

UNITED NATIONS
ECONOMIC
AND
SOCIAL COUNCIL



GENERAL
E/CN.12/218/Add.4
2 May 1951
ENGLISH
ORIGINAL: SPANISH

ECONOMIC COMMISSION FOR LATIN AMERICA

Fourth Session
Mexico City
28 May 1951

ECONOMIC DEVELOPMENT OF GUATEMALA

	Page
INTRODUCTION	3
Aims and Objects of this Report	3
The Rate of Development	4
Reasons for the Slow Rate of Economic Development	4
1.- Foreign Trade	6
2.- Government Expenditure	7
3.- The Introduction of Technical Improvements	9
4.- Redistribution of Income	11
5.- Increase in Population	12
The Acceleration in the Process of Accumulation	13
Accumulation of Capital and Public Savings	15
CHAPTER I. THE PROBLEM OF EFFICIENCY	16
Efficiency in Agriculture	18
Efficiency in the Use of Land and the Problem of Agrarian Reform	22
The Shortage of Land and its Uses	27
Efficiency of Manufacturing Activity	30
The Problem of Transport	31
CHAPTER II. CREATION OF THE CAPACITY TO IMPORT	34
CHAPTER III. DEVELOPMENT OF THE MOST IMPORTANT ECONOMIC ACTIVITIES	42
Agricultural Production	42
The Development of Coffee	43
Bananas	47
Maize	49
Other Agricultural Products	50
Manufactures	51
Food Industries	52
Textile Industries	53

/Other Textile

	<u>Page</u>
Manufactures (Continued)	
Other Textile Industries	55
Alcoholic Beverages	56
Cement	56
Energy	57
The Development of Other Activities	58
Summary and Conclusions	62

ECONOMIC DEVELOPMENT OF GUATEMALA

INTRODUCTION

Aims and Objects of this Report:

The object of this report is to examine Guatemala's experience concerning economic development during the period between the world prosperity of 1925-29 and the years 1945-49, and to see whether any conclusions can be drawn from this experience to assist in solving the country's future problems.

The report is divided into four chapters. The first contains a summary of the conclusions drawn from the rate of development observed during the second quarter of this century and presents, in general terms, problems confronting the country in increasing its rate of development. Chapters two and three deal, in more detail, respectively with the specific problems of productive efficiency and the future provision of foreign exchange for acquiring capital goods. The fourth and last chapter analyses the rate of expansion of the country's different economic activities.

The problems of the main economic activities have been discussed in relation to any particularly important aspect which they may provide in assessing the country's economic development. For this reason, allusions to many will be scattered and the discussion of them will be far from exhaustive.

The lack of reliable statistics has been one of the greatest difficulties in making the report, and it has been necessary to use series which do not always accurately measure the different phenomena concerned. They have been used on the understanding that while they may not show the intensity, they do at least give a fairly true picture of the direction of the changes.

Because of the lack of statistics, it has also been necessary

/to gloss over

to gloss over events between the 'thirties and the 'forties up to 1944. However, the omission of this in-between period is not so important, since the report concentrates on long-term trends which are clearly shown by comparing the first and last five years of the period under review.

Finally, it should be stated that in order to keep within the bounds of the present report no mention has been made of social and political factors. These probably influenced the economic process in Guatemala more strongly than in any other Latin American country.

The Rate of Development

This report shows that between the periods from 1925-29 and 1945-49, Guatemala's economy expanded very slowly. In fact, agricultural production appears to have increased by 36.1 per cent and industrial production by 50.6 per cent. Services - both public and private - probably increased more rapidly than industrial production. Nevertheless, the fact that the terms of trade deteriorated by approximately 30 per cent, while the population increased by 37.7 per cent, offset the expansion of local activities to such an extent that the real income per capita in the years 1945-49 should have been the same or lower than in 1925-29.

Judging by certain available information, the development of Guatemalan economy during the first quarter of this century was probably more rapid than from 1925 up to the present date, but slower than during the last quarter of the last century. It would appear, then, that over the last seventy-five years, the country's national real income increased at a diminishing rate.

Reasons for the Slow Rate of Economic Development

Generally speaking, per capita real income in the long run changes mainly as a function of the amount of capital available per person and the productivity of that capital.

Available information, though scanty, leads to the conclusion that the present available capital per person in Guatemala is probably lower than in 1925-29.

Guatemala is a country which scarcely produces any manufactured capital goods. Requirements of this nature are met by purchases abroad.

/The import

The import of capital goods in 1925-29 reached an annual average of 4.6 million quetzals ^{1/} (at 1937 prices). During the 1930-36 period, it fluctuated around an average of 1.6 millions, and in 1941-44 at around 2.1 millions. Only during two periods in the last quarter of the century were more capital goods imported than during 1925-29. The first was 1937-39, when the average reached 5.3 millions, and the second was in 1945-49, which marked a rate of 6.5 million a year. In 1925-29 the annual addition to the population was 33,400 inhabitants, that is, for each new inhabitant the stock of imported capital goods (omitting replacements) was increased by the sum of 137.7 quetzals. During the 1945-49 period, when the population increased by 40,000 persons a year, the addition was 162.4 quetzals, which was insufficient to offset the deficits in other years.

The accumulation of capital of local origin represented by goods such as permanent crops, herds of livestock, dwellings and highways, did not vary in the same way as imported capital goods, nor did it, as compared with the 1925-29 period, decrease as much during 1930-49.

There seems to have been a decline not only in the amount of capital per person, but also in its productivity in terms of real income. The average productivity of capital can be measured by the net value (at constant prices) of the goods obtained or by the value of real income generated. In an economy where foreign trade plays a secondary role, changes usually coincide both in the net value and in the value of income generated, but where foreign trade is important, whereas the net value increases, the real income may drop, due to deterioration in the terms of trade. This was the case in Guatemala. As manufacturing, transports and production of energy developed more rapidly than agriculture, the net value rose in relation to the capital invested, but as the terms of trade deteriorated, there was a drop in real income generated per unit of capital.^{2/}

^{1/} One quetzal equals one U.S. dollar.

^{2/} The deterioration in the terms of trade thus increases the minimum volume of capital needed to produce a given value of real income, so that it not only aggravates the problem of capital formation on the side of availability of foreign exchange, but also on the side of the productivity of capital.

The amount of capital per person probably fell, because there were no factors to encourage its accumulation.

The annual volume of accumulation depends on prospective profits, except in the case of public investments which are not necessarily influenced by considerations of costs and prices. The level of profits, in turn, depends upon effective demand. Among other factors, effective demand changes as a result of: 1) foreign trade; 2) Government expenditure; 3) the introduction of technical improvements; 4) the redistribution of income in favour of the lower income brackets; and 5) the increase in the population. Consequently, the direction and intensity of the effect of each of these factors should be studied.

1. Foreign Trade. Guatemala's most important source of real demand is foreign trade or, at least, this was so in the past. The country's period of most rapid economic development, which seems to have been the final quarter of the last century, coincided with that covering the most rapid expansion of exports. When foreign demand for Guatemalan coffee increased, the income of the population increased and even though part of this income was channelled towards imports, or paid out for services abroad, another part remained in the country, stimulating the production of goods for the local market. As will be seen later on, it was precisely during the peak period of foreign trade that the first manufacturing industries were founded and the first railways and public utilities were built.

For the incentive arising out of markets abroad to be transformed into expansion of the local market, it is not sufficient for the value of exports to increase, since such an increase may be offset by a decline in their purchasing power due to deterioration in the terms of trade. This was precisely what happened during the period under review.

From 1925-29 to 1945-49 the value of Guatemala's exports (at 1937 prices), rose by 24.9 per cent, but from 1929 to 1944, this fluctuated around an annual average which was lower than that of the prosperous years of the 'twenties.

At the beginning of the world crisis in 1929 the volume of exports fell from an average of 16.9 million quetzals (at 1937 prices) in 1925-29, to 12.7 million in 1933, this year marking the beginning of the slight
/recovery in

recovery in the 'thirties. The volume of imports fell more sharply during the same period but domestic economic adjustment was so rapid that by 1934 the country was already accumulating foreign exchange again, and did not experience any important deficit in its balance of payments until 1948.^{1/} The experience of those years suggests that, in order to maintain the equilibrium of the real income, it was not sufficient merely to eliminate the deficit in its balance of payments, but that it was also indispensable to keep up the high level of exports.

The deterioration in the terms of trade during the 'thirties aggravated the reduction in the volume of exports; the capacity to import, that is, the international purchasing power of exports, declined in 1937 to a level 55 per cent lower than that of the 1925-29 five-year period, and between 1929 and 1944 it remained at a level 42 per cent lower in relation to the five years mentioned. It is therefore clear that foreign trade not only ceased to stimulate domestic demand, and consequently, accumulation of capital, but also acted as a brake on development (see Table 1 and Charts I, II and III).

2. Government Expenditure. Government expenditure constitutes a very important incentive to local demand and, like foreign trade, is independent of that demand.

At the beginning of the world crisis in 1929, it was thought in Guatemala that a budget deficit must be avoided at all costs, this belief being in fact almost universally accepted at that time. In accordance with this principle, when fiscal income, derived mainly from taxes on imports and exports, began to decline, expenses were reduced in proportion. These dropped from 13.4 million quetzals in 1925-29 to 9.2 million in the following five years, that is, by 32 per cent. Government expenditure only reached the pre-crisis level again in the 1942-43 fiscal year, but as the level of prices was higher in 1942-43 than in 1925-29, there was no real recovery to the original level, which was only exceeded in the 1945-49 period.

^{1/} The exchange rate remained on a par with the dollar throughout the period.

Table 1. Guatemala: Population and Foreign Trade, 1925-1949

Years	Popu- lation Thous- ands of inhabi- tants	Exports Millions of quet- zals at 1937 pri- ces	Imports Millions of quet- zals at 1937 prices	Prices		Terms of trade 1937= 100	Capacity to import Millions of quet- zals at 1937 prices	Imports of capital goods Millions of quetzals at 1937 prices
				Exports	Imports			
				1937 = 100	1937 = 100			
	a/	b/	c/	c/	c/	c/	c/	c/
1925	1886	16.8	16.1	179.0	107.7	166.2	27.9	3.0
1926	1919	15.7	18.9	186.2	103.0	180.8	28.4	4.1
1927	1952	18.7	20.8	186.0	100.2	185.6	34.6	4.4
1928	1986	16.1	25.6	178.4	98.8	180.6	29.1	6.2
1929	2020	17.1	24.7	146.4	102.8	142.4	24.4	5.5
1930	2054	...	...	...	...	...	...	...
1931	2088	13.4	15.3	114.1	87.5	130.4	17.5	1.8
1932	2123	15.3	10.4	70.5	71.3	98.9	15.1	1.0
1933	2158	12.7	10.9	72.6	70.4	103.1	13.0	1.0
1934	2194	16.0	12.7	93.8	78.7	119.2	19.0	1.5
1935	2230	14.2	13.7	88.2	88.6	99.5	14.2	1.9
1936	2267	18.0	15.0	85.0	90.8	93.6	16.9	2.5
1937	2304	17.9	20.9	100.0	100.0	100.0	17.9	2.0
1938	2341	18.9	21.3	97.0	97.5	99.5	18.8	5.7
1939	2378	18.2	20.9	103.7	97.4	106.5	19.3	5.2
1940	2415	16.1	18.2	74.7	86.9	86.0	13.8	3.2
1941	2453	15.8	18.8	92.2	89.5	103.0	16.3	2.6
1942	2491	17.2	14.8	116.3	97.1	119.8	20.7	1.2
1943	2530	15.8	15.2	121.6	125.0	97.3	15.4	1.6
1944	2569	17.3	17.4	130.4	130.1	100.2	17.3	2.1
1945	2608	20.9	19.4	140.4	132.5	106.0	22.1	3.9
1946	2648	20.1	27.3	178.0	145.9	122.0	24.5	4.8
1947	2688	23.8	35.1	216.5	183.1	118.2	28.1	7.2
1948	2728	21.0	39.8	225.1	195.9	114.9	24.1	8.1
1949	2769	19.5	40.2	257.2	190.7	134.9	26.4	8.3

Sources: a/ The population data were obtained by adapting a parabola of the census figures for 1921, 1940 and 1950. The official figure for 1940 was corrected in accordance with the percentage which, according to the Dirección de Estadística, was added to the Census result of that year.

b/ Calculations of the Commission based on Customs figures. These figures contain an error, because bananas are undervalued.

c/ Calculation of the Commission on the basis of official data.

