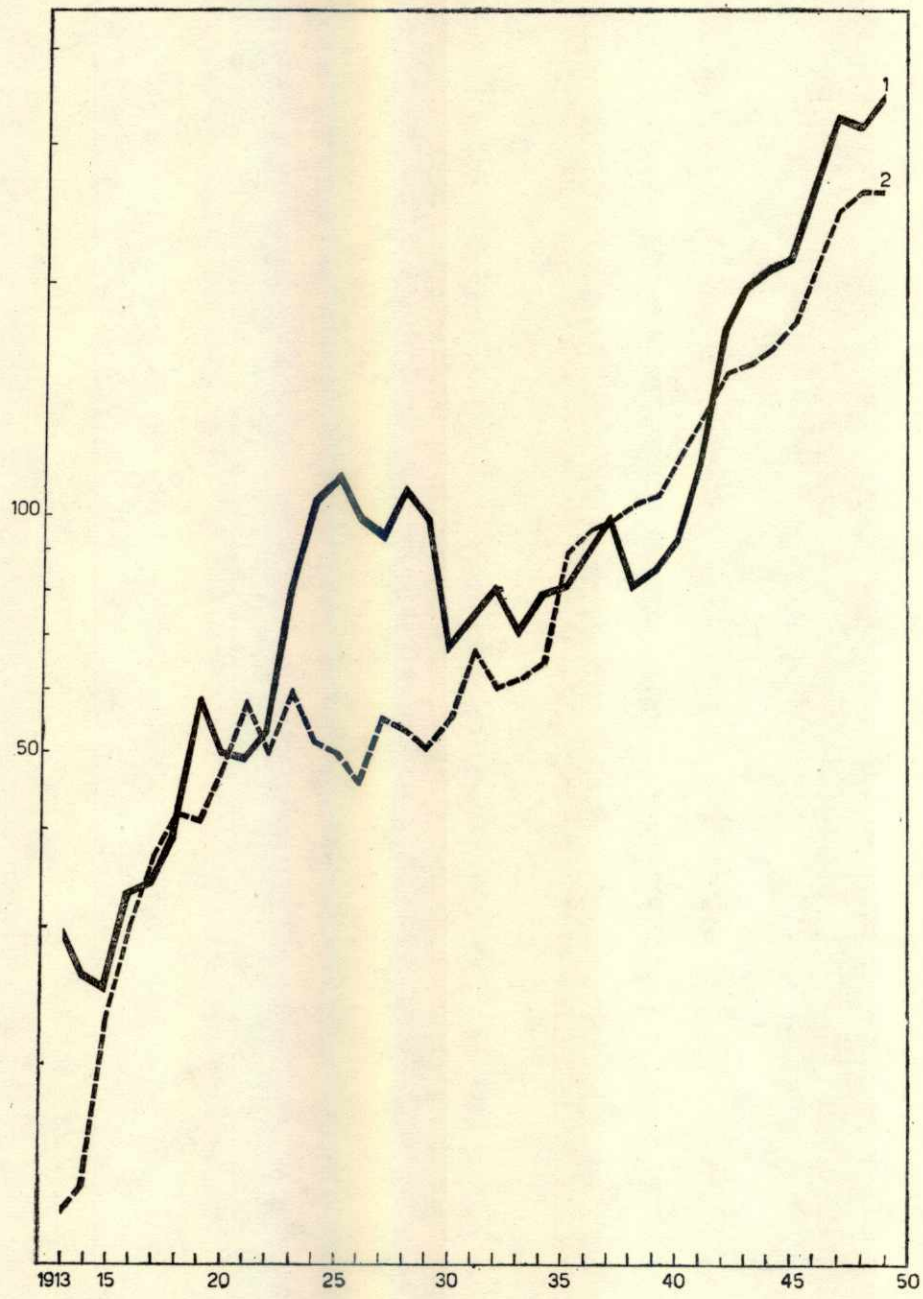


GRAFICO 5

BRASIL

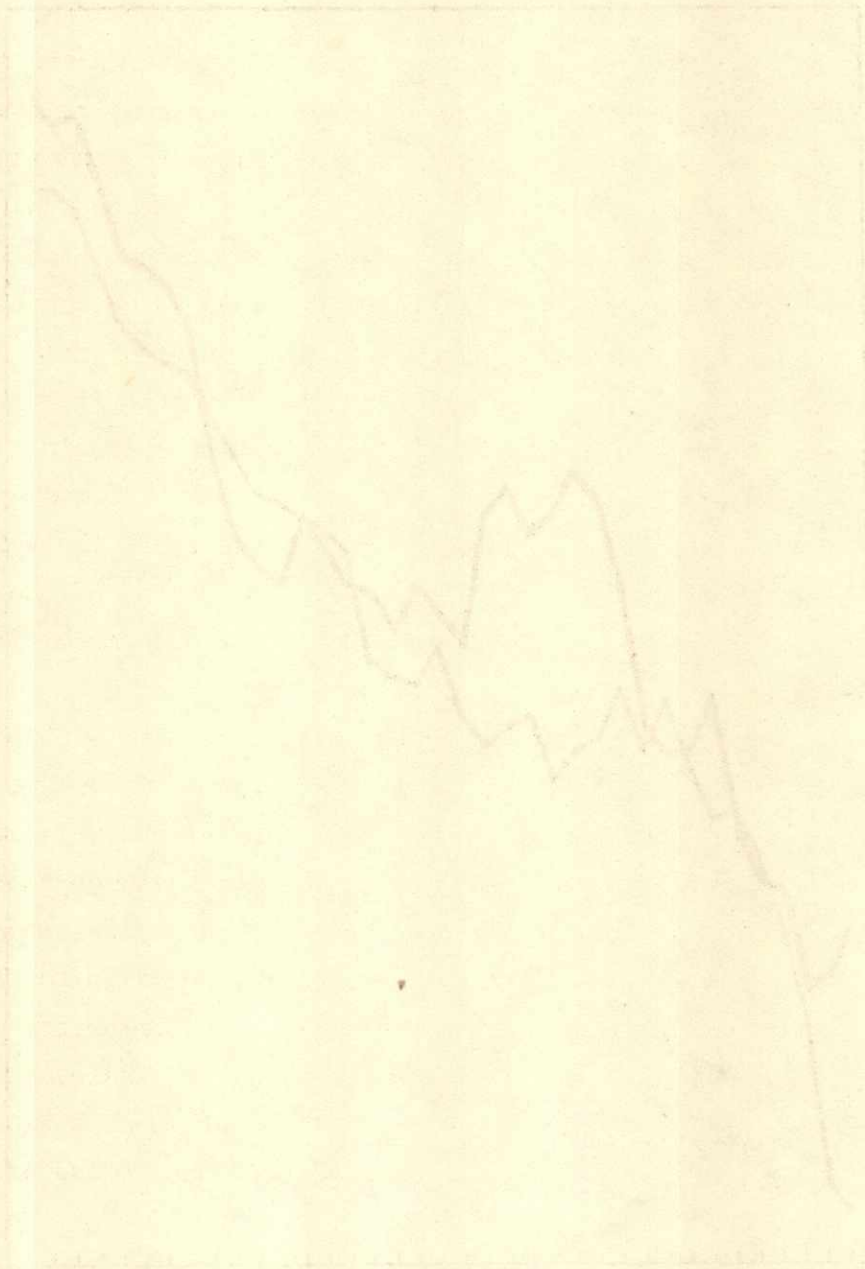
INDICES DE PRECIOS DE IMPORTACION Y EXPORTACION

Escala logarítmica.



1.— Indice de precios de exportación.
2.— Indice de precios de importación.

Centro de Investigaciones, Comisión Económica para América Latina.



The same chart shows the indices used in calculating the preceding index, that is, the quantum of exports represented by Curve 2 and the terms of trade shown on Curve 3. Let us examine them briefly.

During the past twenty-five years, the quantum of exports has tended to follow the trend of the increase in population: sometimes it rises less and sometimes more but it always turns again towards the curve of the population. During the past few years the growth has been more intense, so that by 1945-49 the average was 70.2 per cent higher than that for 1925-29; that is to say, its growth has been relatively greater than that of the population, as can be seen from Table 3 B. On the other hand, the terms of trade which had favoured Brazilian exports before the crisis became extremely unfavourable during the thirties and the first half of the forties. Later, there was an improvement in the terms of trade but they did not reach their former high level; in fact, in 1945-49 they were 63.4 per cent of the 1925-29 average. 1/ The price indices used to calculate the terms of trade are shown on Chart No. 5.

Consequently, the adverse effects of the depression of the thirties on the terms of trade still prevailed in 1949, and it is due to them that the increase in exports during the past quarter century did not result in a greater capacity to import, as has already been shown.

To what extent do the fluctuations in the capacity to import affect real imports? The answer to this question can be found in the lower curves of Chart No. 4, where, in the first place, a comparison is drawn between the index of capacity to import (Curve 4) and the quantum of imports (Curve 5). There is a great similarity between the two curves, though the fluctuations of the second are greater than those of the

---

1/ With the rise in the price of coffee the terms of trade in 1949 were 70 per cent of the 1925-29 level.

Table 4-A. Brazil: Durable goods and others in Brazilian imports

Value at 1939 prices

(thousands of cruzeiros)

Years	Durable goods			Other goods	Total imports
	Capital goods	Motor vehicles	Total		
1925	2,000,014	464,522	2,464,536	2,471,910	4,936,446
1926	1,715,974	350,182	2,066,156	2,231,474	4,297,630
1927	1,701,594	314,446	2,016,040	2,272,316	4,288,356
1928	1,887,668	482,725	2,370,393	2,563,352	4,933,745
1929	2,141,229	573,060	2,714,289	2,375,794	5,090,083
1930	1,184,773	20,679	1,205,452	1,911,173	3,116,625
1931	477,085	47,064	524,149	1,409,687	1,933,836
1932	485,503	27,576	513,079	1,292,009	1,805,088
1933	788,603	93,215	881,818	1,542,697	2,424,515
1934	982,409	161,234	1,143,643	1,616,128	2,759,771
1935	1,204,775	103,639	1,308,414	1,674,420	2,982,834
1936	1,231,392	106,880	1,338,272	1,829,829	3,168,101
1937	1,695,153	155,007	1,850,160	1,994,653	3,844,813
1938	1,475,421	127,793	1,603,214	1,976,644	3,576,858
1939	1,297,689	231,103	1,528,792	1,878,897	3,507,689
1940	993,018	249,667	1,242,685	1,833,316	3,076,001
1941	969,167	267,562	1,346,729	1,795,739	3,032,468
1942	571,306	83,704	655,010	1,465,223	2,120,233
1943	760,983	7,874	768,857	1,661,626	2,430,483
1944	1,237,512	18,203	1,255,715	1,987,823	3,243,538
1945	1,318,866	83,832	1,402,698	2,147,375	3,550,073
1946	2,070,248	303,947	2,374,195	2,208,858	4,583,053
1947	2,952,840	702,394	3,655,234	3,230,176	6,885,410
1948	2,280,367	723,509	3,003,876	3,208,712	6,212,588
1949	2,627,334	498,389	3,125,723	2,916,528	6,042,251

Source: Research Centre, Economic Commission for Latin America, of the United Nations.

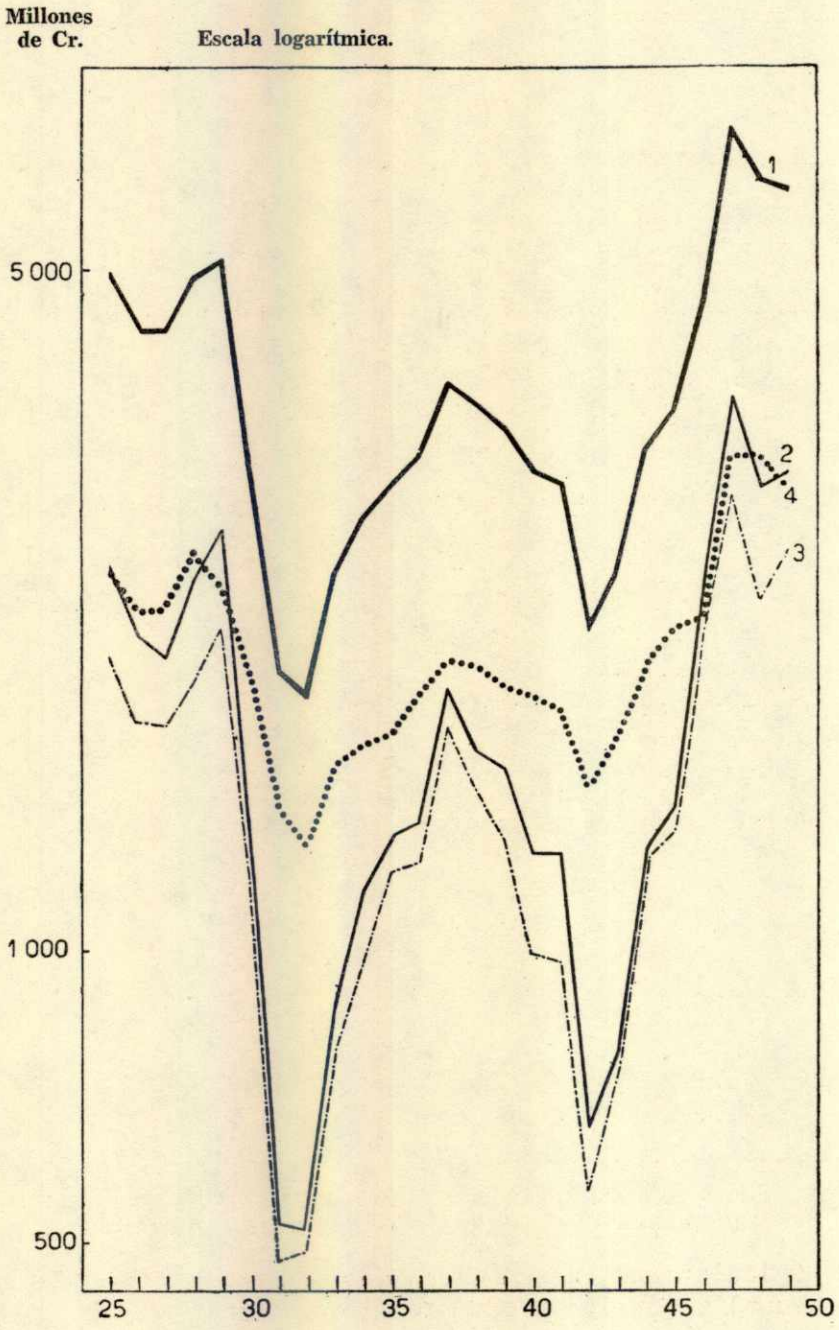
Note: Calculations based on sample used in the quantum index of imports, equal to at least 80 per cent of the total value of imports in any one year, the basis being c.i.f. prices at a Brazilian port.

GRAFICO 6

BRASIL

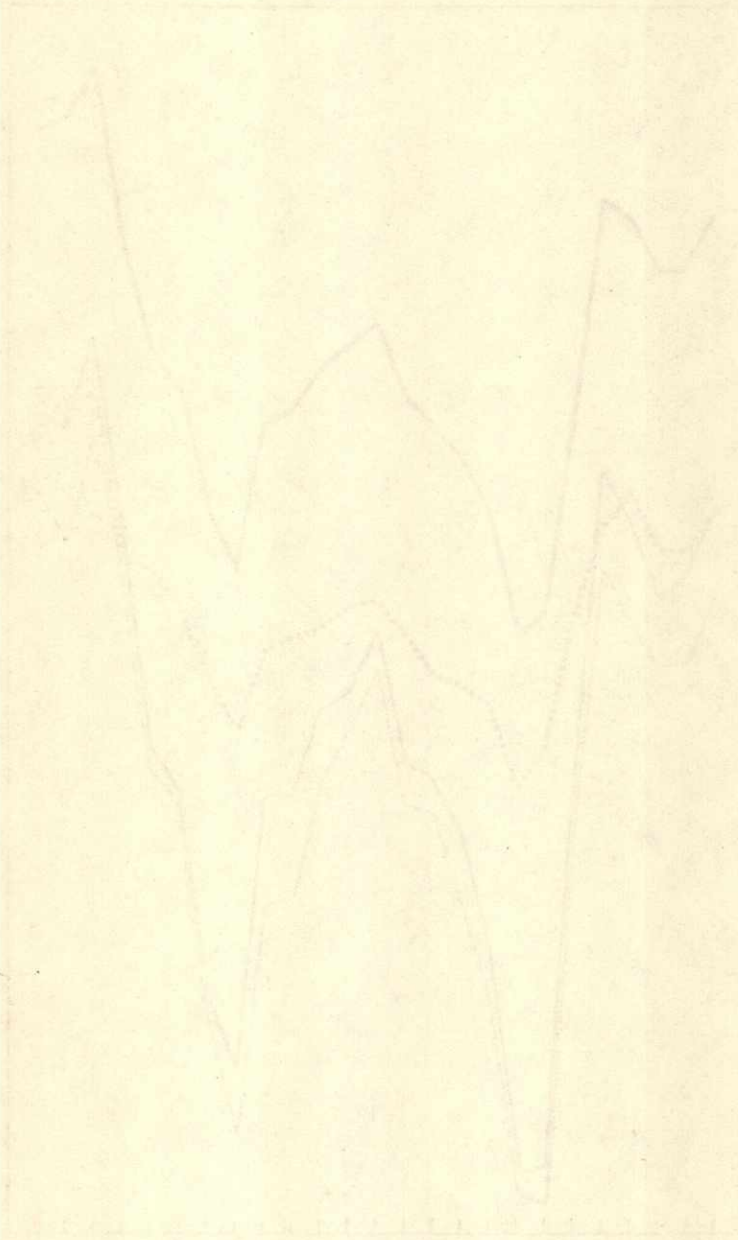
IMPORTACIONES DE BIENES DURADEROS Y DEMAS BIENES

Valores a precios de 1937



1.— Total de importaciones.
2.— Total de importaciones de bienes duraderos.
3.— Importación de bienes duraderos, excluyendo automotores.
4.— Importación de los demás bienes.

Centro de Investigaciones, Comisión Económica para América Latina.



former. Apart from other factors, 1/ the greater sensitivity of imports can be attributed to the fact that the capacity to import is also employed for financial services and other liability items on the balance of payment, which are relatively inflexible. These increase less than imports during the upswing and decrease less during the downswing.

This greater degree of reaction of imports to the cyclical fluctuations does not manifest itself equally in the different categories of imports. As will be seen in Chart 6 and Table No. 4 A, the importation of capital goods, and that of total durable goods fluctuates to a greater extent than the rest of the imports. The international economic fluctuations thus affect the rate of capitalization in Brazil very sharply, thereby influencing the degree of the country's economic development. These data will be sufficient to indicate the manner in which capitalization of foreign origin is weakened during the cyclical depressions. At the minimum point in 1932, a quantum for the import of capital goods was only 22.8 per cent of the maximum reached in 1929; at the other minimum point, 1942, it was only 35.4 per cent of the other maximum reached in 1937. Table . . 4 B compares the corresponding averages for the five year period.

Table 4 B. Durable and other goods imported by Brazil

Valued at 1939 prices

	Five yearly averages			% of variations in relation to 1925-29	
	1925-29	1945-49	1949	1945-49	1949
	Millions of cruzeiros				
Durable goods					
Capital goods	1,889	2,250	2,627	19.1	39.1
Motor vehicles	437	462	498	- 0.5	7.3
Total	2,326	2,712	3,125	16.6	34.4
Other goods	2,383	2,742	2,916	15.1	22.4
Total Imports	4,709	5,454	6,041	15.8	28.3

Note: For sources and notes see Table 4-A, Brazil.

1/ Imports are also paid for with foreign loans and investments; furthermore, the capacity to import in a given year may be concentrated in the form of monetary reserves which are spent in subsequent years. These factors partly explain the difference between the two curves.

/If the

If the great industrial countries on whom Brazilian exports and the terms of trade principally depend, were able to attenuate to a reasonable extent the fluctuating trend of their economic activities, such abrupt changes in the capacity to import would not occur in Brazil, and it would be able to maintain a relatively high level of imports to advantage of its economic development; its need for foreign investments would consequently not be so great.

There is more to it than this, however. Not only is capitalization of foreign origin weakened by the cyclical fluctuations but the corresponding index has delayed considerably in recovering from the two great declines to which it was subject during such fluctuations in the thirties. From the chart it can in fact be seen that it was seventeen years before the quantum of imports of capital goods reached the level obtaining prior to the great economic crisis.

Brazil's attitude in the face of these events has been far from passive. On the contrary, deprived of the opportunity to acquire abroad the increasing amounts of capital goods required, it has striven to supply by means of domestic production that portion of goods to which its resources were best adapted. This effort is most evident in the rapid growth of domestic production of steel and cement, to which further reference will be made when industrial development is analysed.

If the quantum index of imports of capital goods is combined with the production indices of steel and cement, the resulting index will give us an approximation of Brazil's tendencies towards capitalization. This approximation is doubtless a rough one since it lacks the value acquired by iron and steel in the machine industry, and by cement in building. However, with these and other reservations which may be necessary, this index of total capitalization as compared with the index for the import of capital goods gives an idea of the extent to which Brazil has been able, through domestic production, to compensate for the decrease in imported capital goods. Both indices are shown on Chart No. 7 Table No. 5 A.

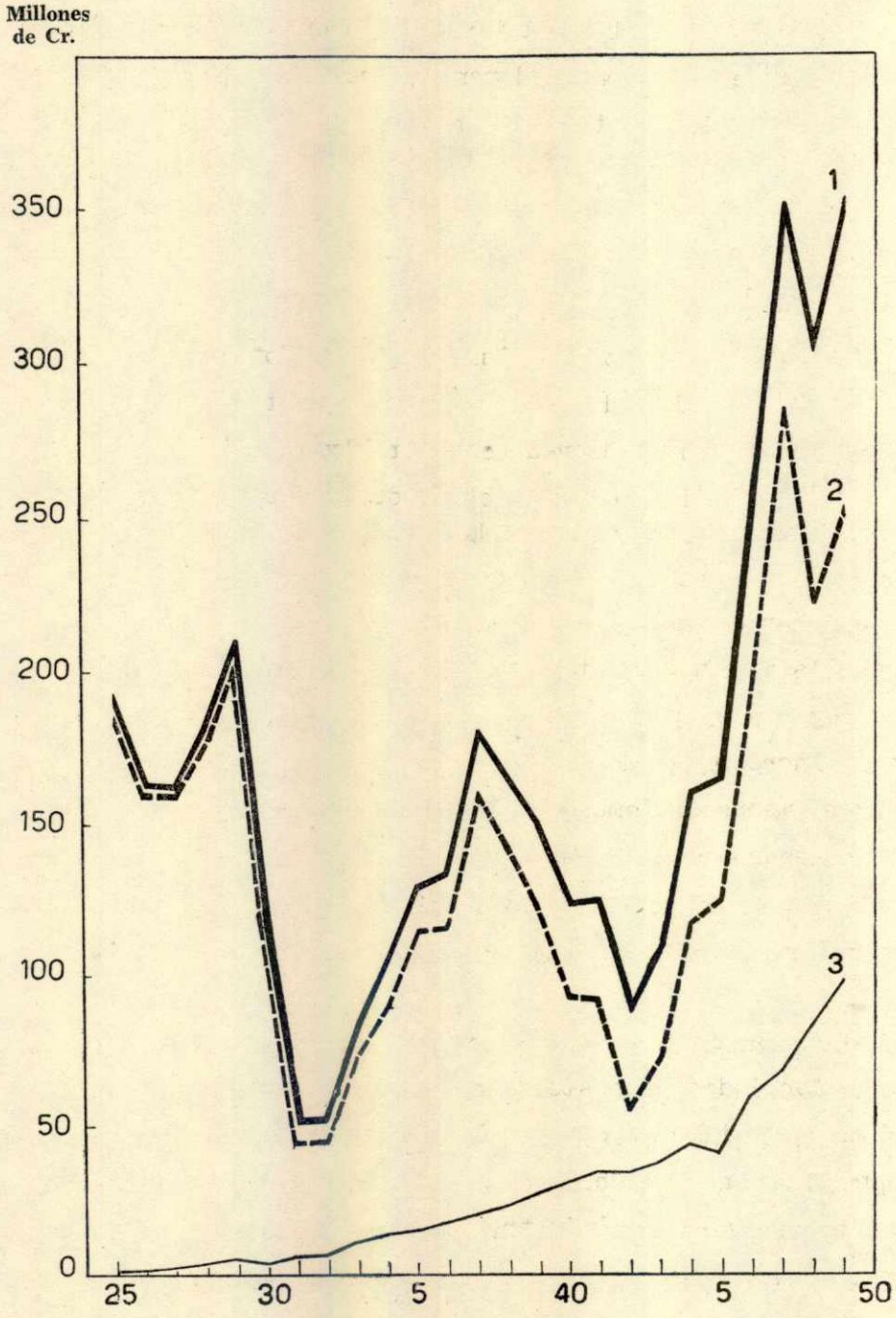
/In 1945-49

GRAFICO 7

BRASIL

INDICES DEL DESARROLLO DE LA CAPITALIZACION

Valores a precios de 1937



1.— Capitalización.
2.— Importación de bienes de capital.
3.— Producción de acero y cemento.

Centro de Investigaciones, Comisión Económica para América Latina.

Table 5-A. Brazil : Capitalization Indices (Value at 1937 prices)

(In thousands of cruzeiros)

Years	Domestic production of steel and cement	Imports of Iron, steel and cement	Imports of other capital goods	Total Imports	Total General	Coefficient of capitalization
1925	9,902 a/	578,897	1,326,220	1,905,117	1,915,019	17.3
1926	15,259	609,932	1,803,220	1,613,152	1,628,411	15.2
1927	20,230	675,478	922,954	1,598,432	1,618,662	14.2
1928	43,291	710,232	1,061,455	1,771,687	1,814,978	13.2
1929	51,865	706,284	1,328,479	2,034,763	2,086,628	15.5
1930	42,621	398,058	729,716	1,127,774	1,170,395	10.6
1931	59,311	187,132	262,372	449,504	508,815	5.3
1932	70,737	194,673	253,167	447,840	518,577	5.1
1933	109,351	335,412	390,343	725,755	835,106	7.1
1934	137,025	404,225	497,584	901,809	1,038,834	8.3
1935	147,726	404,294	742,369	1,146,663	1,294,389	10.1
1936	180,711	435,739	723,432	1,159,161	1,339,872	9.9
1937	199,327	581,319	1,021,740	1,603,059	1,802,386	12.2
1938	228,337	368,015	1,054,288	1,422,303	1,650,640	11.9
1939	270,601	436,604	785,423	1,222,027	1,492,628	10.5
1940	314,248	388,836	538,134	926,970	1,241,218	8.5
1941	336,757	334,407	580,746	915,153	1,251,910	8.1
1942	340,474	175,606	372,473	548,079	888,553	5.9
1943	372,914	248,220	471,651	719,871	1,092,785	6.2
1944	430,356	456,493	721,861	1,178,354	1,608,710	8.6
1945	404,207	456,979	793,719	1,250,698	1,654,905	9,2
1946	592,283	658,862	1,320,918	1,979,780	2,572,063	13.2
1947	665,520	723,340	2,140,190	2,863,530	3,529,050	16.5
1948	823,216	399,713	1,832,261	2,231,974	3,055,190	13.8
1949	972,743	390,058	2,172,530	2,562,588	3,535,331	15.3

Source: Research Centre, United Nations, Economic Commission for Latin America

Notes: Domestic production and imports of iron and steel have been computed at c.i.f. prices at a Brazilian port, obtaining an average for raw and manufactured steel.
Domestic production of cement has been calculated at c.i.f. prices of imported cement at a Brazilian port.
As a result of the use of these prices, a small difference will be noted between total imports of capital goods and the totals shown on Table 4A.
The index of capitalization corresponds to 1939 values, and for the computation of the Table 1939 prices were used but they are reported as of 1937 for purposes of comparison with the import data.

a/ Cement only.

In 1945-49 the quantum of imported capital goods was 22 per cent more than in 1925-29, that is, lower than the increase of population. But since domestic production of iron and steel was 24 times greater, the total index capitalization in the later five-year period shows an increase of 58.3 per cent, which is more than the 41.3 per cent increase of population. In Table 5-B the five-year averages and growth of capitalization are shown.

Table 5 B Index of the development of capitalization

Values at 1939 prices

	Five-yearly averages			Percentage of variation in relation to 1925-29	
	1925-29	1945-49	1949	1945-49	1949
	(thousands of cruzeiros)				
Domestic production of iron and steel	28,109	691,594	972,743	2,360.0	3,360.6
Exports of iron, steel and cement	656,165	525,790	390,058	- 19.9	- 40.6
Imports of other capital goods	1,128,466	1,651,924	2,172,530	46.4	92.5
Total imports of capital goods	1,784,631	2,177,714	2,562,588	22.0	43.6
General	1,812,740	2,869,308	3,535,331	58.3	95.0
Coefficient of capitalization a/ %	15.1	13.6	15.3	- 9.9	- 1.3

Note: For sources and notes see Table 5 A, Brazil.

a/ This coefficient represents the relationship between total capital goods and total available goods. As the index of the latter is calculated on the basis of prices obtaining in 1939, that of capital goods was recalculated on the same basis in order to establish the ratio.

/Despite this

Despite this increase capitalization would not have developed at the same rate as the index of available goods. It will be recalled that the latter increased by 70.4 per cent between the two five-year periods mentioned above. The ratio between the two indices has been subject to drastic changes during the past twenty-five years as will be seen from Chart 8. In the five-year period 1925-29 about 15.1 per cent of available goods were employed in capitalization. This proportion fell to 5.1 per cent in 1932, the lowest point of the depression; it rose again to a maximum of 12.2 per cent below the pre-crisis level. It fell again to a second minimum of 5.9 per cent in 1942 and since then it has risen constantly until the past two years when slighter fluctuations were noted. During the five-year period 1945-49, 13.6 per cent of available goods were invested in capitalization, again a little less than in 1925-29. However, the percentages for 1947 and 1949 were actually higher than the average level for the earlier five-year period. One may say then that the ratio of capitalization to total goods is once again approximately equivalent to the pre-world crisis level. However, if one considers that the index does not include the value added to steel in the manufacture of machinery and tools - highly developed during the last twenty-five years - it can be stated that the ratio may have improved in the last few years.

3. Indices of economic activity and consumption

It has been shown that during the last twenty-five years the index of available goods has increased more than that of the population. Indices of this nature, whether because of the nature of the data employed or because of the necessarily somewhat arbitrary methods of calculation, are always open to reasonable doubt. For reasons set forth in the corresponding appendix concerning the methodology employed, we are inclined to believe that this index is somewhat lower than that which does in fact obtain. To justify this belief we may refer to other indices of Brazil's economic activity, for which purpose the few indices available have been included in Chart 8 and Table 6. They

/all reveal

all reveal a higher increase than that shown for available goods. Thus whilst the latter shows an increase of 70.4 per cent between 1925-29 and 1945-49, the amount of cargo carried by coastal shipping shows an increase of 101.1 per cent; it should be added that this represents an appreciable part of the trade effected along the coastline of the vast Brazilian territory. Cargo carried by the railways (ton-kilometre) shows an increase of 113.8 per cent 1/, and the number of passengers carried on the railways shows an increase of 133.9 per cent 1/. The increase in the consumption of power is even greater, having risen by 135.2 per cent between the two five-year periods, though the exclusion of fuel wood renders this comparison somewhat inaccurate.

The direct indices for the consumption of goods by the population are insufficient to allow a satisfactory comparison to be made with the general index. It has already been shown elsewhere that the index of capitalization has risen at least 58 per cent in comparison with an increase of 70 per cent for available goods. There is no doubt that the index of capitalization is incomplete and that in fact it is possible that capitalization may have increased at the same rate as available goods, or in other words, that consumption and capitalization have increased to the same degree during the period analysed. If this is so, the goods available for per capita consumption, would have increased, on the average, by 20.6 per cent between the end of the first and second quarter centuries under review; but if we limit ourselves strictly to the relation between the index of available goods and the part thereof used for capitalization, then goods available for consumption would have increased 22.7 per cent per capita.

Whatever the degree of increase, it has been established that the increase was not distributed evenly throughout the various classes

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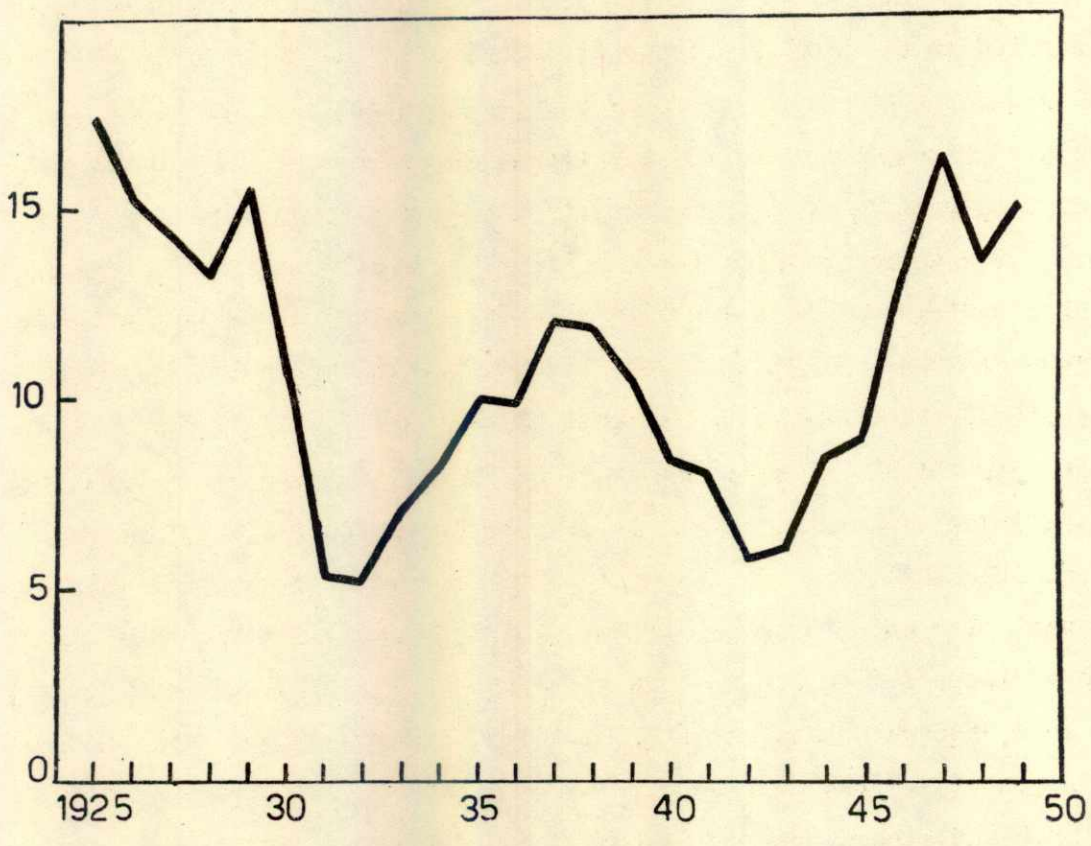
1/ The 1945-48 average has been compared with that of 1925-29, due to the lack of data for 1949.

GRAFICO 8

BRASIL

COEFICIENTE DE CAPITALIZACION.



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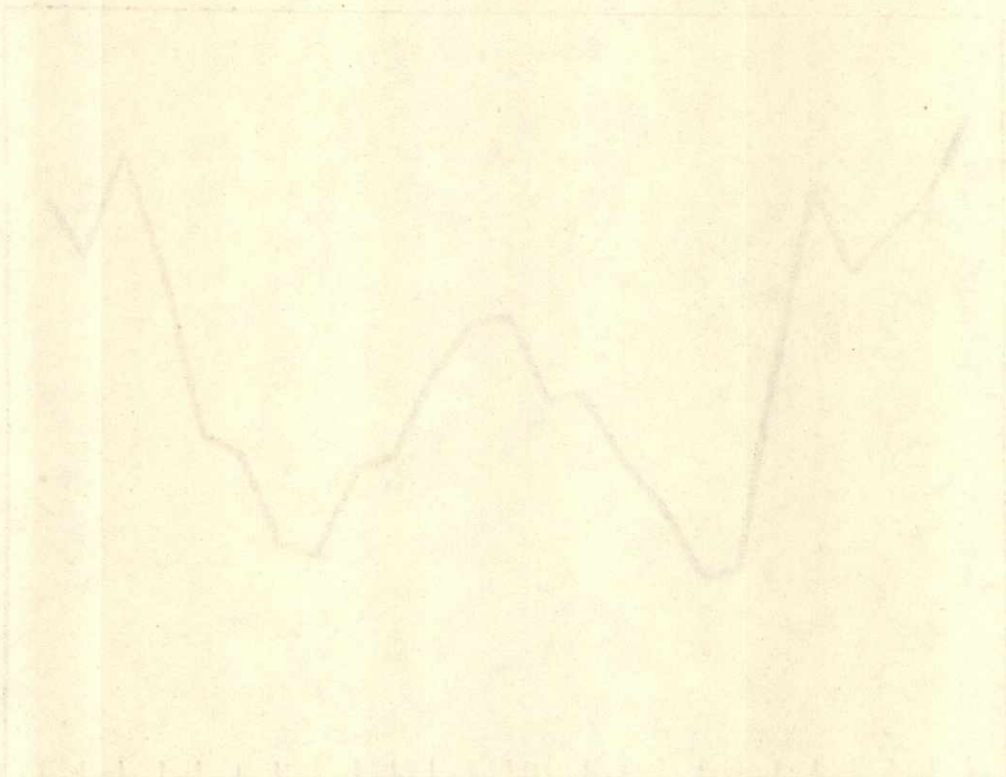


of goods. Thus, consumption of agricultural goods produced in Brazil[1], including foodstuffs, oleaginous products and cotton[2], has increased 52.1 per cent as against an increase of 41.3 per cent in the population. The consumption of cotton textiles increased by 59.5 per cent, whilst that of sugar was greater, 68.1 per cent, which must be added to that of the 'twenties; per capita consumption has thus risen from 20.6 kilogrammes in 1920-24 to 30.8 kilogrammes in 1945-49. Meat, on the other hand, increased by 35.8 per cent, which is less than the increase in population between the two five-year periods. This product is included under agriculture and stockbreeding, so that the decrease in per capita consumption has been compensated by other products. The greatest increase is that in the consumption of gasolene, which increased by 327.8 per cent. On the chart are shown the principal trends, corresponding figures for which are shown on Table 6.

With the exception of gasolene, the different increases just mentioned were less than that of total available consumer goods. It is therefore probable that consumption of other products, especially of industrial goods, has increased more sharply due to the intensive development of domestic production. Unfortunately, except for a general index shown elsewhere, very few partial indices are available and these only from 1930 onwards. Thus, it is only possible to mention the appreciable increase in the consumption of paper which increased 141 per cent between 1930-34 and 1945-49, and that of rayon textiles which multiplied more than eleven times between 1930-34 and 1945-47 as compared with the increase of 70.4 per cent in available goods between the two five-year periods.

1/ In order to separate these from wild animal and vegetable products, for which no data are available for the quarter century.

2/ According to the figures given in the section.

Table 6-A. Brazil: Indices of economic activity and consumption

Years	Volume of coastwise trade	Passengers per km. carried by the railways	Tons per km. carried by the railways	Consumption of cotton cloth	Petrol consumption	Paper consumption	Sugar consumption	Meat consumption
				Millions of metres				
	Indices 1937 = 100					Thousands of metric tons		
1925	60.8	70.8	50.5	609	143.3		813.3	667.6
1926	56.8	70.3	49.2	612	152.6		886.8	626.3
1927	60.7	73.0	55.5	667	201.2		801.5	703.2
1928	65.6	81.8	59.8	665	254.3		854.6	647.0
1929	66.4	83.2	62.8	527	293.6		992.4	596.1
1930	53.9	78.1	53.0	489	279.5	100.6	1,059.7	644.3
1931	56.4	72.4	53.2	636	214.3	77.8	1,039.2	671.4
1932	59.7	66.6	48.6	634	143.7	88.3	941.2	629.0
1933	64.5	73.9	52.1	646	235.9	104.6	1,001.0	818.8
1934	72.1	73.7	57.6	716	264.7	115.6	1,060.7	890.0
1935	75.4	80.6	63.7	754	276.3	141.8	1,069.8	1,026.2
1936	81.7	83.8	72.2	915	325.4	153.7	1,109.0	997.1
1937	87.2	89.1	78.2	961	357.1	170.2	939.7	1,032.2
1938	90.1	102.7	99.8	912	361.3	156.8	951.2	1,011.0
1939	100.0	100.0	100.0	879	370.1	164.2	1,027.5	1,001.3
1940	102.6	119.1	98.3	815	368.4	170.5	1,122.7	830.9
1941	111.1	129.5	104.5	905	366.6	190.4	1,214.8	907.7
1942	105.4	120.4	104.6	815	251.0	163.0	1,214.9	821.0
1943	98.8	142.4	109.8	1,157	275.0	165.2	1,245.9	780.6
1944	114.9	156.7	115.7	1,184	303.7	186.1	1,187.2	737.1
1945	115.2	169.2	117.9	833	411.6	196.7	1,282.3	758.5
1946	121.8	176.8	117.0	1,004	623.8	228.1	1.331.8	838.3
1947	115.9	181.8	118.2	902	932.9	253.8	1.402.9	909.8
1948	136.5	181.6	122.2	1,067	1,132.4	248.8	1.594.7	1,013.1
1949	134.6			1,107	1,370.0	246.0	1.700.0	

Source: Research Centre, Economic Commission for Latin America.

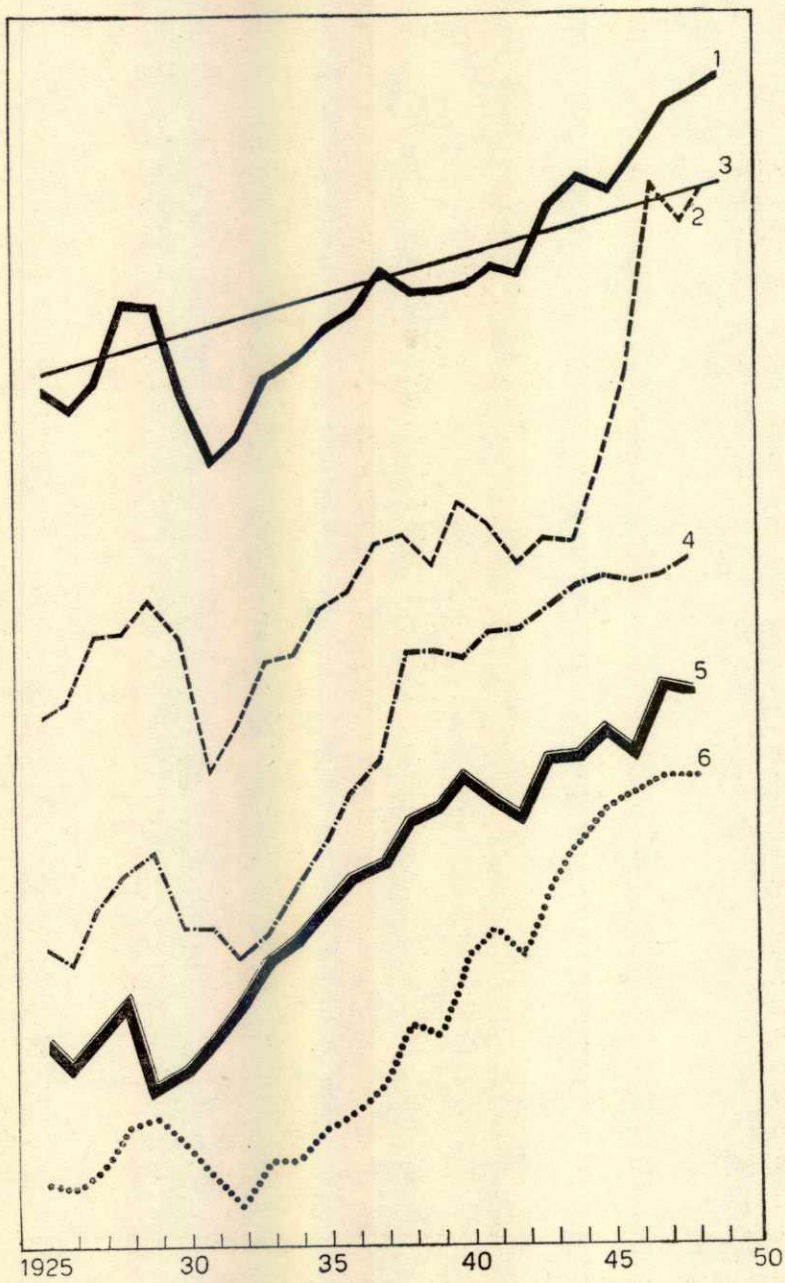
Note: The data have been compiled from various official publications. Petrol consumption corresponds to imports thereof. Meat consumption does not include imports since these are relatively small. Sugar consumption: Until 1937, production minus exports - 1938-48, statistics supplied by Ibge; 1949 estimate based on production, exports and rate of increase of consumption as from 1945.

GRAFICO 9

BRASIL

INDICES DE LA ACTIVIDAD ECONOMICA

Escala logarítmica.



1.— Volumen físico de los bienes disponibles.
2.— Consumo de energía.
3.— Población.
4.— Toneladas-kilómetros transportadas por ferrocarriles.
5.— Volumen físico del comercio de cabotaje.
6.— Pasajeros - kilómetros transportados por ferrocarriles.

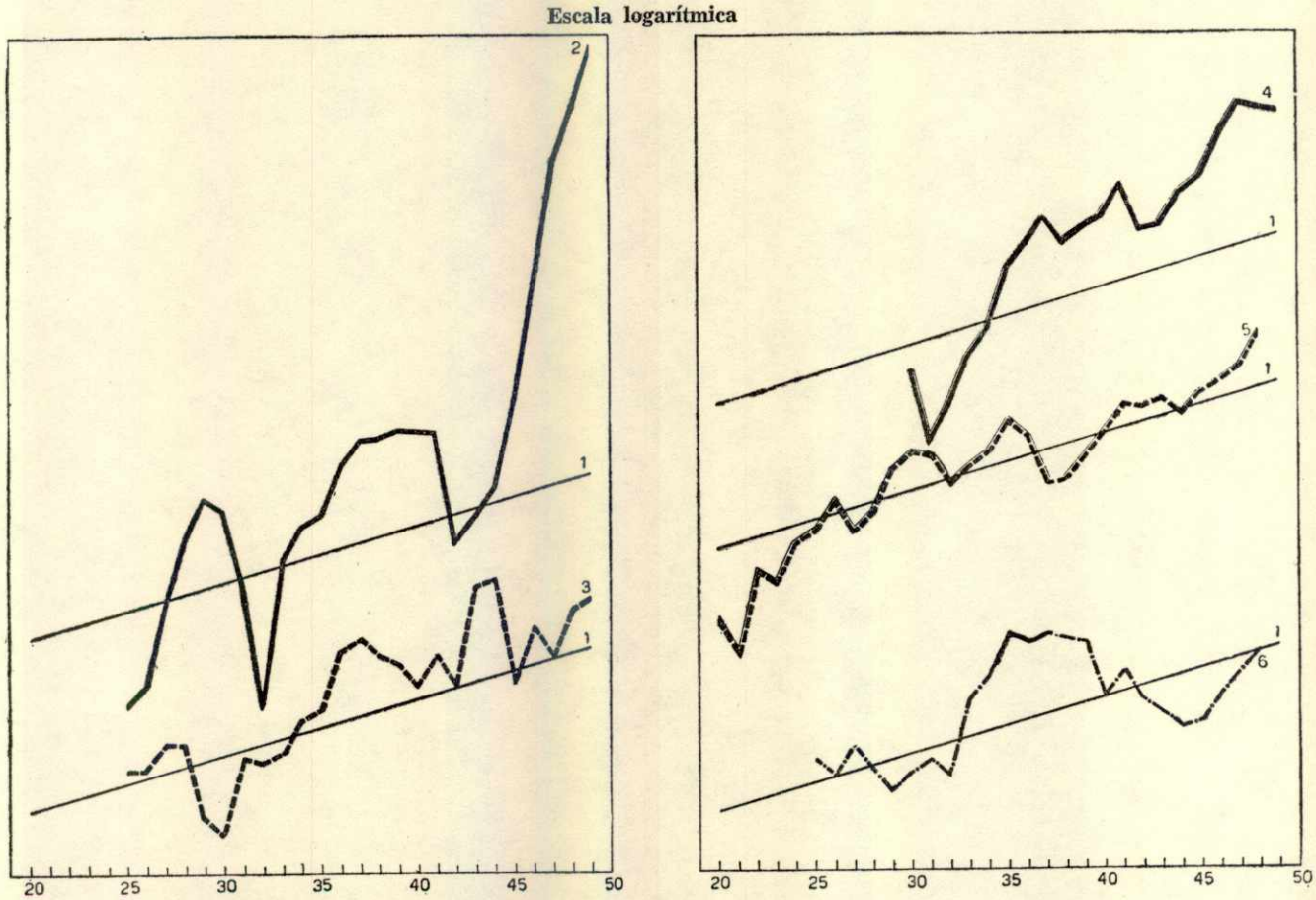
Centro de Investigaciones, Comisión Económica para América Latina.

GRAFICO 10

BRASIL

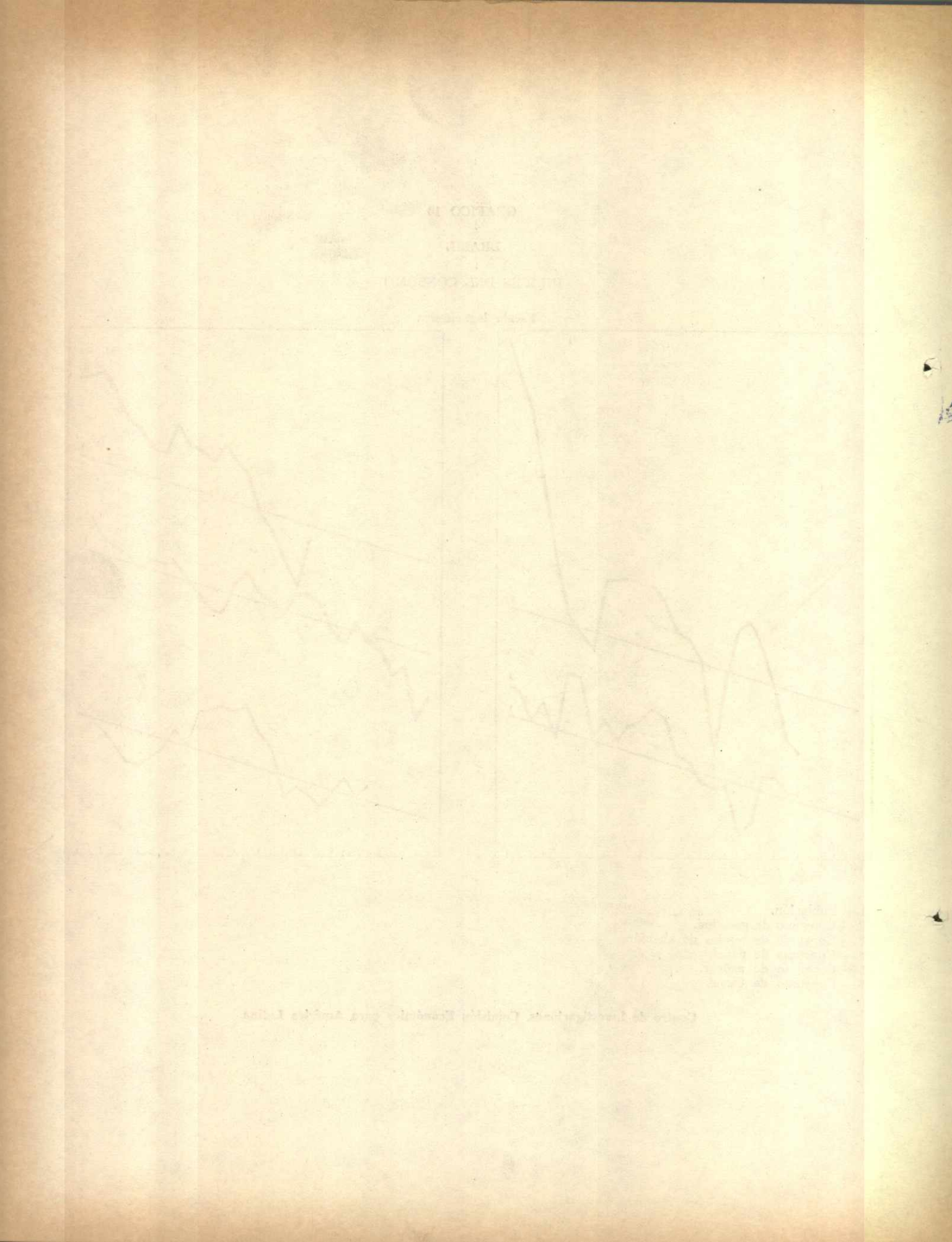
INDICES DEL CONSUMO

Escala logarítmica



1.— Población.
2.— Consumo de gasolina.
3.— Consumo de tejidos de algodón.
4.— Consumo de papel.
5.— Consumo de azúcar.
6.— Consumo de carne.

Centro de Investigaciones, Comisión Económica para América Latina.



We now enter into the field of conjecture in which it is easy to be lost, unless we advance cautiously. Nor is it possible to make up the deficiency of information on consumption with figures for the increase of real wages over a period as long as the one under analysis. Only fragmentary data are available for industries in Sao Paulo between the years 1914-1948, computed by the Federation of Industries for this state. From these it would appear that during this period real salaries remained more or less unchanged; nor would there seem to have been any important modification since this period, as seems to be indicated by the analysis of Brazilian industries presented in its appropriate place within this report.

The question now arises how this conclusion, which will be taken as provisional in the absence of more adequate data, can be reconciled with an increased availability of goods for the total population of Brazil. There is no logical contradiction between the two and it is precisely here that one finds one of the most complex problems facing countries in which a large proportion of the population are still working with pre-capitalistic methods in primary occupations, and moreover in which the rate of growth of the population is comparatively high. A portion of the population engaged in primary occupation, as has already been shown, is absorbed by industry and other activities, that is, it flows from occupations of low productivity and very low income to those of a higher productivity and a higher income. The displaced population thus improves its standard of living, and avails itself of a greater quantity of consumer goods 1/, whereas those already engaged in industry, to judge by the aforesaid statistics, enjoy

1/ This does not mean that the entire increment of available consumer goods has been utilized in raising the standard of living of the population displaced from primary production. It is possible that there has been an increase in the number of persons engaged in services and other activities, who, whilst not actually producing physical goods, share in their consumption. Moreover, there is no available data which would indicate the form in which the available goods are distributed amongst the various social groups.

no perceptible increase in their standards of living. In other words, though the standard of living of the industrial population does not rise, there is an increase in the total number of persons engaged in industry who were formerly employed in agriculture and who thus attain a higher standard of living than they had previously. The pressure of those displaced from primary production is therefore one of the factors influencing real wages in industry and preventing their increase. Though intensive, industrial development is not sufficiently great to cause a shortage of labour in primary production, which would bring about mechanization and a consequent increase of productivity. Among other essential requirements, it would be necessary to increase the rate of capitalization. The extent to which this could be done by increased savings in the high income groups at the expense of their consumption in order not to impair the standard of living of the masses, is a question which cannot be answered due to the lack of data regarding the distribution of income. Whatever the extent of the possible margin of additional savings, it is hardly likely to be very wide, and even though it were, it is certain that a greater degree of capitalization would again involve the problem of foreign trade disequilibrium until such time as a sufficient degree of progress had been attained in industries producing capital goods. Brazil's concern with regard to foreign loans and investments as a means of supplementing national savings thus becomes understandable.

IV. Development of agriculture and stockbreeding, and of exports

A. Agricultural Production

1. Conditions of production. In analysing the role of agriculture in Brazil's economic development, we enter upon a vast sector of the country's economic life in which, despite great efforts to the contrary, pre-capitalist methods still prevail and very little use is made of machinery or other instruments for cultivation purposes. It is estimated that about 70 per cent of agricultural production is

/produced exclusively

produced exclusively by manual labour without the aid of any implement other than the hoe and also without the aid of even the most primary form of animal traction - not only are automotive machines relatively scarce, but even the use of the simplest ploughs drawn by animals is slight.

The abundance of land and labour in comparison with the relatively high price of machinery has proved a great obstacle to the introduction of technical methods in Brazilian agriculture, if by that is meant the use of modern machinery and cultivation processes. Nevertheless, changes are taking place which are increasing the speed of technical progress. In area where labour has grown scarce because of the attraction exercised by the urban centres or where demand has increased sharply under special circumstances, the incentive to employ animal traction and introduce better implements or mechanization has not been without effect. The cultivation of rice, for instance, has been considerably encouraged by the increase of domestic consumption and of foreign demand during and after the war. There is no doubt that it has become the most highly mechanized crop in the country.

The same occurs in the case of wheat, which has been favoured by the high price guaranteed and by the technical assistance given by the government, leading to the introduction of mechanical equipment made necessary by the recent expansion of production. A similar technical stimulus can be noted in cotton, though it has been estimated that more than half of the cotton crops are still sown and cultivated by hand. This is a great source of concern, in view of the increase in wages and consequently of the cost of production, which might ultimately place this product in an unfavourable competitive position on the foreign market. Finally, as regards coffee, which despite its fluctuations continues as Brazil's principal export, it would seem that the peculiar nature of the work involved is not suitable for mechanization, though the method of cultivation itself admits of

/considerable improvement.

considerable improvement.

One must not assume that everything depends on the use of progressive modern equipment which, apart from the considerable investment involved, demands efficient preparation before their introduction. It is a considerable achievement if the direct human labour can be combined at a comparatively small cost with the employment of simple machinery and implements drawn by animal traction.

Nevertheless, though technological progress is relatively slow, it appears that the degree of productivity has increased in Brazilian agriculture. The figures are of course debatable in view of the inaccuracy and deficiency of the census data. However, if we accept them, it can be said that in the period between the census of 1920 and that of 1940, when the population gainfully employed in agriculture increased by only 20 per cent, the quantum index of production was raised by 68 per cent.

However, great the margin of error in the statistics 1/, there remains no doubt that the population gainfully employed in agriculture increased less than the total population and again, less than agricultural production; similarly, the increase of productivity, however slight it may be in comparison with what might be obtained with improved technique, has allowed the migration of population from the country to the towns.

It is evident that this phenomena could not have occurred had there not been a simultaneous development of industry and other activities absorbing labour leaving agriculture. This process of attraction must continue to increase in a measure with the increasing rate of industrial development. This is precisely one of the greatest inducements to the introduction of technical methods in Brazilian agriculture. In short, industry has been propelling agriculture towards technical progress; however, the problem is far from simple.

1/ This margin appears to be considerable in the case of the cultivated area, which shows an increase of 183 per cent between the census of 1920 and that of 1940.

/There is,

There is, above all, the question of capital, which assuredly is not abundant. Furthermore, the technical training of agricultural labour is another factor of great importance. One must not overlook the fact that technical assistance from the government was essential even in countries with such a high degree of individual initiative as exists in the United States. Contrary to the rule in industry, the technical improvement of agriculture in that country was largely due to government assistance, as was the rapid and efficient spreading of the new methods throughout the rural sectors.

There is thus a preparatory task in introducing technical methods which cannot be eliminated without causing serious damage to agricultural production by depriving it prematurely of the labour required to continue its natural development.

This has been fully recognized in Brazil, as can be seen by the importance given in the SALTE Plan 1/ to this and other agricultural problems. Together with the introduction of modern technique in agriculture, there is no more vital problem than that caused by the depletion of the soil. Because of its physical characteristics, its topography and climatic conditions on the one hand, and the methods of cultivation on the other, a considerable portion of the soil cultivated at present has been subject to progressive depletion through erosion, washing and oxidation of its elements. The technique of soil conservation has not been sufficiently extended, and to this fact - without ignoring other contributory factors - the decreasing yields observed in most crops are attributed.

2. Variations in the index of production and the principal crops.

In this brief summary of agriculture's share in the economic

1/ This is the name given to the Brazilian Government's plan, set up in 1948, which proposes in the space of five years to improve production and consumption of foodstuffs, transport, power supply and health in the country.

development of Brazil it would not be fitting to enter into detail as regards other aspects which are examined at greater length in the special report on the subject, which constitutes an integral part of the present work. We will limit ourselves to pointing out the most significant of these aspects from the point of view of economic development.

Despite the dearth of technical methods, agriculture in Brazil has proved its capacity to increase and adapt itself to changing conditions in domestic and foreign demand.

The index referred to earlier was computed in order to measure the rate of growth. It covers the 21 principal agricultural products of Brazil and shows that the rate of increase in their production has been higher than that of the population. Between 1925-29 and 1945-49, in fact, population increased by 18.3 per cent, while the index rose 55.8 per cent. Output per worker engaged in agriculture thus increased by 31.7 per cent. Chart 11 and the corresponding Table 2-A trace the progress of this development, both as a part of total production and in relation to the amount absorbed by exports and domestic consumption respectively. It should be noted that during the ten years between the world crisis and the beginning of the 'forties, production for the export market fluctuated considerably, but with no definite tendency towards increase. On the other hand, though production for domestic consumption also fluctuated, it showed a persistent tendency to increase. During the 'forties, however, exports rose again at a faster rate than consumption. 1/ Throughout the period under analysis, domestic consumption increased somewhat more than exports - 52.1 per cent and 65.2 per cent respectively, between 1925-29 and 1945-49, as indicated in

1/ It should be remembered that the export of products included in the index represents only a part of total exports of agricultural goods from Brazil, as will be shown later.

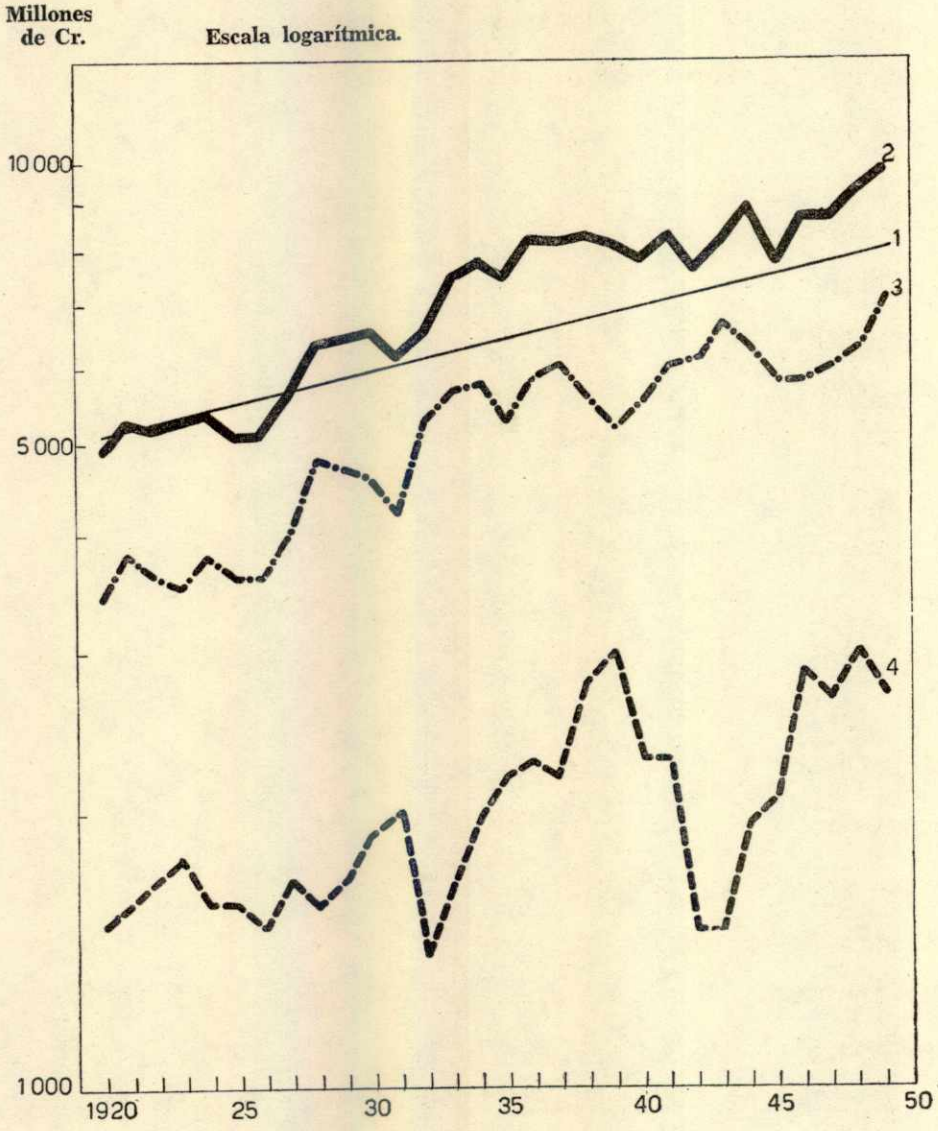
/indicated in

GRAFICO 12

BRASIL

PRODUCCION DE LOS PRINCIPALES CULTIVOS Y CANTIDADES EXPORTADAS Y CONSUMIDAS INTERNAMENTE.

Valores a precios de 1939.



1.— Población.
2.— Producción agropecuaria total.
3.— Consumo interno de productos agropecuarios.
4.— Exportación de productos agropecuarios.

Centro de Investigaciones, Comisión Económica para América Latina.

as indicated in Table 2-B of the third section.

It has already been suggested in these pages that changing conditions in foreign and domestic demand have brought about modifications of great importance in Brazil's agriculture. The coffee disaster in the 'thirties and the country's need, as a result of the world crisis, to grow internally by falling back on its own resources led, among other things, to the diversification of agriculture. Prices fell generally during the crisis and that of coffee fell farthest of all; this downswing encouraged the replacement of certain crops by others. The most important of these substitute crops was cotton, both by reason of the extent of its cultivation and of the great mobility of productive factors that were transferred from coffee to cotton. Chart 12 and the corresponding Table 9-A clearly point to the changes in the production and prices of these products.

The fall in coffee prices cannot be attributed solely to the crisis, but may also be the result of over-production, which had been evolving for some time, protected by the policy of "valorization" of the crop. The fall in the price of coffee actually began before the crisis, in about the middle 'twenties, but it became sharper in the 'thirties when over-production was combined with a decrease in world demand. The Brazilian Government found itself compelled to destroy vast quantities of coffee in order to reduce the surplus market supply, since there was no possibility of storing it. The fall in prices led to the gradual abandonment of marginal plantations, whilst in the more efficient ones cultivation and maintenance were partially neglected. It was due to this that the plantations declined, and production was reduced from 1,770,000 tons in 1933 to 687,000 tons in 1944. At a later date, there was a great increase in the United States demand and when the system of price ceilings was abolished there, the pressure

/of such

Table 9-A. Brazil : Production and prices of cotton and coffee

Years	Coffee		Cotton	
	Production thousands of tons	Price received by producer Cruzeiros per kilo	Production thousands of tons	Price received by producer Cruzeiros per kilo
1925	888.1	3.27	142.2	3.35
1926	959.8	2.57	117.9	2.15
1927	1,100.9	2.27	107.6	2.70
1928	1,670.9	2.66	102.8	3.15
1929	1,576.6	2.63	124.8	2.71
1930	1,634.1	2.12	95.5	1.98
1931	1,301.7	1.04	112.8	2.10
1932	1,535.7	1.19	76.4	3.02
1933	1,776.6	1.16	151.2	2.89
1934	1,652.5	1.16	284.6	2.85
1935	1,135.9	1.39	297.3	3.27
1936	1,577.0	1.42	351.5	3.37
1937	1,461.0	1.35	405.0	3.40
1938	1,404.1	1.44	436.6	3.34
1939	1,157.0	1.44	428.5	3.16
1940	1,002.0	1.37	468.7	3.14
1941	961.6	1.41	503.0	2.95
1942	829.9	1.60	377.0	3.80
1943	921.9	1.88	496.2	4.86
1944	686.7	3.48	592.4	5.31
1945	834.9	4.45	378.5	5.39
1946	917.3	5.82	377.8	8.38
1947	947.5	5.84	346.7	9.87
1948	1,037.5	6.21	319.6	10.90
1949	1,031.5	..	401.7	..

Source: Research Centre, Economic Commission for Latin America

Notes: The series has been compiled from data published by the Servico de Estatistica da Producao, Brazilian Ministry of Agriculture.

GRAFICO 13

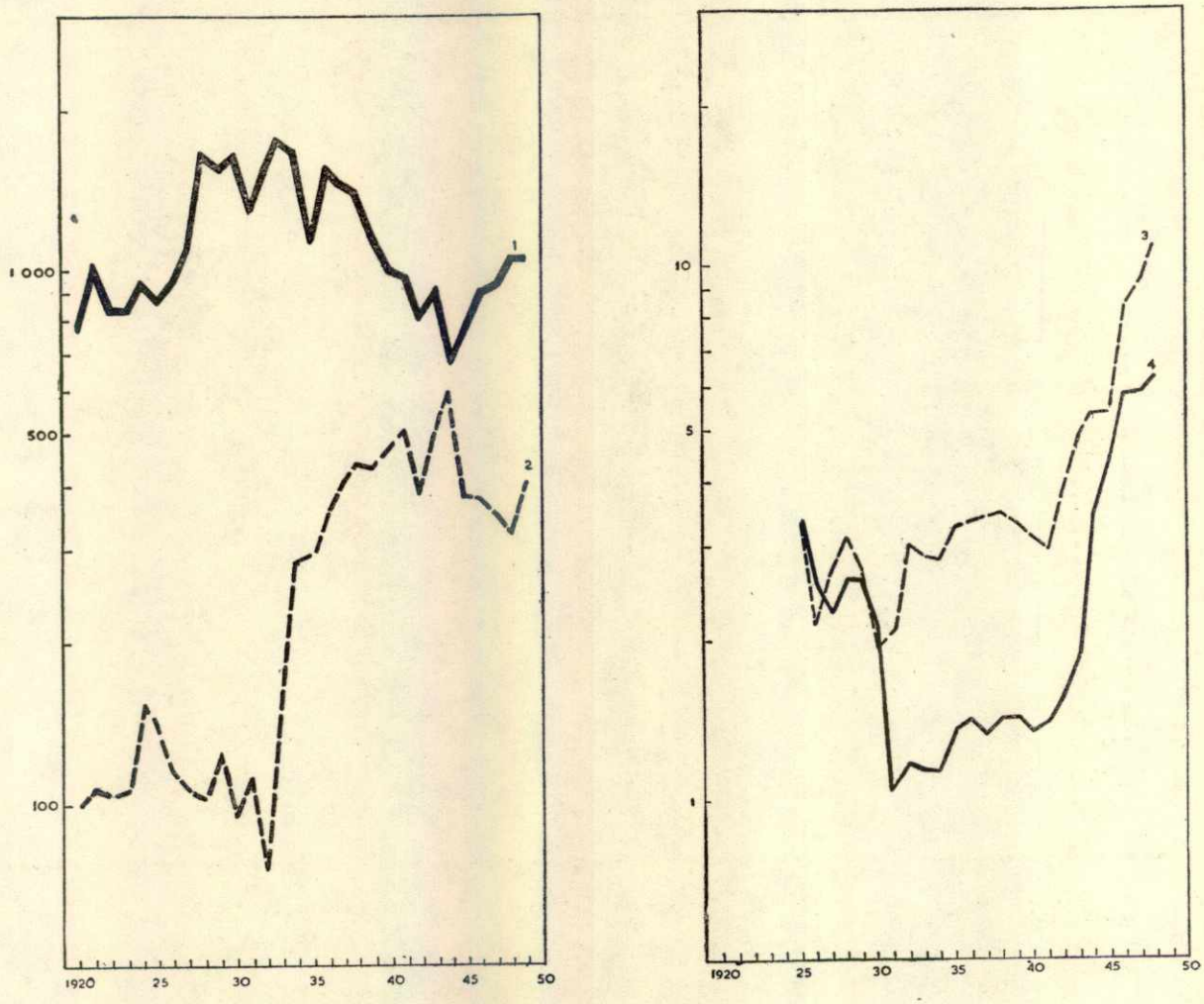
BRASIL

PRODUCCION Y PRECIOS DEL CAFE Y ALGODON

Escala logarítmica

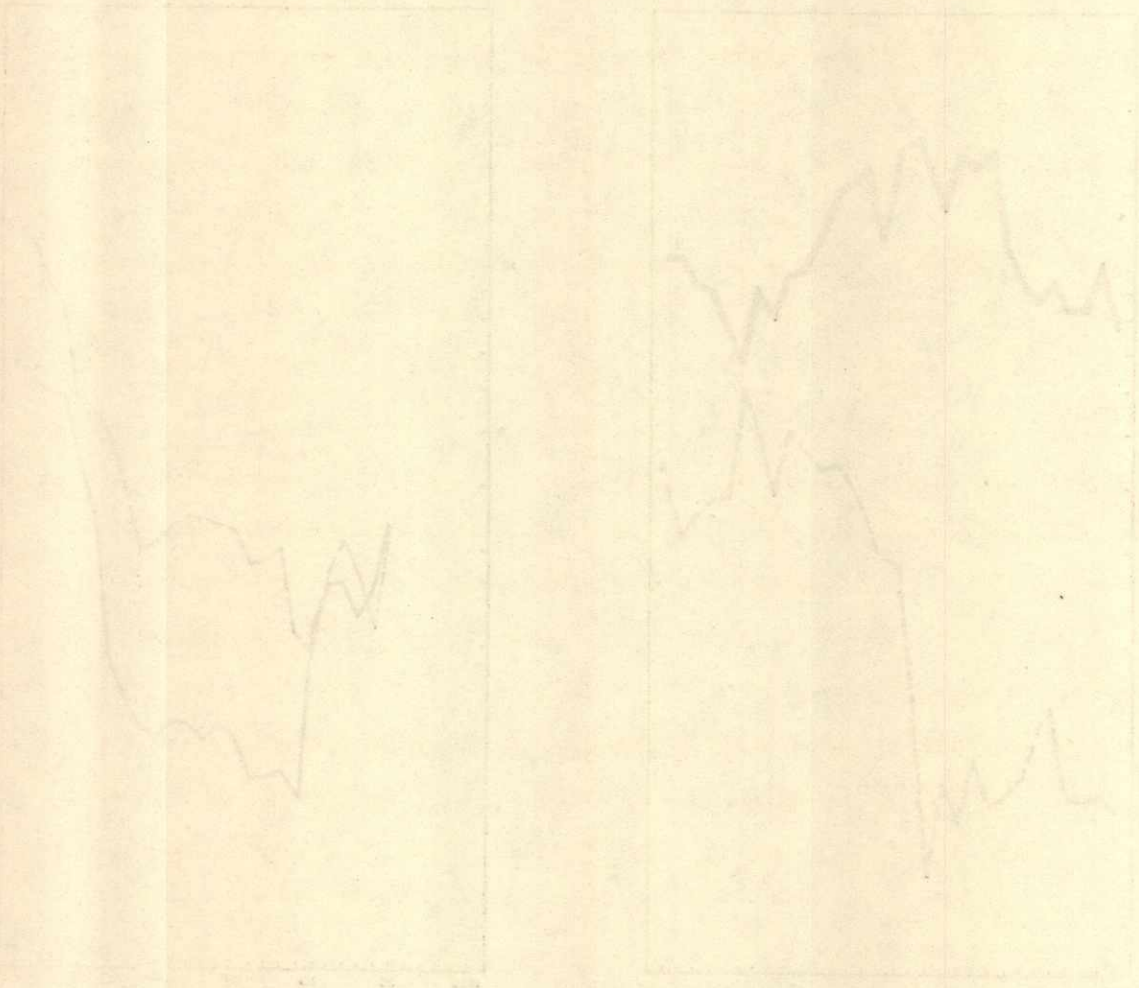
Miles de toneladas

Cr. por kilo



1.— Producción de café.
2.— Producción de algodón.
3.— Precios del algodón.
4.— Precios del café.

Centro de Investigaciones, Comisión Económica para América Latina.



of such demand on supply raised prices to a level that was again remunerative to the Brazilian coffee growers, encouraging them to increase production once more.

For the first time in many years, Brazil is making an effort to increase the production of coffee. Meanwhile, the former coffee plantations have been opened to the production of other crops as far as was possible in view of the damage caused by erosion - a serious problem since the crop is cultivated on the slopes, with relatively loose soil kept free of any other vegetable cover. Thus, while a small percentage of the land was used for cotton, as well as fruit and foodstuffs, another portion was given over to pasture and a great deal was left to grow wild. In the past, coffee crops were seldom replanted on land already used for this purpose, since the product leaves the soil relatively depleted. As a result, new land was turned in for the expansion of coffee production. Well-informed sources doubt that the plantations will regain their former impetus, at least not until uncultivated land is made accessible to the planting of coffee through improved transport facilities. However this may be, there is greater unanimity of opinion that for the present the growing migration of labour from the land to the towns will hamper the increase of labour on the plantations. Nevertheless, it should be stressed that coffee production in 1949 was only 17 per cent lower than that for the five-year period, 1925-29, as will be seen by examining the following table, in which are presented the principal producer goods included in the index.

/Table 9-B

Table 9-B Production and Prices of Coffee and Cotton

	Averages			Percentages of variation over 1925-29	
	1925-29	1945-49	1949	1945-49	1949
Coffee					
Production (metric tons)	1,239.3	934.3	1,031.5	- 24.6	- 16.8
Price (cruzeiros per kilogramme)	2.68	5.58 a/	6.21 b/	108.2	131.7
Cotton					
Production (metric tons)	119.1	355.6	401.7	198.5	273.3
Price (cruzeiros per kilogramme)	2.81	8.63 a/	10.90 b/	207.1 a/	287.9 b/

Note: For source and annotations, see Table 9-A.

a/ Average for 1945-48.
b/ 1948.

Let us briefly consider the crops which were developed as coffee declined in importance. The planting of cotton had already been tried successfully, especially in the State of Sao Paulo, where great technical and economic assistance was given over to encouraging its production. Brazil thus became one of the principal world producers in the course of a few years, since it was able to take advantage of the gap left by the United States in world supply when this country embarked on a policy of restricting cotton. There resulted a chain of events similar to that witnessed in Brazil's coffee trade some years previously, when competitor countries increased their production of coffee substantially as the policy of valorization and later of destruction of the product was carried into effect. The production of cotton reached a maximum of 592 thousand tons in 1944, that is to

/say, four

say, four times the 1925-29 average. After that it began to decrease, and by 1949 had fallen 32 per cent below the above-mentioned maximum. From the preceding Chart it will be observed that the decline in coffee production coincided with the increase in cotton production and that in the past few years the trend has been reversed.

The decrease of cotton production was caused principally by the increase in the costs of production and the fact that the difference between these and export prices has gradually narrowed, reducing the chances for a favourable competitive margin in the foreign market. A variety of factors can be blamed for the rise in the cost of cotton production; among the most important of which figure first: the considerable increase in agricultural wages and the large number of hands required for the production of the crop; and second, the reduced yields, due as much to the diminishing fertility of the soil as to the increasing difficulty in eliminating the pests and diseases which attack this fibre.

It has been calculated that the textile industry absorbed between 35 and 40 per cent of cotton production between 1945-49. It would appear that one of the factors in causing the low productivity rate of the industry is the inferior quality of the cotton fibre.

Other products have emerged to counteract the economic consequences of the decline in coffee, and in a very short period reached a comparatively high degree of development. First among these is rice; growing demand for this product both on the domestic and foreign markets, partly as a result of the war and the temporary loss of the Far Eastern sources of supply, led to a sharp increase in production until 1946 when the total crop amounted to 2.7 million tons, that is, about twice the production in 1925-29. In the following years, despite increased export, production declined somewhat. But in 1949, while exports were insignificant production had risen to 2.6 million tons. It should be noted that there was a shortage of rice on the domestic market in the preceding years, when it was to the advantage of the producer to sell as much of his crop as possible for the higher prices on the export market.

/The production

The production of sugar cane has also increased to a considerable degree. Until the 'twenties, Brazil had been an exporter of sugar cane, but it was later unable to compete with other countries having the advantage of greater productivity and more advanced manufacturing technique. Since then, sugar cane has been exported sporadically, though in the past few years the export of the product has reached a comparatively high level. Domestic consumption of sugar, after having increased greatly during the 'twenties, slackened during the 'thirties, so that it was not produced to full capacity. Restrictive measures similar to those applied in other countries were then imposed, thus ensuring the survival of the marginal producers. Furthermore, a portion of the capacity to produce has been employed in the manufacture of anhydrous alcohol for fuel purposes. During the 'forties, a tendency toward increase was noted in domestic consumption of sugar.

Manioc and potatoes also figure among the products grown almost entirely for domestic consumption, the production of which has increased considerably, as has that of fruits, which were principally encouraged by demand from foreign markets as will be shown elsewhere.

Considering the small area in which it is cultivated, the production of the castor plant has shown the greatest relative increase; foreign demand for oleaginous products, leading also to the export of other oils, has been the principal factor contributing to its expansion.

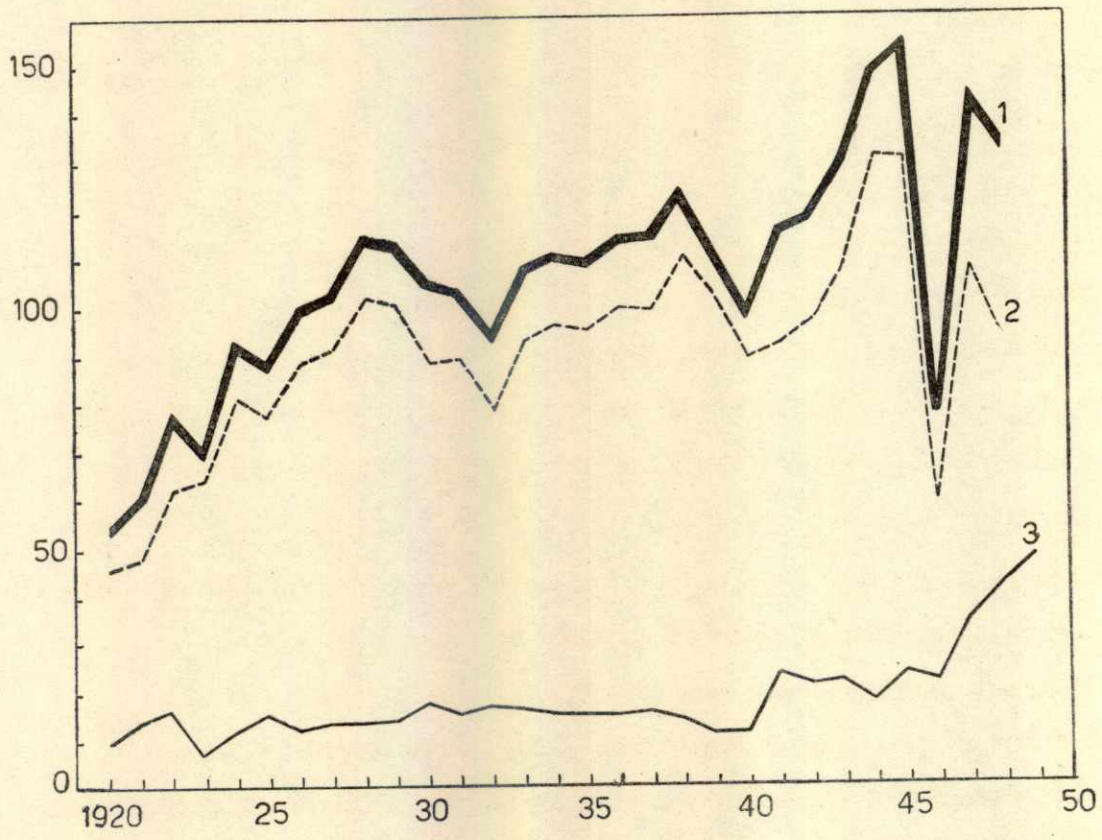
One must also stress the importance during the past few years of the production of wheat, the growth of which may be traced on Chart 14 and Table 10-A. Until a short while ago, the wheat production showed no signs of important expansion. However, since 1941 a considerable increment in production has been registered, with the result that the

/1949 crop

GRAFICO 14

BRASIL

PRODUCCION, IMPORTACION Y CONSUMO APARENTE DE TRIGO



1.— Consumo.
2.— Importaciones.
3.— Producción.

Centro de Investigaciones, Comisión Económica para América Latina.

Table 10-A. Brazil: Consumption of Wheat

Years	Production	Imports	Consumption
1920	87	451	538
1921	132	479	612
1922	157	621	778
1923	63	636	699
1924	114	807	921
1925	147	774	881
1926	113	883	996
1927	125	910	1,035
1928	125	1,017	1,142
1929	135	997	1,132
1930	171	883	1,053
1931	142	890	1,032
1932	164	780	944
1933	156	925	1,081
1934	145	962	1,106
1935	146	952	1,098
1936	144	998	1,142
1937	149	994	1,144
1938	137	1,103	1,241
1939	101	1,019	1,120
1940	102	886	987
1941	231	923	1,154
1942	217	970	1,187
1943	223	1,082	1,305
1944	171	1,313	1,484
1945	233	1,308	1,542
1946	213	587	800
1947	345	1,079	1,424
1948	411	932	1,343
1949	472		

Source: Research Centre, Economic Commission for Latin America.

Note: Production data were obtained from publications issued by IBGE.
Flour imports have been computed by their wheat equivalents.

1949 crop amounted to 471 thousand tons in comparison with 133 thousand in 1925-29; and whereas in this latter five-year period domestic production only supplied 12.4 per cent of domestic consumption, by 1945-49 it was supplying 23.5 per cent. The SALTE Plan mentions the possibility of producing 1 million tons.

Be that as it may, there is no doubt that Brazil's wheat-growing campaign is meeting with success, at least so far as increased production is concerned; its costs are recognized as being considerably higher than those of the exporting countries which supply Brazil with wheat. Two vital factors contribute to this result: first, progress in wheat genetics has produced varieties which are especially adapted to the varying ecological conditions in the areas of cultivation; second, the government gives the producer a price guarantee which makes production profitable despite its high costs.

The plan to intensify domestic production of wheat is not new; but it would seem that the high prices of Argentine wheat during the post-war years of shortage helped strengthen the determination to increase domestic production at the expense of imports thus reducing their pressure on the balance of payments.

B. Exports and the changes occurring in their composition

Exports of agricultural products, though they continue to represent a high proportion of total Brazilian exports, are not as important as previously. In the first five-year period analysed, these products accounted for 82 per cent of the country's total exports, whereas by the second five-year period they had dropped to 65 per cent of this total, due to the increase in the export of wild animal and vegetable products, minerals and industrial goods.

Unfortunately, the data available do not allow us to trace the development of these three categories of exports throughout the whole

/quarter century;

quarter century; we have thus been compelled to consider them together, as in Table 7-A, and furnish a detailed analysis for the past decade only, as will be seen below.

In this Table, which corresponds to Chart 10, coffee and cotton exports are shown separately, both because of their importance in relation to the total and because of the characteristic discrepancies in their trends. There is no need to describe them further, since they have been considered in the section on production. It will suffice to point out that coffee is recovering its importance in relation to the total value of exports; coffee exports were 71.8 per cent of total value in the five-year period 1925-29, then fell to 26.2 per cent in 1942, increasing since then until they reached 55.4 per cent in 1949. Cotton, on the other hand, which accounted for a relatively small percentage of total exports in 1925-29 (2.1 per cent), by 1939 represented 20.6 per cent of this total, but after a phase of sharp fluctuations in subsequent years it declined to 11.6 per cent of the total in 1949.

Aside from coffee and cotton, other exports increased by 123 per cent between the two five-year periods, that is to say, to a greater extent than the increase in total exports, which was 70.2 per cent.

In Table 7-B details are given for the principal commodities comprising the category of "other products" during the past ten years. During the first five-year period, one sees the influence of the extraordinary war demand on a large number of comparatively new commodities (insofar as their bulk is concerned) in the list of Brazilian exports. In order to emphasize this, a list is first shown of the goods which in 1949 had increased in relation to the 1940-44 average, and another indicating those which had dropped in relation to this average. The first consists of agricultural products which developed considerably during the thirties, and which in relation to exports have maintained their position well; they include oleaginous products such as Carnaúba wax, fruit, pine wood, Tobacco and sugar, both

/of which

Table 7-A. Brazil : Quantum of exports and their composition

Values at 1937 prices

Percentages of current values

Millions of cruzeiros

Years	Coffee	%	Cotton	%	Other products				Total of Exports
					Agri-cultural included in Index of pro-duction	Others	Total	%	
1925	2,400.0	72.11	123.9	3.10	345.2	709.1	1,054.3	24.79	3,578
1926	2,447.7	73.58	68.0	1.29	241.3	707.1	948.4	25.13	3,464
1927	2,690.4	70.68	48.0	1.15	363.8	807.8	1,171.6	28.17	3,910
1928	2,470.8	71.54	40.0	0.92	368.5	801.7	1,170.2	27.54	3.681
1929	2,542.0	70.98	195.9	3.99	428.9	740.2	1,169.1	25.03	3.907
1930	2,721.3	62.86	119.9	2.91	543.3	900.5	1,443,8	34.23	4,285
1931	3,177.5	69.07	84.0	1.59	449.0	916.6	1,365.6	29.34	4,637
1932	2,124.4	71.90	2.0	0.07	412.2	615.9	1,028.1	28.03	3,155
1933	2,751.7	72.79	48.0	1.26	378.1	758.2	1,134.3	25.95	3,934
1934	2,518.2	61.13	504.7	13.19	438.8	851.3	1,290.1	25.69	4,313
1935	2,728.6	52.55	555.7	15.79	578.4	1,165.3	1.743.7	31.66	5,028
1936	2,525.1	45.48	799.6	19.00	594.1	1,341.2	1,935.3	35.42	5,260
1937	2,159.0	42.41	944.0	18.55	492.3	1,493.7	1,986.0	39.04	5,089
1938	3,046.1	45.05	1,075.5	18.24	553.2	1,515.2	2,068.4	36.71	6,190
1939	2,936.8	39.79	1,295.4	20.65	630.5	1,647.3	2,277.8	39.56	6,510
1940	2,144.2	32.00	895.6	16.87	625.7	1,579.6	2,205.3	51.13	5,245
1941	1,967.2	30.00	1,151.4	15.02	549.3	2,002.0	2,551.3	54.98	5,670
1942	1,295.8	26.21	615.7	8.59	519.6	1,852.9	2,372.5	65.20	4,284
1943	1,799.9	32.11	311.8	4.74	468.5	1,829.7	2,298.2	63.15	4,410
1944	2,412.8	36.17	431.8	6.23	548.7	1,751.7	2,300.4	57.60	5,145
1945	2,522.6	34.93	655,7	8.60	394.3	2,064.4	2,458.7	56.47	5,637
1946	2,759.8	35.31	1,411.3	16.10	672.2	2,004.6	2,676.8	48.59	6,848
1947	2,639.7	36.62	1,139.4	14.52	639.8	2,013.0	2,652.8	48.86	6,432
1948	3,113.6	41.57	1,035.5	15.60	850.3	1,713.6	2,563.9	42.83	6,713
1949	3,406.8	55.45	615.3	11.57	410.1	1,523.8	1,933.9	32.98	5,956

Source: Research Centre, Economic Commission for Latin America of the United Nations.

Note: Basic data supplied by Servico de Estatistica Económica e Financeira, Brazilian Finance Ministry.

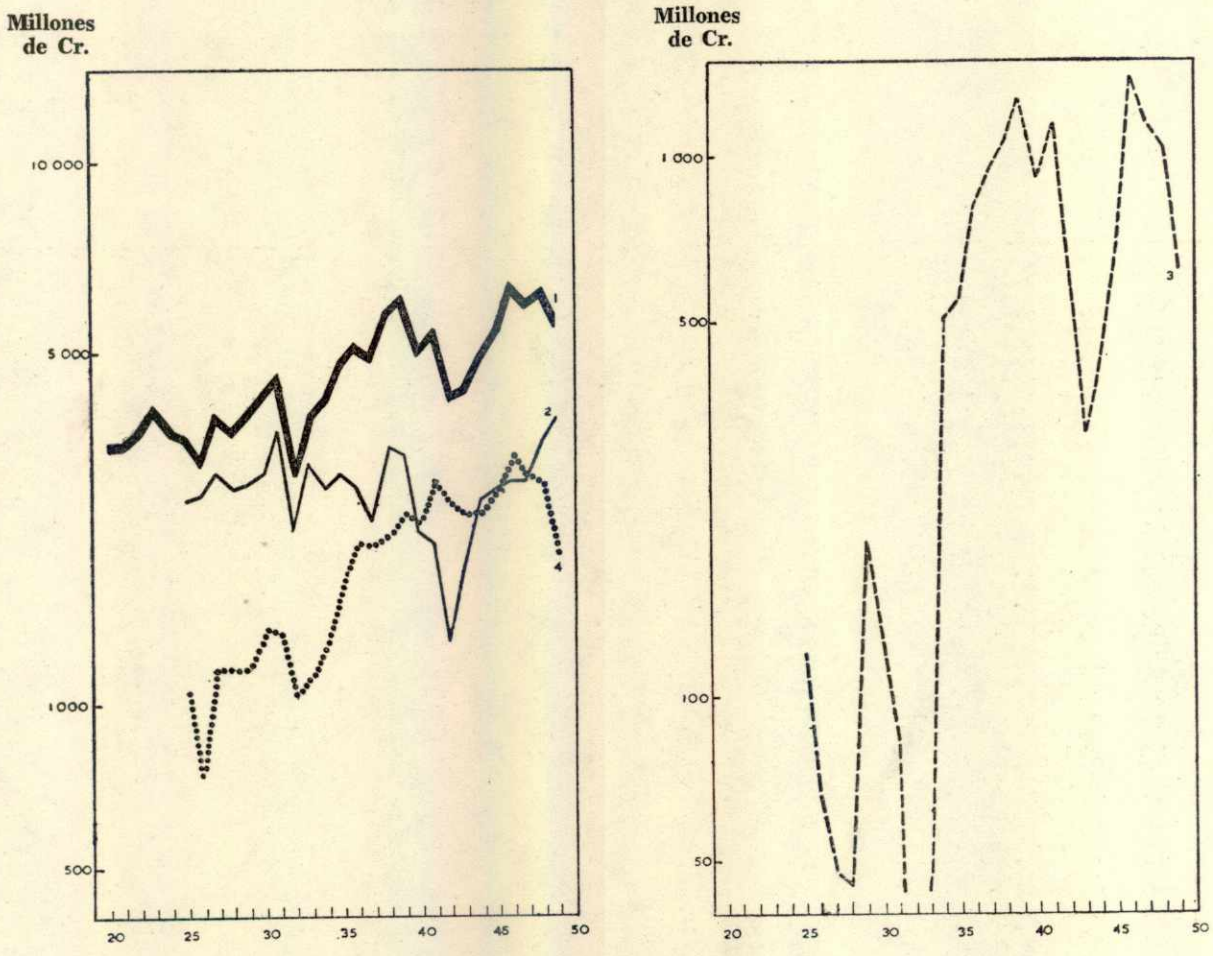
GRAFICO 11

BRASIL

VOLUMEN FISICO DE LAS EXPORTACIONES Y SU COMPOSICION.