/It is generally

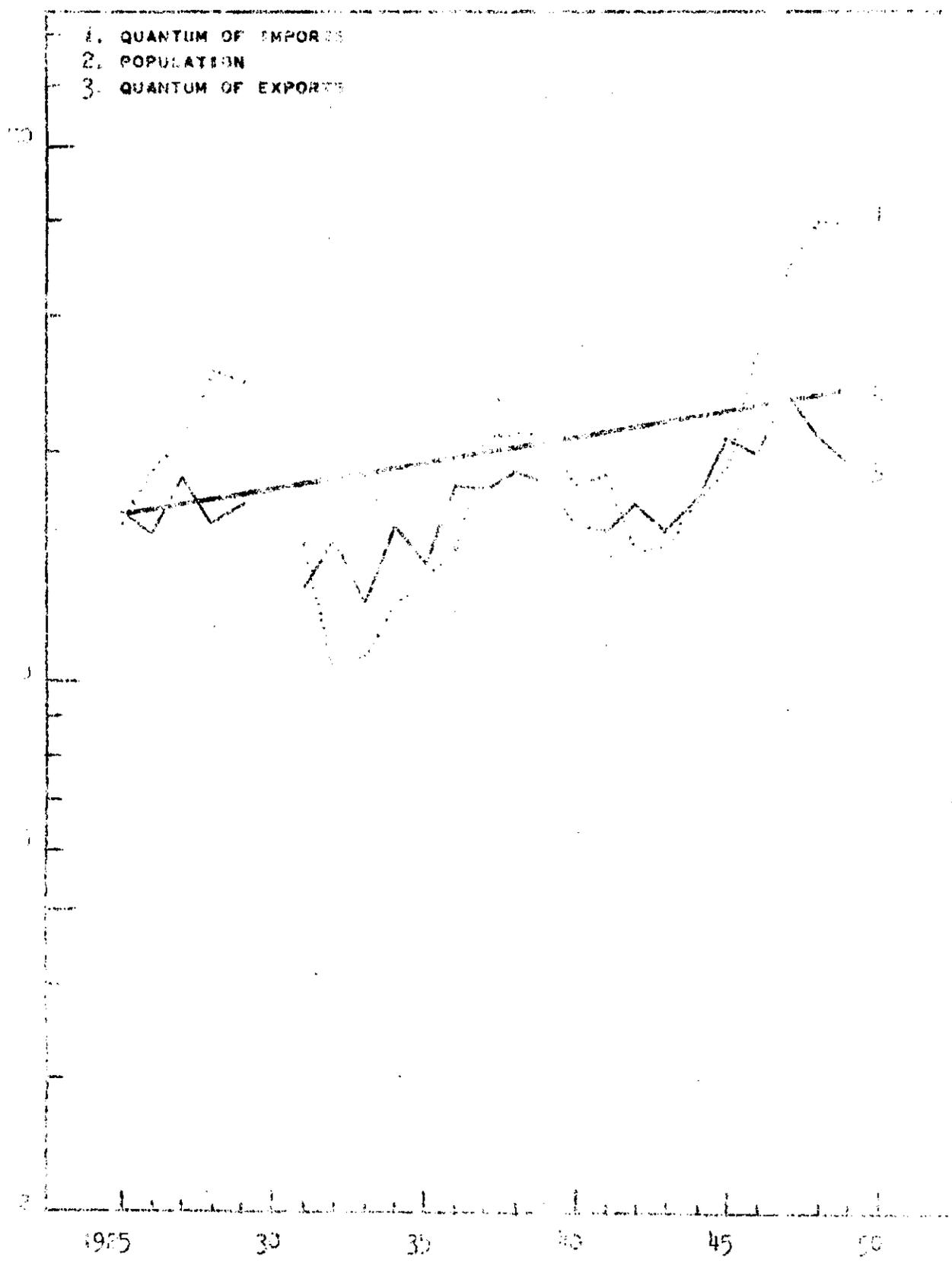
CHART I
GUATEMALA

FOREIGN TRADE

MILLIONS OF QUETZALES AT 1937 PRICES

SEMI-LOGARITHMIC SCALE

- 1. QUANTUM OF IMPORTS
- 2. POPULATION
- 3. QUANTUM OF EXPORTS

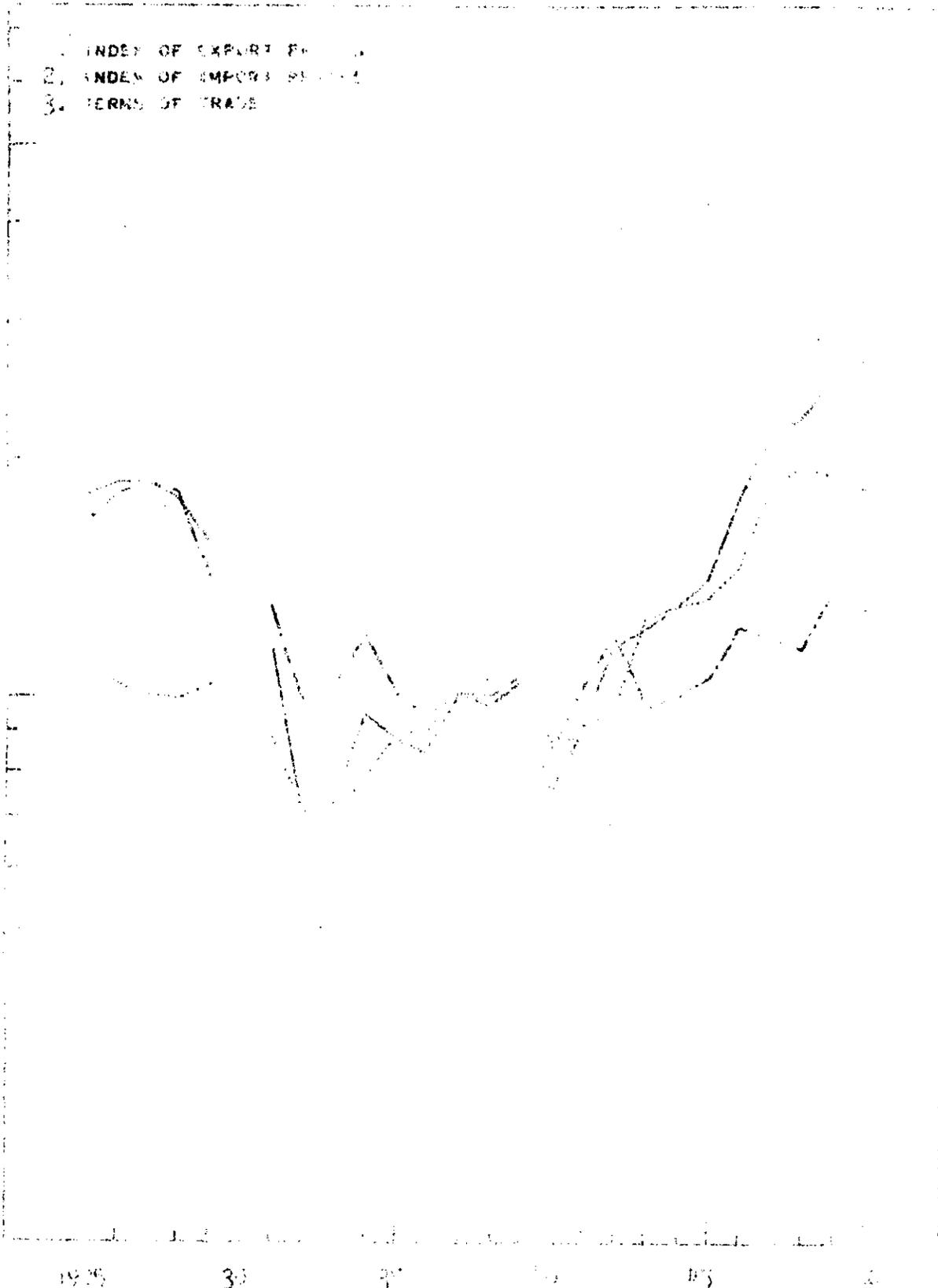


GUATEMALA,

1927 = 100

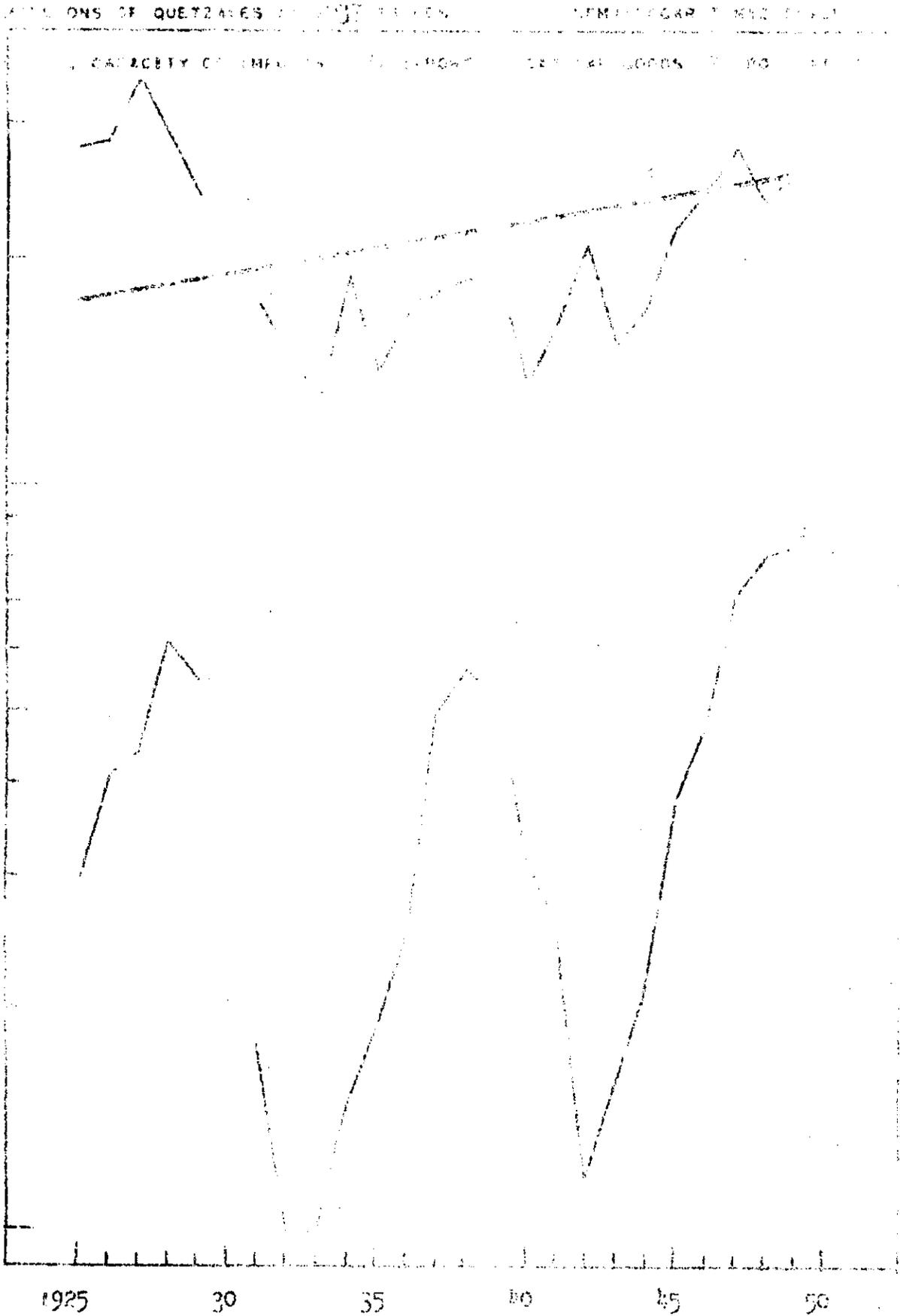
LONG-LOGARITHMIC SCALE

- 1. INDEX OF EXPORT PRICES
- 2. INDEX OF IMPORT PRICES
- 3. TERMS OF TRADE





PART 3
 GUATEMALA
 FOREIGN TRADE



It is generally considered that Government expenditure only encourages demand to the degree that it exceeds income from taxation and therefore has to resort to credit expansion, and that a depressive effect is achieved as a surplus is accumulated. Nevertheless, it is possible that a simple reduction in the budget, although balanced, may have a restrictive effect, since it cannot necessarily be expected that reduction of taxes by one quetzal will induce the private sector of the economy to increase its expenses by one quetzal, nor is it likely that the increase in taxes by one quetzal will be followed by an equivalent decline in private expenditure. For these reasons, the most significant fact was the reduction of Government expenditure which had more serious consequences when accompanied by slight surpluses.

Although Government expenditure probably did not exert any expansive effects until 1944-45, it must not be forgotten that the Government did allow, through tariffs and import restrictions on certain goods, domestic production of such articles to expand by taking advantage of the existing local markets. Where the substitution process did not affect the competitive position of exportable products by forcing them to compete with the local means of production, it provided an incentive for the development of economic activity as a whole. However, this incentive appears to have been insufficient to neutralize the restrictive effect of the reduction in expenditure.

3. The Introduction of Technical Improvements. Technical improvements, that is, changes in production methods which permit a reduction in costs, play a very important role in countries producing their own capital goods. If a manufacturer increases the production of a specific article, reducing costs by introducing better technique, this will, in turn, cause unemployment of some of the productive factors or, at least, a decline in the real income of such labour. On the other hand, the fall in price which accompanies the increase in production would mean an increase in real income for the consumers of the article, and this increase would offset the loss experienced by the displaced workers. Consequently, general demand would not vary. However, generally speaking, the introduction of technical improvements will increase the production
/ of capital goods,

of capital goods, and therefore the total demand will show a net increase.^{1/}

The fact that Guatemala does not produce an important amount of its capital goods implies that technical improvements do not encourage economic development to the same degree as described so briefly above. In fact to introduce improved technique in a Guatemalan activity, it is generally necessary to increase imports of equipment. Insofar as the increase in imports results in a deficit of the balance of payments, the introduction of the improvement would tend to contract instead of expanding the market. However, if the better technique were introduced in an activity producing for the export market or providing substitutes for imports, it is likely that the balance of payments problem would be only temporary.

For example, if Guatemala should succeed in lowering the costs of its coffee production, it could, by slightly reducing its prices, gain a larger share of the world market and could, therefore, increase its international purchasing power without sacrificing the production of other items.^{2/}

If, on the other hand, the country could produce, at lower cost, imported articles, the introduction of technical improvement would also have a stimulating effect on the local market. Thus, the promotion of Guatemala's economic development is closely tied to a continuous process of introducing technical improvements not in any activity, as in the case of countries producing their own capital goods, but specifically

^{1/} Three factors, however, must be borne in mind: a) Part of the capital used to introduce the improvement only replaces other forms of capital; b) certain technical improvements economise capital, that is, they allow an article to be produced with less capital per unit; and c) many technical improvements, such as selected seeds, do not require much capital.

^{2/} See Economic Survey for Latin America, 1949, for an explanation of why the considerations given here do not necessarily apply to all the underdeveloped countries. Nor would they apply if the country supplied a very large portion of the world market.

/in those for

in those for export and in those designed to replace imports.^{1/}

Technical improvements do not seem to have been an important incentive to the country's economic development in the last twenty-five years. According to available information, the efficiency of coffee production is practically the same as it was 25 years ago. In the case of bananas, it is possibly less, because the appearance of the diseases known as "Panama disease" and "Sigatoka" obliged farmers to withdraw to centres of production farther away from the shipping ports, while new and costly control systems had to be used to prevent or to combat these diseases. Nevertheless, these crops had some success as a substitute for the imported product.

The most notable increase in efficiency in Guatemalan economy during the period under review, has been caused by the mechanisation of transport. Its development was accompanied by a considerable increase in imports of equipment for petroleum and its derivatives. It is possible that this may have increased the demand for domestic products, but it should also be remembered that it tended to reduce the surpluses or increase the deficit in the balance of payments, and this latter effect may have offset the former.

4. Redistribution of Income. A redistribution of income in favour of the lower income brackets may have important stimulating effects.

Generally, in judging the economic effects of a redistribution of income, preferential attention is usually given to the depressive effect which it may have on savings. Actually, economists do not agree as to what constitutes the stimulating effect of a redistribution of income. Some believe that whatever the level of income may be, the marginal propensity to consume is the same, and others believe that it is greater as the level of income is lower. If the opinion of the former is correct, then the redistribution would have no stimulating effects.

^{1/} The section on "Speeding up of the accumulation process" shows that the introduction of technical improvements is important in any activity, but not necessarily as an incentive.

In the case of Guatemala, where foreign trade is an important source of supply, not only is it necessary to know whether the marginal propensity to consume is different, but also whether the propensity to import is different. Very possibly the lower income brackets in Guatemala, in view of their very low level of income, have a higher marginal propensity to consume than the average population as a whole, and a lower marginal propensity to import. From this it may be inferred that most probably a redistribution of income in favour of the lower income brackets would have a net stimulating effect.

When the world depression brought about deflation in 1929, there was no unemployment in the country, and therefore the income of the lower group was reduced less than the total national income. It can be proved that there was a redistribution by observing the rapidity at which the volume of imports was adjusted to the available foreign exchange.

Naturally, the stimulating effect of the redistribution was very weak, and acted only as a shock-absorber for the effects of the depression brought on by the drop in exports. Probably, after 1934 its effect disappeared completely until the wages policy introduced in 1945 brought it to light again.

5. Increase in Population. In Guatemala, where a large part of the population consists of small-holders any increase of population causes an expansion in demand which can be met because at least a part of that population is engaged in producing, by its own rudimentary methods, the goods which it consumes.

Where an increase of population also brings with it a greater expansion of imports than exports, its stimulating effect might be neutralised by the contracting effect of the loss of foreign exchange, but since in Guatemala a large part of it consumes few imported products, this consideration is not very important.

It is not possible to reach a quantitative understanding of the stimulating effect which must have been exercised by the increase in population over the last 25 years, above all in those sectors of production such as maize, beans and the construction of dwellings. However, when it is remembered that during the period under review the

/population

population increased by more than 700,000 persons (37.7 per cent), there seems little doubt that this effect must have been of some importance.

The Acceleration in the Process of Accumulation

Taking all the factors mentioned as a whole, it seems evident that the slowness of the development process lay in the absence of elements which could cause accumulation of capital at an accelerated rate. Actually the only factor which seems to have had a permanent and important stimulating effect, at least until the beginning of the war, was the growth of population and, as a result, the rate of capital formation was very slow.

The fact that during a given period there was a combination of all the factors providing incentives for development does not mean that the rate of capital formation could be increased to any extent. There is a limit beyond which such an increase might result in serious economic distortions, which would later reduce the rate of expansion or prevent it in the sense of not producing the maximum of social welfare. The presentation of these problems is justified by the country's interest in promoting development.

The most serious and frequent general distortions are inflation and deficit in the balance of payments. The classic method of avoiding these recommends that the volume of investments once full employment is achieved, does not exceed the volume of voluntary savings and that exports increase faster than the national income, since the growth of the latter gives rise to a greater percentage increase of imports. The formula suggests a reduction in the coefficient of imports as an alternative to an expansion of exports.

The volume of savings under full employment may be too small to permit accumulation of capital at a much greater rate than that of the increase in the population. This is probably the case in Guatemala in view of the low level of income. Any attempt to accelerate the rate by means of monetary expansion might bring about the distortions mentioned. Consequently, any policy of economic development would be favoured by an increase of voluntary savings and therefore this should be one of the

/objectives of

objectives of the policy followed.

Only limited effects can be achieved in encouraging savings by financial devices, such as raising the rate of interest on savings deposits, or the issue of highly liquid stock, or by means of education and propaganda. However, there are more direct and efficient methods than these.

Any act of saving has the effect of freeing a certain type and quantity of the productive elements in the sphere of consumption. Any economic action which produces this same result can therefore resemble an act of saving. There is a certain type of investment - such as technical improvements - which may free labour or increase the exchange available for the purchase of equipment and, in doing so, the necessary conditions are being created for a new act of investment without distortions, or at least, with less serious distortions than those which might occur if such conditions were not created.

It is worth illustrating this with a few examples.

Should the Guatemalan Government decide to carry out a great highway construction programme over a relatively short period, without reducing other public works programmes or private investments, then it would not only have to obtain the necessary foreign exchange, but also a greater number of workers and employees than those normally employed. If it attracts this labour by paying higher wages than those normally paid, it would, on the one hand, cause a greater demand for goods^{1/} and, on the other, fewer of those goods which that labour produced.

Furthermore, if the highway construction programme could be co-ordinated with other programmes designed to improve productive efficiency so far as labour is concerned, there would be less danger of inflation.

Coffee is another very clear example of this. The wages which the coffee industry can pay, even at the relatively high price levels at

^{1/} Such effects might occur even when State expenditure is financed with taxes, since an increase of taxes by a given sum would cause a lesser reduction in consumption expenses. Moreover, the restrictive effect of an increase in taxes on consumption might be entirely neutralised if the private sector of economy manages to ensure that bank credit is increased at the same time.

present in force, are low in comparison with those which could be paid by several other activities which the country is in a position to develop in the near future. If those activities expand more rapidly than the population, they would compete for and absorb the labour required by coffee. This, unless this industry improves its methods of production, or is reorganised so that it will depend less on the labour market for its labour requirements, it will encounter increasing cost difficulties, with the result that the country will face greater difficulties as regards the balance of payments. There is reason to believe that the difficulties in harvesting the 1948-49 and 1949-50 coffee crops were partly due to labour shortage arising out of absorption of this kind by other activities.

It has already been indicated that in order to further its development Guatemala also needs greater quantities of foreign exchange for the purchase of equipment.^{1/}

The figures in Table 1 show that the per capita capacity to import at present varies around an average of ten quetzals (at 1937 prices); for a country which has to import practically all its equipment, this sum is too low to allow a high rate of accumulation of capital.

The country's small capacity to import suggests that it is useless to rely on a change in the composition of imports in favour of capital goods as the sole solution to the problem of availability of foreign exchange. That is why the increase in exports merits preferential attention in any development programme. However, it appears that the short-term possibilities in this direction are not very encouraging. Therefore, foreign capital will have to play an important role in the country's economic development if a decidedly more rapid rate of expansion is desired.

Accumulation of Capital and Public Savings

An attempt has been made above to show that the fundamental problems of Guatemala's development, under conditions of full employment, lie in improving productive conditions, that is, in reducing real production costs, particularly in terms of labour, and in increasing the capacity to import. These problems are dealt with more fully in chapters two and

^{1/} It should be remembered that the amount of equipment needed to keep all the population employed increases as a result of introducing improved production methods.

three. It is on this basis that the scale of priority should be determined for each investment planned, whether highways, irrigation, other public work, manufacturing industries, energy, or agricultural, stockbreeding or forest activities.

This opinion is based on the supposition that Guatemala will progress by means of an expansion process sufficient to create the incentives for an accumulation of capital exceeding the increase in the population. This reasoning does not imply that all the stimulating factors, that is, foreign trade, the introduction of technical improvements, Government expenditure, demographic growth and the redistribution of income, will have a positive and stimulating effect but it does imply that Government action will have such effects and scope. This is justified by the change which has taken place since 1945 in Government activities in relation to the functions the State should perform in the country's economic development.

State intervention in economic development presents a very important problem.

In a system where the accumulation of capital is held exclusively by private individuals or enterprises, such capital is distributed among those activities which offer the most favourable combination of security and profits, and this criterion decides the priority for each industry within economic development. On the other hand, in the case of public investment, there is not likely to be a clear view permitting these to be distributed in such a way as to produce the maximum of real income. This is explained by the fact that Government actions are influenced as much by social and political as by economic considerations and because the relative advantages or disadvantages of many public investments cannot be measured in terms of cost and production. It is therefore necessary to find a criterion which will give priority to different investment projects competing for public savings. Moreover, the greater the capital formation requirements in relation to available savings, and the greater the public investments in relation to the whole, the more necessary it becomes to find such a criterion.

Perhaps one of the most difficult problems in distributing investments which generally appears, lies in choosing between those of a social nature, such as the building of hospitals and the execution of
/sanitary works,

sanitary works, and those which are strictly economic. To lay too much stress solely on one group may retard the process of economic development. For example, a rapid increase in investments which pursue such commendable aims as a decrease in the death rate and which do not reduce the birth rate *pari passu*, in the long run accentuate the problem of shortage of capital.

To a certain extent, the lack of these distributive criteria makes it necessary, if not essential, to draw up economic development programmes for a given period, including all types of investment. The most important objective of an economic development plan is to ascertain and select which activities should be developed first and to what extent. However, apart from being a programme, the plan is a process permitting observation of the mutual influences of its development on the economy as a whole and vice-versa, in order that its course and intensity may be modified to meet ever-changing circumstances.

The Law which founded Guatemala's Instituto de Fomento de la Producción (Production Development Institute) stipulates that this institution should draw up this plan, but only in relation to the activities which it will develop itself, excluding those in the hands of regular Government institutions. Actually, one of the fields where technical assistance seems most necessary is in fixing a scale of priorities for its investment programme. The surveys which are being carried out in co-operation with the International Bank are undoubtedly an important step in solving the problem.

CHAPTER I. THE PROBLEM OF EFFICIENCY

Efficiency in Agriculture

One of the most important characteristics of the present use of land in Guatemala lies in the great quantity of labour which has to be used.

Table 2. Guatemala: Estimate of the Volume of Production and Utilisation of Agricultural Land, Average for 1945-1948.

<u>Product</u>	<u>Production</u> ^{a/} <u>metric quintals</u>	<u>Yield</u> <u>metric quintal</u> <u>per hectare</u>	<u>Area under Cultivation</u> <u>1000 hectares</u>	<u>Percent of</u> <u>the total</u>
Coffee	565.700	- -	136.5 ^{b/}	25.6
Maize	2.819.400	11.4 ^{c/}	248.2 ^{d/}	46.5
Wheat	158.811	7.4 ^{c/}	21.5 ^{d/}	4.0
Sugar cane	5.918.000		10.3 ^{e/}	1.9
Rice	90.000	17.6 ^{d/}	5.1 ^{d/}	1.0
Beans	270.000	9.0 ^{f/}	30.0 ^{d/}	5.6
Bananas	3.528.000		28.9 ^{g/}	5.4
Other crops			53.6 ^{g/}	10.0
Total under cultivation			534.1	100.0
Pastures and meadows			1,350.0 ^{h/}	
Total area exploited			1,884.1	

Sources: ^{a/} See notes for Table 10

^{b/} Coffee-growing report on Guatemala, Oficina del Café, Guatemala 1948.

^{c/} Yield based on production and sowing data published in the February 1949 Bulletin of the Dirección General de Estadística.

^{d/} Derived from data on production and yield.

^{e/} Calculated according to data by H.K. Ovalle, Industrial Report on Guatemala, Inter-American Development Commission, 1944.

^{f/} Average yield 1937-1940.

^{g/} "Report presented to the Conference of Commissions of Inter-American Development Commission of Guatemala", Inter-American Development Commission, Washington D.C., page 10.

^{h/} On the basis of one animal per one and a half hectares.

/ It is estimated,

It is estimated, for example that in 1940 each person engaged in agriculture in Brazil worked 1.99 hectares, and in Mexico 2.5 hectares. In Chile, in 1936, each person employed worked 2.34 hectares, and in the United States in 1939, 12.8 hectares.^{1/} Apparently, in Guatemala each person gainfully employed in agriculture worked less than half a hectare. Although these figures should be accepted with reservations, they do indicate the large amount of labour used in Guatemalan agriculture.

Of all the crops in the country, coffee is, perhaps, the one which requires most labour. It is estimated that about 33 man-days are used to produce a metric quintal of processed coffee. Maize requires about ten days and wheat approximately six.^{2/} The speed of the country's economic development is seriously hampered by the fact that its most important source of foreign exchange is an activity absorbing so much labour. At present prices of about 66 quetzals per metric quintal of unprocessed coffee, and supposing that labour is the only production cost, the maximum which could be paid per man-day in this activity would be approximately 2.0 quetzals, or almost double that which is actually paid if wages in kind are also taken into account.

Coffee wages necessarily have an influence on the general level of agricultural wages in the country, and to a lesser degree on wages in other activities. If the amount which this activity can pay puts a ceiling on the general wage level, there is no doubt that while it remains in its present predominant position, and present methods are used, the country will have to be content with a low standard of wages and of living.^{3/} Although it is difficult to mechanise coffee growing, there do seem to be possibilities of reducing the consumption of labour per quintal. One of these would be to reduce the tilling operations and another to increase the unit yields per hectare. It is known, for example, that pruning absorbs a good part of the

^{1/} See Document E/CN.12/164, Appendix B, page 54.

^{2/} A metric quintal of maize requires almost 5 days in Mexico (Jalisco), 3.5 days in Chile and 0.47 days in the United States. A metric quintal of wheat in the worst regions of Mexico required 6.5 days; in Chile, an average of 2.1 and in the United States, 0.36 days. See "Agricultural Development in Chile" Document E/CN.12/164 Appendix C, page 112. The figures on Guatemala for the three products mentioned are calculated on the basis of average yields and normal labour requirements of each of the tilling operations at present followed.

^{3/} It should be noted that in view of the composition of ages of the Guatemalan population the number of persons gainfully employed must be low in relation to the total, so that to produce a given income per capita, productivity per person employed and therefore his wage must be higher than if the population were older.
/total labour.

total labour. Nevertheless, it is difficult for the coffee tree to form its hydro-carbides, and therefore it should not be pruned.^{1/} In El Salvador, where pruning is done solely for cleansing purposes, only about a third of the labour per quintal used in Guatemala is employed.

Guatemalan yields per hectare sown with coffee are among the lowest in Central America. Experts from the Instituto Nacional de Agricultura de Guatemala (National Agricultural Institute of Guatemala) estimate that the yields per hectare could be increased from two to five times by replacing low yield shrubs with high yield ones and increasing the number of shrubs per hectare. It can be seen from the figures in Table 3 that the number of trees per hectare in Guatemala is about 33 per cent lower than in the other coffee-growing countries.

Table 3. Guatemala: Comparative Yield of Coffee by Tree and by Hectare

	Yield per tree grammes	Number of trees per hectare	Yield per hectare in metric quintals
Guatemala <u>a/</u>	544	1,008	5.48
El Salvador <u>b/</u>	460	1,706	7.85
Costa Rica <u>c/</u>	363	1,524	5.53
Colombia <u>d/</u>	455	1,605	7.30

Source: Based on information contained in The World Coffee Industry, a preliminary study by the Special Commission for the Inter-American Coffee Board, March 1947, Chapter V, (mimeographed).

Note: The figures in the table suggest that there could have been an inverse correlation between the number of coffee trees per hectare and the yield per tree. If this were the case the greater yield per hectare could only be achieved if the number of trees per hectare were increased with trees of greater yield.

a/ Data for the 1942-43 harvest; according to other data, the yields per hectare would not be so high.

b/ Data for the 1940 harvest

c/ Yield per tree in 1944-45 and number of trees per hectare in 1935

d/ Data for the 1944 harvest.

It is obvious, therefore, that no reliance should be placed on an increase in yields as the only solution to the problem of labour required

^{1/} Based on this idea, the Instituto Interamericano de Agricultura de Turrialba, (Inter-American Agricultural Institute of Turrialba), Costa Rica, is carrying out an experimental programme on the effects of pruning.

for the production of coffee. The effect of an increase in yield on the amount of labour employed depends on how it is distributed over the different tilling operations. It is estimated, for example, that 65 per cent of the labour is used in operations prior to the harvest and 35 per cent for the harvesting and processing.^{1/}

Supposing that the amount of labour required in the operations prior to the harvest were not affected by the improved yields, only simple arithmetic is required to show that it would be necessary to quadruple these in order to reduce the number of man-days per quintal by one half.

It was mentioned earlier that maize another of the pillars of Guatemalan agriculture, also consumes a large quantity of labour. Since the unit value of maize is low in comparison with that of coffee the problem is even more serious. In fact, at current prices for this product within the country which vary at around 3.00 quetzals per metric quintal, and once more supposing that labour is the only cost daily wages could not rise much above 80 quetzal cents, which is their present level.

The great mass of maize production is at present obtained from very hilly lands where there is a system of very small holdings. These two conditions combined make it difficult to consider mechanising this crop. Fortunately, Guatemala seems to be in a position to move the geographic centre of its maize belt towards the Pacific Coast, where yields are greater^{2/} and mechanisation is possible. According to a very conservative estimate, some 900,000 metric quintals could be produced in that region.^{3/} Actually, 60,000 hectares in that area would be sufficient to produce practically all the maize at present produced in 250,000 hectares. The high yields and the possibility of mechanising would

1/ The World Coffee Industry, op. cit. page 311. On page 312 it is indicated that the figures for Guatemala seem to represent an estate using the best methods, and not the real situation. If this is the case, then the proportion of labour used for the harvest would be greater.

2/ Yields in that region, without using selected seeds, are as high as in the United States and Argentina.

3/ Juan F. Rothe: "La Mecanización agrícola estado actual en Guatemala, Perspectivas", "El mes económico y financiero" Vol. III. No. 10, Guatemala, October 1949 page 10.

substantially reduce production costs. One company has produced at a cost of 2.0 quetzals per metric quintal, and another at 1.54, while in the typical maize region the cost is 6.38 quetzals.^{1/}

Efficiency in the Use of Land and the Problem of Agrarian Reform

Up to this point, only the need to improve efficiency in terms of labour consumption has been mentioned, but the improvement in terms of land is also essential, since the country does not have plenty of agricultural land, as will be shown below.

The territory of Guatemala has an area of 10.9 million hectares, which may be grouped in nine different agricultural regions, the area of which is shown in Table 4.

Table 4. Guatemala: Area of the agricultural regions.^{a/}

<u>Region</u>	<u>Area</u> <u>1000 hectares</u>	<u>Percentage of the</u> <u>total area</u>
1. Petén and Caribbean Lowlands	5,027.7	46.0
2. Central Highlands	2,007.2	18.4
3. Cuchumatanes Paramo and high mountain peaks	142.3	1.3
4. South Eastern valleys, plains and mountains	1,490.4	13.7
5. Coban and Zona Riena hills and valleys	620.0	5.7
6. Western Huehuetenango hills and valleys	158.3	1.4
7. Upper Pacific Piedmont	421.7	3.9
8. Lower Pacific Piedmont	371.5	3.4
9. Pacific Coastal Plain	673.1	6.2
Total	<u>10,912.2</u>	

Source: E.C. Higbee. The Agricultural Regions of Guatemala; The Geographical review Vol. 37. No.2 April 1947, pages 177- 201, cited by Leo A. Suslow, Aspects of Social Reforms in Guatemala, 1944-1949, Colgate University, Area Studies, Hamilton, New York, 1949, (mimeographed).

a/ By agricultural regional is meant any area of a similar ecological nature, and includes both the exploited and non-exploited areas.

It has been estimated that of the country's total area about 45 per cent, that is, 4.9 million hectares, would be agricultural land, that the area under cultivation represents 20 per cent of the agricultural

1/ Juan F. Rothe, op. cit. page 10.

total, and stockbreeding 16 per cent.^{1/} There is no doubt that these figures are exaggerated. A brief examination of the agricultural regions of the country would suggest that not more than 25 per cent, or 2.5 million hectares could be considered as land suitable for farming.^{2/} An estimate based on the very inadequate information available leads to the conclusion that of the 2.5 million hectares, no more than 534,000 hectares are under cultivation, while those used for stockbreeding amount to 1,350,000 hectares.^{3/} It should be mentioned that an important part of the land at present under cultivation, above all in the Central Highlands, are mainly forest lands and their incorporation for more suitable uses is one of the country's agricultural problems requiring most urgent attention. According to the Population Census of April 1950, Guatemala had 2.8 million inhabitants. Consequently, the amount of farm land per person would be 0.89 hectares and the area actually worked would be about half a hectare. The farm land available seems to be less than 40 per cent of the world average estimated at 1.42 hectares, and 75 per cent less than that for South America estimated at 4.06 hectares.^{4/}

Comparisons of this type should be used with care, unless the lands have a homogeneous quality both from the technical and economic points of view. Nevertheless, where there is a difference of twice as much, it must in any case be considered important. Moreover, if it is borne in mind that the quality of Guatemala's soils, excepting those in the Pacific Piedmont and Coastal Region, may be classified as ordinary to poor, the obvious conclusion is that the country's land suitable for farming is not abundant.