Valores a precios de 1937

Escala logarítmica.



1.— Exportación total.
2.— Exportación de café.
3.— Exportación de algodón.
4.— Demás productos exportados.

Centro de Investigaciones, Comisión Económica para América Latina.

of which are traditional Brazilian exports, have also maintained their volume steadily. Cotton, by reason of its paramount importance, dominates the list of goods showing a decrease in the volume of exports. Among the minerals, iron is seen to increase appreciably in importance, whereas others decrease to a marked extent. Finally, in the category of manufactured goods, only chemical and pharmaceutical products increase - especially the latter - for reasons which will be explained when their industrial production is analysed.

V. Development of industrial production and of imports

A. Changes occurring in the composition of imports

1. In view of what has been set forth elsewhere concerning the relationship between industrial development and the fluctuations in the quantity and structure of imports, it will not be surprising that these topics are considered in the same section. It is not our intention to undertake a detailed analysis of Brazilian industry here since this appears in its appropriate place in this report. We will limit ourselves to laying emphasis on those of its characteristics which are most closely linked with the general problem of economic development in Brazil.

Let us begin by a consideration of imports in order to obtain a better understanding of the changes which have taken place in the field of industry. In examining the problem of capitalization, imports have been divided into two principal classes: durable goods (capital goods and motor vehicles) on the one hand and all remaining goods on the other; in this way it has been found that the quantum increase which took place between the two five-year periods, 1925-29 and 1945-49, are practically equivalent for both sections, that is 16.6 per cent for durable goods and 15.8 per cent for the other goods.

There is no need to comment on the significance of the fluctuations in imports of durable goods since that has already been done in the

/proper place;

Table 11-A. Brazil : Principal Groups of other goods in Brazilian imports

Values at 1937 prices.

Thousands of cruzeiros

Years	Foodstuffs	Textiles	Chemical and Pharmaceutical products	Fuel and Lubricants	Paper, Cardboard and woodpulp
1925	1,483,367	388,921	91,626	385,210	122,786
1926	1,270,640	374,816	79,409	398,708	107,901
1927	1,243,144	345,966	103,843	473,447	105,916
1928	1,388,093	414,183	129,803	493,204	138,069
1929	1,278,958	276,545	140,493	536,629	143,169
1930	1,128,834	103,138	91,626	468,973	118,602
1931	843,992	42,668	90,099	353,391	79,537
1932	780,295	43,034	62,611	311,779	94,290
1933	931,323	8,060	83,990	388,510	130,014
1934	902,852	56,022	122,168	391,584	143,502
1935	895,767	48,484	157,291	432,423	140,455
1936	946,181	63,357	183,252	465,0 92	171,946
1937	955,753	77,637	235,173	525,379	200,711
1938	1,028,067	69,238	201,577	520,216	154,546
1939	971,849	67,473	238,227	439,253	162,095
1940	872,141	99,397	215,321	508,412	138,045
1941	890,082	60,133	196,996	475,151	173,377
1942	841,394	38,630	169,508	328,949	86,742
1943	926,597	57,728	253,498	316,271	107,532
1944	1,232,732	27,486	235,173	356,029	136,403
1945	1,281,147	22,354	227,538	453,686	162,650
1946	1,006,750	81,426	268,769	655,229	196,684
1947	1,292,313	259,427	439,804	1,007,384	231,248
1948	1,245,901	327,288	371,085	1,120,012	144,426
1949	1,030,812	144,224	433,696	1,163,209	144,588

Source: Research Centre, Economic Commission for Latin America

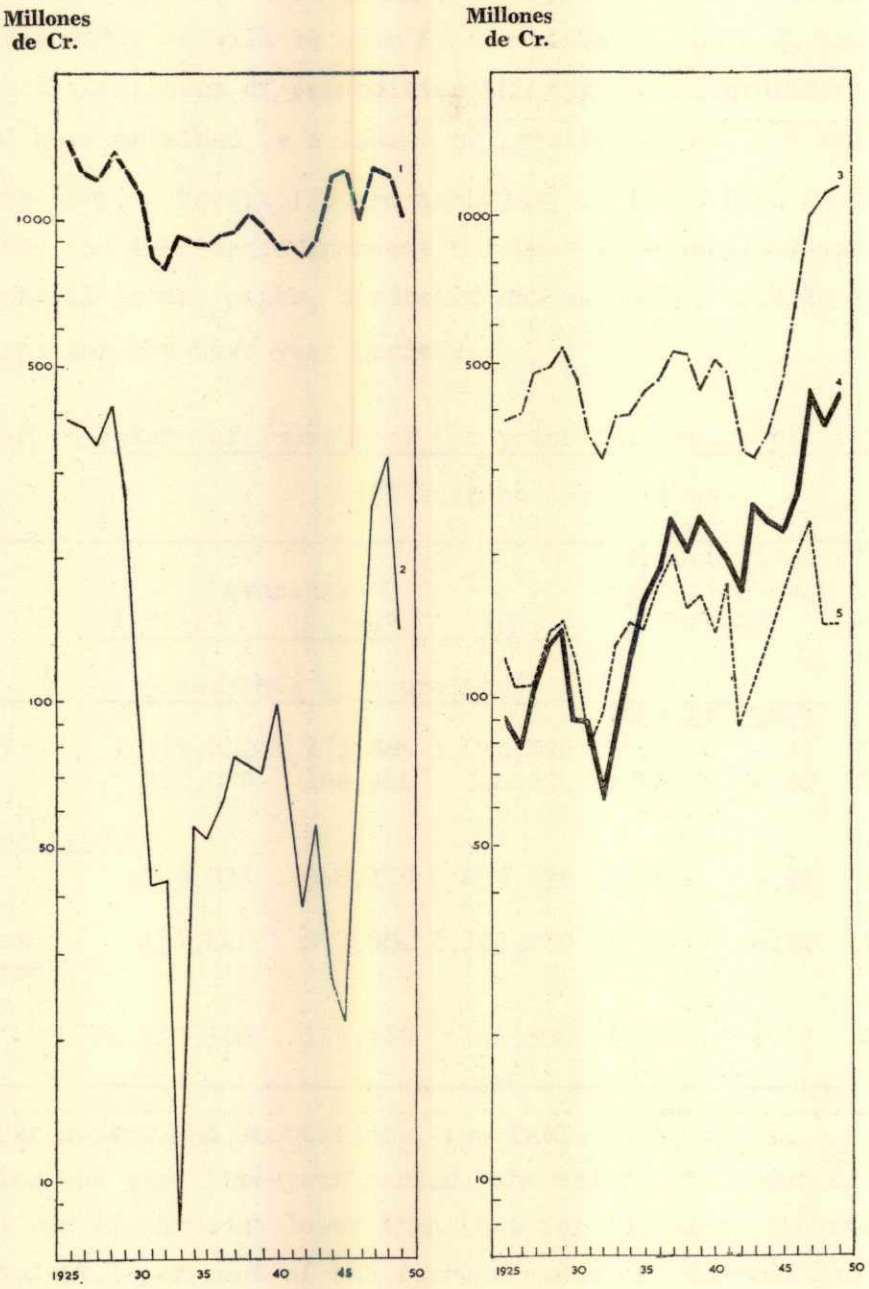
GRAFICO 15

BRASIL

VOLUMEN FISICO DE LOS PRINCIPALES GRUPOS DE LOS DEMAS BIENES EN LA IMPORTACION

Valores a precios de 1937

Escala logarítmica.



1.— Alimentos.
2.— Tejidos.
3.— Combustibles y lubricantes.
4.— Productos químicos y farmacéuticos.
5.— Papel, cartón y similares.

Centro de Investigaciones, Comisión Económica para América Latina.

success it has obtained in this venture.

In the case of textiles, the decrease is much greater, that is, 54 per cent. However, there is a surprisingly sharp increase in imports of this group of commodities after 1945. The cotton industry supplies practically all of the domestic demand and consequently it is not in this field that an explanation of the phenomenon must be sought. Let us examine the structure of this group of goods.

Principal textiles imported (in tons)

Five-year periods	Cotton textiles	Linen textiles	Woollen textiles	Pure silk	Total (value in cruzeiros at 1927 prices) a/
1925-29	7,028.6	1,010.4	783.8	42.2	360,086
1930-34	691.0	687.6	154.2	7.2	50.584
1935-39	438.6	928.8	107.6	10.4	65.238
1940-44	651.4	311.8	87.8	1.6	56.675
1945-48	327.2	885.8	277.5	4.0	172.624

a/ Includes other textiles.

The pent-up demand during the war for high quality goods, especially of wool and linen fibres, brought about a sharp increase in their importation during the last few years and contributed to a disequilibrium in the balance of payments resulting in the imposition of severe restrictions on such imports, since the market was considered to be saturated.

Now let us glance at the groups in which increases have been registered for imports between the five-year periods analysed. Outstanding among them is an increase of 219 per cent in pharmaceutical and chemical goods, which during the last five-year period accounted for 4.9 per cent of the total current value of imports. This increase is principally due to the increase in the importation of chemical products for industrial purposes, and to a lesser extent of pharmaceutical

/goods which

goods which in certain branches of production have in turn led to the export of substantial quantities of processed goods. Industrial development everywhere involves sharp increases in the consumption of chemical products; since their manufacture in Brazil has so far been negligible, the greater part has had to be supplied from foreign sources. The increasing trend of imports should be noted and the fact that it is hardly affected by the world crisis and the consequent sharp decline in the capacity to import. The number of products is so great that they cannot be treated in detail. It suffices our purpose to set forth the indices for imports of caustic soda and sulphur, in the following annual averages:

Five-year periods	Caustic soda (in tons)	Sulphur
1925-29	16,811	
1930-34	20,851	
1935-39	27,687	
1940-44	37,018	
1945-49	43,146	

So far, caustic soda has only been manufactured in small amounts, though there exist interesting plans for production which will be described later. Sulphur is imported for the production of sulphuric acid, which will also be dealt with in its appropriate place.

The increase of 92 per cent in imports of fuel and lubricants between the two five-year periods under consideration is also very significant. The group is constituted as follows:

Five-year periods	Coal	Fuel derived from petroleum (gasolene)	Lubricants	Total (Value in 000 of cruzeiros at 1937 prices)
		In thousands of tons		
1925-29	1,900	513.6	38.1	457.440
1930-34	1,253	640,3	25.6	382,847
1935-39	1,219	914.6	38.3	476.473
1940-44	752	764.0	52.1	396.962
1945-49	1,126	2,092.2	80.0	879.904

/Liquid fuel

Liquid fuel, as elsewhere, has replaced coal in Brazil for technical reasons as well as for the more favourable prices of petroleum products.

The increase which has occurred in imports of paper, cardboard and woodpulp amounted to scarcely 17 per cent, but it is not without significance in a country of great natural forest resources where the consumption of paper has increased so sharply, as was pointed out when referring to the indices of consumption. Hence the interest aroused in developing domestic production of these goods.

The other commodities included in the class of "other goods" show no fluctuation of any importance. Nevertheless they constitute a mixed group, and one subject to considerable changes which cannot be examined at length in the present report. Suffice it to say that in general imports of finished goods tend to decrease in favour of imports of raw materials and semi-manufactured goods.

Having completed this brief summary of the fluctuations of imports, we can now better understand the importance of the development of the principal branches of industry in the last quarter century. Let us begin with a short analysis of the production of power.

The production of power

2. The intensive development of economic activity in Brazil has evidently involved a considerable increase in the consumption of power. This increment, in its turn, has given rise to two types of problem: In the first place, a large proportion of the consumption of power is supplied by the use of wood, which was estimated in 1946 to furnish 75 per cent of total consumption of power. This fact is the cause of justifiable anxiety since the excessive consumption of wood as fuel, besides the enormous waste involved is seriously impoverishing the country's forest resources; this in turn accelerates soil erosion and alters the flood plains in a way highly detrimental to the country's

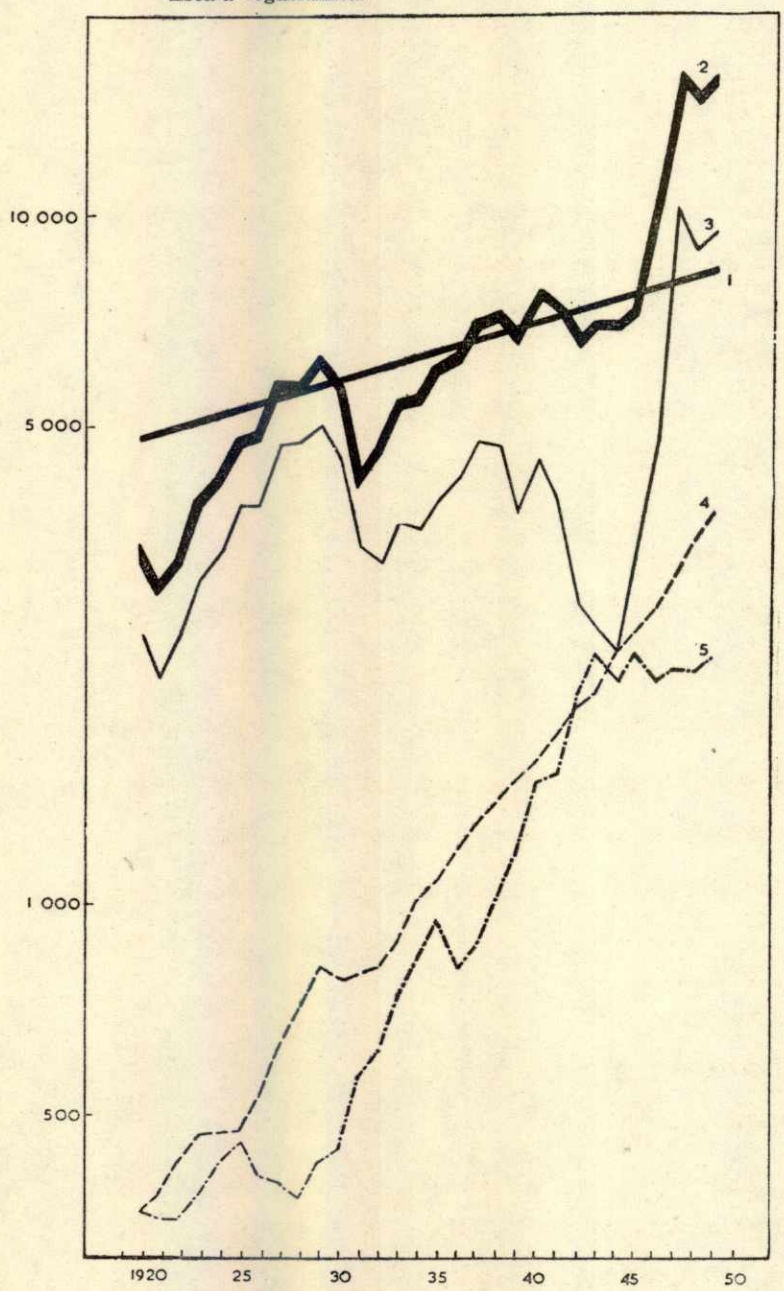
GRAFICO 17

BRASIL

PRODUCCION, IMPORTACION Y CONSUMO DE ENERGIA.

Millones de Kw-h.

Escala logarítmica.



1.— Población.
2.— Consumo total de energía.
3.— Consumo de combustibles importados.
4.— Consumo de energía hidroeléctrica.
5.— Consumo de carbón nacional.

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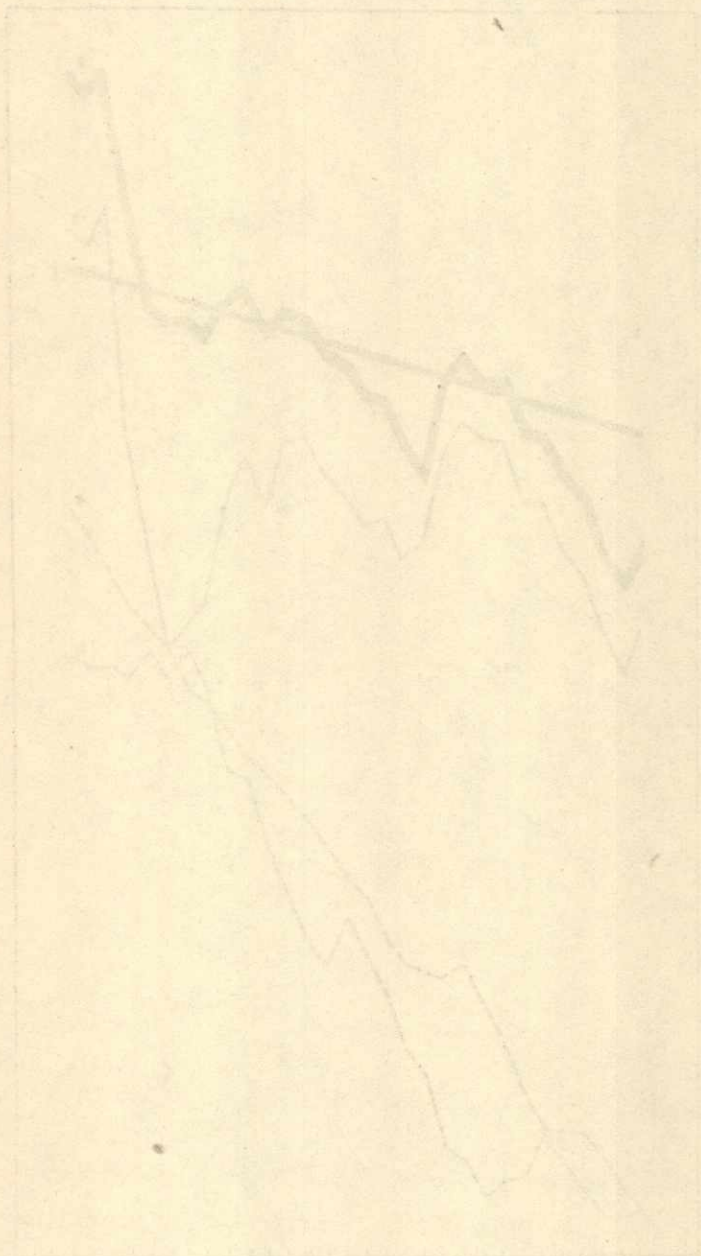


Table 12-A. Brazil: Power consumption

(Millions of KWH)

Years	Domestic coal	Imported fuel	Hydro-electric power a/	Total	Index 1937=100
1920	357,8	2,517.9	363	3,239	46
1921	349,6	2,167.6	379	2,896	41
1922	353.1	2,453.6	427	3,234	46
1923	383.4	3,001.0	468	3,853	54
1924	430.0	3,308.4	483	4,221	59
1925	456.9	3,867.8	480	4,805	68
1926	414.9	3,909.0	527	4,941	70
1927	398.6	4,776.9	630	5,805.	82
1928	378.8	4,757.6	721	5,847	82
1929	434.7	5,061.0	817	6,313	89
1930	448.7	4,541.2	792	5,782	81
1931	575.7	3,414.9	798	4,189	59
1932	632,8	3,200.0	821	4,654	66
1933	753.0	3,724.4	904	5,382	76
1934	852.0	3,622.3	1,014	5,488	77
1935	979.0	4,009.5	1,120	6,109	86
1936	771.5	4,322.3	1,236	6,330	89
1937	889,3	4,850.3	1,353	7,093	100
1938	1,057.1	4,823.5	1,463	7.344	103
1939	1,220.3	3,796.3	1,555	6,772	95
1940	1,557.1	4,627.5	1,658	7,843	111
1941	1,641.0	3,993.9	1,817	7,452	105
1942	2,068.7	2,668.0	1,985	6,722	95
1943	2,421.9	2,572.0	2,148	7,142	101
1944	2,223.7	2,443.3	2,396	7,063	100
1945	2,416.0	3,346.8	2,606	8,379	118
1946	2,210.9	5.404.4	2,826	10,441	147
1947	2,329.8	10,646.8	3,092	16,069	226
1948	2,346,1	9,096.5	3,482	14,925	210
1949	2,424.8	9,748.7	3,852	16,026	226

Source: Research Centre, Economic Commission for Latin America

Notes: The principal data were obtained from official publications with the exception of hydro-electric power taken from the Annual Report of Brazilian Traction Light and Power Company. Fuel has been computed at 20 per cent of efficiency.

a/ Includes only the area serviced by the Brazilian Traction Light and Power Company.

economy, a fact already recognized by Brazilian and foreign experts who have gone into the question. Secondly, the importation of fuels is once again extremely high; in fact, during the five-year period 1945-49, the quantum of such imports was 1954 per cent higher than that for 1925-29, whereas total imports had only increased by 12.1 per cent 1/. The increase in the importation of fuel, then, is a considerable factor in the disequilibrium of the balance of payments.

These two problems have compelled the Brazilian Government to examine closely the prospects of developing its vast natural resources for the economic production of power. Such prospects can materialise in three fields; water power, coal, and petroleum.

In the first two spheres, considerable progress has been achieved, as will be seen from Chart 17 and Table 12-B.

Table 12-B Consumption of Power

	Averages			Percentages of the variation in relation to 1925-29	
	1925-29	1945-49	1949	1945-49	1949
Domestic Coal	417	2,346	2,423	462.6	481.5
Imported Fuel	4,474	7,649	9,749	70,9	117,9
Water Power	635	3,172	3,852	399.5	506.6
Total	5,542	13,168	16,026	137.6	189.2
Index	78	185	226	137.6	189.2

Note: For source and notes, see Table 12-A, Brazil.

In fact, between the five-year periods mentioned the production of hydro-electric power has increased 400 per cent and that of coal 463 per

1/ Despite this difference in the rate of growth, fuel imports during the past five-year period were equivalent to about 8.5 per cent of the current value of imports as against 9.1 per cent in the previous five-year period. This proportion has not increased to a greater extent because of the reduction in the world price of petroleum products.

/cent. These

cent. These increases, added to the 71 per cent increase in fuel imports, result in a rise of 138 per cent in the total consumption of power derived from these three sources between the two five-year periods.

Thanks to the development of water power and coal, Brazil has to a great extent been able to counteract the adverse effects on fuel imports of the first world crisis, and, at a later date, those inherent in the Second World War. Note on the Chart how fuel imports (curve 3), though they rise again after the drop provoked by the crisis, do not reach their former level by the middle 'thirties. Nevertheless, consumption of power 1/ (curve 2) attained the rate of growth of the population (curve 1). Curves 4 and 5, tracing the sharp rise in production of water power and coal, respectively, present this clearly.

Certainly merely to reach the level of growth of the population is not sufficient in the case of power, which ordinarily expands at a greater rate than that of population. It is therefore possible that between 1935 and 1945, when consumption first rises over the curve of population only to fall below it afterwards, there may have been a considerable increase in the consumption of fuel wood. It is equally possible that in the subsequent five-year period, the consumption of fuel wood may have decreased, given the renewed opportunity to import considerable quantities of fuel, as is indicated by curve 3 on the Chart. The pace of deforestation would thus have been slowed, but at the expense of the relative shortage of foreign exchange available to Brazil for its imports. This then is the reason why Brazil is anxious to solve, or at least begin solving its problem of power supply, since if the country maintains the present high rate of increase in its economic activity this problem will inevitable arise periodically.

1/ We refer always to domestic production of water power and coal plus imported fuel, with the exception of fuel wood, for the annual consumption of which there are no reliable data.

/It is

It is essentially a question of capital investment and productive technique.

Large amounts of domestic and foreign capital have recently been invested in developing Brazil's water power. According to plans now partly being carried out installed electric power will increase from the 1,496,860 kilowatts available in 1947, to 2,713,920 kilowatts by 1953 1/, if the whole project is realized. This will mean that only about one-sixth of the country's total potential resources will have been harnessed which according to reliable estimates are around 14 million kilowatts, greater than those of any other Latin American country.

The development of electric power will have considerable effect on industry and transport. Some 80 per cent of the country's industries are located in the region of Sao Paulo and Rio de Janeiro, and consume water power generated from the Serra do Mar (the Maritime Range). The increase in the production of power will permit an increase of electric consumption by these industries and thus service their expansion. In addition to the increase in hydro-electric capacity in Sao Paulo and Rio de Janeiro the utilization of a part of the potential in other areas is contemplated, especially in the valley of the Sao Francisco River, where the increment of production will be used to enrich a densely populated region in which the lack of power is a serious obstacle to economic development.

Insofar as transport is concerned, the increase in the production of water power will make it possible to extend railway-electrification plans, which so far include only a small percentage of the network. Furthermore, this will have a favourable effect on consumption of imported fuel and domestic firewood.

Brazil's coal production has now reached a level of 2 million tons

1/ More than 80 per cent of the electric power at present generated is hydraulic energy.

per annum, whereas in 1925 it produced only about 320 thousand tons. Production has thus multiplied more than six times, and it is estimated that the country's reserves amount to 5,000 million tons.

Before the First World War, the idea prevailed that Brazil's coal deposits were uneconomical for practical mining purposes, which was a serious obstacle to industrial development. But the import restrictions of the First World War, and later those of the world crisis, proved the feasibility of substantial exploitation of these deposits, and indicated where the difficulties lay. The lack of modern equipment and the deficient transport system are found to be the main hindrances. The Companhia Siderurgica Nacional (National Iron and Steel Producing Company) has proved beyond doubt that efficient production can be undertaken, given a modern coke plant, such as that required for the industrial processes at the Volta Redonda Factory.

Finally, the prospects for developing petroleum production appear very promising, in the judgment of experts. However, systematic investigation and drilling will have to be carried out before this can be confirmed. For the time being it has been ascertained that it is possible to produce some 7,000 barrels daily, of the 65,000 barrels Brazil now requires. Consumption of gasolene has increased sharply in the last few years, after having been severely restricted during the war. The development of petroleum production is therefore deemed essential to ensure the timely prevention of a serious factor of disequilibrium in the balance of payments. Meanwhile Brazil is attempting to reduce the expenditure of foreign exchange by transporting imported petroleum in its own ships and refining it in the country. This item of expenditure is considerable: in 1949 imports of fuel and lubricants represented 11.5 per cent of the current value of total imports 1/.

1/ As at the same time imported fuel represents about 10 per cent of total energy consumed (including fuel wood), the value of the latter is therefore nearly equal to that of total imports.

B. The development of the most important industries

3. The iron and steel industry and the mechanical industries

We shall not repeat here what has already been said in the Introduction concerning the significance of this basic industry in a country such as Brazil, which needs an intense capitalization but which has not been able to increase its capacity to import enough to attain it. On the other hand it has extensive natural resources for the production of iron and steel and is making remarkable efforts to utilize them. Suffice it to say that while in 1925-29 scarcely 3.3 per cent of the 458.2 thousand tons of iron and steel annually consumed by Brazil was produced in the country, by 1949 when consumption had risen to nearly 820 thousand tons 70 per cent was domestic production. There is every indication that consumption will continue to grow rapidly, and in order to meet this it will be necessary to expand considerably the capacity to produce; this is now one of the fundamental aims of Brazilian industry.

It is interesting and instructive to see how necessity is often the best incentive to utilize natural resources which would otherwise remain potential sources of wealth, in view of the greater facility of imports. The existence of iron ore deposits in Brazil has been known for a long time and small foundries have existed since the nineteenth century. However, it can be said that modern methods of production first appeared during the 'thirties when the plant of Monlevade was established. In fact, it was not until the country was obliged to reduce its imports drastically that production of iron and steel acquired a rapid impulse during these years, through this plant and other establishments which followed it. Charcoal was used for all this production and in spite of this strong impulse, the new restrictions imposed by the Second World War made it clear that in order to provide a permanent solution to the problem of supplying this basic commodity iron and steel would have to be produced with coke.

/After preliminary

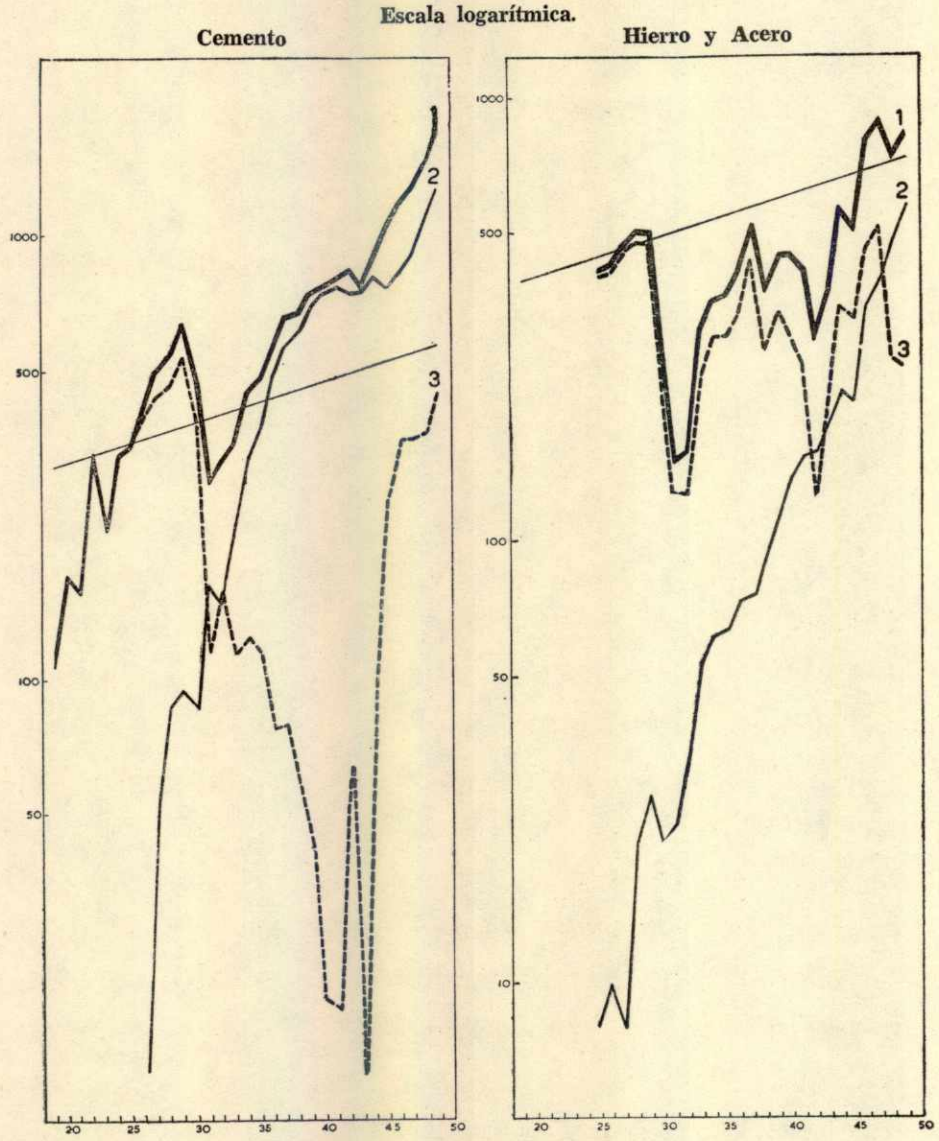
GRAFICO 16

BRASIL

PRODUCCION, IMPORTACION Y CONSUMO DE ACERO Y CEMENTO

Miles de toneladas métricas.

Escala logarítmica.



1.— Consumo.
2.— Producción.
3.— Importaciones.

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Table 13-A Brazil: Production, Imports and Apparent Consumption of Iron, Steel and Cement in Brazil

(thousands of metric tons)

Years	Iron and Steel			Cement		
	Production	Imports	Apparent consumption	Production	Imports	Apparent consumption
1925	8	397	405	13	336	336
1926	10	413	423	55	396	409
1927	8	457	465	88	442	497
1928	21	482	503	96	456	544
1929	27	468	495	87	535	631
1930	21	253	274	167	384	471
1931	23	128	151	149	114	281
1932	34	127	161	226	160	309
1933	54	241	295	324	114	340
1934	62	292	354	366	126	450
1935	64	293	357	485	114	480
1936	74	322	396	571	78	563
1937	76	433	509	618	79	650
1938	92	274	366	698	54	672
1939	114	328	442	698	41	739
1940	141	294	435	745	19	764
1941	155	253	408	768	18	786
1942	160	125	285	753	64	817
1943	186	188	374	747	13	760
1944	221	335	556	810	102	912
1945	206	315	521	774	255	1,029
1946	343	456	799	826	351	1,177
1947	387	506	893	914	347	1,261
1948	481	257	738	1,112	361	1,473
1949	572	250	822	1,287	448	1,735

Source: Research Centre, Economic Commission for Latin America.

Note: The production data were originally published by the Serviço de Estatistica da Produçao of the Brazilian Ministry of Agriculture. Import data are obtained from Estatistica Economica e Financeira of the Brazilian Finance Ministry. Apparent consumption does not exclude exports.

After preliminary studies had been carried out by Brazilian experts and confirmed by North American experts it was decided to set up the large iron and steel plants of Volta Redonda with the financial help of the Export-Import Bank, which marked the second stage of the Brazilian iron and steel industry. Nevertheless, the importance of the first stage should be pointed out; before production started at Volta Redonda the production of steel had reached about 200 thousand tons in 1945, out of a total consumption of 520 thousand tons. Between that year and 1949 production increased by about 370 thousand tons, of which about 300 thousand came from Volta Redonda. In 1949 total production was thus 570 thousand tons while consumption was 820 thousand tons. The capacity to produce is therefore still inadequate and consequently attempts are being made to install a second blast furnace and several steel furnaces which could duplicate Volta Redonda's 1949 production of 300 thousand tons.

It is not considered, however, that the establishment of a coke iron and steel industry will displace the charcoal industry. On the contrary, a new plant using charcoal (Itabira) has recently been built on Rio Doce, with a capacity of 55 thousand tons a year; this plant will produce special steels. Mass production of these types of steel has not yet been attempted, due partly to the relatively small market and the technical difficulties involved in its manufacture. On the other hand, the high-grade iron obtained with the charcoal process favours the establishment of this type of product. It should be noted moreover that it will be possible eventually to convert some of these plants to coke.

It is estimated that with the second blast furnace of Volta Redonda, this new establishment, and other projects now being carried out, Brazil will be able to dispense with imports of iron and steel in the very near future at the present rate of consumption 1/, thus eliminating one of the most important factors in the disequilibrium of the balance of payments.

1/ The Volta Redonda plant was built to be able to produce a million tons of steel a year.

/The development

The development of the iron and steel industry in Brazil, especially of high-test steels, will be of great significance to the development of the industries derived from this basic product. A typical case is that of the railway industry. It was strongly stimulated by the Second World War and in the 'forties important plants were added to those already existing. Since the manufacture of steel plates and structural steel at Volta Redonda, this industry has been able to build metal coaches, and measures at present under consideration provide for the manufacture of all types of railway equipment. As in the other Latin American countries, railway material deteriorated considerably in Brazil following the world crisis: it would be very difficult to replace and increase it to the extent necessary without developing the railway material industry.

The same applies to trucks and tractors; in this case the field for expansion is enormous if one remembers that these two elements are needed to penetrate the vast territory of Brazil in order to extract its wealth economically. With this in mind an effort is being made to develop the production of internal-combustion engines and motor engines and automotive vehicles in the Fabrica Nacional de Motores, built in the first place for the manufacture of aeroplane engines. This same plant has also begun the manufacture of spindles for the textile industry. There are some 3,280,000 spindles in use in this industry, of which some 160 thousand 1/ must be replaced every year; the fact that this could not be done during the war seriously obstructed the development of the industry.

Spindles are also being produced on a considerable scale by a plant in Sao Paulo, filling an important gap in the manufacture of Brazilian textile machinery. This important element was the only one needed for the integration of this industry, which otherwise had reached a very satisfactory degree of efficiency according to expert opinion. No one would have anticipated twenty-five years ago this constructive outcome of measures taken with a very different end in view. Indeed, in the early 'thirties the swamping of the textile market had caused producers

1/ Assuming that 50 per cent of the spindles now in use must be replaced over a period of ten years.

to request and obtain the prohibition of textile machinery imports, but the fact is that this prohibition served to stimulate the manufacture of textile machinery in the country and thanks to this Brazil was able to overcome import difficulties created by the crisis and the Second World War better than other countries 1/.

In addition to the textile industry other machine industries have been developed in Brazil, notably those of sugar and alochol. There are, moreover, a great many small mechanized industries which, despite the artisan character of the majority serve to develop technical aptitudes; thus bases are created upon which future enterprises can be developed as needed, when the country's capacity to import prevents it from buying abroad all the capital goods required for its economic growth.

4. The cement industry

It was also during the 'thirties, for the reasons already given, that the manufacture of cement in Brazil was greatly stimulated, having started during the 'twenties. In this case, however, there is an additional factor, for since the prices of cement were more favourable to the Brazilian consumer than those of iron during those years, the demand for the former grew more rapidly.

Production increased at such a rate that in 1941, of the 790 thousand tons consumed, only 3.3 per cent were imported. However, due to the difficulty of obtaining new equipment to increase production during the war, it was again necessary to import large quantities of cement; in 1949, 450 thousand tons of the 1,740 thousand tons consumed

1/ In view of the exchange situation the Brazilian Textile industry cannot compete with foreign suppliers, and as it is not yet considered a specialized industry it is manufacturing other types of machinery. The present production capacity of the industry is estimated by experts at 50 thousand spindles per year, if the technical difficulties of manufacture are overcome and the domestic supply of raw materials is assured; this has been achieved at the present stage. It is believed that the industry could increase its capacity should it prove necessary because of import difficulties.

/were imported.

were imported. Present capacity is now being increased and it is hoped that domestic production will again be able to meet consumption during the next few years.

5. Chemical and pharmaceutical industries

If, as has already been seen, during the 'thirties the chemical products necessary for the industrial development of Brazil were imported at the expense of other commodities, the import difficulties resulting from the Second World War proved conclusively that one of the greatest weaknesses of Brazilian industry lay in the under-development of the basic chemical industries.

On the one hand, these industries need technical experience not as easily acquired as in other cases, since it is in the hands of large international groups; on the other hand it demands a considerable amount of capital. Brazil has been able to acquire both these elements and is well on the way to supplying the most serious deficiency, that is the production of alkalis. Three enterprises are joined in this field; one of an official nature, which has obtained a 7.5 million dollar loan from the Export-Import Bank; the second, one of the big international organizations; and the third a private domestic enterprise. The three have combined their plans and it is hoped that in a relatively short time they will be able to meet the total requirements of the country. The production capacity of the first two is reported to be 55 thousand tons a year of caustic soda, which is approximately equivalent to imports, and 60 thousand tons of sodium carbonate, which is more than imports.

As regards sulphuric acid, also indispensable to industrial development, its production has been developed to the extent of being able to to supply requirements. Sulphur, however, still has to be imported, since this is one of the few basic products which until now has not been found in its natural state in the country. There are two factories which use natural pirites and there is talk of the possibility

/of using

of using carboniferous prities, of which there are large deposits, in combination with domestic coal, if a solution can be found to the technical difficulties obstructing the use of these pirites in the manufacture of sulphuric acid.

The consumption of sulphuric acid is increasing rapidly and new plants have been set up in order to meet it. Consumption will be further increased by the proposal to develop production of superphosphates for fertilizers. The distillation of coke in the steel plant of Volta Redonda has opened new prospects for various sectors of the chemical industry, including dyes, explosives and disinfectants.

The development of the pharmaceutical industry was considerable even before the Second World War. It was estimated that production covered 90 per cent of consumption in 1947. Furthermore, exports of Brazilian pharmaceutical products increased greatly during the war and subsequently were maintained at a higher level than other products, especially in the case of alkaloids whose value in 1948 was equal to 19 per cent of the value of imported pharmaceutical products.

6. The paper industry

Consumption of paper has increased to such an extent in Brazil that in spite of the rapid increase of domestic production considerable quantities must be imported. These imports contribute to the disequilibrium of the balance of payments which explains the concern first to reduce them and finally to eliminate them, by means of the installation of modern plants of a high capacity.

Figures for the five-year period 1930-34, the first for which there are data, are compared below with those for the last five-year period.

	Domestic production of paper	Imports		Total consumption of paper
		Paper (in tons)	Cellulose	
1930-34	53,217	39,154	50,364	97,371
1945-49	171,157	63,546	78,333	234,703
Percentage of increase	194	62	56	141

/It is

It is clear that the efforts made to solve this problem are bearing fruit, since though imports rose considerably production increased at a far greater rate, thus lowering the proportion of paper and cellulose imports in the total consumption of paper.

This effort has been made in two stages. During the first, paper was made with imported cellulose; this was a considerable economy but it was reduced with the relative price increase of cellulose with regard to paper; in 1913-14 paper was worth 3.7 times more than cellulose, but in 1934-39 this was reduced to 2.1 and in 1945-49 to 1.3. If the intention of the foreign suppliers was to discourage domestic production of paper in favour of imports they failed to attain their objective, since instead of importing paper in the place of cellulose, Brazil decided to manufacture its own raw material.

Until very recently this was done with a great number of small factories using pine and eucalyptus wood. Since 1946 production has started in a modern factory with a large capacity in Montealegre, installed with the help of the Bank of Brazil. This marked the second stage of paper production: the mass production of cellulose. This factory is producing cellulose for newsprint as well as for wrapping paper and other types.

The consumption of newsprint in Brazil was estimated at about 80 thousand tons in 1948, of which 40 per cent was produced in the country with Brazilian cellulose; the new factory has a capacity of 40 thousand tons and was able to produce some 26 thousand in 1948. By the time it is in full production consumption will probably also have expanded, and it will be necessary to increase the domestic production capacity still further. However, the most important point has been passed with the establishment of technical methods adapted to the resources of the country, for the mass production of paper.

The consumption of other types of paper in 1948 amounted to 170 thousand tons. Part of this paper is being manufactured with imported cellulose. One of the objectives of the new factory is to supply the

/market with

market with about 40 thousand million tons of cellulose; average imports in 1948-49 were 60 thousand tons.

Without discounting the previous efforts in the manufacture of cellulose in Brazil, the establishment of this modern factory constitutes the most important step towards a definite solution of this problem in the course of time. As indicated earlier, it was necessary to carry out considerable research which finally proved satisfactory, to be able to use the Parana pine or the Brazilian Araucaria, the fibre of which is different from that of the European pine. Furthermore, this factory processes its own caustic soda and has made plans for reforestation which will avoid the depletion of the forest resources it uses.

The possibility of producing cellulose economically having been established, the problem can be considered well on the way to a satisfactory solution, in which case Brazil should be able to reduce its imports of paper and cellulose to negligible quantities.

7. Cotton textile industry

From a dynamic point of view, the Brazilian cotton textile industry has played an outstandingly important part; it has been able to replace imports almost completely, thus freeing available resources for the supply of other imperative needs of the economic development of the country. This branch of industrial activity has not created any external problems, but some of an internal nature have appeared. Productivity is not considered satisfactory, both on account of equipment and of deficiencies in the labour force; this is partly, though not wholly, the cause of the high retail prices affecting per capita consumption. It must be recognized, however, that serious efforts are being made to solve these internal problems. This would also affect external factors, since an increase in productivity would place Brazilian industry in a more favourable competitive position in the international market. The reserves accumulated during the war enabled the industry to renew part of its equipment, both of imported and locally manufactured machinery. It is estimated that of the

3,280,000 spindles existing in Brazil, 27 per cent are modern; this proportion was small before the war. Seven per cent of the 100 thousand looms are automatic. Furthermore, the industry has undertaken a serious labour-training programme which should yield good results.

Frequent comments have been made, both in Brazil and Mexico, on the antiquated textile machinery, but it must be admitted that the problem has not been considered as carefully as it deserves, and from a point of view of general economic development. Both countries are characterized by cheap labour and scarcity of capital. In Brazil the number of spindles increased from 1,153,000 in 1915 to 3,280,000 in 1949 in order to meet greater consumption, arising chiefly from the increase in population. In other words, it has been necessary to increase capital investments in order to supply the growing population: the modernization of equipment would have meant far greater investments. The question arises whether these greater investments would not have been made at the expense of other branches of economic activity in which the increase of capital would have brought about greater increase in productivity than that in the textile industry. It appears that in Brazil, especially in Sao Paulo, part of the profits of the textile industryhave been employed in the establishment of other industries which have contributed considerably to the economic development of the country.

Let it be understood from the outset that in raising this question it has not been our intention to justify in any way attitudes of indifference or indecision with regard to technical progress such as we are accustomed to encounter in our countries. Nor are we seeking excuses for the failure to take certain measures concerning training or organization which would have contributed to a higher degree of productivity. There is a great difference between offering such a defence and concluding that because the textile industry in some Latin American countries lacks the modern equipment characteristic of the great industrial centres, it must perforce be uneconomic. There is no

/need at

need at this point to restate the argument set forth in Chapter IV in the first part of this Survey.

In examining the recent trend toward modernization of the textile industry in Brazil, there are a number of favourable factors which must not be overlooked. It has been pointed out that during the war the entrepreneurs were able to accumulate large reserves. Furthermore, inflation caused a sharp rise in prices and wages whereas the value of the cruzeiro remained at the pre-war level. Thus estimates concerning the advantages of more costly equipment in relation to the level of prices and wages must favour a greater density of capital per man employed. It would be interesting to compare these results with what has occurred in Mexico. The Mexican peso has been greatly depreciated but there has been no corresponding increase of domestic prices and wages in the textile industry, so that the problem of investment has developed in the opposite direction.

8. The Rubber Industry

This industry demonstrates once more the country's determination to employ its natural resources in order to meet the intensive growing demand for certain commodities without giving rise to new factors of disequilibrium.

Brazil still has a relatively low number of motor vehicles and it will be compelled to increase them to a considerable extent as its economy develops, both in the field of transport and of agricultural production. The effects of such an increase on the balance of payments are fairly evident: fuel imports will tend to increase considerably together with imports of tyres and inner tubes. It is also obvious that Brazil will be unable to effect such imports on a large scale in addition to those of motor vehicles, if its capacity to import does not expand to a corresponding degree. There is nothing to indicate the possibility of this, especially when one traces the course of events during the past twenty-five years. Hence the country's interest in

/producing a

producing a part of these motor vehicles itself, in obtaining supplies of motor spirit from its own oil deposits, and in manufacturing its own rubber goods; so that it may thus acquire that which it otherwise could not have, and can divert its foreign exchange to the imports it judges most essential to its economic development. Experience has shown on several occasions that Brazil is unable to retain its monetary reserves for any great length of time.

During the last war, Brazil actively developed rubber production in the Amazon Valley, which was formerly a great world centre of production. The United States Government had been extremely eager to sponsor this development and domestic consumption was restricted in Brazil so as to supply United States demand. At the end of the war, the country was faced with an annual production of 30,000 thousand tons of rubber, the cost of which was higher than that obtaining on the world market. The alternative was fairly obvious: either Brazil had once again to reduce production of the raw material and allow domestic demand for manufactured rubber goods to be supplied by imports, or else it had to restrict imports so severely that industry would be enabled to develop using domestic rubber. Brazil, committed as it was to the development of the Amazon Valley chose the second alternative in spite of the higher costs just mentioned, and the restrictive measures resulting from this policy were found to be effective. Industry's consumption of rubber, which in recent years was insufficient to absorb the entire domestic production, has increased to such an extent that it is almost equivalent to production. The supply of rubber goods which had reached 12,160 tons in 1941, and fallen to 6,260 by 1943 due to the restrictions occasioned by the war, increased to somewhat more than 24,000 tons in 1949.

The manufacturing industry was prepared for this expansion. The advanced stage of development of this industry is also the result of the world crisis. The first modern plants for the manufacture of tyres and inner tubes for motor vehicles were established between 1936

/and 1940,

and 1940, principally with United States capital. Their expansion since ... that period can be gauged from the fact that the number of workers employed rose from 3,707 in 1940 to 12,149 in 1947.

The Brazilian rubber industry was able to export a substantial amount of its production during the war but was later obliged to concentrate its efforts on the domestic market since it could not compete with foreign competition, this despite the terms established by the Brazilian Government in order to allow manufacturers producing for the foreign market to obtain their raw material at prices equivalent to those obtaining on the world market.

The higher costs of domestic rubber are borne exclusively by the home market. It is therefore surprising to find that the price of tyres manufactured in Brazil during 1948 was 28 per cent higher than the price obtaining in 1939, whereas the price of the imported article has been raised by 34 per cent, despite the fact that the rubber industry is one of the most profitable in Brazil.

VI. Comments on the problems of Brazil's economic development

1. In the foregoing rapid analysis of Brazil's economic development we have not wished merely to enter into an historical description, but rather to contribute to a better understanding of the problems arising in a country in full development.

This investigation, apart from revealing the rate of growth of the country's economy in its most important aspects, has also permitted us to draw conclusions which it is hoped may serve as a guide in explaining present events and the measures which designed to operate on the course of such events.

Brazil's internal economic activities have become less vulnerable to external fluctuations, due to the extensive development of its industry and the utilisation of a larger part of agricultural production for domestic consumption. However, the rate of growth of the country's economy still depends to a great extent on external

/factors. These

factors. These factors have had an adverse effect on the development of capitalization in Brazil during the greater part of the last quarter century, in view of the deterioration of the country's capacity to import. This was due not so much to the inability of Brazil to increase its exports, as to a deterioration in the terms of its foreign trade. These terms have recently improved and if Brazil could increase its present capacity to import at the same rate as that of the increase of its population, the problems of economic development in this country would be gradually solved under conditions more favourable than those obtaining earlier. There would be more facility than previously in importing capital goods and also in servicing foreign investment, made with the purpose of giving a greater impetus to capitalization and consequently to the economic development of Brazil.

Like many other peripheral countries, Brazil is known to have had difficulties in settling these service accounts during the period under analysis. In this connection, however, it must be remembered that during the 'thirties Brazil's capacity to import was 33 per cent lower than it had been during 1925-29, prior to the world crisis, whereas its population had continued to increase at the same high rate. It is hard to see how the country could have continued to service foreign investments without sacrificing imports essential to its economic activity. For the many difficulties which arose, improvised solutions were found which provoked reactions, among both debtor and creditor countries, which did not favour the ultimate re-establishment of the flow of foreign investments in the measure expected in a country with such vast prospects of development. With regard to the course of future events, it has been proved once again that one of the fundamental conditions necessary to stimulate foreign investments, is the steady economic development of the great world centres of industry, without the sharp fluctuations of former years. It

It is evident that prompt payment of services on foreign investments will give rise to a new factor of external disequilibrium

/unless it

unless it is accompanied by further investment or the adoption of a far-sighted foreign trade policy. It becomes at once easier to understand Brazil's insistence in applying these investments to branches of domestic production, such as the generating of power and the manufacture of steel and chemicals, which will enable the country to replace a part of its imports with domestic products, in order to import other goods necessary for its economic development. The country would thus be in a position to effect payment of these services with a relative degree of ease.

Brazil's vicissitudes in relation to its balance of payments have led it to establish a deliberate policy whereby in implicitly recognizing that disequilibrium tends to be a persistent factor of economic development, a means is sought of counteracting it sufficiently early by means of further changes in the composition of imports and the readjustment of their coefficient in relation to national income.

2. It is generally accepted in Brazil that unless new and large investments of foreign capital are made, it will be extremely difficult to accelerate economic development. The increase in the number of persons gainfully employed in industry has been almost three times greater than that of the total population, and yet the number of persons engaged in agriculture diminishes at a relatively slow rate. Furthermore, though the standard of living of those persons leaving agriculture for industry has been raised, their displacement causes the standard of living of industrial workers to remain stationary. In order to speed up economic development it would be necessary to accelerate the rate of displacement of labour from agriculture to industry and other activities. Among other essential requirements, this would imply the need for increasing the accumulation of capital per capita in agriculture as well as in industry and transport. It is likely,

/however, that

however, that capital formation could not be much increased without endangering the standard of living of the masses which, as has just been pointed out, has not risen perceptibly in the past twenty-five years in the case of industrial workers. Foreign investments might achieve this aim of greater capitalization in order to stimulate the growth of per capita real income. Once such an increase in per capita income has been achieved, there would be a greater margin for domestic savings and capitalization.

3. Naturally there are other problems which appear together with that of greater capitalization, if we seek to achieve a progressive increase in per capita productivity of gainfully employed persons. Skill in the efficient handling of capital equipment is one of these problems. As far as industry is concerned, the importance of skill has generally been admitted in Brazil and it is estimated that about half of the new manpower incorporated into the various specialised sectors of industry has gone through some form of apprenticeship. Increasing attention is also paid to technological research in industry which will enable Brazilian labour to assimilate foreign techniques more quickly and more efficiently, adapting it to the wide range of its natural resources.

4. There is no doubt that the most difficult task of development, the longest and most complex, lies in agriculture. It has been said more than once in this report that the absorption of agricultural labour by industry and other occupations will constitute a strong inducement to the mechanization of agriculture and improvement of the primitive methods of cultivation. However, the experience of other countries reveals that this inducement is not sufficient. Without Government co-operation in the form of technical assistance on the land itself, the incentive might well be wasted or worse still,

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constitute a weakening factor in agricultural activity, since the introduction of technical methods in agriculture demands careful and persistent preparation. There is still another factor of importance in the introduction of technical methods in agriculture. Together with the necessity of increasing the amount of capital per man in agriculture, in order to improve productivity, it is also essential to avoid what might be loosely called the natural decapitalization of the land; that is to say, the loss of its capacity to produce. Erosion is one of the principal causes of this decapitalization, operating as it does in various ways, and it is possible that the availability of land which has existed in Brazil until now may also have constituted to this phenomenon. From an individual and short-term point of view, it is conceivable that to break new land to the plough, deplete it with soil-exhausting crops and then pass on to other virgin tracts may be the most advantageous method, since one must admit that applying capital and labour to virgin soil yields more than employing these same factors to prevent the depletion of agricultural land which has already been cultivated. In the long run, however, and from the point of view of society, the method described above will destroy vast quantities of natural wealth. Herein lies another of the fundamental problems which, if not solved opportunely, will neutralize every effort made to increase productivity and the standard of living. Fortunately, this problem has not been neglected in Brazil, and in government projects soil conservation is one of the outstanding items.

5. The disequilibrium existing in the foreign economic relations of Brazil confirms the interpretation of the phenomenon set forth in the general section of this Survey. On the one hand, countries in the process of development require more imports as their income increases, while on the other, countries which have already developed do not

afford them the capacity to import more. Consequently trade between countries which are developing and those which have already developed must be subject to periodic readjustments aimed to correct the disequilibrium which this difference entails.

Neverhheless, there is no need for the occurrence of such phenomena in trade between countries which are developing, especially in the case of neighbouring Latin American countries. All need to increase their imports and they could generatethe effective capacity to do so reciprocally, as their respective incomes are augmented.

What is required is a firm and clear-sighted policy, though several attempts have been made in the right direction. It must be admitted, however, that the propensity to restrict foreign trade generally prevails over the intent to expand it. The economic relations between Brazil and Argentina, in this respect, offer a very interesting field for constructive analysis. The two are complementary countries, both as regards the nature of their natural resources and the fact that each has embarked on a planned policy of intensive industrial development, offering great opportunities for reciprocal trade as has been proved by the economic history of those which are now the great industrial countries. Nevertheless, Brazil is now seeking to eliminate the importation of Argentine wheat, to the further detriment of the latter's diminishing production. Similarly, Argentina has already dispensed with the importation of Yerba Mate from Brazil, where it is easily harvested from the virgin soil, and has replaced it by its own costly cultivated product.

It is by no means certain that the imported wheat could not be paid for in part by proceeds accruing from an advantageous exchange of industrial goods between the two countries, apart from that of other goods of mutual interest.

In making these final comments we should not overlook this problem, so closely linked to the economic development of both

/countries, since

countries, since these considerations embrace problems common to the growth of all the Latin American countries.

6. External disequilibrium brought about by internal economic development always has monetary consequences, but it is fundamentally a phenomenon of growth which is usually aggravated by monetary inflation. There are Latin American countries, and Brazil is one of the most conspicuous, in which inflation has been converted into an instrument of economic development. On the one hand increase in money is constantly expanding domestic demand, while on the other it causes certain changes in distribution which allow a greater degree of capitalization. In this way imports of capital goods expand, together with additional imports essential to economic development. All this contributes decisively to external disequilibrium. It could be argued that to the extent that inflation has been instrumental in promoting development, and development leads to disequilibrium, in the last analysis disequilibrium derives from the inflationary process. Nevertheless, whatever the external instrument devised by a country to stimulate its own development, the subsequent increase in imports must necessarily provoke disequilibrium, if the capacity to import does not expand to a corresponding degree.

This does not entail passing judgment on the value of inflation as a dynamic instrument, much less does it imply that inflation is always conducive to intensive development, since there are many proofs to the contrary in Latin America. Even when it has been used for this purpose, as in Brazil for instance, it has nevertheless, brought in its train serious disadvantages as well as cost involved for the community. This is because the redistribution of income, from which spring the resources for capitalization, also increases the standard of living of the favoured groups of the population to the detriment of a higher capitalization and mass consumption.

/The problem.

The problem is indeed complex and it is easy to see that between inflationary growth or stagnation accompanied by monetary stability, the former would appear preferable. But it has not yet been proved that it is impossible to find a third alternative, that is, to achieve growth without inflation. Inflation is a form of compulsory savings, but it is not the only one which can be conceived when voluntary savings are scarce. Other ways whereby the masses restricting their consumption would not lose their right to the benefits deriving from the savings thus built up, and would share in the advantages of the higher productivity achieved, would be more just socially and healthier economically. Nevertheless it must be recognized that these forms demand of the public a degree of comprehension of the problems of savings and investment not even attained by the great countries themselves, judging from the recent inflations of the war years. The developing country which is able to achieve it will have provided an experience of major importance to the economic development of Latin America.

ECONOMIC DEVELOPMENT OF CHILE

INTRODUCTION

1. Since inflation is generally recognized to be a source of evils wherever it occurs, it is not surprising that it should cause considerable anxiety in Chile. In dilemmas of a domestic order such as this, the economic aspect is so inextricably tied to the concomitant political and social aspects, that only with a very profound knowledge of the country's life and structure is it possible to achieve any measure of success in co-ordinating the methods propounded by the technicians.

But however important it may be to eliminate inflation, it cannot be expected that the formula for its eradication will at the same time smooth the way for the country to recover its economic stability. Unfortunately, a further matter of indisputable gravity is involved, and it is one which Chile is tackling with determination, in the measure allowed by its limited resources. The question is that of disequilibrium of the balance of payments which must be wholly severed from that of inflation in order to avoid any misinterpretation. The problem of disequilibrium which is, in fact, contrary in essence both to Chile's will and to its inclinations, would appear to be the long-run consequence of those international developments which have so radically distorted the country's economic structure - viz. the world economic crisis and the replacing of nitrate by synthetic nitrogen.

Despite the time that has elapsed since their occurrence, these two factors still weigh heavily on Chilean economy. One can go so far as to assert that since then, Chile has above all been attempting to obtain by means of domestic production those goods she can no longer acquire through her foreign trade. The struggle is unquestionably difficult for a country which had been developing actively, by means of the strong impetus it received from its exports. It was furthermore a country where the characteristic benefits of the international division of labour undoubtedly obtained whilst world economy grew and prospered. Chile imported an increasing volume of goods in a measure corresponding to the continuous rise of its exports. During the five years before the crisis,

/the per capita

the per capita quantum of Chilean imports was already 84.3 per cent higher than during the first decade of the present century. The growing volume of goods which the country thus acquired provided it with means with which progressively to assimilate the higher standards of living of other more advanced countries. However, all this was upset by the two events mentioned. During the 'thirties, the capacity to import was reduced to a minimum amount, and despite the subsequent improvement in foreign trade during the last five-year period, the amount of imported goods available per capita was still 49.4 per cent less than during the five-year period, 1925-29.

New incentives to growth had to be sought within the very dynamics of the country itself. Yet Chile, like other Latin American countries whose aggregate efforts were focused on international lines, could not readily adapt itself to the changed conditions prevailing. Certainly several industries had already been established for some time, but these could do no more than barely cover the large gap left by the falling-off of imports caused by these two international deslocations. Though undoubtedly possessing the natural resources indispensable to such a programme, Chile nevertheless lacked the capital goods essential for the increase of its existing production, and which would enable the country to venture into new fields of industry. It was not possible to import the necessary quantities of such goods, since in view of the very low capacity to import, priority had naturally to be accorded to commodities which were of vital importance if consumption and the economic activities of the population were not to be thrust below the critical level to which they had already dropped. This then was the origin of a vicious circle which thenceforth was to become characteristic of the economic development of the majority of these countries. Production of consumer goods cannot be increased to the required extent because the imports of capital goods are insufficient, which in turn is due to the pressing need to import consumer goods.

/In Chile,

In Chile, foreign investments alone could have broken this vicious circle without reducing consumption of the bulk of the population beyond reason. International finance was not ready, however, to assist a peripheral country in modifying the structure of its economy and promoting its vigorous internal growth. For prevailing doctrines held that foreign investments are only justifiable in a country having a rising capacity to export and to develop externally as the result of the constant impetus of foreign demand.

It is not surprising that the readjustment of Chile's economy during the 'thirties took place so slowly. Moreover, when the Export-Import Bank of the United States began operations aimed to foster economic development, the Second World War broke out and Chile once again had to postpone the execution of her plans.

2. These delays provoked by adverse circumstances incontestably influenced the rate of production. Nevertheless the degree of industrial progress, in fact, was by no means small. For instance, between 1925-29 and 1945-49, the index of industrial production increased 105.6 per cent, which is nearly three times more than the increase of population. However, this rise would most certainly have been higher had the natural resources been able to develop under more favorable conditions. Had such auspicious circumstances prevailed in Chile at this time, the country's index of total production would have by far surpassed the growth of the population. Such however was not the case, since the population during the aforesaid period increased 36.4 per cent, whereas the index of total production rose by only 47.6 per cent.

This increase in domestic production might have been expected to provoke a sharp decline in consumer goods imports whilst favouring increased investment by means of importing capital goods. Nevertheless Chilean economy had unfortunately been unable to rid itself of the trammels of this vicious circle for a very simple reason. The increase of production was very naturally followed by an increase of real income, though this did not necessarily occur to the same degree. This increase

/of income

of income stimulated the demand for imports at a time when the capacity to import was low. It is evident that the gap between demand for imports and adequate capacity to import must, of need, give rise to phenomena of disequilibrium in the balance of payments, compelling the country to lower its coefficient of imports in order to be able to correct them. This was achieved principally by means of foreign exchange controls. Even so, the criticial position of the balance of payments at present reveals that domestic production has not been able to substitute certain imports, or at least not in sufficient quantities. It is precisely these imports that act as the principal check on the purchase abroad of capital goods without which substitute industries cannot be established.

This problem would have become even more disturbing had the guiding principles of foreign investment not undergone a radical alteration. Chile was, in effect, able to obtain loans from the International Bank and the Export-Import Bank with which to create a financial link between present and future economic development. If the country persists in its avowed intentions and is able to maintain the continuity of investments, then this financial organization will enable Chile to attain the goal it has set itself.

3. Ten years ago, Chile created an efficient instrument in order to fulfil its ambitions, the Corporación de Fomento (the Production Development Corporation). It was the first organization of its kind in Latin America, and has served as an example to other countries for their own economic development. It is not possible to say whether or not the Corporation conforms to a strictly pre-conceived programme drawn up at a time when planning was looked upon with favour. However, the analysis of past achievements and future projects reveals an aggregate scheme of clear and correlated ideas on what Chile can and should do in order to eliminate the vicious circle that impedes the progress of its economy.

Above all, the Corporation has been concerned with the problems of investment. Capital requirements in agriculture, industry, building and economic activity in general are substantial. Even if adequate financial

/assistance from

assistance from abroad had been obtained, under no circumstances would it have been advisable for Chile to depend on imports as a source of her essential capital goods. On the other hand, considerable reserves of iron and coal offer the country the possibility of establishing iron and steel industries on solid foundations. The Corporation has undertaken to develop this enterprise and with both technical and financial assistance from the United States, Chile's iron and steel industry is now a fact. Some time will probably yet be required before an optimum volume of output is achieved, but it must be kept in mind that the whole effort is directed to enabling the country to continue its growth, and that if future demand is not taken into account, little constructive effort could be made in the dynamics of the periphery. Meanwhile the country will be adequately supplied with large quantities of iron and steel which Chile in its present condition could not ever have obtained through foreign trade at its present level.

The Corporation expanded cement production together with that of iron and steel. Consequently Chile can now avail itself of two sources of capital goods which, apart from their direct advantages, will place the country in a far less precarious position as regards its resistance to foreign contingencies.

Power was equally as serious a problem as that of obtaining real capital, but Chile was ready to undertake its solution. There are vast hydro-electric potentialities in the country of which little use is made as yet. Chilean technicians had already indicated some time ago the possibilities of their utilization and had drawn up an extensive programme of electrification. All that was lacking was capital for the undertaking. Immediately these requirements had been obtained from abroad, work began and the programme is now well under way.

Other aspects of the question of power have also been considered by the Corporation, among which are the economic development of coal and petroleum production. It seems evident that great hopes should have been founded on petroleum here, since the growing use of motor vehicles in

Chile, as in other Latin American countries, is one of the main factors contributing to the disequilibrium of the balance of payments. It should be noted in this connection that all petroleum workings in Chile have been developed with domestic capital, whereas only recently was foreign co-operation enlisted in the modernisation of the coal mines.

Notwithstanding all these efforts Chile's power problems are not easily solved. On the contrary, for these difficulties appear to increase in a measure with the acceleration of the rate of economic development. This alone would constitute the soundest justification for these efforts, and, is sufficient to enable one to understand and realize the extent of the complexities of Chile's Balance of Payments disequilibrium. If during the next five years, consumption of power increases at the same rate as has obtained during the last ten years, and if the development programme is executed in its entirety, no real savings in foreign exchange will have been effected. On the other hand, it would only have avoided an increase of the present level of fuel imports, which weighs so heavily on the balance of payments.

That much has been done in this as well as in other fields, is indisputable, but not enough so far, to suppress the enduring factor of disequilibrium within a reasonable lapse of time. So much so that the Corporation has been compelled to investigate other methods of reducing imports or at least of preventing their expansion in the future.

The development of the chemical industry would seem to offer encouraging prospects, particularly in respect of certain items, the consumption of which progressively reveals a striking increase, commensurate with the marked intensification of industrial growth. Figuring among these industries are those which utilise derivatives of coke production and which are at present under review together with others resting upon substantial mineral resources.

However it is generally believed that the manifest gains accruing from the development of the country's forest products and agricultural resources will provide the first ponderable results affecting the

balance of payments. Chile's vast forest reserves should, within a relatively short while, enable the country to dispense with imports of paper and especially of newsprint, which have expanded very rapidly. Production of cellulose for the manufacture of rayon is also envisaged, since domestic consumption tends to increase at a high rate.

Plans for the exploitation of agricultural resources are very extensive, since there is a wide scope for technical improvement. The plans disclose special concern for the possibilities of producing beet sugar and increasing the volume of domestic livestock production. Imports of these two items together not only absorb a substantial percentage of total present-day foreign exchange availability but also evince a persistent upward trend, proportionate to the increase of population and the raising of the standard of living.

4. Further to the above, the Corporation's plans stress two points of vital importance which are: i) extension of the total arable area, and ii) improvement in agricultural technique.

Chile's soil is not naturally fertile. Agricultural zones with an adequate rainfall regime are scarce. For a long time now, the only possible means of increasing the total area of Chile's agricultural land involves utilisation of the naturally humid soils made available by clearing away virgin forests, or alternatively by irrigation schemes. There is still a great deal of uncleared land, but it would appear both that the richest soils are already under cultivation and that the further agricultural land is extended now, the higher the corresponding costs of its opening.

Chile's position as regards the mechanisation of agriculture is very favourable in contrast with other Latin American countries. But a great deal still remains to be accomplished, and it should be noted that the Corporation is also co-operating very actively in the execution of this task.

From the outset, the problem of the shortage of capital for agricultural development becomes evident, though it is far from being

/the only issue

the only issue which remains to be solved. The introduction of modern technical methods in Chilean agriculture, as elsewhere in Latin America demands an incentive which as yet is not sufficiently powerful. Nor is it likely to become so whilst the present abundance of labour in the rural areas and the relatively low wages continue prevalent. Two aspects of the question of ample manpower availability are at once perceptible. On the one hand, there are a great many little parcels of land which, precisely because of their small size and of the technique being employed thereon, prevent the obtaining of satisfactory levels of production. In other words, a real surplus of agricultural population exists in relation to the very limited surface of such land owned by these people. Furthermore, a potential surplus of population exists in certain areas where, if productive technique were improved, present manpower requirements could be lowered. Evidence of this latter aspect will be found more readily on the vast tracts of the central zone of Chile than further to the south, where mechanisation and improved methods of cultivation have brought about a considerable degree of progress.

The extent to which oxen are used in the performance of the ordinary agricultural tasks, is a significant indication of the low labour cost in Chilean agrarian practice. These animals work slowly and consequently their utilisation implies a greater number of man-hours than would be involved by substituting horses for oxen or similarly, by replacing the horses by a tractor.[1/] These, then, are the three stages of technical evolution corresponding to the decreasing levels of labour supply.

Nevertheless, no such reduction of the real or apparent surplus of labour can be effected discretionarily, by changes introduced in the established methods of work or merely by the enactment of a reform affecting the system of land tenure, however high be the motives pleaded

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1/ Oxen are subsequently used for their meat when they are no longer of any use in the fields. But, if labour costs were higher, it would be more profitable to raise cattle solely for their meat instead of as a source of power as well.

/on other

on other grounds. Such decreases can be accomplished solely by the intense development of industry and other activities, which when they eventually absorb these surpluses and offer agriculture an incentive to improve its technique in order to produce more with fewer units of human labour.

The problem cannot be reduced to a mechanical series of incentives, since there are also other factors intervening herein which render the problem more complex. These factors will not be considered individually, but rather, their characteristic common denominator will be emphasized. It has its roots in the need for real capital, which serves a dual purpose, that of supplying the means of introducing technical methods into agriculture, and as a means of creating productive employment outside agriculture for the corresponding surplus population over and above that which is generally admitted to exist in other branches of Chilean economy.

5. Its achievements in the past and the task it is now engaged upon reveal beyond doubt that the Corporation is fully aware of this problem. Its solution depends as much on technical and financial co-operation of foreign origin, as on private enterprise developed within the country. It is indeed noteworthy that the Corporation, which has gained considerable power as a governmental organ, has gone to the extent of circumscribing its own sphere of operations, leaving a wide field open to private enterprise, whether for the purpose of acting jointly with private interests in common undertakings, or in order to transfer to these latter, those undertakings which no longer require the initial impetus of the Corporation.

Chile would therefore seem to have found an instrument for economic development that is adequate to its requirements and which at the same time offers attractive incentives to foreign capital, for the co-operation so direly needed in order to eliminate the retarding effects of the vicious circle in its economy. It must now seek a domestic instrument which in avoiding inflationary means, would enable the country to develop domestic investment to the maximum degree possible, drawing on its own scanty savings for this purpose.

II. THE GAINFULLY-EMPLOYED POPULATION AND ITS DISTRIBUTION

1. Chile's agricultural population (including a relatively small number working in forestry or engaged in hunting and fishing) is extremely small in proportion to the country's total gainfully-employed population, when compared with that of other Latin American countries, as may be seen from the following table. It was calculated in 1949 that 33.7 per cent of the population was gainfully employed in agricultural occupations, 4 per cent in mining and 20.9 per cent in manufacturing and building. This distribution, together with a further 21.1 per cent in hired services might suggest that Chile's economic and demographic position is approaching that of the great industrial centres. However, whereas in the latter the growing proportion of persons engaged in hired services is one of the characteristic consequences of the increase of productivity, in less developed countries it must be interpreted differently. In the former, the growth of services is the result of the expansion of demand deriving from the raising of real income. Once its basic needs for goods have been met, the population tends to make use of skilled occupations in which higher wages obtain as a means of expressing their increased purchasing power. In the latter countries on the contrary, wage rates for these services are very low, and in fact they merely serve to disguise a surplus of labour which technical progress and general economic development could absorb in the manner described in the first part of this chapter.

Table 1 Changes in the distribution of the gainfully-employed population

	1930	1940	1949	Increase between 1930 and 1949	
	(thousands of persons)			Absolute increase (in 1000's)	As a percentage
Agriculture, fishing and forestry.	506.3	620.5	752.6	246.3	48.6
Mining.	77.6	96.1	88.7	11.1	14.3
Manufacturing and building.	263.3	346.0	467.0	203.7	77.4

/Transport and

Table 1 (Continued):

	1930	1940	1949	Increase between 1930 and 1949 Absolute increase (in 1000's)	As a percentage
	(thousands of persons)				
Transport and Public Utilities.	85.3	84.8	137.6	52.3	61.3
Civil Service - Public Administration.	50.6	80.5	106.0	55.4	109.5
Trade and Finance.	122.6	158.9	209.0	86.4	70.5
Hired services.	206.2	353.4	472.0	265.8	128.9
Total	1,311.9	1,740.2	2,232.9	921.0	70.2
Gainfully employed as a percentage of total population.	30.6	34.6	39.1		27.8

Note: Estimates of the number of gainfully employed-population are based on the trend shown in the last two population censuses, taken in 1930 and 1940, supplemented by statistics and surveys in certain occupations, with the exception of those engaged in building, for which the calculation was based on the corresponding index.

These estimates have been obtained from very useful data which afford a preliminary idea of the phenomena but which cannot serve as a basis for any definite conclusion. For instance, whereas between 1930 and 1949, though the index for the expansion of agricultural production only increased 9.8 per cent, labour engaged in these occupations increased by 48.6 per cent. It is true that the index does not include the production of milk, fruit, and vegetables, which rose substantially during this period but, nevertheless, the difference is far too great. In industry, on the other hand, the gainfully-employed population increased at a lower rate than production, that is by 77.4 per cent as compared with 93.0 per cent.

/In mining,

In mining, production increased by 15.3 per cent whilst the labour engaged therein rose 14.3 per cent. The increase of population gainfully employed in transport was 61.3 per cent, which may perhaps be ascribed to the development of urban transport and the 51.3 per cent increase in the freight carried during the period under consideration.

There has been a remarkable increase in the number of civil servants, namely 109.5 per cent, and also in trade and finance, namely 66 per cent. As in other countries, there can be no doubt that in the latter category the preponderant factors were the growing urbanization trend and inflation. The increase in both these categories probably accounts for the difficulties involved in distributing the increment of available goods among the population, as will be seen in the following section.

III. THE RATE OF ECONOMIC DEVELOPMENT

1. Contrasts in the growth of Chilean Economy

In examining the most significant trends of Chile's economic development during the present century, the marked contrast between two different periods becomes evident. There is the earlier phase when Chile's economy showed a vigorous outward development, encouraged by the expansionist stimuli of foreign markets. In the more recent past, after the drastic contractions which took place during the thirties, the country directed its efforts to developing new factors of growth centred on its domestic economy and as a result, it is now growing inwardly. It is evident that such a policy is not the outcome of choice, nor does it imply any intention to dispense with the possibility of greater outward development. On the contrary, it is the very inadequacy of such possibilities that has compelled Chile to modify the structure of its economy, in order to pursue its economic growth.

The changing relationship between the country's economy and that of the rest of the world is best illustrated by the trend of the quantum of exports. The higher rate at which the exports curve has risen since the beginning of the century should be noted on Chart 1. After dropping from time to time, exports swing upward again and finally their rate of expansion became increasingly greater than that of the population, which they had already surpassed. The world economic crisis brought this evolution to a standstill; exports decreased once more, but to a much greater degree. It should be added that when they rose again, they lacked their former strong impetus.

If, as is done in Curve 3, the quantum of exports is multiplied by the terms of trade in order to ascertain the capacity to import as a function of these exports, then the contrast between the two periods becomes even sharper. In fact, whereas the terms of trade in the earlier phase revealed a persistent tendency to improve, the subsequent deterioration cancelled the gain derived from their improvement since the beginning of the century. The effects of this development on the capacity

/ Table 2-A.

Table 2-A. Chile: Quantum of exports and imports, the terms of trade and the capacity to import

Years	Population (in 1000's of inhabitants)	Quantum index Exports	Quantum index Imports	Price Indices Exports	Price Indices Inports	Terms of trade	Capacity to import
			1937 = 100				
1900	2,902	37.6	42.4	148.3	214.2	69.2	26.0
1901	2,947	33.8	51.7	171.8	195.0	88.1	29,8
1902	2,992	35.7	50.4	164.2	190.3	86.3	30.8
1903	3,038	40.4	53.1	170.8	194.9	87.6	35.4
1904	3,084	43.2	59.7	176.4	193.0	91,4	39,5
1905	3,131	44.2	76.9	194.9	178.0	109.5	48.4
1906	3,178	42.3	94.2	232.2	176.0	131.9	55.8
1907	3,249	42.3	114.1	223.9	177.0	126.5	53.5
1908	3,269	54.5	108.8	198.7	171.6	115.8	63,1
1909	3,307	53.6	92.8	194.4	197.4	98.5	52.8
1910	3,346	58.3	99.5	192.2	209.0	91.9	53.6
1911	3,385	56.4	112.8	215.9	216.3	99.8	56.3
1912	3,424	58.3	118.0	223.9	198.2	112.9	65.8
1913	3,463	62.0	116.7	217.7	197.4	110.3	68.4
1914	3,502	47.0	92.8	216.8	203.2	106.7	50.1
1915	3,540	51.7	55.7	215.5	191.0	112.8	58.3
1916	3,579	66.7	78.3	261.9	198.7	131.8	87.9
1917	3,618	71.4	95.5	339.6	248.1	136.9	97.7
1918	3,657	71.4	94.2	275.3	293.2	93.9	67.0
1919	3,696	34.8	74.3	308.6	364.6	84.6	29.4
1920	3,734	67.7	67.6	395.8	455.8	86.8	58.8
1921	3,774	43.2	67.6	346.4	380.5	91.0	39.3
1922	3,481	48.9	67.6	234.6	245.3	95.6	46.7
1923	3,847	69.5	95.5	265.8	241.2	110.2	76.6
1924	3,874	79.9	106.1	258.2	239.4	107.8	86.1
1925	3,929	75.1	161.4	286.6	170.4	168.2	126.3
1926	3,977	67,7	218.8	264.8	133.7	198.1	134.1
1927	4,034	82.5	152.6	244.2	159.5	153.1	126.3
1928	4,118	97.6	162.2	236.5	166.6	141.9	138.5
1929	4,199	104.2	206.1	226.5	179.1	126.5	131.8
1930	4,287	67.6	190.0	222.8	168.8	132.0	89.2
1931	4,322	62.9	100.2	167.8	159.8	105.0	66.0
1932	4,375	29,8	35.9	121.7	135.4	89.9	26.8
1933	4,420	42.8	39.1	85.0	106.3	80.0	34.2
1934	4,446	68.2	53.4	76.4	92.4	82.7	56.4
1935	4,485	69.8	69.8	76.4	87.2	87.9	61.3

Source: Research Centre, Economic Commission for Latin America.

Table 2-A Chile: Quantum of exports and imports, the terms of trade and the capacity to import (Cont.)

Year	Population (in 1000's of inhabitants	Quantum index		Price Indices		Terms of trade	Capacity to import
		Exports	Imports	Exports	Imports		
		1937 = 100					
1936	4,530	68.6	88.9	86.4	89.9	96.1	65.9
1937	4,572	100.0	100.0	100.0	100.0	100.0	100.0
1938	4,618	93.7	108.1	88.9	106.7	83.3	78.0
1939	4,645	85.1	98.0	88.1	96.4	91.4	77.8
1940	5,024	91.6	109.5	91.0	104.4	87.2	79.9
1941	5,094	102.1	107.2	96.2	111.7	87.9	89.7
1942	5,130	106.0	101.2	132.5	141.5	93.6	99.2
1943	5,237	97.7	89.7	133.4	164.0	81.3	79.4
1944	5,273	100.9	96.6	140.3	165.8	84.6	85.4
1945	5,349	102.5	100.5	131.3	172.6	76.1	78.0
1946	5,430	92.2	119.1	153.4	183.6	83.6	77.1
1947	5,525	93.0	133.2	172.6	222.5	77.6	72.2
1948	5,620	103.8	130.3	221.3	230.0	96.2	99.8
1949	5,709	90.2	139.8	225.3	237.4	94.9	85.6

Source : Research Centre, Economic Commission for Latin America.

Notes: The data of population are official but have been readjusted in order to coordinate the various sources.
The quantum index of imports and import prices for the period 1900-1924 were obtained from the chart published in "Estadistica Chilena" (Oct.1936). For the period 1925-1949 these indices were calculated by the Research Centre, based on data contained in "Anuarios de Comercio Exterior" the usual formalas being employed in computing these.
The export price index was calculated for the period 1928-49 by using copper export prices as a base and adding thereto the net balance of foreign exchange receipts per pound retained in Chile. For 1927 the index of prices was leveled by adding an equal return percentage to the period 1920-30.

/to import

to import are clearly discernible on Curve 5 which was plotted together with Curve 4, the latter showing the changes in the quantum of imports. Their parallel development despite the influence of other items of the Balance of Payments is remarkable. This shows that the quantum of exports and the terms of trade are the predominant causes of the sharp fluctuations characteristic of Chilean imports.

The extent of these fluctuations should be measured for the two periods under observation. In so doing, it will be found that between 1905-09 and 1925-29, the quantum of exports rose 80.2 per cent and between the latter of these 5 year periods and 1945-49, there was an increase of only 12.8 per cent whereas the population increased by 25.5 per cent and 36.4 per cent respectively during this period. In the earlier phase the quantum of imports showed a far more substantial rise than that of exports, having increased by 93.2 per cent whereas during the latter period, they revealed a decrease of 30.9 per cent. This can be accounted for mainly by the 45.6 per cent deterioration of the terms of trade between 1925-29 and 1945-49 (despite the readjustment made for copper), though they had improved in the earlier period and a small increase of exports had been reported. The terms of trade for the latest 5-year period therefore deteriorated by 25.4 per cent in relation to 1905-09, as will be seen in the following summarised table:

Table 2B Quantum of Exports and Imports, the terms of trade and the capacity to import (1925-29 = 100)

	5-year averages			
	1905-09	1925-29	1945-49	1949
Population	79.6	100.0	136.4	140.9
Quantum of exports	55.5	100.0	112.8	105.6
Quantum of imports	54.0	100.0	69.1	77.6
Export prices	83.0	100.0	71.8	89.5
Import prices	111.2	100.0	129.2	146.6
Terms of trade	73.8	100.0	54.4	60.2
Capacity to import	41.6	100.0	62.8	65.1

Note: (For notes and sources see Table 2A)
The original base year for the indices was 1937. In view of the change made in the base year and the rounding of averages, the figures for the terms of trade and the capacity to import differ slightly from the direct product or quotient of the averages of price or quantum indices respectively.

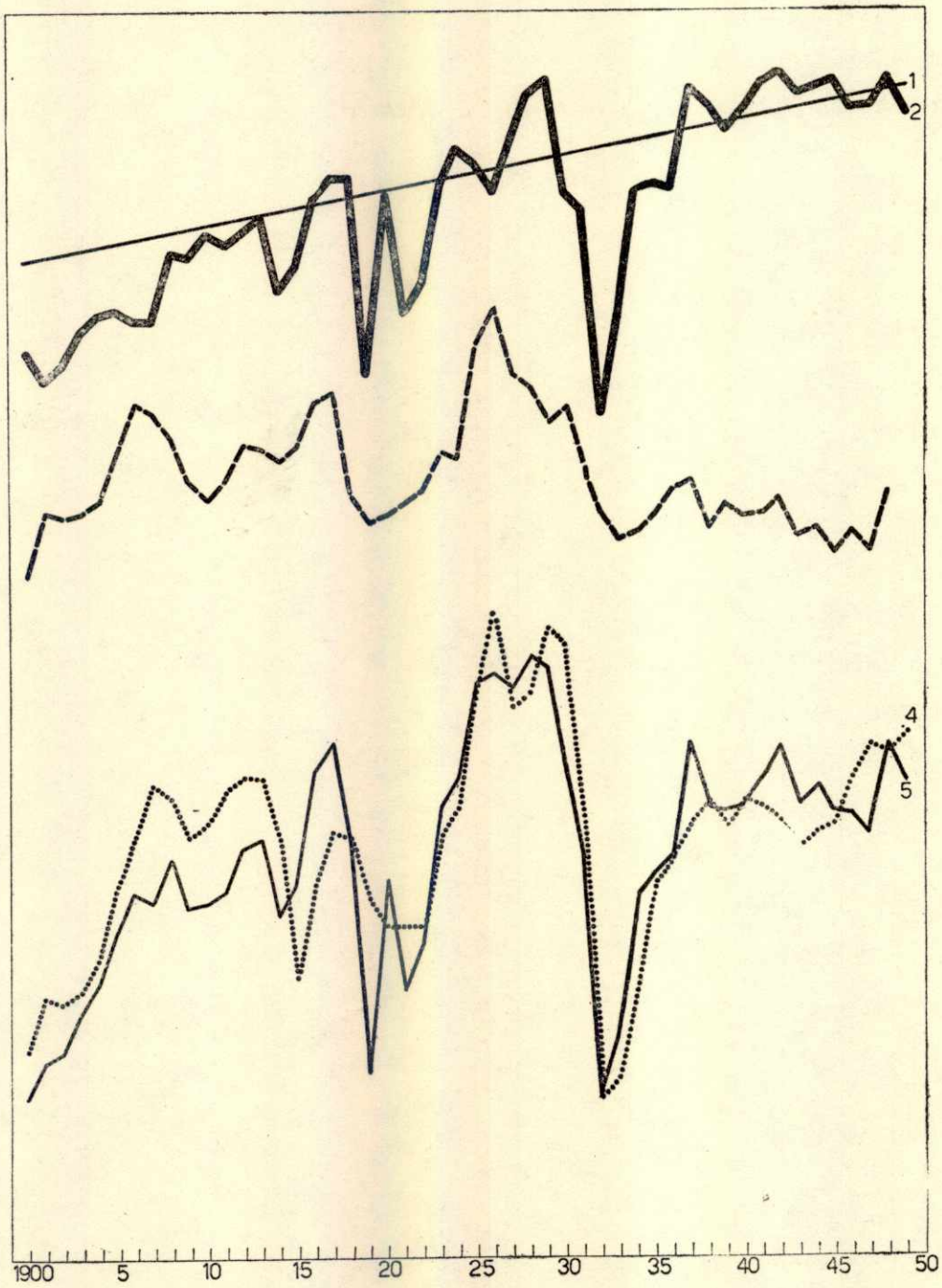
/In short.

GRAFICO 1

CHILE

VOLUMEN FISICO DE LAS EXPORTACIONES E IMPORTACIONES, TERMINOS DEL INTERCAMBIO Y CAPACIDAD PARA IMPORTAR.

1937 = 100



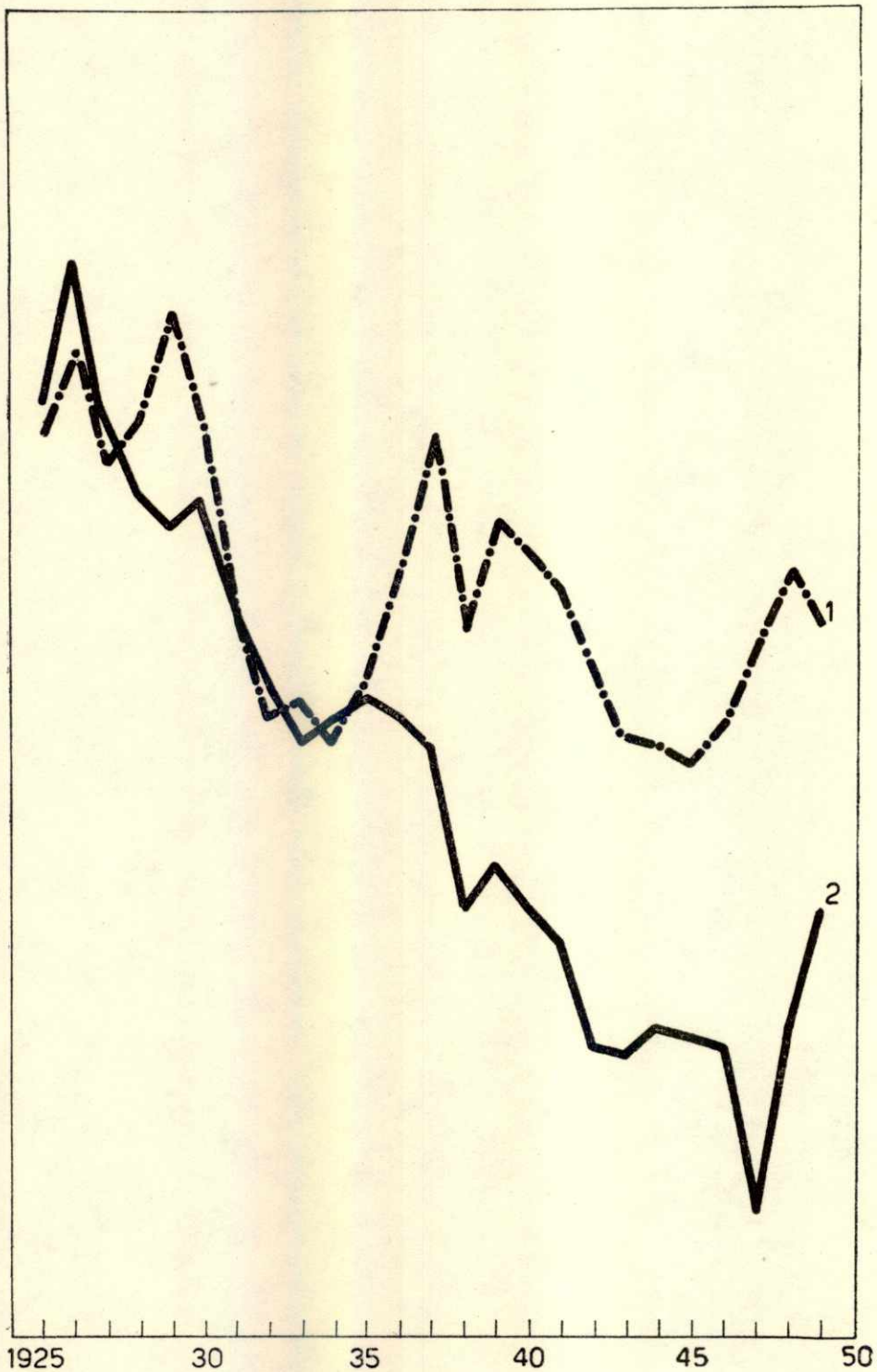
1.— Población.
2.— Indice del volumen físico de las exportaciones.
3.— Términos del intercambio.
4.— Indice de volumen físico de las importaciones.
5.— Capacidad para importar.

Centro de Investigaciones. Comisión Económica para América Latina.

GRAFICO 2

CHILE

RELACION ENTRE LOS PRECIOS DE IMPORTACION Y LOS DE EXPORTACION DE COBRE Y DE SALITRE.



1.— Relación con los precios del cobre.
2.— Relación con los precios del salitre.

Centro de Investigaciones, Comisión Económica para América Latina.



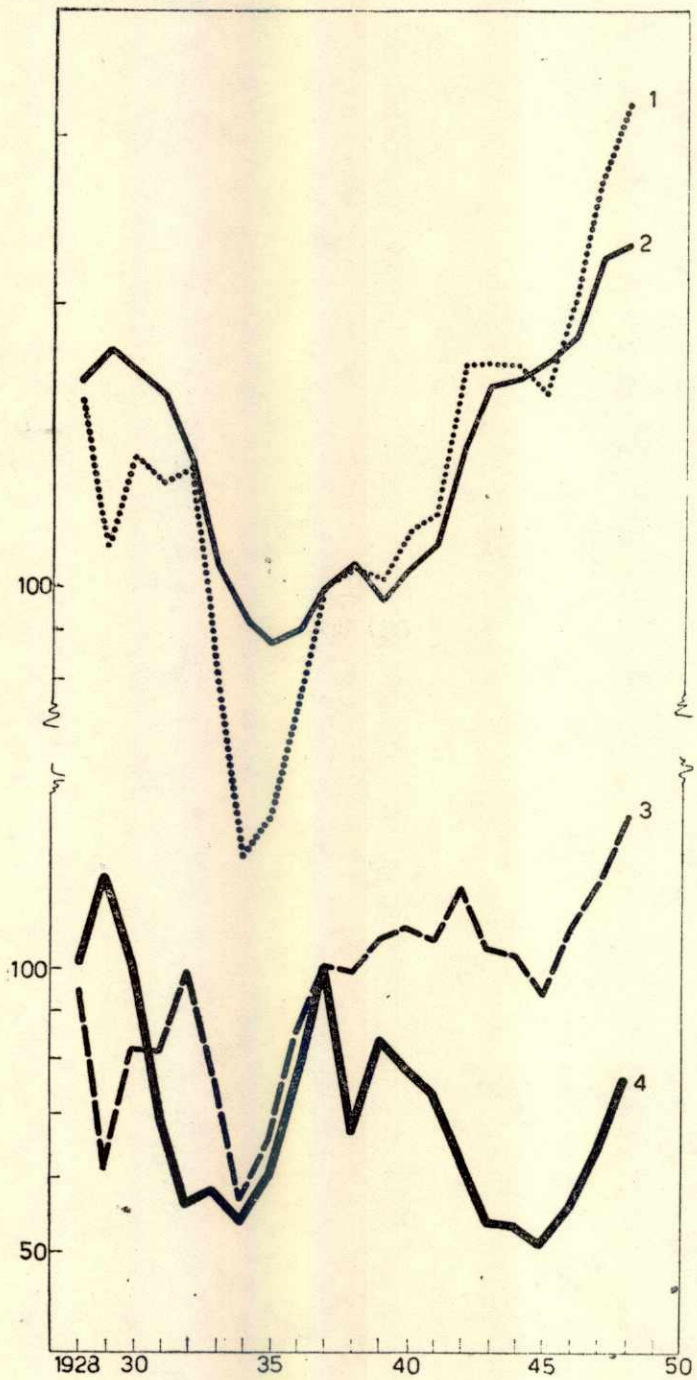
GRAFICO 3

CHILE

RELACION ENTRE PRECIO DEL COBRE (VALOR DE RETORNO) Y LOS PRECIOS DE IMPORTACION.

1937 = 100

Escala logarítmica



1.— Indice de precio del cobre.
2.— Indice de precio de las importaciones.
3.— Términos del intercambio, valor real del cobre exportado.
4.— Términos del intercambio, valor nominal del cobre exportado.

Centro de Investigaciones, Comisión Económica para América Latina.

In short, average per capita imports rose from 129 pesos in 1905-09 to 191 pesos in 1925-29 but by 1945-49, this average had dropped to 97 pesos, if imports are computed at 1937 prices, in order to circumvent the effects of the changes in this factor. Per capita imports during the last 5 years are therefore equivalent to one half of their amount at the beginning of the century. Before considering the consequences of this reduction on Chile's economic development, the terms of trade will be analysed.

2. The terms of trade and the proportion of the foreign exchange receipts from copper exports retained in Chile.

Nitrade and copper exports have been the principal determining factors in the deterioration of Chile's terms of trade since the world economic crisis. To the effects of the Great Depression on nitrate exports were added the unfavourable consequences, from the competitive standpoint, of the introduction of synthetic nitrogen. Nitrate prices, which had risen remarkably in the twenties, subsequently fell drastically, contributing greatly to the deterioration of the terms of trade in general. In order to emphasize the full implications of these events, Chart 2 has been prepared showing the relationship between copper and nitrate exports and the price of Chilean imports.