The general shortage of farm land is all the more acute because of the geographic distribution of the population, which is concentrated

^{1/} Inter-American Development Commission - Reports presented to the Conference of Commissions of Inter-American Development by the Commissions of Inter-American Development of Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua.

^{2/} Excluding agricultural areas which may exist in the Petén territory.

^{3/} See Table 2.

^{4/} Food and Agriculture Organization's agricultural and food statistics, Monthly Bulletin January 1951, Vol. III, No. 1 page 4.

in the southern sector of the territory, crossed by the Cordillera de los Andes from one end to the other. In the inhabited region, the population density is as high as 42.4 inhabitants per square kilometre, in comparison with a density of 25.6 for the whole territory.

There is a sector within the inhabited region, known as the Zona de los Altos (High Region) with an approximate area of 1.3 million hectares and a population of 800,000 inhabitants. This is the region where the problem of land shortage is most acute.^{1/} Its inhabitants have tried to solve this problem by seeking paid work during that period of the year when they do not have so much to do on their farms, and by complementing their farming income with artisan activity and peddler trade. These are the people who supply the labour needs for coffee during the harvest, and they produce the typical textiles and other manufactured products which the country consumes. Local emigration seems to have been another defensive measure. In fact, while the country's total population increased by 40 per cent from the 1921 to the 1950 Census, that for the Los Altos region only increased by 11 per cent. This is important, because some observers maintain that the Indian population is reluctant to abandon its place of origin.^{2/}

^{1/} Formerly the inhabitants of this region possessed common lands in the tropics, which they sowed with maize. The 1871 reform dispossessed them of these lands and created the present population problem. See the section on the development of coffee.

^{2/} There is also historic evidence proving that this opinion is incorrect. In the middle of the XVII Century, when the taxes for the population of Quetzaltenango and Totonicapán increased, large masses of Indians moved to the region of the Valle de Guatemala and the Coast of Guazapacán. "Historia de la Evolución Económica de Guatemala" Valentín Solorzano, page 164.

Table 5. Guatemala: Movements of the Population of Los Altos Region

Figures from the 1921 Census = 100

	<u>1950</u>
<u>Region of Los Altos</u>	111
Chimaltenango	134
Solola	79
Totonicapán	102
Quetzaltenango <u>a/</u>	111
San Marcos <u>a/</u>	108
Huehuetenango <u>a/</u>	128
Quiche <u>a/</u>	116
<u>Rest of the country</u>	153
<u>Total for the country</u>	140

a/ Excluding from these departments the population corresponding to the following municipalities:

Quetzaltenango: Coatepeque, Colomba, El Palmar, La Esperanza, Costa Cuca; San Marcos: Pié de la Cuesta, Nuevo Progreso, Tumbador, El Rodeo, Malacatán, Catarina, Ayutla, El Quetzal, La Reforma, Pajapita, Ocós. San Pablo; Huehuetenango: San Mateo Ixtan, Santa Cruz Barillas, Santa Eulalia, San Antonio Huista, San Sebastián, Nentón and Quiche: Cunén, San Juan Cotzol, Nebaj, San Miguel Uspantán, Chejul.

It is not possible to determine from the information available what proportion of the land in the Los Altos region is agricultural. According to one author, the region is formed of rocky mountain peaks, covered with pines and evergreen oaks, by eroded ravines, by exhausted hills and by terraces and river valleys.^{1/} From direct observation, it is possible to estimate that the agricultural part of this region does not exceed 25 per cent of its total area. Since approximately 80 per cent of its population lives by farming, the amount of farm land per family of five people would be about 2.5 hectares. Some estimates indicate that the minimum farming land required in this region for the independent support of a family, at the present low standards of living, is three hectares.^{2/} The present yields of maize, the most important crop in the region, vary at around 10 quintals per hectare, so that three hectares, would at best produce a gross income of 200

1/ Leo A. Suslow, op. cit. page 1.

2/ Higbee, E.C. op. cit. page 178.

/quetzals a year.

quetzals a year. It is therefore difficult to see how a family of farmers, which did not receive income from sources other than their own farm, could exist in a minimum of comfort with an area of less than ten hectares.

Presenting the problem in these approximate quantitative terms, there would be a surplus of some 90,000 families of the total of 130,000 which inhabit the region. This surplus would have to emigrate, either to other farming regions or to non-agricultural employment.

The country has three regions where farming might be developed: 1) The Petén and the Caribbean Lowlands, which are almost uninhabited, covered with jungle and with no communications; 2) the Zona Reina, where conditions are similar to 1); and 3) the Pacific Coastal Regional (Coastal and Piedmont according to its local names), which are almost incorporated into the life of the country from the point of view of transport, but which require forest clearance work, regulation of the river beds, irrigation and sanitary projects. These are the most fertile soils in Guatemala, and according to experts can be compared with the most fertile soils of California.

The Southern Coastal region has an area of a million hectares ^{1/} of which perhaps 700,000 are farm lands. Such an area could probably provide for 15,000 farming families. The Zona Reina, apparently, also has good soils, and although they are less accessible, could provide for 5,000 families. According to these estimates, which are naturally open to considerable error, the two regions which at present offer the best possibilities for colonisation, would not be sufficiently large to absorb the surplus population of Los Altos. However, on the other hand, the Pacific coffee region itself could perhaps offer good opportunities for emigration from Los Altos. That region, an important part of which belongs to the Government has a farm area of 421,000 hectares, of which only about 100,000 are planted with coffee.^{2/} Apart from the seasonal workers, 36,000 families of colonists work there.

If the production of crops other than coffee could be intensified

^{1/} See Table 4

^{2/} Data taken from Informe Cafetalero de Guatemala, Oficina Central del Café, Guatemala, 1948. The Department of Santa Rosa has been excluded.

within the coffee region, it would perhaps be possible to give year-round work to the population which at present only works in the region during the harvest. In this way all the labour which this crop requires could be drawn from the coffee region itself. Actually, unless the problem of coffee's seasonal demand for labour is solved in this way or some other, any effort to solve the problem of the population of Los Altos will necessarily imply serious difficulties for the country's main agricultural activity.

The colonisation of the coffee region, of the Reina Region and the intensification of production in the coffee belt, together with the elimination of small holdings and introduction of skilled farming in the Los Altos region, and the industrialisation process of the country as a whole, would make it possible to solve the problem of the land, intensify the exploitation of semi-abandoned regions, increase the standards of living of the Indian population and create a purchasing power with a broader base for the country's future industrial development.

There are two important limitations in carrying out a programme with such broad ramifications as that necessary to solve the problem mentioned. On the one hand, very high financial cost is involved (the cost of establishing a family of colonists could scarcely be less than two thousand dollars) and, on the other, it requires the adaptation and technical training of the colonists. The importance of both increases in relation to the speed at which it is desired to carry out the programme. Over a longer term, it is easier to handle the financial aspects and the training of the personnel involved. The problem is so great that no rapid solutions can be contemplated.

The Shortage of Land, and its Uses

The general relative shortage of land implies the need to give preference to those crops which produce a high yield per hectare. Among the crops at present grown, coffee, bananas, sugar cane and citronella have a high yield per hectare, but, as already indicated, coffee at the same time absorbs a large quantity of labour.^{1/} Almost all the other

^{1/} The high national income of Cuba is due, perhaps to a large extent, to one product, sugar, where there is the happy combination of a high value per land unit and low labour requirements.

crops sown have a relatively low yield per hectare.

Stockbreeding covers important areas of land in Guatemala. There seems to be considerable possibilities for increasing efficiency in this activity in terms of land. There is a dry season in the country's stockbreeding area lasting from November to April. During that period the animals lose some weight, so that after each season part of the fodder is used to regain their original weight. "Cattle are kept four or five years before sending them to the fattening regions, and even at that ripe age they do not weigh more than 600 pounds. Imported cattle weigh even less and are in such poor condition that ten to eighteen months is required to fatten them." ^{1/}

According to experts of the Instituto Nacional de Agricultura, the introduction of silos and cutting and drying for forage would solve this problem without large investments. Another rapid means of improvement would be the control of tick which at present causes great losses both in meat and skins, and these losses in turn have repercussions on the costs of the shoe industry.

It could be said that the efficiency of agriculture, both in terms of utilisation of labour and of land, is a function of yields with all their determining factors, and the use of machinery. Research and training are two most powerful instruments for improving yields. In Guatemala, until quite recently, both research and training had been almost entirely neglected.^{2/} The possibilities for progress offered by research and training can be clearly illustrated by the fact that it is a common belief among many farmers that the worst grain is the best for seed.

Naturally, in view of the production methods used, the use of fertiliser is insignificant. In 1948 some 324,000 quetzals worth of fertiliser of all kinds was imported, so that the application per hectare under cultivation does not exceed one quintal a year. Nevertheless,

^{1/} Graham S. Guate Beef Production in Guatemala, Agriculture in the Americas. Vol. VII. August-September 1947, Nos. 8 and 9 page 104.

^{2/} Agricultural research and training services have been established for some time but were never given the necessary resources and suitable guidance, so that their results have been almost nil.

between 1925-29 and 1945-49, the volume of imported fertilisers doubled.

Naturally very little agricultural machinery is used, since coffee cannot be mechanised and maize is produced on very hilly lands. It has been estimated that in 1948, there were 631 tractors ^{1/} in Guatemala, and even though 161 more were imported from the United States in 1948 and 1949, the total is very small, no matter by what standard it is judged. The limited use of agricultural machinery is not only the result of its non-adaptability to the types of crop, to the lack of purchasing power of the farmers, to the lack of knowledge and other basic elements, but also to the relative prices of the machinery and the labour which it replaces. Nevertheless, progress made in the use of agricultural machinery in the last twenty years has been much greater than that in the use of fertilisers. Between 1925-29 and 1945-49 the value at constant prices of imports of agricultural machinery trebled.^{2/}

Table 6. Guatemala: Volume of Imports of Fertilisers and Agricultural Machinery

<u>Period</u>	<u>Fertilisers</u>		<u>Agricultural Machinery</u>	
	<u>Value</u> (thousands of quetzals at 1937 prices)	<u>Index</u> 1925-29 = 100	<u>Value</u> (thousands of quetzals at 1937 prices)	<u>Index</u> 1925-29 = 100
1925-29	141.6	100.0	214.8	100.0
1930-34	50.0	35.3	72.8	33.9
1935-39	99.6	70.3	220.0	102.4
1940-44	123.0	86.9	115.6	53.8
1945-49	276.2	195.0	700.0	325.9

Sources: Estimates by the Economic Commission for Latin America based on data obtained from the Memorias de la Secretaria de Hacienda y Crédito Público, 1925-43 and from the Bulletins of the Dirección General de Estadística, 1943-49.

^{1/} Economic Commission for Latin America; Joint ECLA/FAO Working Party: Preliminary report on supplies for agricultural use, page 83, May 1949, (mimeographed).

^{2/} The effect of deferred demand on the volume of machinery imports in the postwar period must be remembered.

Efficiency of Manufacturing Activity

In Guatemala, the problem of efficiency is not limited to agriculture.

A broad estimate based on data covering production costs for cotton cloth ^{1/} indicates that the productivity in mechanised weaving mills would be 317 grammes of cloth per man-hour, equivalent to two yards per man-hour of the type of cloth woven in Guatemala. Surveys being prepared by the Economic Commission for Latin America give 500 grammes of cloth per man-hour as a very low production figure.

The position affecting production of shoes is even more serious. At least 50 per cent of the population is unshod. At the relative price levels for rural work and shoes, a farm labourer would need to work about 6 days to buy a pair of shoes. A large proportion of production is in the artisan stage and it is estimated that 3.5 man-days are required to make a pair of shoes.^{2/} It is not only the methods used which make shoe production expensive, cattle parasites seriously affect the quality and price of domestic leathers. Under these circumstances, the consumer has to pay a high price for the product and the shoe producer has to be content with a low standard of living.

Until recently, one of the reasons for low productivity in the sugar mills was surplus capacity. Several sub-marginal mills have only existed thanks to a protectionist policy under which sugar prices to the consumer were fixed according to the costs of those producers who could not exist under competitive conditions. "The vaster and more important interest of the nation cannot logically be subordinate to the indefinite protection of relatively small investments in the existing sugar factories of some producers which at present are only supplying a small percentage of the country's sugar requirements."^{3/}

The wheat mills also have a productivity problem arising out of

^{1/} Data on costs presented by N.K. Ovalle, "Informe Industrial de Guatemala" (Industrial Report on Guatemala) Inter-American Development Commission, Washington D.C. page 141.

^{2/} Nevertheless, a factory installed in the country has been unable to produce because of opposition from the artisans' guild.

^{3/} N.K. Ovalle, op.cit. page 108.

surplus capacity. There are 92 in the country, of which twelve grind 85 per cent of the harvest, although they are in a position to grind 100 per cent of a harvest 2.7 times as great.

The productivity of the wheat mills, just as in the shoe industry and the sugar mills, is low because of the poor quality of the raw material which they handle.

The Problem of Transport

Efficiency in manufacture and other economic activities is affected not only by the low level of wages, by the partial use of their capacity by the quality of raw material available, but also by deficiencies in the transport system.

It may be said that in the most populated region of Guatemala, the construction of the network of basic highways has been completed. What is lacking in this region is the work of expanding and improving these existing highways, together with the construction of tributary roads, particularly along the Pacific Coast. For communications with the Atlantic coast, the populated region depends on a narrow-gauge, diesel operated railway, which also crosses the populated region from the Mexican border.

The northern region of the country, excluding the territory of Petén, which is a special case, lacks direct communications with the only Atlantic port. The production of coffee plantations and mining in this region reaches the sea by way of Lake Izabel. It is connected with the populated region by very poor roads.

There are no land or river communications with Petén, except for one recently completed road which links the new colony of Poptún, in the extreme northwest of Petén, with Cadenas, a village close to the river Sarstún, on the frontier with Belize.

The country has three principal ports on the Pacific, in none of which can ships tie up alongside. There is only one port on the Atlantic, Puerto Barrios, with docking facilities and warehouses, but all these belong to a private company, and their use is exempt from any fiscal regulations.

A mere description of the Guatemalan transport system suffices to
/suggest the

suggest the scope of the problem involved.

The poor quality of existing highways considerably increases the costs of motorised transport, while the monopoly position of the railway system makes this type of transport more expensive. In 1944, the average railway freight rate was 4.4 cents per ton-mile, bearing in mind that the rate per ton-mile of bananas is very much lower than the average. It costs 622 quetzals to bring a 70 HP. tractor to the city of Guatemala from Puerto Barrios, 309 kilometres away, and it costs 30 cents to transport 100 lbs. of maize to Puerto Barrios; this figure represents more than 15 per cent of the price of maize on the world market.

According to a report of the U.S. Department of Commerce, railway freight rates between Guatemala and Puerto Barrios "are too high for the economic transport of products of low value" ^{1/} and another report by this department concludes that "it is not economically possible to expand the railway network". ^{2/}

The operating costs of one and a half ton trucks, which are the most common in Guatemala, have been estimated at 24 dollar cents per mile, but quite possibly these are really 26 cents. since the estimate of 24 cents is based on the wear on tyres in the city. ^{3/} Table 7 shows that costs of operation in Guatemala, taking the foregoing remark into account are very similar to those of other Central American countries. In the United States costs are estimated at 13.3 cents per mile and the difference is largely due to depreciation, which is much higher in Guatemala because of the higher cost of vehicles and the bad roads. Truck operators estimate that this last factor increases

^{1/} U.S. Department of Commerce, Latin American Transportation Survey, Highways Section, Part one. Highways of Central America and El Salvador; December 1942, mimeographed, page 4.