It was thought advisable to plot two curves for the ratio of copper prices to import prices. One of these, Curve 4, is based on prices for this metal quoted by international statistics. Curve 3, on the other hand, is based on the proportion of copper export receipts in foreign exchange retained in Chile and which constitutes the most important element in determining the capacity to import.

These data were obtained from an investigation carried out for the specific purpose of ascertaining a concrete fact of great bearing in the country's economy. The findings show that the percentage of foreign exchange receipts accruing from copper exports which is retained in Chile, has been substantially raised: whereas in 1928, only 22 per cent remained in the country, by 1948, this portion had been increased to 56 per cent.[1/]

1/ Imports of production equipment made by the Mining Companies for their own account have not been included. Had they been considered, the corresponding figures for 1928 and 1948 would have been 30 per cent and 68.8 per cent respectively.

/The implications

The implications of this must be considered. Whilst the ratio of copper to import prices remains lower than in the years preceding the world economic crisis (despite the rise which occurred in the latter half of the forties), that of the percentage of the export price retained in Chile in relation to import prices has surpassed its 1928 position. The consequences of this fact are discernible in Chile's terms of trade. It has already been stated that a deterioration of 45.5 per cent had occurred in the 1945-49 terms of trade as compared with those of 1925-29. This readjustment for copper prices was effected prior to the computing of the data obtained. Had it not been made, the deterioration of the terms of trade would have been even greater, that is, a decrease of 57.3 per cent.

It becomes evident that the increase in the proportion of foreign exchange receipts from copper exports which accrues to the country is of considerable significance. The manner in which Chile has accomplished this should be examined. The increase can in part be accounted for by higher direct taxation levied by the Chilean Government and in part by the rate of exchange it established for the sale of the dollar receipts accruing to the large scale mining enterprises from their copper exports. Since 1934, such foreign exchange has been sold at the rate of 19.37 pesos per U.S. dollar. On the other hand, export receipts accruing to the smaller companies which were formerly sold at an even lower rate than the above-mentioned have been obtaining progressively higher rates as inflation increased. At present, (May 1950), the rate is 60 pesos per dollar.

Moreover, whereas, these mining companies sold their foreign exchange at the fixed rate, wages and other costs of production were raised together with taxes. Consequently, in order to cover the growing costs per unit of production, they were compelled to sell an increasing percentage of the foreign exchange receipts derived from copper exports. The fact that Chile was receiving a greater share of such receipts does not appear to have discouraged the large scale enterprises since, with

/the exception

the exception of one company which has become a marginal producer, they have all made substantial investments with a view to improving production. Additional increases in productivity have been achieved, further to those effected by technical progress, from which the country has been enabled to derive considerable benefits. A table summarising the findings of the investigation is shown in Table 3.

From the first column it will be seen that, in 1946, New York copper prices remained lower than in 1928 and 1929 though Chile's foreign exchange receipts per pound of refined copper in 1946 were much greater than in those years. The increases in State taxes and in costs of production, per pound of metal are indicated in the second and third columns. It should be made clear that the rising costs of production per pound of copper do not involve a higher real cost, since, on the contrary, increased yield per man-hour has caused a substantial decrease in such costs. It merely implies that a larger share of copper export receipts are retained in the country.

The proportion of copper export receipts remaining abroad is accounted for by the various expenses incurred there by the mining companies, especially by the purchase of capital goods and other production equipment which they bring into Chile. It also covers interests and reserves against mine depletion, and includes, furthermore, the profits accruing to such companies.

From another standpoint the facts considered above throw light on one aspect of the effects of a multiple exchange rate, which should be viewed, together with the reprecussions provoked thereby in other Latin American countries.

3. Production and available goods

The deterioration of the terms of trade has particularly affected the availability of goods in Chile. No other explanation fits the indices that have been computed; for instance, whereas between 1925-29 and 1945-49, Chile's total production increased by 59.1 per cent, the aggregate quantum of available consumer and capital goods rose only 31.7 per cent and the population 36.4 per cent.

/ Table 3.

Table 3. Break-down of foreign exchange receipts of the large scale mining companies, for refined copper, F.O.B. New York in U.S. cents per pound

	% of foreign exchange receipts retained in Chile			Expenditures abroad c/	Profits, interests, and reserve for mine depletion	Percentage of foreign exchange returns in relation to nominal New York copper prices
	Production costs	Taxes a/	Total b/			
1928	2,200	1,007	3,208	3,919	4,442	22
1929	1,381	0,838	3,219	12,347	3,540	12
1930	2,268	0,541	2,810	7,876	2,295	22
1931	2,324	0.095	2,419	5,695	0.455	30
1932	2,185	0.288	2,473	3,703	-0.621	45
1933	1,417	0.267	1,684	5,217	-0.171	25
1934	1,489	0.194	1,682	4,612	0.974	23
1935	1,532	0.237	1,769	4,312	1.492	23
1936	1,836	0.657	2,493	3,581	3.156	27
1937	1,982	1.404	3,386	3,484	6.148	26
1938	2,603	1.301	3,904	3,070	2.727	37
1939	2,589	1.394	3,983	2,893	3.844	37
1940	2,790	1.591	4,381	3,259	3.129	41
1941						
1941	2,668	1.783	4,451	2,887	3.562	42
1942	3,420	2.483	5,904	3,491	2.289	50
1943	4,191	2.183	6,374	3,139	2.186	54
1944	4,272	2.180	6,452	3,588	1.660	56
1945	4,336	1.825	6,161	4,392	1.144	53
1946	5,375	2,542	7,917	3,156	2.742	57
1947	5,539	4,039	9,578	7,375	3.997	46
1948	6,662	5,665	12,327	4,567	5.153	56

Note: The Chilena Balance of Payments, as published by the Banco Central, was used as a basis for this table, together with the reports and balance sheets of the copper mining companies, and the works of Messrs. Raúl Simón, Fernando Illanes and Ignacio Aliaga Ibar.

a/ The profits tax levies were charged to the year of their incidence and not that of payment.

b/ This item does not include the imports made by the companies, on their own account, with their own foreign exchange receipts and comprising production equipment. Nor does it include additional investments in the form of equipment

c/ Including the imports into Chile made by the mining companies with their own foreign exchange receipts.

Table 4-A Chile: Available goods and their composition

Constant values at 1940 prices

Years	Production	Imports	Exports	Total available goods	Ratio of imports to available goods
		(Millions of Chilean pesos)			
1925	7,212	3,890	2,907	8,195	47.5
1926	7,028	5,273	2,620	9,681	54.5
1927	6,743	3,679	3,194	7,228	50.9
1928	8,180	3,908	3,779	8,309	47.0
1929	8,974	4,966	4,034	9,906	50.1
1930	8,431	4,579	2,616	10,394	44.0
1931	6,350	2,415	2,436	6,329	38.2
1932	6,280	866	1,152	5,994	14.4
1933	7,434	942	1,656	6,720	14.0
1934	8,464	1,288	2,638	7,114	18.1
1935	8,623	1,890	2,701	7,812	24.2
1936	8,951	2,143	2,655	8,439	25.4
1937	9,632	2,409	3,871	8,170	29.5
1938	9,469	2,605	3,627	8,447	30.8
1939	9,756	2,632	3,293	8,825	26.8
1940	10,183	2,639	3,545	9,277	28.4
1941	10,770	2,584	3,953	9,401	27.5
1942	10,569	2,438	4,102	8,905	27.4
1943	10,773	2,161	3,779	9,155	23.6
1944	11,166	2,328	3,907	9,587	24.3
1945	11,347	2,423	3,967	9,803	24.7
1946	11,670	2,871	3,566	10,975	26.2
1947	12,102	3,209	3,598	11,713	27.4
1948	12,836	3,140	4,017	11,959	26.2
1949	12,712	3,370	3,492	12,590	26.8

Source: Research Centre, Economic Commission for Latin America.

Notes: Figures for imports and exports were obtained by multiplying their quantum indices by the respective 1940 prices, converted from gold pesos 6 d per peso) to nominal currency according to quotations of the Chilean peso in pence for the respective year.

Table 4 B Quantum of available goods and their composition

values in millions of 1940 pesos

	Yearly averages			Percent change	
	1925-29	1945-49	1949	1945-49 / 1925-29	1949 / 1925-29
	(thousands of pesos)				
Production	7,627	12,133	12,712	59.1	66.7
Plus imports	4,343	3,002	3,370	-30.9	- 22.4
Minus exports	3,307	3,728	3,492	12.8	5.6
Available goods	8,664	11,408	12,590	31.7	45.3
	(Percentage)				
Ratio: of imports to available goods	50.0	23.6	26.8	-47.4	- 46.4
	(thousands of inhabitants)				
Population	4,051	5,527	5,709	36.4	40.9

Source: (For source and notes, see Table 4A)

The causes of these differences of increase will be examined. A part of the increment to production is absorbed by exports. Had the terms of trade not deteriorated, these exports would have continued to provide a corresponding volume of imports during the 25 years under analysis, and the indices for both would have shown a similar increase.1/ However, since the terms of trade deteriorated, despite the 12.8 per cent increase in the quantum of exports between 1925-29 and 1945-49 , the capacity to import and the quantum of imports were subjected to decreases of 37.2 per cent and 30.9 per cent respectively.

The adverse effects of this reduction on available goods in Chile can well be assessed if one consideres that in 1925-29, 50.0 per cent of these goods were supplied by imports. By 1945-49, imports accounted for

1/ Similar but not identical, since it is well known that in addition to the quantum of exports and the terms of trade, there are other factors involved in determining the capacity to import.

/only 26.8 per

GRAFICO 4

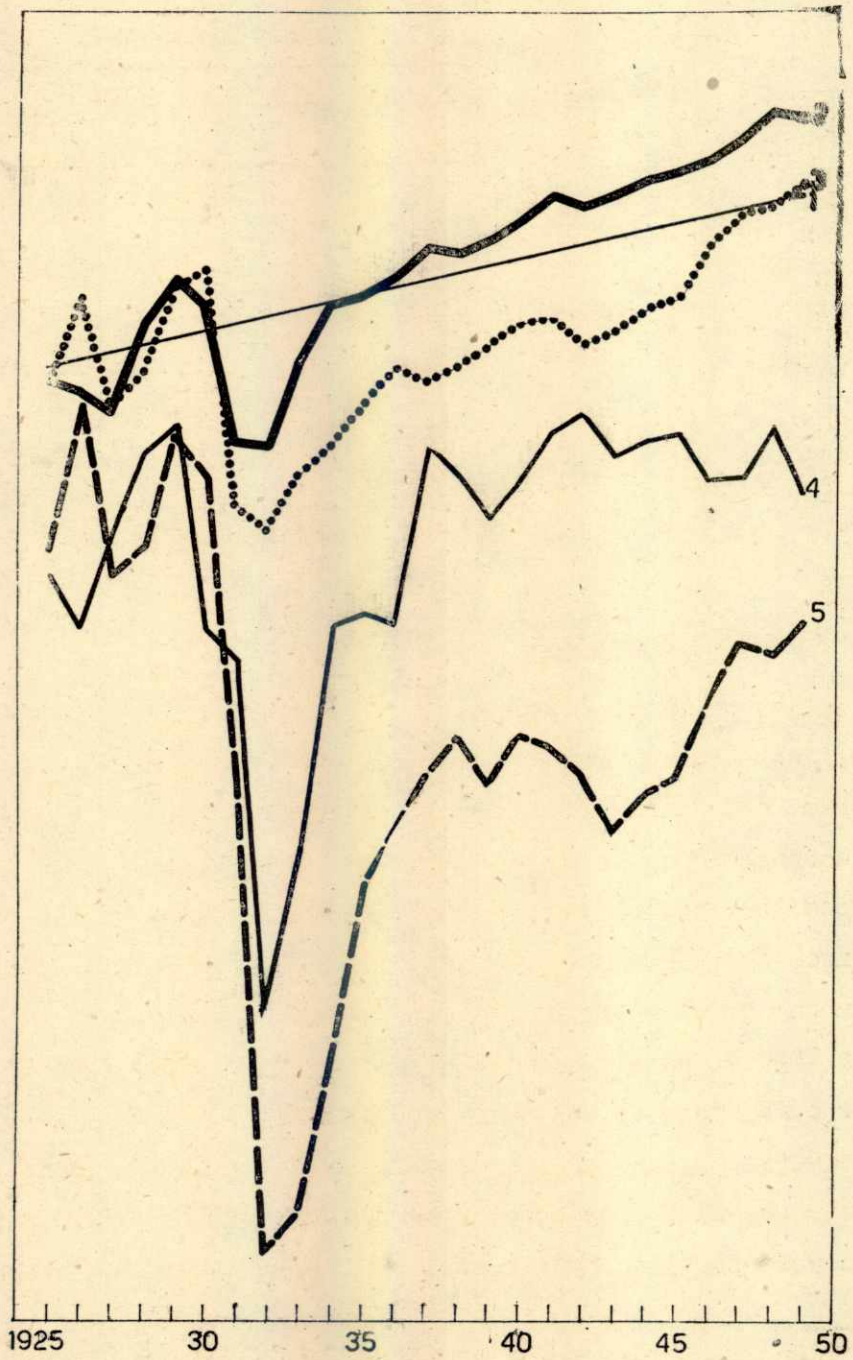
CHILE

BIENES DISPONIBLES Y SU COMPOSICION

Valores a precios de 1940.

Millones de pesos

Escala logarítmica



1.— Población.
2.— Producción
3.— Total bienes disponibles.
4.— Exportaciones.
5.— Importaciones.

Fuentes: Centro de Investigaciones, Comisión Económica para América Latina.

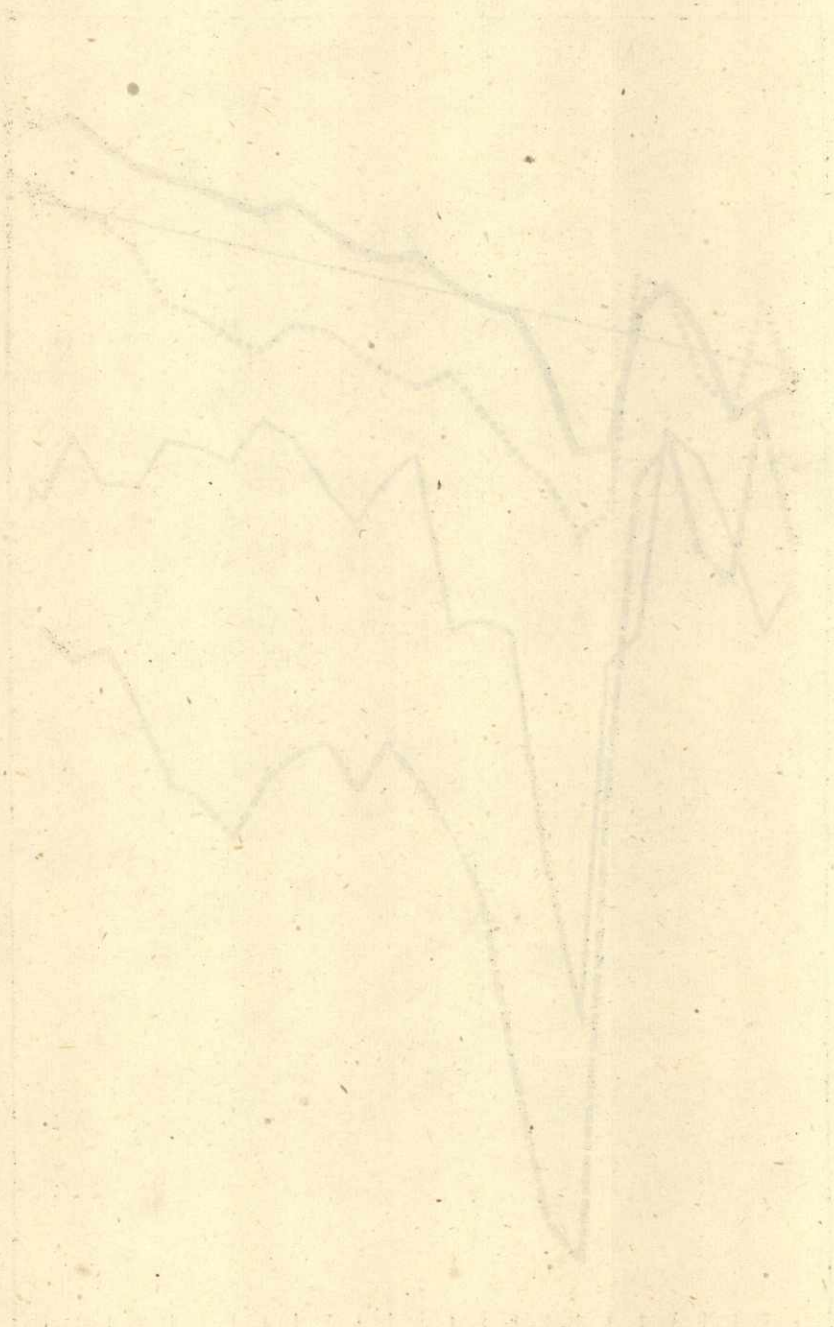
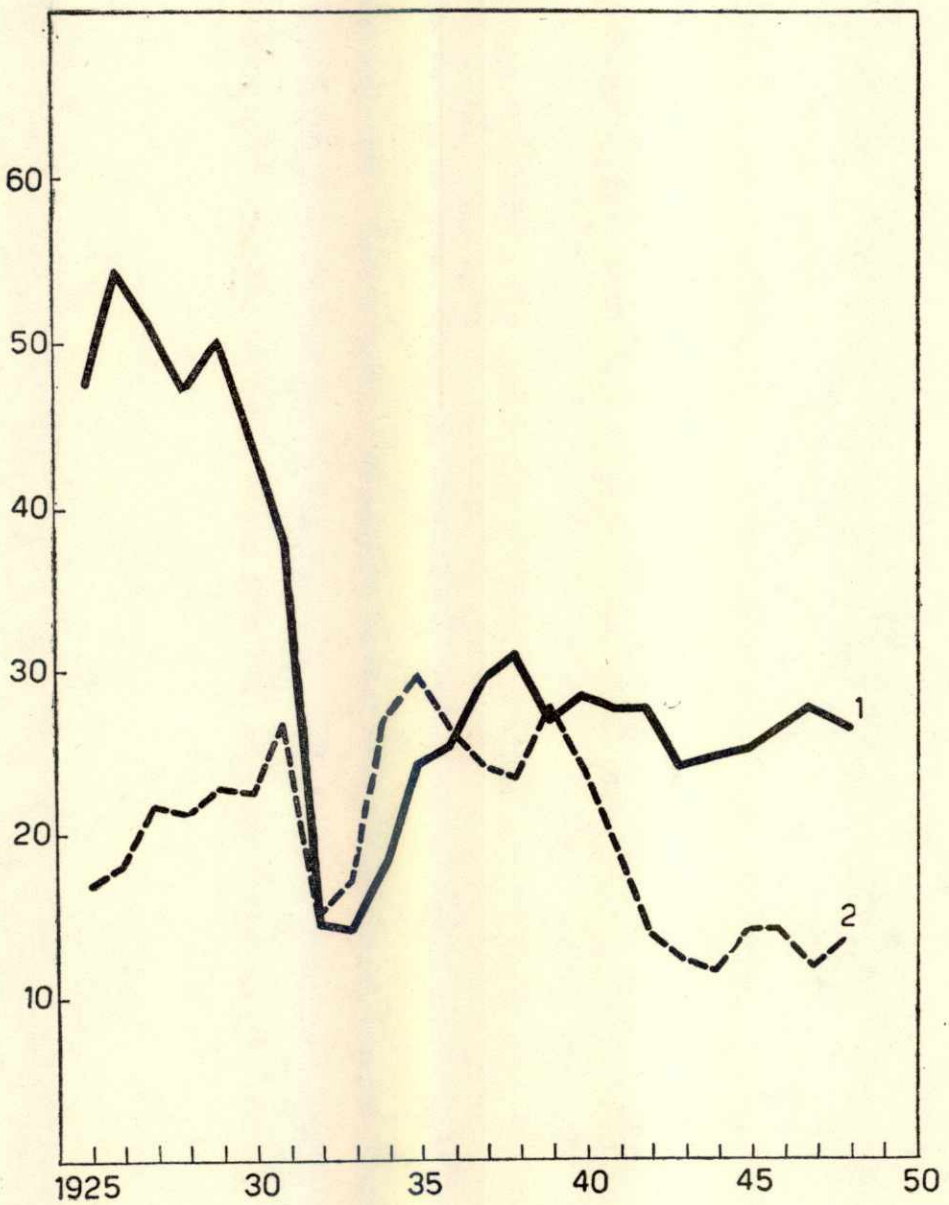


GRAFICO 5

CHILE

COEFICIENTE DE IMPORTACION Y DE DERECHOS ADUANEROS.



1.— Relación entre importación y bienes disponibles.
2.— Coeficiente de derechos aduaneros.

Centro de Investigaciones, Comisión Económica para América Latina.



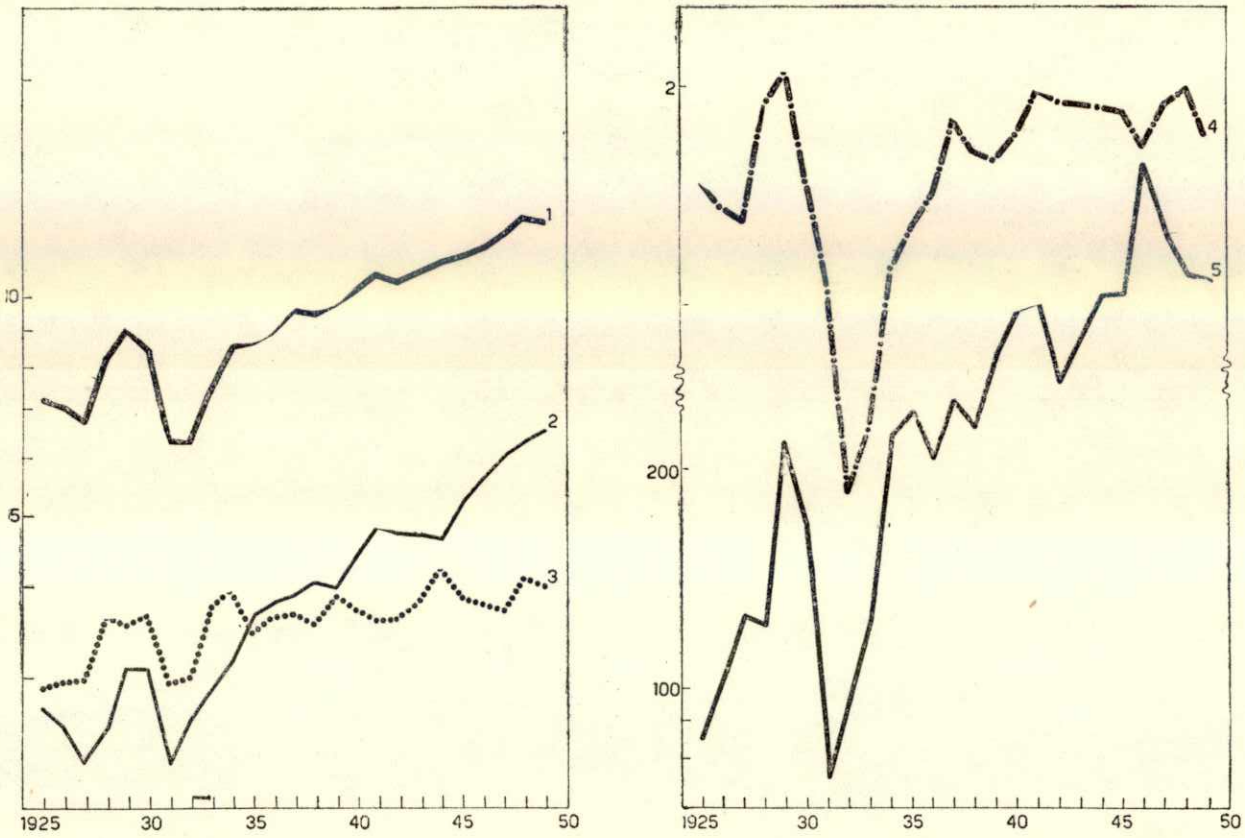
GRAFICO 6

CHILE

LA PRODUCCION Y SU COMPOSICION.

Valores a precios 1940.

Millones de pesos — **Escala logarítmica.**



1.— Total producción.
2.— Producción industrial.
3.— Agricultura.
4.— Minería.
5.— Construcción.

Centro de Investigaciones, Comisión Económica para América Latina.

only 26.8 per cent of available goods, this change being largely due to the expansion of industrial production. Undoubtedly, the trend is not constant, being subject to cyclical fluctuations, as may be observed on the Chart. As soon as domestic production is increased, both the greater degree of investment and the expansion of consumption cause the coefficient to rise. This explains the rise of the coefficient during the last few years which has, in turn, determined the disequilibrium of the Balance of Payments.

The influence of imports on the index of available goods in relation to that of total production is clearly defined on Chart 4 (Table 4A). The index of available goods falls to a greater extent than that of production during the Depression: on the other hand, it subsequently recovers more slowly than the index of production, owing to the fluctuations of imports. Thus, their substantial increase during the latter half of the forties causes the index of available goods to rise at a faster rate than of production, though not sufficiently rapidly to compensate the marked differences of growth in comparison with the five-year period before the world economic crisis. 1/

The various partial indices comprising that of total production should be observed on Charg 5 (Table 5 A). Once again, for purposes of clarity, the latter has been compared with that of the population, and then with the curves for the three main branches of production. The marked upswing of industrial production since the world economic crisis is plainly seen, as is the fact that this trend was temporarily interrupted by the Second World War, after which it was resumed. The index of industrial production for the period 1945-49 thus shows an increase of 125.9 per cent in relation to 1925-29, which means an expansion nearly three and a half times greater than that of the population. If the building index is added to that of industrial

---

1/ In such comparisons, the fact that the quantum of imports during the five-year period 1925-29 was abnormally high should not be overlooked. It might have been more advisable to make the comparison with the preceding 5-year period, but unfortunately adequate date were not available for this purpose.

/ Table 5-A

Table 5-A Chile: Net production at 1940 constant prices

Years	Agriculture	Industry	Building	Mining	Total
		(Millions of Chilean Pesos)			
1925	2,917	2,732	85	1,478	7,212
1926	2,977	2,577	104	1,370	7,028
1927	2,999	2,307	126	1,311	6,743
1928	3,643	2,546	122	1,869	8,180
1929	3,557	3,100	218	2,099	8,974
1930	3,669	3,100	169	1,493	8,431
1931	2,954	2,307	75	1,014	6,350
1932	3,006	2,626	96	552	6,280
1933	3,728	2,892	126	688	7,434
1934	3,966	3,153	225	1,120	8,464
1935	3,468	3,631	241	1,283	8,623
1936	3,643	3,791	208	1,309	8,951
1937	3,684	3,897	250	1,801	9,632
1938	3,576	4,056	229	1,608	9,469
1939	3,888	4,003	291	1,574	9,756
1940	3,721	4,428	332	1,702	10,183
1941	3,609	4,862	340	1,959	10,770
1942	3,632	4,778	263	1,896	10,569
1943	3,833	4,752	305	1,883	10,773
1944	4,246	4,698	358	1,866	11,166
1945	3,896	5,256	358	1,837	11,747
1946	3,818	5,682	524	1,646	11,670
1947	3,728	6,071	429	1,874	12,100
1948	4,138	6,350	374	1,974	12,836
1949	4,030	6,594	366	1,722	12,712

Source: Research Centre, Economic Commission for Latin America

Note: These figures have been obtained by multiplying the index of the volume of production of each activity by the respective 1940 values. These values were taken from the National Income Estimates published by the Corporación de Fomento, subtracting from them the raw materials used. Fishery and forest products were included in Agriculture.

/production, an

production, an increase of 150 per cent would be obtained.

Table 5 B. Chile : Quantum of Production and its composition

Value in millions of 1940 pesos

Products	Yearly averages			Percent change.	
	1925-29	1945-49	1949	1945-49 / 1925-29	1949 / 1925-29
Agriculture, fishing and forestry	3.219	3.922	4.030	21,8	25,2
Manufactures	2.652	5.991	6.594	125,9	148,6
Building	131	410	366	213,0	179,4
Mining	1.625	1.811	1.722	11,4	6,0
Total production	7,627	12.133	12.712	59,1	66,7

Note: (For source and notes, see Table 5A)

The intense growth of industrial production should be contrasted with that of mining, the increase of which over the whole period 1925-29 to 1945-49 was only 11.4 per cent. The results of such a comparison are remarkable since the index in 1932 falls to one fourth of the 1939 peak.

The expansion agricultural production has been relatively slow as compared to that of industry, since in 1945-49 its index was only 21.8 per cent higher than in 1925-29 whilst the population increased by 36.4 per cent. This problem should be examined more closely in view of the difficulties to which it gives rise. However, a reservation should first be made in respect of the aforesaid indices, which is that for both industrial and agricultural production, they are incomplete. Since the necessary data were unavailable, the production of milk, fruits and vegetables was not taken into account though it would appear to have increased very substantially during the period under consideration. 1/ If it were possible to include these products in the total production of

1/ Further reference will be made to the relationship between these items and total consumption of agricultural products.

the two activities, it is likely that the increase thereof would be approximately the same as that of the population. Official statistics do not encompass a large number of newly-founded manufacturing enterprises, the output of which must affect total industrial production considerably. Consequently, the increase of available goods shown in the present indices must be regarded as a minimum until wider research renders possible a closer approximation to the actual position.

4. Agriculture and economic development

Agriculture is a matter of grave concern in Chile. The problem may be viewed from several very dissimilar standpoints; furthermore, technicl, economic and social factors add to its complexity, so that its consideration might tend to draw too much attention to some of these, causing the significance of others to be disregarded. There is always the risk of drawing conclusions which, however applicable to certain limited aspects, obstruct a more general study of the difficulties. Moreover, the agricultural problem, in turn, is but a single element of the wider problem presented by Chile's economic development, which cannot be understood unless reference is made to certain international events which have so adversely reacted on Chilean economy.

A study of agricultural production in Chile will therefore be attempted along the more general lines proposed above, the details of specific conditions being examined in the following section.

Thus, in order to be able to view the issue as a whole, one must first ascertain whether, in fact, the relatively small increase of production in these activities was out of proportion with the substantial expansion of industrial production. In short, the question arises as to whether the unequal distribution of the productive effort has allowed manufacturing to prevail over agriculture to the detriment of the latter's natural growth.

It has been previously pointed out that the development of domestic manufacturing was necessary in order to compensate for the reduction of imports. This decrease was so drastic that in 1945-49, despite the

/extensive progress

extensive progress of industrialization, the quantum of available manufactured goods, including those of both foreign and domestic origin, showed an increase of only 29.9 per cent as compared with 1925-29. These findings obtained from the aforesaid indices, whilst not absolutely accurate, nevertheless afford some indication of the trend:

Table 6. Available manufactured goods

(Index numbers: 1925-29 = 100)

Period	Domestic Manufactures	Imported a/ manufactures	Total available manufactures
1925-29	100	100	100
1945-49	255.9	64.7	129.9

Source: Research Centre, United Nations Economic Commission for Latin America.

a/ Corresponds to total imports, except foodstuffs, tobacco and beverages; it therefore includes raw materials for manufacturing.

The change in the quantum of available agricultural production is shown below:

Table 7. Available agricultural production

(Index numbers: 1925-29 = 100)

Period	Agricultural minus exports thereof	Imports of food-stuffs, beverages and tobacco	Available crop and livestock products
1925-29	100	100	100
1945-49	128.3	109.4	125.6

Source: Research Centre, United Nations Economic Commission for Latin America.

The above tables reveal an increase of 25.6 per cent for crop and livestock products and of 29.9 per cent for manufactures; the two together, or in other words, aggregate available goods, have increased 28.5 per cent in the period reviewed. These results do not bear out the

/ the preliminary

the preliminary impression of disproportionate development. Furthermore, if manufacturing expanded more intensely than agricultural activities, it may be assumed that this was because domestic productive efforts were directed where the shortage was more acute, owing to the decrease of available imported manufactures.

It has already been shown that the reduction of imports was brought about both by the inadequate expansion of exports and the deterioration of the terms of trade. Thus, only a small proportion of the goods which would otherwise have become available could be purchased outside the country. Hence the volume of available goods rose only 31.7 per cent, as was previously pointed out, whereas a 59.1 per cent rise was reported for total production.

This increase in the supply of goods relfects a corresponding increase in the real purchasing power of the population or, in other words, in its effective demand. This leads to a query as to whether in view of the fact that effective demand was only increased by 31.7 per cent, the volume of agricultural products could be expected to rise much more than they actually did, at the expense of a greater demand for manufactured goods. There would be no reason for this to happen.

Consequently, since the increase of effective demand was relatively small, it would seem that Chile's agricultural effort lacked the dynamic impetus of growth with which to increase production to a greater extent. Inflation cannot engender effective demand. The position of agriculture in its present stage of development prevents it from being able to increase demand for these goods spontaneously, much less to affect demand for manufactures, as was shown in the first part of this survey. This dynamic impetus can only arise from the expansion of foreign demand or the growth of industry. Inasmuch as foreign demand, in place of expanding was contracted, so industry remained as the only dynamic force within the country.

This is the principal point of the analysis. Industry has achieved this purpose by increasing its output in the manner indicated. However, in order to stimulate agricultural activity further, the growth of

/manufacturing within

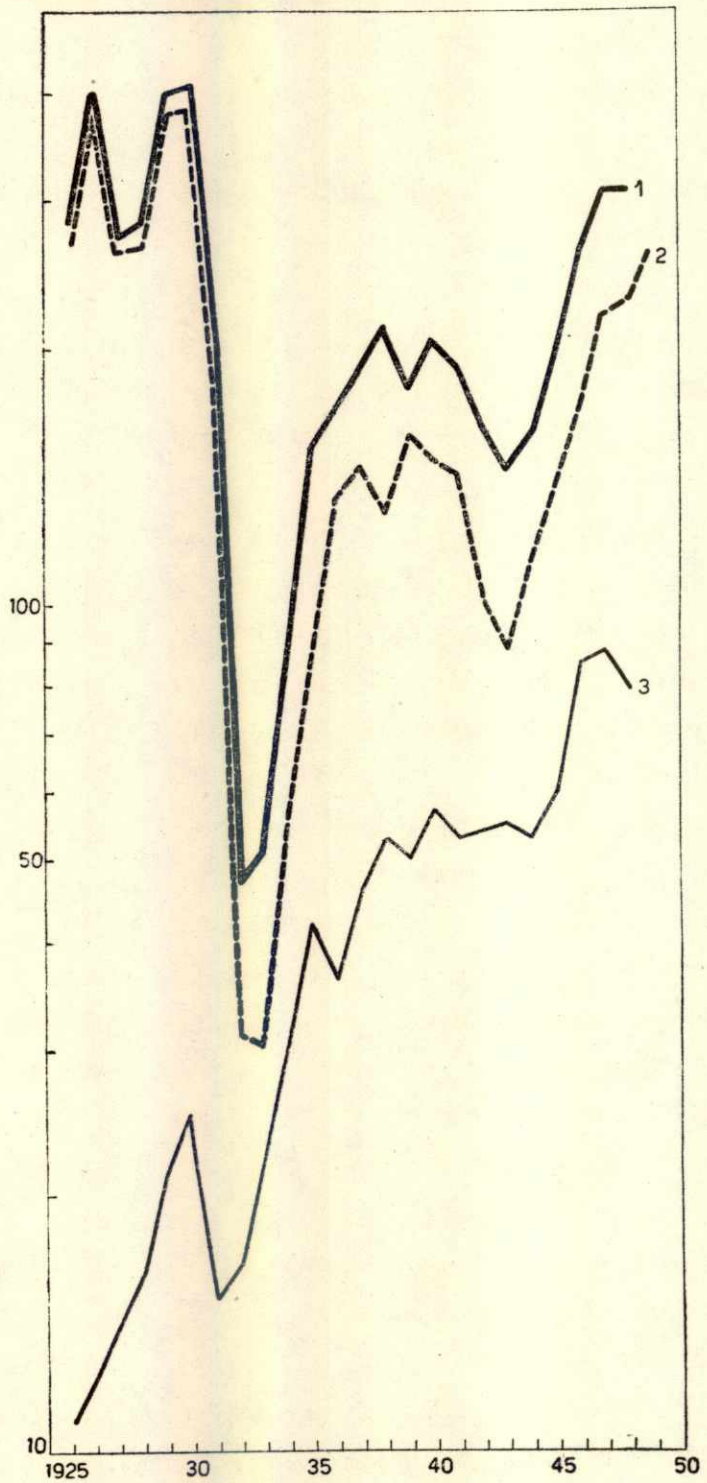
GRAFICO 7

CHILE

LA CAPITALIZACION Y SU COMPOSICION.

Valores a precios de 1940.

Millones de pesos de 6 d. **Escala logarítmica**



1.— Total de Bienes de Capital.
2.— Importación de Bienes de Capital.
3.— Producción interna de hierro, acero y cemento.

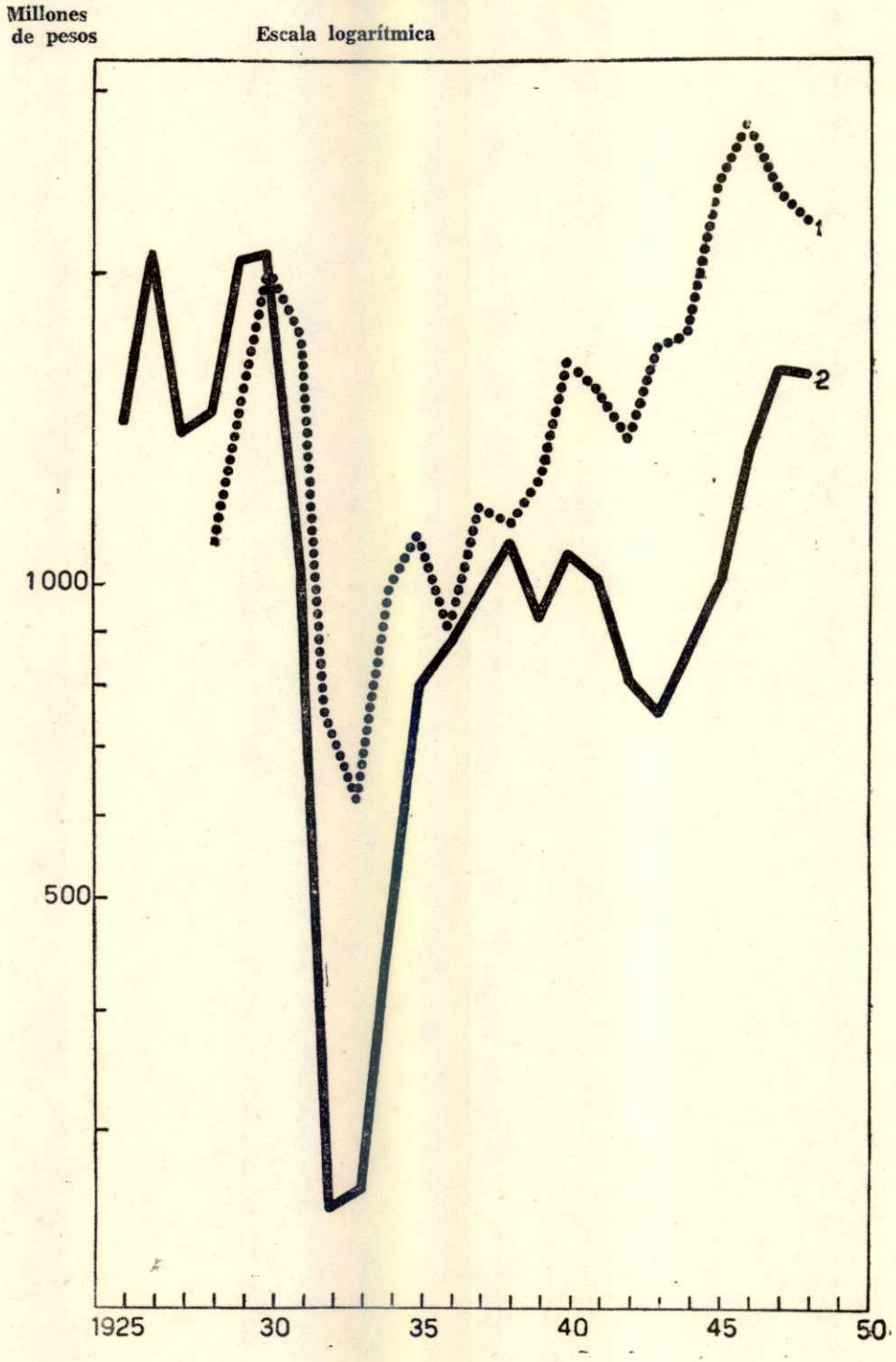
Centro de Investigaciones, Comisión Económica para América Latina.

GRAFICO 8

CHILE

INVERSIONES Y CAPITALIZACION TOTALES.

Valores a precios de 1940.



1.— Total de inversiones públicas y privadas.
2.— Total de bienes de capital.

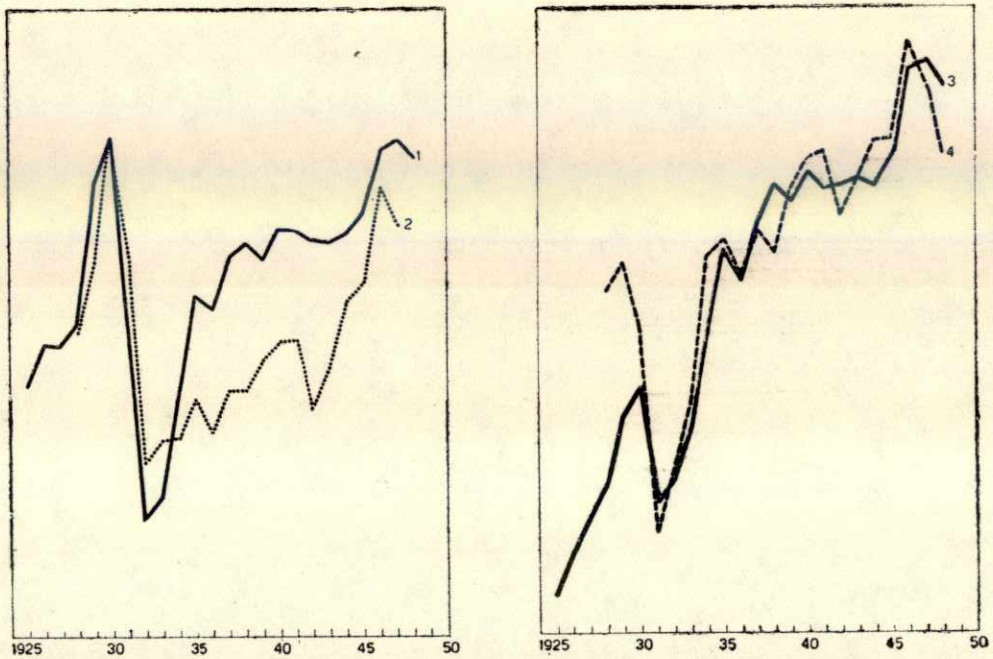
Centro de Investigaciones, Comisión Económica para América Latina.



GRAFICO 8-A

CHILE

RELACION ENTRE LA PRODUCCION DE CEMENTO, LAS OBRAS PUBLICAS Y LA EDIFICACION.



1.— Producción de cemento, más importación de materiales de construcción (Precios de importación de 1940).
2.— Edificación privada más obras públicas (Millones de pesos 1940).
3.— Producción de cemento (Precios de importación de 1940).
4.— Edificación privada (Millones de pesos 1940).

Centro de Investigaciones, Comisión Económica para América Latina.

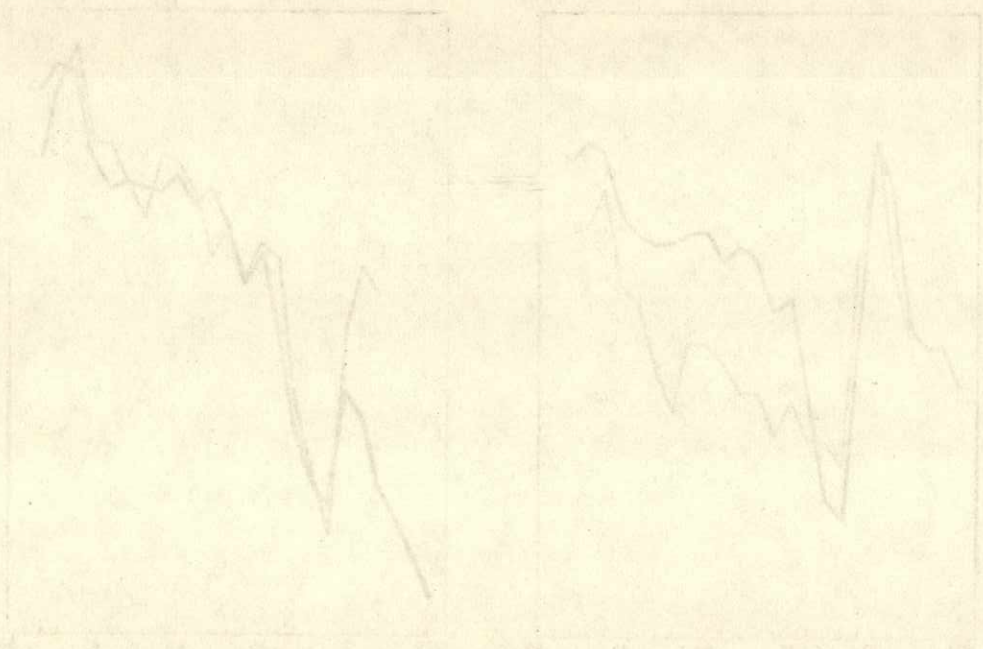
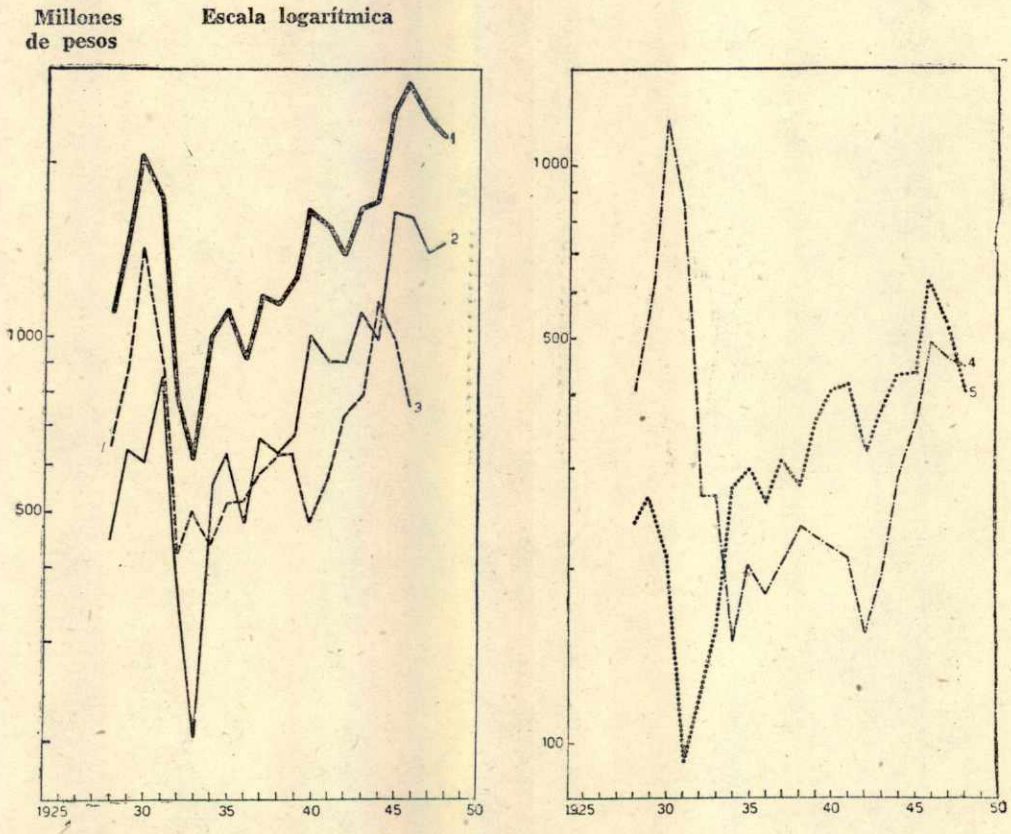


GRAFICO 8-A

CHILE

INVERSIONES PUBLICAS Y PRIVADAS Y SU COMPOSICION.

Valores a precios de 1940.



1.— Total de Inversiones.
2.— Inversiones de Sociedades Anónimas y de Responsabilidad Limitada.
3.— Inversiones en Obras Públicas y Edificación Privada.
4.— Inversiones en Obras Públicas.
5.— Edificación Privada.

Centro de Investigaciones, Comisión Económica para América Latina.

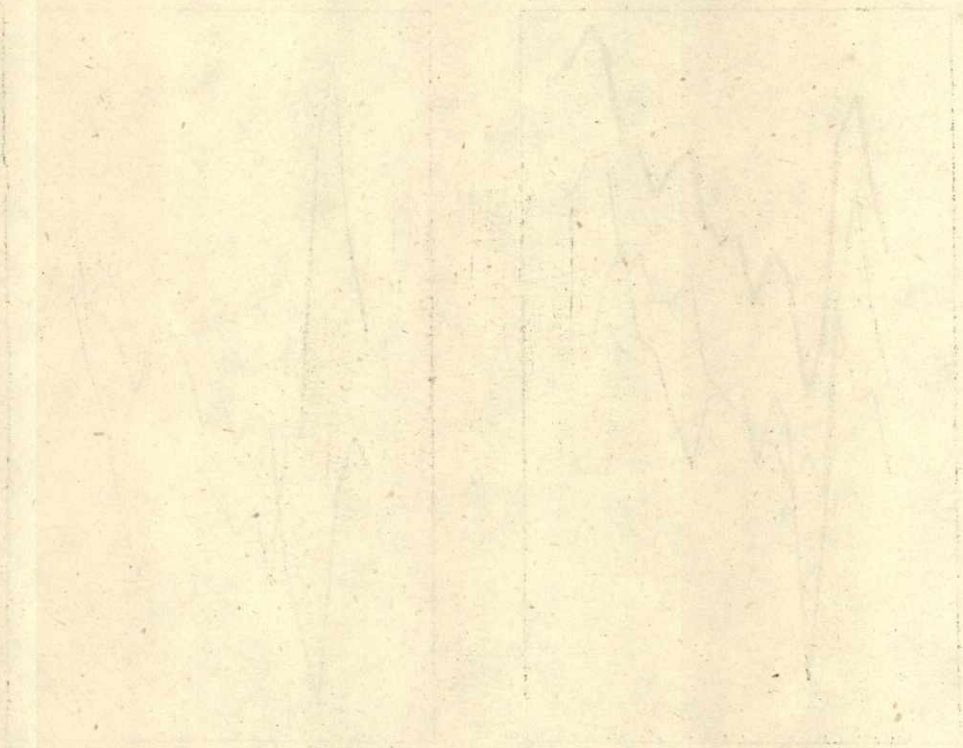
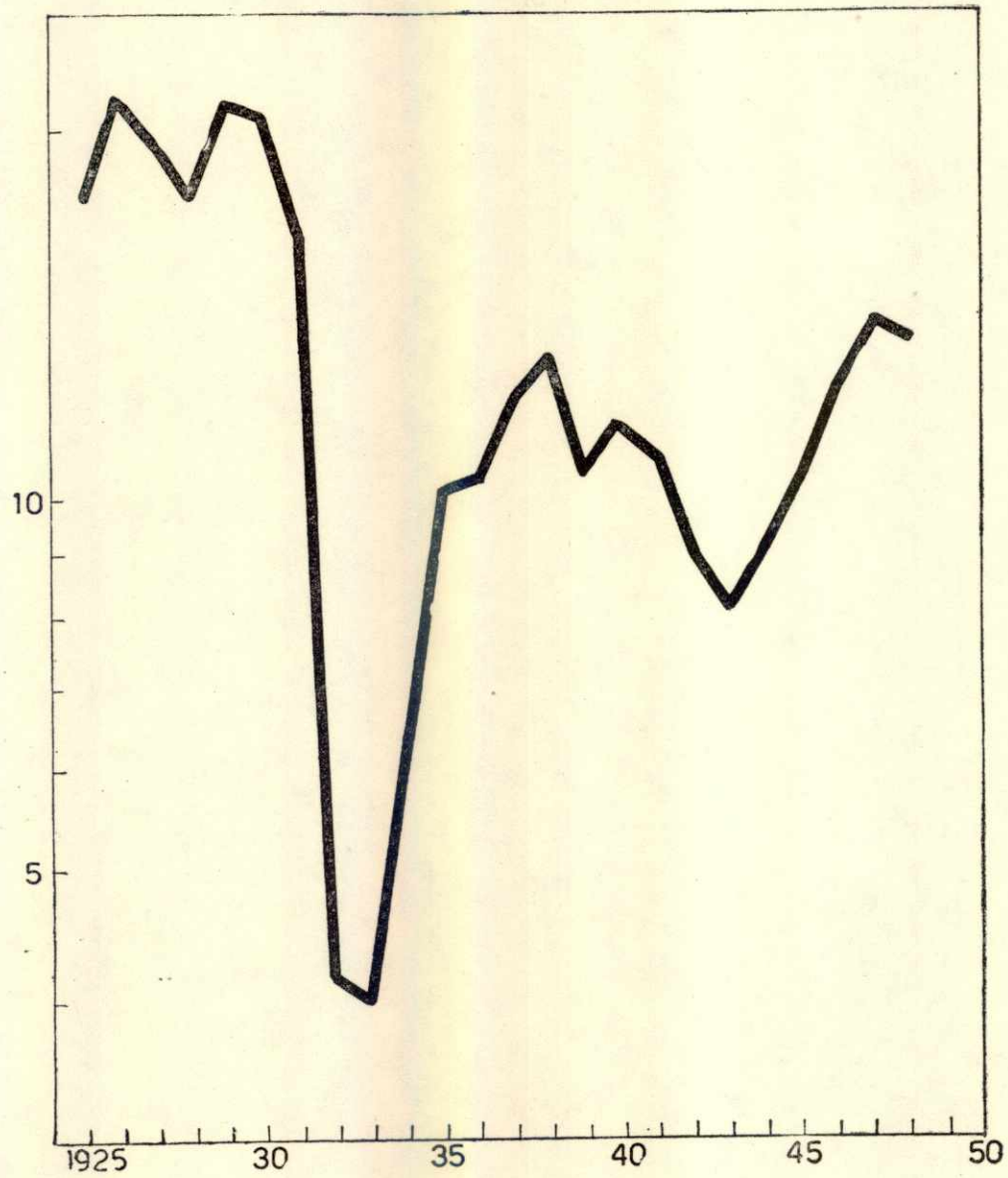


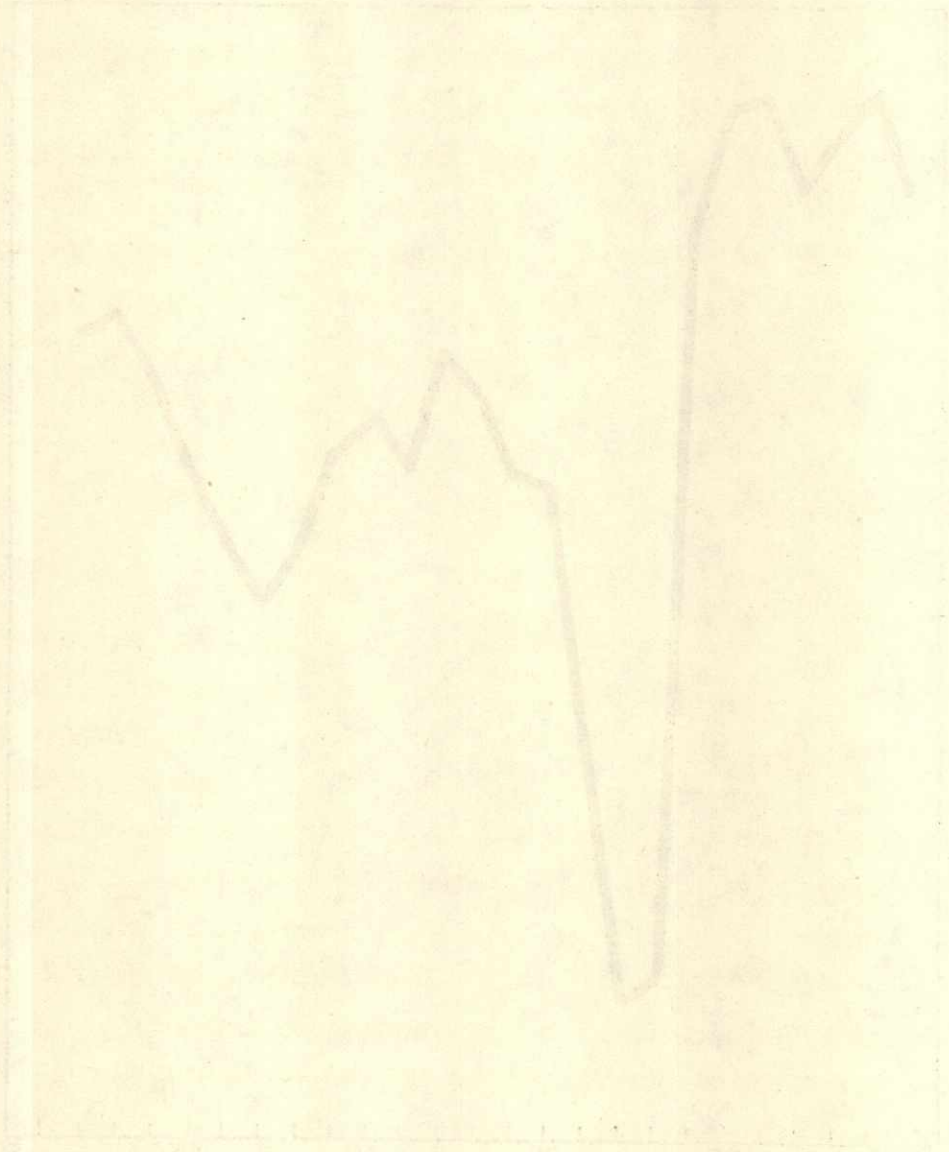
GRAFICO 9

CHILE

COEFICIENTE DE CAPITALIZACION.



Centro de Investigaciones, Comisión Económica para América Latina.



manufacturing within the country would have had to be more intense than it actually was. Greater industrialization is by no means incompatible with the development of agriculture. On the contrary, though not the only one, it would appear to constitute the fundamental condition for such development in the absence of foreign stimuli.

Similarly, a more extensive expansion of manufacturing than has been effected would have involved greater investments both in industry and agriculture. 1/ Mechanization could thus be introduced in this latter activity to compensate for the labour drawn away by Industry.

To consider investment as a sine qua non in promoting the intense development of agriculture in Chile may appear to be an over-simplification of the case. But it must be kept in mind that increased investment is essential to economic growth and that ultimately, the expansion of agriculture is a function of economic growth. This does not preclude an examination of the specific problems of agriculture which will be undertaken later.

5. Investment

In order to trace the development of investment it would suffice, from a glance at the chart, to observe that by its adverse effects on imports of capital goods, the Great Depression seriously hampered Chile's economic development. Curve 2 shows that after the severe restrictions imposed during the early thirties, these imports were unable to regain the high levels attained prior to the World Economic Crisis. In fact, in 1945-49, imports of capital goods showed a decrease of 38.5 per cent in relation to their 1925-29 level. The whole question of imports will be dealt with at greater length in its appropriate section.

Unquestionably larger amounts of capital goods are produced in the country as will be seen from curve 3 on the Chart, in which Chile's small iron output has been added to cement production.

If domestic production of iron and cement were added to imports of capital goods, an index for total investment would be obtained which would fluctuate, as indeed it must, in a measure corresponding to the rise and fall of these imports, though the latter are obviously greater. This index would suggest that the 1945-49 level of investment was 17.2 per cent

/Table 8-A

Table 8-A. Chile: Investment and its composition

Years	Domestic production of iron, steel and cement	Imports Capital Goods	Total	Total in thousands of 1940 pesos, nominal currency	Coefficient of Investment: Total (4) in relation to available goods
	Thousand's of 1940 constant pesos at 6d.				
	(1)	(2)	(3)=(1) + (2)	(4)	
1925	10,424	264,810	275,234	1,436,003	17.5
1926	12,333	383,508	395,841	2,065,257	21.3
1927	14,065	256,067	270,132	1,409,384	19.5
1928	16,253	263,328	279,581	1,458,683	17.6
1929	21,318	377,432	398,750	2,080,435	21.0
1930	23,741	384,545	408,286	2,130,188	20.5
1931	15,020	181,825	196,845	1,027,017	16.2
1932	16,503	30,823	47,326	246,918	4.1
1933	20,408	30,230	50,638	264,198	3.9
1934	29,804	57,496	87,300	455,478	6.4
1935	41,609	110,844	152,453	795,407	10.2
1936	36,470	132,479	168,949	881,473	10.4
1937	45,969	143,593	189,562	989,019	12.1
1938	53,442	158,412	211,854	1,105,325	13.1
1939	50,036	128,330	178,366	930,605	10.5
1940	56,540	148,187	204,727	1,068,141	11.5
1941	52,811	141,963	194,774	1,016,212	10.8
1942	53,531	102,397	155,928	813,537	9.1
1943	55,013	83,875	142,888	745,503	8.1
1944	53,281	113,511	166,792	870,219	9.1
1945	60,358	134,702	195,060	1,017,704	10.4
1946	85,141	172,786	257,927	1,345,706	12.3
1947	88,430	223,614	312,044	1,628,056	13.9
1948	79,253	229,097	308,350	1,608,783	13.4
1949		257,253			

Source: Research Centre, Economic Commission for Latin America.

Note: The valuemof domestic production of iron, steel and cement was calculated on the basis of 1940 c.i.f. import prices for these goods, in 6d. pesos.
The conversion to nominal currency of the value of domestic production of iron, steel and cement and imports of capital goods was made at the 1940 rate of exchange for chielan pesos quoted in pence (1.15).

/lower than

lower than for the period 1925-29. The summarised table clarifies this point.

Table 8 B. Investments and their composition

(Values at 1940 prices)

	Five year averages			Per cent changes	
	1925-29	1945-48	1948	1945-48 / 1925-29	1948 / 1925-29
	(Thousands of pesos at 6d)				
Domestic production of iron, steel and cement	14,479	78,296	79,253	440.8	447.4
Imported capital goods	309,029	190,050	229,097	- 38.5	- 25.9
Total	323,908	268,345	308,350	- 17.2	- 4.8
	(Thousands of pesos)				
Total	1,689,952	1,400,062	1,608,783	- 17.2	- 4.8
Investment coefficient	19.4	12.5	13.4	- 35.6	- 30.9

Note: For source and notes, see table 8 A).

Unfortunately, for the same reasons as were set forth when the position of other Latin American countries was examined, this index of investments is incomplete in view of the lack of data. In Chile, the only building statistics available are those for private building and public works, which reveal the fluctuations indicated by curves 5 and 4 respectively. The trend of private building tends to follow that of cement production, which seems logical. Total building in 1945-49 showed an increase of 99.7 per cent over the 1925-29 level.

The increase of building is generally considered to be the result of inflation. This may be so since the limited capacity to import would in any case prevent inflation from affecting investment to any greater extent.

If the index of investments is compared with that of available goods, a significant decrease will be observed.(See Chart 9). Before the World Economic Crisis, about 19 per cent of available goods were used for investments. By 1933 only 4 per cent were being employed in this manner. After regaining a portion of the ground lost, the index of investments dropped again during the Second World War. However, despite the rising tendency noted after the cessation of hostilities, its expansion again appears to be curbed by the shortage of foreign exchange availabilities.

SECTION IV. IMPORTS AND ECONOMIC DEVELOPMENT

1. It has already been pointed out that since the world economic crisis, Chile has directed its main efforts towards developing domestic production of goods which it is not in a position to obtain through foreign trade. Before analysing production, therefore, the trend of imports and the changes which have taken place in their composition will be examined in order to obtain a preliminary idea of their course.

In view of what has been said in the preceding Section, it would be superfluous to expand on the motives for a review of the development of imports since the beginning of the century, in order to consider them from a better vantage-point. For this purpose, Chart 10 (Table 9) has been plotted, with a curve for the quantum of aggregate imports and their most important constituent groups.

In order to understand the changes which have occurred in the composition of imports and at the same time evaluate the influence of the factors weighing on them, it would be desirable to ascertain in what group of products no reduction of imports was possible, in what other group reductions could be made by recourse to domestic production and, finally, in what group imports have been decreased despite the fact that only small quantities of substitutes are available. There are thus three categories of imports, divided according to their greater or lesser significance in relation to the capacity to import. (see table 10).

/Table 10

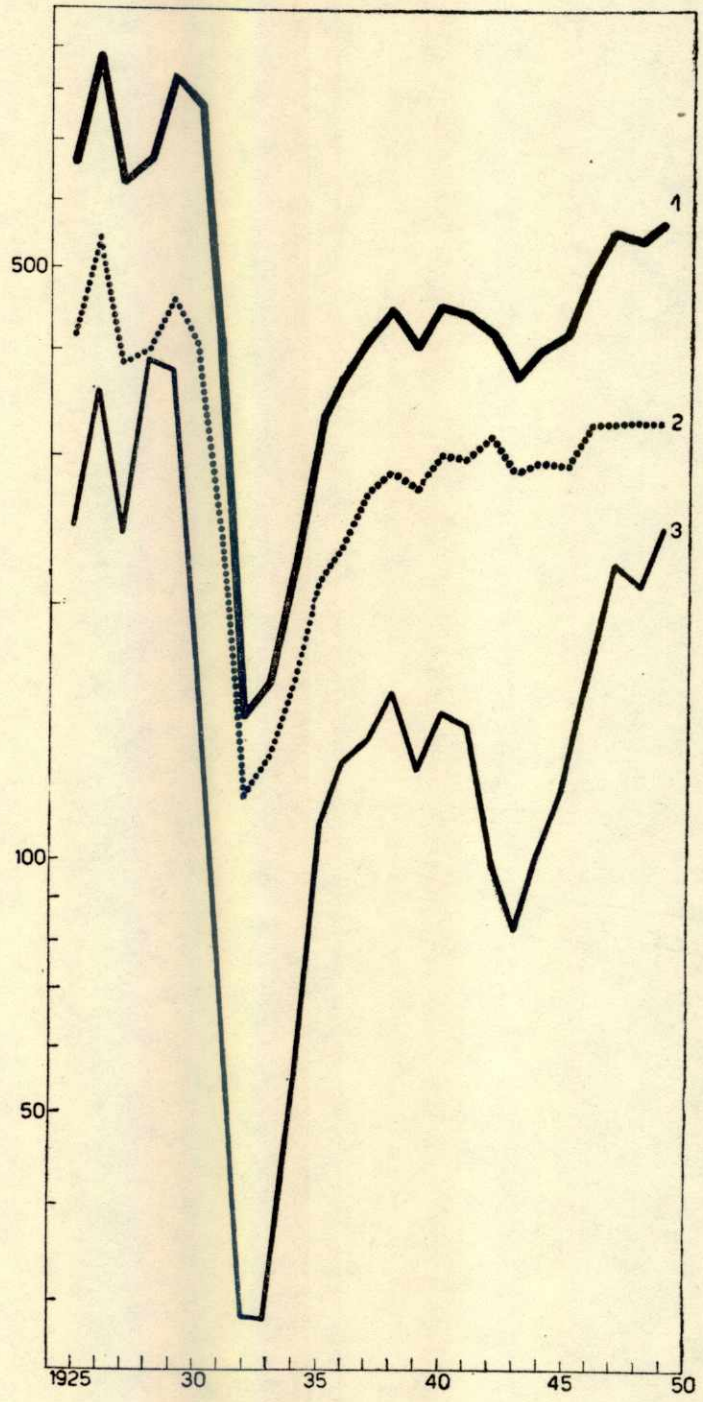
GRAFICO 10-A

CHILE

IMPORTACIONES DE BIENES DURADEROS Y DEMAS BIENES

Valores a precios de 1937

Millones de pesos de 6 d. **Escala logarítmica**



1.— Total de las importaciones.
2.— Demás bienes.
3.— Bienes duraderos.

Centro de Investigaciones, Comisión Económica para América Latina.



Table 9. Chile: Quantum index of Imports
1937 = 100

Years	Total Imports	Capital Goods	Fuels & Lubricants	FOODSTUFFS - Total	Sugar	Coffe, Cacao, Tea & Matte	Live stock	Other Foodstuffs
1900	42,4	-	24,9	-	-	-	-	-
1901	51,7	59,1	29,4	87,8	31,5	43,2	49,5	244,2
1902	50,4	75,2	22,5	44,7	36,1	39,3	49,5	57,5
1903	53,1	77.2	31.5	53.7	42.5	48.2	60.2	69.2
1904	59.7	-	31.9	-	-	-	-	-
1905	76.9	131.5	42.6	60.4	27.4	52.3	62.1	113.3
1906	94.2	212.8	44.2	99.8	46.9	62.4	54.4	250.8
1907	114.1	242.1	58.0	89,7	47.8	54.8	78.6	193.3
1908	108.8	255.8	66.8	74.5	40.1	481.2	148.6	116.7
1909	92.8	170.8	59.9	95.7	58.0	65.1	143.7	138.3
1910	99.5	161.7	73.4	93.1	59.3	75.3	87.4	163.3
1911	112.8	260.6	66.9	109.7	76.1	107.7	109.7	160.8
1912	118.0	257.3	80.1	96.4	55.2	83.9	91.3	171.7
1913	116.7	250.1	88.7	102.4	77.2	60.6	80.6	198.3
1914	92.8	186.2	94.4	114.8	71.8	78.9	52.4	265.0
1915	55.7	86.0	77.1	114.9	57.4	90.3	47.6	278.3
1916	78.3	106.1	80.8	855.8	61.1	87.5	39.8	157.5
1917	95.5	143.5	103.8	91.7	72.7	94.5	68.9	135.0
1918	94.2	103.6	110.0	88.9	71.6	86.2	79.6	123.3
1919	74.3	108.1	81.1	78.4	72.0	99.1	41.7	98.3
1920	67.6	92.5	95.0	84.3	59.1	49.3	58.2	177.5
1921	67.6	109.2	77.3	57.6	53.2	70.6	36.9	68.3
1922	67.6	111.8	63.4	81.9	75.6	101.7	32.0	114.2
1923	95.5	154.6	98.2	95.2	64.1	89.4	93.2	146.7
1924	106.1	187.6	107.7	83.4	64.6	105.0	54.4	112.5
1925	161.4	184.4	122.8	105.2	84.3	89.6	68.9	198.3
1926	218.8	267.1	107.0	137.5	104.6	99.7	174.8	212.5
1927	152.6	178.3	88.6	126.2	76.5	119.7	165.0	188.3
1928	162.2	183.4	105.9	150.9	108.7	109.0	138.8	286.7
1929	206.1	262.9	147.9	148.9	121.7	109.1	186.4	160.8
1930	190.0	267.8	136.9	133.5	88.4	96.7	160.2	170.0
1931	100.0	126.6	82.8	90.7	83.1	83.5	34.0	122.5
1932	35.9	21.5	38.1	71.7	77.5	59.4	22.3	102.5
1933	39.1	21.1	41.7	91.2	86.5	74.9	34.0	172.5
1934	53.4	40.0	56.0	72.6	90.8	104.4	36.9	29.2
1935	78.4	77.2	68.6	87.7	85.1	97.7	45.6	105.8
1936	88.9	92.3	67.5	82.2	98.8	120.3	52.4	35.0
1937	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1938	108.1	110.4	98.2	114.1	109.7	125.7	117.5	102.5
1939	98.0	89.4	93.7	100.1	111.5	125.2	100.0	50.8
1940	109.5	103.2	110.2	101.7	111.3	130.4	131.1	30.8
1941	107.2	98.2	131.0	107.3	111.8	155.2	132.0	31.7
1942	101.2	71.3	119.8	158.2	127.2	118.7	184.5	23.3
1943	89.7	61.2	125.8	140.2	123.1	150.9	247.6	60.0
1944	96.6	79.0	114.8	137.8	113.7	79.6	203.9	154.2
1945	100.5	93.8	113.9	158.0	126.8	132.1	331.1	35.0
1946	119.1	120.3	153.9	152.9	113.8	157.4	295.1	55.8
1947	133.2	155.7	166.6	152.5	121.9	125.8	269.9	71.7
1948	130.3	159.6	196.0	140.5	119.9	87.2	281.6	58.3
1949	139.8	179.2	195.2	127.9	127.2	167.4	103.9	39.2

Source: Research Centre, Ecla, etc.

Note: In order to prepare the series and maintain the uniformity of the sample, the latter was somewhat limited and its proportión to the aggregates consequentlye shows slight variations when compared with a more extensive sample selected for the period 1925-49.

Table 10: Distribution of imports by groups according to the degree to which their component articles may be replaced by domestic production

Values at 1937 prices

	Averages			Percent Fluctuation		Percentage of the current value of each group in relation to the total		
	1925-29	1945-49	1949	1945-49	1949	1925-29	1945-49	1949
	(millions of pesos at 6d.)			1925-29	1925-29			
A. Imports which have increased	129.6	155.0	166.0	19.6	28.1	24.9	35.0	28.1
B. Imports reduced by means of partial replacement by domestic production	311.9	152.6	155.1	- 51.1	- 49.7	43.3	30.6	27.3
C. Imports reduced but for which no replacements are available	299.0	197.7	252.4	- 33.9	- 15.6	31.8	34.4	44.6
Total	740.5	505.3	573.5	- 31.8	- 22.6	100.0	100.0	100.0

Source: Research Centre, Economic Commission for Latin America, of the United Nations.

2. Imports in which no reduction was possible

As compared with the five year period preceding the world economic crisis, imports of three groups of products have been increased:- fuel, foodstuffs, beverages and tobacco; and rubber and manufactured rubber goods. (See Table 11).

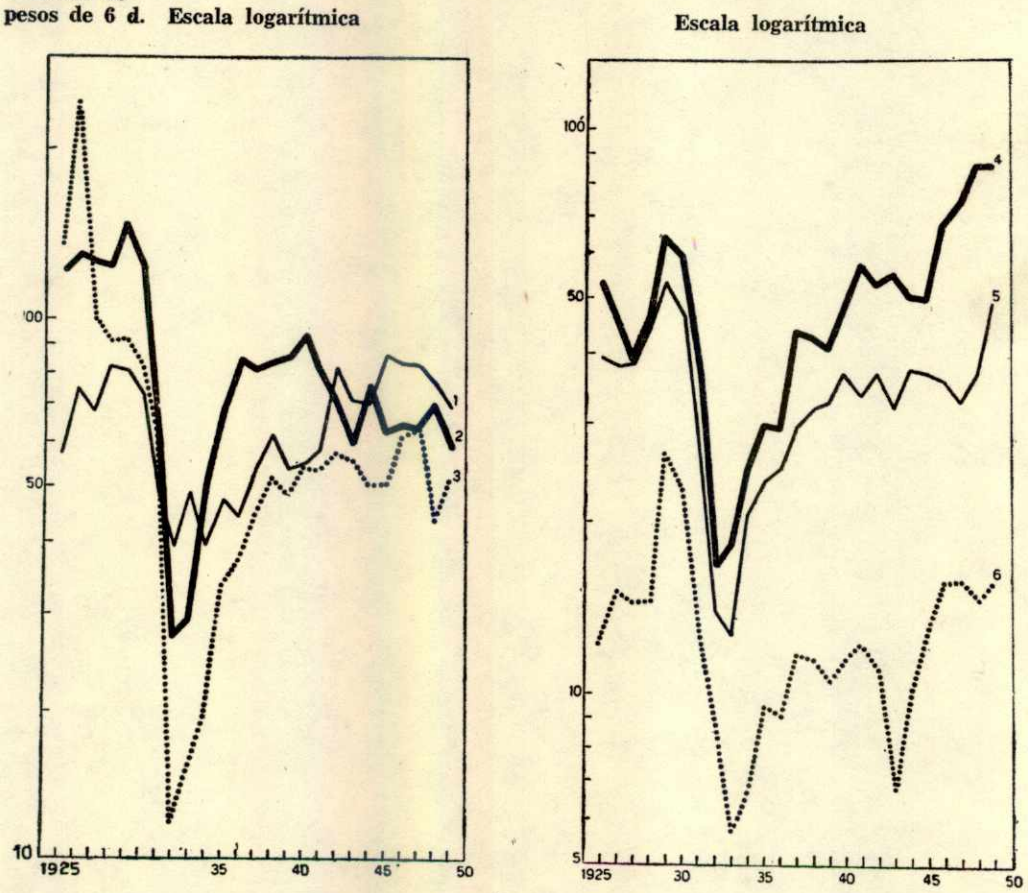
/Table 11. Imports

GRAFICO 11

CHILE

VOLUMEN FISICO DE LOS PRINCIPALES GRUPOS DE LOS DEMAS BIENES IMPORTADOS.

Valores a precios de 1937



1.— Alimentos, bebidas y tabacos.
2.— Textiles y sus manufacturas.
3.— Diversos.
4.— Combustibles y lubricantes.
5.— Productos químicos y similares.
6.— Celulosa, papel y cartón.

Centro de Investigaciones, Comisión Económica para América Latina.

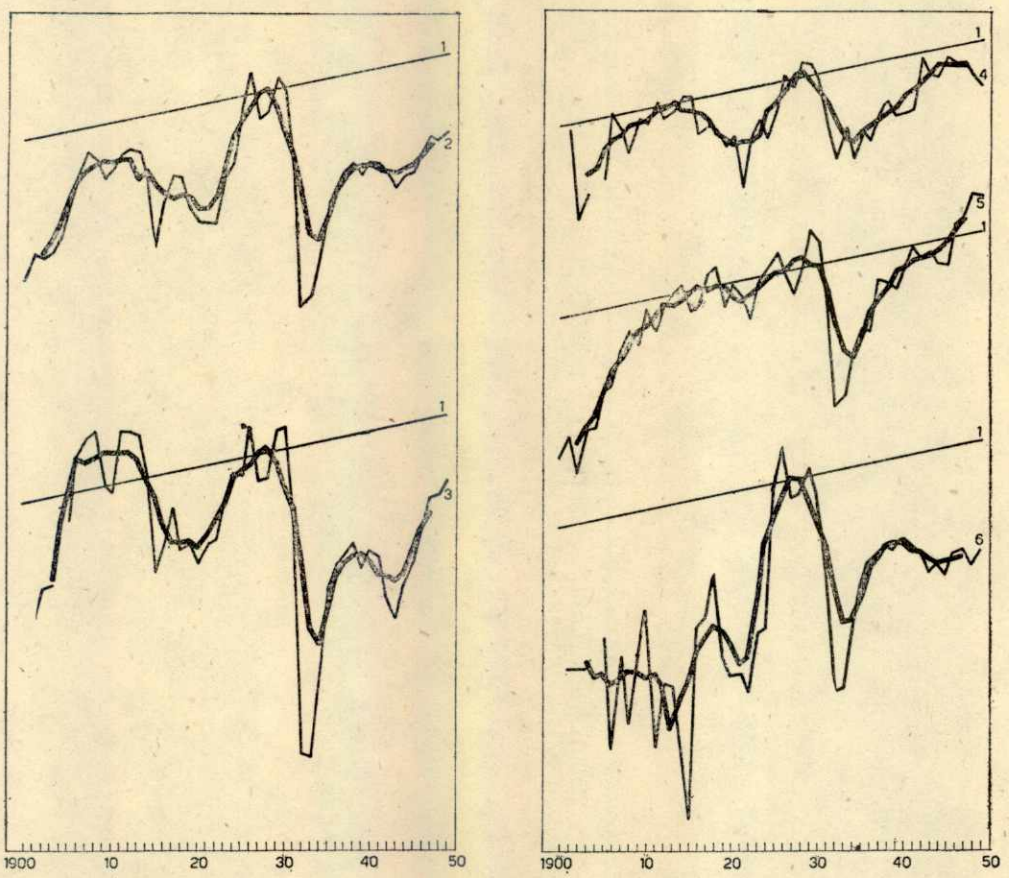
GRAFICO 12-A

CHILE

LA IMPORTACION Y SU COMPOSICION.

Valores a precios de 1937

Millones de pesos de 6 d. **Escala logarítmica**



1.— Población.
2.— Total importaciones.
3.— Importación bienes de capital.
4.— Importación total de alimentos.
5.— Importación de combustibles y lubricantes.
6.— Importación total de bienes de consumo.

NOTA: La línea gruesa, promedio móvil de 5 años.

Fuentes: Centro de Investigaciones, Comisión Económica para América Latina.

Table 11: Imports which have increased

(millions of pesos at 6d.)

Products	Values at 1937 prices			Percentual Fluctuation		% of the current value of each group in relation to the total		
	1925-29	1945-49	1949	1945-49 1925-29	1949 1925-29	1925-29	1945-49	1949
Foodstuffs	72,8	79,6	69,6	9,5	- 4,3	16,6	21,8	15,1
Food and Lubricants	49,9	72,0	85.2	44,3	70,7	7,0	11.8	11,8
Rubber and its Manufactures	6.9	8.9	11,2	29,0	62,3	1,3	1,4	1,2
Total	129.6	160,5	166,0	23,9	28,2	24,9	35,0	28.1

Source: Research Centre, Economic Commission for Latin America, of the United Nations.

It will be seen that during the last few years, Chile has been compelled to import greater quantities of fuels and lubricants than prior to the world crisis, though total imports in the recent past were still a good deal lower than in the pre-depression period (See Chart 11). This is one of the outstanding problems of Chilean economy. Before the First World War, the country had greatly increased fuel imports, as a result of the general development of its economy, and particularly of mining. Later, imports fluctuated considerably; nevertheless, before the world crisis they had reached a very high level, whence they dropped very sharply early in the thirties. There was a subsequent and definite recovery, though it was not till the end of that decade that pre-crisis levels were again attained. During the forties, restrictions imposed because of the Second World War checked their continued rise. When normal supplies became available, fuel imports again resumed their vigourous upswing, so that during the five-year period 1945-49, they were 44.3 per cent higher than for the period 1925-29, though over the same period total imports showed an aggregate decrease of 30.9 per cent. It is worth noting that the quantum of fuel imports in the

/past two years

past two years corresponds approximately to the level which would have been attained had the rate of increase obtaining in the twenties been maintained without interruption. As soon as the country was in a position to allocate foreign exchange for the purpose, consumption of imported fuel expanded commensurately with the progress of economic development. If such development is to continue at the same rate as during the last 10 years - and that has not been especially rapid - it is logical to assume that imports of fuel will continue to increase intensely. Hence Chile's concern in developing her hydro-electric power and petroleum production, as will be shown below.

The second group of imports in which it was not possible to effect a reduction was composed of foodstuffs, beverages and tobacco. On the contrary, in 1945-49 imports in this group were 9.5 per cent higher than in 1925-29. The following summarised table shows details of the principal products. Consumption of several essential staples of the average Chilean's diet, such as coffee, tea, cacao, sugar and meat, which are included in this group, render any reduction of these imports impracticable.

It is evident that domestic production cannot provide substitutes for the first three of these commodities. Furthermore, the general trend of consumption corresponds to the growth of the population, which fact, however, during the world crisis, did not prevent a substantial automatic limitation of these imports, brought about by a marked decline of real income. It is nevertheless evident that the enforcement of any deliberately restrictive measure would provoke a greater disturbance than would be warranted by any savings in foreign exchange that such a measure might effect.

The same applies to sugar imports. Just as in the case of coffee, tea and cacao, the sudden rise of the capacity to import, early in the century, caused these imports to increase more rapidly than did the population. This was an indication of the characteristic raising of the standard of living that marked this era of intense development in Chilean economy, and which was provoked by foreign stimuli. After the

/interruption in the

interruption in the rising trend of sugar consumption, occasioned by the First World War, its rate of increase was resumed during the twenties, then dropped again as did all consumption during the crisis, to rise again after the depression, though only in proportion with the increase of population. It should be added that sugar is retained at lower prices than would obtain if imports were paid for at the 43 pesos per dollar rate of exchange which prevailed for other imports, instead of at the preferential rate of 25 1/ pesos per dollar. This is another typical example. Whereas consumption did not expand in what might be termed an exaggerated manner, the application of direct restrictive measures, or indirect controls such as raising the price of the product, would have led to a profound alteration in the basic diet of the population, which certainly does not appear to be at a very satisfactory level.

Sugar imports during 1949 involved a disbursement of 17.2 million dollars, that is, 5.6 per cent of the total value of imports. This fact has led official quarters to envisage the establishment of a sugar beet industry, as will be seen in the section of agricultural development.

This section will also refer to the causes preventing the expansion of Chilean meat production, especially of beef.

Table 12: Imports of principal foodstuffs, beverages and tobacco

	Annual averages In millions of pesos at 6d. at 1937 prices			Per cent change over 1925-29 annual average	
	1925-29	1945-49	1949	1945-49	1949
A. Foodstuffs a/	70,933	76,827	67,231	8.3	- 5.2
Sugar	16,668	20,473	21,384	22.8	28.3
Coffee, tea, matte & cacao	12,061	14,969	18,863	24.1	56.4
Edible oils	12,020	4,675	10,579	- 61.1	- 12.0
Cattle on the hoof	15,118	26,393	10,601	74.6	- 29.9
Wheat (including flour)	2,962	2,353	1,464	- 30.6	- 50.6
Rice	5,430	2,373	1,703	- 56.3	- 68.6
Fish preserves	3,433	61	32	- 98.2	- 99.1
B. Beverages	819	1,008	671	23.1	- 18.1
C. Tobacco	1,048	1,765	1,698	68.0	62.0
Total	72,800	79,600	69,600	9.5	- 4.3

Source: Research Centre, United Nations Economic Commission for Latin America.
a/ Also includes foodstuffs other than those not listed.

1/ Early in 1950, the rate of exchange for current imports was raised to 60 pesos per dollar, whereas the rate for sugar imports was fixed at 43 pesos per dollar, thus maintaining the preferential treatment accorded to this commodity.

In fact, estimates reveal that in 1945-49, domestic meat production was 22 per cent lower than in 1925-29, making it necessary to increase imports in this class by 70 per cent between the two periods in order to maintain total consumption at the earlier level. In view of the increase of the population during the intervening years, this meant a per capita decrease of 30 per cent for meat consumption.

Chile has encountered fewer difficulties in regard to imports of other products comprising the group of foodstuffs, beverages and tobacco, since domestic production has been able to replace them to an appreciable extent, as will be mentioned in the aforesaid section. This is especially true, for instance, of edible oils, imports of which have been reduced by 61.1 per cent over the period indicated, and also of rice, imports of which have been decreased by 56 per cent. Preserved fish is no longer imported at all.

The increasing use of motor transport accounts for the expansion in imports of rubber and manufactured rubber goods. Their influence on total imports would have been even greater had Chile, like other Latin American countries, not undertaken the manufacture of tyres, inner tubes and other rubber goods with imported raw material, as may be observed in Table 13.

Table 13: Imports of Rubber and its Manufactures

(Values at 1937 prices in thousands of 6d. pesos)

	Five-year Averages			Percentual Fluctuation	
				1945-49 / 1925-29	1949 / 1925-29
	1925-29	1945-49	1949		
Raw Rubber	921	4,349	6,810	372.2	639.4
Tyres and Inner Tubes	3,131	2,773	3,092	- 11.4	- 1.2
Rubber manufactures	2,847	1,770	1,275	- 37.8	- 55.2
Total	6,899	8,892	11,177	28.9	62.0

Source: Research Centre, United Nations Economic Commission for Latin America.

3. Imports replaced by domestic production

So far, only those imports have been dealt with to which Chile must allocate a substantial proportion of its foreign currency availabilities in order to provide the additional increment to consumption deriving from

/the growth of

the growth of the population and the development of the country's economy. There is, however, another category, including current consumer goods, raw materials and semi-manufactured products, wherein it was possible to reduce imports owing to the growth of domestic production. In fact, between 1925-29 and 1945-49, a reduction of 51 per cent has been effected in imports over this wide range of commodities which are intended for direct or indirect consumption. This decrease has been spread over the principal sub-groups as will be seen from table 14.

Table 14: Imports reduced by means of partial replacement from domestic production

	Values at 1937 prices			Per cent change		% of the current value of each group in relation to the total		
				1945-49	1949			
	1925-29	1945-49	1949	1925-29	1925-29	1925-29	1945-49	1949
Textiles and their manufactures	128.5	55.0	50.6	- 57.2	- 60.2	26.3	14.4	12.2
Chemical products	42.6	37.5	48.6	- 11.1	+ 14.1	5.8	6.0	6.9
Metals and their manufactures	18.5	15.6	17.6	- 15.2	- 15.6	2.2	2.3	2.4
Woodpulp, paper and cardboard	16.5	14.9	15.6	- 9.7	- 5.5	2.3	3.5	3.2
Rocks, sand and glass	12.2	4.4	3.5	- 63.9	- 71.3	1.3	0.7	0.6
Lumber and its manufactures	7.6	2.0	2.3	- 73.7	- 69.7	0.8	0.4	0.3
Hides, skins, etc.	9.0	4.1	1.0	- 54.5	- 88.9	1.0	0.4	0.1
Inedible oils and fats	3.8	3.3	0.7	- 13.2	- 81.6	0.6	0.8	0.1
Miscellaneous	73.2	15.8	15.2	- 78.4	- 79.2	3.0	2.1	1.5
Total	311.9	152.6	155.1	- 51.1	- 50.3	43.3	30.6	27.3

Source: Research Centre, United Nations Economic Commission for Latin America.

During the period under analysis, the greatest reduction, 57 per cent, was made in imports of textiles and fabrics. This can largely be ascribed to the replacement of cotton and rayon yarn, textiles and manufactured goods by imports of the raw materials for these items, as table 15 discloses.

/Table 15: Imports of

Table 15: Imports of Textiles and their Manufactures

(Values at 1937 prices)

	1925-29	1945-49	1949	Percentual Fluctuations 1945-49 / 1925-29	Percentual Fluctuations 1949 / 1925-29
	(Thousands of 6d. pesos)				
Cotton					
Raw cotton	436.8	18,473.4	26,165.0	4,129.2	5,990.2
Yarn	9,219.0	7,718.0	5,414,0	- 16.3	- 41.3
Fabrics	39,017.6	8,111.8	4,553.0	- 79.2	- 88.3
Manufactured goods	15,671.6	564.6	362.0	- 96.4	- 97.7
Sub-total	64,345.0	34,867.8	36,494.0	- 45.8	- 43.3
Wool					
Washed and greasy wool	622.4	3,871.2	1,743.0	522.0	180.0
Yarn	838.8	170.0	16.0	- 79.7	- 98.1
Fabrics	26,833.0	6,200.8	5,705.0	- 76.9	- 78.7
Manufactured goods	4,006.6	413.2	201.0	- 89.7	- 95.0
Sub-total	32,300.8	10,655.2	7,665.0	- 67.0	- 76.3
Natural & Artificial Silk					
Natural silk yarn a/	1,465.2	b/ 2,385.8	36.0	62.8	- 98.5
Artificial silk yarn	-	b/ 1,257.8	1,030.0	-	-
Fabrics	2,208.4	334.4	113.0	- 84.9	- 94.9
Manufactured goods	1,152.8	207.4	60.0	- 82.0	- 94.8
Miscellaneous	45.0	877.6	1,720.0	1,850.2	2,675.5
Sub-total	4,871.4	5,063.0	2,959.0	3.9	- 39.3
Grand Total	101,517.2	50,586.0	47,118.0	- 50.2	- 53.6

Source: Research Centre, United Nations Economic Commission for Latin America.

a/ Only 1947-48-49 have been taken into account since no data are available for previous years.

b/ Both natural and artificial silk yarn are included herein for the years prior to 1947, since separate data are not available for the preceding years.

The very varied nature of the products included under the heading Chemical and Pharmaceutical goods renders their study more difficult. Nevertheless, it is evident that considerable savings in foreign exchange have been effected in this group by means of the establishment and development of a domestic chemical industry which meets the demand for several items. In some instances, such as sulphuric acid, for example, the product is no longer imported at all, and the resultant saving from the foreign exchange

/standpoint is

standpoint is integral, since the necessary raw material is available in Chile. As regards other products, such as soda ash, chemical fertilizers, explosives and calcium carbide, imports have been effectively reduced. In fact, in relation to the last-named of these, it should be added that Chile is now a small-scale exporter of the product.

However, industrial development itself has caused an expansion of domestic demand for certain other articles, accounting for the increased imports of such products as caustic soda though it should be added, in this connection, that Chile now manufactures a certain amount of this basic industrial commodity. Other items of which imports have been increased include dyes, and ammonium nitrates and sulphates.

Reduced imports of manufactured paints and varnishes point to growing domestic production of these goods, entailing a corresponding increase of imports of their raw materials, namely white lead and other basic constituents.

The same applies to pharmaceutical goods, for which the tendency is to import the ingredients, either in bulk or unprocessed, for refining, mixing and dosage in the country. The preference for domestic processing of imported semi-manufactures is even more marked as regards toilet articles.

Table 16: Imports of Chemical and Pharmaceutical Products

(Values in thousands of 1937 pesos)

	Averages			Per cent changes	
				1945-49 / 1925-29	1949 / 1925-29
	1925-29	1945-49	1949		
A. Chemical Products					
1. Sulphuric Acid	446.2	5.4	12.0	- 98.8	- 97.3
Caustic Soda	512.8	956.2	1,058.0	86.5	106.3
Calcium Carbide	2,346.2	57.0	214.0	- 97.6	- 90.9
Dyes	1,485.4	3,963.2	7,074.0	166.8	376.2
2. Ammonium Sulphate, Chloride & Nitrate	156.6	1,241.6	1,908.0	692.8	1,118,4
Explosives	5,450.0	597.6	506.0	- 98.9	- 99.1
Others	23,892.2	24,605.6	29,871.0	3.0	25.0
B. Pharmaceutical Products & Toilet Articles	8,318.0	6,451,6	7,950.0	- 22.4	- 4.4
Total	42,607.4	37,878.2	48,593.0	- 11.1	14.0

Source: Research Centre, United Nations Economic Commission for Latin America.

/In other less

In other less important sub-groups, the same substitution occurs as in the case of textiles, i.e. raw materials and semi-manufactured products are replacing imports of the finished article. An example of this tendency will be found in table of sub-groups below, showing, among others, imports of paper, cardboard and the manufactures thereof.

Table 17. Imports of paper and its manufactures

(In thousands of 6d pesos)

	Five year averages			Percentual fluctuations	
	1925-29	1945-49	1949	1945-49 / 1925-29	1949 / 1925-29
	Thousands of pesos				
Woodpulp	1,235	5,061	5,465	309.8	342.5
Newsprint	4,564	3,846	3,373	- 15.7	- 16.1
Printing paper	2,673	422	272	- 84.2	- 89.8
Wrapping paper, unspecified	1,857	475	865	- 74.4	- 53.4
Cigarette paper	1,129	687	901	- 39.2	- 20.2
Others	5,049	4,435	4,774	- 12.2	- 5.4
Total	16,507	14,926	15,650	- 9.6	- 5.2

Source: Research Centre, United Nations Economic Commission for Latin America.

4. Imports which have been reduced but not replaced by domestic production

Imports of capital goods and durable goods have decreased together with consumer goods, but with a difference: whereas in the former case, the reduction was counter-balanced by domestic production, in the case of capital goods the only instance in which this occurred to any considerable

/extent was with

extent was with cement, domestic production of iron and steel and other capital goods being relatively small. Elsewhere in this chapter, the effects of the world economic crisis on investment will be described. The considerable decline of Chile's capacity to import compelled the country to concentrate its diminished foreign exchange resources on acquiring essential imports for current economic activity. In order to accomplish this purpose, it was necessary to exercise severe control over imports of capital goods and other durable goods. A comparison between the curves for these and that for total imports, as shown on the Chart, reveals that the former were reduced far more by the world economic crisis than the latter. Though they later regained some of the lost ground, not only did they fail to attain the level of the late twenties but were not even able to reach that prevailing before the First World War. Thus, whereas imports of capital goods and durable goods increased by 6.5 per cent between 1905-09 and 1925-29, by 1945-49 they had diminished by 35 per cent in relation to the 1925-29 level, whilst the population rose 27 per cent and 35 per cent respectively, over the two periods. (See Table 9).

It should be noted, however, that though a decrease occurred in some of the other sub-groups composed of these goods, imports of agricultural machinery rose substantially, despite the fact that these represent only a small fraction of total capital goods imported, that is 3.5 per cent of their current value in 1945-49. (See Table 18).

Table 18. Imports reduced, but for which no replacements are available

	Averages			Percentual fluctuations	
	1925-29	1945-49	1949	1945-49 / 1925-29	1949 / 1925-29
	(millions of pesos at 6d)				
Capital Goods					
Machinery in general	103.6	62.1	76.8	- 40.1	- 25.9
Materials in general	117.7	78.0	109.5	- 33.7	- 7.0
Agricultural machinery	6.1	5.9	8.8	- 3.3	+ 44.2
Transport material (excluding motor vehicles)	52.8	38.4	38.0	- 27.3	- 28.1
Sub-total	280.2	184.4	233.1	- 34.2	- 16.9
Other durable goods					
Motor vehicles	14.2	9.8	16.4	- 31.0	+ 15.4
Miscellaneous	4.6	3.5	2.8	- 24.0	- 39.2
Sub-total	18.8	13.3	19.2	- 29.3	+ 2.1
Grand total	299.0	197.7	252.3	- 33.9	- 15.7

On the other hand, inasmuch as aggregate imports of machinery show a reduction of 40 per cent during the period under analysis, they continue to represent about 13 per cent of total imports of capital goods. There has also been a marked contraction of imports of building and other materials, generally speaking, of which Chilean production has to a large extent supplied adequate substitutes, such as for example, cement, glass, tiles, etc. Among these, iron and steel are of considerable importance. It is interesting to note that imports of raw or semi-manufactured iron and steel in 1945-49 were 14 per cent lower than in 1925-29, and that imports of manufactures thereof were reduced to one fifth of their former level, owing to the development of a domestic industry for processing these materials.

5. Present position of imports.

The difficulties of Chile's import position, although not insoluble, present a serious problem. Unless there is a substantial contraction of imports of consumer goods, or, alternatively, the development of economic activity is curbed, the immediate possibility of further reducing imports seems very small. In 1949, additional foreign exchange controls were introduced, in view of the decline of copper prices, and this restricted imports severely; the measures were further tightened in 1950. Chile prohibited imports of non-essential goods, with the exception of a small group of items, the importation of which does not involve controlled exchange but for which payment is made with foreign exchange accruing from exports of certain other special commodities 1/.

1/ The system established consisted of the so-called combined operations whereby the foreign exchange obtained by exports of barley, oats, wine, honey, chili peppers and onions, - about 50 per cent of the latter, - could be used for the purchase of articles not included in the Foreign Exchange Budget. On the other hand, foreign exchange obtained from newly-mined gold, exported under control of the Banco Central, may be used to import such merchandise as motor vehicles (at present prohibited) motorcycles, spare parts, watches and clocks, electrical equipment, razor blades, radio sets, automatic pencils, photo and cine-cameras, arms and munitions, etc. Thus, the dual purpose of subsidizing exports and taxing imports is fulfilled to an extent which can only be assessed when it is realized that in such transactions, the dollar was quoted at 90 pesos instead of 31 or 43 for other commodities and between 120 and 140 for gold exports.

/On Table 19,

Table 19. Chile. Allocation of Foreign Exchange for commodity imports

	1949	1950	Percentual change 1950/1949
	Thousands of dollars		
Imports			
A. Included in the Foreign Exchange Budget			
1. Fuels and Lubricants	23,410	23,095	- 1,4
Fuel and diesel oil	6,850	6,100	- 11.0
Motor spirit	11,530	11,200	- 2.9
Others	5,030	5,795	15.2
2. Foodstuffs	48,749	46,076	- 5.5
Sugar	17,600	19,500	10.8
Beef	18,000	6,921	- 61.6
Wheat (including flour)[a]	-	5,000	-
Coffee, tea, cacao and matte	6,680	9,553	43.0
Others (including tobacco)	6,469	5,102	- 21.1
3. Raw materials	59,332	45,529	- 23.3
Cotton	17,500	14,800	- 15.4
Yarns	5,925	4,890	- 17.5
Others	35,907	25,839	- 18.0
4. Other Consumer Goods	32,542	30,948	- 4.9
5. Capital Goods	94,580	54,380	- 42.5
Imported	94,580	50,630	
Imported by private firms as subscribed capital	-	3,750	
Total	258,613	200,028	- 22.7
B. Not included in the Foreign Exchange Budget.	35,550	37,550	5,6
Copper purchased from the Foreign Mining Companies	10,000	12,000	20,0
Imports of the Mining companies	25,550	25,550	-
Total	302,209	237,578	

Source: "Diario Oficial" (Official Gazette).

a/ Wheat was not included in the original Budget.

/What has been

On Table 19, the 1950 Foreign Exchange Budget is compared with that for 1949. Considerable reductions have been proposed for 1950, in fact a decrease of 23 per cent in the value of the merchandise included in the Budget. A further sum of 37.6 million dollars is estimated for, but not included in the Budget estimates, of which amount 25.5 million correspond to the purchases which the mining companies make on their own account, as well as sales by the mining companies of refined copper to be processed in the country. Also excluded from the Budget is a long list of commodities which are subject to exchange availabilities obtained by receipts from exports of other goods. 1/

It would not be possible to estimate the amount of those articles which were excluded from the Foreign Exchange Budget but which will nevertheless be imported, in 1950. Since the cessation of "combined operations", the only source of foreign exchange with which they can be bought is the newly-mined gold, the output of which is valued at 3 to 4 million dollars. Most of the commodities excluded are definitely not luxuries, nor even non-essential goods, for among them figure durable consumer goods, motor vehicles, metals, electrical equipment, some foodstuffs and beverages, chemical products, timber sackcloth, etc. Nor can they all be supplied by domestic industry and the lack of some of them will have repercussions on the standard of living of the population.

The hardships involved for the population are indicative of the conditions in which Chilean economy is developing and of the limits reached in order to maintain equilibrium in the Balance of Payments. It was impossible, or almost so, to reduce imports in two groups: foodstuffs, the Budget allocation for which is practically the same for 1950 as in 1949, if wheat is included; and fuel, which is only 1.4 per cent lower. Foodstuffs constitute the weakest point of the Budget,

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1/ A short while after the publication of the Foreign Exchange Budget, and forming a part of the financial projects to adjust the country's economy to prevailing domestic and foreign conditions, the Chilean Government announced that it would cut all import allocations by 10 per cent, with an additional reduction to be made on sugar; furthermore, 5 million dollars for wheat were allocated, though this item had not been foreseen on the original Budget estimates.

/since these items

since these items represent the highest value and at the same time offer the least margin for reduction. Sugar alone accounts for 19 million dollars, in other words, nearly 10 per cent of the total estimated allocation for imports. Tea, coffee, cacao and matte must all be imported; the allocation allowed has been increased by 43 per cent but still represents about 5 per cent of the total Foreign Exchange expenditure. Meat imports (beef) constitute another weak point, but have nevertheless been decreased by 61.6 per cent.

The problem of fuel is even more significant. Reference has already been made to Chile's effort to increase its hydro-electric power and petroleum production. Production from the latter must be exported until the refinery project materializes. The 1950 Budget involves a reduction of 11 per cent of foreign exchange allocated for petroleum (fuel and diesel oil), whereas no changes have been made for imports of motor spirit 1/. This item absorbed 32 per cent of the total current value of 1949 fuel and lubricants imports. Inasmuch as past experience shows that it is possible to limit consumption under adverse conditions, it should be noted that, whereas in other Latin American countries the consumption of motor spirit has risen very considerably, the increase registered in Chile between 1925-29 and 1945-49 was only 229 per cent. On the other hand, the increase in the number of automobiles and lorries over the same period was only 158 per cent. It becomes evident that in relation to other countries, the increase in consumption was moderate in Chile, and therefore the enactment of any restrictive measure, which always appears possible, would most certainly provoke undesirable consequences.

1/ This does not include imports of liquid fuel made by the Mining Companies for production purposes and which in 1949 totalled ten million dollars, payment of which was made from the companies' own foreign exchange availabilities.

/Table 19.

What has been stated with regard to fuel is also applicable to other essential commodities, the nature of which makes it necessary to proceed cautiously in any attempt to limit imports beyond a reasonable level.

Such reductions principally affect capital goods, raw materials and other consumer goods. Chile is now adopting as a deliberate policy those measures which were formerly imposed on the country by external crises, that is, it is dispensing with capital goods imports in order not to affect too greatly foodstuffs and those necessary to industrial development.

Nevertheless, budgeted imports for 1950 are 46.6 per cent higher than in 1945 and 84.5 per cent higher than in 1942, in which year the war time low was recorded, as will be seen from the following table.

Table 20. Comparison of 1950 Foreign Exchange Budget with 1942 and 1945 Imports.

	Imports		Foreign Exchange Budget	Percent changes	
	1942	1945	1950	1950 over 1945	1950 over 1942
	(in millions of dollars)				
Total	128.1	155.8	225.6	44.8	76.1
Imports by the Mining Companies	19.7	19.4	25.6	32.0	29.9
Other Imports	108.4	136.4	200.0	46.6	84.5

Source: Research Centre, United Nations Economic Commission for Latin America.

At first sight it would seem as if Chile could regain the equilibrium of its Balance of Payments by lowering the level of its imports to that obtaining five years ago, when the country was just emerging from a phase of wartime restrictions. This, however, would be extremely difficult, given the trend of price levels and the development of the country itself,

/both of which

both of which factors created new demands. It must be remembered that the above data refer to value and not to quantities. At current prices, the 1950 quantum of imports will be much lower than in previous years.

6. The Foreign Exchange Budget and the Balance of Payments.

The Foreign Exchange Budget for 1950 had to be calculated at a time when copper prices were falling, this decline having already affected the 1949 Balance of Payments. The 106.6 million dollar receipts accruing from the leading mining copper companies in 1948 were reduced to 91.4 million dollars in 1949 and it is estimated that this item will provide only 67.3 million dollars in 1950 1/.

The foreign exchange deriving from copper exports accounts for a substantial portion of Chile's Balance of Payments 2/. Other exports for 1950 were estimated at 135 million dollars as against 127 million dollars in the preceding year. Thus, there would be an aggregate of 202.3 million dollars to which an additional 16.3 million dollars should accrue from freight, insurance and other small items, totalling a round 220 million dollars. Liabilities include imports (with the exception of those made by the mining companies with their own availabilities), estimated at 195 million dollars and services, amortization and other items, thus making a grand total of 232.2 million dollars. The deficit, therefore, amounts to 12.2 million dollars. To cover this, Chile intends to draw on the credit balance authorized in 1949 by the Export-Import Bank, that is, a total of 20 million dollars. If, as it is believed, exports of crop production and livestock are diminished by some twenty million dollars

1/ The original Budget was for only 59.3 million dollars, which was increased by 8 million dollars in view of the improvement of metal prices.

2/ In this item, as in all others to be considered, only such exchange as the Mining Companies actually sell is taken into account, thus excluding the amount retained to cover profits, amortization, financial services and payments of goods imported on their own account.

/ and 5 million

and 5 million dollars are allocated for wheat imports, the deficit may be even greater.

Hence the Government's announcement of a ten per cent reduction on all budgeted imports, plus an additional reduction on sugar imports.

Not all the present difficulties can be ascribed to the decline of copper prices, since a good many arise from a process which has been evolving since the early post war period. It would, therefore, be advisable to examine the Balance of Payments for the past 5 years.

Table 21. Balance of Payments

(in millions of dollars)

	1945	1946	1947	1948	1949 a/
1. Merchandise Trade					
Exports b/	167.7	174.3	208.3	218.2	218.5
Imports c/	154.5	208.8	251.1	238.1	261.1
Balance	13.2	- 34.5	- 42.8	- 19.9	- 42.6
2. Invisible Items					
Receipts (freight, insurance, etc.)	28.0	28.1	28.2	46.2	19.7a/
Expenditure (services, etc.)	18.5	22.4	24.6	39.7	16.5a/
Balance	9.5	5.7	3.6	7.5	3.2
3. Financial Services					
Receipts	0.1	-	-	0.2	-
Expenditure d/	18.4	- 11.6	- 13.0	7.3	- 14.1
Balance	- 18.3	- 11.6	- 13.0	- 7.1	- 14.1
4. Capital Investment					
Receipts	13.1	9.7	12.3	33.3	68.6
Expenditure	13.6	14.7	15.6	30.8	36.2
Balance	- 0.5	5.0	- 3.3	2.5	32.4
5. Final Balance	3.9	- 35.4	- 55.5	- 17.0	-21.1

Source: Balance of Payments, published annually by the Central Bank.

a/ Provisional or partial data.
b/ Equivalent to foreign exchange receipts and not f.o.b. value of exports.
c/ Excluding imports of the Mining Companies paid for from their own availabilities.
d/ Excluding profits and amortization of the Mining Companies.

/The above

The above Balance of Payments reflects the real position since it excludes the items which the Chilean Government could not control by means of an economic and financial policy designed to reduce or attenuate the factors of disequilibrium. These items include the foreign exchange receipts which foreign mining companies retain as profits, amortization, administrative costs abroad and for payment of the imports they make on their own account. If this amount were to be added, the Balance of Trade would show a surplus for the period under consideration; but the deficit arising from financial services would also be greater if the profits and amortization of the foreign mining companies were to be included. 1/ These figures reveal that the expansion of imports on the one hand and the burden of financial services on the other give rise to a constant tendency towards deficit in the Balance of Payments. A certain amount of foreign capital has entered the country but it is not sufficient to cover this deficit. During the past few years, the foreign capital inflow was derived almost exclusively from Export Import Bank loans and more recently from the International Bank. Only in 1948 and 1949 was the inflow greater than charges for amortization and services arising from such loans and from the Public Debt. Those entrusted with negotiating the new loans, which differ greatly from previous foreign loans, have fully realized the problem which consist in the necessity of correlating the plans

1/ Thus the proportion of the receipts from copper, iron and nitrate exports which remains in the country constitutes a sort of separate Balance of Payments:-

	1945	1946	1947	1948	1949
	in millions of dollars				
Total exports (Customs valuation)	222.8	238.1	306.5	340.3	300.8
Foreign exchange sold to the Government	167.7	174.3	208.3	218.2	218.5
Foreign exchange receipts of the foreign mining companies used for:	55.1	63.8	96.2	131.1	82.3
Profits	15.4	26.0	44.5	56.3	29.8
Reserves and amortization	14.9	5.7	5.9	6.1	5.2
Foreign administrative costs	5.2	10.5	11.3	10.9	1.3
Imports on own account	19.6	21.6	32.2	40.4	37.1
	55.1	63.8	93.9	113.7	73.4

Note: The difference between the foreign exchange receipts and expenditure thereof in 1947, 1948 and 1949 is caused by the fluctuations of stock and sales of copper on the domestic market which formerly were not included in the Balance of Payments.

/for productive

for productive investment with a view to the annuities to be paid. It will be seen at once that Chile is doing its utmost to invest these loans in forms of production which, in a relatively short space of time, will enable savings to be made in foreign exchange expenditure or which, by adding their output to the volume of exports, will obtain foreign currency receipts. The investments themselves would then provide their own means of repayment abroad.

V. THE DEVELOPMENT OF AGRICULTURAL PRODUCTION

1. The Conditions of Chilean Agriculture

In the foregoing section it was pointed out that Chile's agricultural production had little incentive to develop more intensely in view of the relatively slow growth of demand. However, it was also stressed that though the increase of demand was essential, it was not a determining factor for greater agricultural development. Other contributing circumstances must also be present and these will be briefly analysed below.

Several different obstacles stand in the way of Chile's agricultural development, which, given sufficient encouragement, could be removed by the investment of savings in real capital and the improvement of the technical capacity of the producers. These factors affect: (a) arable land and its efficient utilization; (b) the methods of cultivation; (c) agricultural research and (d) mechanization.

a) Arable land. Chile has increased the total surface of its arable land by irrigation schemes and the clearing of forest-lands. At present there are an estimated 5,900,000 hectares under cultivation of which 1,300,000 are irrigated and 4,600 are unirrigated. It is considered that agricultural production could be increased by two methods, either the better utilization of the area now cultivated or by bringing further areas under cultivation.

Better utilization of the cultivated area depends in turn both on the extension of irrigation schemes and on a more economic use of irrigated and unirrigated areas. It is calculated that 520,000 hectares of unirrigated land could be added to the irrigated area and a further 140,000 to 180,000 hectares could be watered by a power-driven pumping system. In other words, the total surface of irrigated land could be

/increased

increased 50 per cent by the investment of further capital. Power-driven pumping is an interesting possibility under the programme of electrification. It has been estimated that the new electric plants can generate ample power for agriculture, since the period during which it is required by agriculture coincides with the period of lowest total power consumption.

In addition to the extension of the irrigated area, the data compiled from a recent survey undertaken by the Dirección General de Agricultura in Chile seems to indicate that the productivity of 150,000 hectares, that is, 11.6 per cent of the area now irrigated, could be almost doubled if instead of being used for natural pasture at one period in the rotation of crops, they were to be sown with forage crops.

The survey did not disclose on what type of farm the productive capacity of irrigation was being wasted in this way, but the fact recalls similar examples noted during the 1936 census. It was then found that in the Central Zone of the country, farms with an area of less than 100 hectares extended the cultivation of cereals, market garden produce, vegetables, fruits and vineyards, beyond their irrigated surface onto unirrigated land. On the other hand, farms with an area of more than 100 hectares actually cultivated less than their total irrigated area, despite the fact that such holdings also included unirrigated arable land 1/. This goes to prove that whereas on the relatively small holdings, cultivation is carried beyond the optimum extent, on the large estates, the whole area was not used as economically as might have been possible.

It would be of interest to examine how best a further 2,500,000 hectares of arable land could be added to the 5,900,000 hectares now under cultivation. According to expert opinion, an extension of some

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1/ The 1936 census gives the percentage of cultivated land in relation to the total irrigated area, according to the size of the holdings, as follows:

Less than 5 hectares	133 per cent.
From 5 to 20 hectares	181 " "
" 20 " 100 "	136 " "
" 100 " 500 "	67 " "
" 500 " 1000 "	54 " "
More than 1000 "	57 " "
	Average 70.5 per cent.

2,350,000 arable hectares can be obtained by clearing the forest lands, especially in Southern Chile, and a further 150,000 hectares can be added by drainage schemes.

This reveals a considerable margin for the expansion of crops, which may be briefly indicated thus: a more economic utilization of 12 per cent of the 1,300,000 hectares of irrigated land could be accomplished by including the cultivation of forage crops in the rotation process; a further 50 per cent could be added to the total irrigated area forming part of the 5,900,000 hectares cultivated at present; and, lastly, an extension of 42 per cent of this cultivated area could be achieved, principally by the clearing of forest-lands and, secondly, by drainage schemes.

In other words, there does exist a possible margin for increase in Chilean crop production. However, the best lands are already cultivated, so that further expansion would involve proportionately greater investments, apart from the fact that the productivity of such areas would be lower.

It is generally admitted that, though possessing equipment for clearing forest-lands, the Corporación de Fomento does not have an adequate supply of such material. The clearing of forest-land is a less expensive operation than irrigation, as is revealed by the fact that the cost of clearing one hectare of forest-land is 2,500 Chilean pesos, whereas the direct cost of irrigating one hectare varies between 8,000 and 12,000 pesos, excluding the cost of the canals. This does not, however, determine the greater advisability of clearing the forest-land since there are areas where the increased productivity gained by irrigation fully compensates the higher investment involved.

/A project

A project for the irrigation of 91,300 hectares [1], with the financial co-operation of The International Bank, is now under consideration.

b) Methods of cultivation. In a brief summary of Chilean agricultural problems, there is always the risk of setting forth generalities which do not reflect the real conditions. This reservation is especially applicable as regards methods of cultivation since in Chile, as elsewhere in Latin America, there are farms on which the most modern agricultural technique has been adopted, as well as others on which the methods employed leave much to be desired.

Beginning with the soil itself, the most serious problem appears to be erosion which, in the view of experts, is destroying the productive capacity not only of arable land, but also of the pastures and forests.

It has been estimated that more than 4 million hectares, in other words, 14 per cent of total crop lands, pastures and forests, are subject to this process, which varies in degree from sheet erosion to deep gully erosion. The results of an enquiry being carried out by the "Departamento de Investigaciones Agrícolas" of the Chilean Ministry of Agriculture are of great interest in this connection. In the Province of Bío-Bío, which was formerly considered the country's granary, of the 364,000 hectares surveyed, only 17.2 per cent showed no signs of erosion. In the remaining 82.8 per cent, the process was present in increasing degrees, as the following figures indicate:- 14.2 per cent revealed moderate sheet erosion, with no gullies; 32.2 per cent showed sheet erosion, with gullies and considerable depletion of the fertility of the soil, and on the remaining 35.4 per cent evidence of wind erosion was found, together with dune formations, or mounds, which render cultivation difficult.

It is important to note that in the Province of Concepción and in

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1/ New irrigation schemes will be carried out on 46,700 hectares of this total, and on the remaining 46,600 hectares, the existing irrigation facilities will be improved.

parts of Bío-Bío, the cultivation of wheat is being abandoned on land which should never have been ploughed, in view of its slope. These areas are being now reforested.

The experts, while agreeing that the concern aroused by this problem has led to the carrying out of research and experiments in soil conservation, regard the measures taken so far as inadequate in relation to prevailing conditions.

Contour cropping has not yet been introduced, much less terracing, the construction of which requires special machinery.

It is considered, furthermore, that once the necessary measures are undertaken to combat erosion in Chile, one of the principal obstacles which will be encountered is the large number of small farms located in unirrigated lands and on which, because of their small size, a highly depleting system of cultivation is practised, greatly contributing to the leaching and washing away of the soil.

The soil's fertility may also be exhausted by continuous cultivation but in this respect recent progress achieved should be noted. The system of crop rotation has always been adopted in Chile and whilst in practice the methods may not always appear to be the best, the process has nevertheless given back to the soil a part of its lost fertility, despite the fact that fertilizers were formerly but little used. However, in the past 15 years, it has been estimated that the use of fertilizers per unit of land is three times higher, with the result that yields have risen again, and in some cases have even surpassed their previous levels. This does not imply that optimum utilization of fertilizers has been reached; it is no more than the general spreading of good farming methods, for which there is still ample margin for expansion, especially as regards the application of phosphates, lime

/and organic

and organic fertilizers, as is shown by experiments carried out in the past [1/]. Chile has large reserves of raw materials, especially for nitrogenous and potassic fertilizers. Phosphates appear to be the only products in short supply and it is feared that reserves will be exhausted unless new deposits are found.

These fertilizing materials and the establishments producing them are almost entirely located in the country's desert area and the fertilizers must be transported over long distances before reaching the agricultural consumer centres. The further south the agricultural centre, the greater the need for fertilizers, as a rule.

For a number of years now, experiments have been made with a view to determining the appropriate fertilizer formulae for different crops and regions. The increased wheat yields, obtained after five years of research, show differences varying between 15 per cent and 117 per cent more than those of the check plots. By putting into practice the results of such research, a better and more rational use of fertilizers will follow; their annual value is estimated at 500 million pesos.

c) Agricultural Research. Despite material difficulties, considerable progress has been made in agricultural research. By obtaining rust-resisting varieties of improved wheat seeds, it has become possible to avoid this disease in one quarter of the country's wheat fields. The damage caused by rust involves a loss of about 10 per cent of total wheat production. Similarly, the recent development in Chile of hybrid maize, once its use is more widespread, will lead to a yield increase of

1/ In 1948, 293,000 tons of fertilizers were used, of which 121,000 were 20 per cent phosphate content and 60,000 tons were lime. Phosphate content requirements are calculated to be between 400,000 and 450,000 of 20 per cent. There is thus a considerable margin of increase for the use of the product. Estimates for lime requirements are even higher, varying between 80,000 and 2,000,000 tons.

/more than

more than 40 per cent over currently cultivated varieties.

Positive results can also be shown as regards progress in pest and disease control for plants and cattle. Several crop pests of economic consequence, principally those attacking fruit trees, have been successfully eliminated by biological means. Experiments are also being carried out to limit losses caused by other pests, involving the use of beneficial insects, of modern insecticides, and of fungicides and weed-killers.

Carefully planned sanitary measures to protect cattle, have substantially lowered the disease and mortality rates caused by epidemics and contagious diseases, such as foot-and-mouth disease, recurrent fever, carbuncles, rabies, etc.

The selection and adaptation of new pastures has been undertaken as a means of solving the serious problem of forage shortage. After several years of testing, no less than 10 new species were found which thrive in different areas and which will lead to a definite improvement of pasture meadows. Large scale production of these seeds has already been undertaken, and it is believed that in five years, the use of 90,000 hectares of such meadow land would increase cattle stock by some 110,000 heads.

Expenditure on agricultural research is very small in relation to the benefits gained thereby. It has been estimated that not more than half a million pesos were spent in obtaining the rust-resistant variety of wheat and the hybrid maize, whereas the yearly increment to production obtainable by the adoption of these varieties would be more than 130 million pesos, in the opinion of the experts.

It should be added that these experiments have been carried out by Chilean researchers, some of whom have specialized at foreign universities. It is often noted with regret that in this, as in other branches of scientific investigation, and also in agricultural extension-

services and training, the main obstacle to be surmounted is the lack of funds. Expenditure by the Chilean Ministry of Agriculture represents only 0.56 per cent of the national budget and 1.4 per cent of the value of the country's agricultural production.

d) Mechanization. While improved methods of cultivation tend to increase the yield per hectare, mechanization of agriculture implies fewer man-hours to obtain the same yield per hectare. Chile's economic development rests on the introduction of both these forms of technical progress, in a measure corresponding to the progress of industrialization. By improving the methods of cultivation, a greater volume of raw materials and foodstuffs can be produced, whereas with mechanization, the displacement of labour to industry will not prove detrimental to the expansion of agricultural output.

In addition to the general factors which have hampered investment in Chile, and to which reference has been made in other sections, a series of other obstacles hinder the mechanization of agriculture. These limiting conditions can be divided into three classes, the land surface, the relative abundance of labour and lastly the land tenure system and the distribution of crops.

As regards the first of these, Chile's mountainous topography hampers total mechanization of agricultural tasks. There is, therefore, a tendency for the simpler forms of mechanization to prevail in these mountainous areas where, for instance, animal traction is used in turning up the land, and sowing and reaping are done by manual labour, whilst stationary machines are used for threshing.

On the plains or slightly rising ground, complete mechanization has progressed considerably. Tractors and other necessary equipment are used in turning up the soil; machines are used for sowing and a mobile harvester is used for threshing. Nevertheless, the use of heavy

machinery on flat, irrigated surfaces is difficult where there are irrigation ditches, and where the growth of weeds during the harvesting season is excessive. Both these factors determine the use of a simple plough, hand-reaping and a stationary thresher.

There is also another difference in connection with the introduction of mechanization on irrigated and unirrigated agricultural land. On the latter, the duration of cultivation is limited by climatic conditions, thus making the use of machinery essential in order to hasten the processes. This is one of the principal reasons for the more intensive development of mechanization in the unirrigated southern areas than in the irrigated central zone.

The relative abundance of labour is another factor retarding the extension of mechanization. This is evident both in preparatory work, such as turning up the soil, and in the complementary tasks, that appear excessive in number and are accounted for by backward methods of cultivation and deficient organization of work. This abundance of labour accounts for the use of oxen rather than horses or mules, despite the fact that the slowness of the former implies use of a greater number of units of labour in cultivation. Undoubtedly the ultimate cost of employing oxen is relatively lower, since the animal is sold as meat when no longer useful in the fields. Nevertheless, if labour were not plentiful, the farmer would be better advised to raise cattle solely for meat production, rather than waste labour as is done at present. A better notion of conditions can be obtained when it is realized that the cultivation of wheat on unirrigated land with partial mechanization requires 31.1 man-days and 30.7 working days of oxen, whereas complete mechanization would reduce these figures to 12.2 and 4.9 working days respectively.

Despite the saving of labour, the incentive for mechanization

/should not

should not be considered self-evident. Farmers who purchased their machinery some time ago, and who have since watched inflation raise wages and the price levels of commodoties find it profitable to use such equipment. But for those who must acquire machinery at its present cost, a comparison of this outlay with present wage rates does not appear to offer much incentive to mechanization. At present, the cost of one quintal of wheat cultivated by partial mechanization, is 238.50 pesos, whereas with total mechanization, the cost of production would be 242.50, assuming the machinery belongs to the farmer. Total mechanization does not offer perceptible savings at first sight, since though it reduces labour costs from 68.90 to 25.30 pesos per quintal and traction costs from 35.50 to 1.30 pesos, on the other hand, it increases equipment costs from 12.70 to 95.50.

It should be noted that these figures are very general estimates and that in individual cases different results might be obtained. They are, nevertheless, a good example of the type of obstacles met with in any attempt to foster mechanization where labour is plentiful, such as occurs in several agricultural zones in Chile.

Lastly, the system of land tenure and the distribution of crops are a further restriction to the extension of mechanization. As will be shown below, there are a large number of small-holdings in Chile, on which mechanization is impracticable in view of the limited area allotted to the cultivation of cereals. Evidently, the problem is simpler where the holdings are larger, but this is not the only consideration, since the distribution of crops, resulting from rotation, must also be taken into account. On farms of 200 to 1,000 hectares, an average of not more than 70.7 hectares are planted with cereals. On farms over 1,000 hectares, as a rule, cereals are sown on about 227 hectares. Consequently the prevailing system of crop rotation also constitutes another factor

/affecting the

affecting the expansion of mechanization. In one-crop countries, the farmer ordinarily requires only one type of machinery for his work, but in Chile, his requirements increase with the number of crops grown 1/.

In short, in addition to the fact that as a rule production is carried out on a small scale either because of the small size of holdings or the diversification of crops, mechanization is also limited by these other circumstances.

It cannot, therefore, be adopted in the form prevailing in countries developing extensive agriculture, with the result that several Chilean experts have questioned whether that type of machinery is the most likely to satisfy Chile's requirements or whether it might not be more advisable to experiment with those types used in the intensive agriculture developed in certain European countries. This point undoubtedly offers a very interesting field for research.

These limitations account for the fact that in Chile partial mechanization is used in the cultivation of wheat and that it is employed on 62.1 per cent of cultivated land. There is a higher degree of mechanization on 22.6 per cent of such land, and on the remaining 15.3 per cent no machinery is used whatsoever (Agricultural Year 1946-47).

The Corporación de Fomento is also concerned with questions of agricultural mechanization. With loans from the Export-Import Bank and the International Bank, representing a total of over 10 million dollars, it has carried out an extensive programme of machinery imports, offering the farmers credit facilities for their purchases. It has also established a system of teams operating agricultural machinery, which may be hired by the farmers. Finally, in co-operation with the Army, it has concerned

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1/ In addition to the equipment required for cereals, the farmer would also require special machinery for mechanizing the sowing and reaping of root crops, cultivators for row crops, besides reapers, rakers and balers for haymaking. In the central area, where the holdings also comprise vineyards and orchards, special tractors would be required for vine-growing as well as sprayers, etc.

/itself with

itself with the training of specialized personnel to handle and service agricultural machinery.

2. Land Tenure

Reference has already been made to the way in which the prevailing system of land tenure hinders the expansion and the modernization of agriculture in Chile. There are no recent data available as regards the distribution of the holdings according to size. However, authoritative opinion holds that present conditions do not differ greatly from those obtaining in 1936, when the last agricultural census was taken. Data from that census have been used in the preparation of Table 22.

This table reveals the contrast between the large number of small-holdings which, taken together, comprise a very small proportion of the total area and the small number of large holdings which represent a large part of the country's whole area. Almost half of the 178,882 holdings consist of less than 5 hectares each, but together these account for no more than 0.6 per cent of the total area, whereas holdings of over 1,000 hectares constitute 75 per cent of the total area, though they represent only 1.5 per cent of the total number of holdings.

Nevertheless, these statistics, like those generally submitted in relation to the distribution of land, point only to a single aspect of the situation and are far from adequate in offering a basis for definite conclusions, which would require a closer and more direct analysis of the problem. If, in fact, one considers the nature of the land comprising the holdings of more than 1,000 hectares, it will be found that these include 84.6 per cent of the country's sterile land and 85.9 per cent of the forests and natural pastures, on which holdings must be large in order to be economic. If such land is not taken into

/account and

Table 22: Distribution of Land according to Size of the Holdings

Size of Holdings (hectares)	Number of Holdings	Crop and Planted Land			Forest and natural pasture land	Sterile land	Total
		Irrigated	Unirrigated	Total			
	a) Number of holdings and total area for each category (1000's of hect						
Less than 5 Has.	87,790	60.3	50.9	111.2	19.0	9.2	139.4
5 to 20	41,437	60.6	234.4	295.0	130.5	43.8	469.3
20 to 100	32,348	134.9	742.6	877.5	442.4	143.6	1,463.5
100 to 500	12,281	375.4	1,082.3	1,457.7	952.2	232.4	2,642.3
500 to 1000	2,220	220.6	506.1	726.7	657.0	141.1	1,524.8
More than 1000	22,806	552.8	1,734.6	2,287.4	13,437.0	3,127.7	18,852.1
Total:	178.882	1,404.6	4,350.9	5,755.5	15,638.1	3,697.8	25,091.4
	b) Percentage of each category in relation to the total number of holdings and their area						
Less than 5 Has.	49.1	4.3	1.2	1.9	0.1	0.2	0.6
5 to 20	23.2	4.3	5.4	5.1	0.8	1.2	1.9
20 to 100	18.1	9.6	17.1	15.2	2.8	3.9	5.8
100 to 500	6.9	26.7	24.9	25.4	6.2	6.3	10.5
500 to 1000	1.2	15.7	11.6	12.6	4.2	3.8	6.1
More than 1000	1.5	39.4	39.8	39.8	85.9	84.6	75.1
	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	c) Percentage of land in each category						
Less than 5 Has.		43.3	36.5	79.8	13.6	6.6	100.0
5 to 20		12.9	49.9	62.8	27.8	9.4	100.0
20 to 100		9.2	50.7	59.9	30.3	9.8	100.0
100 to 500		14.2	41.0	55.2	36.0	8.8	100.0
500 to 1000		14.5	33.2	47.7	43.1	9.2	100.0
More than 1000		2.9	9.2	12.1	71.3	16.6	100.0
		5.6	17.3	22.9	62.4	14.7	100.0
	d) Average area in hectares in each category						
Less than 5 Has.		0.7	0.6	1.3	0.2	0.1	1.6
5 to 20		1.5	5.6	7.1	3.1	1.1	11.3
20 to 100		4.2	23.0	27.2	13.7	4.4	45.3
100 to 500		30.6	88.1	118.7	77.5	18.9	215.1
500 to 1000		99.4	228.0	327.4	295.9	63.6	686.9
More than 1000		197.0	618.2	815.2	4,788.7	1,114.6	6,718.5
Average total:		7.8	24.3	32.1	87.4	20.7	140.2

Source: Research Centre, Economic Commission for Latin America, United Nations.

Note: Basic data obtained from the Agricultural Census, 1935/36, published by the Dirección General de Estadística.

account and only crop or planted land is included, the total thereof contained by the large holdings is reduced from 75 per cent to 39.8 per cent.

The area of land contained by these holdings - only 2,806 in a total of 178,882 - would appear to be excessively large when contrasted with smaller holdings, and especially with the smallest units. However, there is another significant fact, namely that on estates of over 1,000 hectares, the average irrigated area measures 197 hectares and the unirrigated 618.2 hectares, their total average being 815.2 hectares.

The census data alone are insufficient to prove whether or not the land is well cultivated in view of the aforesaid limitations. Opinions differ widely on this point and until a survey is undertaken, based on adequate samples, there is considerable risk of inaccurate generalisations.

Most sources agree, however, that labour utilization could be considerably reduced by mechanization. This would make it necessary for other activities to absorb this surplus of agricultural labour in productive occupations. Whatever be the social criterion adopted in considering the large holdings, it is evident that from the economic standpoint, it is not a question of diverting to these the excess labour drawn from the smaller holdings, but rather of withdrawing from both the real or potential surplus of gainfully employed population.

3. The Development of Production

a) Changes in Crop Production and Cattle-breeding. A general idea of the development of agricultural production was contained in Section I, when dealing with the increment to agricultural output during the years under survey. During the period between 1925-29 and 1945-49, agricultural production increased by approximately 19.8 per cent, which was less than the 36.4 per cent increase of the population. Unless

/the proper

Table 23-A: Production and Consumption of Agricultural Goods

Values at constant 1937 prices

Years	Products			Exports	Consumption
	Crops	Livestock	Total		
			(millions of pesos)		
1925	1,234.9	940.3	2,175.2	470.0	1,705.2
1926	1.375.5	831.2	2,206.7	382.1	1,824.6
1927	1,336.2	824.3	2,160.5	340.9	1,819.6
1928	1,742.1	869.2	2,611.3	434.5	2,176.8
1929	1,712.8	840.7	2,553.5	345.6	2,207.9
1930	1,815.7	835.6	2,651.3	395.7	2,255.6
1931	1,349.1	785.0	2,134.1	273.1	1,861.0
1932	1,306.6	880.6	2,187.2	244.1	1,943.1
1933	1,800.1	893.0	2,693.1	278.7	2,414.4
1934	2,003.3	891.2	2,894.5	456.0	2,438.5
1935	1.677.9	874.6	2,552.5	383.0	2,169.5
1936	1.767.5	857.8	2,625.3	423.7	2,201.6
1937	1.803.8	837.4	2,641.2	467.7	2,173.5
1938	1.776.0	765.9	2,541.2	473.3	2,068.1
1939	1.965.7	865.8	2,831.5	370.4	2,461.1
1940	1.797.4	886.7	2,684.1	371.4	2,312.7
1941	1.691.4	919.0	2,610.4	358.7	2,251.7
1942	1.740.6	869.4	2,610.0	301.7	2,308.3
1943	1.924.6	808.4	2,733.0	298.9	2,434.1
1944	2.121.7	865.3	2,987.3	312.9	2,674.4
1945	1.984.6	788.1	2,772.7	414.4	2,358.3
1946	1.921.1	811.5	2,732.6	386.8	2,345.8
1947	1.931.2	741.4	2,672.7	265.2	2,407.5
1948	2.191.1	761.2	2,952.3	341.4	2,610.9
1949	2.186.5	708.6	2,895.1	352.2	2,542.9

Source: Research Centre, Economic Commission for Latin America, United Nations.

Note: Since total production has not been included, its proportion to exports tends to favour the latter. Export prices have been converted from 6d. pesos to nominal currency at 1937 exchange rates.

the proper qualifications are made, however, the above data may give rise to mistaken conceptions as regards the development of this sphere of Chile's economic activity. It cannot, in fact, be said that the development of agricultural production itself, that is to say, crop production, exclusive of livestock, has been unsatisfactory, if the growth of effective demand is kept in mind, as has been indicated elsewhere. The index of crop production shows an increase of 38 per cent which would probably be even higher if milk, fruits and vegetables were also taken into account. These are believed to have risen considerably during the period under observation. But whereas an increase is shown for crop production, the same cannot be said for livestock. The index for meat production discloses a reduction of 11.5 per cent, leading to a substantial increase in imports, in order to cover the gap [1/]. Chart 13 shows the divergent curves for crop production and cattle-breeding, together with that of total agricultural production.

There is a further aspect of considerable importance shown on this chart. Whereas total production has increased as indicated, livestock exports have not followed suit. In fact, the curve fluctuates considerably and does not surpass that of the late 'seventies; on the contrary, the quantum of these exports, after a remarkable rise in the latter half of the 'thirties due to the expansion of European demand, falls subsequently to such an extent that the 1945-49 level is 10.8 per cent lower than that of 1925-29.

1/ Unfortunately, no reliable data are available for dairy production, the output of which appears to have increased considerably in Chile. Nevertheless, there can be little doubt that the inclusion of milk in total livestock returns would suggest different results from those obtained from the incomplete index.

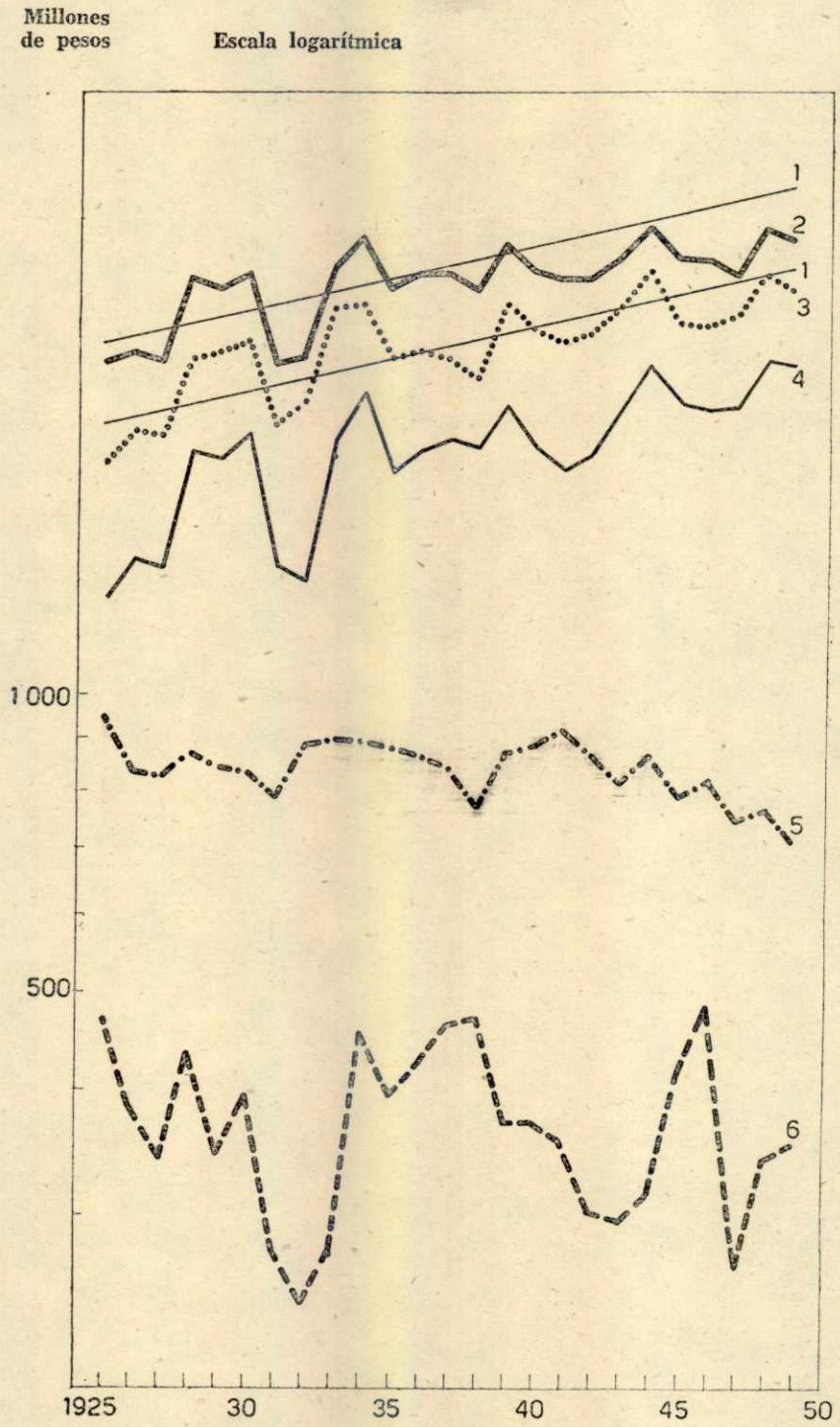
/This decrease

GRAFICO 13

CHILE

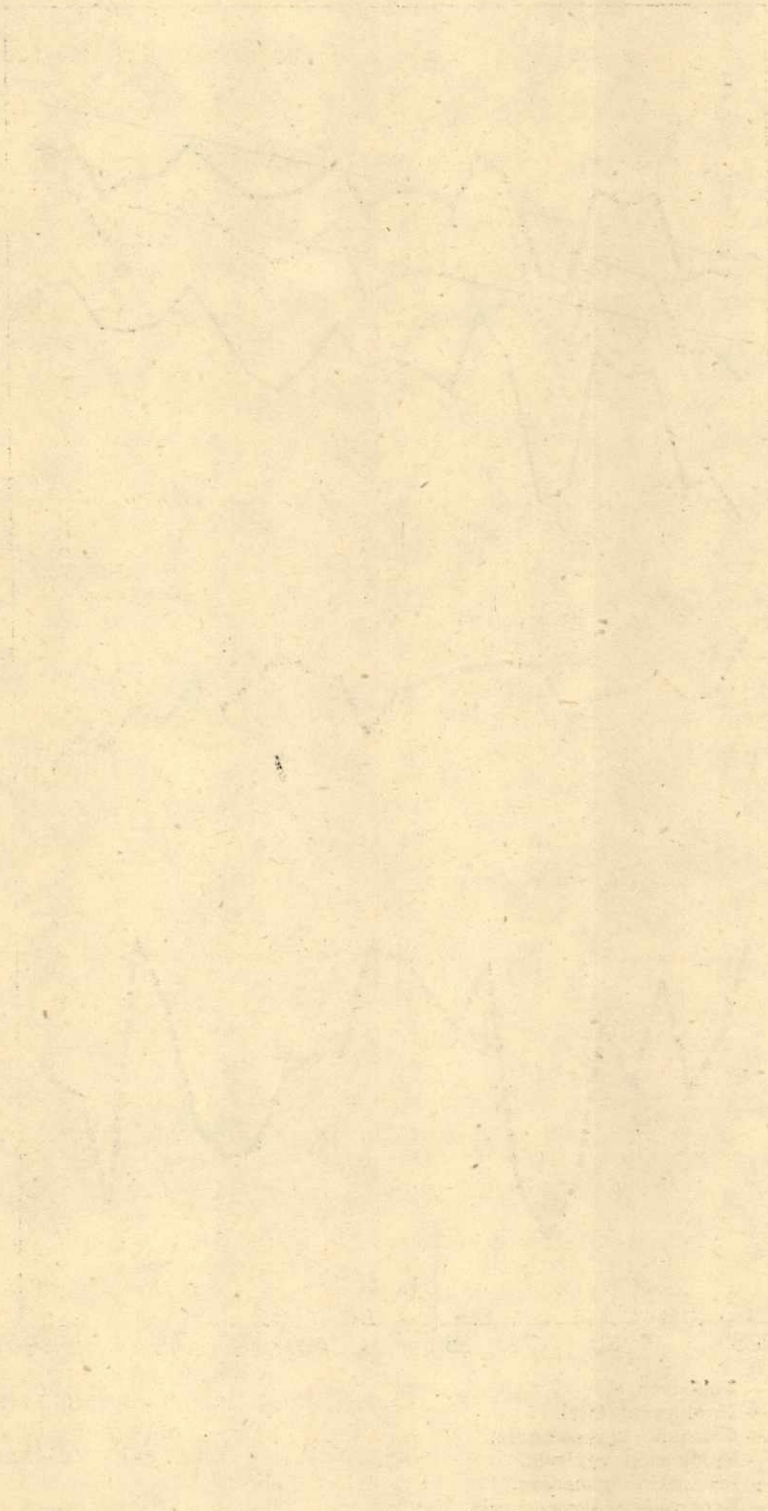
PRODUCCION Y CONSUMO AGROPECUARIO

Valores a precios de 1937



1.— Población.
2.— Producción total.
3.— Consumo agropecuario.
4.— Producción agrícola.
5.— Producción ganadera.
6.— Exportación agropecuaria.

Centro de Investigaciones, Comisión Económica para América Latina.



This decrease of exports, whilst proving detrimental to the country's capacity to import, did, nevertheless, enable domestic consumption to increase by 26 per cent, though domestic production, as has been shown, did not increase more than 19.8 per cent. The relative details are summarised in Table 23-B:

Table 23-B: Crop and Livestock Production and Consumption

Values at constant prices of 1937

(millions of pesos)

	Yearly averages			Percentage change over 1925-29	
	1925-29	1945-49	1949	1945-49	1949
Production:					
Crops	1,480.3	2,042.9	2,186.5	38.0	47.7
Livestock	861.1	762.2	708.6	-11.5	-17.7
Total	2,341.1	2,805.1	2,895.1	19.8	23.6
Exports:	394.6	352.0	352.2	-10.8	-10.8
Consumption:	1,946.8	2,453.1	2,542.9	26.0	30.6

Source: Research Centre, Economic Commission for Latin America, United Nations.

b) Analysis of Crop Production. Data are available for crop production as from 1911, thus permitting a wider analysis of its development. These details have been used in plotting the curve of total agricultural production on the chart. A constant tendency to rise will be noted, which until the late 'twenties was greater than the increase of population, and since then has been equivalent to the latter. It should, however, be noted that the rate of increase of population would seem to have been greater after the depression that before it.

Before analysing the curves representing the principal products,

/their respective

their respective value in relation to total crop production should be noted for the five-year period 1945-49: wheat is of more importance than any other cereal, and accounts for 44.1 per cent of the total value of production. Maize, together with other cereals, accounts for 12.9 per cent; potatoes represent 14 per cent of the total value of crop production; pulses 9.5 per cent; wines 15.1 per cent and industrial crops 4.4 per cent[1/].

Table 24: Value of agricultural production 1945-49

(current values in millions of pesos)

Crop	Value	Percentage of total
Wheat	2,950.8	44.1
Total for cereals	3,812.1	57.0
Potatoes	956.6	14.0
Pulses	638.9	9.5
Wines	1,011.8 a/	15.1
Industrial crops	293.2	4.4
Total	6,692.6	100.0

Source: Research Centre, Economic Commission for Latin America, United Nations.

a/ 1945-48 average.

The curve for the production of cereals, which is strongly influenced by that of wheat, increased constantly over the whole period under observation, though at a decreasing rate after the world crisis. The characteristic rises and falls of the curve should also be noted, these being probably due to variations of climatic conditions, though this factor does not yet seem to have been properly studied.

A marked rise in the production of potatoes is noted since the mid-thirties, whilst that of pulses rises until the end of that decade.

1/ These percentages refer to the sample used for computing the quantum index, which sample is approximately equivalent to 70 per cent of total production during the said years.

/This increase

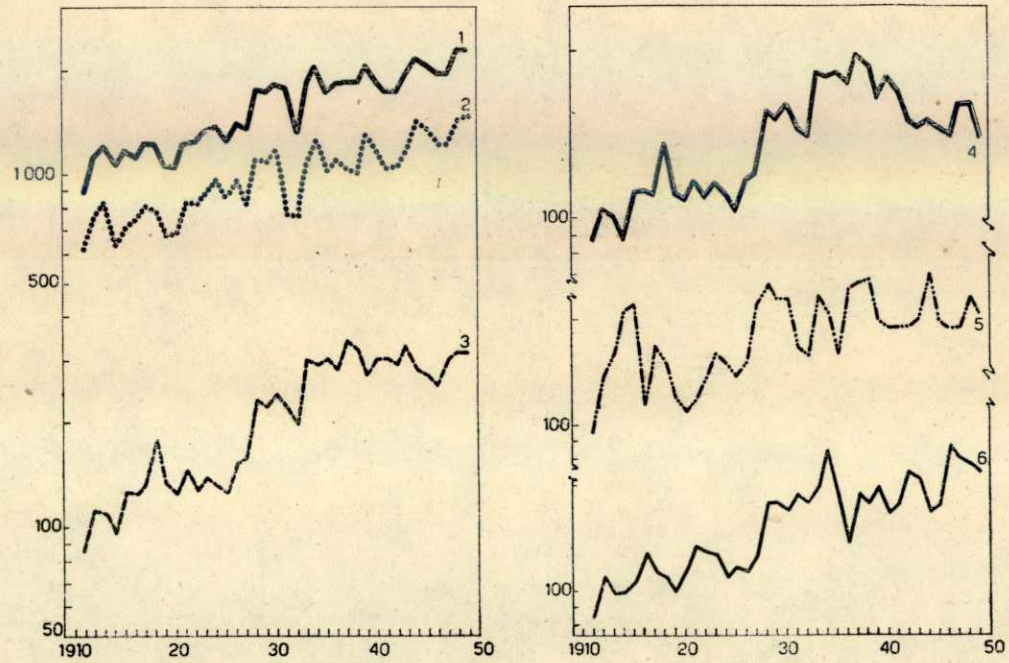
GRAFICO 14

CHILE

PRODUCCION AGRICOLA.

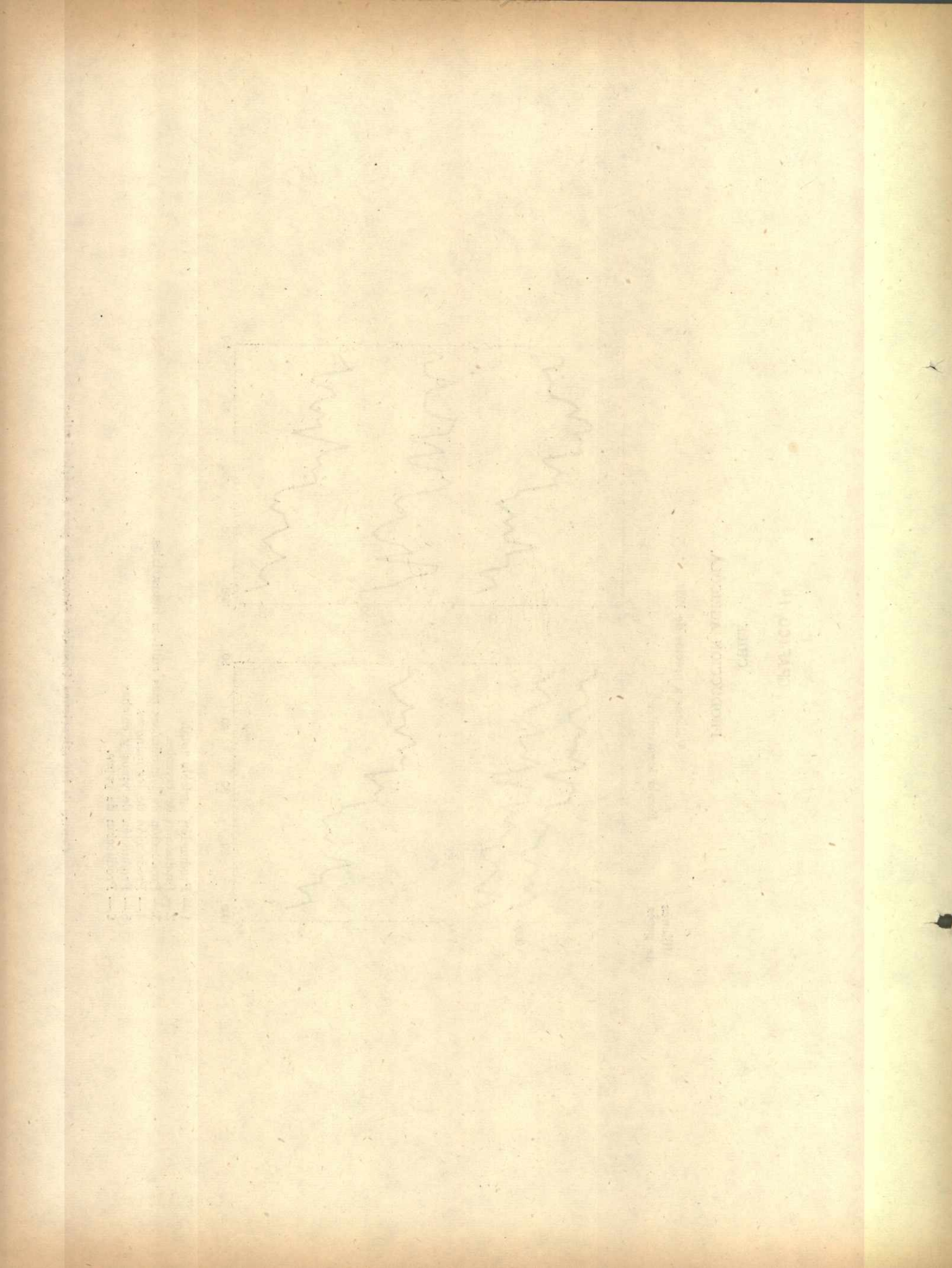
Valores a precios de 1937

Millones de pesos **Escala logarítmica**



1.— Producción agrícola total.
2.— Producción de cereales.
3.— Producción de leguminosas más cultivos industriales.
4.— Producción de leguminosas.
5.— Producción de vinos y chichas.
6.— Producción de papas.

Centro de Investigaciones, Comisión Económica para América Latina.



This increase in pulse production, occurring after the crisis and lasting until the outbreak of war, can be ascribed to intense demand from European markets, principally for lentils and green peas. From 1930-34 to 1935-39, exports of these products rose from 21.6 to 26.7 thousand tons. The increase of potatoes was principally due to improved yields, since there was no corresponding increase in the area sown with this tuber.

During the 'thirties, however, whilst potato production, despite market fluctuations, remained at the high level it had attained, that of peas, lentils, etc., tended to decrease, both by reason of a falling-off of exports and a decline in domestic consumption. The arable land left free by this decrease, was chiefly utilized for the planting of industrial crops, the curve of which has been added to that of pulses as from the earliest period for which data are available, in order better to mark the substitution.

The expansion of rice cultivation since 1939 in certain areas of Chile should also be noted. This development can be ascribed principally to the excellent yields obtained from land which previously had not been used to the best advantage, and to the suspension of rice imports during the war.

Among the industrial crops, sunflowers are especially noteworthy since this product has enabled the country to produce the greater part of the edible oil consumed, instead of having to import it. Cultivation of hemp for export also rose substantially for a brief period during the war. Both these crops, as well as rice, reveal the fact that when increasing demand offered a sufficient stimulus, and conditions were favourable, agriculture was able to meet it by readily increasing production.

Lastly, as regards wines, production in 1945-49 was only 4 per cent higher than in 1925-29. Because of a crisis in the wine industry,

legislative action was taken in 1939 to limit domestic consumption of wines and segregate the surpluses. These were to be destroyed, exported, made into alcohol or non-alcoholic beverages, or sold as grapes for retail consumption. Vine-growers were alternatively authorised to destroy a part of their vines, and heavy taxes on planting of new vines effectively stopped the process, whilst restocking of the older vineyards took place with vinestock of high yield but poor quality. 1/ The immediate consequence of such governmental action was an increase in the price of wine and a decrease in the total area planted with vines.

c) Wheat Production. The fluctuations of wheat production deserve a brief note since they point to some of the most significant alterations which have taken place in Chilean agriculture. For this purpose, Chart 15 has been prepared with production figures for the principal areas. It should be noted that in the provinces of Valdivia, Osorno and Llanquihue, where the crop is grown exclusively on unirrigated land, wheat production increases steadily, with the exception of sharp falls such as that recorded in 1949 and which was caused by climatic factors. The expansion of wheat cultivation in these provinces has been rendered possible by the clearing of the forests and mechanization has made considerable progress in such areas.

On the other hand, in the provinces of Bío-Bío, Malleco and Cautín, which were formerly the granary of Chile, the rise of production has been slow and its level will soon be reached by that of Valdivia, Osorno and Llanquihue. In the rest of the country, and especially in

1/ It is considered that these restrictions have tended to increase production of low grade wines made from high yield vinestock, thus impairing the high quality attained by the prolonged efforts of the Chilean producers.

Table 25-A: Growth of Agricultural Production

Values at constant 1937 prices

(millions of pesos)

Years	Agriculture						Livestock Products			Grand total
	Cereals	Pulses	Potatoes	Industrial crops	Wine	Total	Meat	Wool	Total	
1911	621.7	84.8	84.2	0.6	94.5	885.8				
1912	760.9	106.1	109.3	6.4	139.5	1,122.2				
1913	829.9	99.6	99.1	9.5	160.7	1,198.8				
1914	639.4	87.0	100.1	9.6	209.0	1,045.1				
1915	712.6	118.9	108.1	7.0	218.7	1,165.3				
1916	745.3	119.6	131.3	4.2	114.6	1,115.0				
1917	808.1	116.8	115.4	15.3	166.4	1,222.0				
1918	777.9	161.0	109.1	16.4	146.7	1,211.1				
1919	691.2	117.6	100.8	20.2	117.7	1,047.5				
1920	687.5	113.1	117.5	10.6	110.3	1,039.0				
1921	815.2	126.9	135.7	17.6	116.6	1,212.0				
1922	818.6	114.3	131.2	13.6	137.4	1,215.1				
1923	890.7	124.8	128.2	14.8	155.8	1,314.3				
1924	960.9	115.9	110.7	15.0	150.8	1,353.3				
1925	851.1	104.4	117.8	22.0	139.6	1,234.9	757.4	182.9	940.3	2,175.
1926	964.1	128.2	113.5	23.4	146.3	1,375.5	676.6	154.6	831.2	2,206.
1927	832.0	134.0	127.2	24.0	219.0	1,336.2	650.9	173.4	824.3	2,160
1928	1,092.9	197.3	178.7	28.2	245.0	1,742.1	699.3	169.9	869.2	2,611.
1929	1,077.4	190.4	180.7	31.6	232.7	1,712.8	687.3	153.4	840.7	2,553.
1930	1,180.3	205.9	167.4	34.8	227.3	1,815.7	692.8	142.8	835.6	2,651.
1931	774.3	181.3	186.1	35.2	172.2	1,749.1	634.0	151.0	785.0	2,134.
1932	762.5	168.0	183.4	28.3	164.4	1,306.6	696.5	184.1	880.6	2,187.
1933	1,074.1	264.2	199.0	31.6	231.2	1,800.1	714.8	178.2	893.0	2,693.
1934	1,254.2	253.6	254.3	33.5	207.7	2,003.3	707.1	184.1	891.2	2,894.
1935	1,027.3	258.2	192.4	42.4	157.0	1,677.9	688.2	186.4	874.6	2,552.
1936	1,102.1	244.2	142.9	34.2	244.1	1,767.5	677.3	180.5	857.8	2,625.
1937	1,025.4	290.8	185.3	50.5	251.8	1,803.8	641.5	195.9	837.4	2,641.
1938	1,014.6	271.5	182.0	52.7	255.2	1,776.0	601.9	164.0	765.9	2,541.
1939	1,291.0	217.7	202.4	54.5	200.1	1,965.7	675.8	190.0	865.8	2,831.
1940	1,135.4	247.9	173.4	52.2	188.5	1,797.4	673.1	213.6	886.7	2,684.
1941	1,028.7	234.7	178.0	62.1	187.9	1,691.4	703.1	215.9	919.0	2,610.
1942	1,042.3	185.4	216.9	103.6	192.4	1,740.6	687.7	181.7	869.4	2,610.
1943	1,183.2	181.2	213.0	145.2	202.0	1,924.6	604.3	204.1	808.4	2,733.
1944	1,398.9	194.5	172.3	85.6	270.4	2,121.7	667.1	198.2	865.3	2,987.
1945	1,322.5	180.0	184.8	92.7	204.6	1,984.6	565.1	223.0	788.1	2,772.
1946	1,224.5	174.5	64.0	71.5	186.6	1,921.1	610.9	200.6	811.5	2,732.
1947	1,212.2	208.6	236.8	87.9	185.7	1,931.2	558.5	183.9	741.4	2,672.
1948	1,415.7	211.3	231.7	100.5	231.9	2,191.1	580.7	180.5	761.2	2,952.
1949	1,443.8	172.4	221.9	135.4	213.0	2,186.5	534.0	184.6	708.6	2,895.

Source: Research Centre, Economic Commission for Latin America, United Nations.

Note: The indices have been based on the quantum index formula:

$$\frac{P_o Q_n}{P_o Q_o}$$

1937 prices used are wholesale prices on the principal markets.
Industrial crops include oil seed, tobacco and hemp.

Table 25-B: Growth of Agricultural and Livestock Production

(In millions of 1937 pesos)

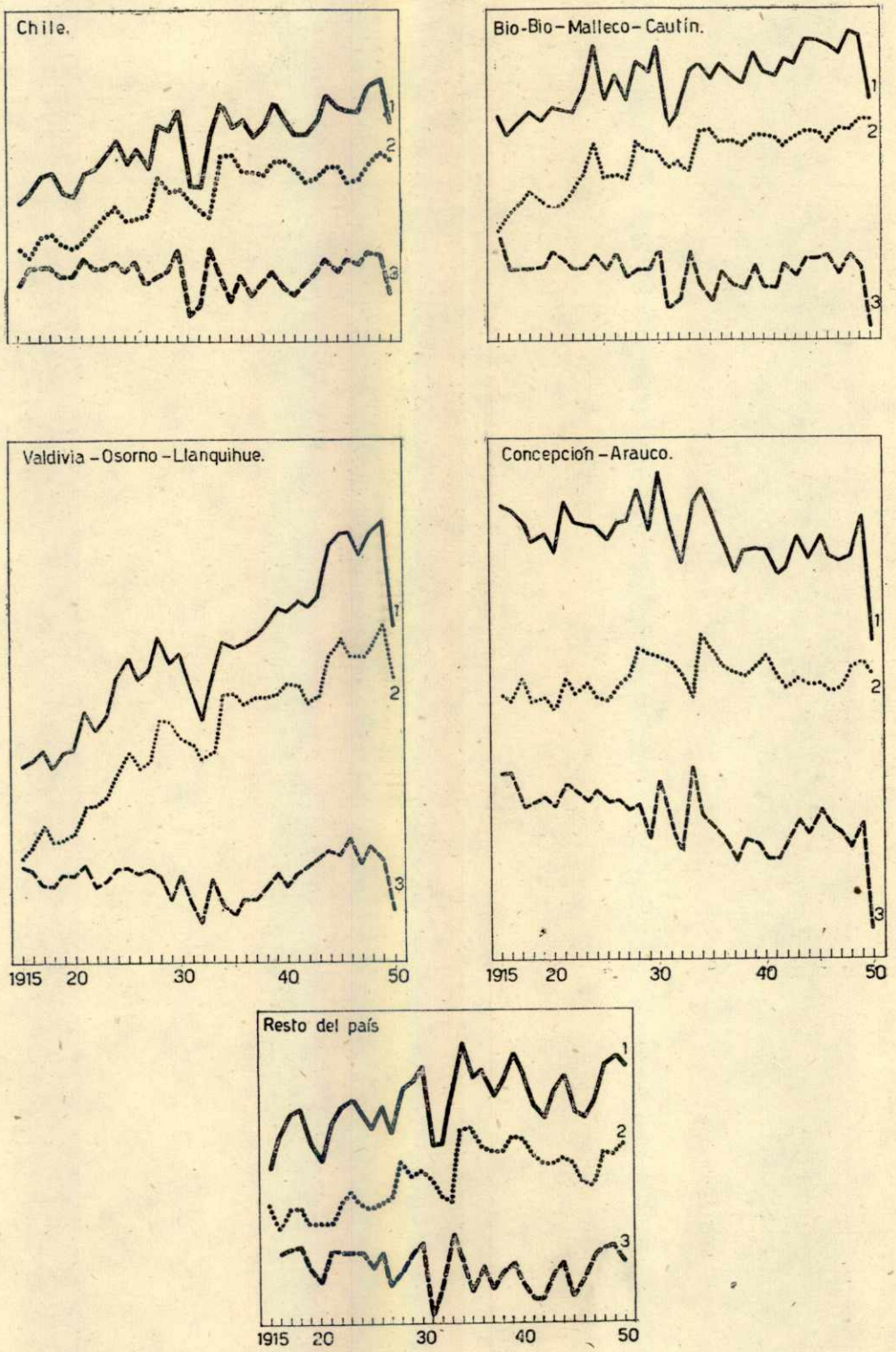
Products	Annual averages			Percentages of fluctuations		
	1911-15	1925-29	1945-49	1925-29 / 1911-15	1945-49 / 1925-29	1945-49 / 1911-15
Agricultural:						
Cereals	712.8	963.5	1,323.7	35.2	37.4	85.7
Wheat	570.5	773.4	1,032.9	35.6	33.6	81.0
Barley	71.4	101.8	73.6	37.4	- 27.7	- 0.7
Oats	37.3	50.2	47.6	34.6	- 5.2	27.6
Rye	1.7	1.5	2.9	- 11.8	93.3	70.6
Maize	29.2	36.6	48.1	25.3	31.4	67.7
Rice	-	-	118.6	-	-	-
Pulses	99.3	150.9	189.4	52.0	25.5	90.7
Beans	79.8	106.7	132.2	33.7	23.9	65.7
Peas	9.4	12.6	13.8	34.0	9.5	46.8
Lentils	7.6	25.2	33.4	231.6	32.5	339.5
Chickpeas	2.5	6.4	10.0	156.0	56.2	300.0
Potatoes	100.2	143.6	227.8	43.3	58.6	127.3
Industrial Group:	6.6	25.8	97.6	290.9	278.3	1,378.8
Tobacco	3.7	10.1	9.6	173.0	- 5.0	159.4
Sunflower	-	-	52.7	-	-	-
Hempseed	-	4.0	7.1	-	77.5	-
Hempfibre	2.4	10.3	19.9	329.8	93.2	729.2
Flaxseed	0.5	1.4	8.3	180.0	492.8	1,560.0
Wines	164.5	196.5	204.4	19.4	4.0	24.2
Agricultural sub-total:	1,083.4	1,480.3	2,042.9	36.6	38.0	88.6
Livestock:						
Meat	..	694.3	569.8	-	- 17.9	-
Beef	..	495.9	388.0	-	- 21.8	-
Mutton	..	151.6	109.1	-	- 28.0	-
Pork	..	46.8	72.7	-	- 55.3	-
Wool:	..	166.8	192.4	-	15.3	-
Livestock Sub-total:	..	861.1	762.2	-	- 11.5	-
Grand Total:	..	2,341.4	2,805.1	-	19.8	-
Population (1000's of inhabitants)	3,463	4,051	5,527	17.0	36.4	59.6

Source: Research Centre, Economic Commission for Latin America, United Nations.

GRAFICO 15

CHILE

PRODUCCION DE TRIGO.



1.— Producción.
2.— Area sembrada.
3.— Rendimiento por hectárea.

Centro de Investigaciones, Comisión Económica para América Latina.

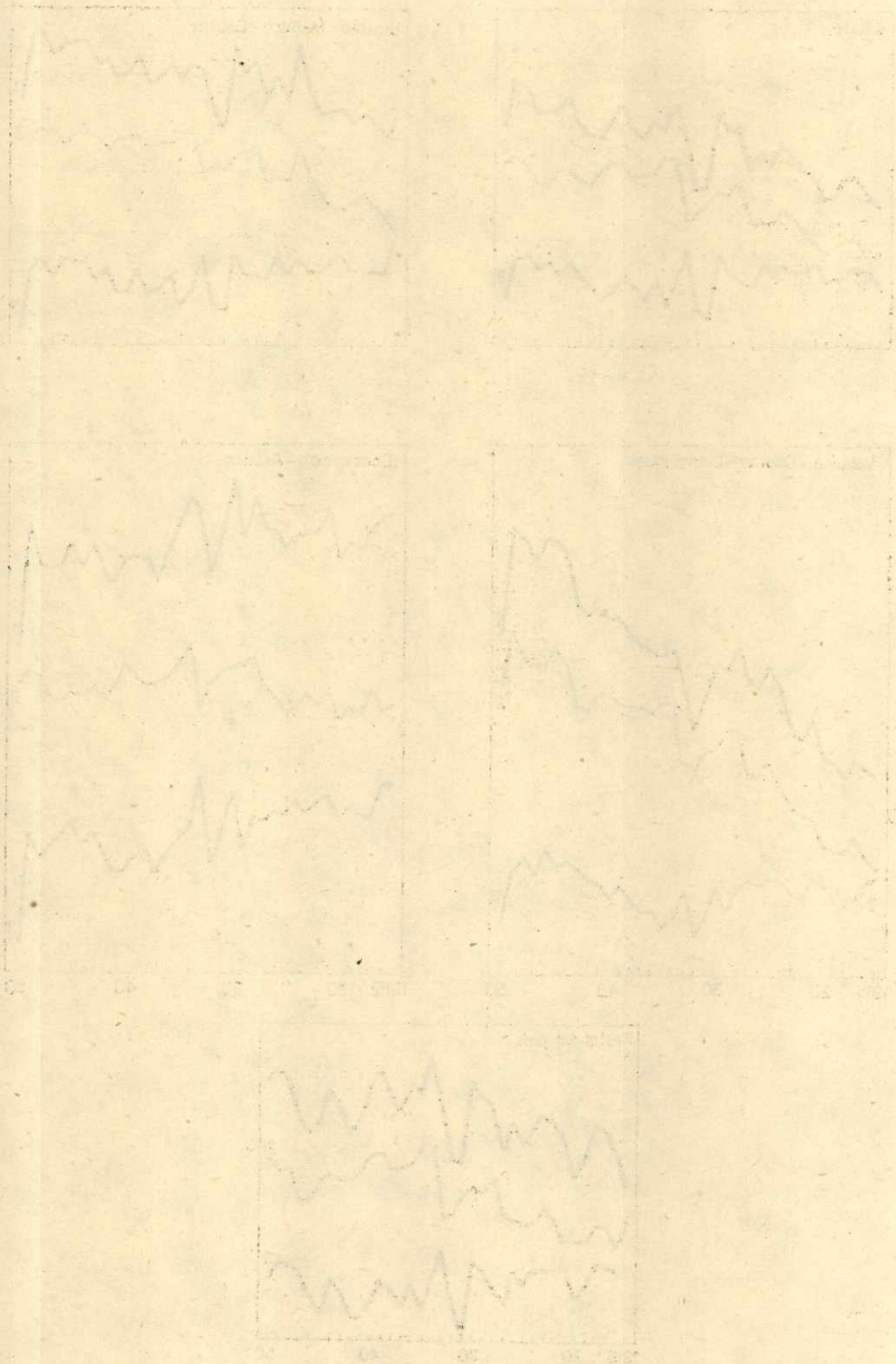


Table 26-A. Chile: Area, production and yield per hectare of wheat by regions

Years	Total of Chile		
	Area sown (Thousands of hectares)	Production (Thousands of metric quintals)	Yield (Quintals per hectare)
1915	484	5,171	10.7
1916	462	5,501	11.9
1917	515	6,123	11.9
1918	527	6,292	11.9
1919	494	5,519	11.2
1920	484	5,420	11.2
1921	509	6,314	12.4
1922	544	6,433	11.8
1923	596	7,059	11.8
1924	621	7,645	12.3
1925	578	6,660	11.5
1926	585	7,259	12.4
1927	600	6,431	10.7
1928	746	8,330	11.2
1929	694	8,077	11.6
1930	698	9,125	13.1
1931	651	5,757	8.8
1932	614	5,766	9.4
1933	593	7,883	13.3
1934	851	9,609	11.3
1935	858	8,200	9.6
1936	776	8,659	11.2
1937	776	7,786	10.0
1938	765	8,243	10.8
1939	828	9,665	11.7
1940	828	8,597	10.4
1941	781	7,834	10.0
1942	730	7,825	10.7
1943	751	8,563	11.4
1944	797	9,936	12.5
1945	801	9,213	11.5
1946	728	9,045	12.4
1947	745	8,990	12.1
1948	819	10,712	13.1
1949	867	11,135	12.8
1950	833	8,309	10.0

Table 26 A. Chile (Continuation)

Provinces of Valdivia, Osorno y Llanquihue

Years	Area sown (thousands of hectares)	Production (thousands of quintals)	Yields (quintals per hectare)	% of area sown on total of country	% of production on total of country
1915	38.1	603.9	15.8	7.9	11.7
1916	40.6	624.1	15.4	8.8	11.3
1917	47.1	669.3	14.2	9.1	10.9
1918	42.5	599.6	14.1	8.1	9.5
1919	43.5	653.5	15.0	8.8	11.8
1920	45.1	669.1	14.8	9.2	12.3
1921	52.2	839.3	16.1	10.2	13.3
1922	53.2	751.0	14.1	9.8	11.7
1923	56.8	823.5	14.5	9.5	11.7
1924	65.2	1,029.0	15.7	10.5	13.4
1925	74.6	1,193.7	16.0	12.9	17.9
1926	66.8	1,019.0	15.2	11.4	14.0
1927	70.4	1,100.0	15.6	11.7	17.1
1928	90.1	1,340.0	14.9	12.1	16.1
1929	88.2	1,131.0	12.8	12.7	14.0
1930	80.4	1,214.0	15.1	11.5	13.3
1931	77.3	971.0	12.6	11.9	16.8
1932	71.2	797.0	11.2	11.6	13.8
1933	74.1	1,090.0	14.7	12.5	13.8
1934	105.3	1,309.0	12.4	12.4	13.6
1935	106.8	1,263.0	11.8	12.4	15.4
1936	99.2	1,288.0	13.0	12.8	14.9
1937	103.3	1,349.0	13.0	13.3	17.3
1938	104.2	1,452.0	13.9	13.6	17.6
1939	105.7	1,603.0	15.2	12.8	16.6
1940	113.3	1,573.0	13.9	13.7	18.3
1941	112.8	1,690.0	15.0	14.4	21.6
1942	100.8	1,600.0	15.9	13.8	20.4
1943	105.0	1,757.0	16.7	14.0	20.5
1944	134.9	2,367.0	17.5	16.9	23.8
1945	149.3	2,543.0	17.0	18.6	27.6
1946	136.7	2,573.0	18.8	18.8	28.4
1947	136.5	2,219.0	16.2	18.3	24.7
1948	142.3	2,531.0	17.8	17.4	23.6
1949	165.2	2,767.0	16.7	19.0	24.8
1950	118.3	1,432.0	12.1	14.2	17.2

Table 26 A. Chile (Continuation)

Provinces of Bio-Bio, Malloco and Cautin

Years	Area sown (thousands of hectares)	Production (thousands of quintals)	Yields (quintals per hectare)	% of area sown on total of country	% of production on total of country
1915	152.4	1,897.6	12.4	31.5	36.7
1916	169.6	1,699.7	10.0	36.7	30.9
1917	182.9	1,840.8	10.1	35.5	30.1
1918	196.7	1,967.6	10.0	37.3	31.3
1919	183.1	1,859.0	10.2	37.1	33.7
1920	177.5	2,014.1	11.3	36.7	37.2
1921	183.8	1,985.8	10.8	36.1	31.4
1922	195.7	1.958.7	10.0	36.0	30.4
1923	221.6	2,249.0	10.1	37.2	31.8
1924	265.4	2,953.0	11.1	42.7	38.6
1925	216.0	2,158.5	10.0	37.4	32.4
1926	219.9	2,462.4	11.2	37.6	33.9
1927	215.2	2,091.8	9.7	35.9	32.5
1928	269.0	2,688.7	10.0	36.0	32.3
1929	250.8	2,514.2	10.0	36.1	31.1
1930	250.3	2,929.8	11.7	35.9	32.1
1931	227.8	1,809.9	7.9	35.0	31.4
1932	235.5	1,963.9	8.3	38.4	34.0
1933	225.6	2.555.5	11.3	38.0	32.4
1934	236.3	2.369.0	9.3	33.6	27.8
1935	239.6	2,385.2	8.2	33.8	29.1
1936	269.7	2,690.9	10.0	34.8	31.1
1937	271.1	2,464.4	9.1	34.9	31.6
1938	263.9	2,362.5	8.9	34.5	28.7
1939	279.2	2,868.7	10.3	33.7	29.7
1940	279.9	2,519.2	9.0	33.8	29.3
1941	276.1	2,451.9	8.9	35.4	31.3
1942	263.3	2,756.3	10.5	36.1	35.2
1943	280.5	2,687.5	9.6	37.4	31.4
1944	286.6	3,108.4	10.8	36.0	31.3
1945	285.9	3.082.1	10.8	35.7	33.4
1946	269.9	2,989.4	11.1	37.1	33.0
1947	291.2	2,855.5	9.8	39.1	31.8
1948	290.4	3,259.7	11.2	35.4	30.4
1949	308.8	3,191.9	10.3	35.6	28.7
1950	309.0	2,172.2	7.0	37.1	26.1

Table 26 A. Chile (Continuation)

Provinces of Concepción and Arauco

Years	Area sown (thousands of hectares)	Production (thousands of quintals)	Yields (quintals per hectare)	% of area sown on total of country	% of production on total of country
1915	35.2	398.5	11.3	7.3	7.7
1916	33.7	385.5	11.4	7.3	7.0
1917	39.0	355.4	9.1	7.6	5.8
1918	33.6	315.2	9.4	6.4	5.0
1919	34.2	332.3	9.7	6.9	6.0
1920	31.9	294.9	9.2	6.6	5.4
1921	38.6	406.0	10.5	7.6	6.4
1922	35.1	355.4	10.1	6.4	5.5
1923	37.3	349.3	9.4	6.2	4.9
1924	34.5	348.7	10.1	5.6	4.6
1925	34.0	320.5	9.4	5.9	4.8
1926	36.9	353.2	9.6	6.3	4.9
1927	39.8	357.4	9.0	6.6	5.6
1928	46.9	436.6	9.3	6.3	5.2
1929	45.1	338.2	7.5	6.5	4.2
1930	44.4	481.2	10.8	6.4	5.3
1931	42.7	334.7	7.8	6.6	5.8
1932	40.2	276.8	6.9	6.5	4.8
1933	34.4	399.4	11.6	5.8	5.1
1934	50.7	438.9	8.6	6.0	4.6
1935	45.7	365.2	8.0	5.3	4.4
1936	41.8	314.7	7.5	5.4	3.6
1937	40.1	261.6	6.5	5.2	3.4
1938	39.7	295.0	7.4	5.2	3.6
1939	41.6	298.2	7.2	5.0	3.1
1940	44.8	294.2	6.6	5.4	3.4
1941	39.0	255.7	6.6	5.0	3.3
1942	36.5	268.1	7.3	5.0	3.4
1943	38.4	322.0	8.4	5.1	3.8
1944	37.0	282.8	7.6	4.6	2.8
1945	37.2	325.9	8.8	4.6	3.5
1946	35.3	287.4	8.1	4.8	3.2
1947	36.7	280.4	7.6	4.9	3.1
1948	41.1	286.7	7.0	5.0	2.7
1949	42.2	361.0	8.6	4.9	3.2
1950	39.7	168.3	4.2	4.8	2.6

Source: Research Centre, United Nations, Economic Commission for Latin America.

Note: Basic data provided by Dirección General de Estadística. For some years either production or area data have been interpolated.

the central provinces, where the greater part of irrigated land is located, cultivation of wheat tends to decrease. It is being replaced by other crops, such as sunflower and alfalfa, the former because of the heavy demand for oil seeds and the facilities extended for cultivation, and the latter in view of the increase in dairy production. The decrease in wheat production is especially noticeable in the province of Concepción, though it has also occurred to a marked degree in Arauco. The former of these affords a typical example of the damage caused by erosion, since the greater part of the land on which wheat was grown is now unfit for cultivation and is therefore being reforested.

In Valdivia, Osorno and Llanquihue, where, as has already been said, wheat production is increasing steadily, the main factor contributing to this result is the expansion of the area on which this crop is grown; furthermore, the yield per hectare is also increasing, chiefly because of the greater use of fertilisers and improved seeds. The following table shows the five-yearly averages compared with those for the rest of the country.

Table 26-B: Wheat yields, in five-year periods

(metric quintals per hectare)

Average	PROVINCES			Other provinces	Whole country
	Concepción and Arauco	Bío-Bío, Malleco, Cautín	Valdivia, Osorno and Llanquihue		
		Sown (thousands of hectares)			
1915-19	35.1	176.9	42.4	242.0	496.4
1925-29	40.5	234.2	78.0	287.9	640.6
1945-49	38.5	289.2	146.0	318.3	792.0
		Harvest (thousands of quintals)			
1915-19	357.4	1,852.9	630.1	2,880.8	5,721.2
1925-29	361.2	2,383.1	1,156.7	3,450.4	7,351.4
1945-49	308.3	3,075.7	2,526.6	3,908.4	9,819.0

Table 26-B: (Continued):

Average	Provinces: Concepción and Arauco	Provinces: Bío-Bío, Malleco, and Cautín	Provinces: Valdivia, Osorno and Llanquihue	Other Provinces	Whole country
		Yield (quintals per hectare)			
1915-19	10.2	10.5	14.9	11.9	11.5
1925-29	9.0	10.2	14.9	12.0	11.5
1945-49	8.0	10.6	17.3	12.2	12.4
		Percentage of hectares sown with respect to the total			
1915-19	7.1	35.6	8.5	48.8	100.0
1925-29	6.3	36.6	12.2	44.9	100.0
1945-49	4.8	36.6	18.4	40.2	100.0

Source: Dirección General de Estadística.
Greater detail on the sowing, harvesting and yields of wheat in the various groups of Provinces can be found in Table 26-A

d) Labour productivity in agriculture. The fact that cultivation involves so many separate stages such as, for instance, the turning up of the soil and the essential tasks performed during both the growing and harvesting seasons of the crop, together with the fact that most of these require a considerable amount of manual labour, or slow combinations of men and oxen, cause low productivity levels for agricultural labour.

However, it cannot be said that as a rule this multiplicity of tasks gives rise to perfection therein. The truth is that out-of-date practices have been maintained because the cost of labour is relatively low. It should be noted, however, that in the cultivation of orchards and vineyards on an industrial scale, requiring a much greater amount of labour, the methods employed are generally good and it would be difficult to introduce any appreciable saving of labour.

Output per man-day varies considerably in accordance with the productivity of the soil and the methods of cultivation. Thus, whereas

/for the

for the whole country an average of 17.1 man-hours is required to produce a metric quintal of wheat, total mechanization and adequate technical methods reduce this figure to 4.9 man-hours in the Osorno area. The average yield of maize for the whole country is 14.4 metric quintals per hectare, for which 28.2 man-hours per metric quintal are required, but in the more productive area the yield is 22.4 metric quintals per hectare and only 15 man-hours per quintal are required. Potato cultivation on the irrigated land of the Central Zone yields 150 metric quintals per hectare and requires 3 man-hours per metric quintal, whereas in the province of Chiloe, where this crop predominates, 90 metric quintals per hectare are produced and 5.3 man-hours are required per quintal, though on the average fewer man-days are required.

In the United States, where the wheat yields are slightly lower than in Chile, only 1.2 to 3.3 man-hours are required to produce one metric quintal of wheat, the average for the whole country being 2.9 man-hours. In Iowa, the production of one metric quintal of maize requires 1.4 man-hours, and in Georgia 14.1 man-hours, the average for the whole country being 3.8 man-hours.

According to expert opinion, the same labour productivity levels can be obtained in Chile as in the most highly developed agricultural countries, not only because ecological conditions favour such results, but because there is also ample room for more intensive use of fertilizers and improved seeds and for the perfectioning of the use of agricultural machinery best adapted to the country's requirements.

c) Livestock production. It is a well-known fact that there are limitations to Chile's capacity to increase the total number of its beef cattle which, it is believed, can only be raised by adequate incentives. Such measures have in fact been put into practice but their operation has been subject to interruptions, due possibly to the high cost to the consumers.

/The most

The most striking deficiency lies in the shortage and poor quality of forage. In addition to the opening up of new pasture lands, as has already been mentioned, a solution has also been sought by increasing the cultivation of root crops. In this connection, reference should be made to the production of sugar beet which serves a dual purpose as will be shown forthwith.

f) Beet and the Production of Sugar. According to the calculations made by the Corporación de Fomento de la Producción (Production Development Corporation), which has studied the establishment of a sugar-beet industry in Chile, some 35,000 to 45,000 hectares of land would have to be sown with this root crop. It has been pointed out by those in favour of this development that not only would the introduction of this crop be justified by the considerable savings which would be effected in foreign exchange, but by other advantages accruing to agriculture in the areas in which beet cultivation would be concentrated. In fact, without depriving other products of land for cultivation, the inclusion of beets in the rotation of crops would be decidedly beneficial on some 240,000 to 280,000 hectares, where at present the cultivation of pulses is alternated with that of wheat, artificial meadows and natural pastures. Furthermore, this practice would improve the yield of these crops and an abundant supply of forage would be forthcoming from the beets and their industrial residue, which in turn would lead to increased production of milk and meat. The increment which would thus be made to wheat, butter and meat production, added to the value of sugar production, would represent an annual total of nearly 2 thousand million pesos.

The gradual establishment of ten mills and the capital required for their development would involve a sum of about 1,020 million pesos,

/of which

of which about 620 million (20 million dollars) would be absorbed by the purchase of industrial and agricultural machinery and equipment for beet transport.

4. Consumption of Agricultural and Livestock Production

It has been shown that whilst making an allowance for exports, domestic consumption of agricultural and livestock products increased by 20.5 per cent between 1925-29 and 1945-47. Furthermore, imports of foodstuffs, beverages and tobacco also increased by 6.7 per cent, as was shown above, involving a total increase of 18.3 per cent in total consumption of foodstuffs, as compared with the 34.1 per cent increase of population. Table 24 shows details of the principal products. It should be remembered that the figures given do not include production data for fruit, vegetables, milk and fish, which seem to have expanded considerably during the past few years. An estimate made by FAO indicates that total consumption of foodstuffs, including the aforesaid items, increased by 27.2 per cent between 1935-39 and 1947. The increment shown on the attached index for this period is 11.7 per cent. A considerable difference is thus revealed between the two sets of data. If it is assumed that this disparity was also recorded between 1925-29 and 1945-49, per capita consumption will have increased by 0.5 per cent instead of decreasing by 11.8 per cent, as appears from the aforesaid table.

SECTION VI. THE DEVELOPMENT OF ENERGY

1. The consumption of energy in Chile presents all the typical aspects of a country in a phase of intense development. Between 1925-29 and 1945-48, the consumption of energy rose 44.6 per cent. Though this increase was not much greater than that of the population, a supply problem has arisen which the country is attempting to solve by using its vast natural resources.

This difficulty has been encountered in two sectors: (1) imports of fuel, which tend to increase beyond the country's capacity to import, as has already been shown; and (2) the limitations both of installed electric power and of the production capacity of the coal mines. These limitations have reduced the latter's capacity to meet the increased demand of the electric power plants, resulting from the increase of total electric power consumption. In order to solve this complex problem created by the expansion of domestic production of energy, Chile is investing capital of domestic origin in the exploitation of petroleum deposits. Moreover, with the aid of foreign loans, it is seeking to expand the electric power capacity and to increase coal production to a much greater extent.

Before examining the resources and possibilities for expansion offered by these three forms of power, the changes of their consumption over the past twenty-five years should be considered, as can be seen from the corresponding Chart and Table.

The highest rate of increase appears to have occurred in consumption of motor spirits, though it shows many appreciable fluctuations. There is, in fact, a sharp decrease in consumption of this fuel directly accounted for by the Second World War, though it was not as drastic as that to which the great depression gave rise. Between 1925-29, and 1945-48, motor spirit consumption increased 230.7 per cent, whereas petroleum consumption only increased 14 per cent. This can be ascribed to the fact that one of the measures enacted in the early 'thirties and designed to restrict foreign exchange expenditures, involved

/the almost

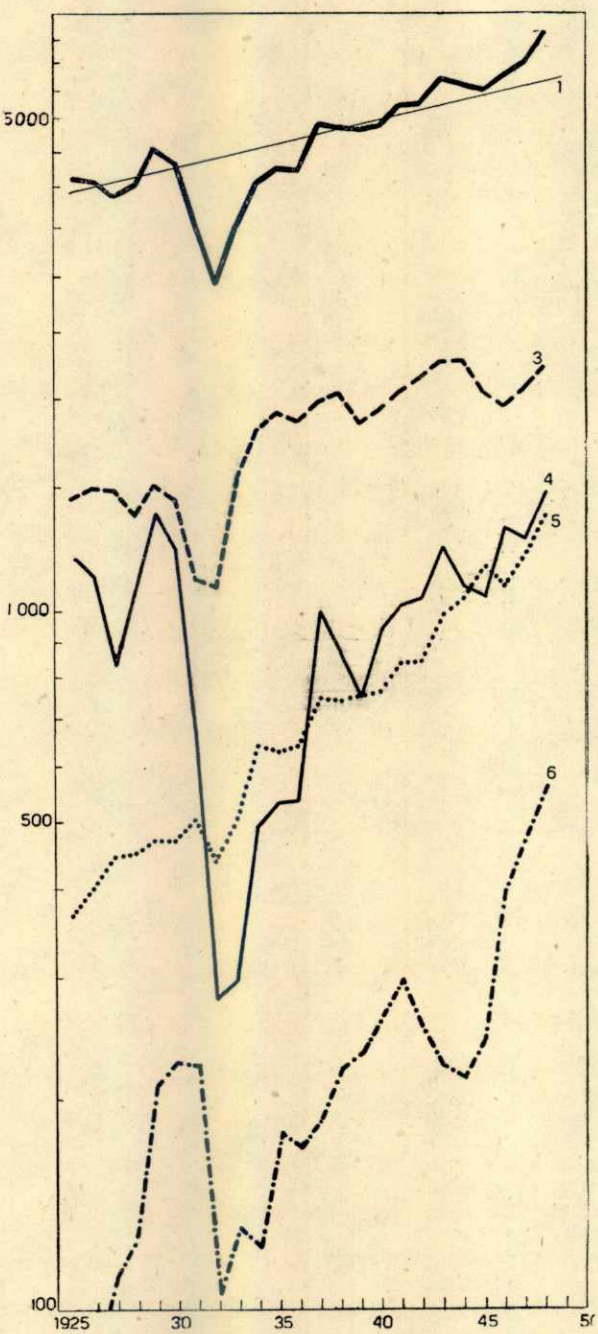
GRAFICO 16

CHILE

CONSUMO DE ENERGIA.

Millones de Kw-h.

Escala logarítmica



1.— Población.
2.— Consumo total.
3.— Carbón.
4.— Petróleo.
5.— Energía hidroeléctrica.
6.— Gasolina.