^{2/} U. S. Department of Commerce, Railways of Latin America, December 1941, quoted by J.E. Nightingale, "Some economic aspects of highway transportation in Central America", U.S. Department of Commerce, World Trade in Commodities, Vol. VII, Part I, No. 2, February 1949 page 3.

^{3/} This and the following information was obtained from J.E. Nightingale,

the costs from between 20 to 50 per cent. Therefore an improvement in the bad roads would make it possible to save between 5 to 12 cents in each vehicle-mile for the commercial vehicles which cover these routes. Of Guatemala's 6,600 kilometres of highways, some 3,600 are unsuitable for motorised vehicle traffic.

Table 7. Guatemala: Average Operating Cost for One and a Half Ton Trucks in Cents per Mile, in Central America

	<u>Guatemala</u>	<u>El Salvador</u>	<u>Honduras</u>	<u>Nicaragua</u>	<u>Costa Rica</u>	<u>Panama</u>
Depreciation	4,00	4,67	2,33	4,80	3,60	3,60
Tyres	1,60	3,12	7,75	3,20	4,74	4,80
Gasoline	5,90	5,53	6,67	5,30	4,73	4,80
Oil	50	1,11	,23	,60	1,42	,30
Maintenance	6,00	3,50	3,21	4,00	6,00	3,00
Operator	5,00	5,15	5,33	5,10	3,85	8,00
General expenses	1,00	1,00	1,00	,60	1,92	,30
Total per mile	24,00	24,13	26,52	24,10	26,26	24,80

Source: J.E. Nightingale, op. cit. page 3.

CHAPTER II CREATION OF THE CAPACITY TO IMPORT

In the preceding chapter it was shown that there is broad scope for Guatemala to improve the use of its present resources, not only in agriculture, but also in industry and transport. Therefore, its economic expansion should be able to proceed at a greater rate than the growth of population. It was stated in earlier pages that a reduction in resources required per unit of finished output is equivalent to an increase in savings. However, the possibilities of achieving significant results through better use of existing manufactured capital goods are not very great, partly because the country has a very small amount of such goods and mainly because of their specialised nature (they can be used only for the purposes for which they are made). Therefore it is essential to pay as much attention as possible to increasing foreign exchange for the purchase of equipment and to making the best use of the exchange available. It should be remembered that improved use of labour makes scarcity of equipment all the more acute.

It would be interesting to ascertain the extent of Guatemala's problem as regards foreign exchange requirements. Unfortunately, a study of this question has to be based on a series of assumptions which impair the validity of the resultant conclusions. Nevertheless, these may be useful for guidance purposes, and this alone justifies the attempt made below.

It has been seen that the accumulation of capital which took place between 1925 and 1949 apparently did not place the country in a position to increase its real income by more than 37.7 per cent, this being the rate of population growth. If the population increases to the same extent between 1945/49 and 1965/69 as it did between 1925/29 and 1945/49, that is, by 735,000 persons, 1/ then in order to double the real income

1/ Should there be an absolute increase of this size, the proportionate increase would be less than during the period 1925/29-1945/49; i.e. 1.9 per cent per annum in the first case and 1.4 per cent per annum in the second. It is very possible that an improvement in sanitary conditions and an increase in real income might cause a greater rather than a lesser proportionate increase in the next few years. If the increase should continue in proportion, the absolute increase would be 1,013,000 inhabitants.
/per capita

per capita during this period, the annual increase of the National Income would have to be about 7.8 per cent. 1/

The experience of other countries suggests that an annual increase of 7.8 per cent is very great. It would be more practical for example to take as a goal, an increase double that which took place between 1925/29 and 1945/49, that is, of about 75 per cent altogether and 36 per cent per person. The corresponding annual increases would be 3.8 and 1.8 per cent.

Assuming that the national real income is a proportionate function of imports of capital, then it would also be necessary to increase these imports progressively until they exceeded their 1945/49 level by 75 per cent, that is, to 11.4 millions at 1937 prices as a goal for 1965/69. Assuming, moreover, that the ratio between imports of capital goods and the capacity to import continues in future, then it would also be necessary to increase the latter by 75 per cent, that is, to around 44 millions, in relation to the average of 25 millions for the 1945/49 period. The other alternative would be to reduce the percentage of the capacity to import used for other purposes, such as the purchase of raw materials and consumer goods, and payment of services.

By expressing the problem in these terms of quantitative appreciation, it is easier to examine the possibilities of solving it. These possibilities will be examined in the following paragraphs, although it must always be remembered that the figures and conclusions are purely for purposes of illustration.

Between 1925/29 and 1945/49 the quantum of exports rose at an average rate of 1.2 per cent per annum. During the second period mentioned, coffee provided rather more than 60 per cent of the quantum of exports. It is unlikely that the area sown with coffee can expand more rapidly than the rate at which the population increases, that is, 1.8 per cent per annum. At that rate an increase of 75 per cent in coffee exports would take more than forty years. Unless the labour requirements for the harvest are reduced, an increase in yields will not be of much assistance in accelerating the process of expansion. 2/ That

1/ Based on a preliminary estimate of the National Income in 1948, prepared by the Bank of Guatemala and which amounted to about 120 quetzals per person.

2/ See Chapter I, page

/is why the

is why the country cannot expect to obtain from coffee alone the resources which it needs to increase its capital accumulation. This conclusion merely reinforces the ideas expressed elsewhere regarding the need to pay as much attention as possible to the technical improvement of this activity.

Table 8. Guatemala: Variations in the Quantum of Exports

1925/29 = 100

	<u>Total</u>	<u>Coffee</u>	<u>Bananas</u>	<u>Chicle</u>	<u>Timbers</u>	<u>Bees'</u> <u>Honey</u>	<u>Sugar</u>	<u>Zocate</u> <u>Root</u>	<u>Essen-</u> <u>tial</u> <u>oils</u> <u>a/</u>	<u>Cattle</u> <u>Hides</u>
1930-34	b/85.0	90.4	98.5	39.5	7.6	106.5	2.6c/	35.7	92.6	94.5
1935-39	103.5	101.1	147.2	78.5	10.0	121.1	28.9d/	100.5	424.2	112.8
1940-44	97.4	99.8	97.0	181.8	36.4	110.2	33.0e/	96.0	678.0	97.6
1945-49	124.8	114.6	175.2	241.9	47.8	182.1	4.7f/	92.1	1278.0	151.4

Sources: ECLA estimates based on data from the Memorias of the Ministerio de Hacienda y Crédito Público and the Bulletins of the Dirección General de Estadística.

a/ 1929 = 100

b/ Average for the years 1931-34

c/ Average for the years 1931 and 1933

d/ Average for the years 1936-39

e/ Average for the years 1941-44

f/ Data for the year 1945

In the case of bananas, the United States market purchases about 75 per cent of Latin American production. At present the United States imports a lower volume of bananas than in the twenties, in spite of the great increase in per capita income and in the population. Consumption in Europe is usually supplied by the different colonies, and it is unlikely that Guatemala could obtain a share in this market.

Guatemala's possibilities for obtaining a greater share of the existing market do not depend on anything the Guatemalans may do to reduce their production costs by means of technical improvements. Since the great producer in Guatemala is also the great producer in the competing countries, it is most likely that improvements will be introduced in all the areas more or less simultaneously. The possibilities of competition are thus limited to the relative advantages determined by the physical medium, the level of monetary wages, concessions and the political conditions in each region.

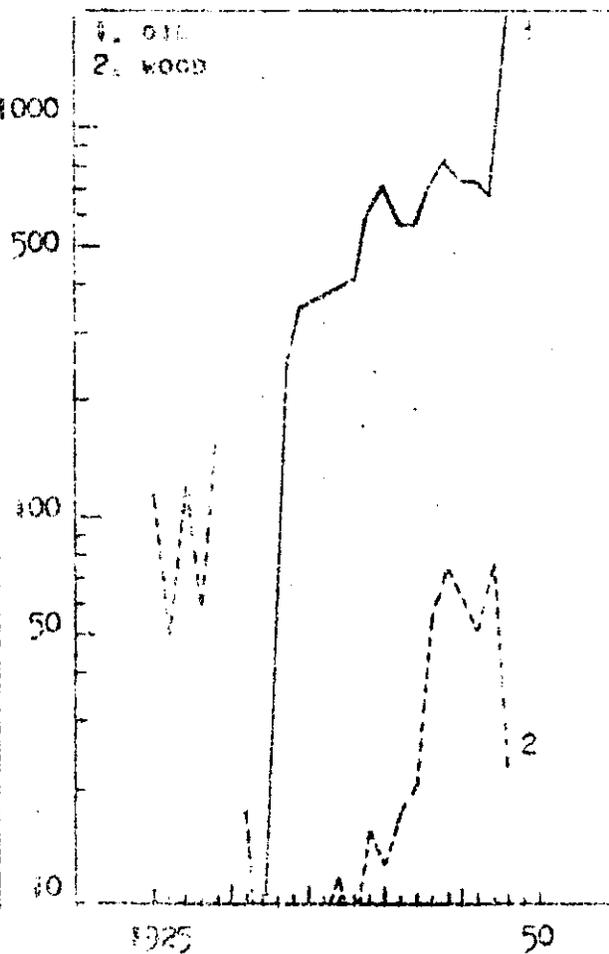
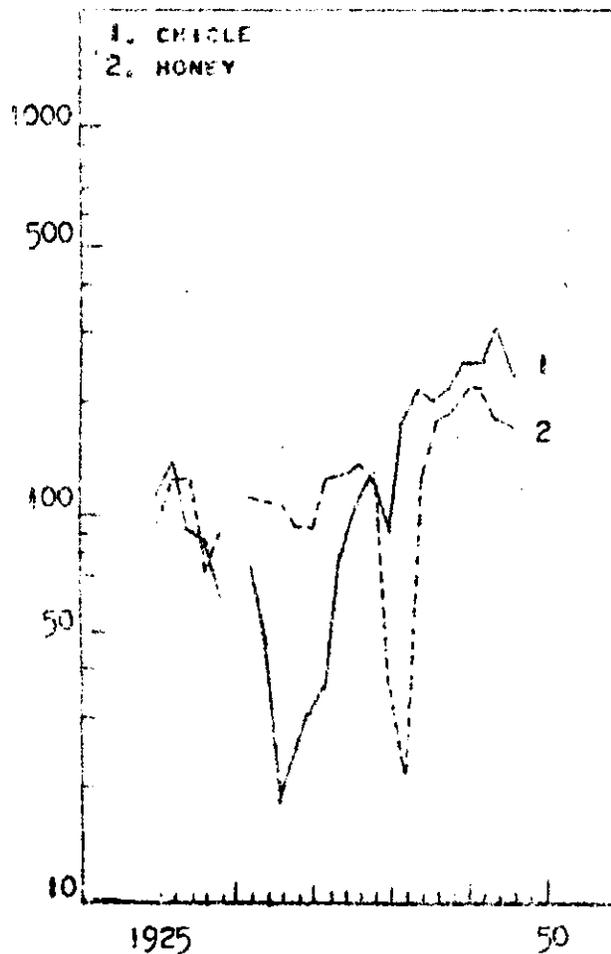
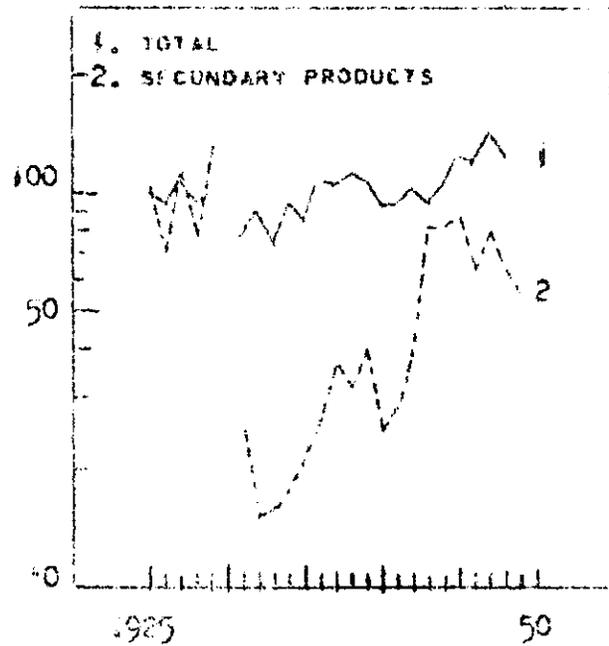
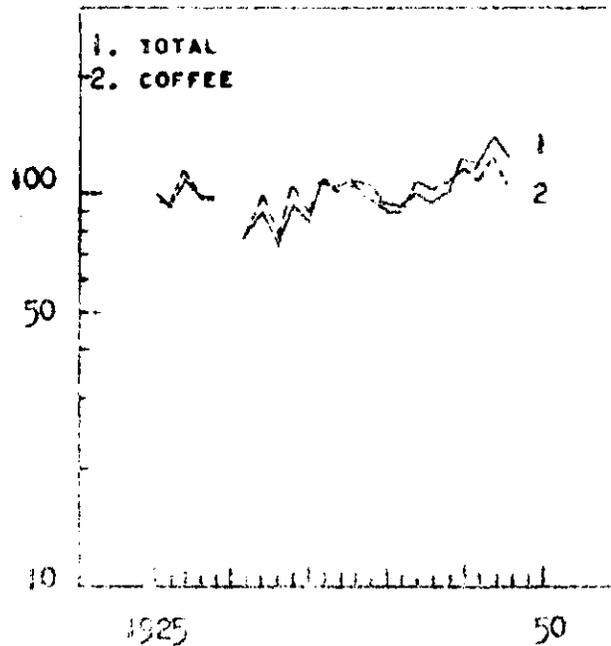
/Chicle, which

CHART 4
 GUATEMALA.

CHANGES IN THE QUANTUM OF EXPORTS

1925/29 = 100

SEMI-LOGARITHMIC SCALE



Chicle, which together with the other two products mentioned, constitutes about 90 per cent of the quantum of exports, seems to present the worst prospects. The appearance on the United States market of a synthetic chicle is bringing about a continual decline in demand for natural chicle and this process will probably continue in future.

On the other hand, there do seem to be quite broad possibilities for products such as beef, plywood, hard woods, essential oils, hard fibres, typical textiles, some vegetables and fruits, and lead.

During the war, Guatemala began to export meat to Panama to supply the needs of the United States Army. At the end of the war, exports were directed towards England, amounting to nearly 200 thousand quetzals in 1947, but in 1948 exports were prohibited by the Government, to prevent a rise in prices on the domestic market. The discussion of the conditions of stockbreeding in Chapter I suggests that exports of this product could be substantially increased.

The country has recently begun to produce plywood from hard wood. There is a very wide market for this product and Guatemala has great quantities of raw material. The forests in the Department of Petén contain sufficient mahogany to supply world demand for fifty years. ^{1/} Since plywood has a high unit value, it can be economically transported by air, so that the bad communications with the mahogany region do not greatly affect it.

As regards essential oil, Guatemala supplies under 40 per cent of the United States market, Formosa and Ceylon being the strongest competitors. Since the country has sufficient resources to expand its production over a long term, the possibilities of doing so depend on the introduction of improvements to reduce costs. The present situation suggests that over a short period exports could be expanded without much difficulty.

Exports of abaca (manila hemp) have succeeded in producing two million quetzals for Guatemala over a relatively short period, and the present market conditions suggest the possibility of continued expansion

^{1/} Monitor of the Instituto de Fomento de la Producción, Nos. 1 and 2, 1950, page 10.

of this crop at least as long as the rearmament programme continues.

Even though, as indicated above, the prospects for expanding secondary export products are good, the limited prospects for the items which provide 90 per cent of foreign exchange make it doubtful whether the problem of exchange availability for capital accumulation can be solved purely on the basis of an active export policy.

The other alternatives open to the country are: a) to reduce the proportion of its capacity to import used for purchasing raw materials and consumer goods, that is, to change the composition of its imports; and b) to obtain loans abroad.

In comparing the 1925/29 period with 1945/49 the composition of Guatemala's imports, at 1937 prices, experienced certain important changes.