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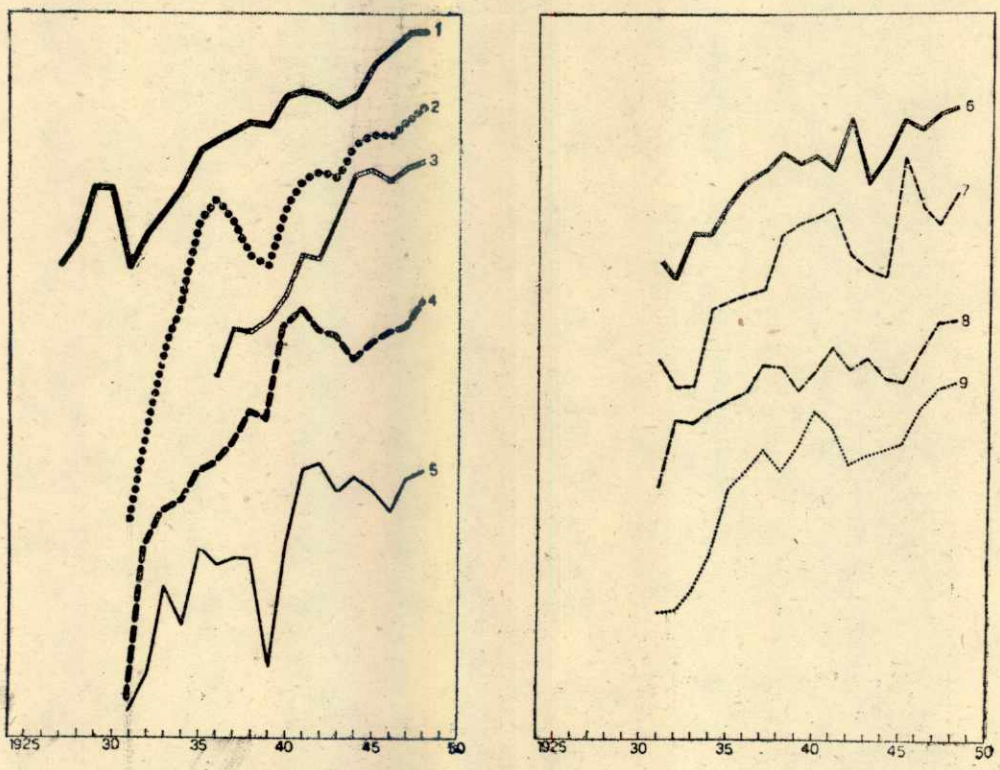
GRAFICO 16-A

CHILE

INDICES DE RENDIMIENTO INDUSTRIAL.

Escala logarítmica



1.— Indice de rendimiento de la industria fabril.
2.— Indice de rendimiento industrial de paños.
3.— Indice de rendimiento industrial de géneros de algodón.
4.— Indice de rendimiento industrial del papel.
5.— Indice de rendimiento industrial de vidrios.
6.— Indice de rendimiento industrial de azúcar refinada.
7.— Indice de rendimiento industrial de jabón bruto.
8.— Indice de rendimiento industrial de productos del tabaco.
9.— Indice de rendimiento industrial de cerveza.

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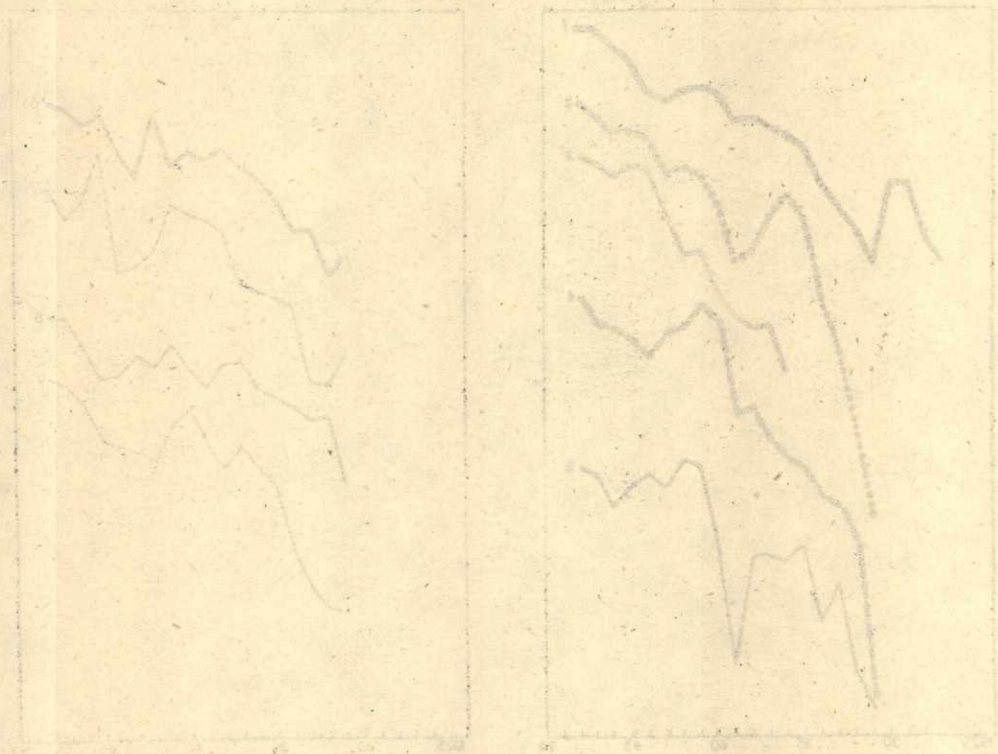


Table 28-A: Chile. Power Consumption

(in millions of kilowatt-hour equivalents)

Years	Hydro electric power	Coal	Fuelwood	Petroleum	Motor spirits	Total	Copper and nitrate mine consumption	Balance
1925	368	1,453	1,000	1,182	101	4,104	852	3,252
1926	405	1,490	1,000	1,115	86	4,096	619	3,477
1927	448	1,482	1,000	835	112	3,877	710	3,167
1928	452	1,376	1,000	1,073	127	4,028	697	3,331
1929	473	1,508	1,000	1,388	210	4,579	856	3,723
1930	473	1,441	1,000	1,208	227	4,349	846	3,503
1931	529	1,100	1,000	663	226	3,518	296	3,222
1932	443	1,080	1,000	280	106	2,909	234	2,765
1933	538	1,538	1,000	297	131	3,504	180	3,324
1934	646	1,808	1,000	494	123	4,071	365	3,706
1935	631	1,909	1,000	532	179	4,251	640	3,611
1936	647	1,876	1,000	537	161	4,221	578	3,643
1937	747	1,989	1,000	993	187	4,916	857	4,059
1938	740	2,044	1,000	862	222	4,868	640	4,228
1939	755	1,850	1,000	750	233	4,588	633	3,955
1940	765	1,937	1,000	933	262	4,897	680	4,217
1941	846	2,048	1,000	1,028	299	5,221	896	4,325
1942	847	2,151	1,000	1,040	252	5,290	899	4,391
1943	985	2,276	1,000	1,228	224	5,713	983	4,730
1944	1,048	2,276	1,000	1,074	215	5,613	957	4,656
1945	1,164	2,049	1,000	1,052	243	5,508	967	4,541
1946	1,090	1,954	1,000	1,310	397	5,751	903	4,848
1947	1,202	2,080	1,000	1,263	476	6,021	949	5,072
1948	1,378	2,234	1,000	1,480	562	6,654	1,006	5,648
1949						6,545a/	922	5,623
1950								5,976
1951								6,147
1952								6,327
1953								6,517
1954								6,718
1955								6,930

Source: Research Centre, United Nations Economic Commission for Latin America.

Notes: This series have been calculated from data supplied by Dirección General de Estadística, Dirección General de Servicios Eléctricos, la Corporación de Fomento, La Empresa Nacional de Electricidad and the mining companies themselves.

Fuelwood consumption has been estimated as constant. An estimate made by the Corporación de Fomento follows the same method, placing the total at 1,500 million kilowatt hours.

The data for 1949 to 1955 are estimates.

a/ Estimated.

the almost full substitution by domestic coal of imported fuel oil. It was for this reason that the output of the Chilean coal mines which in 1928 and 1929, was 1,508,000 and 1,080,000 tons respectively, rose to 2,387,000 tons in 1948. In view of occasional coal shortages, these measures have been attenuated to a certain extent and petroleum consumption has also risen again. Between 1925-29 and 1945-48, coal consumption showed an increase of 42.2 per cent.

Consumption of electric power is also very considerable, though not so large as that of motor spirit, so that an increase over the above-mentioned period of 181.6 per cent was reported. In the following summarised table a somewhat arbitrary estimate was made of power derived from fuel wood, the figure being constant, since no data are available. Reliable sources assume that there has been little change in consumption of this form of fuel [1].

Table 28-B. Chile: Consumption of Energy

(In millions of kilowatt-hours electricity equivalent)

Sources of power	Annual averages			Per cent change in relation to 1925-29	
	1925-29	1945-48	1948	1945-48	1948
Hydro-electricity	429	1,208	1,378	181.6	221.2
Coal	1,462	2,079	2,234	42.2	52.8
Fuel wood	1,000	1,000	1,000	-	-
Petroleum	1,119	1,276	1,480	14.0	32.3
Motor spirits	127	420	562	230.7	342.5
Total	4,137	5,983	6,654	44.6	60.8
Consumption of the copper and nitrate companies	747	956	1,006	28.0	34.7
Other consumers	3,390	5,027	5,648	48.3	66.6

Note: For sources and notes, see table 28-A.

1/ These power consumption data refer to consumption by the country as a whole. Since the purpose in view is the ascertaining of the foreign exchange savings which Chile could make by following the plans drawn for the expansion of domestic production of energy, it was considered advisable to subtract consumption data from that of the mines. In the event of any increase in the latter, it would be amply compensated by increased ore exports. With the exception of a brief period during the early thirties, when a certain amount of coal was used, the power consumption of the mines is basically supplied by petroleum.

/In the

In the figures given for total energy consumption in kilowatt-hours, imported fuel accounted for 83 per cent of the 1945-49 total, which represents the same proportion as in 1925-29.

a) Petroleum production

From the above, it will be gathered that Chile spared no effort in its widespread search for domestic petroleum deposits, until some were finally discovered in the Tierra del Fuego. An anticlinal has recently been located in which 16 production wells were drilled. There are a further 7 anticlinals which have produced non-commercial petroleum or alternatively contain abundant natural gas. Further drillings are being made in another large anticlinal and it is hoped to know within a short time whether or not the new deposit contains petroleum as well as natural gas. Since it is the first of these drillings, it is believed that the reserves of the deposit may be considerable.

It is estimated that supplies for more than ten years are contained in the anticlinal surveyed, this calculation being founded on production levels which it is expected will be attained by 1955. Production for the current year will probably reach a total of 720,000 barrels. It is hoped by 1955 to raise this amount to 3,000,000 barrels. This would represent 67 per cent of estimated consumption for 1950, if the annual increment of 5.6 per cent obtaining heretofore continues.

Further to production from the deposits, it is planned to build a refinery with an annual capacity of 4,200,000 barrels in which progressively decreasing quantities of imported crude oil are to be used, whilst domestic production is to be increased until it reaches the aforesaid 3 million barrels daily, in 1955, ultimately supplying the entire domestic market. In the meantime, the volume of crude petroleum exports to Uruguay should supply Chile with approximately 2 million dollars in the course of the current year.

b) Hydro-electric resources

Chile possesses abundant natural resources for the development of hydro-electric power. Its total reserves are estimated at approximately 10 million kilowatts [1], of which only 4 per cent are being utilised at

1/ This figure was obtained as the result of a theoretical potential of 20 millions, calculated at 50 per cent yield.

present. The plans now being carried out or else under consideration, should increase this proportion to about 6 per cent of total potential by 1955. Chile's per capita potential hydro-electric power is one of the highest in Latin America, that is, 1.8 kilowatts as compared with the per capita world average of 0.68 kilowatts.

These reserves are unevenly distributed throughout the country. In the north, in the mining area, there are hardly any except for the vast project which envisages draining Lake Titicaca towards the Pacific and developing its power jointly with Bolivia and Peru. (This source has not been included in the calculation of reserves). Of the estimated 10 million kilowatts of reserves, it is believed that 2.5 million kilowatts are available in the industrial central zone, where the highest density of population in the country occurs. Of these latter reserves, only about 14 per cent have been harnessed. Of the remainder, about 3.5 million kilowatts are in the south central area, where only 0.5 per cent are used. In the extreme south, there are some 4 million kilowatts which have not been tapped at all.

The power installed in the country as a whole and the schemes being carried out are indicated in Table 29.

Table 29. Electric power capacity installed in Chile, not including the mining companies (as at end of 1949)

(Kilowatts)

	In operation		Under construction a/	Total		Grand Total
	Hydro-electric	Thermic	Hydro-electric	Hydro-electric	Thermic	
Endesa (organ of the Corporación de Fomento	131,415	1,585	170,385	301,800	1,585	303,385
Compañía Chilena de Electricidad	90,430	90,800	20,000 b/	110,430	90,800	201,230
Other Public Utility Companies	17,000	35,000	2,000	19,000	35,000	54,500
Industrial enterprises	23,000	35,500	7,000	30,000	35,900	65,900
Totals	261,845	163,785	199,385	461,230	163,785	625,015

Source: Research Centre, United Nations Economic Commission for Latin America.

a/ At present there are no thermic plants of any importance under construction, but some are under consideration which have not been included in the Table.

b/ This power plant is still under consideration, but the execution of the plan is almost certain.

/As will

As will be seen from this table, whereas about 38 per cent of the total power available is of thermic origin, once the plans presently under way are concluded, this proportion will be reduced to 26 per cent. It is evident that the hydro-electric potential should be developed to the fullest extent possible, but the capacity of the thermic plants must also be increased, since demand is highly seasonal. Peak points are reached in the winter when the flow of water in the rivers of Central Chile is generally low. Furthermore, the investment per unit of power in hydro-electric plants is much higher than that of thermic plants. The most economical solution is to operate the hydro-electric power plants on a basis of reasonable rate of capacity throughout most of the year, combined with power supplied by the thermic plants, (which operate for only a few months of the year), in order to meet peak seasonal demand.

Chile's plan to expand its supplies of hydro-electric power was drawn up some time ago by Chilean experts, and their schemes are now being carried out as a part of the general plan of development executed by the Corporación de Fomento, with the aid of foreign loans.

These plans are far-reaching and spread over three periods. The first of these has now begun, and includes the building of separate generating plants and distributing systems in the geographic regions selected, for which 8 centres were chosen. These facilities have been designed to furnish ample electric power supplies for these centres and meet any increase of consumption therein. In the second and third periods of development, these separate systems will be linked up with one another in order to supply deficiencies of hydro-electric power occurring in any one region and to meet the seasonal fluctuations of demand. For this purpose several lakes will be maintained as natural dams, artificial reservoirs will also be built and use will be made of the differences in the volume of water of the various rivers, caused by rainfall and snowfall variations at different latitudes. The plans of Endesa (Empresa Nacional de Electricidad, an affiliate of the Corporación de Foment) range over a period up to 1960 and include schemes for the building of plants of 737,000 kilowatts capacity; that is to say, they will provide an

/increase of

increase of 437,000 over the 131,000 kilowatts of present capacity and the 170,000 kilowatts capacity that is to be derived from the plants now under construction.

The project of electrification of the State railways as far as Chillán is closely bound to these schemes. This project should improve present transport facilities, lowering their costs of production, and assisting in reducing competition from motor transport, which require six times more foreign exchange than do electric trains. Furthermore, it would represent an annual savings of some 130,000 tons of coal, which could then be more profitably consumed for other purposes or, alternatively, exported.

c) Coal mining

Until a short time ago, it was estimated that there were only 80 million tons of good coal reserves in Chile, located principally in the Gulf of Arauco. Cautious estimates based on the results of recent diamond drillings 1/ suggest, however, that this amount might well be assessed at 500 million tons. The coal is considered to be of very good quality, its heat value being 7,800 calories with only 4 to 5 per cent ash content and 1 per cent sulphur content.

Chile has progressively developed its coal production since about the middle of the 19th century. Early in the present century, large quantities of foreign coal were imported, the peak year being 1908, when 1,600,000 tons entered the country. Since then, they have been gradually reduced so that, at present, almost no coal enters the country from abroad.

1/ Diamond drillings completed in 1949 by the Caja de Crédito Minero, which are located 50 miles to the south of the Lota and the Schwager mines, cut through the same layers and formations as are worked by these two companies. No account has been taken of the 5,000 million tons of lignites and sub-bituminous coal of variable grades found throughout the country as reserves.

/The production

The production capacity of mines now being worked is estimated at 2,300,000 tons annually, of which 90 per cent yields good coke in mixtures of 10 to 20 per cent of special imported coals. Productivity in coal mining is nevertheless low, attaining an average of 400 kilogrammes per man-day as against 900 in Mexico and 2,500 in the United States. In the most modern of Chile's mines, this can be accounted for by geological obstacles such as the breaks and fissures in the veins, which make it impossible to use heavy mechanical equipment. On the other hand, in another mine, where the deposit can be worked more easily, adequate mechanization is lacking. A survey made by United States experts estimated that productivity per man-day could be raised to 3,000 kilogrammes by the investment of 20 dollars per ton mined. The direct cost of such an increase of production would be about 150 pesos per ton, that is to say, 2.50 U.S. dollars at the rate of 60 pesos per dollar, to which a further 3.00 dollars per ton would have to be added to cover services accruing from the investment. The export price of coal is about 7.50 dollars per ton. These figures point to brighter prospects for a country such as Chile, which has to import foodstuffs from the Argentine but which, in its turn, could supply Argentina with a part of the latter's large coal requirements.

According to the experts, if Chile were to seek means of putting these plans into action, the profits accruing thereby to its balance of payments would enable the country to make a considerable reduction in the prevailing high price of coal. At present, however, the only investments envisaged consist of a loan of 5 million dollars for which application has been made to an international credit organisation, for the purpose of meeting the demand of the iron and steel plant at Huachipato and to compensate for the abandoning of certain deposits which, in view of present productive technique, are uneconomic.

Power development plans and the possible savings of foreign exchange

As has already been pointed out, Chile is engaged in increasing its capacity to produce energy. With this purpose in view, investments have been made in petroleum production and in the building of a refinery. It has been estimated that the expenses payable in dollars arising from

/these investments

these investments, will amount to 41.5 million between 1942 and the end of 1955. It should be added that these investments are being made wholly with the country's own resources. The dollar expenses involved by investments for the purpose of increasing electric power will absorb about 33 million dollars, until the end of 1955. And lastly, an additional 5 million dollars is required in order to make improvements in coal mining methods and production.

Thus, Chile is making use of its own foreign exchange availabilities and it must, furthermore, meet the services accruing from foreign loans. The foreign exchange savings which the country can make by domestic production of its energy requirements, thus dispensing with recourse to fuel imports, will be absorbed by these items.

A partial indication of the net savings which can be made in foreign exchange can be had from an examination of the petroleum situation. The following Table, containing calculations based on data supplied by the Corporación de Fomento, was prepared in order to ascertain, first, the extent to which Chile would have to increase imports of petroleum and its by-products if domestic consumption, calculated at current prices, were to continue rising at the annual rate of 5.6 per cent, that is, the recorded average for the past twenty-five years [1]. Secondly, from this table, it is possible to estimate the value, also at current prices, of domestic petroleum output and the dollar expenditure involved by such production. Since domestic production will be insufficient to meet domestic demand, the value of the imports required to fill the supply gap has been added to the table. Thus, the difference between Chile's foreign exchange expenditures, were it compelled to import the whole of its petroleum consumption, and the country's probable foreign exchange expenditure for this commodity, as outlined above, represents the net savings in dollars until 1955, when, according to these estimates, the savings would amount to 17.6 million dollars. It should be kept in mind, however, that this dollar expenditure constitutes the Corporacion's investment in the development of petroleum production and the building of

1/ Petroleum required by the mining companies has been excluded for the reasons set forth above.

the refinery. The total amount thus invested is consequently far smaller than would be the cost to Chile of importing all its petroleum requirements, had it not developed domestic production. Moreover, this investment will allow the country to continue petroleum production without incurring expenses other than current production costs, until the wells already drilled have been depleted. Finally, it would be enabled to continue refining imported petroleum, should there be no further supplies of domestic petroleum.

Table 30. Estimated dollar savings resulting from domestic production of petroleum

(in thousands of dollars)

Years	Value of total petrol consumption a/	Expenditure on petroleum imports b/	Expenditure on investment for production and refining of petroleum c/	Total expenditure (d) = (b) + (c)	Net savings (a)-(d)
1950	18,720	16,720	4,600	21,320	-2,600
1951	19,800	16,300	7,400	23,700	-3,900
1952	20,880	14,940	7,400	22,340	-1,460
1953	22,680	8,800	7,400	16,200	6,480
1954	25,056	9,216	4,900	14,116	10,940
1955	27,360	9,360	4,600	13,960	13,400
Total	134,496	75,336	41,500 d/	116,836	17,600

a/ At the average price of 36 U.S. dollares per metric ton, and with allowance made for a 5.6 per cent cumulative annual increase of consumption.

b/ Total domestic production, or receipts from crude oil exports have been subtracted until a refinery is built in Chile.

c/ These are not considered as services of the debt since the amounts invested are drawn from foreign exchange receipts accruing from usual exports.

d/ Including 5.2 million dollars borrowed prior to 1950.

It should also be noted that if the plans of the Corporación materialize, as from 1953, the dollar expenditure arising from meeting expanding petroleum demand will be lower than that involved by total 1950 imports of this product.

/The dollar savings

The dollar savings which it is hoped to effect by means of investment in electric power and coal mining are estimated in the table below.

Table 31. Estimated dollar savings resulting from electric power and coal development
(thousands of dollars)

Years	Value of the increment to consumption (a)	Financial services arising from investments to increase production (b)	Dollar savings (c) = (a) - (b)
1950	1,305.0	476.6	828.4
1951	2,685.0	953.2	1,731.8
1952	4,140.0	1,428.9	2,711.1
1953	5,685.0	1,905.2	3,779.8
1954	7,305.0	2,381.5	4,923.5
1955	8,985.0	2,748.4	6,236.6
Totals	30,105.0	9,893.8	20,211.2

The problem includes a hypothetical estimate of the dollar expenditure involved assuming that Chile would import the necessary fuels to meet increasing demand. On the other hand, an estimate is also made for the financial services, in dollars, Chile will have to pay abroad in connection with the loans it has received in order to produce the additional quantity of hydro-electricity and coal.

The financial services will amount to a total of 9,193,800 dollars between 1950 and 1955, which undoubtedly will prove to be a heavy charge on the balance of payments. However, if Chile were to import energy in order to meet the increase of demand rather than expand its own production of these items, the corresponding foreign exchange would have been at least 30,105,000 dollars. The final results are shown in the Table below:

Table 32. Total estimated dollar savings

Years	Value of petroleum consumption and the increment to electric power and coal (a)	Expenses incurred by imports, investments and services (b)	Total dollar savings (c) = (a) - (b)
	(in thousands of dollars)		
1950	20,025.0	21,796.6	- 1,771.6
1951	22,485.0	24,653.2	- 2,168.2
1952	25,020.0	23,768.9	1,251.1
1953	28,365.0	18,105.2	10,259.8
1954	32,361.0	16,497.5	15,863.5
1955	36,345.0	16,708.4	19,636.6
Totals	164,601.0	126,729.8	37,871.2

/The total

The total value of petroleum consumption, added to that of the increment to electric power and coal consumption, for the period under analysis, would amount to 164,601,000 dollars, whereas that of the dollar expenditure would be 126,729.8 dollars, thus giving rise to a hypothetical saving of 37,871,200 dollars, were the increased consumption of energy to be supplied from imports.

It would be more useful to calculate the amount of these savings in relation to current import prices of energy, than to ascertain what the cost of the increase to power consumption would have been, were it to be supplied by imports. It has been estimated that 1950 petroleum imports will amount to some 18,720,000 dollars. The column under b/ of this table reveals that until 1952, dollar expenditure would surpass this total, but that by 1953, this expenditure would have decreased to 16,708,400 dollars. In other words, despite increased consumption, Chile would be enabled to allocate a smaller amount of foreign exchange to this item on its balance of payments.

In making these calculations, only dollar expenditure, and the prospective savings therein, have been taken into account. No data are available as regards the expenditure which would be incurred within the country. However, even if the unit cost of domestic energy were greater than that of foreign origin, Chile still would not possess the means of increasing imports thereof, unless some very unforeseen factor were drastically to alter the country's capacity to import.

VII. THE DEVELOPMENT OF INDUSTRY

The significance of the industrialization in Chile.

Much of interest can be learned from studying Chile's industrial development during the past twenty-five years. Its examination reveals how a country possessing little capital for investment and having limited industrial experience before the great depression, was able to solve many of its problems despite unfavourable factors. Among these may be cited the adverse conditions brought about by the depression itself, secondly, the import difficulties prevailing during the Second World War and, lastly, the present disequilibrium in the balance of payments, all of which compel the country to restrict its foreign exchange expenditure or, alternatively, to stimulate those exports that best provide these availabilities.

It is evident that when manufacturing activity is thus fostered in order to meet situations brought about by unforeseen circumstances , it cannot conform to a pre-established plan which, moreover, does not seem to have been drawn up in any of the Latin American countries. However, it is no less true that its ten years of experience have led the Corporación de Fomento to concentrate its planning to certain basic projects which are being put into effect. Private enterprise, in turn, has spread out into many new fields of activity in which it is acquitting itself well, even though they do not respond to any overall plan. Naturally, such enterprises direct their productive efforts to manufacturing goods according to their relative scarcity whenever the presence of several favourable factors is conducive to such endeavour. Scarcity becomes relatively greatest in those goods where the lack of foreign exchange has reduced imports. One must not, therefore, lose sight of the possibility that the country's limited savings may be invested in the production of goods which are perhaps not the most essential, in regard to the basic needs of the population.

On the other hand, inflation and its adverse effects on the distribution of income may also encourage the production of certain types of goods which do not fully meet the criterion of social usefulness.

It is, in fact, very difficult to ascertain the extent in which such

/developments take

developments take place since manufacturing statistics are inadequate for the purposes. The last Industrial Census was taken in 1937 and its data doubtless differ widely from actual fact. Unfortunately, the results of the 1943 Economic Census have not been published.

Nevertheless, indices appearing elsewhere in this report, corroborate the fact that in Chile a remarkable expansion of manufacturing production has taken place, and that its contribution to the supply of goods has become considerable. In a country where low incomes prevent any substantial savings and where the market is limited, it could hardly be expected that in the short space of time which has elapsed since the end of the great depression, Chilean manufacturing could take on the general aspect of its counterparts in fully-developed countries. The average plants are small, and little progress has been made in mechanization, with the result that productivity per worker is relatively low. A much greater volume of investment would have been required for larger establishments. The question thus arises as to whether these small establishments do not, after all, present the best means of completing the first stage of industrial development since their investment per worker is well within the reach of the country's possibilities. In order to increase per capita investment and raise productivity to a level approaching that of the more developed countries, a considerably greater amount of real capital would be required, and this the country is not in a position to invest.

Meanwhile, both management and labor are acquiring technical experience in manufacturing and this factor will subsequently prove of inestimable value in subsequent development. At the same time larger capital resources are being accumulated from profits, enabling Chilean industry to develop progressively both as to the variety as well as the volume of its output, and commensurately with capital availabilities and the size of the market.

So much for private enterprise. The Corporación, on the other hand, after having extended its operations over a number of different fields, has now decided to concentrate its efforts precisely on the basic projects indicated above. Their nature requires a high degree of investment per worker, and to this end foreign financial assistance has been obtained. Specifically, it is sought to produce low cost power and a sufficient volume

/of iron and

of iron and steel so that its exports would allow the mill to approach optimum size and thereby reduce the unit costs of these basic products. These projects allowed for no short-term considerations which would have impaired the effectiveness of the effort that was being undertaken.

The development of iron and steel manufacturing is doubly significant in Chile, not only from the standpoint of establishing of a basic industry in the country but because it is one of the few undertakings in Latin America which have been founded with a view to exporting to neighbouring countries. The placing of Chilean iron and steel on these markets will, in fact, constitute a significant achievement since this country, like others which despite their relatively small population have favourable industrialization prospects, is hampered by the small size of the domestic market. The possibility to export manufactures instead of raw materials seems to be at least as important for Chile's economic development as a policy from restricting imports.

Chilean industry, its growth, aspects and possibilities, offer a wide field for investigation.

For the time being, a brief though somewhat incomplete survey of its principal branches will be undertaken, which should suffice to indicate the scope of the survey to be made.

Iron and Steel Industry

a) Favourable conditions for the manufacturing of iron and steel.

During 1925-29, just prior to the great depression, Chile's yearly iron and steel consumption had reached 158,000 tons, or in other words, a per capita average of 39 kilogrammes. The depression reduced consumption drastically and it was some time before it rose again, failing, however, to attain the former high level. Thus, in 1945-49, total consumption amounted to 138,000 tons, whilst the per capita average was 25 kilogrammes, that is, a decrease of 36 per cent.

In view of this relatively low consumption of iron and steel, a doubt logically arises as to whether the establishment of an iron and steel factory at Huachipato, with its modern blast furnace and an annual production capacity of 250,000 tons, might not have been somewhat premature, and whether it would not have been more advisable to await

/the expansion

the expansion of consumption before taking such a significant decision.

Problems of this sort must be considered from the long-range point of view. Total consumption of iron and steel in Chile was reduced because the country's limited capacity to import prevent it from consuming a larger volume of such products. Its only alternative is to produce more at home in order to increase consumption of iron and steel without adding to the pressure upon its balance of payments.

It would appear that conditions for the production of iron and steel in Chile are especially favourable. The country's known iron deposits amount to more than 120 million tons of ore, and it is estimated that probable reserves comprise at least 800 million tons of high grade ore, with a minimum content of at least 50 per cent.

In the northern part of the country, the Bethlehem Steel Corporation has its mines at "El Tofo". Its annual production, exported mainly to the United States, is about 1.4 million tons of high-grade ore, with a content of 54 to 59 per cent. By special agreement, the necessary ore is delivered at cost price to the blast furnaces at Corral, in the Province of Valdivia, and the same arrangement is to be adopted at Huachipato. These enterprises benefit therefore by ore deliveries at prices which only large-scale mining, employing advanced methods, makes possible. The ore contains very few impurities so that despite the low cost of iron ore, its transport to the United States is economic.

The blast furnaces at Corral burn charcoal, of which fuel there would appear to be adequate reserves for a long time. The new mill at Huachipato is to use coke obtained by a mixture of 80 to 90 per cent of Chilean coal and 10 to 20 per cent of high-grade coking coal. Chilean reserves of metallurgic coal are estimated at 500 to 600 million tons. However, they consist of underwater coal fields and the many breaks are responsible for high production costs.

The third important raw material required, namely limestone, is found in large quantities throughout the country, and the Huachipato mill has installed quarrying and mechanical loading facilities on Guarello Island, at Madre de Dios, 700 miles south of Huachipato.

/b) Production and

b) Production and consumption

Iron and steel production had already been started in Chile before the establishment of the Huachipato plant. Its output, however, was relatively small, not amounting to more than 46,000 tons, which accounted for only 34 per cent of total consumption. The most important mill was located at Corral, having been built in 1906, by a French company. This enterprise was subsequently compelled to shut down because it was too large at that time for the small size of the Chilean market and because the direct use of fuel wood instead of coke proved uneconomical. The plant was rebuilt by Chilean engineers, who adapted the equipment so as to burn charcoal. With the exception of very few and quite brief interruptions, it has been operating on this basis since 1936.

There are three other establishments in Santiago, smelting and rolling scrap-iron. They all have one feature in common, that of being too small as to permit low-cost production, though during the war their services were invaluable. Owing to the fact that by now their plant and equipment are almost entirely amortized, they can operate practically at operating cost prices. Therefore, they no longer require foreign exchange with which to repay capital services, or the amortization of the equipment, in order to continue working at their present rate.

Since domestic production can meet only a small amount of total domestic demand, the greater part of total domestic consumption must be supplied by imports, as may be seen from Table 30.

In view of the fact that production has already started at the Huachipato plant, the following table is of interest since it contains a breakdown of production. It is incomplete, however, due to the lack of data for rails and other similar goods which for the time being have not been included in the production programme at Huachipato. With the exception of pig iron and tin-plate, all items show decreases in 1948 as compared with the years preceding the great depression. It should be recalled, however, that when the United States export controls on these products were lifted in the post war period, Chile was beginning

/to experience

Table 30. Sources of Chilean iron and steel consumption

(thousands of tons)

Years	Domestic Production a/	Imports	Total
1925	-	161.1	161.1
1926	-	144.2	144.2
1927	-	132.5	132.5
1928	-	149.6	149.6
1929	-	196.6	196.6
1930	-	220.5	220.5
1931	-	91.3	91.3
1932	-	77.7	77.7
1933	-	38.6	38.6
1934	-	60.1	60.1
1935	10.0	101.0	111.0
1936	12.0	110.0	122.0
1937	14.5	113.6	128.1
1938	18.0	101.8	119.8
1939	22.0	88.4	110.4
1940	23.0	111.5	134.5
1941	22.0	80.3	102.3
1942	26.1	54.8	80.9
1943	21.5	65.3	86.8
1944	24.7	85.1	109.8
1945	27.7	100.0	127.7
1946	32.5	98.3	130.8
1947	36.0	109.0	145.0
1948	39.6	107.9	147.5

Source: Research Centre, United Nations Economic Comission for Latin America.

a/ Does not include output of various small "package mills" which roll packages of steel at welding heat and which operated during the early thirties.

Table 31. Consumption of some iron and steel products in Chile

(Metric tons) b/

Years	Pig iron c/	Foundry pipes a/	Bars, hoops, structural steel and strip rods c/	Cables and wire a/	Black plate a/	Galvanized Plate a/	Tin Plate a/	Steel pipes and spare parts a/
1925	6,740	e/	34,768	13.403	21,308	6,239	6,442	17,408
1926	4,742	e/	26,872	11.230	11,820	6,997	8,043	17,956
1927	6,392	e/	41,279	13,867	21,985	5,423	5,486	11,677
1928	6,744	e/	40,216	16,981	25,461	2,334	6,776	19,254
1929	7,809	13,359	81,171	25,859	33,010	2,190	8,563	13,554
1930	5,839	13,323	77,399	17,713	32,382	2,866	9,725	28,119
1931	2,450	5,720	35,231	7,798	14,489	1,636	4,100	13,084
1932	912	2,749	9,106	5,930	4,907	529	2,089	1,269
1933	1,155	3,173	11,591	7,561	4,378	428	2,423	2,108
1934	597	901	30,372	10,553	7,252	433	4,695	3,900
1935	2,646	1,793	45,244	16,266	10,753	901	5,826	7,770
1936	5,049	4,910	39,788	13,299	14,261	856	7,440	11,108
1937	13,931	3,436	45,940	16,901	17,408	701	7,877	12,383
1938	6,307	3,308	39,785	12,949	14,273	938	5,813	8,966
1939	6,165	3,189	51,999	19,167	19,357	936	8,998	8,744
1940	7,907	3,780	37,515	18,340	21,436	804	11,329	8,109
1941	8,865	1,827	32,605	16,572	12,131	353	8.467	9,720
1942	5,951	3,324	36,069	6,311	6,193	699	9,511	5,767
1943	10,752	5,503	41,659	7,535	8,835	264	9,102	3,405
1944	8,175	4,965	54,580	18,354	13,359	1,259	4,624	5,640
1945	8,303	1,307	49,776	7,494	11,342	724	7,329	6,101
1946	8,301	2,965	64,662	18,065	11,870	1,778	5,614	7,640
1947	7,493	935	63,571 d/	13,725	15,232	685	9,166	8,203
1948	7,946	4,983		14,069	19,420	800	12,837	10,325

Source: Research Centre, Economic Commission for Latin America, United Nations.

a/ Imports only; whenever there was any domestic production, it was included as primary output elsewhere.

b/ Annual data, irrespective of whether or not these goods were consumed. In the latter case, they would be added to data for the subsequent year.

c/ Imports, plus domestic production.

d/ Includes 4,180 tons of "palanquilla" imported for re-rolling.

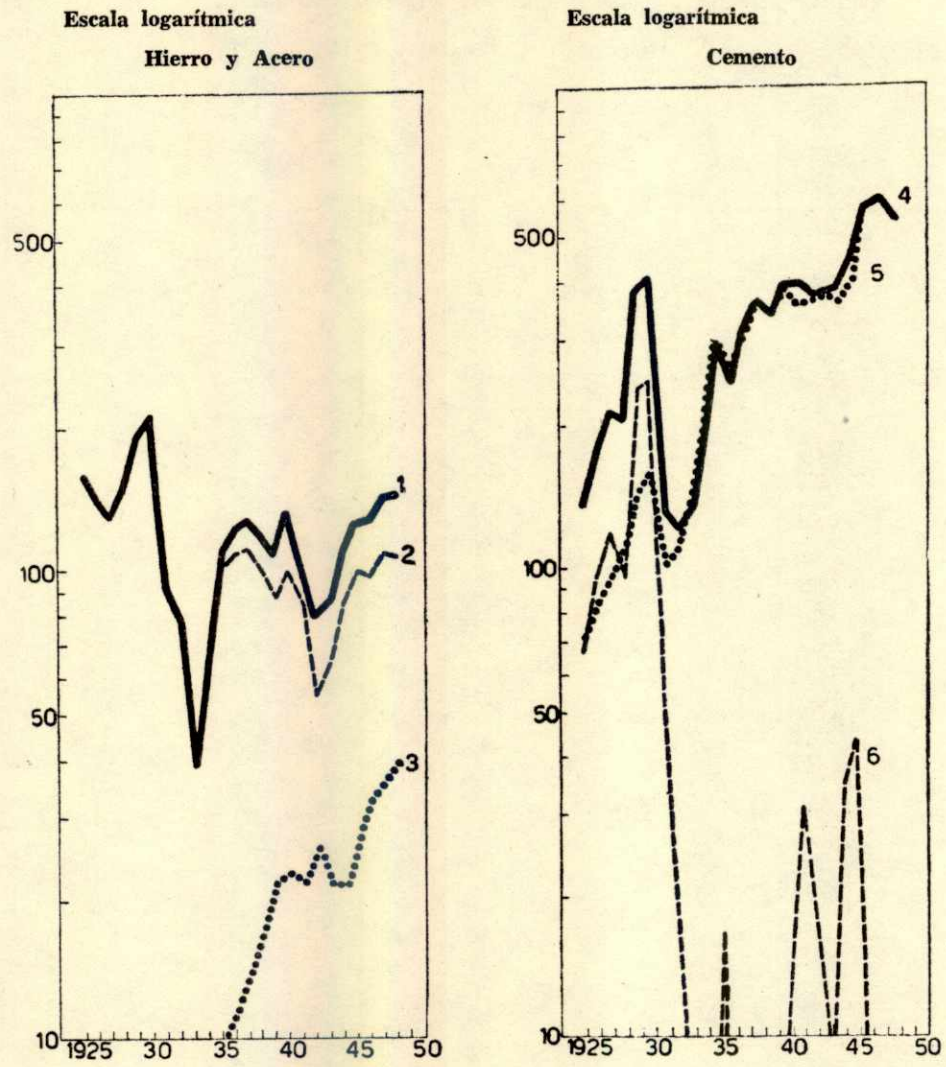
e/ Included under other headings.

GRAFICO 16-A

CHILE

PRODUCCION, IMPORTACION Y CONSUMO DE HIERRO, ACERO Y CEMENTO.

Miles de toneladas.



1.— Consumo de acero.
2.— Importación de hierro y acero.
3.— Producción de hierro y acero.
4.— Consumo de cemento.
5.— Producción de cemento.
6.— Importación de cemento.

Centro de Investigaciones, Comisión Económica para América Latina.

to experience exchange shortages, and therefore it could not be said that imports fully corresponded to effective demand.

c) The iron and steel mill at Huachipato

The iron and steel factory at Huachipato, belonging to the Compañía Acero del Pacífico, constitutes one of the outstanding achievements of the Corporación de Fomento. The plans were carried out with financial and technical assistance from the United States.

The building of the establishment is practically completed and some sections had already begun operations by the end of 1949. It is expected that by 1952, the whole plant will be in full operation. If the mill's output is estimated at 87 per cent of capacity, domestic production for 1952, including that of other factories operating at present, should be about 244,896 tons, of which 163,700 will be absorbed on the home market, and the remaining 81,196 tons would have to be exported. According to these data, it should be possible to expand the quantity of iron and steel directed to the domestic market in the following manner:

Years	Domestic production	Imports	Total consumption
1948	39,600	83,005	122,605
1952	137,992	25,780	163,702

Thus, in 1952, it will still be necessary to import about 25,000 tons of certain articles which, because of their limited consumption, it would not be economic to produce in the country [1/].

The primary reason for establishing this iron and steel mill was to be able to increase consumption of these goods without involving foreign exchange expenditures. It is hoped that later it will be possible to attain net foreign exchange earnings. The relative data should be observed. It would be advisable, in the first place to ascertain what additional expenditure in foreign exchange Chile would have to effect if the increment to consumption estimated for 1952 were to be supplied by imports in addition to the output of the existing small mills. It

1/ This estimate is in addition to rails and other railway material which are not to be manufactured at Huachipato and which were not included here except in the first Table.

/will be

will be found that the cost of such imports would be about 15 million dollars, as compared with the 10.6 million dollars spent in 1948.

Furthermore, by means of the Huachipato output, Chile will be enabled to reduce the cost of its 1952 imports by 3.4 million dollars to which must be added 7.6 million dollars for miscellaneous expenditures abroad incurred by the mill in order to achieve its production goal. By totalling these items, it is found that the aggregate dollar expenditure required to meet domestic demand for iron and steel goods amounts to 11 million dollars, whereas direct imports of such goods would mean an expenditure of 15 million dollars, as was pointed out before.

The example chosen illustrates the least favourable of the various possibilities, and does not take into account the 80,000 ton margin of exports which it is hoped to place abroad. If these exports can be made, a marked change will occur in the foreign exchange position, since it is estimated that these exports should provide Chile with 10.6 million dollars. However, since the production of this increment to domestic iron and steel output involves an increase in foreign exchange expenditure from 7.8 millions to 8.9 millions, the net receipts from exports would be 9.3 million dollars. If this amount is subtracted from the 11 million dollars which would have to be paid for total iron and steel supplies in 1952, a difference of 1.7 million dollars is obtained. This, then, would correspond to the additional expenditure payable by Chile for the means of increasing consumption of iron and steel by 34,700 tons between 1948 and 1952. It should be kept in mind that were such an increment to consumption to be obtained directly through imports, an expenditure of 15 million dollars in foreign exchange would be involved.

The latter is, of course, the most favourable prospect as regards the development of iron and steel. Yet if no such exports were feasible, Chile would still be able to increase domestic consumption of iron and steel by means of a much smaller dollar expenditure than could be accomplished otherwise.

Probable production and consumption data have been included in the following table, in which the 45,931 tons of iron and steel goods

/produced by

produced by the small mills in 1948, are added to the Huachipato output. It is expected that the present level of production of these small enterprises will be maintained in 1952.

Table 32. Estimated iron and steel production and consumption in 1952

Products	Production capacity	Exports	Consumption of domestic origin	Imports a/	Total domestic consumption
Pig-iron	32,530	20,794	11,736	-	11,736
Blooms	35,000	35,000	-	-	-
Strip-rods, bars, iron hoops and structural steel	118,369	58,286	60,083	11,000	71,083
Wire b/	21,550	-	21,550	830	22,380
Black plate	38,500	17,879	20,621	2,500	23,121
Galvanised plate	7,500	68	7,432	-	7,432
Tin-plate	15,000	-	15,000	2,039	17,039
Steel pipes	6,000	4,500	1,500	9,411	10,911
Totals	274,449	136,527	137,922	25,780	163,702

Source: Research Centre, United Nations Economic Commission for Latin America.

a/ Imports refer to items for which demand in Chile is too small for their production to be economical in the country.

b/ It is assumed that at this period a wire factory, built by a private company, and utilizing steel from Huachipato, will be in production.

The dollar values have been calculated as follows:

Table 33.

Products	Production for domestic consumption		Exports		Imports	
	Average price in dollars	Value in thousand dollars	Average price in dollars	Value in thousand dollars	Average price in dollars	Value thous dolla
Pig-iron	48	563	33	686	-	-
Blooms	-	-	45	1,575	-	-
Bars, iron whoops and structural steel	115	6,909	100	5,829	125	1,375
Wire	169	3,641	-	-	179	149
Black plate	130	2,681	115	2,056	140	350
Galvanised plate	150	1,115	135	9	-	-
Tin-plate	171	2,565	-	-	171	348
Steel pipes	118	177	103	465	128	1,184
Totals		17,652		10,619		3,406

Source: Research Centre, United Nations Economic Commission for Latin America.

It is estimated that the total investment at Huachipato amounts to 87.2 million dollars, of which 61 million consisted of foreign exchange expenditure and the rest of Chilean currency. Of the amount in foreign exchange, 48 million dollars correspond to credits granted by the Export-Import Bank. The annual financial services resulting from these loans are equivalent to 3.5 millions, thus making them an appreciable proportion of the 7.6 million dollar expenditure which, as has already been shown, Chile must spend abroad in order to be able to develop its steel industry.

It is proposed to make Huachipato the centre of an industrial area with numerous connected industries. Among these may be cited (a) a wire factory, in which Chilean and Belgian capital is associated; (b) an electrolythic zinc refinery running on electric power supplied by the Corporación de Fomento, on the same network as Huachipato, which will use Chilean zinc concentrates; it will sell its output to the steel mill for galvanising 2,000 tons of metal annually; (c) a factory for the production of rolling stock, and structural parts for railways, with an annual capacity of up to 6,500 tons of steel; (d) a plant for the production of pipes and other fixtures intended particularly for the building trade; (e) an organic chemicals factory, which will make use of the tar and liquid ammonia obtained at the coking plant; (f) a clinker cement plant; (g) the expansion of an existing calcium-carbide and ferro-alloy factory, with a view to supplying the steel mill and adding to present-day exports, which in 1948 amounted to 594,000 dollars.

The Cement Industry

Contrarily to what has occurred in the case of iron and steel consumption, which has not yet been able to surpass its pre-depression levels, cement consumption attained in 1945-48 an average of about 533,300 tons, or an increase of 426.4 per cent in relation to 1925-29. Similarly, *per capita* consumption has risen from 55.5 kilogrammes to 98.7 kilogrammes over this period. This is due to the fact that Chile has considerable facilities for the production of cement at a cost which enables domestic production to undersell the imported cement. These low production costs

/are not

are not only accounted for by the very favourable natural conditions prevailing, but also by the size and efficiency of the factory at El Melón, which was built early in the century. Production capacity of this plant is estimated at 400,000 tons annually, placing it among the largest in the world. In the United States, the average plant capacity is 258,000 tons annually.

The output of the El Melón plant was insufficient to meet the growing increase of consumption, leading the Corporación de Fomento to establish another factory at Juan Soldado with a yearly capacity of 200,000 tons. This factory has since been transferred into private ownership and it remains to be seen now whether certain technical and administrative difficulties can be removed which formerly contributed to a rather unsatisfactory level of productivity. Half of the factory's capacity is to be used for the manufacture of phosphate fertilizers and the other half for cement.

All the cement consumed in Chile is of domestic origin. The expansion of production capacity which has been planned, together with that of clinker cement production, based on the Huachipato clinker, will amply suffice to meet the normal increase of demand which has obtained during the past few years.

The processing of copper

During the war, with the assistance of the Government, the first steps were taken to establish domestic copper processing in Chile. The corresponding data are still very low since in 1948, domestic processing was equivalent to only 3.5 per cent of copper ingot exports. The production and export data for the last 5 years are given below.

Table 34. Production and exports of copper products

Years	Ingots, plates and pipes		Wire and cables	
	Production	Export	Production	Export
			(Thousands of metres)	
1945	11,847	10,011		-
1946	9,246	5,305	4,221.5	-
1947	20,257	11,028	10,419.7	1,362.0
1948	18,524	15,020	11,412.2	178.5
1949	-	14,975	-	-

Source: Departamento de Industrias Fabriles.

/Many obstacles

Many obstacles stand in the way of Chilean copper processing. In the first place, its costs are high and among the contributing factors, the one most frequently mentioned is the fact that the processing plant should have been located at Antofagasta, close to the mines and the sea, which would have effected considerable savings in the freight and simplified the exportation of the products. In addition to high costs, exports of copper are further curbed by the fact that other Latin American countries, principally Argentina and Brazil, who might have figured among Chile's regular customers, have established their own processing plants and prefer to import the raw material in the form of copper ingots.

The textile industry

There have been several different stages in the development of Chile's textile industry. The earliest of these, in which wool was the predominant raw material, began in the second half of the nineteenth century. At present, domestic yarn and fabrics meet a substantial part of the country's total consumption and a very high percentage of the raw materials used by the Chilean woollen textile industry is of domestic origin. The introduction of the cotton industry coincided with the great depression and since then has developed rapidly. Though this activity has enabled the country to make considerable savings in its foreign exchange expenditures, it must be remembered that all of the raw cotton must be imported. The development of rayon textiles in Chile did not occur until the Second World War, with the result that the country still imports cellulose for the manufacture of yarn and fabrics.

a) Wool

Though woollen yarn and fabrics have long been manufactured in Chile, its vigorous expansion dates only since highly protectionist legislation was enacted as a consequence of the great depression. Table 35 shows the course of the industry's development, and indicates the extent to which imported woollen fabrics have been replaced by domestic production.

/Table 35.

Table 35. Production, imports and consumption of woollen yarn and fabrics

(metric tons) a/

Years	Production	Imports	Consumption	Imported Wool
1936	2,217	725	2,942	-
1937	2,029	787	2,815	-
1938	1,963	726	2,688	302
1939	2,101	717	2,819	182
1940	2,440	849	3,289	73
1941	2,459	600	3,059	57
1942	3,131	592	3,723	47
1943	3,356	552	3,908	9
1944	3,576	269	3,845	105
1945	3,820	192	4,011	472
1946	4,507	208	4,714	681
1947	4,941	363	5,304	-
1948	4,900	426	5,226	985
1949	5,290	283	5,573	564

Source: Asociación de Fabricantes de Paños de Lana. (Chilean Association of Woollen Textile Manufacturers), and Dirección General de Estadística.

Note: a/ Conversions made at the rate of 0.4 kilogrammes per lineal metre of fabric.

The production of yarn in Chile also involvs the import of certain types of wool which are not available in the country. In 1948, wool imports accounted for 12.7 per cent of the total wool consumed, whereas in 1949 this proportion had decreased to 6.3 per cent.

It is generally believed that there has been a remarkable improvement in the quality of Chilean woollen textile production. Exception is made of a few high-grade fabrics and a certain amount of worsteds which Chile must import from various countries in view of its foreign trade commitments.

On the whole, equipment in the factories is old. However, the new factories built during the past few years and the extensions and improvements made in existing plant have involved the introduction of new machinery, imported from Italy, France and Great Britain. The trend towards mechanizations can be seen inthe increased consumption of electric power per worker, which rose from 1,620 kilowatt-hours in 1934

/to 1,980

to 1,980 kilowatt-hours in 1949.

b) Cotton

The fact that the cotton industry was introduced at a late stage in Chile's economic development has meant that the industry, as a whole, possesses modern equipment. Additional installations make it likely that within a few years, domestic production will be able to meet all of domestic demand.

As in other parts of the world, the industry began with the weaving of imported yarn. In the second phase, into which it has entered at present, the industry has added spinning utilizing imported cotton. A series of favourable circumstances during the 'thirties determined the development of the industry: increased tariff protection, foreign exchange control, and monetary devaluation. Immediately after, in the early 'forties, the shortage of imports and inflation provided further incentives, causing profits to increase substantially from which larger investments were made.

The table below shows the growth of the industry, indicating at the same time its future significance if the plans envisaged by private enterprise are carried out.

Table 36. Growth of the cotton textile industry

Years	Number of spindles	Number of looms		
		Ordinary	Automatic	Total
1924	18,758	860	-	860
1938	48,358	1,468	1,204	2,672
1946	73,495	1,468	1,256	2,724
1947	86,207	1,468	2,186	3,654
1948	88,466	1,468	2,562	4,030
1949	122,650	1,468	3,492	4,960
1950 a/	173,534	1,468	3,652	5,120
1953 a/	210,542	1,468	4,332	5,800

Source: Research Centre, United Nations Economic Commission for Latin America.

a/ According to current plans.

Production, imports and consumption of cotton fabrics have been

/compared in

compared in the table below:

Table 37. Consumption of cotton fabrics

(In metric tons)

Years	Production	Imports	Consumption
1925	1,484	9,786	11,270
1926	1,541	9,816	11,357
1927	1,334	10,027	11,361
1928	1,655	8,499	10,154
1929	1,070	10,489	11,559
1930	2,288	8,907	11,195
1931	1,196	4,570	5,766
1932	1,257	2,986	4,243
1933	1,821	3,367	5,188
1934	2,406	6,475	8,881
1935	3,255	7,426	10,681
1936	4,620	7,880	12,500
1937	6,199	6,290	12,489
1938	6,845	5,839	12,684
1939	8,130	6,559	14,689
1940	9,065	7,478	16,543
1941	8,785	5,004	13,789
1942	11,102	2,821	13,923
1943	9,665	2,055	11,720
1944	10,950	2,269	13,219
1945	12,087	1,827	13,914
1946	10,613	2,122	12,735
1947	8,421	2,593	11,014
1948	12,852	2,310	15,162
1949	15,597	1,053	16,650

Source: Research Centre, United Nations Economic Commission for Latin America.

Note: Domestic production of cotton fabrics has been calculated on the basis of production and imports of yarn, assuming that 97 per cent of the cotton yarn imported is woven. In computing total fabrics production a 15 per cent loss has been assumed in imports of raw cotton and a 3 per cent loss in imports of yarn.

From 1935 to 1948, domestic production of yarns increased to such an extent that it almost displaced imports. If the projects for extending present factories and building new ones are taken into account, as indicated in the preceding table, it may be assumed that by 1953 Chile

/will be

will be able to dispense with yarn imports almost entirely, exception being made for certain special or very fine threads.

The weaving industry which had a relatively higher capacity than spinning was able during the same time to displace nearly all imports. As in the case of yarns it is estimated that by 1953 only some special fabrics will have to be imported.

Despite its modern equipment, there is still a wide margin for improvement as regards productivity of the textile industry. According to the yarn count, output per worker in the modern Chilean yarn mills varies from 1.02 to 4.30 kilogrammes per man-hour, as was found in the preliminary textiles survey that is being carried out by the United Nations in some of the Latin American countries. According to the findings thus far obtained, if personnel organization is improved and other operating factors are eliminated which now influence productivity, it would be possible to obtain an increase of about 60 per cent. Moreover, if the factories could be enlarged in order to bring it into line with optimum size (25,000 to 50,000 spindles), a total increase of 100 per cent could be achieved in productivity.

In the modern weaving plants, and according to the type of material woven, output varies between 0.40 to 3.23 kilogrammes per man-hour. If personnel organization is improved and other operating factors are corrected, an increase of as much as 180 per cent could be obtained. Moreover, if the size of these factories, could also be extended in order to approach optimum conditions (500 to 1,000 looms), a total increase of 230 per cent could be reported.

c) Rayon

There are two rayon factories in Chile, one established during the war period and the other more recently. Both of these plants import the cellulose to manufacture viscose yarn. The two together have a theoretical capacity of 2,300 tons of yarn and 1,700 tons of staple, or a total of 4,000 tons. In 1949, production amounted to about 1,609 tons which, added to 122 tons of imports, shows a total of 1,748 tons of rayon available for consumption.

/Rayon consumption

Rayon consumption has shown a persistent tendency to rise, with the exception of two years during the war, as can be seen below.

Table 38. Production, imports and consumption of rayon

(In metric tons)

Yearly averages	Production	Imports	Consumption
1925-29	-	239	239
1930-34	-	395	395
1935-39	-	1,137	1,137
1940-44	297	906	1,143
1945-49	1,254	494	1,748

Source: Food and Agriculture Organization of the United Nations, and World Fibre Survey, 1949: Dirección General de Estadística.

It will be noted that domestic production is slowly replacing imports, but it is generally believed that certain special types of yarns and fabrics will continue to be purchased abroad.

Production costs in this branch of manufacturing are still reported as being high, though productivity per worker has been gradually improving. In 1949, the productivity per worker was 1,290 kilogrammes as compared with 1,470 kilogrammes in the Brazilian rayon factories.

Chemical industries

In order to follow the development of chemical industries in Chile, and to ascertain their future possibilities, two fundamental distinctions must be drawn: (1) between the heavy chemicals directed to the export market and the industries for the domestic market; and (2) between the heavy chemicals comprising this latter category and the light chemical industries.

a) The export industry

Chile has attained a high degree of efficiency in its chemical export industries, which appear to display some interest in certain important developments.

The most important of the export products is iodine, obtained in the nitrate mines, the exports of which have fluctuated intensely. Their

general trend, however, has been an ascending one, despite the fact that Chile has lost its virtual monopoly in the production of this commodity, together with that of nitrate production. Early in the twentieth century, iodine exports amounted to about 300 tons. During the Second World War, production was abnormally increased to 1,200 tons, as compared with current exports of between 700 and 800 tons. The development of iodine production offers certain encouraging prospects. The Chilean and Canadian Governments and a United States copper-mining company established in Chile, are investigating the use of iodine in titanium mining in Canada. These experiments would appear to have progressed beyond the initial stage and are in fact being tried out in pilot plants. If the forecasts are confirmed, a new market will have been opened to Chilean iodine production. Its use in the processing of titanium would permit the commercial production of the latter metal. This, however, is not the only possibility open to the by-products of nitrate production. The new system of solar evaporation which is being introduced in nitrate mining, in addition to increasing yields, as has been indicated in a previous connection, will also enable a large amount of natural salts to be recovered which at present are being lost. The principal among these are sodium and magnesium sulphates; pure sodium chloride, borax, etc. Research is still proceeding even though an obstacle is being found in the high electric power costs in the northern producing areas. This factor is of no small importance, since these by-products must be manufactured as economically as possible if they are to be exported.

In view of the fact that coal is the cheapest fuel in Chile, from the foreign exchange standpoint, it is quite possible that this new undertaking will increase the demand for coal. It is estimated that if, in fact, these experiments prove successful, exports of the by-products, within a period of five years, might provide the country with some 8 to 14 million dollars in additional foreign exchange. This does not take into account the likelihood of increased demand for iodine for the processing of titanium.

Chilean mining has encouraged the introduction of still another heavy chemical industry which also directs its main efforts to the export market,

/though essentially,

though essentially, its principal objective has always been to meet demand from the mines. This is the case of the black gunpowder and smokeless powder (especially dynamite and gelignite) factory built in 1923 in northern Chile, and financedby a leading international chemical concern. This is one of the largest and most modern factory in Latin America. Its production is being exported, a fair proportion of which is acquired by the Bolivian mining companies. It is therefore somewhat surprising that the principal large-scale mining interests in Chile import explosives; perhaps the explanation lies in the fact that they employ their own foreign exchange for such imports, instead of selling them at the rate of 19.37 pesos per dollar, in order to cover the costs of production of these explosives in Chile.

b) Chemical industries

Chilean heavy chemical industries, production of which is intended for domestic consumption, have not yet shown signs of any substantial growth, seems to be due to certain difficulties hindering their development, but which are by no means insoluble. The principal industries in this group are those producing sulphuric acid, the alkalis and, finally, fertilizers.

Chile's total sulphuric acid consumption is supplied by domestic production. However, the large-scale mining companies produce a part of their own requirements and import the rest. The high price of the acid is ascribed to the inherent difficulties of mining volcanic sulphur in Chile as the deposits are 5,000 metres above sea-level. Mechanization of the mining operation is rendered impossible by the nature of the deposits, which imposes gallery mining methods rather than quarrying, and consequently lowers labour productivity. Moreover, the sulphur content of the ore is low; and in addition, the problem is further aggravated by the high cost of transport to the refineries.

With a view to cutting sulphuric acid costs by about 43 per cent, the Corporación de Fomento in 1943 consulted American experts who recommended using the pirite (iron sulphide) obtained from the Braden Copper Company's copper ore. The building of the plant suggested

/would involve

would involve an expenditure of about 250 thousand dollars and 7 million pesos (Chilean), and would provide an annual output of 10,000 tons of sulphuric acid.

It is likely that other more pressing projects prevented the adoption of these measures. Meanwhile the existing sulphuric acid factories have continued production with sulphur as a raw material, supplying consumers who have no plant of their own, to the extent of an estimated 4,900 tons annually. The newly established iron and steel industry, the petroleum refinery which is due to begin production in 1953 and the projected superphosphates factory at Coquimbo all require supplies of sulphuric acid. These, together with the rayon factories which, in the meantime have established their own small plants, using sulphur, justify the adoption of the plan proposed by the American mission, involving the establishment of four sulphuric acid factories in different parts of the country, corresponding to an aggregate annual capacity of 30,000 tons.

Chilean consumption of secondary acids is amply met by domestic production as regards hydrochloric, nitric, boric, tartaric and other acids. The large-scale mining enterprises, however, have recourse to their own supplies.

The paper factory has added a caustic soda plant to its installations. In addition to furnishing the supplies required in the manufacture of chemical pulp from wheat straw this plant places some 2,400 tons on the market, equivalent, therefore, to about one third of the estimated 6,500 tons consumed. The remainder is made up by imports. Because the electrolytic process is employed, with the consequent production of chloride, the output cannot be increased to meet demand. Production is therefore limited by the possibilities of utilizing the chloride which, being poisonous, cannot be dispersed in the air nor the water. In order to meet the total demand for caustic soda, it would be necessary to resort to the caustification of soda ash, circumventing the difficulty by this means.

In Chile a substitute has been found for soda ash, namely "Sanaltron", but it is considered that the methods of production are not economic. This process involves the burning of a mixture of nitrate and coal, but results in a loss of nitrogen. Direct use of nitrate is also made, and

/the afore-mentioned

the afore-mentioned group of American experts estimated that 15,000 tons of nitrate were consumed in this way. These technicians recommended the building of a soda-ash factory employing the Solvay process, the production capacity of which should be 20,000 tons annually. A part of this output would be used in the manufacture of soda ash and bicarbonate of soda, which are imported at present. This plant would require the investment of about 1.5 million dollars and 6 to 7 million Chilean pesos. If the value of the nitrates used in present production methods is taken into account, namely half a million dollars, that are diverted from exports' receipts, in addition to 900 thousand dollars spent on imports of the sodium alcalis required to fill the gap in consumption, it will be seen that the total amount in foreign exchange thus employed could easily service this investment. The salt and soda ash required for the manufacture of Solvay soda are found in Northern Chile, and there are good prospects for expanding the production of ammonia as much as necessary. The consumption of soda-ash in 1949 amounted to 17,000 tons.

Table 39 traces the growth of consumption of these alcalis, which, as will be seen, has been relatively intense.

Table 39. Imports of Soda Ash, bicarbonate of soda, and Imports and domestic production of Caustic Soda

(Gross weight in metric tons)

Years	Soda ash	Bicarbonate of soda	Caustic Soda		
	Imports		Imports	Domestic production	Consumption
1928	6,601	636	1,905		
1929	7,879	582	3,068		
1930	5,206	249	2,513		
1931	1,840	238	1,600		
1932	1,670	376	1,916		
1933	1,415	197	1,180		
1934	3,618	442	b/		
1935	3,648	428	1,168		
1936	1,921	400	1,523		
1937	2,934	725	1,651		
1938	4,625	347	1,577		
1939	2,373	443	2,358		
1940	4,708	603	1,789		
1941	4,514	758	2,968	a/	
1942	6,363	940	4,621	2,274	6,896
1943	4,302	440	2,355	2,766	6,121
1944	3,277	528	1,330	2,880	4,210
1945	4,741	734	4,731	2,950	7,681
1946	3,532	409	2,726	2,840	5,566
1947	1,041	358	2,612	2,580	5,192
1948	2,074	1,040	4,293	2,203	6,496

/Source:

Source: Research Centre, United Nations Economic Commission for Latin America.
a/ Included with Soda ash.

Caustic soda consumption between 1928-30 and 1945-48 increased by 68 per cent, that is a yearly accumulative increase of 3 per cent. No data are available for domestic production of bicarbonate of soda except for an estimate made in 1943, putting it at 100 tons. Nor, with the exception of 1943, are there any data for total tonnage of nitrates burned or used directly in the manufacture of soda ash, but it is believed that the rate of increase of consumption of these products cannot be lower than that of caustic soda. It is not surprising, therefore, that in view of the present difficulties in the Balance of Payments, attention should once more be focussed on this aspect of the chemical industry.

Before leaving the subject of heavy chemicals a word must be said in connection with fertilizers. In another section of this report, reference has been made to the substantial increase in the use of fertilizers in Chilean agriculture, and to the fact that there still remains a wide margin for further development along these lines. Due significance must therefore be attached to the increase in the production of phosphate fertilizers, which was begun in 1937 using the method of roasting of apatities in the presence of coal and nitrate. This process involves annual consumption of 60 thousand tons of apatites, the anhydrous phosphoric content of which is 28 per cent. In order to ascertain the possibilities of expanding production to meet potential domestic demand, it would be necessary to prospect the ore and sources properly, in view of the contradictory opinions that have been given on the topic. Moreover, according to the manufacturers, a part of this special type of fertilizer could be replaced by some 25 thousand tons of super-phosphates, including the necessary amount of sulphuric acid. This project would require some 500 to 600 thousand dollars.

There are a number of consumer goods and other heavy chemicals, being produced in the country which are fundamentally dependent on the presence of such basic heavy chemicals as the aforesaid products made in Chile. Table 40 throws light on their relative importance. For a number of items, maximum production data are given for any year between 1940 and 1948, together with average import figures, in order to obtain a basis with which to calculate the percentage of domestic production in relation to total consumption in the country.

Table 4C: Chile. Domestic Production of Heavy Chemicals and Approximate Percentage of Real Demand these meet

Product	Unit a/	Maximum Annual Output	Percentage of the market b/
Acetic Acid	K.G.	45,508	41
Boric Acid	K.G.	115,977	96.5
Hydrochloric Acid	K.G.	1,082,794	99
Nitric Acid	K.G.	137,453	95
Oleic Acid	K.G.	9,541	61
Commercial Sulphuric Acid	K.G.	4,843,594	100
Sulphuric Acid for Batteries	K.G.	303,802	97
Tartaric Acid	K.G.	132,001	98
Methyl Alcohol	Lts.	53,100	99
Industrial Oils	K.N.	3,947,787	97
Medicinal and Toilet Oils	K.N.	55,844	80
Industrial glue	K.G.	1,610,167	100 c/
Dextrine	K.G.	327,468	93
Gelatine	K.G.	36,682	99
Potash of Soda	K.G.	54,100	47
Caustic Soda	K.G.	2,854,600	39.6
Cellulose	K.G.	5,522,000	19
Mechanical Woodpulp	K.G.	13,581,000	99
Explosives	K.G.	5,024,626	96
Gelignite	K.G.	3,949,583	87.2
Mine fuses	Mts.	11,412,000	70
Anhydrous Ammonia	K.N.	364,888	81
Chlorine	K.G.	124,164	99
Insecticides	Lts.	1,206,869	99
Polysulphide of Calcium	K.G.	1,150,493	98.5
Glycerine	K.G.	291,713	98
Cleaning fluid for metals	Lts.	44,749	94.7
Alum	K.G.	216,690	58.2
Shoe Polish	Lts.	90,887	69
Vegetable Tanning Extract	K.G.	1,666,479	22
Glucose	K.G.	435,100	99
Yeast	K.G.	1,614,510	99
Minium	K.G.	26,009	21,3
Acetone	Lts.	17,782	21.4
Iron-oxide	K.G.	139,246	99
Oil Paints	K.G.	3,613,333	87.8
Paint Paste	K.G.	751,334	89
Hydrogen - Peroxide	Lts.	192,551	98
Calcium Carbide	K.G.	4,659,613	98
Boiler Compound Scale Solvent	K.G.	39,503	73
Sulphuric Ether	Lts.	1,532	98
Iodoforme	K.G.	59	90
Impure Calcium Acetate	K.G.	171,000	100
Bisulphide of Soda (solid)	K.G.	307,458	100 c/
Bisulphate of Soda	K.G.	1,729,562	100 c/

/Sodium Perborate

Table 40. (Continuation)

Products	Units a/	Maximum annual output	Percentage of the market b/
Sodium perborate	K.G.	134,869	100
Copper carbonate	K.G.	24,650	100 c/
Magnesium carbonate	K.G.	9,168	100
Potassium carbonate	K.G.	172,190	100 c/
Anhydrous sodium carbonate	K.G.	820,000	5
Calcium chloride crystals	K.G.	637,455	100 c/
Ferro-chloride	K.G.	7,167	100
Potassium chloride	K.G.	10,050	100 c/
Bi-calcium phosphate	K.G.	14,623	80
Tri-calcium phosphate	K.G.	6,500	87
Hypochlorite of calcium	K.G.	6,730,000	100
Hypochlorite of sodium (bleached)	litres	3,129,000	100
Hyposulphite of soda	K.G.	688,298	73
Potassium nitrate, pure	K.G.	124,664	100 c/
Aluminium sulphate	K.G.	1,884,437	90.3
Ammonium sulphate	K.G.	3,438	48
Copper sulphate	K.G.	905,474	100 c/
Ferro-sulphate	K.G.	134,293	100
Magnesium sulphate	K.G.	828,911	98
Sodium sulphate, pure	K.G.	930,843	100 c/
Sodium sulphate crystals	K.G.	540,304	100
Sodium sulphide	K.G.	1,546,177	100 c/
Anhydrous sodium sulphite	K.G.	19,399	97
Sodium silicate, 40° Baume	K.G.	179,840	87
Potassium silicate	K.G.	46,779	100
Tartrates	K.G.	384,226	100
Cream of tartar	K.G.	282,123	97
Sodium tetraborate (borax)	K.G.	221,079	100 c/
Quinine iodobismuth	K.G.	192	100
Lampblack	K.G.	201,560	87

Source: Estadística Chilena and Research Centre, United Nations Economic Commission for Latin America.

a/ K.G. = kilogrammes, grossweight K.N. = kilogrammes, net weight; lts. = litres.

b/ Including imports and goods locally acquired by the large-scale mining companies from domestic production, but not their own manufactures of consumer goods.

c/ Some exports have occasionally been made.

The timber industry, woodpulp and paper

In order to assess the value of Chile's forest resources from an industrial standpoint, there are three main aspects in which it must be viewed. First, the conservation of these resources, secondly the improvement of timbre production methods and thirdly utilization in the timber industry.

a) Conservation of the forest resources

It has been estimated that the timber forests in which timber is of commercial scantling cover some 7,130 hectares, which means 1.1 hectares per capita, as compared with 1.4 hectares per capita in the United States and 1.3 hectare for the whole world. These figures suggest that Chile's forest wealth is not in any way unusual. On the other hand, if one considers this from the point of view of the timber species, then Chilean resources are of substantial significance, since the hardwoods of the temperate zones are abundant. These hardwoods are becoming so scarce throughout the world that the Chilean reserves are one of the remaining few still to be found in temperate zones.

For this reason, official concern over the deforestation that is taking place becomes understandable. It is estimated that the timber forests have been increasing at a rate of 4.5 cubic metres per annum, in other words 1.1 per cent of the 411 million cubic metres of timber standing when the American Forestry Mission studied Chile's timber problems, some years ago, for the Corporación de Fomento. On the other hand, forest depletion is estimated to progress at the rate of 2.1 per cent, in other words 8.7 million cubic metres per annum.

A serious aspect of this problem of depletion is that it represents only 14.7 per cent of timber wood cut down, the rest being lost by the action of fire, wind, pests and insects, as well as the old-age of the trees themselves. If this rate of forest depletion continues, within 100 years, Chile's forest resources will have been completely eliminated. Even this figure does not express the full reality since in the case of certain types of wood such as "raulí", which is highly valued in the country, would disappear within a quarter of the time, if depletion is not brought to a standstill. The aforesaid American mission recommended a number of measures in order to prevent this danger, and these are gradually being applied, but the work is slow since it also

/involves educational

involves educational problems. If these measures are effectively carried out, it is believed that loss of forest resources by fires could be cut in half, and that the total rate of depletion could be reduced from 2.1 per cent to 1.6 per cent.

Further to this protective action, a policy of reforestation was also proposed, which has in fact been introduced and which is showing satisfactory results. Under this scheme, 145 thousand hectares of forest have been replanted, in other words, 2.6 per cent of the timber forests. The pine tree would seem to be the principal species among those planted, corresponding to 9 per cent of the annual value of timber cut, whereas in the early thirties this proportion was much lower.

b) Improvement of timber production methods.

Production methods on the whole are very primitive and there is a great deal of wasted wood. The American mission also dealt with this point, recommending, among other means, the establishment of central saw mills, the use of tractors and other investments involving 2.5 to 5 million dollars. This, it is believed, would enable the country to obtain a much larger supply of first class timber, for export purposes, which would double the present volume of exports. In 1949, timber export receipts amounted to 5,296 dollars together with 400 thousand dollars of plywood. Most of the first class wood is diverted to exports, which absorb 13 per cent of the timber produced in the country.

Further to the need for technical improvements, the timber exporters hold the view that the 40 peso per dollar rate of exchange established for their goods, as compared with 60 pesos per dollar for production from the small scale mines, hinders sales on foreign markets. In their view, second-rate Chilean timber can compete with the Paraguayan, Brazilian and European product.

c) Industrial utilization of timber

The direct use of timber within the country does not seem to have developed very much as may be appreciated from considering the volume carried by the railways. The 608 thousand tons carried in 1945-48

/correspond to an

correspond to an increase of only 9 per cent on the 1929-30 figure.

However, there would appear to be other profitable prospects, including the manufacture of chemical pulp, and plywood.

Chemical pulp made from wheat straw and mechanical pulp, made of wood, are both being produced and their respective output in 1949 was 5,500 and 13,000 tons. Domestic production added to imports contributed to the manufacture of 47 thousand tons of paper and cardboard. If to this amount are added the 16 thousand tons of imported newsprint, it will be found that total consumption is equivalent to approximately 63 thousand tons.

In Chile, as in other countries, the growth of paper consumption has been extraordinary, so that, despite the increment to domestic production, it has been necessary to import large amounts. In 1948, consequently, these imports corresponded to a foreign exchange expenditure of 3.2 million dollars for paper and 4.4 million dollars for woodpulp imports.

It is therefore easy to see the reason for a project to build a new plant in the southern part of the country, with a capacity of some 30 thousand tons of sulphate pulp. The plant is to be established near large pine forests which would serve as its raw material. The establishment of this factory would put an end to current woodpulp manufacture from wheat straw, the transport costs of which is high. The net increment to the production of woodpulp would be 24 thousand tons, which would meet domestic demand.

At a later stage, it is hoped to produce a further 10,000 tons of cellulose for the manufacture of rayon and special types of paper. This plant would require an investment of 4.5 million dollars, for which a loan has already been sought abroad. It is estimated that exports, after discount of the amounts due for financial services, would represent an annual savings of 2.5 million dollars.

It is also calculated that with an additional 1.5 million dollars full domestic demand for newsprint could be met. The 1948 consumption of this item totalled 22.9 thousand tons, of which only 36 per cent were produced in Chile.

These projects are being prepared with Swedish technical assistance

/which has been

which has been called upon in view of the similarity between the problems of the two countries. In fact, the small scale of the Chilean scheme renders it very different from both United States and Canadian factories. Experiments are being carried out in Sweden in order to ascertain how best to adapt technique to the special characteristics of Chilean timber.

The plans also include a factory for the impregnation of timber for sleepers, so as to permit the use of other species than oak, which is becoming scarce. This factory should begin operations fairly soon. Furthermore, once the central saw mills are ready, it is proposed to build a plant for the manufacture of wall-board in order to make use of the residues. The establishment of this factory requires an investment of 1.5 million dollars and should prove beneficial in lowering building costs in the country.

There have been three plywood factories operating since 1940/43, and it is possible that a fourth will be built to make use of the timber in the Tierra del Fuego forests. Production amply meets domestic demand which has increased some 2 to 3 thousand cubic metres per annum in 1943-44 to about 7 or 8 thousand cubic metres at present. The value of the exportable surplus varies between a low of 200 thousand dollars in 1948 to a peak of 400 thousand in 1949. The industry was started with private capital of Chilean and Argentine origin. The equipment and installations are modern with the exception of the system of timber cartage in the forests, where the heavy tractor equipment required is not available.

SECTION VIII. DEVELOPMENT OF MINING PRODUCTION

I. Copper mining

Because of its outstanding position among Chile's exports, copper is the dominating factor in the development of the country's economy. But it is not only from this standpoint that the study of this metal is of interest; there is another which affords very significant information concerning the manner in which, in this particular instance, the benefits of technical progress have been shared between the source of primary production and the great industrial centres.

A brief survey of the development of this product will be made in relation to the country's economy. Chile is especially well favoured as regards copper mining. It has large reserves which, though of low grade can be extracted at a very low cost by the most modern methods. This explains why the production of copper in Chile increased proportionately more than the aggregate world production, as can be seen in the following table:

Table 41. Chile's share in world copper production

Years	World production	United States	Canada	Chile	Mexico	Other Latin American countries	Africa	Other countries
				(in thousands of tons)				
1905-09	756	428	..	34	56	..	..	..
1925-29	1,619	824	74	289	64	67	120	181
1945-48	1,954 a/	712	206	426	61	45	381	123 a/
				(percentages of the total)				
1905-09	100.0	56.6	..	4.5	7.4	..	..	..
1925-29	100.0	50.9	4.6	17.8	4.0	4.1	7.4	11.2
1945-48	100.0	36.5	10.5	21.8	3.1	2.3	19.5	6.3

Source: Research Centre, United Nations Economic Commission for Latin America

a/ Estimated owing to lack of data for some European countries.

Thus, Chilean copper exports during the five-year period 1945-49 were 66.5 per cent higher than in 1925-29. Copper has therefore been able to compensate for the decrease in value of Chilean exports caused by the reduction of nitrate exports, as will be seen in the following table:

/Table 42.

Table 42. Copper and Nitrate exports, and their proportion to total exports

Years	Copper	Nitrates	Other products	Total exports
	(Values in thousands of 1937 pesos)			
1925-29	206,650	286,812	203,824	797,286
1945-49	510,640	186,685	201,884	899,209
	Percentages in relation to current value of total exports			
1925-29	29.9	48.9	21.2	100.0
1945-49	52.6	16.8	30.6	100.0

Source: Research Centre, Economic Commission for Latin America, United Nations

Although this expansion of copper exports, has been substantial during the past 25 years despite the temporary recession caused by the world crisis, it cannot be compared with its extraordinary development in the more distant past. Between 1905-09 and 1925-29, there was a rise of 650 per cent in Chile's copper production, that is to say, the increment was 14 times greater than that recorded between 1925-29 and 1945-49. The former period was marked by the appearance of foreign interests in copper mining. These companies brought modern technical methods and what is more, the capital required to apply them. Such methods would not have been beyond the technical capacity of the Chilean companies, but certainly they were beyond their financial capacity. Foreign undertakings, with world wide interests, of proved efficiency and considerable capital were undoubtedly better equipped than the Chilean firms to obtain the means required for producing copper in this part of the world. Naturally, the foreign companies obtained the best mines, as from the second decade of this century and they increased production the rate that has been shown. A clear idea of their progress can be obtained by studying the corresponding chart.

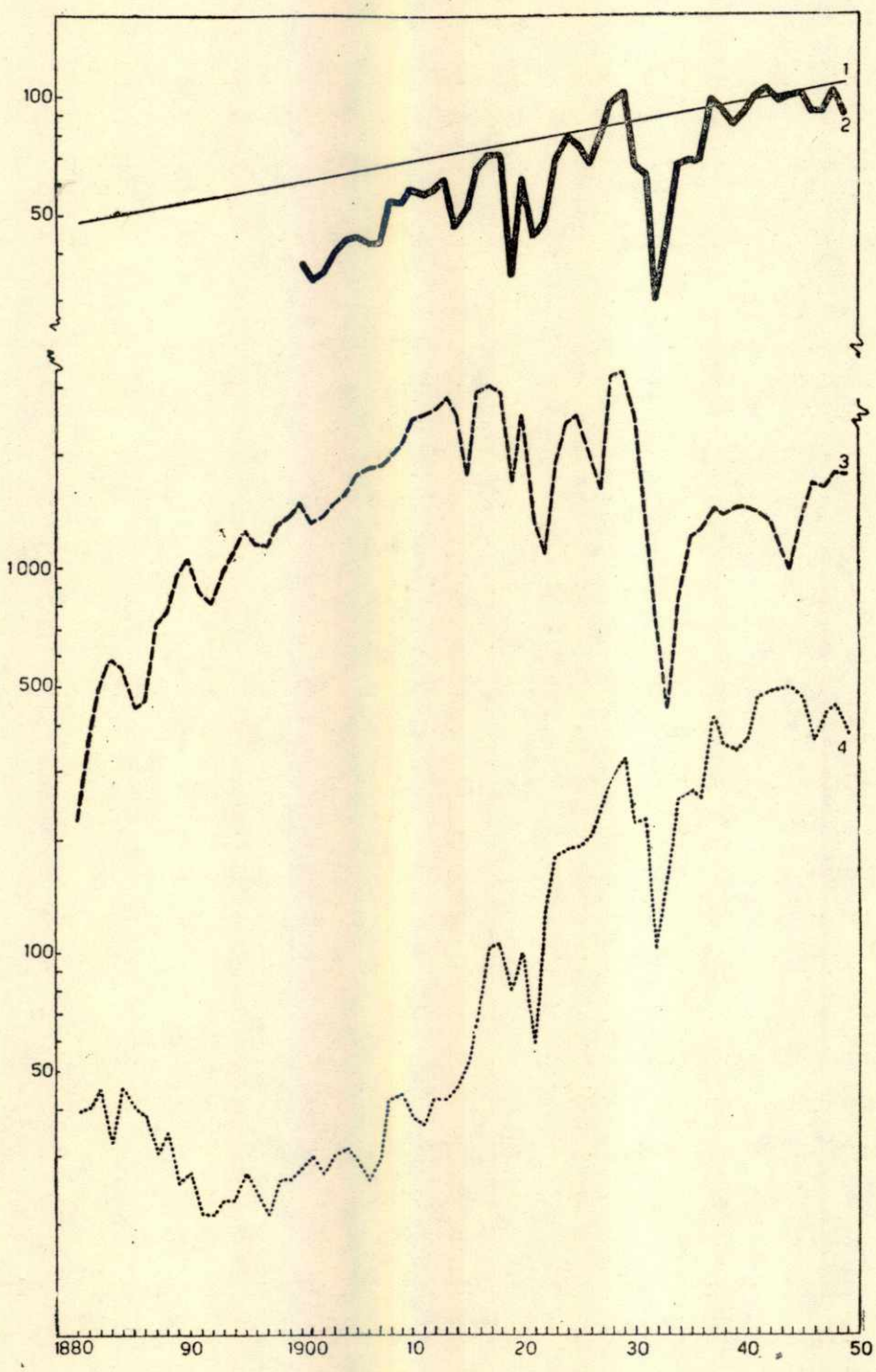
Two distinct sectors appear in Chilean mining: large scale mining in the hands of foreign companies, and medium and small undertakings which are owned by Chilean companies. The production of the former rose rapidly, whereas that of the latter lost ground both absolutely and relatively. The mines are gradually being exhausted but have not been replaced by new deposits. Their production by 1948 fell to 19,084 tons as compared with a

/maximum of

GRAFICO 17

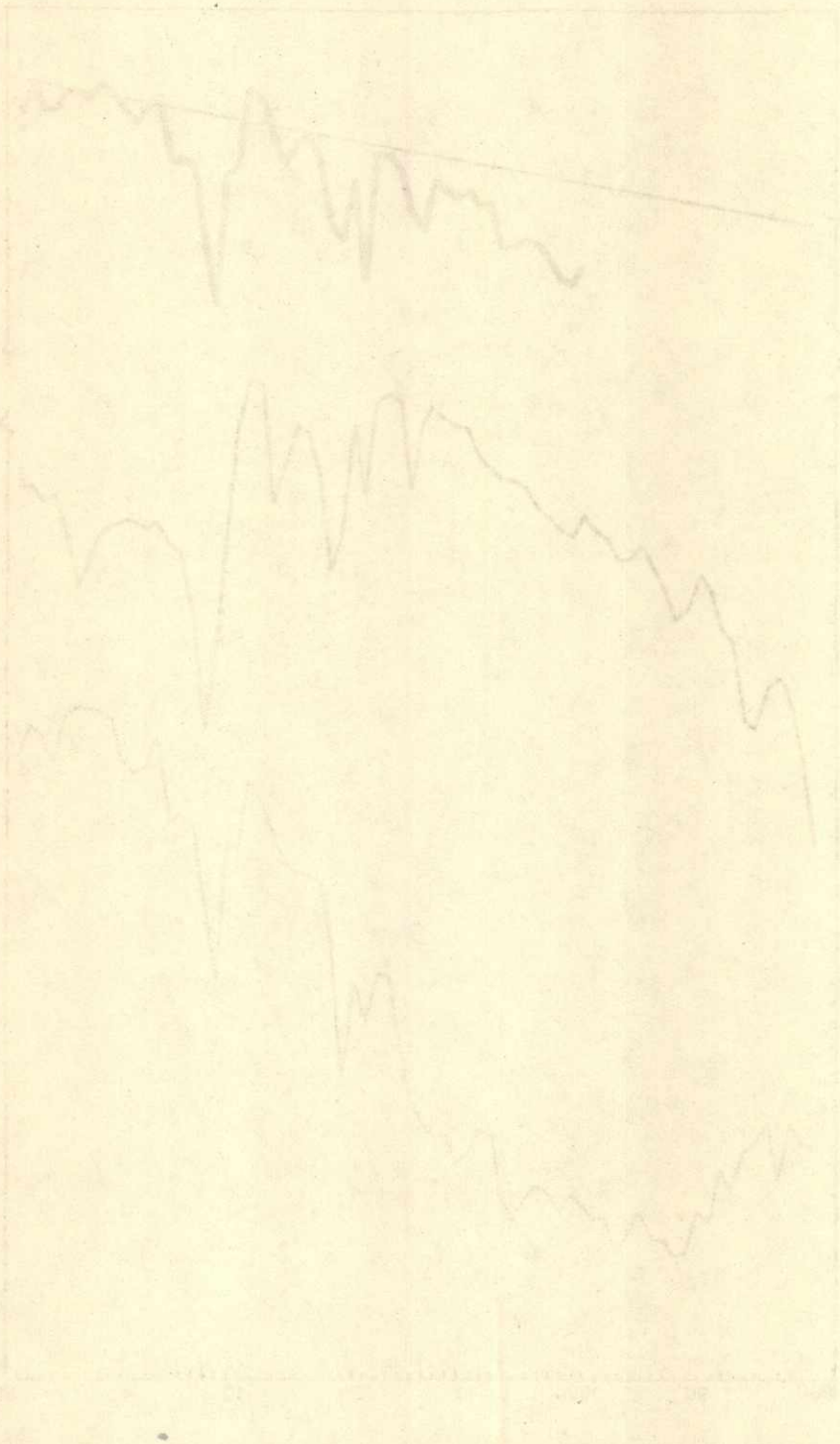
CHILE

VOLUMEN FISICO DE LAS EXPORTACIONES Y PRODUCCION DE COBRE Y SALITRE — 1880/1949.



1.— Población.
2.— Indice del volumen físico de las exportaciones.
3.— Producción de salitre, miles de toneladas.
4.— Producción de cobre, miles de toneladas.

Centro de Investigaciones, Comisión Económica para América Latina.



maximum of 32,273 tons attained after the world crisis. In 1948, production by Chilean owned companies represented only 4.4 per cent of the country's total output, whilst that of foreign owned mines accounted for the remaining 95.6 per cent.

There are remarkable differences in productivity and consequently in the costs of production of the two sectors of mining. It was estimated in 1948 that the production of one ton of copper in large scale mining undertakings required 11.6 man-days whereas in the medium undertakings (no reliable data are available for small scale production), 29.2 to 83.11 man-days and an average of 46.35 man-days were required to produce one ton of copper.

Evidently, these differences affect the cost of production. For the same year, these costs, in Chilean pesos, with foreign currency expenditure converted at the rate of 19.37 pesos per U.S. dollar, were as follows for one pound of electrolytic copper c.i.f. New York: from large scale mines 2.801 pesos from medium sized mines, from 4.722 to 6.262 pesos. Since the average price of copper in 1948 was 4.268 pesos per pound (22.038 cents U.S. currency) converted at the same rate of 19.37 pesos per U.S. dollar) it is obvious that medium-scale production would have been compelled to close down if the dollar receipts from exports had not been purchased by the State at a differential rate of exchange of 43 pesos per U.S. dollar.

Thus the problem mentioned earlier in this section arises. Chile naturally wishes to avoid the disappearance of medium and small sized mining undertakings by establishing a differential exchange rate and enacting other protective measures. The above comparison of costs of production might suggest that such a policy would prove uneconomic for the country. However, costs are not the only factor which must be considered. There is still another, which is of such great importance to the country that it may become decisive. It consists in the amount of dollars per unit of exported copper which domestic and foreign mining interests return to the country. In 1948, the latter surrendered 12.33 cents per pound of exported copper whereas the returns obtained from domestic copper amounted to 14.67 cents per pound, that is 19 per cent more than the former.

/Consequently, despite

Consequently, despite their greater costs, in comparison with the foreign mining companies, Chilean mining undertakings supply the country with a higher percentage of the dollars which are so badly needed for its economic development. No doubt this involves the employment of a proportionally larger number of workers in domestic undertakings than are required in the foreign-owned mines. The question is now raised as to the significance of this fact in a country in which labour is relatively plentiful, though its productivity is low. It is difficult to reply immediately whether or not, taking into account the conditions already mentioned, it is economic for the country to substitute domestic undertakings for foreign-owned mines without dealing with other problems which are beyond the scope of this report.1/

Whatever the answer may be Chile is at present in a much more favourable position as regards dollar receipts than some years ago. It has already been pointed out in the first section that the proportion of the value of copper which remains in the country was 56 per cent in 1948 as compared with only 22 per cent 20 years before. Formerly the amount of dollars per pound of exported copper which the foreign companies spent in the country was much less than that returned by the Chilean-owned mines, as may be seen from the following:

1/ In order to obtain a clearer notion of the problem, it would first be necessary to ascertain the amount of additional labour required by domestic undertakings in relation to that employed in foreign-owned mines; and furthermore, the additional amount in dollars earned by the former, and then determine the following criteria: (a) the amount of dollars earned per additional worker; (b) the amount of imported goods that can be acquired with the additional dollars; and (c) the amount of commodities which could be produced by domestic industry to replace imports, if the additional labour were absorbed by industry rather than mining. Only if (c) were greater than (b) would protection of domestic mining interests be uneconomic. As regards the other points touched upon, this displacement of labour from mining to industry would involve the importation of foreign capital equipment so that the replacements envisaged, besides decreasing the supply of dollars, would also increase demand for this currency.

/Table 43

Table 43.

Period	Foreign-owned companies Copper bars (1)	Chilean undertakings Copper in concentrates (2)	Ratio of (1) to (2)
	(Cents (U.S. Currency) per pound of copper accruing to Chile a/)		
1928-29	2.713	10.702	25.3
1930-34	2.213	4.025	55.3
1935-39	3.160	6.335	50.0
1940-44	5.512	7.803	70.6
1945-48	8.995	11.107	81.0

Source: Research Centre, United Nations Economic Commission for Latin America.

a/ In neither of these sectors have imports of supplies required for production been included.

It becomes evident, therefore, that the economic significance, from the country's standpoint, of each of the two sectors of mining has changed, since formerly the foreign exchange receipts derived from the foreign-owned companies were relatively low in relation to that derived from the domestically-owned mines. Nevertheless, the fact that production by the former sector expanded rapidly more than compensated for the loss of foreign exchange. In other words the technical progress introduced by the foreign companies enabled Chile to export larger quantities of copper. But it was not till several years later that the country was to benefit substantially from increased productivity - which has been rising steadily since then. Whereas in 1928, a production of 15.739 tons per man-year was obtained in the large scale undertakings, in 1948, this had risen to 27.310 tons per man-year, i.e. an increase of 11.571 tons. This increment has wholly benefited Chile in view of the country's increased share in the value of copper. In 1928, the share of the value of copper exports retained in the country was 22 per cent of the total and was equivalent to 3.462 tons per man-year, whereas in 1948 it was 56 per cent of the export value, and corresponded to 15.293 tons per man-year, that is, an increase of 11.831 tons. This is somewhat higher than the increase of productivity per man-year. It has already been shown that this result was obtained by means of taxation and a discriminatory exchange rate.

It has also been pointed out that small and medium sized Chilean

mining undertakings had received assistance from the Government. These undertakings only produce copper in concentrates whereas the large-scale undertakings export blister bars or refined copper. Evidently, the former lack the volume of production and the necessary capital for this purpose. In order to remove this difficulty, the Caja de Crédito Minero (The Mining Credit Fund) is building a smelting and fire refining plant at Paipote, in northern Chile, the annual throughput of which was 100 to 120 thousand tons of mixed copper, silver and gold ores and concentrates, and a production of 12,000 to 25,000 tons of refined metal. An investment of some 5 million dollars will be needed apart from expenses, to be incurred in Chilean currency. An international loan for these purposes has not been obtained. The Government has set aside the necessary amounts in the Foreign Exchange Budget for the last few years and it is believed that the smelting could begin in 1952.

Of the three largest mining companies, one is investing sums which in ten years time will amount to a total of 130 million dollars. Such investments are accounted for by the fact that the ore changes from an oxide to a sulphide so that present electrolytic methods will have to be replaced by flotation and smelting processes. The change from one system to the other will be achieved by stages and since the deposit in view has the largest known reserves in the world, it should be easy to expand capacity in order to supply the possible increase of future demands.

2. Nitrate Production

Nitrate production has not followed the same course as that of copper. Its expansion, which began during the last quarter of the past century continued until the 1920's when, as may be seen from the chart, the effects of synthetic nitrogen production began to be felt.

However, the highest level attained in the history of this mineral was reached in Chile in the year preceding the world crisis, that is, 3,233,000 tons in 1929. The drastic reductions caused by the crisis affected production immediately, and its volume fell below the levels of the beginning of this century. Since then, and until the present day, nitrate production rose again gradually, with the exception of the war period, and in 1949, reached a total of 1,773,000 tons, which represents

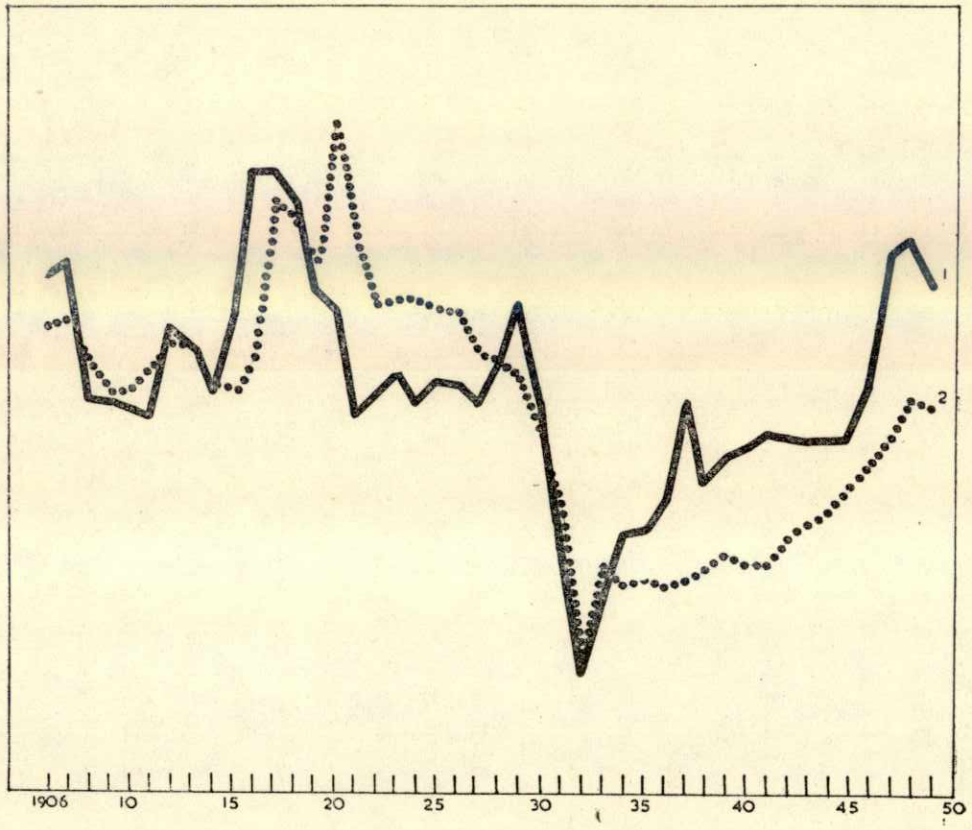
/a reduction

GRAFICO 18

CHILE

PRECIOS DEL COBRE Y DEL SALITRE.

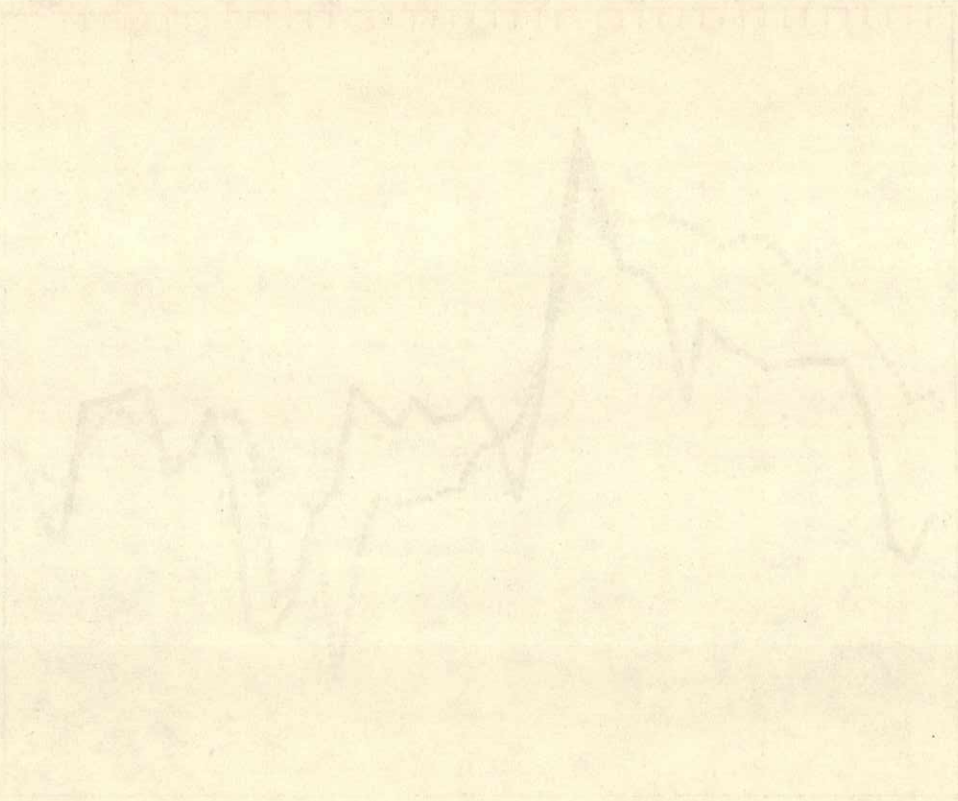
Escala logarítmica.



1.— Precio del cobre electrolítico en Nueva York.
2.— Precio del salirte, FAS puerto chileno.

FUENTES: Estadística chilena y Yearbook of the American Bureau of Metal Statistics.

Centro de Investigaciones, Comisión Económica para América Latina.



a reduction of 31.2 per cent in relation to the 1925-29 level.

In the meantime, world consumption of nitrates rose substantially due to the increased use of fertilisers. But competition from synthetic nitrogen was so great in 1949 that Chile accounted for only 7.3 per cent of world nitrate production whereas in 1925-29 it produced 25 per cent of world supplies and at the beginning of the century 70 per cent thereof. However, in view of the probability of increased demand in the future and of the introduction of improved methods for the mining of the product, it is likely Chile will be able to maintain its present position on the world market.

Technical progress in production is noteworthy; until the world crisis there were no marked fluctuations in productivity per man, which was around 50 tons per annum. Productivity is now estimated to be 90 tons annually due to new technical methods, which were introduced in the late 'thirties and have since been improved. These methods, besides facilitating mining of low grade ores, make it possible to obtain higher yields whilst employing a lower total of fuel per ton mined. Early in the century, the average ore content used was 20 per cent; present methods enable the use of 10 per cent ore. Yield which was formerly 50 per cent is now over 75 per cent.

Under the circumstances, Chile is now in a position to compete with the synthetic product. There is no doubt that the use of nitrogen during the war and the world dollar shortage have contributed to protecting the manufacture of synthetic nitrogen in the majority of the consumer countries. Egypt, for instance, which is one of the leading consumers of the natural Chilean product, has obtained a foreign loan and is now building a plant to produce the synthetic substitute. But demand is increasing to such an extent that it is believed that Chilean production may still be able to compete under favourable conditions.

A further boon to competitive capacity was the concession of a 43 peso to the dollar rate of exchange for nitrates in 1949 instead of the former 19.37 rate.

The exportation of nitrates is controlled by a mixed corporation in which the Government participates and to which the various private producers deliver their nitrates for marketing.

IX. COMMENTS ON CHILE'S ECONOMIC DEVELOPMENT

1. The analysis which has been made of the main aspects of Chile's economic development justifies the contention that the country's serious balance of payments difficulties can be attributed to phenomena of growth rather than to the monetary inflation with which it has been afflicted.

Whether or not inflation had occurred, there would have been disequilibrium for many years now. There are only two possible solutions for this problem; either the substitution of domestic production for imports or, alternatively, unemployment and an inordinate price increase of basic consumer goods to such an extent that these be reduced in accordance with the capacity to import. The reasons for Chile's adoption of the former course are self-evident.

This does not imply that disequilibrium cannot be affected by certain monetary readjustment, imposed from time to time by inflation. It is believed that such monetary readjustments may stimulate exports and decrease certain imports. But it is hardly possible to progress very far in this direction since import restrictions will have already diverted increased demand to the domestic market. Nor is it at all likely that there remains much of a margin of dispensable imports in view of the controls already in force.

However, if, for these reasons, imports have been only very slightly affected by inflation, there are other aspects in which it has led to serious maladjustments for which the Government is seeking corrective measures. Inflation has long since advanced beyond the point at which production can no longer be increased rapidly by means of monetary stimuli. In other words, inflation has become a habit. Moreover, an acute stage has been reached in which no influential section of the community can tolerate it any longer. And when the mass of the population has learned how best to defend itself against inflation or how best to take advantage of it, then it becomes increasingly difficult to use this process as an effective means of forcing savings. It should be added that in countries such as Chile, where the capacity to import is limited and the majority of capital goods have to be imported, the function of inflation as a means of increasing investment must of needs be very lirited.

/2. There is

2. There is a further aspect to the problem of disequilibrium in the balance of payments which must be noted in this commentary, but which prevails in Chile as in all the other Latin American countries. An attempt has been made to seek the causes which have led all these countries to restrict their imports in order to pursue their own development. However, in the policy of restriction, there is the ever-present risk of neglecting the advantages of reciprocal trade.

These restrictions are not only applied to imports from the great industrial countries but also include agricultural products and manufactures from other Latin American countries.[1/] Consequently, each of these countries, in the course of its process of industrialization must limit itself to the relatively narrow boundaries of its own market, thus dispensing with the advantages of specialization and large-scale production.

This generalisation of restrictions does not imply that all those countries which adopt these measures are in identical condition. On the contrary, if a developing country restricts imports of manufactures by the great centres, its reason for so doing is that whilst it cannot pay with primary goods, it cannot do so with manufactures either. It is hardly likely that a Latin American country could export manufactures to the great centres by reason of their widely divergent productivity levels. On the other hand, it is quite likely that the said Latin American country should be able to export manufactures to other Latin American countries, and in turn import manufactures from them. Notwithstanding, a system of preferential trade agreements would be required for this purpose, since, under an equality of competititve conditions, there can be no doubt that the goods from the large centres would predominate.

It is equally certain that by so doing, a country would be purchasing goods at a higher cost than that for which they could be obtained in those centres. Yet since it cannot acquire them there, it has no other alternative. Either it attempts to produce these goods at a high cost, or else it imports them from other Latin American countries in which being better equipped for such production, its costs

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1/ In Section V, for instance, reference is made to beet-sugar production in Chile as a means of improving the position of the balance of payments. This is perfectly understandable but it is equally evident that it will adversely affect exports from Peru, which country Chile regards as a possible market for iron and steel goods. Hence the concern to find a satisfactory solution which will not affect their mutual trade unfavourably.

/are somewhat

are somewhat lower, though not so low as in the industrially developed countries.

Under such circumstances, each country would be able to specialize in the production of certain manufactures, so that it could supply not only its domestic market but also that of any other country or countries which would, in turn, agree to allow the entry, free or involving a minimum tariff levy, of certain specific products. The reciprocal markets would thus be widened by the lower costs obtained through the more economic size of the respective production units.

In other words, the market would expand for certain industries, thus protected from the competition of the great industrial centres whence, nevertheless all that is essential to the economic development of each country would continue to be imported within the limits of the country's capacity to import. No greater restrictions would be placed on trade than obtain under present circumstances. On the countrary, without further tightening of the controls on goods imported from the large centres, commodities from Latin American countries would be added to the stock of available goods, especially by reason of the reciprocal trade of bordering states disposing of complementary resources.

These considerations have not be expounded in order to propose the adoption of a programme of reciprocal trade, which would be beyond the scope of this report, but rather do they seek to indicate the need for study of the possibilities offered by the principles embodied in the Havana Charter. This is of special interest to Chile since its relatively small population, as compared with other Latin American countries, the limitations of its agriculture and its great natural resources for industrialization, make the need for reciprocal trade in manufactures self-evident.

/ 3. Until the

3. Until the present time, according to the guiding principles of the international trade, a country would be justified in seeking to protect its own industry, even though production costs are high. Nevertheless, no agreements with other countries were tolerated which aimed at the reciprocal and material protection of industries between two countries, or which tended to unify the markets and reduce the costs of the protected industry.

On the other hand, the proposed Havana Cherter 1/ authorizes the introduction of preferential tariffs to stimulate economic development. There can therefore be no objection to bordering states, or other Latin American countries in a phase of development, allowing the free entry of Chilean goods whilst those from other more highly industrialized countries are subject to customs duties. Nor would it be wrong for Chile to act similarly. In other words, each country would be protecting certain industries in another in return for reciprocal treatment for certain of its own industries.

In the chapters dealing with Argentine and Brazil. this same theme was touched upon. The proposal for a Customs Union has long since been put forward but it has always met with insuperable obstacles because of its general character. This is because the enterprises that have been established in each country are considered as permanent and subject to further development. Any project which seems to contradict these facts would stand little chance of success. Yet, in viewing the problem from the dynamic standpoint, and taking into account the great potential capacity of consumption and of industrial production of the Latin American countries, the majority of which have only just begun to develop, it will be realized that there are considerable prospects for future trade in manufactured goods, and naturally in foodstuffs and raw materials. Among the essentially basic industries with a wide potential market figure for instance, chemicals, chemical pulp for the manufacture both of paper and rayon, iron and steel, and other capital goods. In each of these fields, and many others besides, there are very substantial opportunities for profitable specialization if recourse is had to common

1/ Trade Trends and Policies of Latin American Countries - Document E/CN.12/168 , page 38.

/markets.

markets.

Chile's iron and copper present an example which is undoubtedly of great significance as regards such possibilities. Expert opinion is agreed that it would be very difficult for these industries to expand to economic proportions, and consequently for Chile, to obtain the maximum of foreign exchange receipts from its investment in the iron and steel industry if the domestic market cannot be expanded by the addition of foreign demand, especially from the neighbouring countries.

This problem is not only applicable to Chile. It arises elsewhere, though not precisely in the same manner. Hence common difficulties point to new methods of cooperation as a solution, this was unnecessary when primary production predominated, and the Latin American countries developed outwardly, their economic growth being stimulated by the development of the great industrial centres.

CHAPTER XI: THE ECONOMIC DEVELOPMENT OF MEXICO

I. INTRODUCTION

For some time now, Mexico's balance of payments has been subjected to severe strains emphasizing once again the fundamental incompatibility of growth and equilibrium within the free play obtaining in the economy of a country in full development.

During 1948 and 1949 Mexico twice devalued its currency before finally being able to prevent a deficit in its balance of payments. Occurrences such as these, however serious their immediate consequences, are useful in that they draw attention to the factors causing disequilibrium and offer an opportunity to seek appropriate solutions. Over a period of years, these factors have slowly been engendering the external disequilibrium of Mexico's economy, culminating, finally in the appearance of dangerous symptoms demanding immediate attention. These symptoms having been checked for the time being, it is pertinent to examine their basic causes, restating the terms of the problem of economic development in order to determine its objectives in the light of its own resources or those it might obtain from abroad, in order that these may be implemented.

Such an examination reveals that in Mexico, as in other Latin American countries, the effort made to speed up economic development and raise the standard of living of the population has been curbed from the start by a limited capacity to import.

In fact, Mexico's import capacity has had to face a great demand of capital goods, growing requirements of foodstuffs and other consumer goods resulting from the increase of national income, and a greater need of various materials due to the expansion of industry.

It is manifest that the country cannot maintain this rate of expansion and at the same time continue to import on such a large scale. Mexico is consequently confronted with a clear and conclusive choice of alternatives: either it must radically reduce the rate of growth of its economy or else make a determined effort to modify the structure of its imports and adjust their coefficient in accordance with the rise in the national income, restricting at the same time foreign purchases to the limits set by the country's real capacity to pay for them.

/We have

We have just indicated that the importation of capital goods was partly the cause of the recent crisis in imports as a whole. There can be little doubt that the rate of investment in Mexico has been greatly accelerated, though not sufficiently perhaps to raise the standard of living of the population promptly, but nevertheless too much in view of the country's real capacity to import. An index of investment, though it is somewhat lower than in fact obtains, has been prepared in order better to describe the changes; it reveals that during 1945-48, Mexico destined 14 per cent of its total supply of goods to this end. Despite the undeniable increase of available goods, that of investment was still higher during the past twenty-five years. That is to say, between 1925-29 and 1945-48, the quantum of all goods available to the Mexican population rose 88.5 per cent whereas the increase of capital goods was 131.9 per cent.

An appreciable portion of capital goods in Mexico are of foreign origin. Therefore it is not surprising to find that during the period 1945-48 these goods represented about 39 per cent of the total value of Mexico's imports. 1/

Ranking high among the imports of capital goods are iron and steel. This, incidentally, is precisely one of the crucial points in the restatement of Mexico's problems of economic development. The country's iron and steel industry has proved to be an efficient producer since the beginning of the century. Possessing ample iron ore reserves, it is authoritatively believed that Mexico could meet nearly the whole of its iron and steel demand, with the exception of certain special steels. There are also deposits of coal, some of which is coking coal and is made into coke. However, the problem which emerges here is two-fold: on the one hand, it is necessary to increase the output of coke or else some way must be found that would permit anthracite to be used directly in the blast furnaces; on the other hand the capacity of the steel industry will have to be raised after the first obstacle has been overcome.

1/ These capital goods include motor vehicles, since it is not possible to separate passenger cars, which are, consumer goods, from other categories. The corresponding figures will be furnished elsewhere in this chapter.

Mexico, like Brazil, has to develop its steel industry in order to increase the rate of investment. Together with iron and steel, certain branches of the mechanical industry must be stimulated in order to supply other activites with the capital goods which they could not obtain from abroad because of the limited capacity to import, no matter how good a use might be made of this capacity.

Because of its urgency, reference will be first made to the modernization of railway equipment in Mexico. All studies made of the country's economy mention railway transport as one of the most serious problems. Various factors contribute towards this, but the outworn and insufficient equipment is among the most important. When Mexico began to consider the re-equipment of its railways in the 'twenties, after the upheavals of the previous decade, it was prevented from achieving more than the barest minimum in this direction, first by the world crisis, then by the Second World War and finally by the present shortage of foreign exchange, to the detriment of the country's economy. It is therefore a matter of producing in Mexico a great part of the railway equipment required, in addition to the insufficient production of such equipment that is being carried out today. Undoubtedly a substantial expansion of the iron and steel industry would contribute greatly towards this.

Much improvement has been made in the production of industrial machines. The favourable opinion of foreign experts concerning what has already been accomplished by the Mexican machine industry with limited resources must indeed have encouraged its promoters. There is no doubt that the prospects in this field augur well for its future.

A very considerable potential demand for capital goods which cannot be adequately met by imports exists in agriculture and in the public works indispensable in facilitating communications between the town and the country. The farming population requires much equipment of every kind, from tractors to water pumps. The modern sector of Mexican agriculture is opening, by means of tractors, new areas for cultivation and pumps are transforming regions that were formerly barren, such as Lower California, which now provides a fair proportion of the recent increase in the exports of agricultural products. Steps have been taken in the direction of the

domestic manufacture of these mechanical implements but, as often occurs in so complex an undertaking, progress has been halting. However, necessity is a powerful incentive and it has not yet been proved that perseverance will not conquer difficulties.

Costs constitute one of the principal obstacles, and more especially the initial cost. In some branches of the engineering industry, Mexico's low wage level enables it to compete with foreign articles, but in other branches this is not possible, for various reasons. This does not imply that Mexico will always be in a position to choose between the domestic and foreign product, since the country's limited capacity to import, even should a moderate amount of investment of foreign capital take place, will prevent importation of all capital goods required for economic development. The problem, therefore, consists in making the most advantageous use of this restricted capacity, in order to import those capital goods which involve difficult and complex manufacturing processes and develop domestic production to meet the rest of the country's requirements, even though the costs of such production may be higher than abroad. As in the case of other countries, the choice lies between domestic production of these capital goods or not having enough of them.

It has already been pointed out that in addition to capital goods other commodities have also contributed to the expansion of the country's imports. One of the most alarming examples of rising imports is that of foodstuffs, since, notwithstanding the expansion of domestic agricultural production, the raising of the standard of living in the cities has created new demands which take the form of increased imports, especially of wheat. A similar development has taken place in textiles: despite rising domestic production of cotton textiles which now practically meets demand, the expansion in the importation of woollen fabrics and of raw materials for the manufacture of rayon textiles has resulted in higher aggregate imports in this category. The country's industrial development has given rise to a considerable increase of imports of chemical products, drawing attention to the evident need for a further expansion of the basic chemical

/industries where

industries where a successful start has been made in alkali production. Agriculture also enters into this aspect of the problem, for it will be noted that only a very small amount of fertilizers are applied in Mexico though there is a great need of these chemicals to meet the generally known deficiencies of the soil.

Mexico's growth has led to an intensive increase of paper consumption. Domestic wrapping paper is already being manufactured in sufficient volume to satisfy domestic needs. However, the steadily rising newsprint requirements have to be supplied by imports, despite the fact that some years ago Mexico had an appreciable production of this type of paper. There is sufficient raw material for the production of the necessary woodpulp, and it is therefore natural that attention should now be given to the possibility of creating a domestic newsprint industry. Such a step might conceivably lead to studying the prospects of producing pulp for the manufacture of rayon, since it is considered that a sharp increase in its consumption is likely, in the near future, to lead to difficulties similar to those which occurred in the supply of newsprint.

It seems equally certain that there will be a substantial increase in the consumption of tyres and inner tubes as well as other rubber goods. During the Second World War, Mexico had recourse to the rubber that is produced in the country for the supply of its most pressing requirements, but this would appear to be inadequate as a permanent solution of the problem.

Nor has the field of fuels and lubricating oils been devoid of problems created by the marked increase in imports during the past few years, especially of lubricants and of gas and electric power for the industries located in the vicinity of the frontier with the United States. In this as in other cases, expert opinion supports the belief that the solution of these difficulties lies within Mexico's reach, and that it depends primarily on capital investment and on a suitable adaptation of foreign technology to the resources and circumstances prevailing in the country.

/All these

All these problems present a common element: the need to replace certain imports by locally produced commodities, in order that the capacity to import may be applied to other goods and to servicing foreign investments, so that Mexico is not periodically exposed to balance of payment crises. 1/

Reference has been made to the imports of foodstuffs. Mexico has always been obliged to import foodstuffs, fats and oil seeds. In the last few years, however, the country has been enabled practically to eliminate its foreign purchases of oil seeds due to a marked increase in domestic production, but it has not yet found a means of dispensing with imports of fats and foodstuffs. The average of the quantum of imports of these products for the period 1945-48 shows an increase of 60.6 per cent over that for 1925-29, which is also greater than the population increase of 47 per cent during the same period.

Have Mexico's efforts to limit the volume of imports which weigh so heavily in the balance of payments been insufficient ? The answer to this question depends on the standpoint taken in judging both present conditions and future plans. Comparing other Latin American countries and considering the relationship between the increase in agricultural production and that of the population, the magnitude of the effort made is evident. The index for Mexico's most important agricultural products indicates an increase of 86.4 per cent between 1925-29 and 1945-47, which is almost twice the increment of population.

The extension of agricultural production has enabled Mexico to expand consumption of foodstuffs, fats and oilseeds by 71.0 per cent, a figure well above that of imports, which as was shown, rose 60.6 per cent between the two periods. Furthermore, the increase in the quantum of these imports has been compensated by a similar increase in exports of agricultural products, so that the expansion of consumption has been fully compensated, directly or indirectly, by the extension of domestic

1/ It is obvious that should the capacity to import grow as a result of an increase of exports, an improvement of the terms of trade or greater receipts from tourism, such problems would be eased accordingly.

agricultural production, as will be shown later on. 1/

In any case, as Mexico needs to export agricultural as well as other products in order to import the other goods it requires, one can understand its interest in the continued expansion of its agricultural production and in improving the foreign balance thereof.

Nor is the task a simple one, given the existing conditions in the country. There is traditional form of agriculture prevalent in Mexico to which no function of dynamic importance can be attributed in the country's economic development. Such functions must be sought in the modern sector of Mexican agriculture which has developed on land reclaimed by irrigation, and where yields are increasing. Modern agriculture is developing without any direct connection with the traditional sector, on lands that have required large investments in irrigation works as well as in modern machinery and equipment.

Labour productivity in the traditional sector of agriculture is extremely low, and the possibility of utilizing modern machinery is rather limited, both by the topography of the land, and the relatively small size of the farms. There is nevertheless considerable room for technical progress in farming methods as has been recently shown by the use of hybrid maize.

Many years have elapsed since any appreciable increase has taken place in the total area utilized by the traditional sector of agriculture, though the population has continued to grow at a high rate. The increasing pressure of population on the land, the excessive concentration of land in the hands of relatively few owners and the social conditions in country districts were probably the principal causes of rebellion among the peasantry during the active phase of the Mexican revolution. The abolition of the system of large estates, and the division of these into "ejidos", brought out new human values of great social and political importance in Mexican agriculture. The division of land however, could

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1/ It is likely that Mexico derives a greater benefit from exporting cotton and importing wheat instead of raising this cereal on cotton land.

not decrease the pressure of the farming population upon the cultivated area. The arithmetical and somewhat rough estimate of the amount of land apportioned to each ejidatario is nevertheless a significant indication of prevailing conditions. Each ejidatario received an area of less than four hectares of poor land with uncertain rainfall, on which he could laboriously cultivate the maize required for his own subsistence.

This deep-rooted problem could not be solved by means of an agriculture belonging to the pre-capitalistic age. It was therefore necessary to bring fertile lands under cultivation and introduce new methods of agricultural production. Furthermore the industrialization of Mexico had to be accelerated in order to draw off the surplus population from the traditional sector of agriculture.

This is one of the principal aspects of Mexico's economic development. Noteworthy progress has been achieved in the development of irrigation. The schemes were begun 25 years ago, during which period one million hectares have been irrigated, or as much as had been irrigated in the whole of the country's history. The blueprint stage has been reached in plans for the irrigation of a further four million hectares, and their execution depends exclusively on the availability of financial resources, since the competence of Mexican technicians in this field has been recognized both at home and abroad.

As regards industrialization, one must bear in mind that there is still a large proportion of the agricultural population working at very low levels of productivity which must ultimately be absorbed by industry, and other activities. Moreover, though the process of industrial expansion is still in its initial phase, it has been solidly founded on the country's natural resources, and the rate of its progress is nonetheless considerable, for the Mexican index of industrial production in 1945-48 showed an increase of 135.6 per cent 1/ over the 1925-29 average.

An intensive development of industrialization is of paramount

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1/ This figure is undoubtedly lower than in fact obtains since industrial production statistics do not include a number of newly established plants.

urgency in order to relieve the pressure exerted by the agricultural population on the cultivated area and, offer, together with industry's related activities, new sources of employment to the vegetative increase of the urban population. The limited capacity to import is one of the greatest obstacles to industrial expansion. This capacity is determined primarily by exports and the terms of trade, followed by foreign investments and receipts from tourism, the latter having been considerable in the past few years. It must be admitted that the development of exports has not been satisfactory. The index of the quantum of exports for 1945-48 was 12 per cent lower than that for 1925-29. Although there was a substantial increase in the exportation of agricultural products, this was not sufficient to offset the decline in exports of petroleum and other minerals. It would nevertheless seem that despite the reduction in the quantum of exports, the proportion of their value that remains in the country has risen considerably, for reasons that will be pointed out later on. But the fact in itself is of the greatest importance and in conjunction with foreign investments and tourist receipts, it is instrumental in accounting to some extent for the remarkable rise of 79 per cent in the value of imports in spite of the reduction of exports and the deterioration of the terms of trade.

It is of interest at this point to raise a question the answer of which is basically related to the economic development of Mexico:- To what extent does the reduction in the quantum of exports during the past 25 years denote that, in relation to past experience, there has been a decline in the country's ability to participate, by means of its exports, in the world's foreign trade ? Is this a general development or is it the result of a series of extraordinary circumstances ? The answer may be found in a study of the following Chart, on which have been plotted two curves for the quantum of Mexico's exports since the beginning of the century; petroleum has been included in Curve No. 1, while in No. 2, it has been excluded. The effect of the drastic increase of petroleum production on the quantum of total exports will be noted just prior to the beginning of the 'twenties. (See curve 1). However, during the 'twenties, the

/curve for

curve for this product declines to be replaced by that for the export of mineral ores, production of which rose sharply with the introduction of new technical methods of exploitation that brought about an increase in the output of base metals. This expansion in the export of metal ores compensates to some extent the reduction in the export of petroleum. Close study of the trends of the 'twenties as plotted on the chart brings to the fore two facts of an extraordinary character which carry the export index to levels out of all proportion with the rate of growth registered during the first decade of the century. It is interesting to note, once the effect of these events, and then of the world crisis has passed, that if the same rate of growth as obtained earlier in the century had persisted through the aforementioned exceptional periods, this tendency would closely follow the rate of growth of Mexican exports during the forties. This can be demonstrated by superimposing straight lines on the two curves which will coincide satisfactorily with the rate of growth of Mexico's exports in the first and fifth decades of the present century.

This leads to the following conclusion: that Mexican exports reflected during the 'twenties completely abnormal circumstances, so that any comparison based on these years may result in a distorted impression, if due allowance is not made for the nature of these occurrences.

Thus, the reduction in the quantum of Mexico's exports during 1945-48, in comparison with 1925-29, is preponderantly dominated by such anomalies. Consequently, the 'twenties should be set aside, and for the purpose of analysing the development of the half century which has just drawn to a close, the index of the quantum of exports in the fifth decade with that of the first should be taken into consideration instead. Such a comparison reveals an increase of 144.9 per cent in the index of the quantum of Mexican exports, excluding petroleum, and 169.4 per cent when this commodity is included in the index. Since the population increased 52.1 per cent during this period, the per capita quantum of exports has accordingly increased 61 per cent or 77.1 per cent, depending on whether or not petroleum is included in the data.

From this review of the situation, it should not be deduced that, because Mexico's exports were able to recover the rate of expansion

/obtaining prior

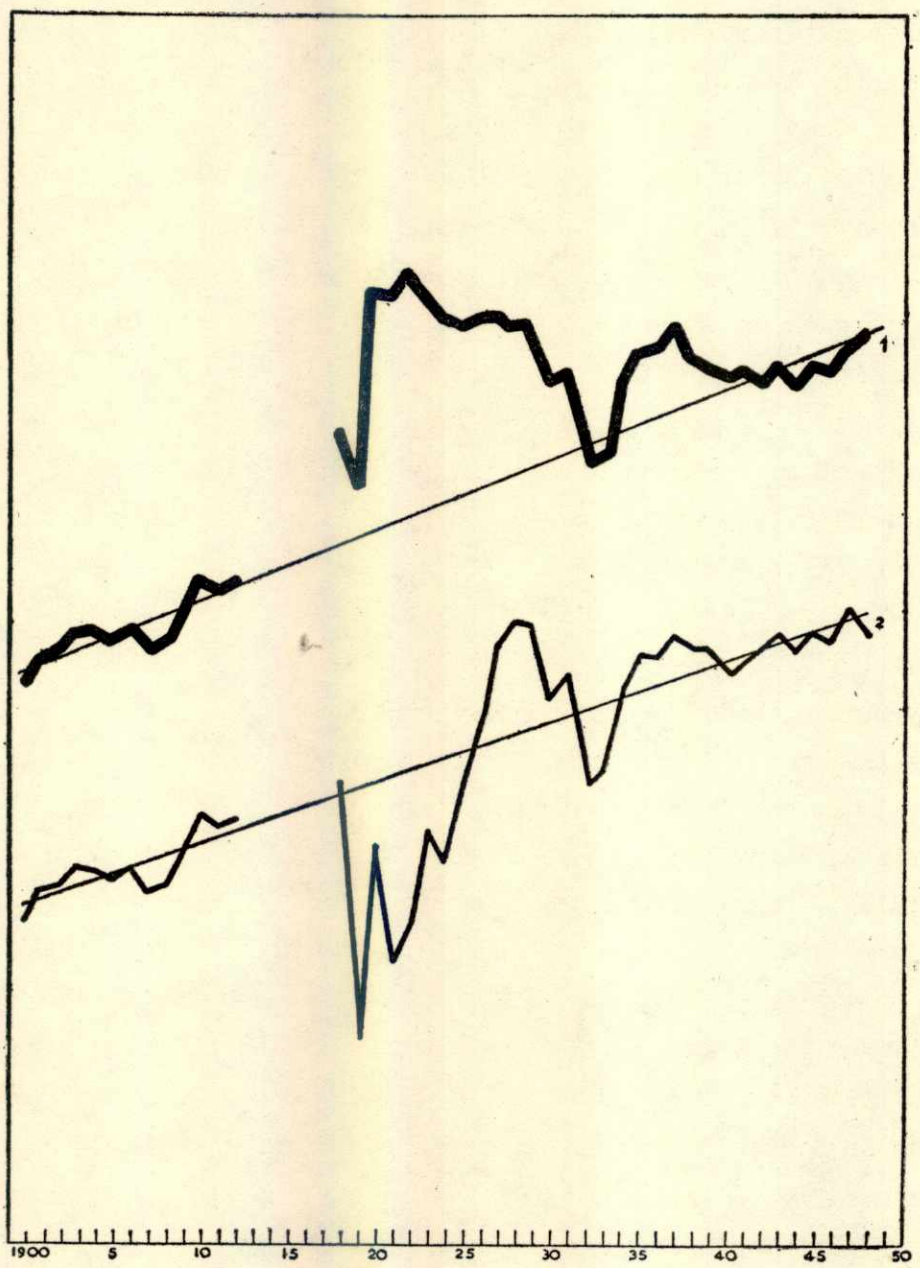
GRAFICO A

MEXICO

EFECTO DEL PETROLEO EN EL VOLUMEN FISICO DE LAS EXPORTACIONES MEXICANAS

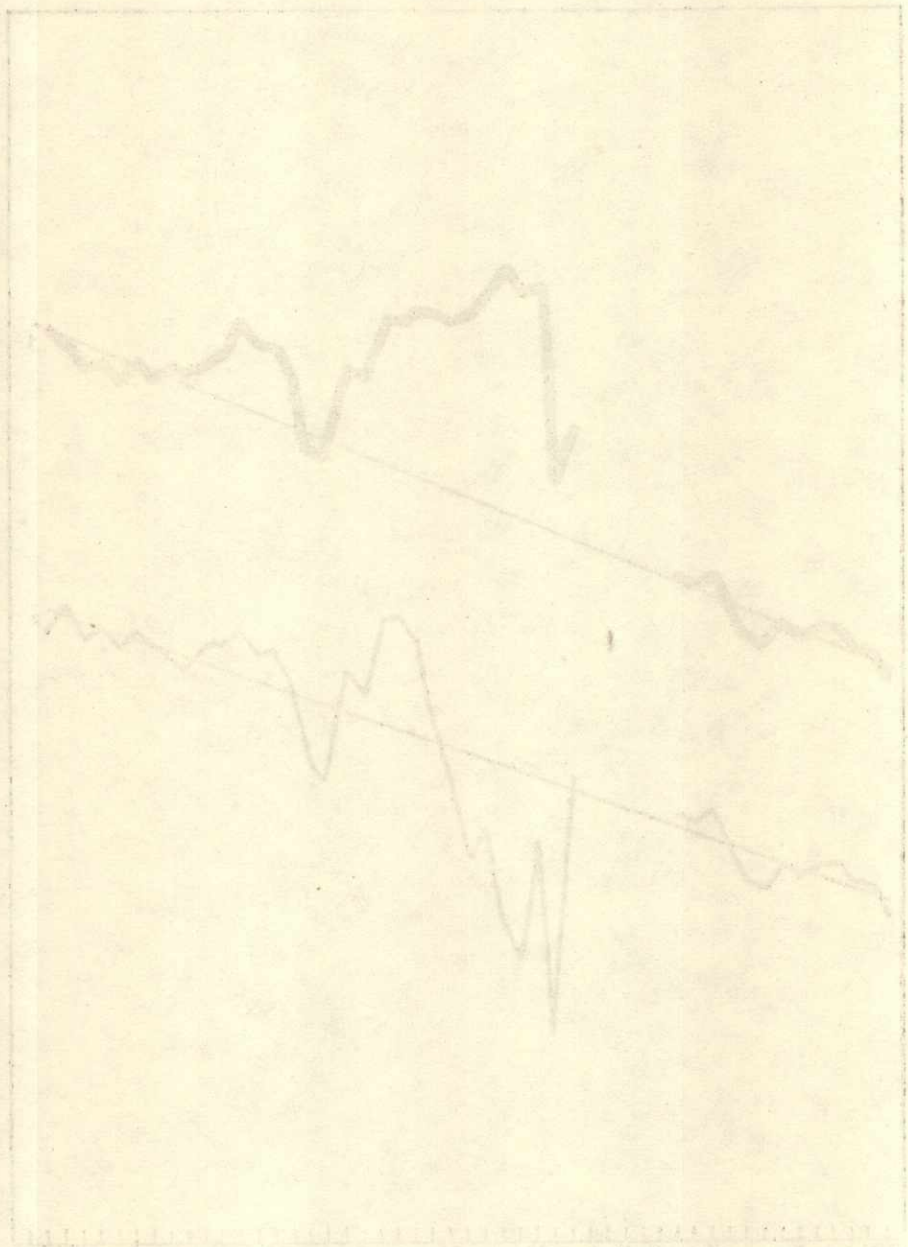
1937 = 100

Escala logarítmica



1.— Indice del volumen físico de las exportaciones.
2.— Indice del volumen físico de las exportaciones, excluyendo el petróleo.

Centro de Investigaciones, Comisión Económica para América Latina.



obtaining prior to the combination of these peculiar circumstances, closely associated with the major shifts which periodically occur in world mining, less significance should be ascribed to the fact that the quantum of Mexican exports has not yet been able to recuperate its pre-depression level. Likewise, the fact that the quantum of exports has regained the rate of growth obtaining in the first decade of the century does not imply that such exports are sufficient as to bring about a rapid change in the structure of Mexico's economy. As was shown in the first section of the present report, per capita exports in Mexico are among the lowest in Latin America, whereas the proportion of that country's agricultural population and the rate of growth of the whole population are among the highest.

II. CHANGES IN THE GAINFULLY EMPLOYED POPULATION

There is still a large proportion of Mexico's total gainfully employed population engaged in agriculture 1/, in fact, 65.5 per cent according to the 1940 census. The corresponding figure for 1930 was 70.6 per cent, which points to the migration of gainfully employed persons from the country to the urban centres. It is suggested that the decrease in this percentage from 1940 to 1946 is still greater, some sources giving it as low as 59.3 per cent. 2/

The extent of the displacement of gainfully employed population should be first considered in order to obtain a rough idea of what is occurring, since it is generally accepted in Mexico that the deficiency of the statistics available precludes accurate conclusions. Between 1930 and 1946, the active population increased by some 1,600,000 persons, or 31.1 per cent. This increase has been very unevenly spread over the various occupations. In agriculture the number of gainfully employed persons has only risen 10 per cent, whereas employment in industries has increased by 52.6 per cent. However, tertiary activities have shown an even greater increase in the number employed, namely 97.1 per cent between 1940 and 1946. It is certain that the expansion of employment has been very uneven, but the accuracy of the statistics cannot be relied upon; they become, in fact, open to even greater doubts when the sub-divisions of the various occupational categories are carefully analysed. For instance, mining appears to

1/ Including forestry and fishing.
2/ According to estimates made by the Departamento de Estudios Económicos del Banco de México (Economic Research Department of the Bank of Mexico), it is possible that the emigration of farm labour to the United States may have accounted for a considerable part of this reduction.

/have absorbed

have absorbed a relatively large number of workers, notwithstanding the decline of the volume of production recorded during the period under survey.

The fact that the absorption of gainfully employed population by agriculture occurred to so low a degree in comparison with the increase of industrial labour and above all with the services, points to the trend of labour displacement which is operating, as was to be expected. This transition from one economic activity to another has not prevented an appreciable increase in the quantum of agricultural production, during the aforesaid period; in fact, the indices prepared for this purpose reveal an increase of 80.2 per cent. 1/

Changes in the gainfully employed population

Occupational category	1921	1930	1940	1946	Increase 1946 as per cent of 1930
	(thousand persons)				
Agriculture, including forestry and fishing	3,488	3,635	3,831	4,000	365 10.0
Mining	27	48	107	110	62 129.1
Manufacturing and construction	534	524	640	800	276 52.7
Communications and transport	59	103	149	250	147 142.7
Commerce and others	713	694	939	1,395	701 101.0
Public administration	63	147	192	200	53 36.0
Total	4,884	5,151	5,858	6,755	1,604 31.1
Gainfully employed as per cent of total population	34.1	31.1	29.8	29.6	

1/ This is not strictly comparable with the figure for persons gainfully employed in agriculture since it also comprises forestry, fisheries and other occupations connected with primary production, with the exception of mining. The index of production, on the other hand, refers only to agricultural goods.

/However wide

However wide the margin of error in the compilation of these statistics, it is evident that substantial increases in productivity have been achieved, both through the irrigation of the new lands opened up, and the introduction of mechanization in the cultivation of agricultural land, together with improvements in farming methods.

The same qualifications as above apply to the figures given for the increase of labour in industry: in this branch of economic activity the increment recorded was 52.7 per cent between 1930 and 1946, whereas production indices show an increase of 127.9 per cent.

Various factors have influenced the increase of employment in tertiary activities, particularly in communications and transport, commerce and other services. Among them the growth of urbanization which has created serious problems in some parts has been of considerable significance. This has been the case, for instance, of the Federal District where population increased about 127 per cent between 1921 and 1947. Furthermore, in the field of transport and communications, inefficient organization has probably contributed to the increase of the numbers employed. In commerce it can be assumed that inflation has increased the number of intermediaries. Finally, the considerable growth of tourism in Mexico should be taken into account, foreign exchange receipts derived from this source having been estimated at 140 million dollars in 1949. There are therefore numerous services whose contribution cannot be included in the quantum of production and which, as will be pointed out later, have increased appreciably the number of persons they employ.

It has been pointed out above that there has been an apparent increase in the productivity of agriculture. Nevertheless its level is still very low due to the poor quality of the soil and the scanty rainfall, as well as the small amount of real capital and technical knowledge applied. Hence, though 59.2 per cent of the total of gainfully employed population was engaged in agriculture, this activity accounted for only 17.3 per cent of the net national product. It is quite likely

/that this

that this difference is heightened by statistical inaccuracies, but it is nevertheless evident that in industry and other occupations, production per worker is greater than in agriculture and that as labour is displaced from the latter to the former, the average per capita income also rises. The analysis of Mexican industry, included in volume 3 of the Survey, refers to this aspect of the problem. It will be seen that the value added per worker in mining is much greater than in industry, not only because of the investment and skill employed in mining, but also because of the high proportion of land rent which is included in the value of production. Thus, if Mexico could expand its exports of minerals, the increase of income per capita would be greater than could be obtained in any other economic activity. This would apply even if the production per worker in Mexican mining were lower than that obtaining in other mining countries. This factor is closely linked with what is said in the section on mining production.

III. THE RATE OF ECONOMIC DEVELOPMENT

1. The supply of goods and production

Mexico has increased the quantum of the goods available for consumption and investment during the past 25 years at a rate much higher than that of the growth of the population. Whereas the latter increased by 47 per cent between 1925-29 and 1945-48, the total supply of goods increased by 89.3 per cent according to the corresponding index shown on Chart 1 and Table 1. The per capita supply of goods have increased 28.2 per cent during the same period.

Curve 2 on the chart, that is the curve of the index of the supply of goods, after dropping considerably during the crisis, tends to rise constantly after 1931, except for a few slight and unimportant interruptions.

Curve 3 shows the index of Mexico's total production during the twenty-five years under survey. Comparison of this index with the preceding one, that is, of the supply of goods, reveals a wide difference in growth. In fact, after the depression the volume of

/the supply

the supply of goods expanded far more rapidly than total production which developed at a rate only slightly higher than that of population, data showing that while the population increased by 47 per cent over the period, total production increased by 49.7 per cent and the supply of goods by 88.5 per cent.

The substantial increase in the supply of goods is due to the fact that Mexican exports were lower than previously, and imports much higher. In point of fact, between 1925-29 and 1945-48, the quantum of Mexican exports decreased by 12.1 per cent, whereas that of imports during this interval rose 79.3 per cent. Curves 4 and 5 on the chart bear out these facts. In other words, the goods which have been deducted as exports have been amply compensated by imports, so that the growth of the latter has permitted Mexico to dispose of a greater volume of goods than those produced within the country for purposes of consumption and investment. Before seeking the explanation of this development, the composition of production should be examined by means of Chart 2 and Table 1-A. Three elements constitute the index of production, namely, the index of manufacturing production - curve 3, agricultural production - curve 4, and mining - curve 5. This latter decreased during the 25 years under survey, whereas the other two increased, though at different rates. Mining production was 16.8 per cent lower than the high level it reached in 1925-29. On the other hand, agricultural production increased by 55.1 per cent, that is, fairly proportionately with population, while manufacturing production shows a very substantial increase (135.6 per cent) over the period. (See Table 1-B).

Table 1-B: Quantum of available goods and their structure
In millions of pesos at 1937 prices.

	Annual averages			Percentage variation on 1925-29	
	1925-29	1945-48	1948	1945-48	1948
Production					
Agricultural	834.6	1,294.5	1,446.0	55.1	73.2
Mining	836.0	694.8	685.0	- 16.8	- 18.0
Manufacturing	631.4	1,486.2	1,459.0	135.6	131.2
Total	2,302.0	3,475.5	3,590.0	51.0	56.0
Imports	680.0	1,219.5	1,116.0	79.3	64.2
Exports	920.2	808.8	863.0	- 12.1	- 6.2
Total	2,061.8	3,886.0	3,843.0	85.5	86.4
Ratio of imports to supply of goods	33.0	31.9	34.4	- 3.3	4.2

Note: For source and notes, see Table 1-A, Mexico.

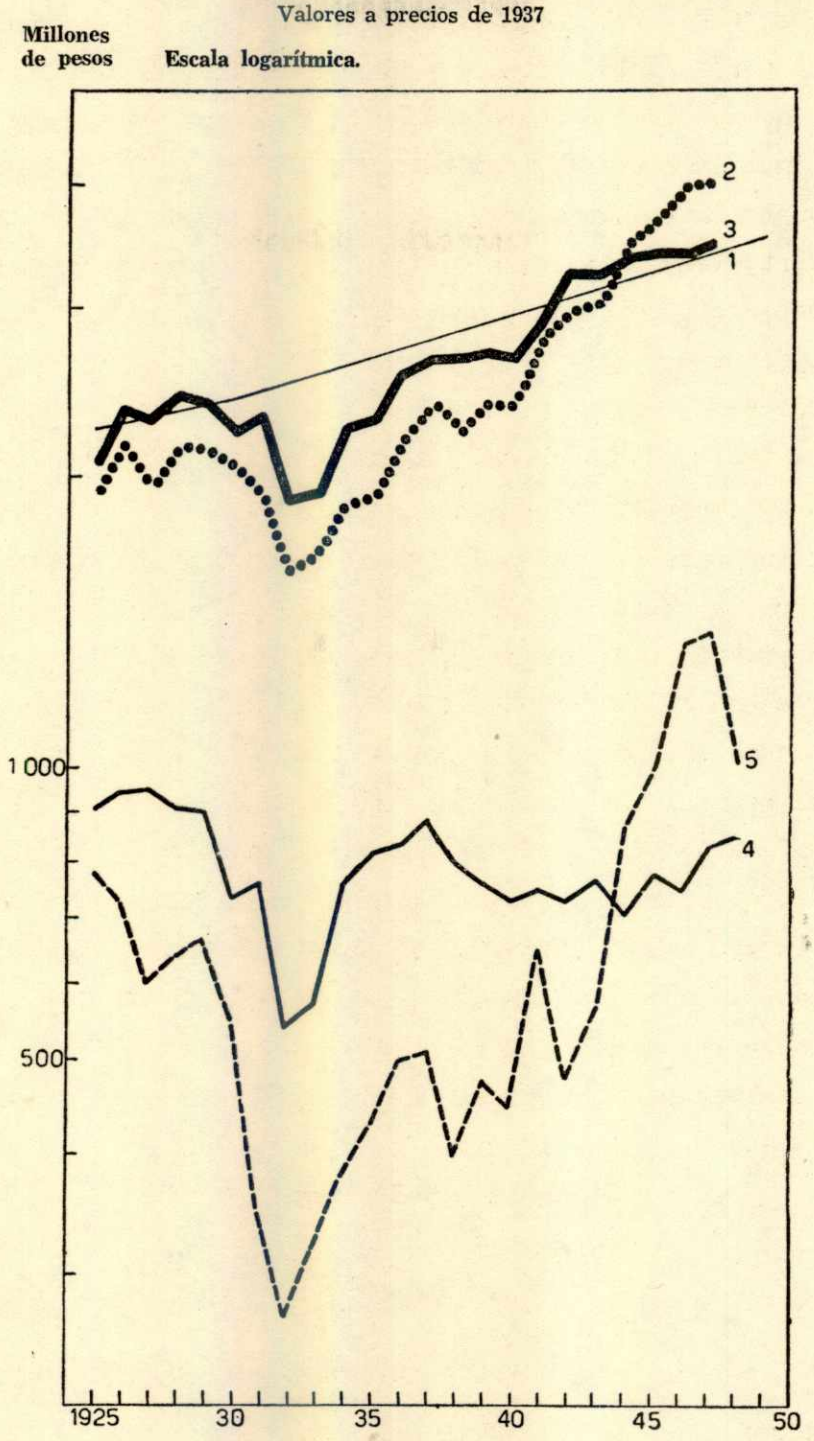
/During the

GRAFICO 1

MEXICO

BIENES DISPONIBLES Y SU COMPOSICION

Valores a precios de 1937



1.— Población.
2.— Total de bienes disponibles.
3.— Producción.
4.— Exportaciones.
5.— Importaciones.

Centro de Investigaciones, Comisión Económica para América Latina.



Table 1 A. Mexico: Available goods and their composition

(Values at 1937 prices)

Years	Production				Imports	Exports	Total	Ratio of imports to available goods.
	Agriculture	Mining	Industry	Total				
1925	793	674	587	2,054	778	904	1,928	40.4
1926	916	780	666	2,362	717	937	2,142	33.5
1927	839	860	603	2,302	596	952	1,946	30.6
1928	887	902	632	2,421	635	905	2,151	29.5
1929	738	964	669	2,371	674	903	2,142	31.5
1930	683	844	705	2,232	549	730	2,051	26.8
1931	857	761	704	2,322	349	764	1,907	18.3
1932	740	528	608	1,876	268	540	1,604	16.7
1933	819	550	563	1,932	317	569	1,680	18.9
1934	760	655	840	2,255	377	757	1,875	20.1
1935	807	680	817	2,304	425	820	1,909	22.3
1936	904	713	941	2,558	495	838	2,215	22.3
1937	859	814	986	2,659	614	892	2,381	25.8
1938	868	818	966	2,652	398	799	2,251	17.7
1939	964	742	966	2,672	479	761	2,390	20.0
1940	904	724	1,025	2,653	452	730	2,375	19.0
1941	1,068	736	1,094	2,898	662	746	2,814	23.5
1942	1,202	837	1,203	3,242	484	727	2,999	16.1
1943	1,124	843	1,272	3,239	568	768	3,039	18.7
1944	1,223	752	1,390	3,365	880	714	3,531	24.9
1945	1,188	764	1,469	3,421	1,017	780	3,658	27.8
1946	1,231	577	1,607	3,415	1,356	753	4,018	33.7
1947	1,313	753	1,410	3,476	1,389	839	4,026	34.5
1948	1,446	685	1,459	3,590	1,116	863	3,843	29.0

Source: Research Centre, Economic Commission for Latin America, United Nations.

Note: As 1937 net production values, estimates of net national revenue from Compendio Estadístico, Dirección General de Estadística, were used.

The agricultural production index has been compiled by the Research Centre from basic data of the Secretaría de Agricultura y Ganadería; the mining production index corresponds to "Indice de Producción Minero-Metalúrgico" of "Barómetros Económicos"; and the industrial production index to the "Indice Largo de las Industrias de Transformación" de "Barómetros Económicos".

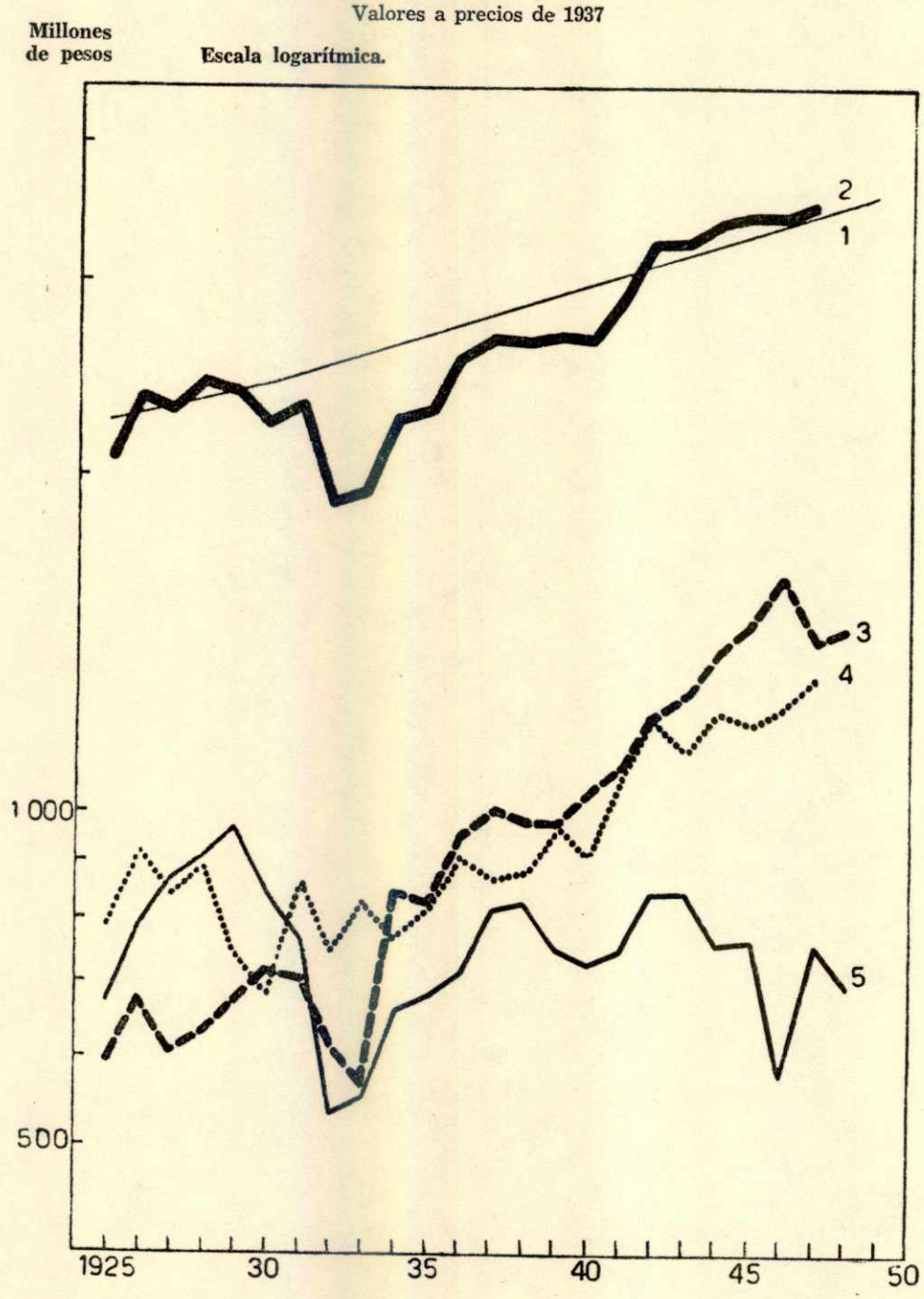
The import and export indices have been compiled by the Research Centre from basic data secured from the Mexican Group of the Economic Commission for Latin America.

GRAFICO 2

MEXICO

LA PRODUCCION Y SU COMPOSICION.

Valores a precios de 1937



1.— Población.
2.— Producción total.
3.— Producción industrial.
4.— Producción agrícola.
5.— Producción minera.

Centro de Investigaciones, Comisión Económica para América Latina.

During the last twenty-five years manufacturing production was smaller than that of agriculture and mining before the world depression. However, immediately afterwards it surpassed that of mining and continued to rise until it had surpassed agricultural production, though not permanently, since it will be noted that though the curves separate during the war period, they have tended to meet again in recent years.

It should also be noted that the world crisis affected the three curves in vastly different degrees. That for mining, for example, suffered far more seriously than either of the other two, and despite the subsequent recovery, after the depression, production never returned to its former level, as has already been shown. The curve for manufacturing production was affected to a lesser degree, and promptly recovered its former rate of growth. The curve of agricultural production shows fluctuations which can be attributed to weather factors rather than to the world depression, though it would seem that the latter tended to check the rate of development. In considering these changes it is necessary to note that the decrease in the volume of Mexico's foreign trade began before the world depression, as can readily be seen from curves 4 and 5 on Chart 1, and that this occurred chiefly as a result of the decline of the country's petroleum exports.

At this point the reasons that account for the different development of Mexico's quantum of exports and of imports should be examined.

As in other cases, the changes in Mexico's capacity to import as a function of the quantum of exports and the terms of trade should first

/be considered

be considered. (See Chart 3 and Table 2-A). Here again, curve 2 is plotted for the quantum of exports, and this, together with curve 3, the terms of trade, gives curve 4, which traces the changes in the capacity to import. A comparison of curves 4 and 5 showing the quantum of imports, reveals a considerable discrepancy since the end of the 'thirties. Until that period, the two curves had been fairly parallel, but afterwards imports increase much more than the capacity to import derived from exports; whilst in 1945-48 the latter fell 29.4 per cent in relation to the 1925-29 level, imports rose 79.3 per cent. (See Table 2-B).

Table 2-B Quantum of exports and imports, the terms of trade and the capacity to import

	Annual averages			Percentage change over 1925-29	
	1925-29	1945-48	1948	1945-48	1948
Population (000 of inhabitants)	15,705	23,080	23,876	47.0	52.0
		Index numbers: 1937 = 100			
Quantum of exports	103.2	90.7	96.8	- 12.1	- 6.2
Export prices	71.3	241.2	326.2	238.3	357.5
Import prices	52.2	217.3	270.3	316.3	417.8
Terms of trade	136.8	109.6	120.7	- 19.9	- 11.8
Capacity to import	141.3	99.7	116.8	- 29.4	- 17.3
Quantum of imports	110.8	198.7	181.9	79.3	64.2

Note: For sources and notes see Table 2-A, Mexico.

There are several explanations which might apply to this fact. It is possible that there are inaccuracies in the statistical data, either in the calculation of the terms of trade or of the indices 1/. It is

1/ Import and export prices which have been used as a basis in the calculation of the terms of trade, and which have been obtained from official figures given for Mexico's foreign trade, may show a slight deviation which would tend to deteriorate the terms of trade more than has in fact occurred. As regards the calculation of the indices, it is not likely that the methods of weighing exert any serious influence on the divergence which is being pointed out.

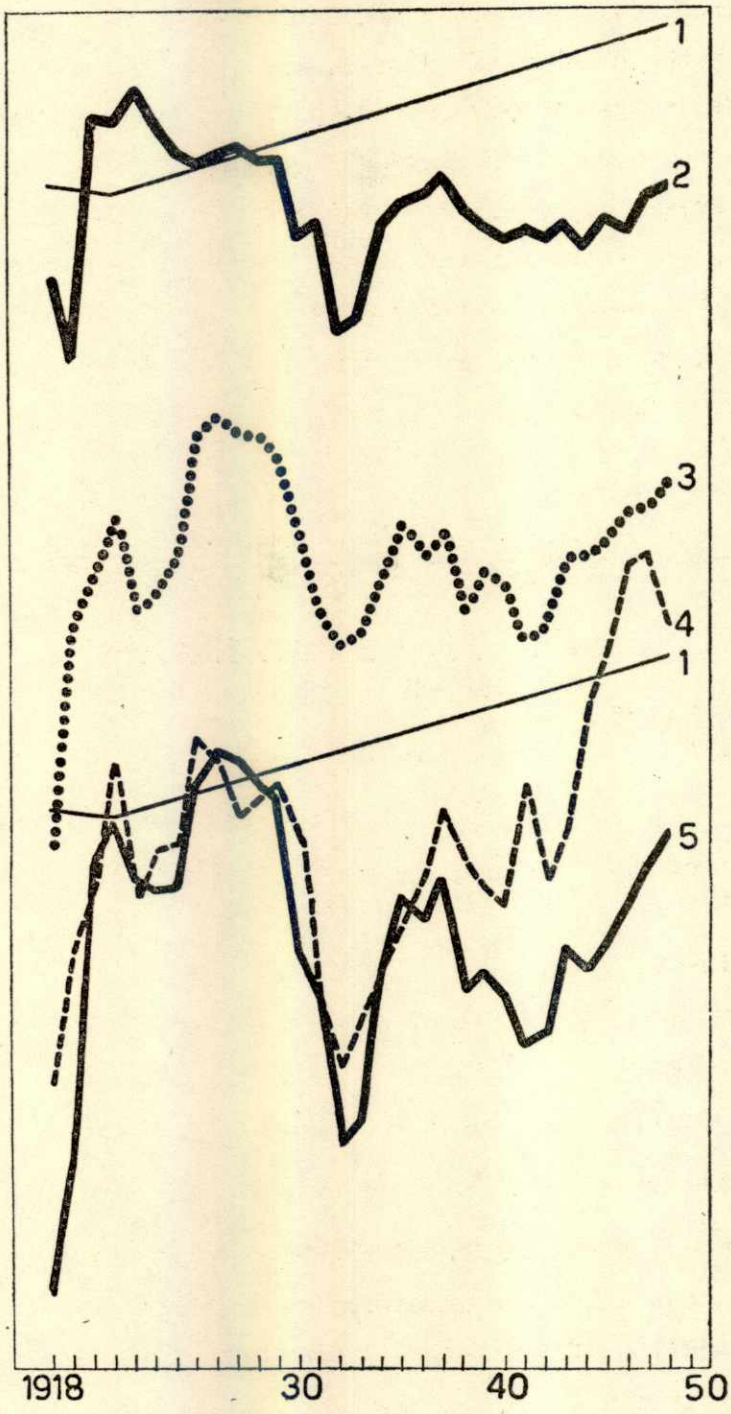
/more likely

GRAFICO 4

MEXICO

VOLUMEN FISICO DE LAS EXPORTACIONES E IMPORTACIONES, TERMINOS DEL INTERCAMBIO Y CAPACIDAD PARA IMPORTAR.

Escala logarítmica.



1.— Población.
2.— Indice del volumen físico de las exportaciones.
3.— Términos del intercambio.
4.— Indice del volumen físico de las importaciones.
5.— Capacidad para importar.

Centro de Investigaciones, Comisión Económica para América Latina.

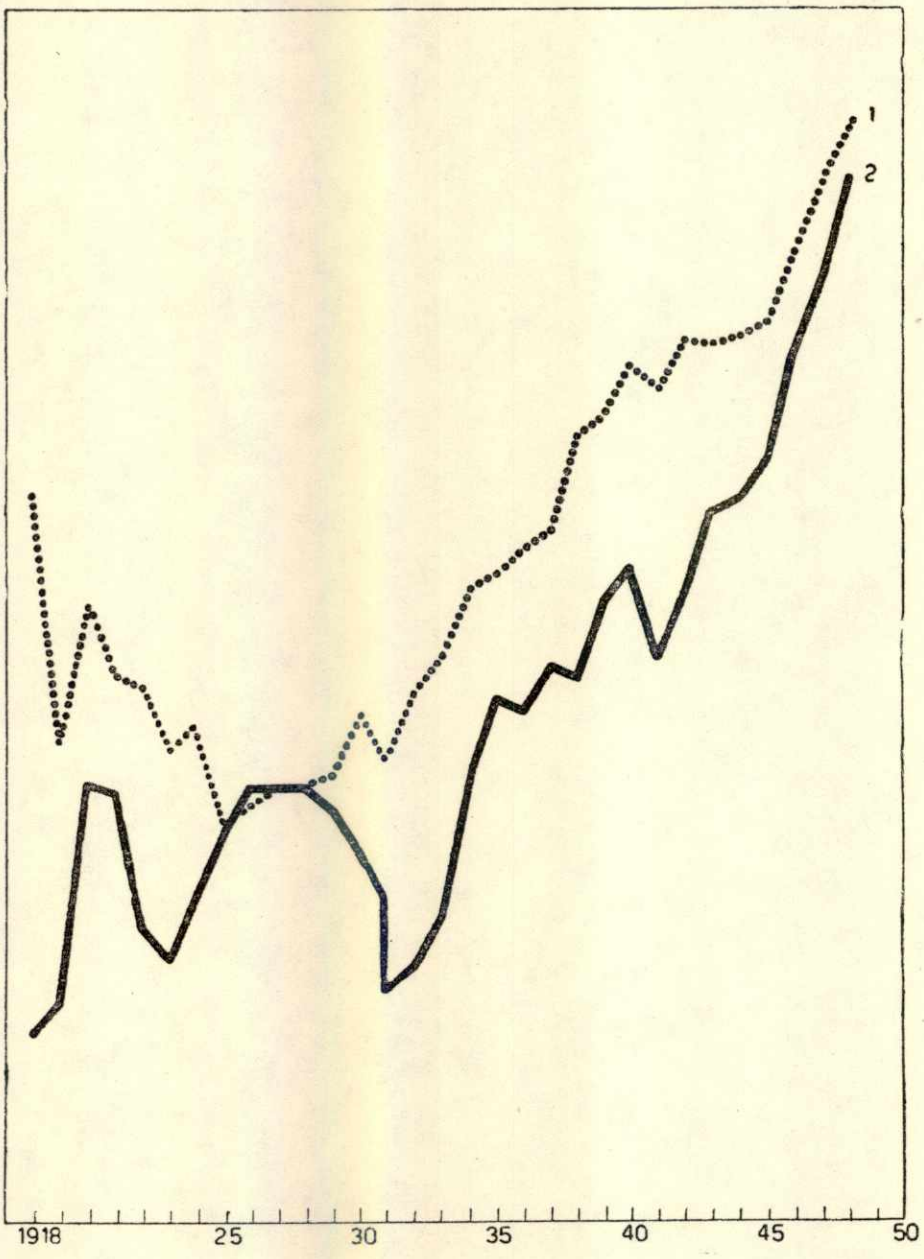
GRAFICO 5

MEXICO

INDICES DE PRECIOS DE IMPORTACION Y EXPORTACION

1937 = 100

Escala logarítmica.



1.— Indice de precios de importación.
2.— Indice de precios de exportación.

Centro de Investigaciones, Comisión Económica para América Latina.

Table 2-A. Mexico. Quantum indices of exports and imports, terms of trade and capacity to import.

1937 = 100

Years	Population (in thousands)	Quantum Index of Exports	Price Index of Exports	Price Index of Imports	Terms of Trade	Capacity to import	Quantum Trade of Imports
1900	13,607	27.0	31.1	39.9	77.9	21.0	59.6
1901	13,169	30.7	32.8	36.3	90.3	27.7	62.6
1902	13,933	31.7	37.3	46.3	80.6	25.5	58.5
1903	14,099	33.6	36.6	43.8	83.6	28.1	72.8
1904	14,267	33.4	37.4	38.8	96.4	32.2	69.2
1905	14,437	32.3	38.3	30.8	124.3	40.1	97.8
1906	14,609	33.6	39.9	39.6	100.7	33.8	96.7
1907	14,783	30.6	36.1	35.1	102.8	31.4	115.4
1908	14,959	31.7	35.6	35.5	100.3	31.8	109.7
1909	15,137	35.7	33.9	33.3	101.8	36.3	84.6
1910	15,160	40.9	31.9	34.4	92.7	37.9	98.1
1911	15,082	39.7	33.3	35.0	95.1	37.7	99.9
1912	15,006	40.7	39.2	31.7	123.6	50.3	93.9
1913	14,930	-	86.9	30.6	283.9	-	100.1
1914	14,854	-	-	-	-	-	-
1915	14,779	-	-	-	-	-	-
1916	14,704	-	-	-	-	-	-
1917	14,629	-	-	-	-	-	-
1918	14,555	72.1	40.3	109.9	36.7	26.5	40.7
1919	14,481	55.1	43.6	59.3	73.5	40.5	53.4
1920	14,408	119.6	74.4	84.5	88.0	105.2	78.6
1921	14,335	118.3	72.5	70.3	103.1	121.9	115.1
1922	14,554	129.4	52.3	67.8	77.1	99.8	73.5
1923	14.777	115.5	48.4	58.2	83.2	96.1	88.3
1924	15,003	105.1	57.4	62.1	92.4	97.1	88.9
1925	15.232	101.3	66.7	48.8	136.7	138.5	126.8
1926	15,465	105.1	73.4	50.6	145.0	152.4	116.8
1927	15,702	106.7	73.4	53.0	138.5	147.8	97.2
1928	15,942	101.5	73.4	53.7	136.7	138.7	103.4
1929	16,186	101.5	69.8	54.9	127.1	129.0	109.8
1930	16,553	81.8	63.5	63.7	99.7	81.5	89.5
1931	16,841	85.6	44.8	56.8	78.9	67.5	56.9
1932	17,134	60.5	47.5	67.2	70.7	42.8	43.7
1933	17,432	63.8	54.0	73.2	73.8	47.1	51.7
1934	17,735	84.9	77.0	86.3	89.2	75.7	61.4
1935	18,044	91.9	92.3	89.4	103.2	94.8	69.3
1936	18,852	93.9	89.4	95.4	93.7	87.9	80.7
1937	18.737	100.0	100.0	100.0	100.0	100.0	100.0

/1938

Table 2-A. Continuation

Years	Population (in thousands)	Quantum Index of Exports	Price Index of Exports	Price Index of Imports	Terms of Trade	Capacity to Imports	Quatum Trade of Imports
1938	19,071	89.6	96.6	125.7	78.4	70.2	84.9
1939	19,413	85.3	116.6	132.3	88.1	75.1	78.1
1940	19,763	81.9	127.1	150.2	84.6	69.3	73.6
1941	20,208	83.6	101.6	142.9	71.1	59.4	107.9
1942	20,657	81.5	119.2	158.9	75.0	61.1	78.9
1943	21,165	86.1	145.0	157.6	92.0	79.2	92.5
1944	21,674	80.1	150.1	161.3	93.1	74.6	143.3
1945	22,233	87.5	164.1	165.8	98.9	86.5	165.7
1946	22,779	84.4	216.6	198.9	108.9	91.9	220.9
1947	23,434	94.1	257.9	234.3	110.1	103.6	226.3
1948	23,876	96.8	326.2	270.3	120.7	116.8	181.9
1949	24.448						

Source: Research Centre, Economic Commission for Latin America.

Notes: Population was calculated on the basis of the population censuses, published in the Anuario Estadístico de los Estados Unidos Mexicanos, 1941; from 1937 to 1949, figures of the United Nations Monthly Bulletin of Statistics have been used.

The Import and Export Indices were obtained from basic data supplied by the Mexican Group of the Economic Commission for Latin America. The formulæ used are as follows: for the quantum indices, $\frac{\Sigma P_o Q_n}{\Sigma P_o Q_o}$

and for the price indices, $\frac{\Sigma P_u Q_n}{\Sigma P_o Q_n}$

more likely that it is due to the preponderant influence of the following factors which have increased Mexico's capacity to import: (a) tourist receipts, (b) foreign investments and other net sources of income, and (c) the increasing proportion of the value of exports which now remains in Mexico.

The first two of these factors have acquired considerable significance in the past few years. However, despite their influence, the capacity to import, derived from exports, did not increase more than 20 per cent during the period 1945-48, which can only partly explain the difference between the capacity to import and the quantum of imports. It is therefore evident that other factors have also come into play and among these, the most important is probably point c) above.

Several causes have contributed to an increased share of the value of Mexico's exports to remain in the country. A large part of the reduction of the quantum of exports can be ascribed to the decline of petroleum exports, which began early in the 'twenties and lasted until recently. Unfortunately, until nationalization took place, there were no figures with which to ascertain the exact amount of the value of petroleum exports which remained in the country; all that is known is that since then the full amount remains in Mexico with the exception of indemnization payments. It is therefore virtually certain that the total amount in dollars which Mexico receives for its petroleum exports has diminished less than the volume. It is also probable that the proportion of the value of the mineral exports which remains in the country has also increased, to judge by the increased taxes which have been levied by the Government since the beginning of the 'thirties. Lastly, the exportation of agricultural produce has also increased in the twenty-five years between 1925-29 and 1945-48, and as the total value of these exports remains within the country, this also contributed to raise the proportion in relation to total exports.

It is likely that these causes together with the receipts derived from tourism, foreign investments and other sources of net incomes,

/account for

account for the difference between the quantum of exports and the capacity to import. However, it must be remembered that all that has been said regarding this factor is mere conjecture and therefore the conclusions drawn from it must be taken with reservations until adequate information becomes available; This is one of the many cases in Latin American countries for which it is impossible to obtain statistics of basic importance as regards the relationship between a country's economy and its international transactions.

2. The development of investment

Though there has been a considerable increase in the quantum of Mexico's imports in 1945-48, in relation to 1925-29, before the world depression, that which had been recorded for imports of capital goods was even greater. In fact, the index for imports of capital goods shows an addition of 104.8 per cent, rising to 113.1 per cent when motor vehicles are included in the computation, as was explained in the Introduction to the present chapter. Because Mexico was able to import directly from the United States by land during the war, as well as for other reasons, it is probably the only country in Latin America that was able to increase imports of capital goods while the conflict lasted. This is clearly shown on Chart 6, in which the quantum of total imports (curve 1) is compared with imports of capital goods (curve 4) and capital goods plus motor vehicles (curve 2) and with imports of other goods (curve 3).

In Mexico, as elsewhere, it will be seen that imports of capital goods and motor vehicles are very much more subject to changes in the level of economic activity in foreign countries than are imports of other goods. In other words, as soon as the capacity to import contracts, other goods are affected to a lesser degree than capital goods, and when it expands capital goods are the more favoured. In fact, the relatively small extent of the variations of curve 3, representing other goods, is apparent, in comparison with the marked changes of curves 2 and 4, which represent capital goods.

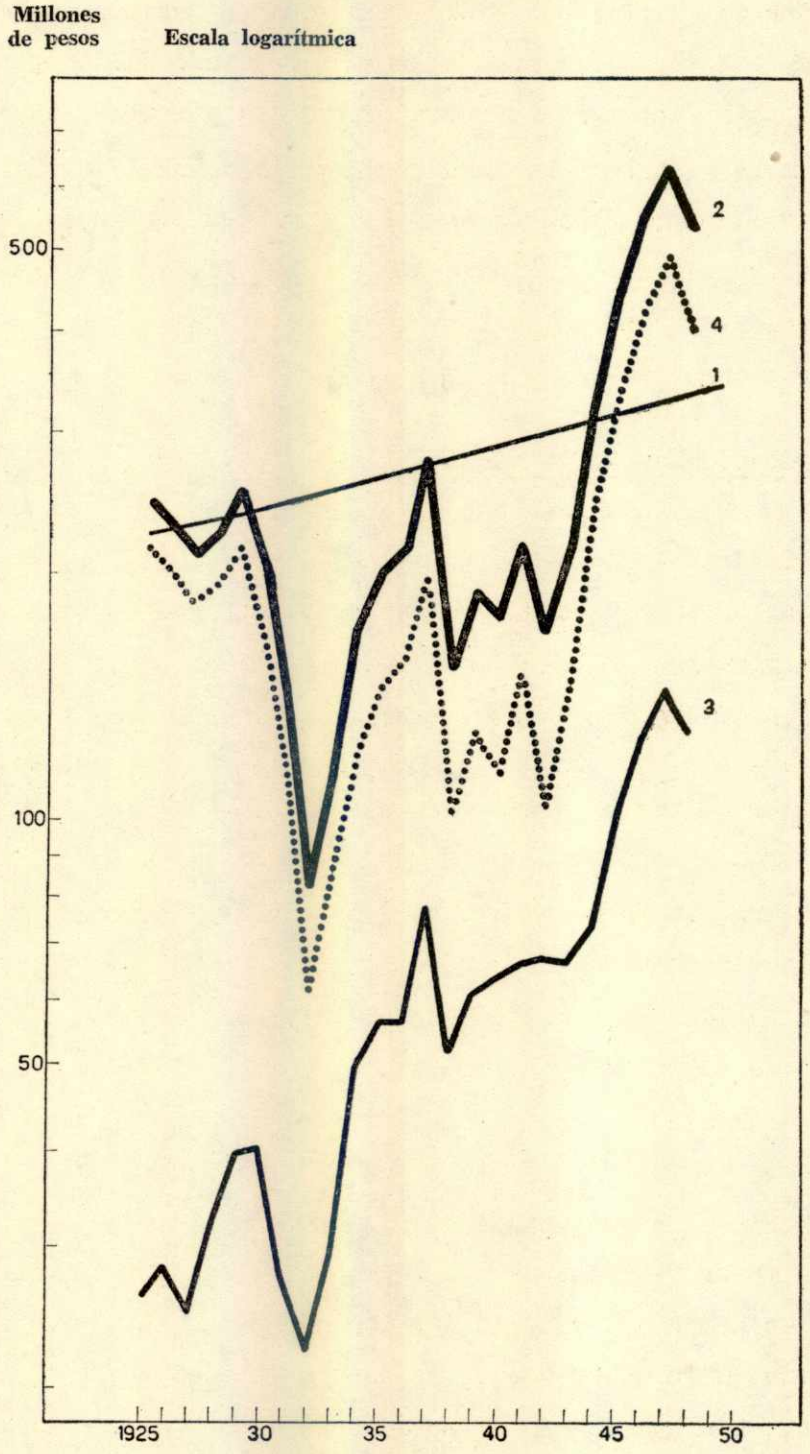
Here again there is ample evidence of the substantial pressure

GRAFICO 7

MEXICO

INDICES DEL DESARROLLO DE LA CAPITALIZACION.

Valores a precios de 1937



1.— Población.
2.— Capitalización total.
3.— Producción de hierro, acero y cemento.
4.— Importación de bienes de capital.

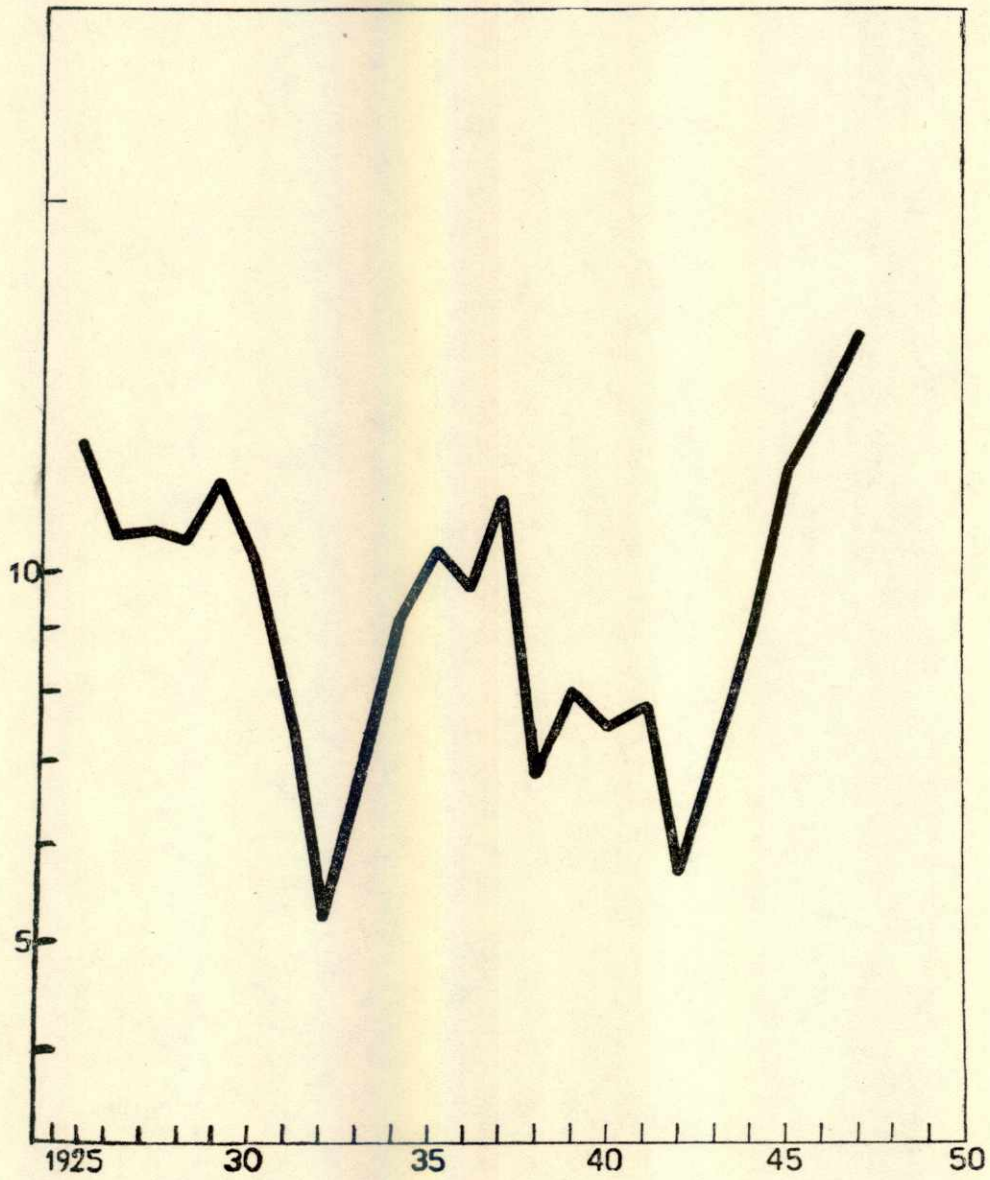
Centro de Investigaciones, Comisión Económica para América Latina.

GRAFICO 8

MEXICO

COEFICIENTE DE CAPITALIZACION.

Escala logarítmica



Centro de Investigaciones, Comisión Económica para América Latina.



Table 3 A. Mexico : Quantum of capital goods

Values at 1937 prices

Thousands of pesos

Years	Domestic production of iron, steel and cement (1)	Iron, steel and cement imports (2)	Imports of other capital goods (3)	Total capital goods: Imports (2) + (3) (4)	Total capital goods: Production + imports (5)	Coefficient of capitalization (6)
1925	26,488	38,738	181,172	219,910	246,398	12.8
1926	28,618	38,620	163,132	201,752	230,370	10.8
1927	25,298	36,145	149,765	185,918	211,208	10.8
1928	32,331	34,867	159,964	194,831	227,162	10.6
1929	38,953	49,139	167,833	216,972	255,925	11.9
1930	39,696	30,202	137,833	168,035	207,731	10.1
1931	27,712	24,875	90,797	115,672	143,384	7.5
1932	22,341	16,280	44,772	61,052	83,393	5.2
1933	29,291	26,482	59,903	86,385	115,676	6.9
1934	50,148	39,170	81,667	120,837	170,985	9.1
1935	56,733	38,444	105,807	144,251	200,984	10.5
1936	56,351	44,408	113,926	158,334	214,685	9.7
1937	78,109	62,751	137,511	200,262	278,371	11.7
1938	52,169	22,548	79,134	101,682	153,851	6,8
1939	61,794	28,501	100,178	128,178	190,473	8.0
1940	64,126	31,182	82,294	113,476	177,602	7.5
1941	66,683	34,609	118,321	152,930	219,613	7.8
1942	67,835	23,809	79,241	103,050	170,885	5.7
1943	66,931	42,237	106,058	148,295	215,226	7.1
1944	73,757	84,650	164,233	248,883	322,640	9.1
1945	102,333	83,093	260,197	343,290	445,623	12.2
1946	127,630	99,256	330,611	429,867	557,497	13.9
1947	143,398	112,627	377,392	490,019	633,417	15.7
1948	128,542	60,991	346,370	407,361	535,903	13.9

Source: Research Centre, Economic Commission for Latin America, United Nations

Note: The coefficient of capitalization was calculated in relation to available goods.

Table 4 A: Mexico: Quantum index of imports of the principal capital goods

Values at 1937 prices

Thousands of pesos

Years	Machinery and equipment	Agricultural machinery and supplies	Transport and Communications equipment	Iron, Steel and Cement	Others	Total
1925	122,417	3,237	30,179	5,676	78,551	240,060
1926	117,829	9,326	21,787	6,281	62,487	217,710
1927	107,942	8,141	20,457	5,976	58,131	200,647
1928	122,491	8,527	22,886	8,492	48,510	210,906
1929	128,118	7,975	31,973	12,069	57,828	237,963
1930	94,722	8,410	34,439	6,083	43,670	187,324
1931	66,423	4,570	18,775	5,439	33,872	123,640
1932	30,245	745	14,949	4,601	15,883	66,423
1933	45,880	1,451	14,955	7,921	23,381	93,588
1934	60,467	4,796	25,887	12,273	34,707	138,130
1935	74,146	6,726	35,521	11,767	39,889	168,049
1936	87,288	6,590	41,854	11,468	41,589	188,789
1937	101,060	9,203	58,755	17,471	54,940	241,429
1938	58,041	3,145	24,700	6,404	27,088	119,378
1939	49,502	4,420	33,517	9,796	27,229	124,464
1940	56,182	5,451	32,858	12,848	31,535	138,874
1941	76,893	14,723	60,519	12,323	38,542	203,000
1942	53,955	5,350	30,887	6,655	29,545	126,392
1943	78,102	8,443	16,052	15,377	37,780	155,754
1944	111,670	18,051	30,289	45,892	55,697	261,599
1945	182,104	22,729	67,456	51,277	63,639	387,205
1946	231,792	24,008	148,800	50,264	82,783	537,647
1947	271,718	41,351	156,550	37,688	91,441	598,748
1948	243,241	52,297	95,205	19,497	64,553	474,793

Source: Research Centre, United Nations Economic Commission for Latin America.

exerted by external factors on the rate of internal development as affected by investment.

The extent of Mexico's effort to increase investment with imported goods can be read from the following figures: in 1945-48, 33.6 per cent of the current value of imports was made up of capital goods, whereas in 1925-29 they represented only 26.8 per cent of imports. If motor vehicles are included, the proportions become 41.3 per cent and 28.5 per cent, respectively.

Table 4-B Changes in the main capital goods imported

(In millions of 1937 pesos)

	Yearly averages			Per cent change on 1925-29	
	1925-29	1945-48	1948	1945-48	1948
Machinery and general equipment	119,759	232,214	243,241	93.9	103.1
Agricultural machinery and requisites	7,441	35,096	52,297	371.6	602.8
Transport and communications equipment	25,456	117,003	95,205	359.6	274.0
Iron, steel and cement	7,699	39,682	19,497	415.4	153.2
Others	61,102	75,603	64,553	23.7	5.6
Total	221,457	499,598	474,793	125.6	114.4

Note: For sources and notes, see Table 4-A, Mexico.

If the domestic production of iron, steel and cement is added to the index of the quantum of imports of capital goods, a rough approximation of the changes of investment in Mexico is obtained, which should be accepted with the same qualifications as previously indicated. On Chart 7, the changes of this index have been plotted, together with those of its two components. The index follows the changes of imports of capital goods, which is expected in view of the influence which the latter exerts on the former. But since domestic production of iron, steel and cement has increased a great deal more than total imports of capital goods between 1925-29 and 1945-48, that is 313.6 per cent as

/against 104.8 per

against 104.8 per cent, the index of investment has risen 131.9 per cent, in other words, more than the rise in imports of capital goods.

The per capita index of investment thus reveals an increase of 37.8 per cent over the period under analysis.

The investment coefficient, that is to say, the ratio between investment and the supply of goods, both calculated at 1937 prices should be examined in this connection. In 1945-48, the total of capital goods recorded, which is certainly less than the actual total, amounted to 13.9 per cent of the supply of goods as against 11.4 per cent in the five-year period prior to the world depression. Chart 8 shows the changes of the investment coefficient during the past twenty-five years. 1/

3. Changes in the coefficient of imports

The increase of the quantum of Mexico's imports in 1945-48 as against 1925-29 cannot be ascribed solely to their extraordinary rise during the post-war years. It is due rather to the stimulus which has made itself felt, though with certain interruptions, since the beginning of the recovery from the world depression, as can be seen in considering curve 5 of Chart 1. One of the interruptions took place in 1948-49, after the very high levels attained by exports in 1947. Another occurs in the period 1938-39-40, after the high levels of 1937. In order to analyse the significance of these phenomena which are so intimately associated with the economic development of Mexico, Chart 13 has been prepared, with the corresponding Table 6-A, in which

1/ In a report prepared by the Director of the Nacional Financiera de México, Sr. Antonio Carrillo Flores, on the subject of Financial Resources for Economic Development (Recursos Financieros para el Fomento Económico) it was estimated that the national income in 1947 was 22,500 million pesos, while gross investments amounted to 3,140 million pesos or 15.5 per cent.

/the relationship

GRAFICO 13

MEXICO

RELACION ENTRE EL COEFICIENTE DE IMPORTACION SOBRE BIENES DISPONIBLES, EL COEFICIENTE DE DERECHOS ADUANEROS Y EL VALOR DEL PESO MEXICANO, EN CENTAVOS DE DOLAR.



1.— Coeficiente de importación.
2.— Coeficiente de derechos aduaneros.
3.— Precio del peso mexicano en centavos de dolar.

Centro de Investigaciones, Comisión Económica para América Latina.

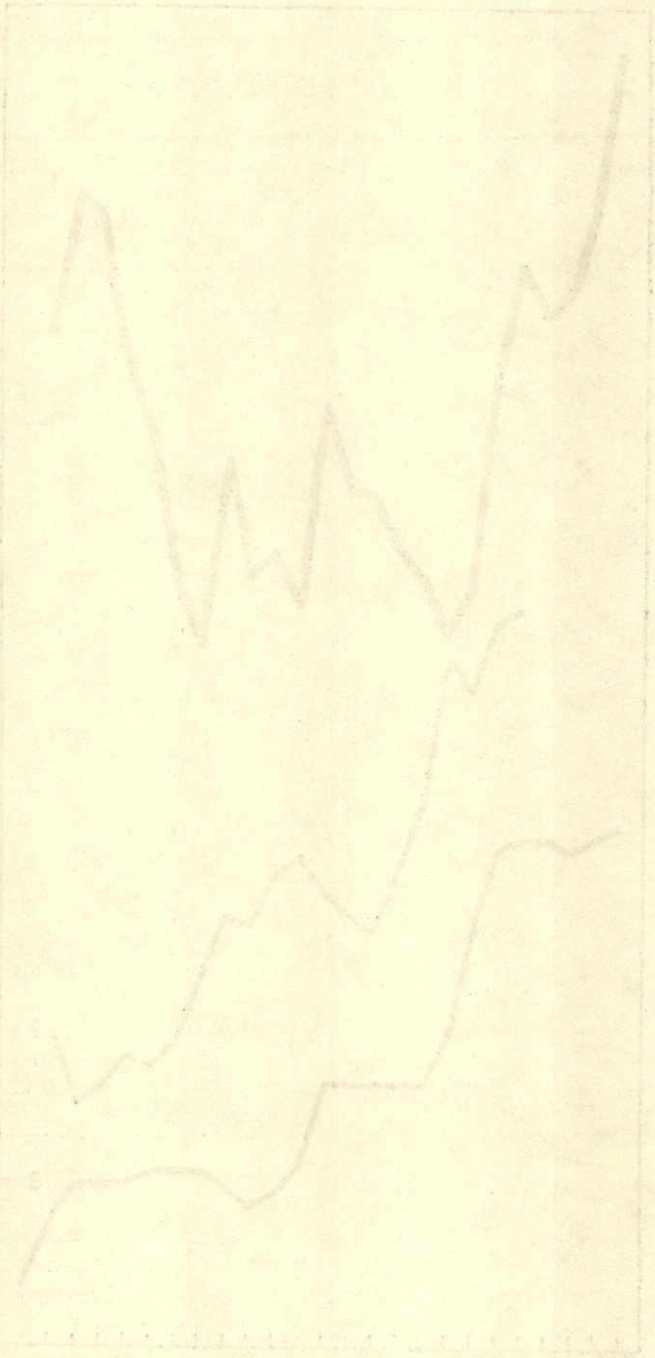


Table 6 A. México: Comparison between the coefficients of imports, of customs duties and the dollar value of the Mexican peso

Years	Coefficient of imports	Coefficient of custom duties	Value of Mexican peso in U.S. cents
1925	40.4		0.49
1926	33.5		0.48
1927	30.6		0.47
1928	29.5		0.48
1929	31.5	28.4	0.48
1930	26.8	27.8	0.47
1931	18.3	25.1	0.41
1932	16.7	26.4	0.32
1933	18.9	20.6	0.28
1934	20.1	17.8	0.28
1935	22.3	15.3	0.28
1936	22.4	16.1	0.28
1937	25.8	17.0	0.28
1938	17.7	18.5	0.22
1939	20.0	17.7	0.19
1940	19.0	15.6	0.18
1941	23.5	15.9	0.20
1942	16.1	13.4	0.21
1943	18.7	10.8	0.21
1944	24.9	9.8	0.21
1945	27.8	10.2	0.20
1946	33.7	9.0	0.20
1947	34.5	8.3	0.20
1948	29.0	11.1	0.17
1949			0.12

Source: Research Centre, United Nations Economic Commission for Latin America.

Notes: The coefficient of imports is the quotient (values based on 1937 prices) of total imports by total available goods; the coefficient of custom duties results from dividing - at current values - custom duties by total imports. The value of the peso in U.S. cents was obtained from the Mexican Statistical Yearbook and the International Financial Statistics.

the relationship between the quantum of imports and of available goods is shown on curve 1, the relationship between customs dues and the value of imports on curve 2, and the value in U.S. dollar cents of the Mexican peso, on curve 3.

The relationship, or ratio between imports and the supply of goods increased drastically during the 'forties until it reached a maximum of 34.5 per cent in 1947, which has only been surpassed by the ratio of 40.4 per cent recorded in 1925. In fact, during this period, no factor restrained the expansion of imports, since during the war Mexico was in a privileged position by reason of its ability to import increasing amounts of goods from the United States, as has already been pointed out. On the contrary, the raising of the price levels in Mexico, which occurred to a greater degree than in the United States, caused a lowering in the incidence of customs tariffs which, being specific, remain constant while prices rise. A number of these tariffs having become rigid because of international treaties or agreements, involved protracted negotiations, and Mexico had no other means of controlling imports to offset this lack of flexibility. In December of 1947, however, some of the tariffs were modified, but the change was insufficient to adjust the volume of imports to the country's capacity to pay for them, and thus protect its monetary reserves. Mexico was consequently compelled to devalue its peso in July of 1948, mainly in order to reduce its imports. Experience showed that the devaluation was inadequate and therefore a second devaluation was made in June 1949; this was successful in fulfilling its aims, but not without recourse to direct methods of selective import controls.

The devaluation which took place in 1938 has a certain similarity with the foregoing. However, on that occasion the psychological consequences of the petroleum expropriation upon the devaluation of the Mexican peso were added to the effects of the considerable

/increase of

increase of the import coefficient which had previously taken place. Also, in 1938 currency devaluation had a temporary restraining influence upon imports and led to a corresponding decline of the import coefficient.

The coefficient of imports had already suffered a very marked decrease between 1925 and 1932, from 40.4 per cent to 16.7 per cent. Events prior to 1925 could not be examined in view of the lack of data regarding the supply of goods. However, it would seem that the coefficient had previously risen judging from the quantum of imports. There can be no doubt, however, that since 1925 the Mexican peso tended to weaken and that the decrease of the coefficient between that year and 1929 was not sufficient to prevent a disequilibrium in Mexico's balance of payments when the world depression markedly restricted the country's exports. This seems to have been the reason for the devaluations of the Mexican peso in 1931 and 1932.