The most important changes were in favour of fuels and lubricants, rubber products, chemical products, stones and another materials, and paper and its manufactures. These changes took place at the expense of textiles, foodstuffs, capital goods, and hides and their manufactures. Thus the changes up to the present have not directly favoured the country's capital accumulation.

It is possible for Guatemala to effect an important change in the composition of its imports, without causing an uneconomic distribution of its productive resources.

To illustrate the existing possibilities of increasing foreign exchange available for the purchase of equipment, an estimate has been made of the obvious changes which could be made in imports of consumer goods and raw materials. The estimate is based on the possibility of producing the article economically within the country, setting aside any consideration concerning the essential or secondary nature of the goods.

Imports of textiles and clothing could be reduced by about 15 per cent of the annual average volume imported in 1945/48. Raw cotton constitutes about 15 per cent of this group. Practically all the raw cotton which the country requires could be produced locally. According to the plans of the Instituto de Fomento, 50 per cent of its requirements will be produced in 1950, only two years after commencing

/the programme of

the programme of cotton development began. Cotton cloth is the other important item within the textile group. For the purposes of this calculation it has been assumed that the country would be able to produce 80 per cent of the cotton cloth which it imports, ^{1/} and to reduce its outlay on rayon cloth by 50 per cent, importing the raw material instead of the finished product. Finally, it has been assumed that all the imported cotton clothing could be produced locally, except for a few very fine articles.

The potential economies in the textile group constitute 60 per cent of the total reductions. Those for the group comprising foodstuffs, beverages and tobaccos constitute 14 per cent, assuming that imports of alcoholic beverages, dairy products and half of the tobacco were eliminated. The economies contemplated in the group of chemical products only refer to matches, and in stones, earthen-materials and glass, to flasks, bottles and similar items which could be produced within the country on the basis of scrap.

The increase in real income arising out of investments designed to replace imported articles by domestic ones, would tend to increase imports of other consumer goods and of raw materials, so that only a part of the exchange derived from the elimination of certain imported goods could be used to increase purchases of capital goods, instead of the total, as assumed in the estimates in Table 9. However, it is very possible that the procedure suggested would permit at least a 40 per cent increase in the exchange available for capital goods.

The fact that Guatemala may in future be able to supply its own foodstuffs, cotton textiles and clothing, is of considerable advantage in relation to its possibilities for changing the composition of its imports. But, on the other hand, once the country succeeds in being self-sufficient in those items, the small scope of the market will impose a serious limitation on further changes in that direction. In

^{1/} It will be seen later on, that according to a report prepared in 1945, the country could produce 40 per cent of the cotton cloth imported. That report only considered the substitution of grey cloth for shirts, drills and denim, but since the country could also produce other cloth of better quality, 80 per cent has been considered here instead of 40 per cent.

/other words,

other words, it will be more difficult to replace imports economically. This explains the importance of unifying the markets of the Central American countries, all of which are faced with the same problem as Guatemala.

Table 9. Guatemala: Estimate of Possible Changes in the Composition of Imports

(values in thousands of quetzals at 1937 prices)

	<u>Average a/</u> <u>1945/48</u>	<u>Percentage</u> <u>of the total</u>	<u>Possible</u> <u>modifications</u>	<u>New Composition</u>	
				<u>Value</u>	<u>Per Cent</u>
Capital goods	6,003	26.8	+ 4,778	10,781	48.1
Textiles	3,766	16.8	- 2,934	832	3.7
Foodstuffs	2,227	9.9	- 736	1,491	6.6
Chemical products	3,568	15.9	- 334	3,234	14.5
Durable consumer goods	1,054	4.7	-	1,054	4.7
Fuels and lubricants	2,299	10.2	-	2,299	10.2
Paper and its manufactures	720	3.2	- 81 <u>b/</u>	639	2.8
Metals and appliances	579	2.6	-	579	2.6
Hides and leathers	222	1.0	- 132 <u>c/</u>	90	0.4
Stones and earthen materials	515	2.3	- 326	189	0.8
Non-edible oils and fats	239	1.1	- 125 <u>d/</u>	114	0.5
Timber and its manufactures	75	0.3	- 40 <u>e/</u>	35	0.2
Rubber and its manufactures	456	2.0	-	456	2.0
Sundry products	<u>716</u>	<u>3.2</u>	- 70	<u>646</u>	<u>2.9</u>
Total	22,439	100.0		22,439	100.0

a/ The values in this column correspond to those of the example used for calculating the physical volume.

b/ Reduction in wrapping paper, based on the fact that a factory has been installed in the country.

c/ Includes leather and patent leather.

d/ Particularly animal tallow.

e/ Sundry wood appliances and furniture.

By means of a programme of increasing its exports and improving its efficiency, of changing in the composition of imports, and of obtaining foreign loans of a reasonable size, there appears to be little doubt that Guatemala would be in a position to accelerate its economic development during the next 25 years to the extent suggested at the beginning of this chapter. It should be remembered that Guatemala's foreign debt

/at the end

at the end of 1949 amounted to 630,000 dollars, that is, slightly under one per cent of the Government income, and less than one per cent of the total foreign exchange receipts in current account. These figures are sufficient to demonstrate that the country has ample financial capacity to absorb foreign loans.

CHAPTER III. DEVELOPMENT OF THE MOST IMPORTANT ECONOMIC ACTIVITIES
Agricultural Production

The foundations of the present structure of Guatemala's agricultural production were all laid at the beginning of the twentieth century. This production is based on maize, beans, coffee, bananas, sugar, and cattle breeding and fattening, all of which are representative of the types of farming in temperate, semi-tropical and tropical zones. Since the beginning of the century production has increased without any important structural changes taking place.

Expansion has been slow since the prosperous five-year period of 1925-29. Although statistical data are very inadequate, it may be estimated that from the years prior to the world depression until the postwar period, the volume of agricultural production increased by approximately 36 per cent, while the population increased, as stated already, by 37.7 per cent.

According to the figures in Table 2, the products included in the index in 1948 occupied approximately 84 per cent of the area under cultivation. Assuming that the gross value per hectare produced by the products excluded from the index was greater than that produced by those which have been included, it may be estimated that from the years 1945 to 1948, the index covers about 70 per cent of the total gross value of agricultural production.

Among the important products which have been excluded are: beans, potatoes and other tropical tubers, as well as cacao, citrus fruits, grasses producing essential oils, sesame and other oilseeds, tobacco and certain crops which produce fibres. Except for grasses and oilseeds, the other crops probably have not experienced a more rapid development than that described by the index, so that even if it were possible to include more examples, the expansion of agricultural production would not be much more than 36.0 per cent.

Table 10. Guatemala: Indices of the Estimated Volume of Agricultural Production a/

1925/29 = 100

	Average 1945/49	
	Total	Per capita
Total production	136.1	99.6
Coffee	117.0	85.7
Maize	137.4	100.0
Wheat	290.2	212.4
Cane	137.0	100.3
Rice	793.7	581.0
Bananas	175.2	128.3
Stockbreeding	141.4	103.5

a/ For 1945/49 coffee production is the official figure of the Guatemalan Government and for 1925/29 the figures were obtained from The World's Coffee, International Institute of Agriculture, Rome 1947, page 116. Maize production has been estimated on the basis of a consumption of 107.2 kilogrammes per person per year, based on a survey by the Instituto Indigenista Nacional and assuming that the volume has varied pari passu with the population. Later on in the text the reasons justifying this assumption will be discussed. The production of bananas has been estimated as being 1.3 times the volume of exports. Cane production was obtained from official figures for refined and raw sugar, reduced to cane on the basis of a yield of 8 per cent, reported by N.K.Ovalle, in his Industrial Report of Guatemala, Inter American Development Commission, Washington, 1946. The data for rice production was obtained from publications by the International Institute of Agriculture, Rome, for 1925/29 and from a survey by Graham S. Quate, reproduced by the Instituto de Fomento, for 1945/49. The production of wheat for the postwar years was obtained from Jorge Ahumada and Gabriel Orellana, El Problema del Trigo, Revista de Economía No. 2-3, Guatemala 1949, and for the five-year period 1925/29 from the annuals of the I.I.A.R. The 1948 prices of each product were used as weights. The volume of livestock production includes beef and pork, hides, milk, butter and tallow, and has also been weighted by the 1948 prices, but the 1948 prices, but the production figures correspond to the years 1929 and 1948. These figures were obtained from the Memorias of Hacienda and the Bulletins of the Dirección General de Estadística.

The Development of Coffee

Coffee is the backbone of Guatemalan economy. It covers about 25 per cent of the agricultural area in use, contributes about 40 per cent of the gross value of agricultural production and 60 per cent of the value of exports. Because of its importance it is worth glancing at its beginnings in order to discuss its development.

/When Guatemala

When Guatemala was conquered by the Spaniards in the first half of the sixteenth century, the Indian group which inhabited the temperate region, had strong cultural traits, the most important of which, from the point of view of economic development, was their agriculture based on the cultivation of maize and beans.

For many years the conquest did not signify any important change in the autochthonous agricultural structure. The economic activity of the conquerors was limited to producing enough to satisfy their most essential needs and for the sporadic export of cacao, silver and indigo. Mainly because of Spain's commercial policy, and partly on account of transport difficulties, Guatemalan trade with the rest of the world was almost non-existent. The only port was on the Atlantic, and it was necessary to cross the Andes and the tropical jungle to reach it. The Indian labour strength, although enslaved by the "encomienda" system, was never exploited to the full.

After the Declaration of Independence, Guatemala's trade relations with the rest of the world began to expand, and the country became a regular exporter of timber, sugar and cochineal.

Cochineal had replaced indigo as the principal export product at the beginning of the nineteenth century. Forty years later, this product provided 80 per cent of the country's foreign exchange. ^{1/}

The fundamental importance of this substitution on the country's economic structure lay in the fact that cochineal was a backyard crop which did not require a capacity to organise large-scale enterprises nor the use of a great quantity of labour, as in the case of indigo. If this latter product had not been replaced by cochineal before reaching an important degree of development, its effects would, to a certain extent, have been similar to those of coffee development later on.

During the forties of the nineteenth century, cochineal began to suffer from the competition of synthetic dyes and a few years later it was in quite evident decline.

^{1/} The majority of the historic references were taken from Valentín Solórzano, *Historia de la Evolución Económica de Guatemala, México, 1947*, Chapter II, p. 256.

Fortunately, about 1830 the development of coffee plantations had been initiated somewhat timidly. At first they were designed to meet the requirements of domestic consumption. The Government, anxious to find substitutes for declining cochineal, introduced rewards and subsidies for the production of coffee and sugar. This policy, together with the expansion of world demand and the improvement of communications,^{1/} sixteen years later, resulted in coffee providing more than 50 per cent of the total value of exports.

The development of coffee caused an economic revolution of considerable importance. Not only did it stimulate and permit the introduction of new systems of communication and transport, but it also involved the economic-geographic displacement of agriculture towards the uncolonised sub-tropical regions and forced the employment of a great quantity of labour which necessarily had to be drawn from the Indian sector of the population.

After 1830, the coffee industry developed in two clearly marked stages. (See Table 11, Chart 5). After a period of rapid expansion which lasted until 1860, the first setbacks were felt. These lay in: a) the lack of communication routes to the Atlantic; b) the defects of the communal system of land tenure; and c) the resistance of the Indian population to working as wage-earners in industry.

The liberal revolution of 1871 solved the land problem by handing over part of the communal lands to private freehold ownership, thus creating the land problem to which a solution is sought today. The labour problem was solved by the introduction of a system of forced labour which was put into practice by violent methods.

After the Reform, coffee experienced its second cycle of development while simultaneously there was considerable expansion of domestic development, which will be dealt with later on. This new stage lasted until the final decade of the last century, at which time coffee constituted 90 per cent of the total exports.

^{1/} The improvement in communications mentioned consisted in the opening of the Pacific Port of San José in 1853, in the founding of a monthly steamer service between San José and Panamá, subsidised by the Government, and the inauguration of the railway across the Isthmus of Panamá.

Different factors combined to produce this situation.

In the first place, once the first violent effects of the reform introduced in 1871 were over, the flow of labour towards the productive regions necessarily continued at a slower rate. Between 1880 and 1900, while the population grew by approximately 39 per cent, the volume of coffee exports increased by 70 per cent. On the other hand, between 1900 and 1920, while the population increased by 38 per cent, the volume of coffee exports expanded by 25 per cent. 1/ There is no doubt that it was the impact of the forced labour laws during the first period which allowed coffee exports to develop so much more rapidly than the population.

This does not imply that there were no other factors which played an important role in ending the first expansion cycle of this activity. The world economic recession of the nineties and over-production of coffee in Brazil was very rapidly reflected in the rate of increase of the plantations. The price of mild coffee on the New York market dropped from 16.5 dollar cents per pound in the five-year period 1890-94, to 9.7 cents in 1895-99, and to 6.8 cents in 1900-04. With this fall, the flow of German capital directed annually towards Guatemala, which played such an important role in financing the industry, seems to have been considerably reduced. 2/

That there were more important limitations than those imposed by world demand, is proved by the fact that, in spite of the price of the New York market having risen to 6.8 cents a pound in 1900-04, to 7.4 in 1905-09 and to 11.4 in 1910-14, and the Guatemalan peso having depreciated from 0.166 in 1900, to 0.079 in 1905, to 0.059 in 1910 and to 0.023 in 1911, exports continued to vary in a manner more or less parallel to the growth of population. Moreover, it could be argued that coffee exports from other countries increased in those years at a much greater rate than could be observed in Guatemala.

1/ The data on population are estimated on the basis of the 1880 and 1921 Censuses and those for exports were obtained from the Memoria of the Dirección de Estadística de Guatemala for 1922.

2/ The depreciation of the Guatemalan peso which fell from 0.757 dollars per peso in 1890, to 0.50 dollars in 1895, and to 0.166 in 1900, does not seem to have helped much in maintaining the rate of expansion of the plantations.

GUATEMALA

EXPORTS OF COFFEE
FIVE YEARS AVERAGES

THOUSANDS OF METRIC QUINTELS

SEMI-LOGARITHMIC SCALE

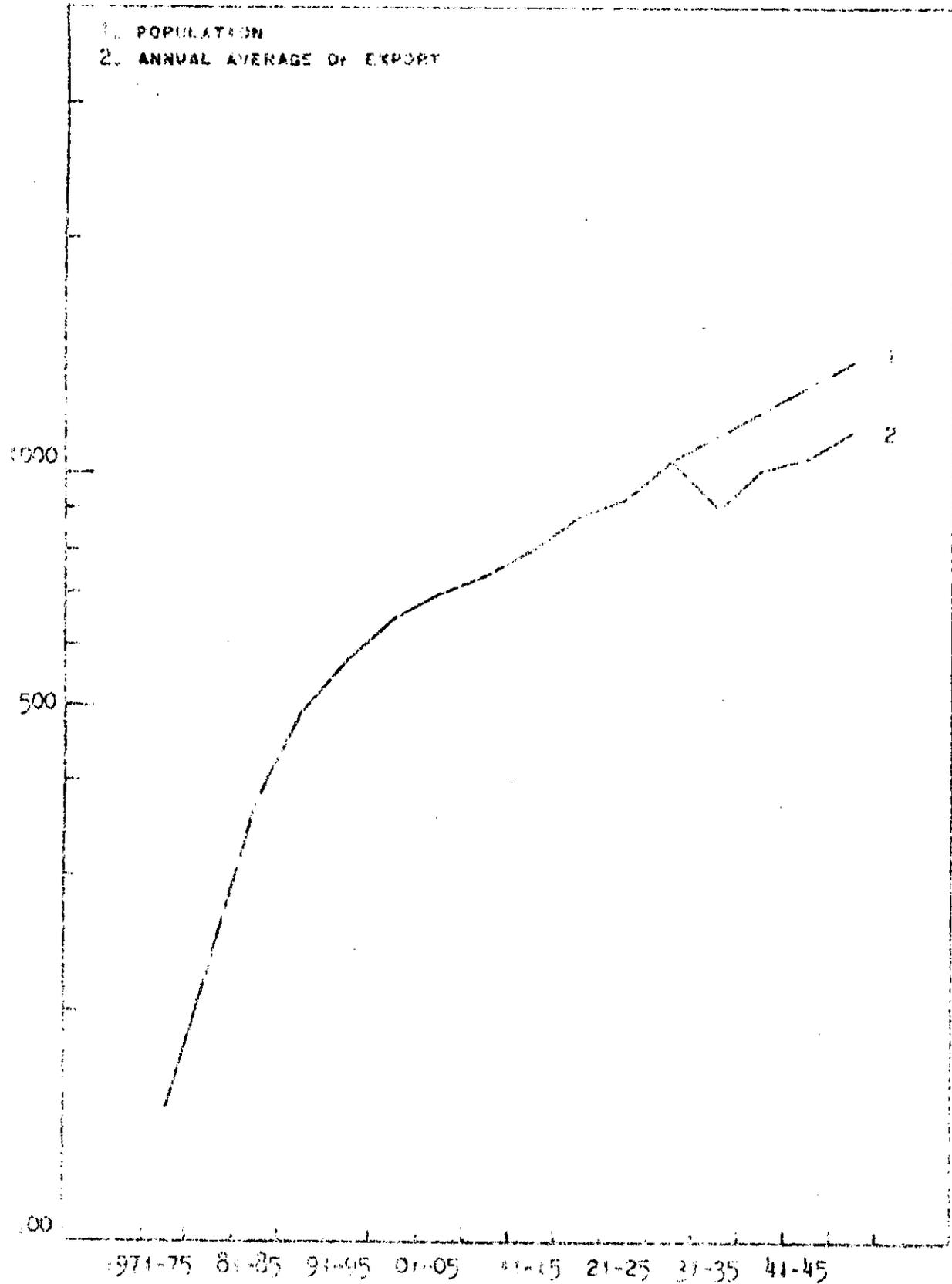


Table 11. Guatemala: Development of Coffee Exports, 1871-1949

<u>Five-year period</u>	<u>Annual average exports (metric tons)</u>	<u>Rate of increase per five-year period</u>	<u>Five-year period</u>	<u>Annual average exports (metric tons)</u>	<u>Rate of increase per five-year period</u>
1871-75	14,940	-	1911-15	79,600	7.5
1876-80	23,360	56.4	1916-20	87,940	10.5
1881-85	37,340	59.8	1921-25	92,740	5.4
1886-90	48,680	30.4	1926-30	103,500	11.6
1891-95	57,520	18.2	1931-35	89,780	-13.3
1896-00	64,780	12.6	1936-40	101,020	12.5
1901-05	69,760	7.7	1941-45	104,700	3.6
1906-10	74,060	6.2	1946-49	113,520	8.4

Sources: From 1871 to 1922, Memoria of the Dirección General de Estadística, 1922. From 1922 on, customs data.

During the thirties, exports of coffee dropped for the first time in the whole history of their development. The pre-crisis level was only recovered in 1941-45.

There is no doubt that during this last period the basic conditions of production allowed this to continue at a rate at least as rapid as that of the twenties. Assuming this to have been the case, exports in 1936-40 would have amounted to 1.2 million metric quintals and to 1.4 millions in 1946-50. ^{1/} On this occasion it was the world market conditions which acted as a brake on the speed of development. The unit value of coffee exports dropped from 100 in 1925-29 to 46.2 and 45.4 in the two following five year periods, rising to 46.7 in 1941-45 and to 94.2 in 1946-49. During this time the country kept its exchange rate at par.

Bananas

While development of coffee production signified a change in the methods of agrarian production, the development of bananas was simply an addition to the existing structure. This product's demand for productive resources was complementary to that of other existing activities and its development did not require modifications in social institutions.

^{1/} The quotas introduced by the Interamerican Coffee Agreement of 1942, which remained in force until 1945, were no hindrance to exports,

Exports of bananas on a large scale began in the middle of the first decade of this century. The unsatisfactory results of earlier attempts at expansion were due to the failure to establish rapid and opportune maritime transport and to a lack of co-ordination between producers and transporters.

In 1904, one of the founders of the United Fruit Co. obtained a contract to complete the construction of the railway linking the city of Guatemala with Puerto Barrios, and undertook to plant a million banana trees along the track, as a means of providing freight for the railway being built. ^{1/}

The United Fruit Co., which already operated in Costa Rica, had its own shipping line and the commencement of its operations in Guatemala solved the problem of co-ordinating production and transport of the product, assuring the future of the industry.

Since then, expansion of banana production occurred in two clearly marked stages. The first was one of rapid expansion: from 180 thousand quintals exported at the beginning of the century, exports rose to 2.9 million quintals in 1915. After that date the industry ceased to grow, until the second period of expansion began in the middle of the thirties.

The reasons for the first stagnation of the industry are not clear. On the one hand, as stated above, the banana industry was complementary to the rest of the economy. Moreover, in reducing the general cost of transport by ensuring permanent freight for the railways and steamers, its general effects were undoubtedly good. The lands which it occupied were put under cultivation without causing displacement of other products, and its labour, part of which was imported, was not an important factor. Consequently, the limiting factors on the side of demand which affected coffee could not be considered as a good explanation for the experience with bananas.

^{1/} J.P. Rippey, Latin America and the Industrial Age, G.P. Putnam Sons, New York 1947, Second Edition, page 141.

On the other hand, the expansion of the world market continued until the end of the twenties. Imports from the United States, the greatest consumer of this product, increased from 12 million bunches at the beginning of the century, to 65 millions at the end of the twenties.

The second stage of expansion, during which exports rose from 2.8 million quintals in 1935, to 4.9 million quintals in 1945-49, took place in spite of the fact that world demand remained stationary.

When Sigatoka and Panama disease appeared along the whole Caribbean Coast of Central America, the fruit companies were forced to move towards the Pacific. Since the plantations on the Atlantic coast of Honduras could not migrate within the same country, Guatemala's plantations expanded, taking up the space left by Honduras in the world market. 1/

In its new location, the effects of the banana industry were not so complementary as at the beginning of the century. On the one hand, the coffee planters in the Pacific region were able to make better use of the bananas, which they used as shade for the coffee shrubs, thus reducing their fixed operating costs. On the other hand, transport costs for bananas increased, although this increase seems to have been transferred, to an unknown extent, to other products by means of differential tariffs; moreover, it began to occupy stockbreeding lands and to compete for the labour employed by farming in the region.

Maize

There is no reliable information concerning changes which have occurred in maize production. This report has worked on the hypothesis that the rate of expansion has been parallel to that of the population, and this needs to be justified.

The cultivation of maize is the most important economic activity of the Indian population, which represents two thirds of the country's total inhabitants.

Maize is principally used for human consumption. As food habits are

1/ Exports from Honduras are beginning to recover as a result of the discovery of methods of controlling Panama disease. These controls require considerable investments which the companies do not seem anxious to make in Guatemala for political reasons.

strongly ingrained by centuries of tradition, it is unlikely that an increase in per capita real income would result in any important increase in maize consumption. In fact, it is even possible that it would result in a decline since, whereas a higher income for the Indian population would not entail greater consumption, higher income among the population of European origin, would imply a tendency to substitute maize for wheat. It is very possible that expansion in wheat production, apart from having replaced imports, may also have displaced maize. Nevertheless, the greater use of maize as an animal food may have neutralised the effect of the lower per capita demand on the development of production.

Other Agricultural Products

The only other agricultural products included in the index which have experienced any considerable development are rice and wheat.

In both cases, expansion took place, partly because the domestic product replaced the imported one, and partly because of a change in the general food habits. In the five-year period 1925-29, the annual apparent consumption of rice - measured by production plus imports amounted to 1970 tons, of which domestic production provided about 60 per cent. In 1945-48, apparent consumption rose to 8650 tons, which were almost entirely supplied by local producers.

The apparent consumption of wheat, which rose from 25,500 tons in 1925-29 to 34,700 in 1945-48, was met by imports amounting to 80 per cent, during the earlier period, and to only 55 per cent during the second one.

Available information concerning stockbreeding is also very scanty. It appears likely that the reduction which seems to have occurred in cattle production was partly offset by greater production of hogs.

As imports of lard dropped from 178,000 quetzals (at 1937 prices) in 1925-29 to 77,000 quetzals in 1945-48, while imports of ham and bacon have been practically eliminated, it may be assumed that there was an increase in hog production during the period under review. 1/

1/ It should, however, be borne in mind that lard has partly been replaced by vegetable-fats. The high imports for 1949 were probably a passing phase.

Manufactures

The survey of the agricultural development of Guatemala, with all its deficiencies, makes it quite clear that the major limitation encountered during the period under review was the lack of incentives which would increase demand for its products. This applied not only to the most important export products, but also to those designed to satisfy direct domestic requirements. The most notable exceptions always prove the general rule. The greatest increases took place only in those cases where a given product replaced another distinct one in the market, or was in a position to substitute for an imported product. The following pages will trace the extent to which industry had to face the same difficulties as agriculture.

According to the 1948 Industrial Census, the first of its kind in the republic, Guatemala's manufacturing activity employed 29,892 persons, of which 21,661, or 73 per cent, worked in establishments of five or more workers, and 8,231, or 27 per cent, in establishments of less than five workers.

If these figures are compared with the gainfully employed population, which may be estimated at one million persons, the secondary importance of manufacturing becomes quite clear.

It should, however, be borne in mind that, since the per capita productivity employed is higher in industry than in agriculture, a simple comparison of the number of persons employed underestimates the economic importance of the former. Industry probably contributed 15 to 18 per cent of the gross national income.

On the other hand, since an important part of Guatemala's manufacturing industry is still at the craftsmanship stage, any picture which excludes this is not a true one. ^{1/}

Although a large part of the craftsmen remain outside any manufacturing statistics, the development of manufacturing may be judged

^{1/} Craftsmanship cannot be judged exclusively by its role in contributing to the National Income. It has a very important complementary function in providing employment for agricultural labour during seasonal slack periods, and because it is often a household craft.

by the changes which have occurred in industry itself, since in view of the craftsman's economic incentives, his production is unlikely to increase at a much more rapid rate than the population unless, of course, there were considerable changes in expenses or income.

In 1946, the net value produced by the industries covering foodstuffs, beverages, tobacco, textiles, clothing and non-metallic minerals, represented 62.5 per cent of the net value for all establishments with five or more workers. A brief description of this group's activity is therefore a good indication of changes in manufacturing as a whole.

Table 12. Guatemala: Indices of the Estimated Volume of Industrial Production, 1946-48

		1926-28 = 100	
		Total	Per capita
Total	a/	150.6	109.6
Foodstuffs	b/	133.5	97.2
Textiles	c/	238.7	173.7
Alcoholic beverages	d/	126.9	92.4
Cement	e/	160.8	117.0
Printing and engraving	f/	302.1	219.9

a/ Weighted index of the industries indicated. The weights were based on the percentage contributed by each industry at the 1946 value for the group.

b/ Includes flour mills, rice processing plants, sugar mills, bakeries and confectioners. The following series were used respectively as indications of each of these activities: wheat production, rice production, sugar cane production and consumption of wheat. The individual indices were weighted by the 1948 prices of each series to obtain the total index.

c/ Based on production indices for woven fabrics and yarns. The index of weaving production was based on the national production of cotton, on imports of ginned cotton and imports of yarns. The index for yarns was based on production and imports of cotton. The two indices were weighted by the unit prices for imports of woven goods and yarns in 1946.

d/ Production of aguardiente, liquors and beer. Beer production was estimated from imports of malted barley.

e/ Cement production in the base year was taken as being equal to the production capacity of the only plant in existence. See Oliver Bowles and a Jaeyes, Cement in Latin America, Information Circular # 7360, United States Department of Interior, Bureau of Mines.

f/ Measured by imports of newsprint.

Food Industries

The development of this group of industries has expanded at the rate which was to be expected a priori, once the rate of agricultural

/development was known.

development was known.

The most important activity within the group, according to the 1946 census, is the making of bread and similar products. Its development is necessarily limited to the rate at which wheat consumption expands. On the other hand, wheat milling increased more rapidly due to the substitution of domestic by imported flour.

It is very likely that the calculated index underestimates the real expansion of the group since it was not possible to take into account the production of edible oils, frozen meat and other not so important items which were introduced during the war. Moreover, the fact that the physical volume index of imports of foodstuffs 1/ may have dropped from 100 in 1925-29 to 8.7 in 1945-48, indicates that imports have been partly replaced by local industry.

As explained in another section, one of the products which has been partially displaced is wheat flour and rice. There has also been a change in imports of lard and edible oils.

Textile Industries

In 1946, Guatemalan consumers paid about 17 million quetzals for textile products of all kinds. 2/ At least 70 per cent of this amount was paid for cotton textiles.

The cotton textile industry, which is the most important branch within the textile group, in 1946 supplied more than 70 per cent of the value of yarns and manufactured goods consumed by the country, except fabrics, of which it supplied only 42 per cent. The local industry for woolen and rayon textiles only supplied between 20 and 30 per cent of the market requirements.

The cotton spinning mills use between 2,600 and 2,900 metric tons of raw cotton. Twenty-five years ago they only used 600 tons.

Since the consumption of cotton in all its forms only increased by 46 per cent between 1925-29 and 1945-48, the expansion of the spinning

1/ Excluding animals on the hoof.

2/ Calculation based on the cif values of imports plus a coefficient to reduce them to wholesale prices, and on the gross value of domestic industrial production according to the data of the Industrial Census.

mills took place largely at the expense of imported yarns. In fact, while during the period mentioned imports of yarns expressed in their cotton equivalent - dropped by 55 per cent, from 666 tons to 297 tons a year - imports of ginned cotton rose by 538 per cent, from 313 to 1,996 tons.

Table 13. Guatemala: Value of Textile Imports and Production, 1946
(thousands of quetzals)

	<u>Value of production</u>	<u>Value of imports</u> g/	<u>Total</u>	<u>Percentage supplied by domestic production</u>
<u>Cotton</u>				
Yarns	1,683.1 a/	434.7	2,117.8	77.3
Cotton Fabrics	2,437.4 b/	3,345.7	5,883.1	42.1
Cotton goods	1,803.7	734.2	2,537.9	71.0
<u>Wool</u>				
Yarns	d/	73.3	73.3	-
Fabrics	126.4	514.6	641.0	19.7
Woolen articles	46.6 e/	211.6	258.2	18.0
<u>Rayon and Silk</u>				
Yarns	-	72.5	72.5	-
Fabrics	325.7	833.0	1,158.7	28.1
Rayon and silk articles	68.6 f/	145.0	213.6	32.1
Hard fibres	46.8	288.6	335.4	14.0

Sources: Calculations of the Economic Commission for Latin America, based on figures of the Industrial Census and the Dirección General de Estadística.

- a/ Includes yarns of different counts and grey yarns.
b/ Includes hierbilla, drill and manta, other cloths and fabrics and cotton fabrics.
c/ Includes all the articles enumerated under the heading "Manufacture of cotton fabrics and yarns", except those mentioned in notes a/ and b/, plus the following knitted goods: sundry cotton goods, undershirts, cotton stockings, socks, knitted shirts, and underwear. Also includes the following articles from the group "garments and manufactured cloth goods": children's clothing, men's shirts, men's underwear and men's pyjamas.
d/ Although the four woolen fabric factories have their own spinning mills, the value of yarns does not appear in the census.
e/ Includes knitted sweaters.
f/ Includes petticoats and knickers, brassieres, silk stockings, other knitted products and ladies' underwear.
g/ Excludes several unclassifiable textile products, the value of which amounted to 928.2 thousand quetzals.

Until the year 1948, about 75 per cent of the cotton consumed in the country was imported. In spite of the scanty information available, it may be stated that in the years before the crisis of the thirties,

/domestic agriculture

domestic agriculture supplied a greater proportion of the requirements of the spinning mills. 1/

Domestic production of fabrics, gauged by the cotton used in the spinning mills and by the cotton equivalent of imported yarns, would have increased by 129 per cent between 1925-29 and 1945-48. Since imports of cotton fabric increased by 8 per cent during the same period, the increase of domestic production took place by taking advantage of expansion of the local market and the reduction in imports of goods manufactured with fabrics, which dropped by 24 per cent.