This does not imply that all devaluations during this period were similar, nor that they arose out of identical circumstances. Those which took place during the world depression were due rather to a decline of receipts in the balance of payments while the recent devaluations can generally be ascribed to the expansion of expenditures. However, they all have common factors, among which mention should be made of currency devaluation as a means of reducing the coefficient of imports, either because the increase of the national income has caused this coefficient to rise at a higher rate than the increase in the capacity to import, as determined by exports and other foreign exchange receipts, or because it was sought to prevent a contraction of income as would have otherwise been brought about by the lowered capacity to import, in order to maintain a high level of economic activity.

4. Other indices of economic activity and consumption

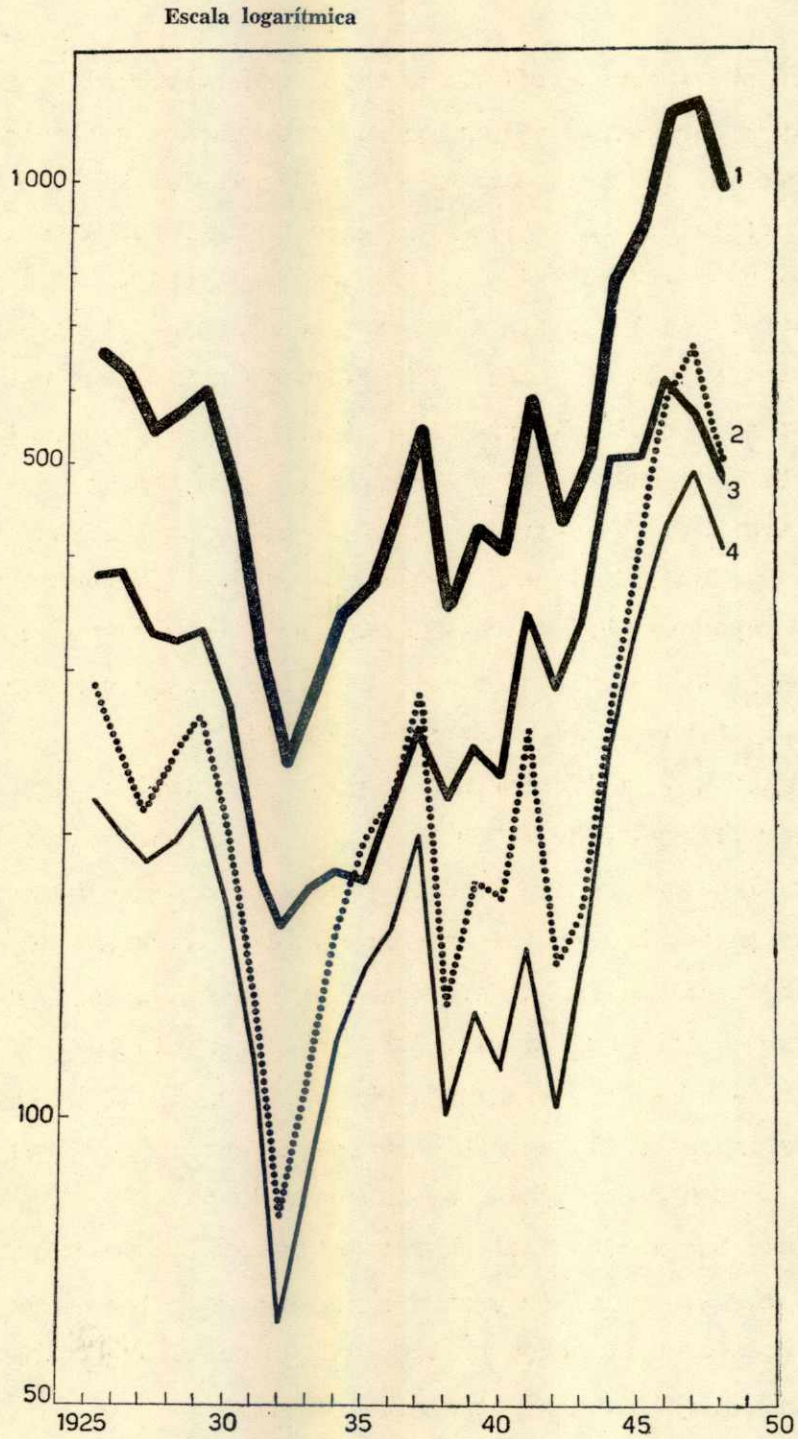
As in the case of Brazil, the index of the supply of goods in Mexico can be critized on the grounds that it understates its true level. It has already been pointed out that the figures for

GRAFICO 6

MEXICO

IMPORTACIONES DE BIENES DURADEROS Y DEMAS BIENES

Valores a precios de 1937



1.— Volumen físico del total de las importaciones.
2.— Volumen físico del total de los bienes duraderos.
3.— Los demás bienes, excluyendo los bienes duraderos.
4.— Bienes de capital.

Centro de Investigaciones, Comisión Económica para América Latina.

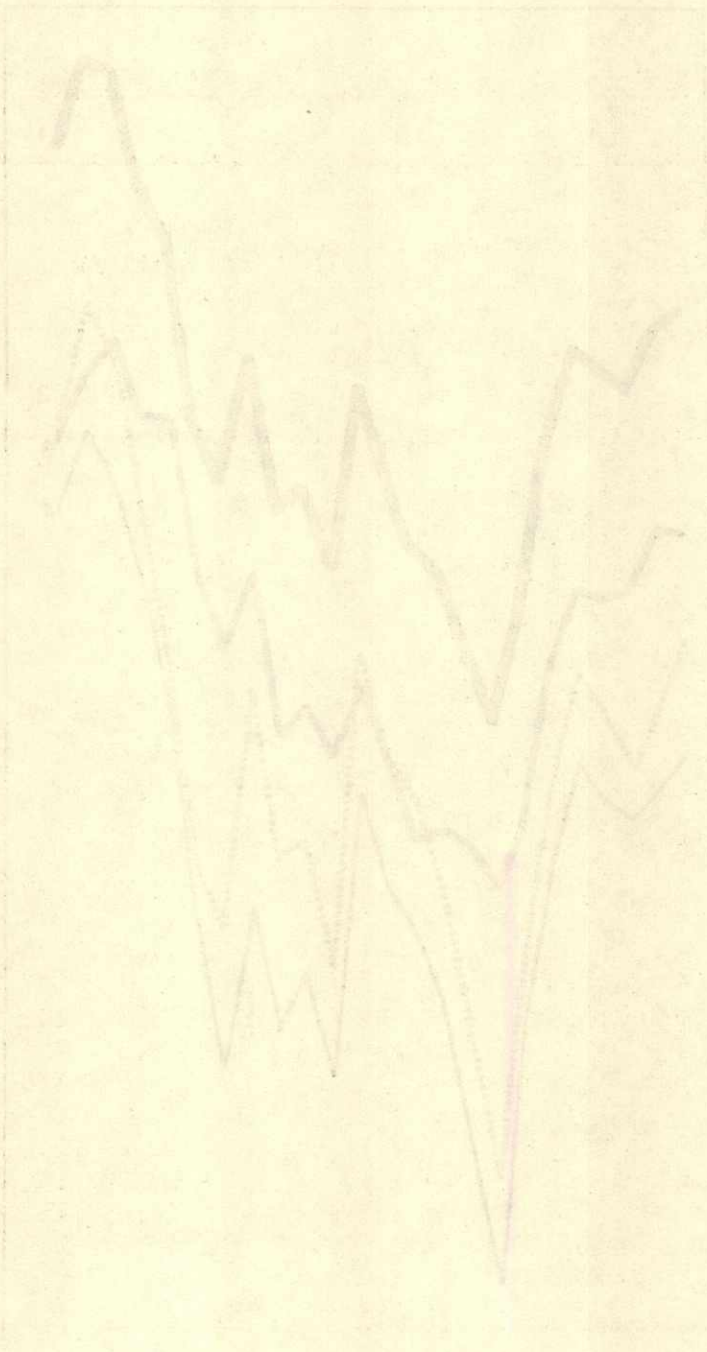


Table 5 A. Mexico: Consumption of important selected articles

Years	Principal foodstuffs	Principal fats and oil-seeds	Beer	Sugar	Cigarettes	Cotton textiles	Paper	Gasoline
	Quantum index		Thousands of litres	Tons	Millions of packets	Tons	Tons	Millions of litres
1925	120.4	110.5	53.0	173,800		38.8		141.3
1926	129.7	131.9	53.7	190.200		38.5		180.0
1927	132.0	121.9	67.9	191.000		37.2		192.3
1928	130.5	157.2	71.6	195.800		36.0		218.7
1929	108.1	156.3	67.9	263.149		35.9		259.3
1930	100.6	162.5	71.9	295.143		37.0		314.5
1931	127.4	127.3	72.1	287.541		29.8		272.2
1932	109.3	103.1	54.7	276.564		29.6		259.8
1933	105.5	117.9	42.5	167.331		35.4		251.8
1934	98.6	116.9	53.0	268.006		42.4		327.1
1935	100.1	81.3	67.4	320.851		42.8		352.9
1936	106.1	99.8	82.5	373.828		46.1		423.9
1937	100.0	100.0	122.8	342.134	894.3	48.5	96,212	504.6
1938	112.3	96.9	137.6	367.411	848.7	43.5	78,439	535.2
1939	127.2	105.4	160.6	414.896	944.9	42.2	96,349	595.1
1940	119.6	110.5	176.9	386.370	895.8	44.3	98,184	670.9
1941	153.9	137.1	183.6	498.097	897.7	48.6	105,709	760.1
1942	168.0	160.3	219.7	538.554	951.5	48.8	142,412	840.6
1943	153.3	149.3	259.3	554.972	917.3	48.6	116,414	914.2
1944	201.8	227.1	325.7	562.410	1,122.7	50.0	147,142	916.4
1945	202.5	179.7	340.8	606.500	1,188.4	42.2	154,604	1,032.4
1946	221.2	193.4	420.5	627.177	1,272.3	43.9	154,450	1,285.7
1947	221.0	185.4	322.2	652.811	1,149.1	43.5	151,949	1,505.6
1948			336.0	713.174	1,179.1	47.5	149,713	1,716.9
1949			400.8		1,276.4			

Source: Research Centre, United Nations Economic Commission for Latin America.

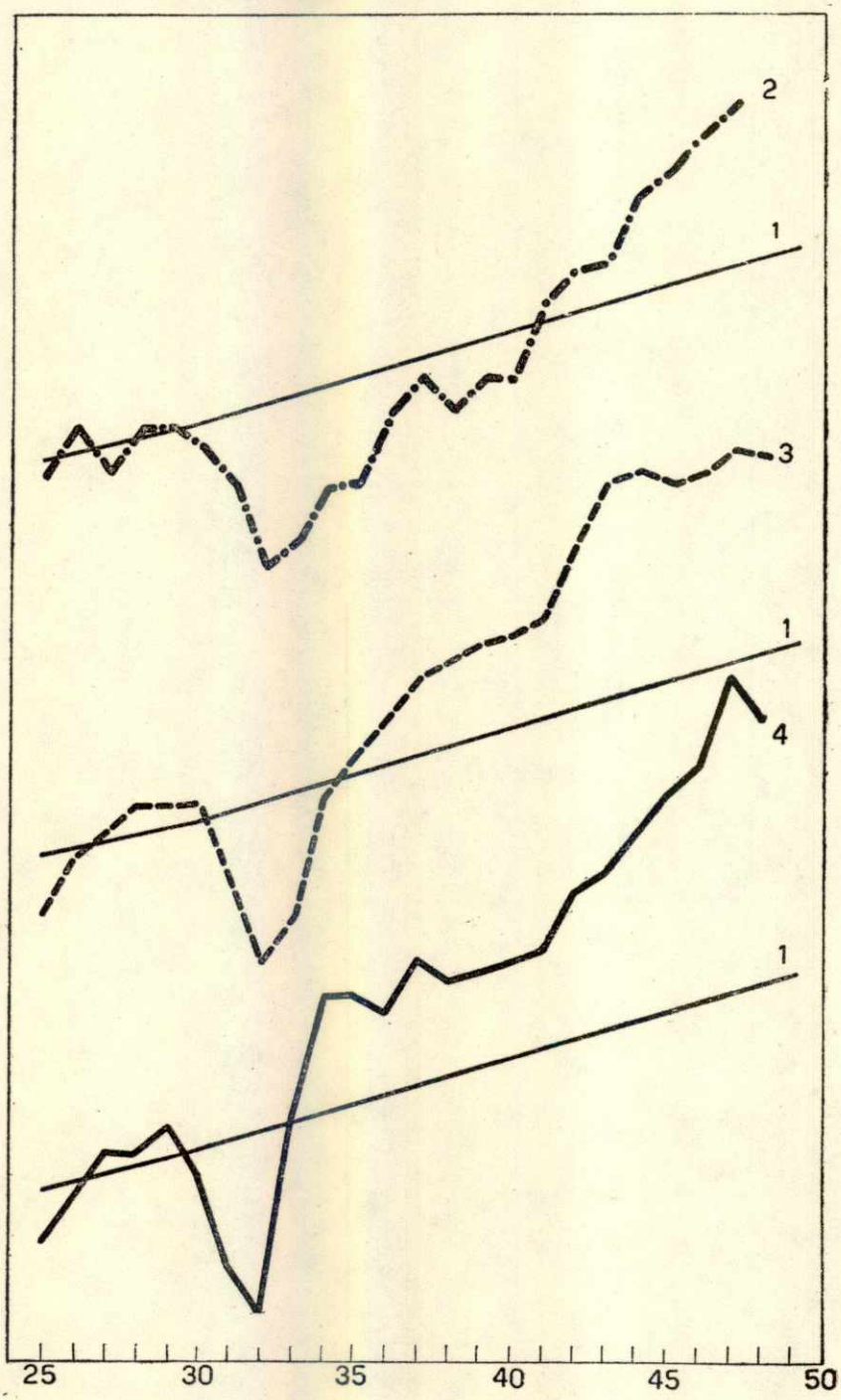
Note: Data in general were secured from different official sources. Consumption of principal foodstuffs, fats and oil-seeds was compiled on the basis of their production, imports and exports, excluding annual stocks.

GRAFICO 10

MEXICO

OTROS INDICES DE LA ACTIVIDAD ECONOMICA.

Escala logarítmica



1.— Población.
2.— Bienes disponibles, valores a precios de 1937.
3.— Toneladas-kilómetro transportadas por ferrocarril.
4.— Consumo total de energía.

Centro de Investigaciones, Comisión Económica para América Latina.

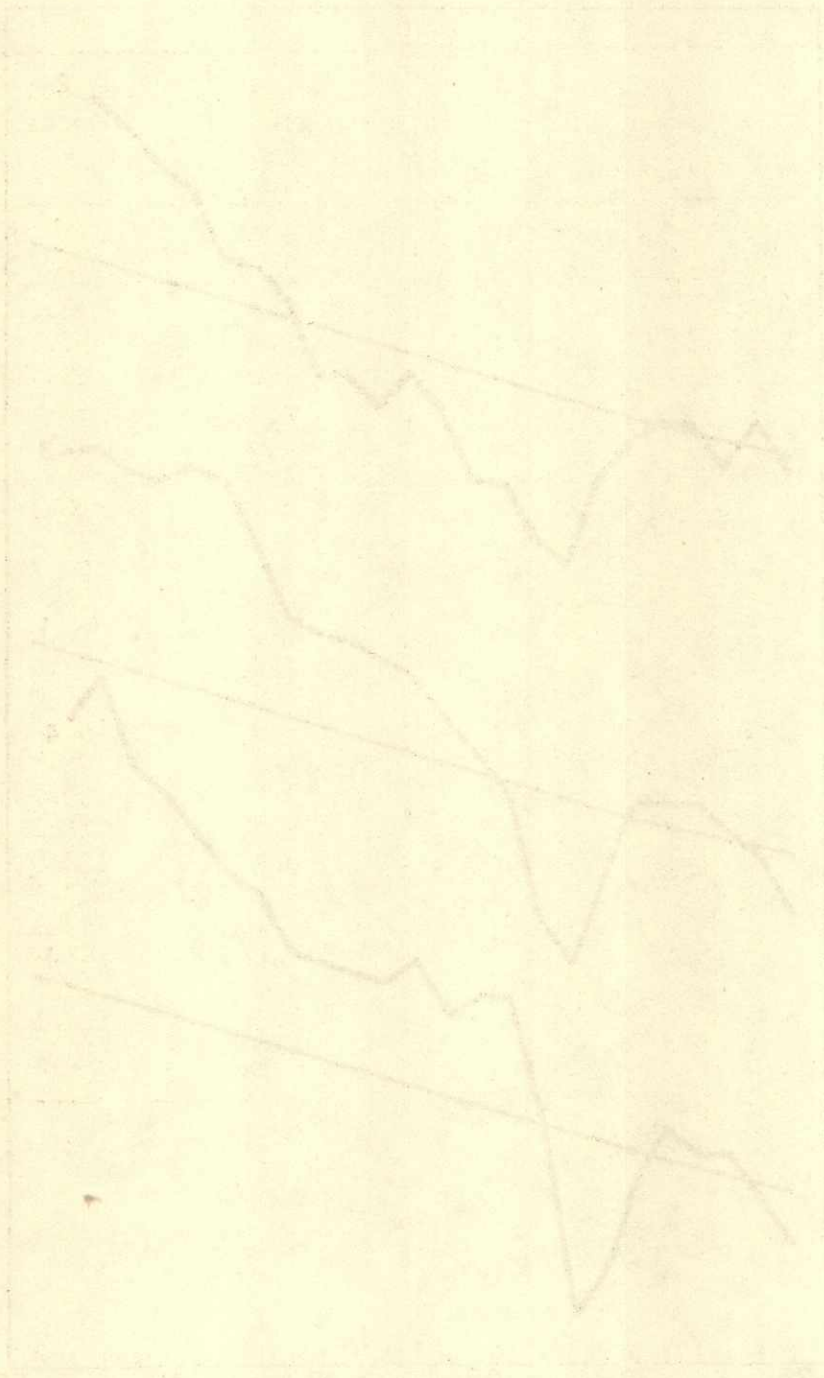


Table 7 A. Mexico : Other indices of economic activity

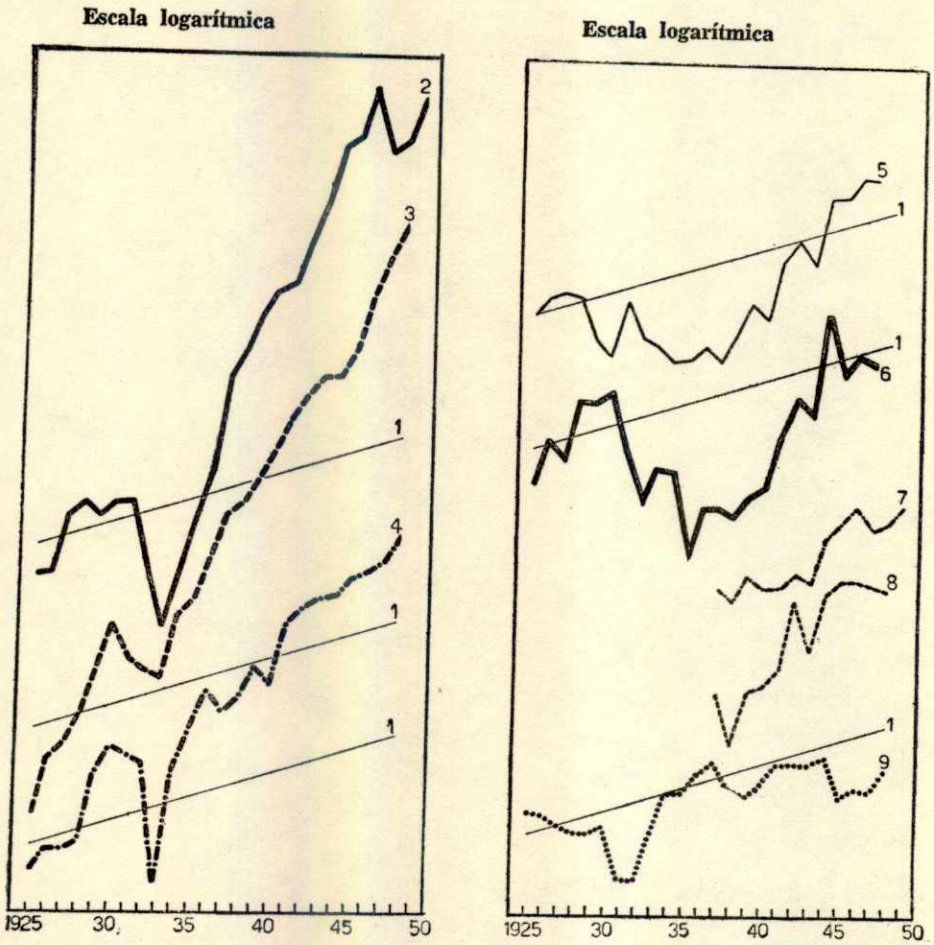
Years	Population	Consumption of Power	Freight carried by national railways	Available goods	Capital goods
	In thousands	Millions of KWH	Millions tons-kms.	Index 1937 = 100	Index 1937 = 100
1925	15,232	5,919	3,219.5	81.0	88.5
1926	15,465	6,568	3,608.4	90.0	82.8
1927	15,702	7,157	3,803.0	81.7	75.9
1928	15,942	7,157	4,006.4	90,3	81.6
1929	16,186	7,530	4,035.4	90,0	91.9
1930	16,553	6,828	4,040.5	86.1	74.6
1931	16,841	5,641	3,378.4	80.1	51.5
1932	17,134	5,115	2,883.6	67.4	29.9
1933	17,432	7,751	3,245.1	70.6	41.5
1934	17,735	10,031	4,154.5	78.7	61.4
1935	18,044	10,039	4,596.5	80.2	72.2
1936	18,852	9,745	4,927.4	93.0	77.1
1937	18,737	10,995	5,380.7	100.0	100.0
1938	19,071	10,479	5,535.2	94.5	55.3
1939	19,413	10,760	5,728.4	100.4	68.4
1940	19,763	10,959	5,863.8	99.7	63.8
1941	20,208	11,145	6,075.5	118.2	78.9
1942	20,657	12,440	7,019.1	126.0	61.4
1943	21,165	13,174	8,092.2	127.6	77.3
1944	21,674	14,153	8,193.7	148,3	115.9
1945	22,233	15,412	8,024.1	153.6	160.1
1946	22,779	16,490	8,184.8	168,8	200.3
1947	23,434	20,024	8,662.8	169.1	227.5
1948	23,876	18,224	8,575.9	165,4	192.5

Source: Research Centre, Economic Commission for Latin America, United Nations.

GRAFICO 11

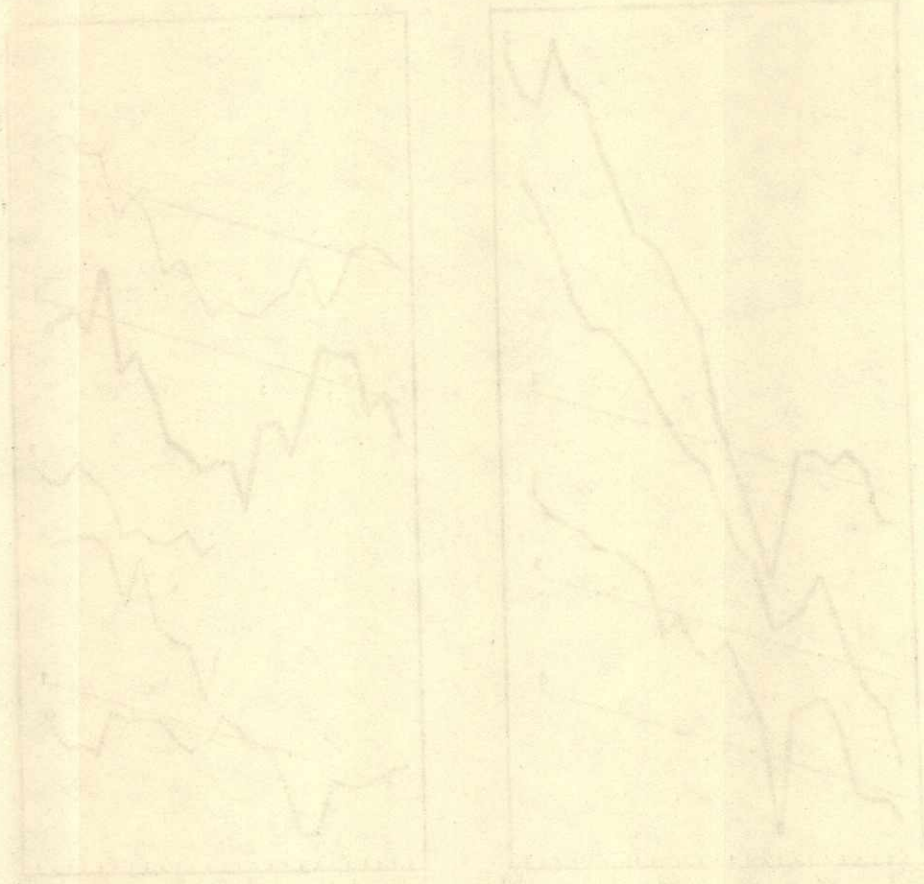
MEXICO

INDICES DEL CONSUMO



1.— Población.
2.— Cerveza.
3.— Gasolina.
4.— Azúcar.
5.— Alimentos principales.
6.— Grasas y oleaginosas.
7.— Cigarrillos.
8.— Papel.
9.— Tejidos de algodón.

Centro de Investigaciones, Comisión Económica para América Latina.



manufacturing production are lower than those which in fact obtain, and the same applies to imports. On the other hand, there are no general indices which have increased less than that of the supply of goods. On the contrary, they have all risen at a higher rate, which confirms the qualification made above. Thus, while the index of the supply of goods rose 88.5 per cent over the period 1925-29 to 1945-48, the freight carried by the railways, in tons-kilometres increased 123.9 per cent, as can be seen from Chart 10 and Table 7-B. For the same period, there was an increase of 155.4 per cent in the consumption of fuel and power, and the volume of mail rose 147.6 per cent. (See Table 7-B).

Table 7-B Other indices of economic activity in Mexico

	Yearly averages			Percentage variation on 1925-29	
	1925-29	1945-48	1948	1945-48	1948
Population (thousands)	15,705	23,080	23,876	47.0	52.0
Total consumption of energy (million KW-hrs.equivalent)	6,866	17,538	18,224	155.4	165.4
Freight carried by railways (million ton-kilometres)	3,734	8,362	8,576	123.9	12.7
Index of the supply of goods (1937 = 100)	86.6	163.2	161.4	88.4	86.4
Index of capital goods (1937 = 100)	84.1	191.5	192.5	131.9	128.9

Note: For sources and notes see Table 7-A, Mexico.

The fact that the total supply of goods increased 88.4 per cent while capital goods increased 131.9 per cent, means that consumption has risen less than the aggregate, that is to say, 82.0 per cent over the period 1925-29 to 1945-48. This indicates an increment of 23.8 per cent for the per capita supply of goods, whereas capital goods increased 57.8 per cent per capita.

The greater volume of consumer goods was far from having been

/equally distributed

equally distributed over the various categories of commodities, which in fact is indicated by a few fragmentary data. The quantum of the principal foodstuffs both of domestic origin and imported, for instance, showed an increase of 73.2 per cent, while consumption of the principal fats and oil seeds rose 37.3 per cent. Chart 12 and the corresponding Table 2-A, show that the index of foodstuffs, chiefly because of the weakening of the capacity to import, fell substantially in the first half of the 'thirties, rising again in the second half of that decade, and continuing to increase throughout the 'forties, until it reached a relatively high level. The same feature marked the consumption of oil seeds and fats, except that the rising trend has not been maintained on such a high level in the past few years.

These indices cover products of which the rates of growth are very dissimilar; thus, for instance, while consumption of maize only rose 20.5 per cent, that of wheat rose 59.2 per cent. This can be ascribed to the fact that the latter cereal is tending to supplant a part of the maize consumed in the towns. On the other hand, the increase in the consumption of sugar was very much greater: 210 per cent.

The increase in the amount of beer consumed was 322.2 per cent, and that of petrol, 542.8 per cent. The consumption of cotton goods, on the other hand, only rose 15.8 per cent, which was less than the rate of growth of the population.

Figures for the consumption of cigarettes and paper are available since 1937. Between that date and 1948, the consumption of the former increased by 31.8 per cent and of the latter by 55.6 per cent, whereas the supply of goods and the population grew by 88.5 per cent and 47.0 respectively.

IV. GENERAL DEVELOPMENT OF MEXICO'S EXPORTS

In the foregoing section reference has been made in general terms to the index of the quantum of Mexico's exports as being one of the factors in the calculation of the supply of goods. The principal

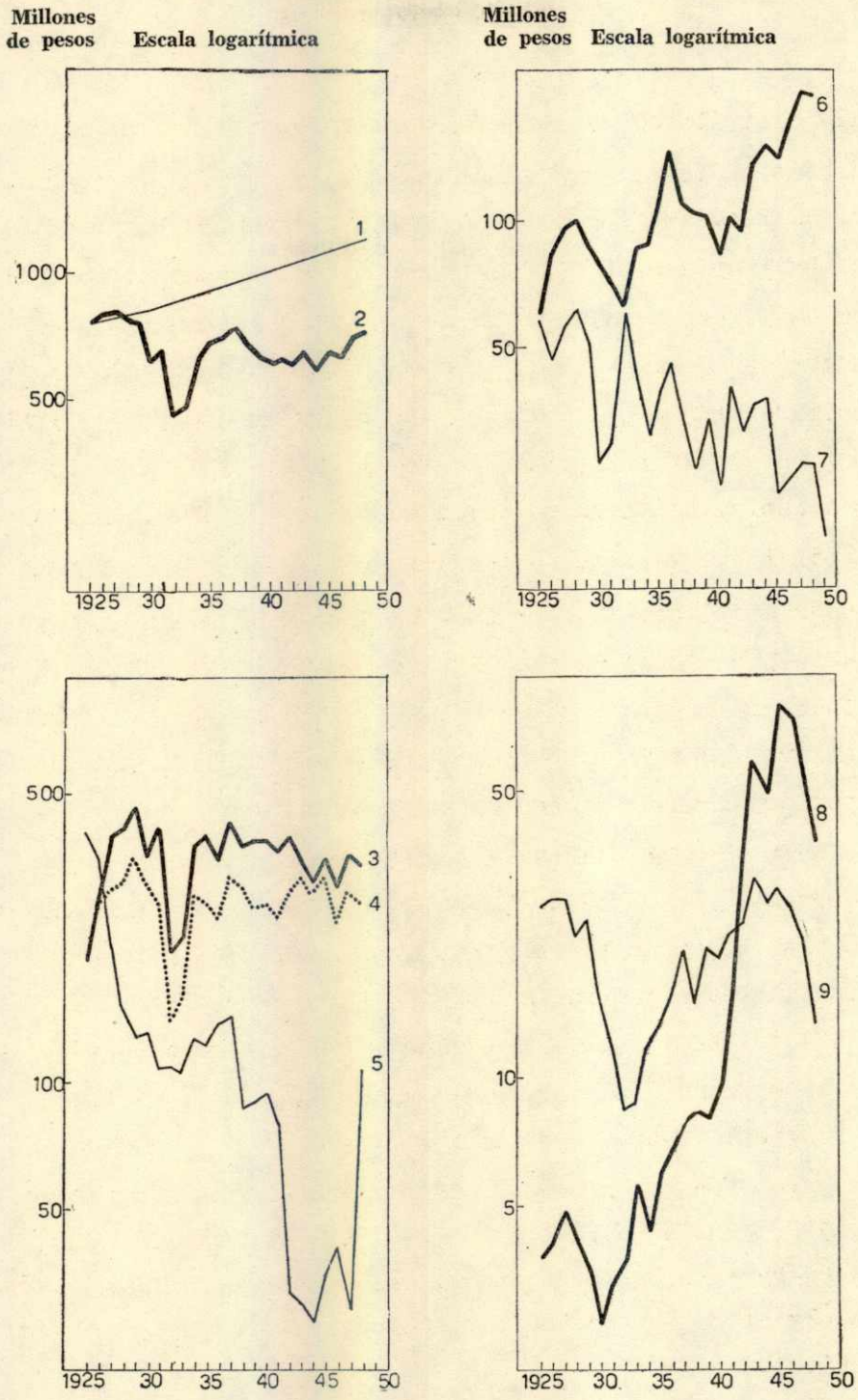
/groups of

GRAFICO 12

MEXICO

VOLUMEN FISICO DE LAS EXPORTACIONES Y SU COMPOSICION.

Valores a precios de 1937



1.— Población.
2.— Volumen físico del total de las exportaciones.
3.— Minerales metalúrgicos más oro y plata.
4.— Minerales metalúrgicos excluyendo oro y plata.
5.— Petróleo.
6.— Productos agropecuarios, excluyendo henequén.
7.— Henequén.
8.— Productos varios.
9.— Productos industriales.

Centro de Investigaciones, Comisión Económica para América Latina.

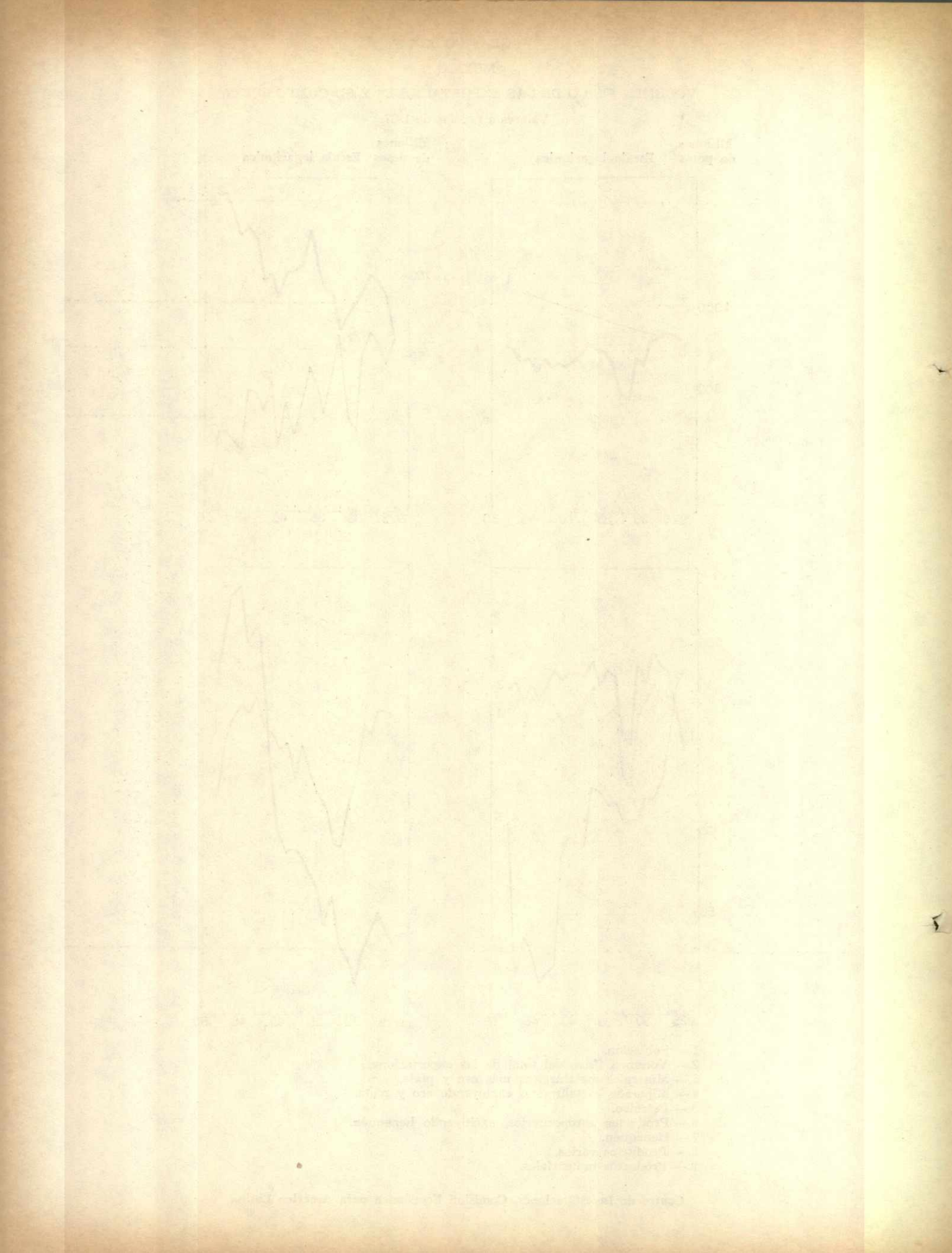


Table 9 A. Mexico: Quantum index of exports and its composition

Values at 1937 prices

Thousands of pesos

Years	Minerals					
	Basic metal	Petroleum	Gold and silver	Total	Total excluding petroleum	Total excluding gold and silver
1925	203,253	412,749	a/	616,002	203,253	616,002
1926	272,079	356,615	1,683	630,377	273,762	628,694
1927	301,228	218,238	101,127	620,593	402,355	519,466
1928	317,421	156,672	103,522	577,615	420,943	474,093
1929	366,819	131,376	99,042	597,237	465,861	498,195
1930	313,212	135,025	45,147	493,384	358,359	448,237
1931	281,531	111,475	136,026	528,852	417,557	393,006
1932	147,321	111,601	66,453	325,375	213,774	258,922
1933	166,575	109,547	59,385	335,507	225,960	276,122
1934	298,945	130,107	76,756	505,808	375,701	429,052
1935	283,801	125,808	112,113	521,722	395,914	409,609
1936	259,557	142,536	89,221	491,314	348,778	402,093
1937	329,434	149,575	100,550	579,559	418,655	479,009
1938	308,926	87,661	122,354	518,941	431,280	396,587
1939	274,905	91,501	110,988	477,394	385,893	366,406
1940	280,153	94,959	107,764	482,876	387,917	375,112
1941	261,106	80,991	107,428	449,525	368,534	342,097
1942	297,202	32,360	97,860	427,422	395,062	329,562
1943	321,665	30,778	30,313	382,756	351,978	352,443
1944	293,536	27,168	17,751	338,455	311,287	320,704
1945	324,349	36,271	26,342	386,962	350,691	360,620
1946	251,689	41,590	51,197	344,474	302,886	293,279
1947	298,813	29,268	65,727	393,808	364,540	328,081
1948	282,182	110,555	59,000	451,737	341,182	392,737

a/ Data comparable with those for following years, non-existent.

Table 9 A. (Continuation)

Years	Agricultural Products						
	Henequén	Coffee	Cotton	Untanned hides	Cattle	Others	Total
1925	57,704	18,204	10,619	6,267	975	24,269	118,038
1926	46,276	16,918	25,087	6,072	2,389	33,753	130,405
1927	55,720	20,778	22,835	8,231	3,779	41,066	152,409
1928	61,580	25,173	20,063	9,657	4,681	40,779	161,933
1929	50,834	23,792	14,992	7,543	4,388	36,982	138,531
1930	26,526	24,448	2,660	5,867	4,218	40,591	104,310
1931	29,555	21,749	9,897	5,029	2,950	32,299	101,479
1932	60,037	15,965	3,517	3,209	2,730	33,434	118,892
1933	43,856	32,854	1,228	6,035	1,658	45,717	131,348
1934	30,007	30,112	3,139	7,353	1,463	45,941	118,015
1935	39,420	25,250	23,771	5,987	6,461	51,134	152,023
1936	45,118	34,105	46,443	10,923	4,315	53,883	194,787
1937	33,868	27,913	8,390	9,475	4,705	62,243	146,594
1938	25,438	27,969	19,671	6,488	7,143	46,414	133,123
1939	33,564	27,920	6,663	6,164	13,190	49,704	137,205
1940	23,047	20,504	4,662	4,591	10,190	43,129	106,123
1941	40,228	22,183	11,455	3,466	13,238	52,922	143,492
1942	31,588	17,365	476	2,661	12,824	62,633	127,547
1943	36,572	27,366	4,689	31	11,483	99,396	179,537
1944	37,600	28,449	26,013	44	7,094	91,615	190,815
1945	22,184	28,441	25,259	-	10,020	80,579	166,483
1946	24,198	26,525	42,421	674	10,898	96,658	201,374
1947	26,859	26,174	78,824	1,416	219	104,253	237,745
1948	26,011	25,024	43,464	1,607	-	131,484	227,590
1949	17,440						

Table 9 A. (Continuation)

Years	Industrial Products			
	Cehmical and pharmaceuticals	Textiles	Others	Total
1925	1,064	703	1,945	3,712
1926	888	565	2,671	4,124
1927	1,185	1,050	2,620	4,855
1928	666	716	2,655	4,037
1929	171	719	2,514	3,404
1930	167	390	2,083	2,640
1931	278	1,088	1,878	3,244
1932	172	1,901	1,704	3,777
1933	378	2,478	2,834	5,690
1934	97	1,812	2,419	4,328
1935	102	3,112	2,830	6,044
1936	220	3,939	3,258	6,977
1937	591	3,513	3,762	7,866
1938	630	2,853	4,828	8,311
1939	953	2,293	4,741	7,987
1940	1,238	3,395	5,138	9,771
1941	1,836	5,771	7,895	15,502
1942	1,670	21,355	12,821	35,846
1943	4,241	28,225	23,817	56,283
1944	1,710	30,511	16,305	48,526
1945	1,751	51,455	24,648	77,854
1946	2,778	46,985	22,523	72,286
1947	2,907	38,466	15,323	56,696
1948	1,986	25,942	8,919	36,847

Table 9A. (Continuation)

Years	Various					Grand total
	Hardwoods	Chicle	Vegetable wax	Others	Total	
1925	11,364	8,750	126	6,129	26,369	764,121
1926	12,273	9,019	348	5,846	27,486	792,482
1927	11,212	8,684	456	6,786	27,118	804,975
1928	6,084	9,780	280	5,875	22,019	765,604
1929	8,760	10,092	670	4,916	24,438	763,610
1930	2,228	9,475	579	4,208	16,490	616,824
1931	747	7,072	322	3,808	11,949	645,524
1932	484	3,959	715	3,158	8,316	456,360
1933	549	2,772	860	4,473	8,654	481,199
1934	1,259	5,189	942	4,604	11,994	640,145
1935	1,923	6,166	1,243	4,216	13,548	693,337
1936	1,889	6,017	1,837	5,639	15,382	708,460
1937	2,236	7,901	2,350	7,610	20,097	754,116
1938	1,864	6,745	1,277	5,174	15,060	675,435
1939	1,699	10,022	3,110	5,639	20,470	643,056
1940	1,259	11,067	2,411	4,478	19,215	617,985
1941	2,454	11,341	3,294	5,068	22,157	630,676
1942	3,322	11,258	3,258	6,090	23,928	614,743
1943	3,185	15,869	4,414	6,990	30,458	649,034
1944	3,599	13,670	2,928	6,200	26,397	604,193
1945	3,766	9,156	5,079	10,769	28,770	660,069
1946	3,632	10,375	4,419	7,143	25,569	643,703
1947	4,579	6,787	4,338	5,779	21,483	709,732
1948	4,531	4,955	634	3,534	13,654	729,828

Source: Research Centre, United Nations Economic Commission for Latin America.

Note: Basic data provided by the Mexican Group of the Economic Commission for Latin America, United Nations.

groups of goods contained in this index, are shown in Chart 12 and the corresponding Table 8-A. The reasons for their fluctuations, however, will be examined separately, in the sections dealing with agriculture, mining and industrial development, respectively.

Subsequent to the world depression, the index of exports recovered a good deal of the ground lost until 1937, though it was not able to reach its former level. After 1937, it will be noted that exports declined constantly until 1944, increasing again after the low attained during the course of that year, but once again it can be noted that they did not recover the previous level, that of 1937.

The fact that pre-depression levels were not attained, as is shown in the chart, may be principally due to the decrease in petroleum, gold, silver and henequen exports, since an increase was recorded in exports of agricultural and industrial products, and base metals (with the exception of gold and silver) did recover their previous levels.

The curve for exports of petroleum fell drastically from the peak reached in the early 'twenties to a low which in 1944 represented barely 18.2 per cent of the highest level. However, from 1944 onward, there was an upward tendency, though exports did not increase in a parallel way with production, owing to an appreciable increase in domestic consumption. In 1949, petroleum production was 14.9 per cent less than that of 1925-29 and exports were 78.7 per cent smaller than those at that period. The decrease in the quantum of exports of gold and silver in 1945-48 as against 1925-29 was 33.8 per cent. On the chart, these exports are shown together with those of base metals, and also on a curve where they are shown separately.

Exports of henequen, which have followed a downward trend since the middle of the 'twenties also maintained this tendency during the past twenty years, though some sharp fluctuations took place. By 1945-49, the exports of this commodity were rather less than half of their volume in 1925-29.

With the exception of henequen, other agricultural products tended

/to rise

to rise considerably though with several sharp variations. In 1945-48 they showed an increase of 113.7 per cent in relation to the 1925-29 level. This group of agricultural products (with the exception of henequen) amounted to 41.2 per cent of the total current value of exports from Mexico, as against 15.4 per cent in the basic five-year period.

Finally, though the relative importance of manufactures in Mexican exports is slight, i.e. 14.4 per cent in 1945-48, their rate of increase has been considerable. It should be noted that this increase began some time back, and though it rose considerably during the war, it afterwards declined. Nevertheless, the 1948 figure was more than eight times that of 1925-29. (See Table 8)

Table 8 Changes in the quantum of exports and their composition.

	Yearly averages			Per cent changes on 1925-29	
	1925-29	1945-48	1948	1945-48	1948
Mineral					
Base metals	292,160	289,258	282,182	- 1.0	- 3.4
Petroleum	255,130	54,421	110,555	-78.7	-56.7
Gold and silver	76,344 a/	50,566	59,000	-33.8	-22.7
Total	608,365	394,245	451,737	-35.2	-25.2
Agricultural					
Henequen	54,423	24,813	26,011	-54.4	-52.2
Others	85,858	183,485	201,579	113.7	134.8
Total	140,281	208,298	227,590	48.5	62.2
Industrial	4,026	60,921	36,847	1,413.2	915.2
Miscellaneous	25,486	22,369	13,654	-12.2	-46.4

a/ Average 1926-29

Note: For source and notes see Table 9-A, Mexico.

/Table 9-B

Table 9-B, containing details of the principal articles contained in the main groups should also be examined in this connection:

Table 9-B Quantum and composition of exports.

(In thousands of 1937 pesos)

	Annual averages			Per cent change on 1925-29	
	1925-29	1945-48	1948	1945-48	1948
Mineral	608,365	394,245	451,737	- 35.2	- 25.8
Base metals	292,160	289,258	282,182	- 1.0	- 3.4
Petroleum	255,130	54,421	110,555	- 78.7	- 56.7
Gold and silver	76,344 a/	50,566	59,000	- 33.8	- 22.7
Total, excluding petroleum	353,235	339,825	341,182	- 3.8	- 3.4
Total, excluding gold and silver	547,290	343,679	392,737	- 37.2	- 28.2
Agricultural b/	140,281	208,298	227,590	48.5	62.2
Agricultural, excluding henequen	85,858	183,485	201,579	113.7	134.8
Henequen	54,423	24,813	26,011	- 54.4	- 52.2
Coffee	20,973	26,541	25,024	26.5	19.3
Cotton (raw)	18,719	47,492	43,464	153.7	132.2
Raw hides	7,554	1,232 c/	1,607	- 83.7	- 78.7
Cattle	3,242	7,046 d/	219 e/	117.3	- 93.2
Others	35,370	103,244	131,484	191.8	271.7
Industrial	4,026	60,921	36,847	1,413.2	815.2
Chemical and pharmaceutical products	795	2,356	1,986	196.4	149.8
Textiles	751	40,712	25,942	5,321.0	3,354.3
Others	2,481	17,853	8,919	619.6	259.5
Miscellaneous	25,486	22,369	13,654	- 12.2	- 46.4
Hard woods	9,939	4,127	4,531	- 58.5	- 54.4
Chicle	9,261	7,818	4,955	- 15.6	- 46.5
Vegetable wax	376	3,618	634	862.2	68.6
Others	5,910	6,806	3,534	15.2	- 40.2
Total quantum exports	778,158	685,833	729,828	- 11.9	- 6.2
Total excluding petroleum	523,028	631,412	619,273	20.7	18.4

Note: For sources and notes, see Table 9-A, Mexico.

a/ Average 1926-29

b/ The difference between this total and that given on Table 8-A is due to the inclusion of processed agricultural commodities.

c/ Average for 1946-48

d/ Average for 1945-47

e/ In 1947

V. AGRICULTURE AND THE DEVELOPMENT OF THE AGRICULTURAL PRODUCTION

1. The limitations of traditional agriculture and the rise of modern agriculture.

The substantial population growth in Mexico contrasts sharply with the recognized limitations of its agriculture to supply the food and raw materials the demand for which is constantly increasing.

These limitations are the result of various factors: the shortage of water, the scarcity of fertile land, the surplus of agricultural population, the insufficiency of capital for investment in agriculture, the deficient agricultural technology and the inadequacy of the transport system.

The shortage of water is best illustrated by the following figures. Of the 14,870,000 hectares which were under cultivation, according to the 1940 census, 82.7 per cent, that is 12,297,000 hectares, were what is known as non-irrigated lands, subject to irregular rainfall. There were only 1,900,000 hectares (12.8 per cent) of irrigated land and barely 6.5 per cent, that is to say, 673,000 hectares of naturally humid soils even though irrigation may be required occasionally.

The dearth of fertile land can be ascribed to a variety of causes. In some cases, the soil has been depleted by the age-old system of monoculture, without the utilization of fertilizers which could have restored some of the lost essential elements. In other areas, erosion has destroyed the natural productivity of the soil. Finally, in most cases, the mountainous nature of the territory, with broken, uneven surfaces, stony and too steeply inclined, requires a considerable amount of manual labour but has a very low yield.

On the old agricultural lands of Mexico, the population has grown at a faster rate than the available area, so that the portion of cultivated land per capita is relatively small.

The scarcity of capital in agriculture, either for investment or for operations, is another of the great obstacles in a country where low income is but a poor source of savings. However, the organization of the agricultural credit system and the distribution of credit are also responsible to no small extent for this aspect of the problem,

as is generally admitted.

Agricultural technology is backward. In the traditional sector of agriculture, possessing numerous pre-colonial characteristics, the backwardness of production methods is to a large extent the result of the pressure of surplus population on the land and of the insufficient natural resources provoking both the poverty of the peasant and his low receptivity to technical progress. There are areas in Mexico, where, because of the nature of the soil, the method of sowing adopted is the opening of holes in the ground with sticks; when the plough is employed, it is generally wooden, though some effort is being made to supplant these with mouldboard ploughs. Naturally the harvests are hand-gathered in the traditional agriculture. As a result, the amount of labour which the Mexican rural worker must undertake under these circumstances to obtain his subsistence is very considerable. There may be small surpluses which he barters in the local markets for the few articles which reflect the low level of his livelihood. On the other hand, when conditions are favourable or when there is a shortage of labour and prices are high, as occurs in the case of some of the export crops, mechanization and the more advanced methods of cultivation are making appreciable progress.

The lack of adequate transport and the poor state of the existing network is another of the limitations which restrain agricultural development. The land is mountainous, there are few river waterways and despite the length of the Mexican sea coast, there are few ports giving access to the interior of the country. It is the belief of experts that the main problem in improving transport facilities is the establishment of feeder roads connecting the railways with the highways. This would be a means of increasing production and would ensure a better distribution of agricultural produce.

Finally, two other factors of considerable significance should be noted: the primitive character of storage of agricultural commodities, and the marketing system, characterized by an excess of middlemen, whose profits undoubtedly contribute to restrict demand for agricultural

/produce. Modern

produce. Modern methods are slowly narrowing the traditional sector of agriculture. These have been introduced in the last quarter of a century on the lands opened up by costly irrigation works, consisting principally in the damming of river waters and also by the pumping of subterranean waters. Thus modern agriculture is fundamentally the result of state intervention in matters of irrigation. This activity began in 1925 and has been greatly extended in the past few years. It is based on the principle that since the population is increasing at a rate of about 3 per cent per annum, it was essential to bring new lands under cultivation in order to meet the demographic growth and, furthermore, improve the nutritional levels of Mexico's population. The area irrigated since the beginning of the programme is as follows:

	Hectares
From 1926 to 1940 (15 years)	271,200
From 1941 to 1946 (5 years)	683,830
From 1947 to 1949 (3 years)	335,600
T o t a l	1,290,630

Unfortunately, the inflationary consequences of these and other public works has enforced a reduction in the plans which, from 1947 to 1952, should yield a total of 1,147,000 hectares of new lands. The expense involved in the project is over two billion Mexican pesos.

/If the 1,900,000

If the 1,900,000 hectares of irrigated land in 1940 are added to the the 1,019,430 hectares irrigated by 1949, the irrigated area totals nearly 3 million hectares. It is estimated that this could be extended to about 6 million hectares, including the 1 million hectares already available in 1925.

These limitations of Mexican agriculture impress special characteristics upon its development. It has been noted that where traditional agriculture prevails, the land is poor and insufficient in relation to the population living on it and to the requirements of the country . Mexico is therefore exerting itself in an effort to acquire new lands for agricultural purposes. The expansion of modern agriculture can take place in regions of temperate and healthy climate but which, because of lack of sufficient water, require large investments in irrigation or pumping; alternatively it may be introduced in the hot damp areas along the southern coasts but there considerable investment is also required in sanitation works and transport 1/. The expansion so far has been in the direction of the temperate areas, though expansion in the warmer lowlands is arousing increasing interest.

In addition to irrigation the assistance given by the Government in the way of developing production techniques has been rendered in

1/ In the States of Chiapas and Tabasco and in some parts of the Bajío (Pacific slopes of the Central Plateau) there is sufficient fertile land with a moderately abundant rainfall. In other parts of the country new lands could be opened up by means of relatively inexpensive drainage works. These areas, however, have offered considerable obstacles to exploitation due to the lack of transport facilities. The activities of the Papaloapan River Valley Commission are proof that new agricultural land can be gained also in tropical and sub-tropical regions by the simultaneous solution of the various problems such projects present.

/different ways.

different ways. In this respect, the promising results achieved in maize genetics in co-operation with the Rockefeller Foundation can be pointed out. In the agriculture that is being developed on irrigated lands, there is plenty of scope for technical progress. Mechanization, too, shows progress, and on every tract of flat land, tractors are being increasingly employed. In the harvesting of wheat, the scythe is being gradually replaced by mechanical reapers. But it is principally on the irrigated cotton plantations, in the sugar-cane fields, in the cultivation of rice, vegetables and market-garden produce for export that the more advanced technical methods are being adopted. In the cultivation of sugar cane, experiments have recently been made to use mechanical cutters. In the rice fields of the irrigated Yaqui Valley, mechanical sowing machines are used, the crop is harvested and threshed by machines. Aeroplanes have also been experimented with in sowing large areas. In contrast with this, in other regions the most primitive methods are still in use. Nevertheless, an important step forward has been taken in the utilization of fertilizers and in combating plant pests and diseases.

All this goes to show that the backward technology of Mexican agriculture is due to factors which lie deeper than mere indifference on the part of the peasant, or his scant capacity to assimilate technical progress. If this were the case, the modern sector of Mexican agriculture could not have been established.

A part of the population increase is migrating to the new lands thus opened up to agriculture, but Mexico is still far from the point where this trend might assume proportions great enough to dispense with the substantial amount of marginal lands cultivated by traditional methods. However, even if the new lands could amply compensate for the abandonment of the marginal areas, they will not be able to absorb the surplus of the rural population. Thus the solution of the agricultural problem is closely linked with the development of industry and of other activities which can absorb this surplus.

/The data

The data of the 1940 census give us an idea of the great density of population concentrated on small holdings. Of the 1,219,000 farms computed, about 40.8 per cent were less than one hectare each, and a further 35.4 per cent measured between 1 and 5 hectares each. In these two categories are classified a large number of the ejidal farms into which the land was split up by the land reform. It is well known that when the reform was carried out, there was no intention of choosing the optimum size of farm from the point of view of soil and climate, but simply to give land to those already living on it, or near it, whatever the area that would fall to each ejidatario. Naturally, it was only a small portion, in view of the nature of the problem. The table below shows the division of the land.

Table 10 Number and Area of farms

Size in hectares	Farms		Area	
	Number	Percentage	Thousand hectares	Percentage
Less than 1	497,378	40.8	168	0.2
1 to 5	431,215	35.4	989	1.0
5.1 to 25	156,200	12.8	1,970	2.0
25.1 to 100	78,229	6.4	4,117	4.1
100.1 to 500	40,123	3.3	9,042	9.0
500.1 to 1,000	6,087	0.5	4,455	4.4
1,000.1 to 5,000	6,883	0.6	15,548	15.4
More than 5,000	2,814	0.2	64,289	63.9
Total	1,218,929	100.0	100,578	100.0

The fact that the properties measuring less than five hectares represent 76.2 per cent of the total and constitute only 1.2 per cent of the area covered by the census does not mean that there is still a large area of agricultural land available which would make it possible to increase the size of the dwarf farms at the expense of large estates, since it is a well-known fact in Mexico that the large holdings do not consist of cultivated land but of pasture land. Cattle breeding, as will be shown later on, requires vast tracts if it is to prove economic. Alternatively, the larger holdings may be made up of forestry undertakings, to which the same applies, or of unproductive areas because of the

/mountainous nature

mountainous nature of the terrain, or because the ground is broken and stony.

Furthermore, the movement of land distribution in favour of ejidos seems to have spent its impetus since the undistributed area is considered too small. Moreover, a law has been enacted recently by which land holders who are not in possession of a parcel of land greater than a certain minimum 1/, may obtain certificates of inalienability which encourages them to invest and carry on their work without risk of expropriation. This legislation consolidates the system of small holdings that is developing alongside the ejidos. It is likely, however, that the guarantee of ownership which this entails may also have stimulated the reappearance of certain forms of concentration of holdings of inalienable land under single control.

The figures given above offer some idea of the pressure exerted by this dense population on the scanty, depleted lands of the traditional sector of agriculture. Whatever the system of land ownership, whether it be private property or ejidos farmed individually or collectively, the problem can only be solved gradually, as has been shown, by the migration of the surplus population. In this connection mention is often made of the resistence on the part of the Mexican peasant to any form of emigration to other regions within the country. On the other hand there is the very significant fact that a good many of the day-labourers who seek work in the United States 2/ come from the most densely populated

1/ The following are the minima established: 200 hectares of non-irrigated land and 100 hectares of irrigated land.

2/ A considerable number of persons leave each year for the United States as seasonal workers. The peak was reached during the war when they totaled 118 thousand in 1944.

agricultural areas. A greater obstacle may arise in the case of the migration of the population dwelling in the temperate zone of the high plateau to the hot lowlands of the coast.

2. The growth of agricultural production

1. The results of irrigation and of the progress of production methods which have added regularity to the harvests and given incentives to the farmers are evident in the increase of agricultural production; its quantum index, as has been indicated before, in 1945-48 showed an increase of 55.1 per cent in relation to 1925-29. On Chart 14 (Table 11-A) the trend of this index is plotted together with that of the principal products or groups of products of which it is comprised.

At the beginning of the 'thirties agricultural production suffered a set-back as a result of the world crisis and for the rest of the decade maintained a relatively low level, which was never greater than that of 1925-29. It is possible that, apart from the influence of other factors, the comparatively slow progress of irrigation during these years may also have contributed to this situation. During the 'forties, on the other hand, the rate of growth is quite evident, and the index, which during the whole of the previous decade had fluctuated below the level of the population curve, surpassed it rapidly and clearly remains far above it.

Examining the different groups of products which are included in the index, it is at once evident that irrigation has not only influenced the increase of production but has also been a factor in the diversification of agriculture.

In the traditional sector of agriculture, the possibilities for diversification are considerably limited, since a great deal of the maize is grown as a subsistence crop by the agricultural population and is the preponderant factor in the system of monoculture. Nor is the system of crop rotation practised. In fact, only beans are combined with maize

/for the

for the same purpose of subsistence. On the irrigated land, however, crops are principally raised for marketing and there is a flexibility which allows their adaptation to the demand of the market and to the technical requirements of crop rotation. As a result of this development, food products, which in 1925-29 represented 88.5 per cent of the total commodities included in the index, by 1945-47 had fallen to 68.7 per cent, without taking into account the changes which had occurred within the compsotion of the category itself, as is shown in the table. Nevertheless, despite this comparative decrease the quantum of food products increased by 31.2 per cent during the period. This increase, however, is not as important as that of other products which have risen appreciably, as can be seen from the following summary.

Table 11-B Mexico: Agricultural production

In million of 1937 pesos

	Yearly averages			Per cent change over 1925-29	
	1925-29	1945-47	1947	1945-47	1947
Food products	400,817	526,026	561,527	31.2	40.1
Oilseeds	14,997	36,972	41,616	146.5	177.5
Fruits	a/ 26,536	55,188	55,087	108.0	107.6
Cotton fibre	52,220	90,413	91,375	73.1	75.0
Sugar-cane	30,595	75,956	85,766	148.3	180.3
Henequen	30,418	25,348	26,888	- 16.7	- 11.6
Various	27,340	45,036	45,537	64.7	66.6
Total	572,307	854,939	907,796	49.4	58.6

a/ Average for 1927-29

The greatest increase was in sugar-cane which more than doubled. This was followed by oilseeds, fruits and cotton fibre; henequen, on the other hand, has shown a decrease for some considerable time now.

Chart 16 and Table 12-A show the principal component commodities. The relatively small increase in the production of maize is remarkable. On the Chart line 2 indicates the moving averages for 3 years of

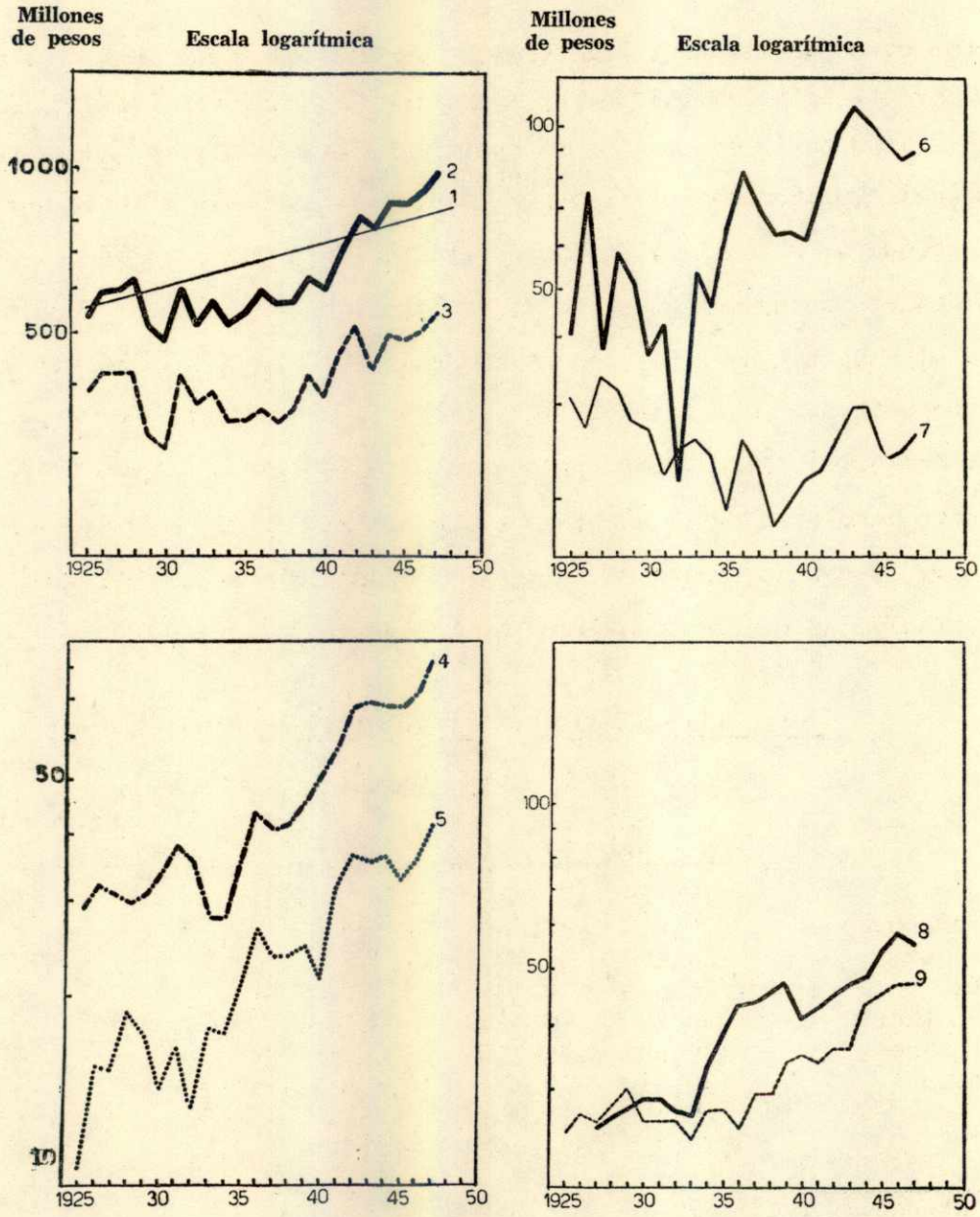
/production. It

GRAFICO 14

MEXICO

VOLUMEN FISICO DE LA PRODUCCION AGROPECUARIA Y SU COMPOSICION

Valores a precios de 1937



1.— Población.
2.— Total general de la producción agropecuaria.
3.— Productos alimenticios.
4.— Caña de azúcar.
5.— Oleaginosas.
6.— Algodón.
7.— Henequén.
8.— Frutas.
9.— Productos varios.

Centro de Investigaciones, Comisión Económica para América Latina.

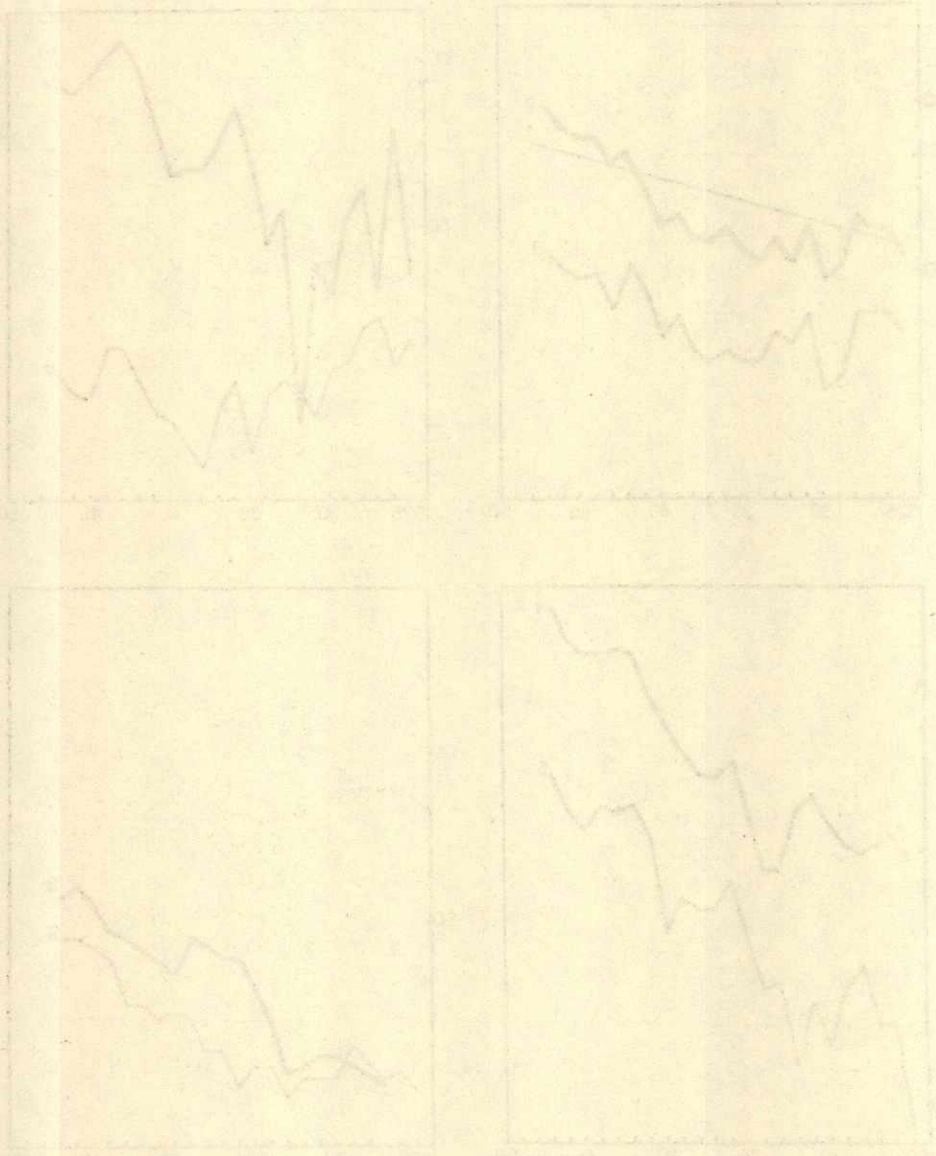


Table 11-A. Mexico: Quantum Index of Agricultural Production

Values at 1937 Prices

Thousands of pesos

Years	Foodstuffs	Oilseeds	Fruit	Cotton	Sugar cane	Henequén	Various	Grand Total
1925	390,697	9,542		41,393	29,305	31,439	24,907	527,213
1926	426,718	15,155		74,339	32,198	26,912	27,045	602,367
1927	428,487	14,625	25,428	37,029	30,545	33,888	26,294	596,296
1928	431,671	18,755	26,637	57,514	30,049	31,947	28,489	625,062
1929	326,584	16,909	27,544	50,827	30,876	27,905	29,963	510,608
1930	308,539	13,483	28,709	36,677	33,562	27,258	26,091	474,319
1931	434,148	16,180	28,709	43,364	37,654	21,806	26,236	608,097
1932	376,828	12,584	27,328	20,908	34,678	25,064	26,236	523,626
1933	400,888	17,589	26,723	53,783	28,313	25,964	23,982	577,242
1934	352,414	17,103	32,767	46,040	28,313	23,908	27,189	527,734
1935	349,937	20,844	37,387	64,976	36,414	19,642	26,814	555,014
1936	371,167	26,505	42,438	82,083	44,226	26,472	24,502	617,393
1937	353,829	24,294	43,172	70,397	41,333	23,100	28,894	585,019
1938	371,520	23,614	45,503	63,357	42,118	18,388	29,154	593,654
1939	428,133	24,755	47,748	64,484	46,458	19,681	32,795	664,054
1940	392,042	22,205	40,020	62,372	50,674	22,107	33,979	623,399
1941	472,715	31,679	41,834	77,366	57,866	23,423	32,795	737,678
1942	522,252	36,611	43,992	98,133	69,315	25,918	34,644	830,865
1943	436,625	36,417	46,280	110,382	69,894	30,215	35,164	764,977
1944	513,406	36,635	47,748	101,160	68,861	29,822	42,214	839,846
1945	498,191	33,161	53,404	92,994	68,737	24,347	44,034	814,868
1946	518,359	36,140	57,073	86,870	73,366	24,809	45,537	842,154
1947	561,527	41,616	55,087	91,375	85,766	26,888	45,537	907,796
1948	607,524	43,243	58,584	113,973	96,347	28,205	47,068	994,944

Source: Research Centre, United Nations Economic Commission for Latin America.

Notes: Figures correspond to gross production.
Basic data on production and prices have been compiled from publication of the Dirección General de Estadística and the Secretaría de Agricultura y Ganadería.

production. It can be seen at once that the commodity suffered during the 'thirties, in the middle of which it reached its lowest point. However, it rose again immediately after until it finally surpassed the pre-crisis level, though at a somewhat late date. The dotted line shows the moving average of production plus the net imports. Such imports have never become an important proportion of consumption.

Table 12B. Mexico : Agricultural production of the principal products, 1925-29 and 1944-47

(In metric tons)

	Average 1925-29	Average 1944-47	1947	Per cent change 1944-47 / 1925-29	Per cent change 1947 / 1925-29
Foodstuffs					
Maize	1,960,712	2,350,651	2,517,593	19.9	28.4
Wheat	340,992	370,869	421,859	8.8	23.7
Rice	82,165	125,647	137,821	52.9	67.7
Beans	169,621	170,599	198,854	0.6	17.2
Chick peas	71,533	101,467	111,367	41.8	55.7
Tomatoes	79,020	227,409	241,286	187.8	205.3
Potatoes	45,540	126,238	128,824	177.2	182.9
Onions	13,871	28,690	29,549	106.8	113.0
Green peppers	18,077	36,002	36,739	99.1	103.2
Dried peppers	7,094	12,966	12,955	82.8	82.6
Coffee	39,741	56,779	55,400	42.9	39.4
Barley	83,062	84,092	88,195	1.2	6.2
Oilseeds					
Ajonjoli	11,793	67,302	84,220	470.7	614.1
Copra	19,772	23,713	27,700	19.9	40.1
Cotton seed	106,793	160,121	155,691	49.9	45.8
Groundnuts	6,494	33,778	33,419	420.1	414.6
Industrial products					
Cotton	54,813	97,692	95,927	78.2	75.0
Sugar cane	3,000,768	7,276,317	8,412,166	142.5	180.3
Henequén	132,445	115,257	117,105	- 13.0	- 11.6
Fruits					
Oranges	107,674 a/	303,771	345,002	182.1	220.4
Roatán bananas	222,720 a/	298,703	297,639	34.1	33.6
Other types of bananas	110,391 a/	152,394	154,762	38.0	40.2
Avocado (or alligator) pears	28,964 a/	60,701	60,869	109.6	110.1
Grapes	10,299 a/	25,735	22,668	149.9	120.1

/Source:

Source: Compendio Estadístico 1937, Mexico; Revista de Estadística; Serie de Estadísticas Agrícolas, Boletin 257.

a/ Average 1927-31

Maize cultivation is spread throughout most of Mexico, not because the soil is particularly suitable for this crop but because it forms the staple diet of the majority of the population and must therefore be grown chiefly for subsistence, on those lands on which the population, for historic, economic and social reasons, has settled. The cultivation of maize, under these circumstances implies an excessive use of human labour. It is therefore hoped that the development of irrigation and the absorption of the agricultural population in newly opened lands and into industry and other occupations will, in time, enable the cultivation of maize on marginal lands to be gradually abandoned.

Setting aside exceptional cases, it may be said that on the whole the amount and distribution of rainfall is not particularly favourable to the cultivation of maize in Mexico. This, together with the poverty of the soil, and the primitive methods of cultivation in use are responsible for the extremely low yields per hectare, which average about one-third that obtained in the United States and require a much greater amount of human labour.

Nevertheless, during the recent past, there has been a trend toward higher yields after the drop which occurred in the 'thirties and which exerted so unfavourable an influence on the output of maize, as is seen below.

Yearly average	Kilogrammes per hectare
1925-29	642
1930-34	574
1935-39	564
1940-44	596
1945-48	708

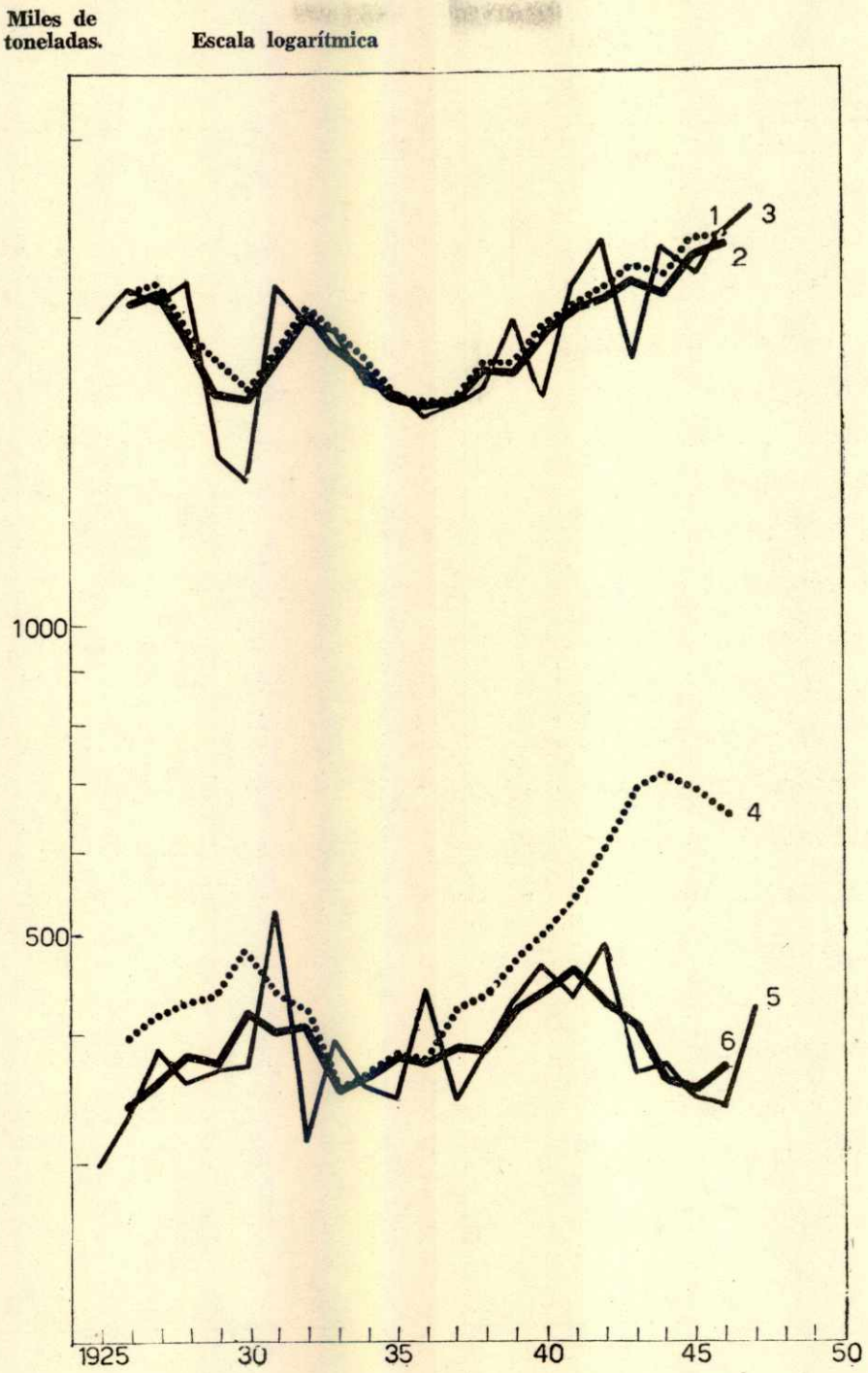
The 1945-48 average, as will be noted, is 10 per cent higher than that for 1925-29. This can be ascribed partly to the geographic displacement of maize cultivation from the central zone of non-irrigated land and

/scanty, irregular

GRAFICO 16

MEXICO

PRODUCCION Y CONSUMO DE MAIZ Y TRIGO.



1.— Consumo aparente de maíz.
2.— Producción de maiz, promedio móvil de 3 años.
3.— Producción de maíz.
4.— Consumo aparente de trigo.
5.— Producción de trigo.
6.— Producción de trigo, promedio móvil de 3 años.

Centro de Investigaciones, Comisión Económica para América Latina.



Table 12-A. Mexico: Apparent Consumption of maize and wheat

(In tons)

Years	Wheat			Maize		
	Production	Imports	Apparent Consumption	Production	Imports	Apparent Consumption
1925	298,131	43,758	341,889	1,968,132	66,432	2,034,564
1926	334,365	84,795	419,160	2,134,842	109,300	2,244,142
1927	384,768	37,706	422,474	2,058,934	28,423	2,087,357
1928	356,951	47,437	404,388	2,172,845	9,991	2,182,836
1929	366,744	96,107	462,851	1,468,805	7,898	1,476,703
1930	370,394	69,527	439,921	1,376,762	79,315	1,456,077
1931	525,071	30,091	555,162	2,138,677	18,731	2,157,408
1932	312,532	67	312,599	1,973,469	37	1,973,506
1933	392,249	1,648	393,897	1,923,867	117,464	2.041,329
1934	354,326	220	354,546	1,723,477	16	1,723,493
1935	346,630	46	346,676	1,674,566	9	1,674,575
1936	439,464	95	439,559	1,597,203	10	1,597,213
1937	342,594	4,932	347,526	1,634,730	3,663	1,638,393
1938	386,349	89,684	476,033	1,692,666	22,062	1,714,728
1939	428,784	51,086	479,870	1,976,731	53,899	2,030,630
1940	463,908	1,225	465,133	1,639,687	8,271	1,657,958
1941	434,293	121,635	555,928	2,124,085	24	2,124,109
1942	489,144	114,317	603,461	2,363,223	437	2,363,660
1943	364,294	228,301	652,595	1,808,093	32,040	1,840,133
1944	374,421	431,806	806,227	2,316,186	162,824	2,479,010
1945	346,757	311,873	658,630	2,186,194	48,586	2,234,780
1946	340,441	259,655	600,096	2,382,632	9,745	2,392,377
1947	421,859	279,022	700,881	2,517,593	695	2,518,288
1948	447,156	267,173	714,329	2,829,985	305	2,829,985

Source: Research Centre, United Nations, Economic Commission for Latin America.

Note: The production series have been obtained from publications of the Secretaría de Agricultura y Ganadería; the import series from the Dirección General de Estadística.

Occasional exports in the apparent consumption of maize have been taken into account.

scanty, irregular rainfall to the irrigated, semi-irrigated or naturally humid soils where conditions are more favourable to this crop. Between 1926 and 1948, the proportion of land in the central zone under maize decreased from 54 per cent to 38 per cent. The progress in mechanization, and to some extent in the technique of cultivation, as well as more rainfall during 1945-48 may also account for some of the improvement.

Nevertheless, the increase in yield was comparatively small and explains the efforts which are being made by the Mexican Government in the field of maize genetics. The new varieties obtained thus far make it possible to envisage a 25 per cent increase in yields. Their utilization on an increasingly large scale, mainly due to the Comisión Nacional del Maíz (National Maize Commission) is of great importance, especially in the traditional sector of agriculture. In fact the quality of the soil and the unreliable rains make it impossible to employ machinery and fertilizers to the same extent as on the flat irrigated lands, or on the semi-irrigated or naturally humid soils.

It should be added that the use of fertilizers for the growing of maize on these latter soils is being increased, but they do not represent even 20 per cent of the total surface on which this cereal is planted. Large tracts require the application of nitrogen and phosphates to improve yields. The Government is building a factory that should produce 70,000 tons of sulphate of ammonia annually which, if used entirely for the cultivation of maize, would only be sufficient for half of the irrigated and the naturally humid soils.

There has been a considerable increase in the consumption of wheat during the 'forties partly supplied by imports which, in contrast with maize, supply the greater part of consumption. Line 4 on Chart 16, plotted with the aid of movable averages like that for apparent consumption, rose sharply after the decline caused by the world depression, for about ten years. A large part of this increase was accounted for by substantial imports, since domestic production during the first half of the forties had been considerably reduced. Subsequently production tended to rise from this very low level through not to the same extent as the decrease shown in imports.

/The yield of wheat

The yield of wheat increased more than that of maize, as can be seen below.

Yearly averages	Kilogrammes per hectare
1925-29	685
1930-34	776
1935-39	772
1940-44	752
1945-47	882

The increase in yields can also be accounted for by the displacement of cultivation from the old agricultural areas to the newly opened arable lands in Mexico. Whereas 54 per cent of the wheat grown in Mexico was planted in the Central Zone in 1924-25, by 1947-48, this had been reduced to 35 per cent. Thus, while in Penjamo (in the central zone) for instance, unfavourable conditions gave a yield of only 660 kilogrammes per hectare, elsewhere, in La Laguna and the Valley of the Mexicali and especially in the great wheat belt of the Yaqui, where there is good flat land and adequate irrigation, yields as high as 980, 1,200 and 1,480 kilogrammes per hectare, respectively, are obtained.

In the irrigated areas, new varieties are being introduced and increasing amounts of fertilizers are being used; moreover considerable progress has been made in mechanization. Among the new varieties being tried, efforts are also directed towards obtaining strains that are immune to rust which damages the crops of the central zone and some of those in the irrigated areas.

Considerable improvements in the production of rice have also been obtained, especially on irrigated land. The same effects are quite remarkable in market garden products. In this connection the considerable increase in the production of tomatoes which has been stimulated by demand in the United States can be pointed out. The value of this crop now amounts to 5 per cent of total agricultural production and it is estimated that if growing is extended in the new agricultural areas, it may achieve the same significance as beans and maize.

Among other products in the group, coffee should be noted since two-thirds of the production of this commodity are exported. Coffee yields have decreased in the recent past as a result of diminished efficiency on

/the plantations

the plantations expropriated from German residents during the war.

In the group, all the main products included in the index have shown increases, but of these the most outstanding are sesame and groundnuts which have enabled Mexico to have net exports of oilseeds.

In the group of agricultural products for industrial use, cotton and sugar-cane have shown noticeable increases while henequen declined. Cotton is raised entirely on irrigated land; its yield is somewhat lower than that in the United States and much lower than that of other producer countries. The average yields were as follows:

Yearly averages	Kilogrammes per hectare
1925-29	285
1930-34	299
1935-39	248
1940-44	271
1945-47	278

The decrease indicated by these data is being attributed to the breaking up of the large cotton estates among the ejidatarios as a result of the land reform. But it would seem that yields once the distribution became consolidated again approached the 1925-29 level.

The great increase in production of sugar-cane is also the result of improved yields besides the extension of the area under this crop, as can be seen from the following data:

Yearly averages	Metric tons per hectare
1925-29	44.5
1930-34	44.4
1935-39	47.4
1940-44	50.2
1945-48	51.3

Technical progress in cultivation is mainly responsible for the improved yields due both to the introduction of new strains of sugar-cane and to the use of fertilizers. However, the higher yields thus obtained have in part been neutralized by the expansion of cultivation to naturally humid soils, where yield is considerably lower than on irrigated land.

Livestock products have not been included in the index because of the insufficient data. According to the 1940 census, 56 million hectares consisted of pasture land spread over plains and hills as against 14.9 million hectares of arable land. This, however, might be misleading in

/appraising the

appraising the cattle-raising resources of Mexico, which, on the whole, are rather poor. The best cattle raising country is located in the north, where the limitations are well known: insufficient rainfall, few permanent water courses and the difficulties and expense involved in pumping water. At the same time, throughout the whole country, the census shows vast areas where, in addition to the deficiencies mentioned above, the terrain is broken and the pasture scanty and of poor quality. Thus conditions for the raising of cattle are unfavourable and goats and sheep are grazed under nomad methods.

Due to the insufficient rainfall in Northern Mexico, cattle raising requires vast tracts of land, measuring hundreds or thousands of hectares, according to the density and the quality of the pasture and the amount of water available. Nevertheless, in the regions where the soil is naturally humid, cattle ranches are also extremely large, chiefly because of the scarcity of the agricultural population and the lack of communication facilities which offer no incentive towards an intensification of production. Cattle breeding has thus been left out of the considerations of the land reform and continues to develop in accordance with the traditional system of private ownership.

Until recent years large herds of cattle from the ranches in Northern Mexico were driven across the frontier to the United States. However, the appearance of foot and mouth disease put a stop to this form of exportation of cattle, which was replaced by exports of canned meat, processed in modern packing houses.

Apart from these producer regions, meat is scarce in the more densely populated sectors of the country. This has led to the organization of a shipping system for meat from the north to these areas, using modern methods of transport and refrigeration.

3. Productivity in Mexican Agriculture

Many adverse factors weighing on the traditional sector of Mexican agriculture account for its very low productivity. The following data offer an illustration of these levels.

Productivity of labour, reflecting also differences in natural resources in maize growing in Mexico and in the United States is as follows:

	Kilogrammes per man-hour	Kilogrammes per hectare
Guanajuato	2.8	275
Jalisco	3.8	329
United States (average)	27.8	1,865
Iowa	74.7	3,063

These data reveal that in the areas where traditional production methods prevail, as for instance, in the State of Jalisco, output per man-hour is about one-tenth and yields per hectare about one-half the average in the United States. Should the State of Guanajuato be compared to Iowa where yields are highest, output in the latter is 27 times higher in terms of man-hours and 3.5 times in terms of cultivated area.

Wheat. Production per man-hour is 6.8 kilogrammes and 9.0 kilogrammes, in the irrigated land at La Laguna and in the Yaqui Valley, respectively. In the State of Kansas in the United States, the yield is 84 kilogrammes and the average for the whole United States is 48 kilogrammes.

It should be noted that irrigation, either by pumping or other means, demands 40 per cent more direct human labour than is needed in wheat growing in regions with sufficient rainfall, as in the United States and other great wheat producing countries. This indicates the great effort required in Mexico for the production of wheat and other products, even in modern agriculture.

Cotton. In La Laguna, the best cotton growing land in Mexico, production per man-hour is 0.9 kilogramme whereas the United States output is 1.3 kilogramme. This difference is, of course, less marked than that obtaining in the case of wheat and maize. Yields per hectare amount to 395 kilogrammes in La Laguna and 291 kilogrammes in the United States as a whole. Mexico's average yield, however, is only 278 kilogrammes.

Sugar-cane. The production of sugar-cane per man-hour in Mexico varies between 53 and 77 kilogrammes whereas the United States average is 93 kilogrammes. This implies that from 20 to 75 per cent more man-hours are required in Mexico to produce the same amount of sugar-cane. Yields per hectare amount to between 40 and 50 metric tons per hectare in Mexico, while the average in the United States is only 22 tons.

/In the opinion

In the opinion of experts, all these differences of yield per man-hour and per hectare are more influenced by the quality of the soil, water availability and climatic conditions than by the degree of mechanization used in cultivation, though of course the latter is also of unquestioned importance.

4. Henequen, a special case.

Two outstanding reasons make this fibre deserving of special attention: firstly, because of the manner in which Mexico's exports of the product lost the monopoly they had of the world market, and secondly, because of the great importance of this product to the province of Yucatán, where it is practically the only commercial crop grown, in view of the prevailing soil and climatic conditions. "There is no other agricultural product in Mexico that determines the way of life of a large population concentrated on a relatively small area to the same extent as does henequen". 1/

Until the beginning of this century, Yucatán held what practically amounted to a monopoly of exports of this type of fibre. The production of henequen had developed rapidly until then, as can be seen from chart 15. However, with the turn of the century, other countries began developing production of competitive fibres and though Mexico continued to increase its exports of henequen, it has not done so at the same rapid rate which obtained during the last quarter of the nineteenth century. Competition from other fibres became increasingly keen, so that by the middle of the 'twenties henequen exports began to decline definitely and constantly. An interruption in this downward trend seems to have occurred during the Second World War, when some of the leading competing countries were prevented from continuing their exports. This afforded henequen production a moment of prosperity during which pre-depression levels were surpassed. This prosperity, nevertheless, was short-lived, and henequen production recently fell back to its comparatively low levels.

1/ Manuel A. Mesa and Rogelio Villanueva, La Producción de Fibras Duras en México, Industrial Monographs of the Banco de México, S.A., 1948, P. XIII.

/Several factors of

Several factors of different kinds, resposible for the decline of henequen production, have exerted and may continue to exert considerable influence on the development of certain exports of the Latin American primary producers. They are of three classes: the social aspect, the technique used to produce the fibre and lastly the technique employed in its processing.

The social factor in Yucatán was manifest on two occasions. The early stages of the decline of henequen production, about the beginning of 1950, according to Mesa and Villanueva "coincided with the liberation of the peones on the henequen plantations". 1/

It is probable that the subsequent increase in the costs of production placed the Mexican entrepreneurs in an unfavourable position in relation to other producer countries where labour was cheaper. The second occasion dates from the land reform during the thirties, when the henequen plantations were distributed among the ejidatarios, apparently decreasing labour efficiency.

The improved position of labour does not seem to have prompted the plantation owners to introduce better production methods even when competition from other countries became keener. The most serious of these competitors was East Africa where the cultivation of sisal as a substitute eventually created a product of marked technical superiority over henequen, both as regards production methods and processing of the fibre. "In East Africa", according to the above-mentioned writers, "scientific experiments are being carried out to increase yields and to improve the quality of the fibre..... In Yucatán no such experimental work has been carried out". 2/

Haitian production of sisal has also been important in dislodging Yucatán henequen from the market, by reason of the low wage levels obtaining there and the better methods of cultivation and processing of the fibre. Both of these factors also seem to have favoured the development of a further competing fibre, namely, abacá or Manila hemp produced in the Philippine Islands and Indonesia.

1/ Op. cit., page 145
2/ Op. cit. pages 415-16

/Lastly, changes in

Lastly, changes in the uses of henequen fibre also account for the decline of the Yucatan product. The United States market had been the most important, especially as a consumer of binder twine for grain binders, until the introduction of combines dealt a serious blow to the demand for fibre. Furthermore, the system of preferential customs operating in the United States which was unfavourable to the Mexican fibre also contributed to the slowing down of henequen production in Yucatán.

As a result of the first two of these factors, that is, both the social aspect of the problem and the question of production technique, Mexican output of henequen reacted to a marked degree as regards yield, volume and prices in comparison with those obtaining for the competing fibres, as can be seen below.

Table 13. Mexico : Henequen Production

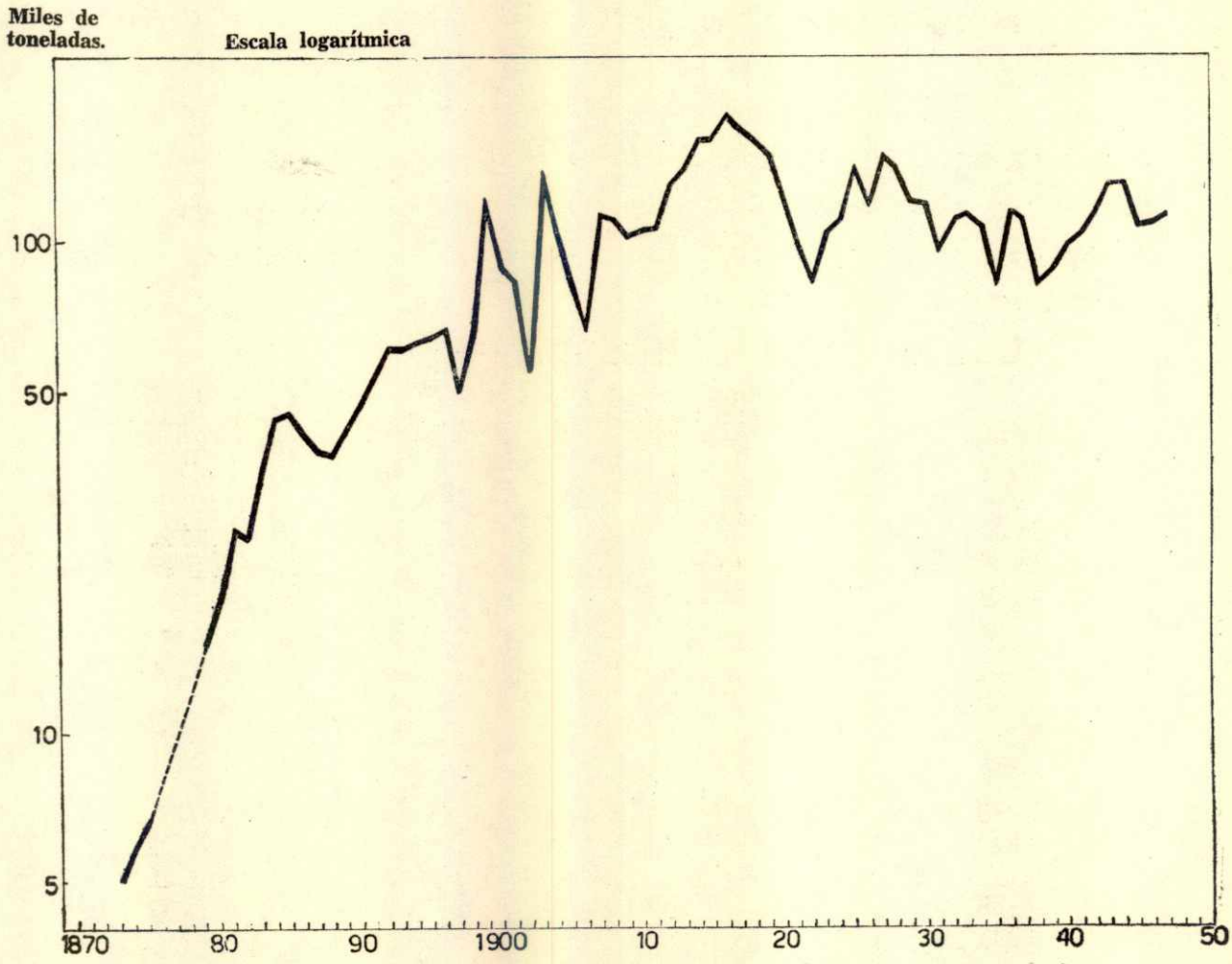
Years	Thousand hectares under cultivation	Thousand tons produced	Kilogrammes per hectare
1925	217.3	136.9	1,075
1926	114.9	117.2	1,020
1927	125.9	147.5	1,172
1928	118.1	139.1	1,178
1929	108.0	121.5	1,124
1930	100.9	118.6	1,175
1931	81.7	95.0	1,162
1932	97.5	109.2	1,119
1933	100.4	113.0	1,126
1934	96.6	104.1	1,149
1935	87.3	81.1	930
1936	101.8	115.2	1,132
1937	89.7	100.5	1,121
1938	96.2	80.1	832
1939	99.4	85.7	862
1940	108.6	96.2	887
1941	107.7	102.0	947
1942	127.3	112.8	887
1943	133.5	131.5	985
1944	138.2	129.8	940
1945	141.5	106.0	749
1946	139.5	108.1	775
1947	139.8	117.1	837

/While Mexico's

GRAFICO 15

MEXICO

PRODUCCION DE HENEQUEN, 1870 - 1948.



Centro de Investigaciones, Comisión Económica para América Latina.



While Mexico's fibre production was declining, that of other countries was on the increase. In 1900, Mexican henequen accounted for total world production. Before the Second World War, Mexico supplied only 20 per cent of world demand which in the meantime was four times greater than at the beginning of the century. As has already been said, this percentage increased during the war, but when exports from the Philippines and Indonesia became available, this proved to be temporary only.

The position of Mexican henequen is very critical and only an improvement of technique in the various stages of production can enable this fibre to recover some of the ground lost. Recently other possibilities have been discussed, among them the proposal to extract a type of wax from the residue that would compete with Brazil's Carnauba wax, but it seems that only the experimental phase has been reached in the investigation of this product.

/5. <u>The foreign trade</u>

5. The foreign trade balance of Mexican agriculture

It has been shown that despite the fact that the quantum of Mexico's agricultural production has increased considerably more than its population, so that the per capita increment recorded between 1925-29 and 1945-47 was 5.5 per cent, the country has nevertheless substantially expanded its imports of foodstuffs, fats and other agricultural products. On the other hand there has also been a large increase in the exports of these goods. In other words, there has been a remarkable rise both in production and foreign trade of agricultural commodities. The problem is to ascertain the net balance of this trade during the quarter century under review.

For this purpose, Table 14 has been prepared, comparing, in the first place, imports of foodstuffs, fats and various agricultural products with exports of all these products. In order to simplify the comparison, textiles have been considered separately. This comparison has been made on two bases: first, that of volume with all prices computed at their 1937 levels and second, on current values. From the first comparison, it should be noted that the volume of agricultural products imported between 1925-29 and 1945-48 and that of the corresponding exports increased practically at the same rate, that is 44.8 per cent and 43.9 per cent, respectively, so that the export surplus obtained during the first period was practically maintained during the second period. From the second method of comparison, that is current values, net exports of agricultural commodities increased a little more than five times.

A somewhat similar trend has been followed by textiles. Mexico is obliged to import most of the wool supplies for domestic industry, and also all the cellulose for the rayon spinning factories. It will be noted that imports of both these items have grown considerably, but at the same time, exports of raw cotton and cotton goods, both as regards quantum and current values, have expanded to an even greater degree. Hence the credit balances for trade in these two groups increased considerably according to both methods of computation during the quarter century under review.

/Table 14.-

goods which in certain branches of production have in turn led to the export of substantial quantities of processed goods. Industrial development everywhere involves sharp increases in the consumption of chemical products; since their manufacture in Brazil has so far been negligible, the greater part has had to be supplied from foreign sources. The increasing trend of imports should be noted and the fact that it is hardly affected by the world crisis and the consequent sharp decline in the capacity to import. The number of products is so great that they cannot be treated in detail. It suffices our purpose to set forth the indices for imports of caustic soda and sulphur, in the following annual averages:

Five-year periods	Caustic soda	Sulphur
	(in tons)	
1925-29	16,811	7,181
1930-34	20,851	7,367
1935-39	27,687	16,193
1940-44	37,018	27,988
1945-49	43,146	33,287

So far, caustic soda has only been manufactured in small amounts, though there exist interesting plans for production which will be described later. Sulphur is imported for the production of sulphuric acid, which will also be dealt with in its appropriate place.

The increase of 92 per cent in imports of fuel and lubricants between the two five-year periods under consideration is also very significant. The group is constituted as follows:

Five-year periods	Coal	Fuel derived from petroleum (gasolene)	Lubricants	Total (Value in 000 of cruzeiros at 1937 prices)
		In thousands of tons		
1925-29	1,900	513.6	38.1	457.440
1930-34	1,253	640,3	25.6	382,847
1935-39	1,219	914.6	38.3	476.473
1940-44	752	764.0	52.1	396.962
1945-49	1,126	2,092.2	80.0	879.904

/Liquid fuel

Liquid fuel, as elsewhere, has replaced coal in Brazil for technical reasons as well as for the more favourable prices of petroleum products.

The increase which has occurred in imports of paper, cardboard and woodpulp amounted to scarcely 17 per cent, but it is not without significance in a country of great natural forest resources where the consumption of paper has increased so sharply, as was pointed out when referring to the indices of consumption. Hence the interest aroused in developing domestic production of these goods.

The other commodities included in the class of "other goods" show no fluctuation of any importance. Nevertheless they constitute a mixed group, and one subject to considerable changes which cannot be examined at length in the present report. Suffice it to say that in general imports of finished goods tend to decrease in favour of imports of raw materials and semi-manufactured goods.

Having completed this brief summary of the fluctuations of imports, we can now better understand the importance of the development of the principal branches of industry in the last quarter century. Let us begin with a short analysis of the production of power.

The production of power

2. The intensive development of economic activity in Brazil has evidently involved a considerable increase in the consumption of power. This increment, in its turn, has given rise to two types of problem: In the first place, a large proportion of the consumption of power is supplied by the use of wood, which was estimated in 1946 to furnish 75 per cent of total consumption of power. This fact is the cause of justifiable anxiety since the excessive consumption of wood as fuel, besides the enormous waste involved is seriously impoverishing the country's forest resources; this in turn accelerates soil erosion and alters the flood plains in a way highly detrimental to the country's

/economy, a

VI. THE DEVELOPMENT OF MINING PRODUCTION AND EXPORTS

1. Special characteristics of mining production

All the Latin American countries have one feature in common: they are all exporters of primary products. There is, however, one striking difference between mining and agricultural production, namely, that in the case of the latter, the numerous production units in each country function independently of those of other countries, except for their participation in the world market, which affects them all by means of its fluctuations. In the case of mining production, on the other hand, there are international organizations whose operations are very flexible so that if in a give region new deposits are discovered, or new possibilities emerge for the profitable exploitation of known deposits, productive factors tend to move there, to the disadvantage of other producing regions. In other words, there is a preference for those deposits having the greatest productivity on an international level.

In this way products are obtained for the lowest possible cost. On the other hand, the country whose deposits are less favourable from this point of view, must resign itself to allowing its mining production to decline or to develop less than would otherwise have been possible. In the case of agricultural producers who are largely independent of each other, the fact that one country is less productive than another does not hinder it from continuing to expand its production, if it is willing to accept a smaller income for the factors of production used in agriculture. From a national standpoint such a reduction in income might be preferable to other solutions. The decision to continue production under these conditions, or, alternatively, to displace the factors of production to other activities does not depend on consideration of lower costs from the international point of view, but on the criterion adopted, justly or otherwise, by each country as corresponding best to its own interests.

The discussion of this problem encompasses matters of great interest but is beyond the scope of this survey. It was only intended here to emphasize the extent to which a country engaged in mining production can be vitally affected by such displacements of production to other countries.

/2. Petroleum Production

2. Petroleum Production

The exploitation of Mexico's mineral deposits illustrates the case in point particularly well. In 1921, petroleum production in the country was progressing rapidly, having reached an output of 193 million barrels, which was 25 per cent of world production. But from that date on, a constant decline set in, lasting for more than twenty years, and seriously affecting Mexican economy. The explanation for the facts is well known and can be seen in Chart 20. As Mexican production declined, a corresponding rise took place in that of Venezuela. In the latter country costs were lower, due to the greater productivity of the deposits, whereas in Mexico, productivity had diminished as the deposits were becoming exhausted. It is generally admitted that the principal cause for the drying up of the Mexican wells was their unsystematic exploitation by the petroleum companies. In order to meet the great demand for crude oil in the early 'twenties, production per well was pushed beyond optimum rates, to the detriment of future output.

The petroleum companies then made strenuous efforts to locate new deposits, by means of a vast exploration and drilling programme, intensifying these activities between 1924 and 1927. The results, however, confirmed the fact that productivity in Venezuela was higher.[1/] The effects of this difference in productivity were aggravated by the fall in prices, the influence of this reduction on the course of Mexican production having been appreciable.

When the petroleum companies were expropriated in 1937 and the deposits were nationalised, production had already fallen to 24 per cent of the 1921 peak. The first years of the national petroleum administration were marked by difficulties of every sort, and it was not until recently that the level of production rose again, substantially surpassing the pre-1937 level. The experts are agreed that Mexico has great petroleum reserves, but the work of exploration and drilling involves capital outlays which cannot be met from domestic sources. The problem of obtaining these funds abroad is as yet unsolved, though there is no

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1/ After the world depression, no new drillings were made by these companies, undoubtedly for the reasons set forth in the text, but the possibility should not be overlooked that the political atmosphere prevailing at the time may also have influenced their attitude.

/doubt that

doubt that the passing of time has progressively weakened some of the opposition to this scheme. No more symptomatic evidence of this change can be found than the recommendation made by Mr. Wolverton, Chairman of the Committee on Interstate and Foreign Commerce of the House of Representatives of the United States Congress, in his progress report: "Any programme for the exploration and development of Mexican petroleum resources, must, however, clearly recognize the impact of the history of petroleum exploitation and experience in that country, as well as the sentiment of the Mexican people which has been built up throughout the years as a result thereof." 1/

In 1949 petroleum production had reached 62 million barrels, that is to say, 32 per cent more than in 1937 and is the highest since 1927. Meanwhile, domestic petroleum consumption is now absorbing 72 per cent of production as against 49 per cent in both 1927 and 1937. The petroleum administration of Mexico (Pemex) recently estimated that if domestic consumption continues to rise at the rate of the past few years, and production is not increased by the discovery and exploitation of new oil deposits, Mexico will become a net importer of petroleum in a very short while.

In 1948 and 1949, drilling was intensified, both for production purposes on the existing fields and for exploratory purposes elsewhere. As a result, the petroleum reserves which had been estimated at 1,058 million barrels at the end of 1948 had increased to 1,270 one year later. In 1949, the drillings made were the highest since 1930.

Of the new oil fields prospected, two are worthy of mention: the first is located at Reynosa, in Northeastern Mexico, near the United States border, in the State of Tamaulipas; numerous drillings had been previously made in this region, yielding nothing more than gas, until the discovery of the Reynosa field in 1948. The other is the so-called "Tortuguero No.1" well, in the State of Veracruz, which has cut through two underwater petroleum layers, and has been sunk at an angle from the beach. Apart from the fact that it is extremely productive - its estimated daily output is 1,170 barrels - it is remarkable in that it is the first drilling made by a United States company specialised in underwater petroleum exploration.

1/ Page 15.

/The contract

The contract provides for exploration of unknown fields, and the company can act only as a lessee. The company has declared its intention of investing about 8 million dollars in explorations scheduled for 1949/50.

3. Production of other minerals

The course of development of the production of other minerals also shows evidence of the effects on Mexican economy of an outstanding event which took place during the twenties. This, together with certain international shifts of production of lesser importance than in petroleum, and in connection with other factors, accounts for the decrease in the aggregate of production and exports of these other minerals in 1945-48 as against their pre-world crisis level.

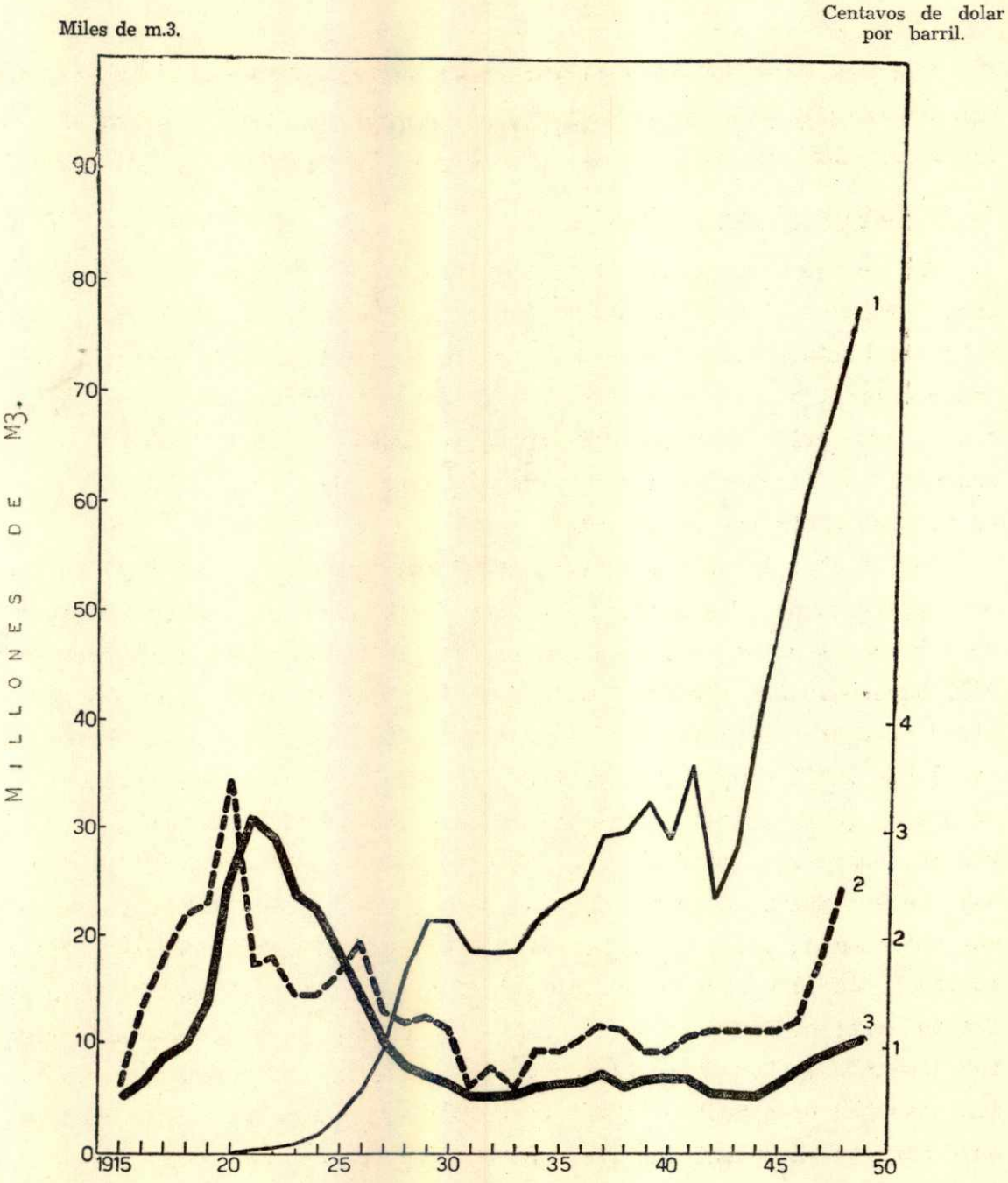
This factor is of a technical order and consists in the application of a new process of selective floating, whereby the treatment of mixed ores is carried out in such a manner that it becomes possible to extract simultaneously the various metals contained in the ores. Deposits of mixed ores are of considerable importance in Mexico, but with the means available until now, only a part of the metal could be extracted, according to the yield of the ore and the demand for the metal. As a result, huge piles of cuttings left over as waste from low-grade ores used to accumulate near the mines. When the selective floating process was introduced, these heaps of mixed ores were employed, greatly adding to the production of copper, zinc, lead and silver. This is the main reason for the extraordinary increase of the production of these metals during the 'twenties. (See Chart 21 and Table 15 A). It is evident that when full use had been made of these waste piles, production became subject once more to the usual factors. Be that as it may, the world depression broughtabout, at the end of the 'twenties and the beginning of the thirties a severe limitation in the exploitation of all these metals. The development affecting each of these metals separately are indicated below.

/Table 15 B:

GRAFICO 20

MEXICO

PRECIO DE PRODUCCION EN ESTADOS UNIDOS Y PRODUCCION DE PETROLEO CRUDO EN MEXICO Y VENEZUELA.



1.— Producción de petróleo en Venezuela.
2.— Precio del barril de petróleo en Estados Unidos.
3.— Producción de petróleo en México.

Centro de Investigaciones, Comisión Económica para América Latina.

Table 15.A. Mexico: Production of principal metals

Metric tons

Years	Silver	Lead	Zinc	Copper
1925	2,890	178,662	51,795	54,596
1926	3,057	210,794	105,367	53,763
1927	3,253	243,346	136,478	58,734
1928	3,376	236,486	161,747	65,505
1929	3,381	248,401	174,050	86,559
1930	3,279	242,537	124,084	73,412
1931	2,677	226,780	120,289	54,212
1932	2,156	137,325	57,256	35,213
1933	2,118	118,693	89,339	39,825
1934	2,306	166,333	125,186	44,268
1935	2,351	184,193	135,921	39,373
1936	2,409	215,724	150,251	29,713
1937	2,642	237,075	160,415	46,077
1938	2,520	282,369	172,218	41,851
1939	2,360	219,506	134,166	44,390
1940	2,570	196,253	114,955	37,602
1941	2,437	155,259	154,996	48,716
1942	2,640	197,019	189,873	50,897
1943	2,686	218,126	197,199	49,774
1944	2,286	185,282	218,965	41,300
1945	1,900	205,315	209,940	61,680
1946	1,346	140,143	139,535	61,053
1947	1,830	223,135	195,814	63,492
1948	1,789	193,317	179,029	59,076

Sources: 1925-45: "Riqueza minera y yacimientos de México", Banco de México S.A.; 1946-48: Dirección General de Minas y Petróleo.

Table 15 B. Mexico: Production of the principal metals

(In metric tons)

	Yearly averages			Per cent changes over 1925-29	
	1925-29	1945-48	1948	1945-48	1948
Silver	3,191	1,716	1,789	- 46.2	- 43.9
Lead	223,538	190,478	193,317	- 14.8	- 13.5
Zinc	125,887	181,080	179,029	43.8	42.2
Copper	63,831	61,325	59,076	- 3.9	- 7.4

Note: For source and notes, see Table 15 A.

Further to what has already been said, copper mining offers still another example of the results of shifts to other parts of the world effected by the activities of the mining companies.

As is shown in Chart 21, the production of copper has not yet recovered the high levels recorded in the pre-depression years, despite the fact that after the drastic reduction that had then taken place, a constantly rising trend of production has prevailed over the many fluctuations. On the other hand, in Chile, as in other countries, production has risen well above the level obtaining before the world depression. The different conditions prevailing in the Mexican copper deposits explain this development. Large foreign investments were made in the Cananea mine, which in 1948 supplied 58 per cent of the production of this metal, and as a result production has substantially increased. But there are other mines where low productivity or scanty reserves has maintained production at a comparatively low level. Moreover, Mexico is not believed to possess any readily exploitable copper reserves comparable to those which have attracted investment by large mining companies in other parts of the world.[1/]

It must also be remembered that 28 per cent of Mexico's copper is mined together with such ores, as silver, lead or zinc, so that the amount

1/ Nevertheless, it is believed that in the State of Chihuahua, there are large reserves which are not as yet accessible due to the lack of transport facilities.

/of copper

of copper production is controlled by the factors which determine the expediency of expanding or reducing production of these ores.

Moreover, the taxes levied on copper production are often held accountable for discouraging production in some mines. These taxes are believed to have two adverse aspects: firstly by establishing a levy per unit of output they affect particularly deposits which have a low productivity, forcing some of them to close down; secondly by establishing a higher rate on mineral concentrates than on bars, in order to encourage the local smelting of ore, they are an obstacle to the activity of small or medium-sized undertakings which lack the necessary means for setting up their own foundry, or whose volume of output is insufficient to warrant large investment, unless they are situated near a foundry to which they can send their ore on a fee basis.

The final result would seem to be that notwithstanding the greater interest shown by the large companies in developing copper production in countries where productivity is higher than in Mexico, there are nevertheless prospects for increasing production within that country beyond the limits achieved by certain mines, if sufficient incentives were offered to the working of lower-productivity deposits.

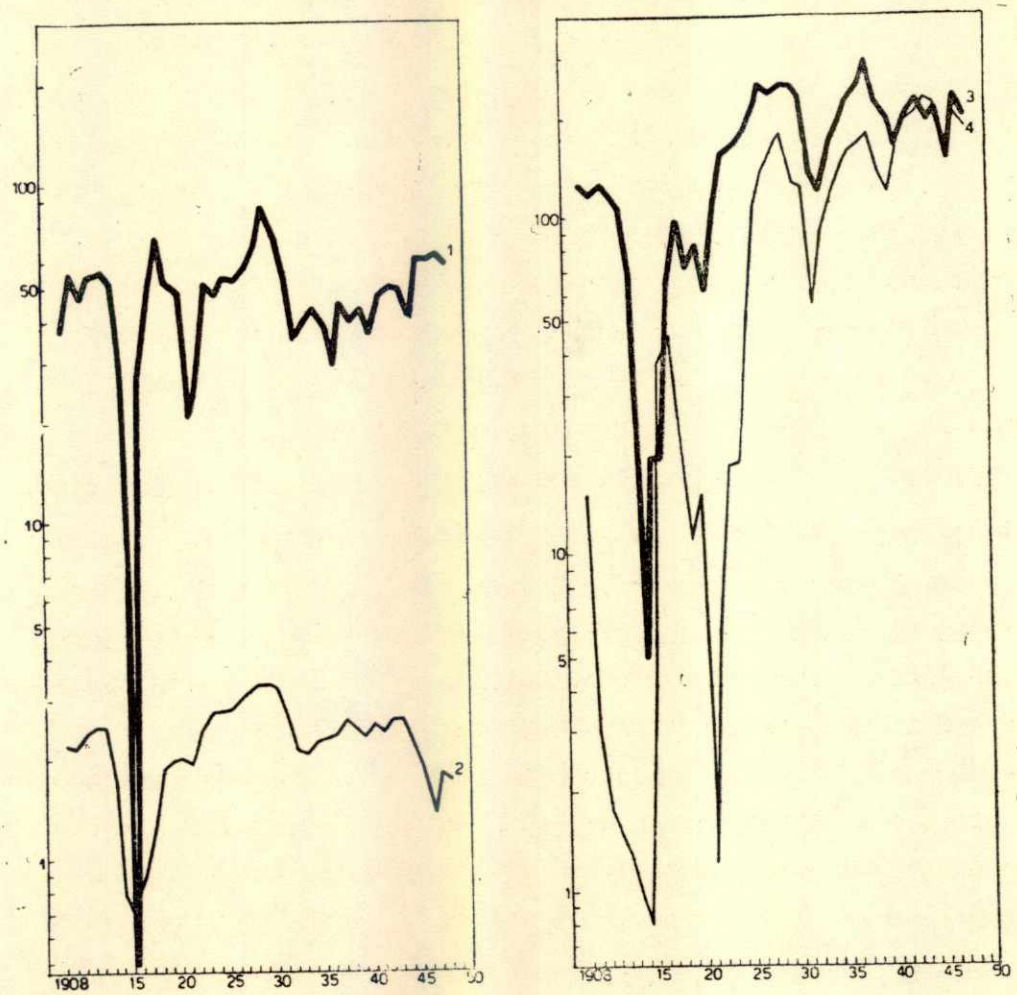
The decrease which has occurred in certain sectors of Mexican mining, is also often attributed to the nationalization of petroleum, which is alleged to have reacted adversely on mining investments and to be responsible for the labour conflicts which occurred frequently at certain times. There are factors difficult to evaluate. Yet it is quite likely that the factors determining productivity, the reserves and the method of taxation are the predominant ones, since otherwise it would be difficult to explain the increase in copper production at some mines, to which reference has already been made, and also the increase shown in the production of zinc.

As can be seen from line 4 on Chart 21, production of zinc also diminished at the beginning of the 'thirties, after which it rapidly recovered the ground lost and continued to expand substantially despite the fact that before the world depression; zinc production had already

GRAFICO Nº 21

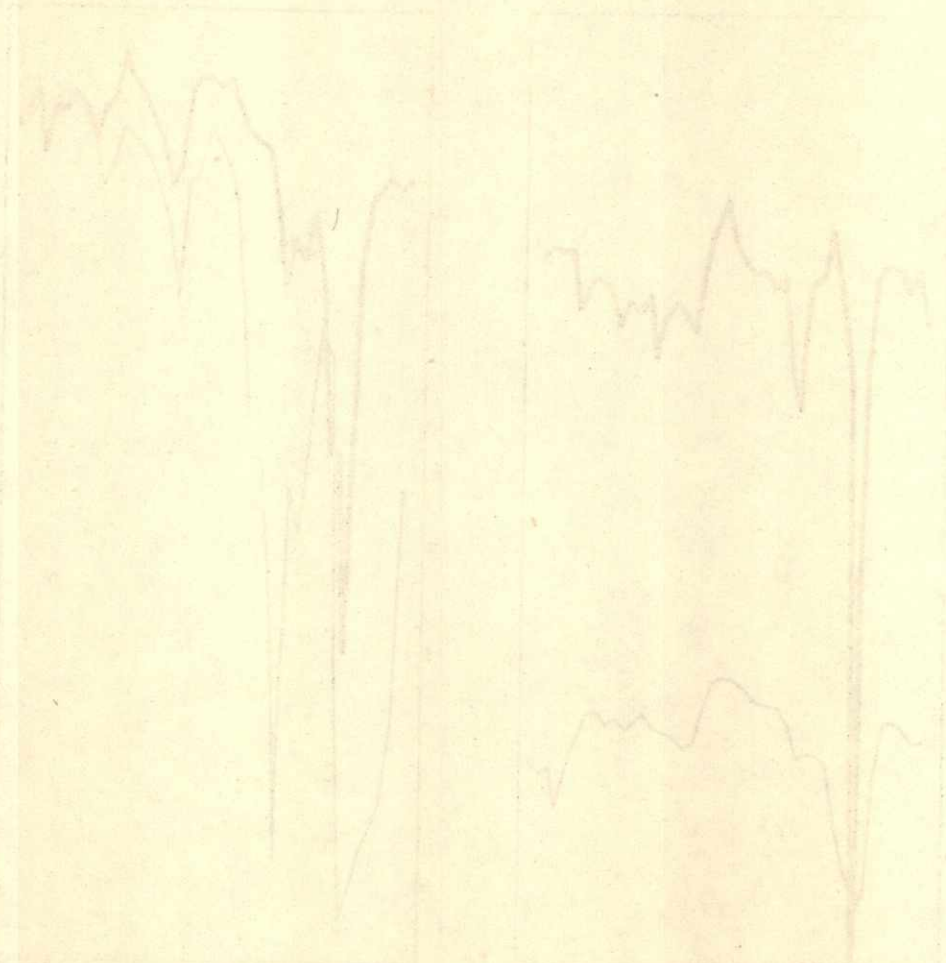
MEXICO

PRODUCCION DE LOS PRINCIPALES MINERALES.



1.— Cobre.— Miles de tonaladas métricas.
2.— Plata.— Toneladas métricas.
3.— Plomo.— Miles de toneladas métricas.
4.— Zinc.— Miles de toneladas métricas.

Centro de Investigaciones, Comisión Económica para América Latina.



reached an unusually high level. This unusual increase of production can be ascribed, as has been indicated above, to the introduction of the process of selective floating and other technical improvements. Zinc is generally found in mixed deposits, principally in combination with lead and silver. Before the adoption of this new technique, the exploitation of these two metals (lead and silver) prevented the intensive extraction of zinc and therefore a vast amount of the metal was left unused. But with the new selective floating process, zinc could be utilized to the same extent as the other metals found together with it, and, production in the 'twenties was thus increased to the extent indicated.

The introduction of the new processes and the recovery of world demand constitute the basis on which Mexico rapidly increased its production of zinc, after the crisis, enabling it to reach the levels shown above. It is believed that the slight reduction which has taken place in the course of the past few years is merely temporary and that Mexico will be able to increase production substantially since the entire proportion of zinc contained in the mixed ores reserves of the country has not yet been fully employed.

There was a corresponding increase during the 'twenties in the production of lead for the same reasons as in the case of zinc. After the world depression in the middle 'thirties, this product had surpassed considerably its former levels, while the production of zinc had only just regained its previous peak. Nevertheless, having experienced a sharp rise, lead tended to decline while zinc production continued to grow. This would appear to be a result of the contraction of world demand for the metal, since it is judged that Mexican production of lead could be increased given adequate investments.

The considerable reduction in world demand for silver as a result of the world depression, allied to the other determining factor of the 'twenties, namely the selective floating process, accounts for the fact that the level of production of silver during the past years has remained well below the pre-depression totals.

VII. THE DEVELOPMENT OF ENERGY

Though from the agricultural point of view, Mexico's progress is retarded by severe limitations which can only be removed gradually and with great effort, this country is in a privileged position from the point of view of energy resources.

Its petroleum reserves are known to be great. There are also large deposits of coal, though its quality is not of the best. As regards hydroelectric power, there is a very wide reserve available, since the country only makes use of 2.9 per cent of its estimated water power.

Mexico is making efforts to utilize these natural resources, which should be intensive for various reasons. One of them is that the increase in the consumption of energy has been substantial and makes it advisable to foresee in time the growing needs of a country, and even though the present level of energy consumption is low, considerable expansion may be expected. In the second place, Mexico needs to increase its exports in order to foster its economic development and it is hoped that petroleum will contribute in a substantial measure to the fulfillment of this objective. Lastly, the generally admitted need to combat and finally to solve the old problem of deforestation has led the Government to intervene in the replacement of charcoal, largely employed for domestic purposes, by more economic fuels.

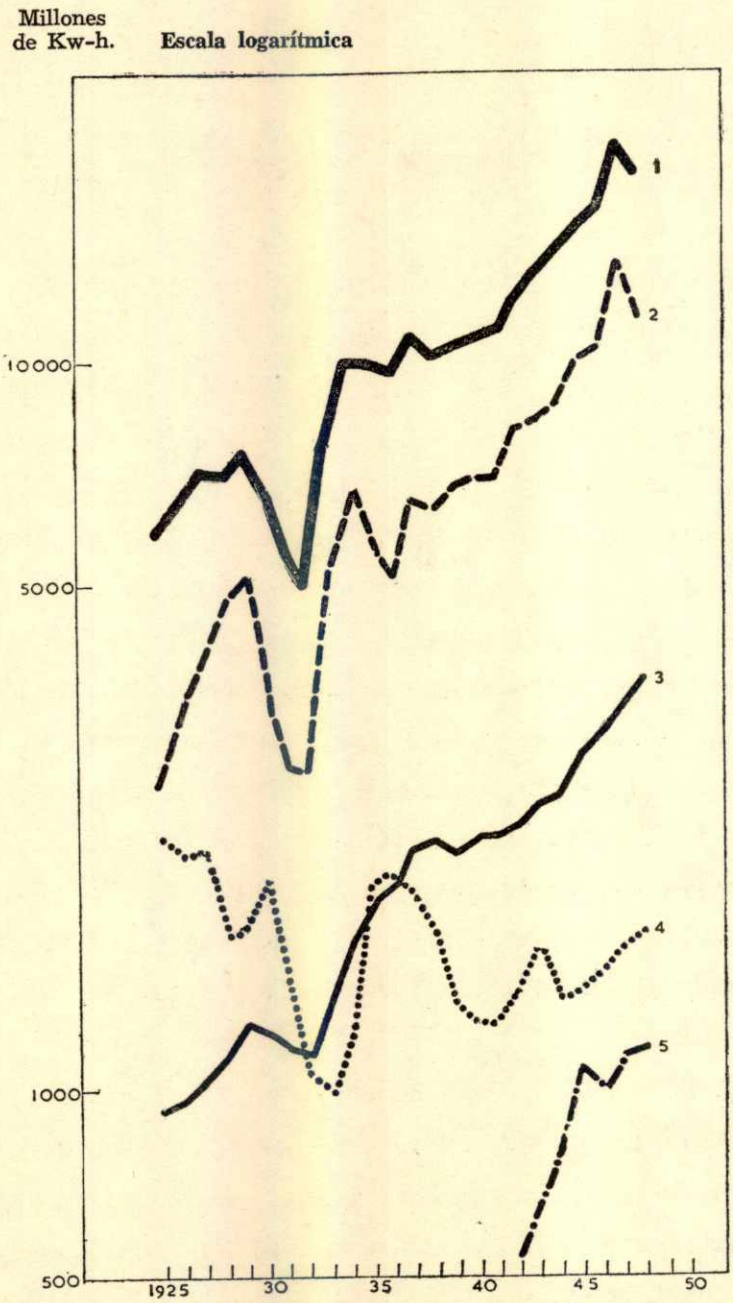
Chart 19 (table 16) show the increase in the consumption of power during the past twenty five-years and the sources which have contributed to this consumption, with the exception of fuel, wood and charcoal, for which no accurate data are available. Between 1925-29 and 1945-48, total consumption of energy supplied by petroleum, hydroelectricity, coal and natural gas increased by 156 per cent. Comparison of this result with that for the increase of the population, reveals a per capita increase of 74 per cent. In the following summarized table, the distribution of this increase is shown, together with the principal sources of energy.

/Table 16

GRAFICO 19

MEXICO

CONSUMO DE ENERGIA.



1.— Consumo total.
2.— Petróleo.
3.— Electricidad.
4.— Carbón.
5.— Gas.

Centro de Investigaciones, Comisión Económica para América Latina.



Table 16. Consumption of energy
(Millions of kw-hrs. equivalent)

Years	Coal	Petroleum	Natural Gas	Electricity	Total
1925	2,291	2,696	..	932	5,919
1926	2,125	3,479	..	964	6,568
1927	2,186	3,944	..	1,027	7,157
1928	1,678	4,361	..	1,118	7,157
1929	1,696	4,590	..	1,244	7,530
1930	1,991	3,504	119	1,214	6,828
1931	1,428	2,886	175	1,152	5,641
1932	1,057	2,790	150	1,118	5,115
1933	997	5,251	152	1,351	7,751
1934	1,210	6,789	423	1,609	10,031
1935	1,911	5,824	488	1,816	10,039
1936	2,003	5,268	493	1,981	9,745
1937	1,896	6,621	287	2,191	10,995
1938	1,674	6,464	123	2,218	10,479
1939	1,337	6,974	253	2,196	10,760
1940	1,258	7,045	381	2,275	10,959
1941	1,251	7,127	493	2,274	11,145
1942	1,368	8,124	594	2,354	12,440
1943	1,583	8,399	701	2,491	13,174
1944	1,365	9,383	836	2,569	14,153
1945	1,386	10,017	1,093	2,916	15,412
1946	1,483	10,890	1,008	3,109	16,490
1947	1,591	13,987	1,116	3,330	20,024
1948	1,655	11,745	1,154	3,670	118,224

Source: Research Centre, United Nations Economic Commission of Latin America.

Note: Details concerning the above estimates are given in the chapter on Mexican Industry.

The greatest increases were registered in the consumption of petroleum and hydroelectric power, since coal has been replaced by these two sources, especially by petroleum. By 1945-48, less coal was being used than in 1925-1929. The use of natural gas imported from the United States into the industrial district of Monterrey has expanded considerably during the past few years, though in 1948 it represented a mere 6.3 per cent of the total consumption of energy from the above-mentioned sources.

The development of these sources of energy demands vast investments

/which it

which it is believed cannot be supplied by domestic saving by reason of other equally pressing needs in the country. It has, therefore been necessary to have recourse to the assistance of foreign capital.

Investments are essential for the development of the petroleum resources in order to meet the substantial increase of consumption and allow a margin for large exports. According to the estimates made by Petroleos Mexicanos (Pemex) in 1948, some 470 million dollars would be required to increase production from the level of 167 thousand barrels daily, obtaining that year, to 463 thousand barrels daily by 1955. It would thus be possible to export 280,000 barrels daily by the latter date, representing an annual value of 170 million dollars. So far negotiations for the obtaining of such sums have met with little success, though private capital has begun to make relatively small investments in order to carry out exploration on behalf of PEMEX.

The attempts to finance the construction of hydroelectric projects have met with greater success. The National Electricity Commission in Mexico, a State entity entrusted with the development of power, without however excluding private enterprise from the field, has extensive plans to carry out. In 1948, the installed capacity of electric power, both of hydraulic and thermic origin, was about 600 thousand KW; the Commission's projects, including other minor plants belonging to governmental bodies and the 216 thousand KW projected by private enterprise, would expand this capacity to 1,071 thousand kilowatts by the end of 1952, or an increase of 114 per cent.

The total foreign investments estimated as necessary to cover the cost of these projects, including both foreign exchange and part of the domestic expenditure, was 175 million dollars.

There are difficulties involved in connection with coal which directly affect the iron and steel industry as will be pointed out later on. It should be noted, however, that the problems arising from the impurities of the coal, on the one hand, and on the other PEMEX's efforts to develop

consumption of petroleum in order to replace foreign sales by the domestic demand after the expropriation of the industry, have contributed substantially to the substitution of coal chiefly by petroleum as a source of energy.

The use of natural gas in Mexico has also entailed the investment of important amounts. In fact, the construction of a pipe line has just been completed to carry gas from the wells of Poza Rica to Mexico City, equivalent to about 817 million kilowatt hours annually. It is also hoped that this will make for a substantital reduction in the consumption of charcoal. In addition to its use as a fuel for industrial purposes, natural gas will make possible the development of several chemical industries. Thus, for instance, a considerable amount of sulphur, obtained from the purification of natural gas before it is carried through the pipe line, will become available for the manufacture of sulphuric acid.

The expansion of electricity production in the extent as planned would be some 82 per cent larger than the demand in 1952, assuming that the latter should increase at an annual rate of 5.6 per cent as in 1938-1948. But the fact that there may be a delay in completing the projects should not be overlooked, judging from their present rate of progress.

VIII. DEVELOPMENT OF INDUSTRIAL PRODUCTION AND IMPORTS

1. Industry and imports.

Industry in Mexico is of old standing but only since the world depression has it grown rapidly. Even so, the first attempts, some of them vigorous, promoted by private initiative in Mexico in olden times cannot be overlooked. The iron and steel industry was established at Monterrey early in the century, with blast furnaces which were the first to be installed in Latin America. This step forward was followed by other developments in this town which today stands out in Mexico because of its modern character, its industrial activity and the relatively high standard of living of its working classes. The cotton textile industry had already

/been established

been established before in Mexico City, Puebla, and Orizaba and supplied the greater part of domestic consumption at that period. The paper industry had also been established and so was beer-brewing. The latter would now be in a favourable competitive position with that of the United States, were it not for the protective tariff. Thus, already at the beginning of the century the first steps in industrial development had been taken which were to bear fruit later on, after the revolutionary upheavals, when Mexico was able to resume its economic growth. (See Chart 22).

The fact that certain important industries had been able to renew full-scale operations in the 'twenties is one of the reasons for there not having been any basic structural changes in Mexican imports during the past twenty-five years, though in each group of commodities a marked tendency can be distinguished to increase imports of raw materials and semi-manufactured goods used for the domestic production of semi-finished or finished products. In all the broader commodity categories, with a single exception, appreciable increases have taken place; even in those fields in which domestic production has increased appreciably, it has been insufficient to satisfy the increase in demand arising from the country's economic development.

It has been shown in Section III that imports of capital goods and motor vehicles had increased by 113.1 per cent between 1925-29 and 1945-48. This increase is more than twice that of the population during the same period. However, imports of other goods increased by 40 per cent, which is somewhat less than the increase of the population. Chart 17 (Table 17) shows the changes in the quantum of imports of the principal groups of goods other than capital goods. All the curves tend to follow that of the world depression: a decline followed by recovery. In the recovery some groups of products, among which are foodstuffs, beverages, fats, tobacco, and chemical products, surpass the pre-depression level while others lagged considerably behind during the 'forties. Only metals failed to regain their pre-depression level but this may have been due to the fact that a

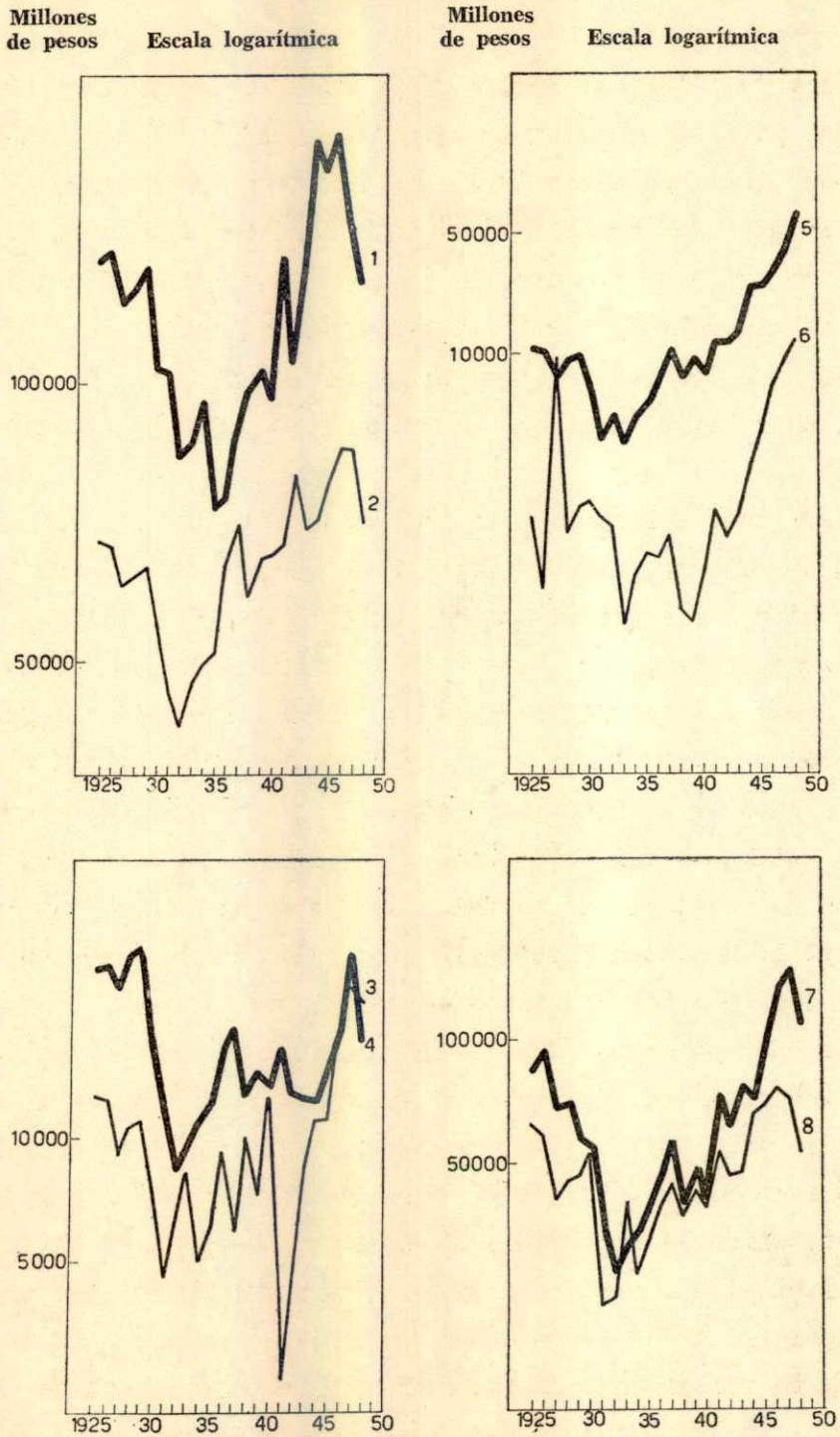
/good many

GRAFICO 17

MEXICO

VOLUMEN FISICO DE LOS PRINCIPALES GRUPOS DE LOS DEMAS BIENES EN LAS IMPORTACIONES.

Valores a precios de 1937



1.— Alimentos, bebidas, grasas y tabacos.
2.— Celulosa, papel y cartón.
3.— Caucho y sus manufacturas.
4.— Metales y sus manufacturas.
5.— Productos químicos y farmacéuticos.
6.— Combustibles y lubricantes.
7.— Diversos.
8.— Textiles y sus manufacturas.

Centro de Investigaciones, Comisión Económica para América Latina.

Table 17 A. Mexico: Quantum index of the principal groups of other goods imported

Values at 1937 prices

Thousands of pesos

Years	Textiles of manufactures thereof	Foodstuffs, beverages, fats and tobacco	Chemical and pharmaceutical goods	Metal and manufactures thereof	Wood pulp, paper and cardboard	Fuels and lubricants	Rubber and manufactures thereof	Miscellaneous
1925	62,842	100,012	51,122	26,123	20,827	19,357	12,687	83,655
1926	59,304	106,612	50,214	26,914	19,669	12,975	12,311	95,227
1927	41,646	79,815	43,957	23,749	15,386	48,560	8,967	69,298
1928	44,920	85,344	48,985	28,329	16,547	17,847	10,449	71,637
1929	46,818	97,875	49,923	29,848	17,259	20,354	11,087	58,593
1930	53,247	54,179	40,319	16,995	12,481	21,416	7,462	56,779
1931	22,802	52,971	30,449	11,537	8,338	19,511	4,676	34,553
1932	23,580	33,781	35,495	8,357	6,973	18,241	6,075	27,076
1933	41,514	35,692	29,075	9,582	8,890	10,141	8,113	32,407
1934	27,959	45,501	34,620	11,056	9,848	13,859	5,168	35,430
1935	32,936	24,298	37,409	12,131	10,625	15,713	6,246	20,221
1936	39,300	26,092	44,698	16,150	17,631	15,179	9,116	49,140
1937	45,074	38,939	43,307	17,980	22,172	17,459	5,960	63,388
1938	37,966	48,938	48,492	12,896	14,960	11,402	9,955	41,412
1939	43,941	54,798	44,833	14,859	18,136	10,716	7,157	50,772
1940	39,022	46,286	53,270	13,841	18,870	14,112	12,400	41,563
1941	54,535	101,616	53,088	16,550	19,978	20,708	2,626	75,114
1942	47,783	57,472	56,657	13,060	29,421	17,193	4,417	63,388
1943	48,062	93,976	72,688	12,631	21,858	19,686	8,417	78,972
1944	66,486	203,327	74,528	12,530	23,038	25,167	11,050	68,455
1945	70,165	174,368	80,296	14,984	28,676	31,321	11,050	104,166
1946	76,679	213,788	92,368	18,508	34,428	41,567	16,877	139,424
1947	73,729	126,087	111,321	28,651	34,240	48,750	23,330	141,156
1948	53,886	89,105		17.750	27,572	54,199	21,758	111,626

Source: Research Centre, United Nations Economic Commission for Latin America.

good many of these raw materials and their manufactures are included among capital goods. (See Table 17-B).

Table 17-B: Quantum of the principal groups of commodity categories other than capital goods and motor vehicles imported by Mexico

(In millions of 1937 pesos)

	Yearly averages			Per cent changes as against 1925-29	
	1925-29	1945-48	1948	1945-48	1948
Textiles and manufactures	51,106	68,615	53,886	34.3	5.4
Foodstuffs, beverages, fats and tobacco	93,932	150,837	89,105	60.6	- 5.1
Chemical and pharmaceutical products	48,840	89,628	111,321	83.5	127.9
Metals and manufactures	26,993	19,973	17,750	- 26.0	- 34.2
Woodpulp, cardboard and paper	17,938	31,229	27,572	74.1	53.7
Fuels and lubricants	23,819	43,959	54,199	84.6	127.5
Rubber and manufactures	11,100	18,254	21,758	64.4	96.0
Miscellaneous	75,682	124,093	111,626	64.0	47.5

Note: For source and annotations see Table 17-A, Mexico

2. Capital goods industries

The production of capital goods rests largely upon the iron and steel industry. Having started early in the century, its output was 72 thousand tons by 1911. Due to the disturbances which followed during that decade this level was only surpassed in the 'twenties. After that time, however, the increase was considerable and continued an upward trend despite temporary declines. In 1947, a peak of 300 thousand tons was produced, falling to 249 thousand tons in the following year. Despite this increase of production, imports of iron and steel also reached a peak in 1947, of 312.9 thousand tons. (See Chart 18 and Table 18). The data summarized below combine iron and steel with cement as indicators of capital goods production.

/Table 18-B

Table 18-B: Mexico. Production, apparent consumption and imports of iron and steel and cement

	Yearly averages			Per cent changes as against 1925-29	
	1925-29	1945-48	1948	1945-48	1948
	(Thousands of tons)				
Iron and Steel					
Production	67.5	255.4	249.1	278.4	269.0
Imports	109.5	244.2	173.2	123.0	58.2
Apparent consumption	177.0	498.0	421.4	181.4	138.1
Cement					
Production	174.7	941.6	1.080.2	439.0	518.3
Imports	27.6	85.2	4.3	208.7	- 84.4
Apparent consumption	202.3	1,018.1	1.049.9	403.3	419.0

Note: For sources and annotations see Table 18-A.

By 1945-48, imports of iron and steel constituted about 10.3 per cent of the current total value of imports of capital goods, contributing, by reason of their rapid increase, to the disequilibrium of Mexico's balance of payments. Consequently, the possibility of the steel industry meeting a larger share of domestic demand and reducing imports is being examined.

It should be noted that Mexico's steel capacity was increased during the Second World War, being now estimated at 375 thousand tons annually, but even this capacity is insufficient to supply domestic consumption, all the more should the latter return to the 1947 level of 600 thousand tons, as may well be the case. It is for this reason that one of the two primary producers has plans for the building of an additional blast furnace. However, the immediate difficulty does not lie in the capacity of the primary producers but rather in obtaining the necessary fuel for smelting the iron ore. These problems are chiefly connected with the coal in itself, its transformation into coke and matters related to the transport.

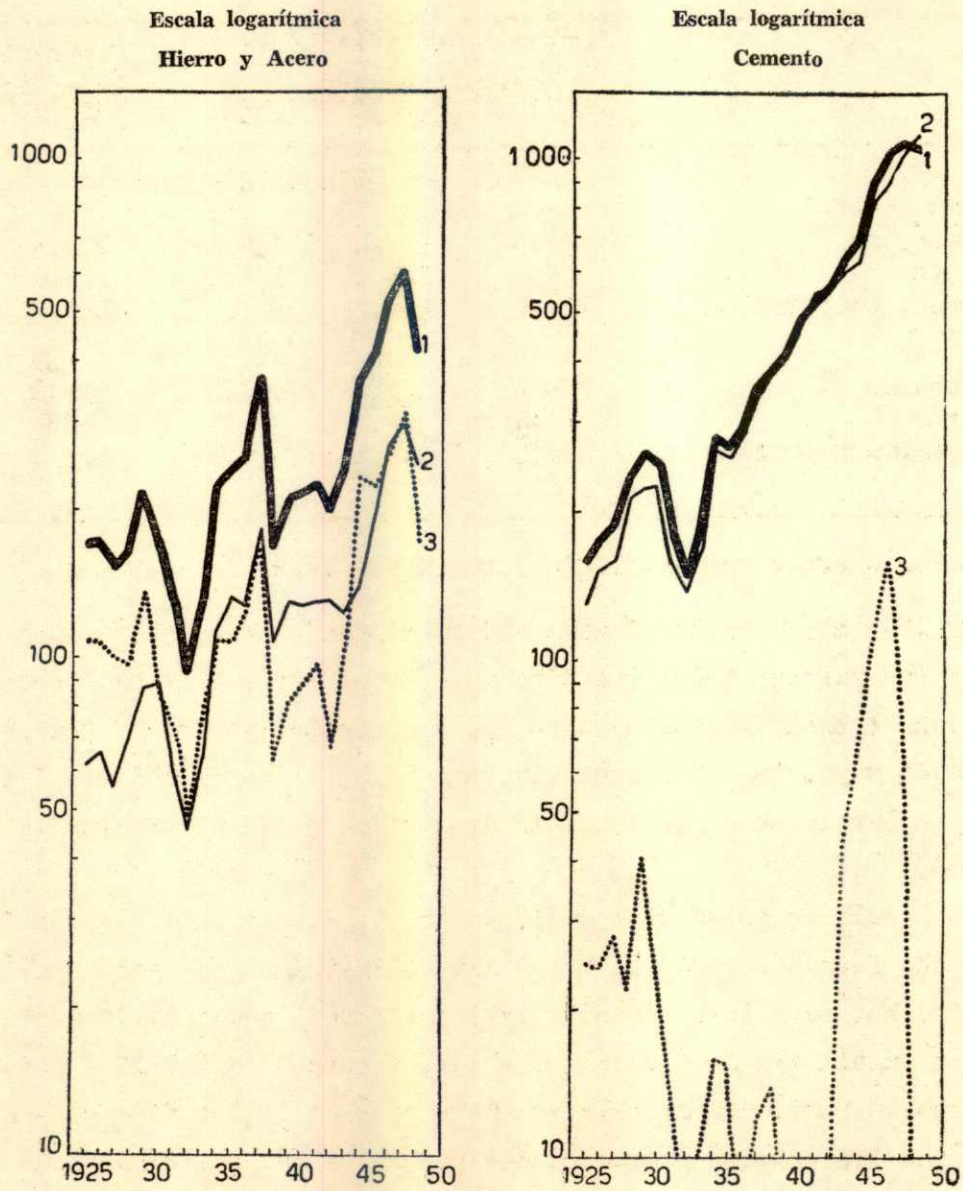
It would appear that the production of coal has not attained the

GRAFICO 18

MEXICO

PRODUCCION, CONSUMO APARENTE E IMPORTACION DE HIERRO, ACERO Y CEMENTO.

Miles de toneladas.



1.— Consumo aparente.
2.— Producción
3.— Importación.

Centro de Investigaciones, Comisión Económica para América Latina.



Table 18 A. Mexico: Production, apparent consumption and imports of iron, steel and cement

Years	Iron and steel			Cement		
	Production	Imports	Apparent consumption	Production	Imports	Apparent consumption
1925	61.3	107.7	169.0	130.5	24.3	154.8
1926	65.1	107.4	172.2	151.4	23.7	175.1
1927	54.9	99.9	154.6	158.3	27.9	186.2
1928	69.2	96.9	166.0	211.2	22.0	233.2
1929	86.9	135.6	222.5	221.9	39.9	261.8
1930	88.8	83.4	172.1	223.9	24.0	247.9
1931	62.0	69.4	131.4	157.4	13.2	170.7
1932	48.7	45.5	94.1	137.8	7.9	145.6
1933	64.7	74.3	138.9	172.8	10. 2	183.0
1934	114.0	109.8	223.8	266.0	16.0	281.9
1935	134.3	107.8	242.1	251.7	15.4	267.0
1936	129.5	125.7	255.2	286.0	6.9	292.6
1937	185.1	177.4	362.6	344.7	11.8	356.2
1938	108.1	62.7	170.4	373.7	13.9	387.1
1939	131.6	80.6	212.1	409.8	5.1	414.2
1940	130.1	88.3	218.5	485.0	4.5	488.4
1941	131.7	98.1	229.7	537.5	4.1	541.7
1942	132.5	67.1	199.6	560.4	6.4	566.8
1943	126.0	115.6	241.6	596.7	43.0	639.5
1944	142.5	233.5	368.2	623.8	69.6	693.2
1945	203.9	224.8	424.4	808.3	109.0	917.3
1946	268.3	265.8	533.5	878.8	155.4	1,034.2
1947	300.2	312.9	612.7	998.9	72.0	1,070.9
1948	249.1	173.2	421.4	1,080.2	4.3	1,049.9

Source: Research Centre, United Nations Economic Commission for Latin America.

Note: The differences obtaining in some years between apparent consumption and the sum of production and imports is accounted for by a small volume of exports.

desired standard of quantity and quality. There are, nevertheless, large deposits of coal, especially in the State of Coahuila, which are the best known, although deposits have been found in most parts of the country. The Coahuila mines are estimated to contain 1,500 million tons.1/

Unfortunately, the quality of the coal is not suitable for the production of good coke.

Due to its high ash and sulphur content the steel produced often lacks in uniformity since the excessive slag that accumulates in the furnaces often leads to changes in temperature during the process. A part of these impurities may be eliminated by means of washing, but not to a sufficient degree, thus making it essential to adopt more effective technical methods.

Furthermore, productive capacity in the coke furnaces is limited and ways are being studied for its expansion. An interesting problem arises in this connection, namely, that of determining the advisability of building new bee-hive furnaces in Mexico in view of the country's limited resources and the abundance of labour, or whether it would not be better to install modern by-products furnaces.

There might be other solutions which would eliminate the obstacles in the way of the development of the iron and steel industry caused by the reduced volume of coke production, and these are being investigated. The possibility of employing anthracite directly in the

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1/ The "Oficina de Investigaciones Industriales" (Office of Industrial Research) of the Bank of Mexico has been undertaking a systemmatic study of coal for the past few years. It has estimated the reserves and established mining plans and undertaken physical and chemical analyses of the coal so as to determine the best use for each of the different types found in the country.

/furnaces is being

furnaces is being discussed which, because of their necessarily small size, could well supply regional requirements.1/

Lastly, mention must be made of the deficiency of railway transport which is still another of the problems which, as has been seen, hinder the expansion of coal and steel production. This aspect takes on even greater importance when it is borne in mind that the deposits of iron and coal are far apart.

Apart from these obstacles, there are secondary difficulties to be solved before Mexico can produce all the iron and steel it requires, and especially as regards the production of special steels for certain derivative industries. There can be no doubt that there is a great potential demand for iron and steel considering that in 1945-48 Mexico's per capita consumption was 22.9 kilogrammes whereas in Argentina the proportion was 28 kilogrammes per capita and 25.1 kilogrammes in Chile; in Brazil, however, it was only 15.8 kilogrammes.

On the other hand there is a favourable factor, namely that Mexico's iron ore reserves are of the order of 200 to 250 million tons, which is sufficient to supply increased consumption for a good many years, but perhaps not enough for any sizeable exports. This seems to be the reason of the opposition in Mexico to exports of iron ore, sometimes accompanied by the argument that ingots could be exported instead, which would be of greater benefit to national income.

The increase in the production of iron and steel, and the manufacture, in this connection, of some types of special steels might lead the way to the development of mechanical industries and the production of certain capital goods, in accordance with the degree of technical proficiency

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1/ This, furthermore, was the only process employed by the industrial countries in the manufacture of iron and steel until the end of the last century. It was abandoned because it requires lumps of anthracite of which the mines produce only a small amount. The manufacture on an industrial scale of metallurgical coke by the agglutination of anthracite powder and bituminous asphalt, as is now done in Peru, eliminates this difficulty to a great extent.

attained in Mexico and the demand on the domestic market. There would thus be better prospects for the expansion of imports of other types of capital goods. The principal groups into which such imports are divided are shown below.

Table 19-B: Mexico. Imports of capital goods

(Millions of 1937 pesos)

	Yearly averages			Per cent change as against 1925-29	
	1925-29	1945-48	1948	1945-48	1948
Machinery and equipment	119.7	232.2	243.2	94.0	103.2
Machinery and equipment for agriculture	13.9	36.7	53.2	164.0	282.7
Metals	26.8	68.2	45.9	154.5	71.3
Building materials	35.5	45.4	37.2	27.9	4.8
Transportation equipment (excluding motor vehicles)	7.0	23.9	18.6	241.4	165.7
Total (excluding motor vehicles)	202.9	406.4	398.1	100.3	96.2
Motor vehicles	47.9	107.8	96.7	125.0	101.9
Total	250.8	514.2	494.8	105.2	97.3

Source: Research Centre, United Nations Economic Commission for Latin America.

It must be noted, above all, that Mexico could easily produce all the mouldboard ploughs required together with other simple agricultural implements which are still being imported in large quantities. A factory has been established for the assembly of more advanced agricultural machinery, imported from the United States. This undertaking might well lead to the gradual development of the manufacture of certain machines once the existing industry has been soundly established and the growth of other industries enables such development to take place. It has already been pointed out elsewhere that domestic production has also begun on water pumps for agricultural purposes and experiments are being made in the manufacture of tractors.

The substantial increase in imports of equipment for transport and communications explains the concern for the production of a greater

/part of such

part of such goods in the country, steel wagons, for instance, in addition to rails and various parts produced at present.

The progress achieved in certain types of machinery and equipment in general is considered satisfactory, especially as regards certain types of printing machinery, and others for the processing of foodstuffs and for mining, in addition to the capital goods already referred to. Several plants for the assembly of motor vehicles have been established and these are employing some parts made in Mexico. Bodies for buses and lorries are also being made in the country.

Another important step in the production of capital goods is the recent establishment of a modern electrical goods industry in a joint United States-Mexican capital venture, in which the United States has also contributed its technical experience. Further to the production of cables and electrical goods, manufacture of electrical motors has also been started, up to 500 kilowatts capacity.

Finally, the cement industry now supplies all of Mexico's demand. However, a few years ago appreciable imports had to be made since production capacity was not sufficient at that time. Demand is increasing at a high rate as may be seen from Chart 18. It is expected that by the middle of 1950, capacity should be 2.1 million tons, thus enabling the industry to meet such demand for some time to come, the latter having reached a maximum of 1.2 million tons in 1949.

The plants established recently are supplied with modern machinery though it seems that the productivity of labour in the cement industry as a whole is some 60 per cent lower than in the United States, partly due to social legislation.

3. Basic Chemical Industries.

Chemical industries, including the production of pharmaceuticals, advanced substantially during the 'forties. The number of workers engaged in these activities increased 156 per cent between 1930 and 1944, while in manufacturing industries the increase was only 85 per cent during the same period.

Despite this development, imports of chemical products showed an

/increase of

increase of 122.7 per cent during 1945-48 as compared with the 1925-29 level. This can be ascribed to two causes: that a part of the industry utilizes substantial amounts of imported chemicals, on the one hand, and on the other, that the development of manufacturing as a whole brings about an increased demand for chemical goods.

Table 20-B: Imports of the principal chemical and pharmaceutical products

(In millions of 1937 pesos)

	Yearly averages			Per cent changes as against 1925-29	
	1925-29	1945-48	1948	1945-48	1948
1. Chemical products	20.3	45.2	77.7	122.7	282.8
Caustic soda	1.8	3.1	3.8	72.2	111.1
Carbonates and sulphates of sodium and potassium	0.7	3.4	4.5	385.7	542.8
Alkaline cyanides	5.0	1.3	1.6	- 74.0	- 68.0
Salts	2.5	1.6	3.9	- 36.0	56.0
Dyes	4.2	7.0	8.5	66.7	102.4
Raw pigments and varnishes	2.4	1.8	1.9	- 25.0	- 20.8
Chemical fertilizers (nitrogenous)	0.6	1.9	1.2	216.7	100.0
Miscellaneous products for industrial use	0.2	4.7	6.0	2.250.0	2.900.0
Others	2.9	20.4	46.3	603.4	1.496.6
2. Pharmaceutical goods & toilet articles	32.9	34.4	33.6	4.6	2.1
Total	53.2	79.6	111.3	49.6	109.2

Source: Research Centre, United Nations Economic Commission for Latin America.

In view of its growing demand Mexico is developing its basic chemical industry making use of the large natural resources it possesses in this connection. The three initial phases consisted in the production of alkalis, sulphuric acid and fertilizers.

/In alkalis,

In alkalis and mainly in the case of soda ash and caustic soda, the utilization of the brine produced by the evaporation of the waters of Lake Texcoco, near Mexico City, has contributed to the gradual solution of the problem. Despite the increase in production during the past few years, it was necessary to supplement supplies with substantial imports, it being assumed that Mexico is now in a position to meet the greater part of its own demand.

Production of sulphuric acid was developed already some time ago by making use of the gases arising from the roasting of ores. Despite the fact that production supplied consumption amply, it has been found necessary to expand production in order to manufacture large amounts of fertilizers.

Another point in the programme for the development of basic chemical industries will be the production of 54,000 tons of ammonium sulphate in a factory that is expected to begin operations in 1951. Its establishment is being made in connection with the gas pipeline from Poza Rica to Mexico City, to which reference was made in the section on energy. Synthetic methods will be employed to extract the ammonium from natural gas, on the one hand, and on the other, sulphur will be obtained by the purification of the gas itself.

In addition to the sulphate of ammonium, the production of superphosphates is also being developed, this being another of the fertilizers which are required by Mexican agriculture to correct the deficiencies and depletion of the soil. Minerals with a high phosphate content are employed for this purpose, some of them of domestic origin and some imported from the United States. In order to dispense with the American product, it would be necessary to undertake further prospecting for these minerals.

Subsequent progress may be made in this field of chemical industry,

/especially in

especially in connection with coal tar derivatives in the production of a number of chemicals, inclusing plastics, insecticides, dyes and pharmaceutical products.

4. The paper industry

In Mexico, as in other Latin American countries, the consumption of paper is a typical example of certain commodities the demand for which increases out of all proportion to the growth of the population, being the result of economic development and cultural progress. Thus per capita consumption of paper in Mexico has increased from 7.7 kilogrammes in 1937 to 11.3 kilogrammes in 1949, or about 50 per cent.

In order to meet such increased demand, total production of paper expanded 110 per cent during this period, but this did not suffice and it was found necessary to increase imports by 60 per cent.

The increase in the production of paper was not generalised throughout the industry. In fact, the production of newsprint in Mexico was abandoned. In 1949, Mexico imported 60 thousand tons of newsprint, though between 1928 and 1935 domestic production had totalled 13 to 18 thousand tons, which were largely though not entirely sufficient to satisfy demand at that time. The disappearance of the industry can be ascribed to the suspension of the tariff on newsprint in 1935 which was intended to lower the price of this commodity. The factories found it more economical to produce other types of paper enjoying tariff protection and thus discontinued production of newsprint. Such imports in Mexico during 1948 amounted to 6.3 million dollars.

The resumption of the production of newsprint is now being discussed in Mexico in order to relieve the pressure of this item on the balance of payments. In this connection, encouraging results have been obtained at the new Atenquique plant, which is now supplying

/total domestic

total domestic demand for wrapping-paper, consumption of which has increased very rapidly, having reached an estimated 53 thousand tons by 1949.

The Atenquique plant is among the most modern and is the first in the world to have adopted electronic controls in manufacture. Its forest reserves of 46,600 hectares, granted by the government will be replanted systematically in order to avoid the unfortunate experiences of other factories which by not carrying out any reafforestation are now deprived of easily accessible sources of raw material.

It should be noted that the pinewood used in the manufacture of wrapping-paper has too high a resinous content for the manufacture of newsprint. However, in the United States special methods have been adopted to eliminate this defect. Furthermore, there is the fact that firtrees are also found in the Mexican forests and these would furnish better raw material for newsprint, since their resinous content is lower.

Table 21 Mexico: Apparent consumption of paper and cardboard

(In thousands of tons)

	Imports		Production		Apparent Consumption	
	1937	1949 a/	1937	1949 a/	1937	1949 a/
Wrapping-paper and others	42	68	45	104	87	172
Newsprint	30	60	-	-	30	60
Cardboard	17	3	10	42	27	45
Total	89	131	55	146	144	277

Source: Research Centre, Economic Commission for Latin America.

a/ Estimated.

Of the 134,450 tons of paper and cardboard manufactured in Mexico in 1948, it is estimated that 59.8 per cent was derived from chemical pulp, 9.4 per cent from mechanical pulp and 30.8 per cent from paper waste.

/5. Textile industry

5. Textile industry

The textile industry in Mexico, as in Brazil, has already fulfilled its role from the standpoint of the development of the country in that it meets domestic consumption, with the exception of a few of the finest threads, fabrics for motor vehicle tyres and some high-cost items which have a limited market. But it should not be considered a stationary industry for this reason. On the contrary, there remains a vast field for technical progress which has already begun and which should continue to develop in order to supply the needs of the growing population more efficiently.

The progress to be still achieved can be assessed from the fact that according to the textile survey recently undertaken, only 14.5 per cent of the spindles and 6.1 per cent of the looms are modern. In addition to the obsolete equipment there is a surplus of workers due partly to the existing type of labour contracts and partly to the deficient control of operations. There are thus two principal factors accountable for the low productivity per man-hour typical of the cotton textile industry in Mexico, and both would seem to be of equal significance according to the conclusions of the aforesaid Survey. In fact, if labour were better utilized by the elimination of the surplus hands, an improvement of from 160 to 250 per cent per man-hour could be achieved in cotton spinning, and 100 to 170 per cent in cotton weaving. If, in addition, old equipment were replaced by modern machinery, a total increase of productivity from 190 to 340 per cent would be obtained in spinning and from 620 to 660 per cent in weaving.

Further to such substantial increases of productivity which would be obtainable, it would appear that the cotton mills themselves are relatively small. On the average they have 6,000 spindles and 150 looms each, whereas the optimum number for a high level of productivity is

/estimated at

estimated at 25,000 to 50,000 spindles and 500 to 1,000 looms.

Later on the question of productivity will be further analysed from the standpoint of Mexico's economic development. The problem of the other branches of the textile industry, with the exception of henequen, that is, wool and rayon, is indicated by the table below in which imports of textiles are considered.

Table 22 Mexico: Imports of textiles

(In millions of 1937 pesos)

	1925-29	1945-48	Per cent change as against 1925-29
Cotton			
Yarn	7.0	2.8	- 60
Textiles	11.0	8.0	- 27
Manufactures	6.1	0.9	- 85
Wool			
Yarn	4.9	20.1	310
Textiles	5.7	3.9	- 32
Manufactures	2.1	0.4	- 81
Rayon			
Yarn	0.7	13.4	1,814
Textiles	4.2	3.8	- 10
Manufactures	1.0	3.8	280
Total	42.7	57.5	33.7

Source: Research Centre, Economic Commission for Latin America.

The woollen textile industry depends largely on imported raw materials, which, as may be seen, increased greatly between 1925-29 and 1945-48, whilst there has been a decrease in imports of woollen textiles and manufactured goods. In Mexico sheep breeding takes place mainly on small farms, with none of the advantages of large-scale production. It can therefore be assumed that in addition to the insufficient quantity, the wool is not of good quality.

In the case of rayon, the importation of the raw material has considerably increased, replacing that of rayon fabric. The industry

/has grown

has grown rapidly in Mexico, but this development was held up during the war by difficulties in obtaining raw materials. However, since the war, development was vigorously renewed by means of the establishment of modern plans working side by side with others where technique is far less efficient. The industry began by importing rayon fibres. Now it imports cellulose to spin the fibre, but it is impossible to say whether or not it is approaching the third phase which would be domestic production of the cellulose from raw materials of domestic origin. It would appear, however, that the substantial increase of consumption will compel the country, in a reasonably short while, to consider this possibility.

6. Other industries and imports

In addition to those manufactures mentioned in preceding sections, there are also others which are developing or which could develop so as to supplant imports of similar goods. For foodstuffs, fats, beverages and tobaccos, see Table 23 below.

Table 23 Mexico: Imports of foodstuffs, beverages, tobacco and fats

(In millions of 1937 pesos)

	Yearly averages			Per cent changes as against 1925-29	
	1925-29	1945-48	1948	1945-48	1948
1. Foodstuffs	48.8	110.1	65.4	125.6	34.0
Wheat and wheat flour	17.0	59.1	50.2	247.6	195.3
Maize	3.5	1.8	0.1	- 48.6	97.2
All kinds of processed foods	12.0	5.0	2.7	- 58.3	- 77.5
Condensed and powdered milk	1.8	3.8	4.2	111.1	133.3
Fresh eggs	2.6	3.7	0.2	42.3	- 92.3
Fresh and dried fruits	3.5	2.5	1.0	- 28.6	- 71.4
Sugar	0.4	26.1	-	6,425.0	-
Barley and hops	8.0	8.1	7.0	1.2	- 12.5
2. Fats	28.3	18.2	8.3	- 35.7	- 70.7
Lard and other animal fats	24.1	16.9	7.3	- 29.9	- 69.7
Vegetable oils and fats	4.2	1.3	1.0	- 69.0	- 76.2
Total (including other products)	93.9	141.7	88.8	50.9	- 5.4

Source: Economic Commission for Latin America, United Nations.
Note: Fats have been added to foodstuffs, since a great many of them constitute raw material for the manufacture of edible fats and

As regards the importation of certain agricultural products, no further reference will be made to wheat and maize since these have already been dealt with. As regards sugar, it will be noted that the large amounts imported between 1943-46 have disappeared completely due to the development of domestic production and, in fact, by 1948 substantial amounts were being exported. The beer brewing industry, for which barley and hops are imported, has developed greatly, as has already been mentioned in referring to the principal items of consumption. But it should be noted that imports of raw material have increased to a lesser degree than the increase of production recorded for this industry. Imports of wines and spirits have decreased in view of the development of their domestic production. Though imports of lard and other animal fats have decreased, they still constitute a large proportion of the items imported in this category. On the other hand, vegetable fats and oils (including the non-edible varieties because of difficulties arising from their classification), have been greatly reduced by reason of the considerable development of the production of oilseeds in Mexico, as has already been indicated.

The development of the canning plants in the past few years offers bright export prospects for the food processing industries as regards trade with the United States, especially of fruits, vegetables, fish and sea food. Meat packing plants have also been established since the epidemic of foot and mouth disease put a stop to the export of live cattle to that country.

Another branch of production whose consequences upon imports should be considered in this connection are fuels and lubricants. (See Table 24).

Table 24 Mexico: Imports of fuels and lubricants

(In millions of 1937 pesos)

	Yearly Averages			Per cent change over 1925-29	
	1925-29	1945-48	1948	1945-48	1948
Coal	1.4	0.2	0.6	- 85.7	- 57.2
Petroleum and its by-products	17.4	17.0	24.1	- 2.3	38.5
Paraffin	2.1	4.2	4.5	100.0	114.3
Natural gas	-	8.6	9.1		
Lubricants	3.6	11.0	11.1	205.6	208.3
Total	24.5	41.0	49.4	67.3	101.6

Source: Research Centre, Economic Commission for Latin America, of the United Nations.

Imports of petroleum in a producer country are due in part to the fact that consumption in the area in the neighbourhood of the United States can be better met by imports from that country, and partly also by imports of aviation petrol. Obviously, such imports are amply compensated by exports. On the other hand, in the case of paraffin and lubricants, Mexico does not yet produce sufficient amounts to supply its own requirements in view of the insufficient capacity of its plants. This is the principal cause for the increase recorded in this group of products.

Lastly, the following table is self-explanatory as regards rubber imports.

Table 25 Mexico: Imports of rubber and manufactured rubber goods

(In millions of 1937 pesos)

	Yearly averages			Per cent changes as against 1925-29	
	1925-29	1945-48	1948	1945-48	1948
Motor vehicle tyres	4.4	3.3	2.2	- 25.0	- 50.0
Inner tubes and manufactured rubber goods	5.8	1.3	1.0	- 77.6	- 82.8
Synthetic and natural raw rubber	0.5	12.2	18.1	2,340.0	3,520.0
Total	10.7	16.8	21.3	57.0	99.1

Source: Research Centre, Economic Commission for Latin America, United Nations.

/The increase

The increase can be ascribed to the increased imports of raw materials which rose again after the end of the war. Given the increase in the number of motor vehicles in use, there will undoubtedly be a constant increase in imports of these products unless domestic production of the raw material is expanded. It is with this object in mind that efforts are being made on the plantations in the State of Chiapas to develop production of the Hevea brasiliensis and the Castilloa rubber tree, though it would be hazardous to comment on future possibilities.

IX. COMMENTS ON THE PROBLEM OF ECONOMIC DEVELOPMENT IN MEXICO

1. Scarcity of capital and abundance of population

In Mexico's growth, the pressure of the population is bearing heavily on the country's economy. The number of inhabitants is increasing very considerably, as can be judged by the fact that during the past twenty-five years, there was an increment of 9,216 million inhabitants, which means an annual increase of 2 per cent as against 1.5 per cent increase in the twenty-five years prior to the Revolution of 1910.

As has been observed already, the increase in the supply of goods during the last quarter century has been greater than that of the population, due to the expansion of the production technology in agriculture, industry and other branches of economic activity. Consequently the standard of living increased, and the initial effects on the population were no different to those obtaining in other countries, at similar stages in their development.

A part of the increase in available goods had to be used for purposes of investment. The greater the increment to the population, the greater must be the intensity of this effort to invest, and the greater will be the proportion of the increment of population participating in capital-intensive production.

In its turn, this movement of the population from less productive occupations to other more productive ones also accounts for a fair share of the increase in the supply of goods. This has led to an increasingly greater number of people with a better standard of living in Mexico. The lack of adequate data does not permit an estimate of the extent to which those population groups which previously enjoyed a higher standard of living have been enabled to raise it still further as a result of a larger supply of goods. Such

/groups, however,

groups, however, might have increased substantially their share in the supply of goods, had investment been concentrated so as to increase real capital per worker in those activities which had previously reached a capital-intensive stage, instead of being spread so as to meet the population increase and its partial shift toward more productive occupations. This, however, is not a choice which countries entering such a phase of economic development are free to make.

This comment only stresses one of the basic features of Mexico's economic growth. Given the low level of income, the possibilities of intensive investment are relatively limited, considering the growth of the population, its shifting into more productive activities and the need of raising their productivity. In other words, there are too many inhabitants for so little investment be it in agriculture, in manufacturing, transport or other activities.

When given sectors of production are examined it is often found that an excess of labour is employed for a given amount of real capital, or that inferior equipment is used instead of better labour-saving devices; nevertheless, without considering the problem of investment and labour utilization as a whole, erroneous conclusions can be drawn from a partial examination.

It has been noted, for instance, that there is a surplus of labour in the textile industry in relation to the existing equipment. Similar conclusions have been drawn in the cement industry, and are certainly applicable in a number of other cases, not excepting the railways, where the increase in the labour force seems to have been greater than the growth of traffic. This trend which contributes substantially to the increase of production costs, is often ascribed to lack of understanding or arbitrariness on the part of the labour unions in their negotiations with entrepreneurs; similarly, the latter are held responsible in that, being sheltered by protective tarrifs, or

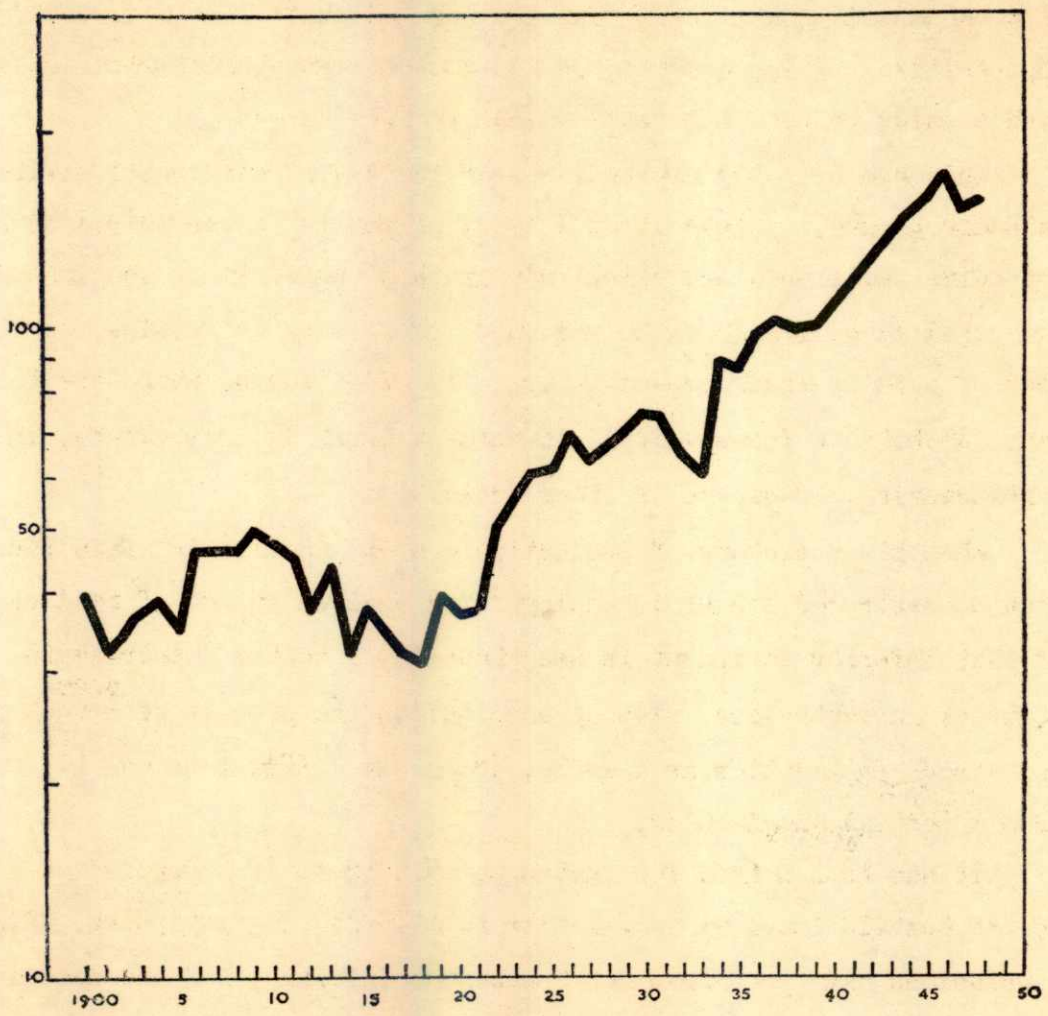
/for other

GRAFICO 9

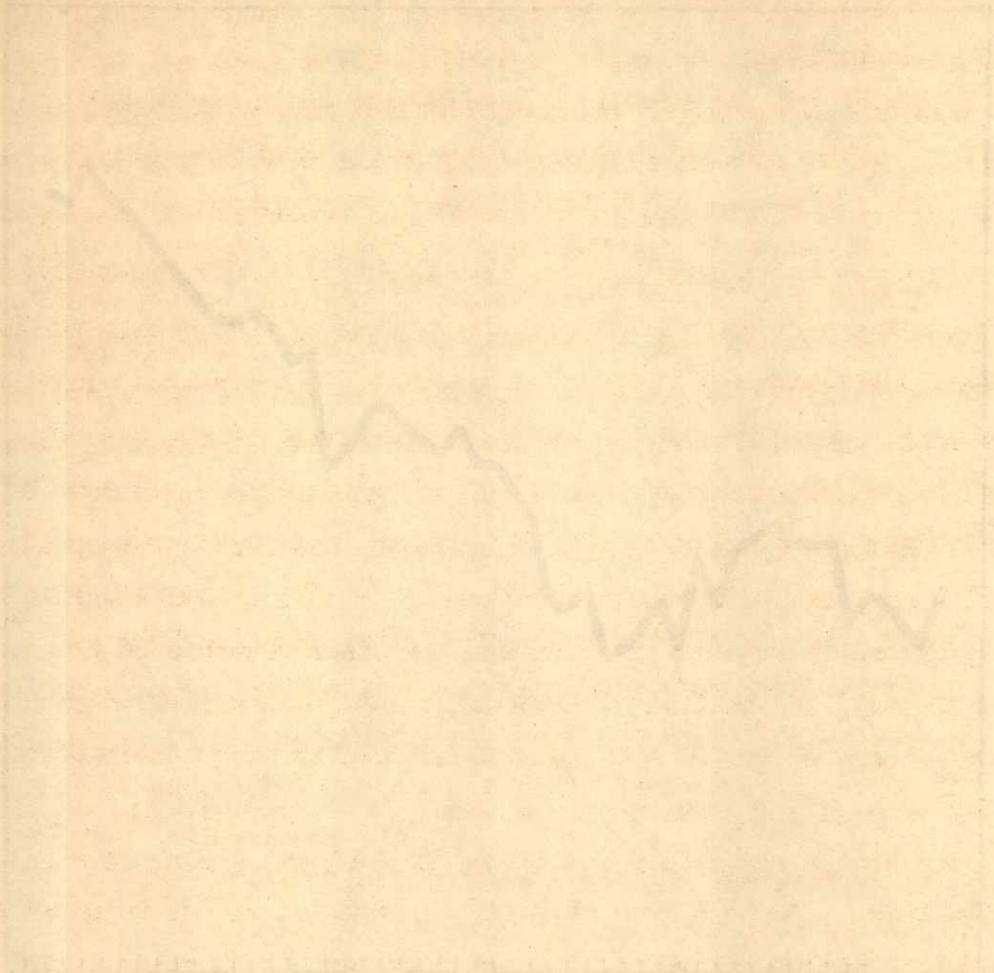
MEXICO

SERIE LARGA DE LAS INDUSTRIAS DE TRANSFORMACION

1937 = 100



Centro de Investigaciones, Comisión Económica para América Latina.



for other motives, they lack the necessary stimulus to improve production methods by offering the workers an incentive which would encourage them to co-operate. All such explanations might be valid in individual cases, but considering the country's economy as a whole, it is first necessary to examine the prospects of employing the workers who would be discharged after the adoption of improved methods of work or more efficient equipment.

Assuming that having eliminated from Mexico's industry the obstacles which prevent the best utilization of labour in relation to existing equipment, there would appear a substantial surplus of workers. These workers had naturally been ill-employed, and theoretically their productivity had previously been nil since they were withdrawn without adversely affecting production. In order to employ them again so that their productivity will be as great as that of the workers remaining in the industry, the amount of investment would have to be correspondingly increased. If investment does not increase, this surplus manpower will remain unemployed, or will disguise their unemployment by becoming ill-employed in other branches of the economy. Consequently, ill-employed labour would have been withdrawn from industry only to become equally ill-employed in other activities, or simply un-employed because of the scarcity of investment.

The same problem is found in the traditional sector of Mexican agriculture. In this case there is a potential excess population that might well be drawn off without decreasing production. But if there is no investment that would create a source of employment for this surplus, the workers who are ill-employed in agriculture will also be ill-employed in industry in the railways or any other activity, and will not increase total national production.

It is evident that a small proportion of excess labour could be

/suitably employed

suitably employed in activities requiring very small amounts of investment. But such activities also have very low productivity and would not advance very much the solution of the problem from a national standpoint.

In setting forth these arguments it is not intended to pass judgement on any concrete situation, but rather to draw attention to certain factors of a general order which seem necessary for the analysis of economic reality. Nor should it be implied that the effort to improve the efficiency of existing capital equipment is not advisable from the national standpoint, apart from any individual advantage which it may entail. Quite the contrary: if the entrepreneurs and the labour unions could come to satisfactory terms in order to increase productivity, the most economic way to achieve a substancial increase in the country's real income would have been found. In order to ensure the success of the attempt, at least one other condition would have to obtain: namely, that a sufficiently large increase of investment be available to offer productive employment to the surplus labour arising from increased efficiency.

All this concerns industries producing for the home market. Exports must be considered separately, since an improvement in productive efficiency could cause them to expand and consequently enable the import of capital goods required to increase the number of productive occupations.

The problem that has just been mentioned does not apply exclusively to Mexico, but is common to all the Latin American countries, though in varying degrees. However, it may seem to have acquired greater importance in Mexico because of the attitude of the labour unions which, rather than being the determining factor of ill-employment, is but one of its principal manifestations.

2. The assimilation of foreign capital and technique

The above explains Mexico's intensive effort to increase productive investment as an essential requisite to economic development.

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It is generally recognized in the country that in view of the low average income of the population, both capital and experience must be brought from abroad to many branches of modern technology 1/. As occurs with other aspects of the problem, this particular consideration assumes in Mexico characteristics peculiar to the country, which could not be overlooked without the risk of offering a very incomplete picture of conditions.

The problem involves a very strong sentiment of Mexican nationality through the ages. There is no reason why this should be incompatible with the presence of a foreign element on condition that the latter can be assimilated and can encourage the creative forces of the country. This has been proved by the lasting values of Mexico's culture. Culture, technique and economy are the expressions of the same living and complex reality and the national sentiment of the Mexican can be equally discerned in each of them, and defines Mexico's attitude to its greatest problems. On these terms, the aid of foreign investments and technology are sought for and accepted, insofar as they offer the country new opportunities for development in its own way. Furthermore, promising results, both by means of private investments or those effected through public channels, are being obtained in this effort to find new methods which, once they take into account this fundamental fact, acknowledge the substantial value of foreign co-operation. In the petroleum industry,

1/ The Director of the "Nacional Financiera" Señor Antonio Carrillo Flores writes: "Mexico desires the co-operation of foreign capital, both public and private, for its economic development, be it for the building of darns or of roads, to open up land and to cultivate it with power-driven machinery, to improve railroads and harbour facilities, as well as to build factories". (Lecture on "Import Controls and the Safeguarding of our Currency", page 23). At the same time, Señor Carrillo Flores writes elsewhere that Mexico's progress "should be achieved in the first place through the efforts and the sayings of its own people, and only is a subsidiary or supplementary way with the aid or the stimulus of foreign investment, no matter the form these may take". (Article on "Financial resources for the economic development of Mexico", in "Política", No. 14, 28 January 1949, México, D.F.)

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as has already been shown, foreign capital and technique are taking part in the drilling and exploration of new deposits as part of an overall plan of the government enterprise. In private industry, the development of mixed undertakings can be noted, in which Mexicans and foreigners pool their capital and experience. The International Bank has made loans to the National Electricity Commission of Mexico to carry out its building schemes, which in turn afford new opportunities to private initiative in the vital field of public utilities, as long as it follows the general direction of the central government. The Import-Export Bank has also lent its aid to the Nacional Financiera in order to promote the development of the iron and steel industry, the chemicals industry, the manufacture of paper, and other goods of great importance to Mexico.

Other equally significant examples might be mentioned of the extent to which Mexican experts have assimilated foreign technique; these men, who have a deep knowledge of their country are in a position to adapt such technique to its characteristics. It is sufficient to indicate the joint efforts of the Rockefeller Foundation and the Chapingo Agricultural School in problems of maize genetics, and to mention the vast task of technical promotion in which the Banco de Mexico is engaged, through its Industrial Research Department. In the Industrial Laboratories of the Bank, Mexican and foreign experts are working side by side, investigating problems as varied as the optimum utilization of maize, flour, and the treatment of domestic tanning materials 1/. Furthermore, the Bank annually grants from 20 to 30 foreign scholarships to young Mexican studens abroad, principally to research problems connected with the country's industrial development.

1/ For a description of the work see Planeación Industrial de México by Manuel Bravo, published by the Banco de México.

/It is

It is not surprising that the Central Bank should be so interested in technological progress and a better utilization of the country's natural resources. With its credit operations the Bank has sustained an appreciable part of the general development of Mexico's economy and has had to face the consequences of this development upon the balance of payments. Extensive studies of the country's resources and of the possibility of their utilization in order to replace certain imports with local manufactures is necessary if the Bank is to suggest solutions intended to prevent disequilibrium in the balance of payments and promote economic development. The mineral resources of the country are not well known nor has a detailed inventory been drawn of the country's forest reserves, nor has any systematic study of its essential raw material possibilities been undertaken. It can thus be seen that there is a vast field where the initiative of the Bank can develop with a carefully selected personnel and continued effort which can best be attained in this type of institution. This is one of the reasons why Mexico's experience is of considerable interest to the other Latin American countries.

3. Foreign disequilibrium and devaluation

Whilst attempts are being made to stimulate development and prevent future disequilibrium as the country grows, it has been necessary in the recent past to face immediate balance of payments difficulties, as has been shown in the Introduction. To this a few comments should be added.

The devaluation of the Mexican peso corrected the disequilibrium by reducing imports. At the same time, however, investment by means of imported capital goods is also restricted by the pressure of what

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are doubtless passing circumstances. In fact, the decline in the exchange rate of the peso from 4.86 to the dollar in July 1948, before the first devaluation took place, to 8.65 which is the present rate, has raised considerably the cost of imported capital goods. But since domestic prices of goods manufactured with these capital goods have increased to a much smaller extent, the incentive for such investment has diminished.

Students of Mexico's recent monetary history realize that considering the price levels in Mexico and in the United States, the exchange rate of the peso after its second devaluation was set lower than purchasing power parity required. This does not imply that the second devaluation was exaggerated, since experience has shown that it was necessary in order to eliminate the disequilibrium in the balance of payments. Nevertheless, since the new rate of the dollar is greater than that corresponding to the level of domestic prices, it is obvious that the latter will tend to rise until it will have reached a point corresponding to the rise of the dollar. This rising tendency will be accompanied by similar movements of the various factors which determine domestic prices. In other words, domestic incomes will also adjust themselves, and as this occurs it will cause demand for imports to rise again, thus increasing the propensity to import. This is what appears to have happened in the case of former devaluations. Disequilibrium is temporarily interrupted by devaluation and begins to develop as soon as domestic prices adjust themselves to the new exchange rate.

This aspect of the problem has been analysed without reference

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to the specific devaluation that has taken place and only to draw some useful conclusions from the Mexican experience. In fact, this particular case reveals the need for examining the most adequate means to modify the propensity to import and counter the disequilibrium arising out of economic development; this might involve selective controls by means of customs tariffs, direct import controls or devaluation. No matter how expediency might favour the latter method, it would seem that in the long run there is no choice but to have to resort to the other two methods if devaluation is not to be endlessly repeated.

This is another of the many aspects of the problem of economic development which has not been sufficiently examined and in which Mexico's experience may constitute an important knowledge of the dynamic aspects of Latin American economic development.