As regards its cotton textile industry, Guatemala is passing through a stage when it imports its cotton in an ever-diminishing degree of manufacture. Thus, while in 1925-29 it imported 10.2 per cent in the form of raw cotton, 21.3 per cent in the form of yarns, 50.7 per cent in fabrics and 17.8 per cent in manufactured goods, in 1948 the same groups respectively constituted 45.3, 6.7, 38.6 and 9.4 per cent of imported cotton. The substitution process has not ended yet. In 1945 it was estimated that about 40 per cent of imported fabrics could be produced within the country. Such a substitution implied an expansion of 29.3 per cent in local production in that year and 43 per cent over the production of mechanised factories. 2/

After 1945, both domestic production and imports of fabrics increased considerably. Assuming that the composition of imported fabrics has not varied as regards quality, it seems that the new level of consumption would permit local production to expand 50 per cent over the level for 1946-48.

Other Textile Industries

There is no information available with which to form an idea of the progress of these activities. In any case, the market for woollen textiles is very small and the regions suitable for sheep farming are somewhat limited. Therefore it will be many years before this industry acquires any importance within the country.

1/ It has been impossible to investigate the reasons for this. Some observers say that it is due to the appearance of a disease which could not be controlled.

2/ M. X. Ovalle, Informe Industrial de Guatemala, Revista de Economía Nos. 5 and 6, 1946, page 140.

This is not the case with rayon fabrics. In the years 1946-48, the value of imports of artificial silk fabrics exceeded a million quetzals and their volume was eight times greater than at the end of the twenties. Although it is difficult for such a rate of expansion to be maintained, rayon will probably continue to obtain a growing proportion of the market for textiles. Guatemala has no rayon weaving mills.

Alcoholic Beverages

This group of industries is among those employing most people and producing the highest net value. ^{1/} However, the greater importance of this group does not lie in these factors, but rather in the fact that it is one of the easiest sources of taxation. In 1946-48 this industry provided 37.6 per cent of all tax receipts, excepting customs duties.

At first sight, it seems strange that the rate of production of alcoholic beverages has not expanded at least as rapidly as the population. The relative increase in the price of these products, arising out of a growing tax burden and the displacement of consumption towards better quality beverages, may provide a partial explanation.

Cement

The cement industry, together with that for cotton textiles, is one of the oldest in Guatemala. The only existing plant was established in 1897 and since that date it has expanded slowly until it now has a capacity of 33,000 metric tons.

Consumption of cement during the years 1927-29 fluctuated around an average of 25,500 metric tons, of which domestic production supplied about 72 per cent. In 1945-48 consumption amounted to 35,900 metric tons, of which the local factory supplied 80 per cent.

Cement is not an important raw material for housing construction in Guatemala. There is little doubt that the high consumption of the postwar years was due to the Government public works programme and the peak period of housing construction in the capital, where the use of cement is important.

Therefore domestic production increased as the result of demand generated partly by the Government, and because it tended to replace the imported product.

^{1/} It is probable that the high net value shown in the Census data is due to the inclusion of taxes.

Energy

Guatemala's total available energy in 1937 has been estimated at 467 million K.W.H. ^{1/}

Table 14. Guatemala: Sources of Energy, 1937

<u>Sources</u>	<u>Equivalents in millions of K.W.H.</u>	<u>Percentage of the total</u>
Wood and charcoal	239	51.1
Fuels derived from petroleum	171	36.6
Electricity	56	12.1
Coal	1	0.2
Total	467	100.0

The total energy produced is consumed proportionately as follows: 297 millions in commerce, agriculture, industries, and public and private lighting; 134 millions on the railways; 20 millions in automotive vehicles; 7 millions in the coastal trade, while 9 millions were lost in operation and storage.

The per capita consumption of mechanical energy was equivalent to 25 KWH, that is, less than 7.3 per cent of the world average, which was 1,676 KWH. Guatemala's consumption was considerably lower than that of other Latin American countries such as Mexico, where the per capita consumption was 803 KWH.

According to calculations made in 1937, of the total animate and inanimate energy produced in Guatemala, 30 per cent was mechanical or inanimate energy, and 70 per cent was animate, that is, animal and human energy. In the United States, inanimate energy formed 97.6 per cent of the total, and in Mexico 70.9 per cent.

The high percentage of energy of animate origin is not due to lack of basic resources for producing inanimate energy. In fact it was estimated in 1937 that the minimum reserves of the country's hydraulic potential amounted to 12,560 million KWH per year, which places it among the Latin American countries with the highest per capita potential.

At that time barely 0.45 per cent of these reserves was used, for producing both electricity and mechanical energy. Lack of information

^{1/} Unless otherwise indicated, the data used in this section were obtained from Energy Resources of the World, U.S. Dept. of State, Washington, D.C., 1949.

renders it impossible to determine what percentage of that hydraulic energy was used for producing electricity and what proportion was used for mechanical purposes.

In any case, the most important means used for generating electric energy has traditionally been hydraulic power. In 1943, 511 of the 589 electric plants in the country were hydro-electric. 1/ Total installed capacity in that year was 29,850 Kws.

There is no exact information on which to base a calculation of the increase of hydro-electric energy production after 1925. It is known, however, that in 1930 a plant was put into operation which in 1943 had an installed capacity of 8,717 Kws. It is also known that between 1925 and 1937 several small plants were installed, so that the increase of capacity between these two years may be estimated as being at least 30 per cent. Between 1937 and 1942, production was estimated to have increased by 68 per cent, so it seems very likely that production of electric energy doubled between 1925 and 1948.

Petroleum fuels, which are entirely imported, are another important source of energy.

Imports of petroleum and derivatives quadrupled between 1925/29 and 1945/48.

As a result of these developments, Guatemala consumed 150 per cent more in KWH per capita in 1948 than in 1937. It should be remembered, however, that not all the increase constituted a net addition to energy consumption within the country, since an important part was represented by changes to inanimate energy, this process having been particularly great in the case of transport.

The Development of Other Activities

Among the activities excluded from the previous calculations, the most important are those covering housing construction, transports, other private industries producing services, and services traditionally supplied by the Government.

There is no information available permitting a direct assessment of the construction of dwellings. Judging by the apparent consumption

1/ Memoria of the Secretaría de Hacienda y Crédito Público, 1943.

Table 15. Guatemala: Total Consumption of Inanimate Energy
Excluding Wood and Charcoal
(Equivalent in thousands of KWH)

<u>Year</u>	<u>Electricity</u> a/	<u>Fuels derived</u> <u>from petroleum</u> c/	<u>Apparent total</u> <u>consumption</u>	<u>Per capita</u> <u>consumption</u>
1925	..	60,870	..	
1926	..	89,409	..	
1927	..	104,091	..	
1928	..	117,452	..	
1929	..	154,899	..	
1930	..	..	..
1931	..	126,360	..	
1932	..	90,234	..	
1933	..	101,286	..	
1934	..	113,493	..	
1935	..	108,544	..	
1936	..	158,528	..	
1937	56,000	164,962	220,962	95.2
1938	51,059	203,634	254,693	108.7
1939	55,763	..	..	..
1940	49,481	400,798	450,278	186.4
1941	54,590	381,324	435,914	177.7
1942	58,146	294,189	352,335	141.4
1943	59,165	178,366	237,531	93.8
1944	48,981 b/	266,756	315,737	122.9
1945	55,252 b/	288,883	344,135	131.9
1946	59,992 b/	356,652	416,644	157.3
1947	65,507 b/	470,028	533,535	198.4
1948	70,181 b/	609,171	679,282	249.0

a/ The series for production of electric energy between the years 1937 and 1942 was obtained from the figures for total production in the country, published in the Memorias of the Secretaría de Hacienda y Crédito Público. From 1943 onwards the total was estimated, adding to the annual production in the capital the same quantity of KWH produced by the Departments in 1942, plus an annual increase equivalent to the average increase between 1937 and 1942.

b/ Estimate.

c/ The series of fuel derived from petroleum includes: fuels, diesel oil, gasoline and naphtha, aviation gasoline, kerosene and liquid gas. The data used to form the series were taken from the Memorias of the Secretaría de Hacienda y Crédito Público 1925/43 and from the series of imports by articles published in the Bulletin of the Dirección General de Estadística. The volume of the series mentioned was converted to tons in accordance with the coefficients for liquid fuel density published in the United Nations Annual, 1948. The series thus obtained was reduced by 5.08 per cent, which represents the percentage of imports of petroleum and its derivatives, used for producing energy of thermal origin. The series converted to tons were transformed to their equivalents in electricity (KWH) on the basis of a metric ton of petroleum and fuel derivatives equalling 2,470 KWH.

/of cement,

of cement, it seems to have increased by 52 per cent. However, cement is not commonly used in the construction of dwellings, outside the capital. Taking the country as a whole, it seems likely that owing to urban development, the number of houses has increased in slightly greater proportion than the number of families.

Transport services, on the other hand, expanded considerably. The freight transported by the railways increased by 52 per cent, the increase in local and imported freight being 56 per cent, while that corresponding to exports was 47 per cent. The number of passengers transported by the railways doubled. On the other hand, motorised transport expanded even more. The volume of imports of trucks and buses increased by 335 per cent, while gasoline imports rose by 320 per cent.

This much more rapid expansion of transport than the volume of production requires an explanation. In the case of freight transported by rail, the principal reason lies in the changes which have occurred in the composition of freight in favour of more bulky goods. This can be clearly seen by comparing the quantum of exports with the freight for exports. In the first case, the products have been weighted by their prices and in the second, the gross effect of the expansion of the banana industry may be felt. Something similar has taken place in connection with imports, among which bulky products such as petroleum, gasoline and raw cotton have increased in relative importance.

On the other hand, there must have been an important substitution of animal traction vehicles by the railway and the truck, particularly the latter. Although the country's present railway network is slightly smaller than in 1930, the rapid expansion and improvement of the highways which occurred after the beginning of the thirties helped, together with the rise in monetary wages, to replace animal transport by motorised transport.

Naturally these have not been the only factors of importance. The fact, for example, that the city of Guatemala has grown much more rapidly than the rest of the country, must have caused a greater expansion in freight carried than in production.

There is no information covering other private service industries, but it is possible, with a general knowledge of the country, to state that these are of very secondary importance, and consequently, they

/would not have

would not have affected the general economic picture, no matter what their rate of expansion was. As regards traditional services provided by public institutions, these can only be judged indirectly through noting the course of Government expenditure. Total expenditures at current prices, were 143 per cent higher in the 1945/49 period than in the five-year period 1925/29. In terms of constant prices, the increase was necessarily much less. ^{1/} Moreover, it should be borne in mind that during the period comprised between the two five-year periods mentioned and until 1942, expenditures remained at lower levels than before the crisis.

Table 16 Guatemala: Passengers and Tons of Freight Transported by the Railways 1925 - 1949

<u>Year</u>	<u>Exports.</u>	<u>Imports</u>	<u>Local and parcel freight</u>	<u>Total</u>	<u>Passengers</u>
1925	215,054	227,466	a/	442,520	1,421,846
1926	215,811	226,017	a/	441,828	1,766,162
1927	245,177	259,580	a/	504,757	1,786,907
1928	222,274	423,831	a/	646,105	2,213,205
1929	224,493	509,230	a/	733,723	1,987,417
1930	..	..	..	..	..
1931	..	..	..	..	..
1932	..	..	..	..	..
1933	..	..	..	..	..
1934	..	..	..	..	..
1935	..	..	..	..	..
1936	..	..	..	..	..
1937	318,000	133,000	181,000	632,000	1,754,000
1938	348,000	143,000	188,000	679,000	1,617,000
1939	384,000	138,000	181,000	703,000	1,664,000
1940	318,000	123,000	179,000	620,000	1,463,000
1941	299,000	140,000	211,000	650,000	1,505,000
1942	241,000	135,000	306,000	682,000	1,760,000
1943	180,000	140,000	411,000	731,000	2,527,000
1944	232,000	131,000	497,000	860,000	3,150,000
1945	337,000	157,000	441,000	935,000	3,855,000
1946	385,000	171,000	489,000	1,045,000	4,152,000
1947	470,000	207,000	464,000	1,141,000	4,123,000
1948	458,000	237,000	396,000	1,091,000	3,929,000
1949	372,000	269,000	272,000	912,000	

Source: 1925 to 1929 - Memorias de Hacienda y Crédito Público
1937 onwards - Bulletins of the Dirección de Estadística.

a/ Included in charges for imports.

^{1/} There are no price indices of any kind covering the years prior to 1937. If the United States wholesale price index is used, the increase in expenses, in real terms, would be about 70 per cent.

The expansion of public expenditures has been reflected by the greater availability of three basic services: drinking water, drainage and electric light. It has also resulted in a better and more extensive network of highways than that existing during the twenties, as well as in more hospitals and schools.

Summary and Conclusions

The earlier pages of this chapter have shown that from 1925/29 to 1945/49, agricultural production increased by 36 per cent, industrial production by 50.6 per cent, electric energy a hundred per cent, and the freight transported by rail, by 52 per cent. Unfortunately, these indices cannot be combined accurately into one sole unit of comparison. However, according to estimates of the gross National Income prepared by the Bank of Guatemala, agriculture's contribution to this income was approximately 50 per cent, industry 18 per cent and the Government eight per cent. If these weights are used, the increase experienced by agriculture, industry and Government services as a whole would be 43 per cent. This calculation should be corrected to take into account changes in the capacity to import, which was reduced by 16.4 per cent. Since exports make up 50 per cent of agricultural production, once the correction has been made it would appear that the increase for the whole of the activities mentioned would be about 26 per cent.

It seems unlikely that the remaining economic activities would, as a whole, have experienced an increase of 74 per cent, this being the rate necessary to raise the index of real income to a figure similar to that of the increase in the population. While it is true that transports and energy production expanded considerably, it seems doubtful whether commerce and financial activities, which have a greater weight within the gross National Income, have experienced appreciable increases. For all these reasons, it may be fairly safely concluded that the real per capita income in the five-year period 1945/49 was lower than during the period 1925/29.

During the first quarter of this century, the rate of increase of real income seems to have been higher than that of the population. While in the second quarter of a century the volume of coffee exports increased by 13.4 per cent, during the first quarter they increased by 32.9 per cent. Exports of bananas increased by 326 per cent during the

/first quarter

first quarter and by 142 per cent during the second. Since these two products form such an important part of total production, it would seem logical to suppose that the rate of expansion of real income was higher in the first period than in the second.

It may be stated, on the basis of the historic information available, that the rate of increase was greater in the last quarter of the nineteenth Century than in the first quarter of the twentieth Century. In fact, exports of coffee increased by 177.3 per cent between 1876-80 and 1896-1900, this increase being accompanied by great domestic expansion. The first telegraph line was introduced in 1873 and some 2000 kilometres of lines were installed in the following decade. Animal traction tramways commenced operation in the city of Guatemala in 1882; in 1883 a contract was signed for the construction of drinking water and drainage pipes in the city of Guatemala, electric lighting was introduced in 1884-85 and telephone communications in 1885.^{1/}

The Guatemalan railways were also built during this period. The first 27 miles between the Port of San José on the Pacific and Escuintla, were opened to traffic in 1880, and that port was linked with the capital in 1884. In 1883 another sector of 27 miles was also opened to traffic, linking the Port of Ocos with the coffee region of San Marcos. Altogether, during the period from 1875-1885, 160 kilometres of railway were constructed. In actual fact, all Guatemala's present railway network, excepting the line to El Salvador, was completed by the first decade of the twentieth century, which marked the end of the second cycle of coffee expansion.^{2/} More or less the same could be said of the highway network.^{3/}

In conclusion then, it may be said that Guatemala's development during the last 75 years has proceeded at a diminishing rate.

^{1/} J.F. Rippey, op. cit. pages 131 to 133.

^{2/} The data on railway construction were taken from: Gordillo Barrios, Gerardo, "Glosa de los contratos que dieron origen a los Ferrocarriles Internacionales de Centro América" El Mes Económico y Financiero, Guatemala, February, 1950.

^{3/} However it should be remembered that the first automobiles reached Guatemala in 1919, so that the highway network constructed prior to that date was not suitable for the new type of motorised transport.

