

# Economic Bulletin for Latin America

**Vol. II, No. 1**

Santiago, Chile, February 1957

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UNITED NATIONS

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The ECLA secretariat assumes entire responsibility for the *Bulletin*. Its content—intended for the information both of public officials and of the general reader—was not submitted to the Commission's member Governments before publication.

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#### EXPLANATION OF SYMBOLS

Two dots (..) indicate that data are not available or are not separately reported.

A dash (—) indicates that the amount is nil or negligible.

A minus sign (— 300) indicates a deficit or a decrease.

A slash (/) indicates a crop year or a fiscal year, e.g., 1954/55.

“Tons” and “dollars” are metric tons and United States dollars, respectively, unless otherwise stated.

Minor discrepancies in totals and percentages are due to rounding.

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# ECONOMIC BULLETIN FOR LATIN AMERICA

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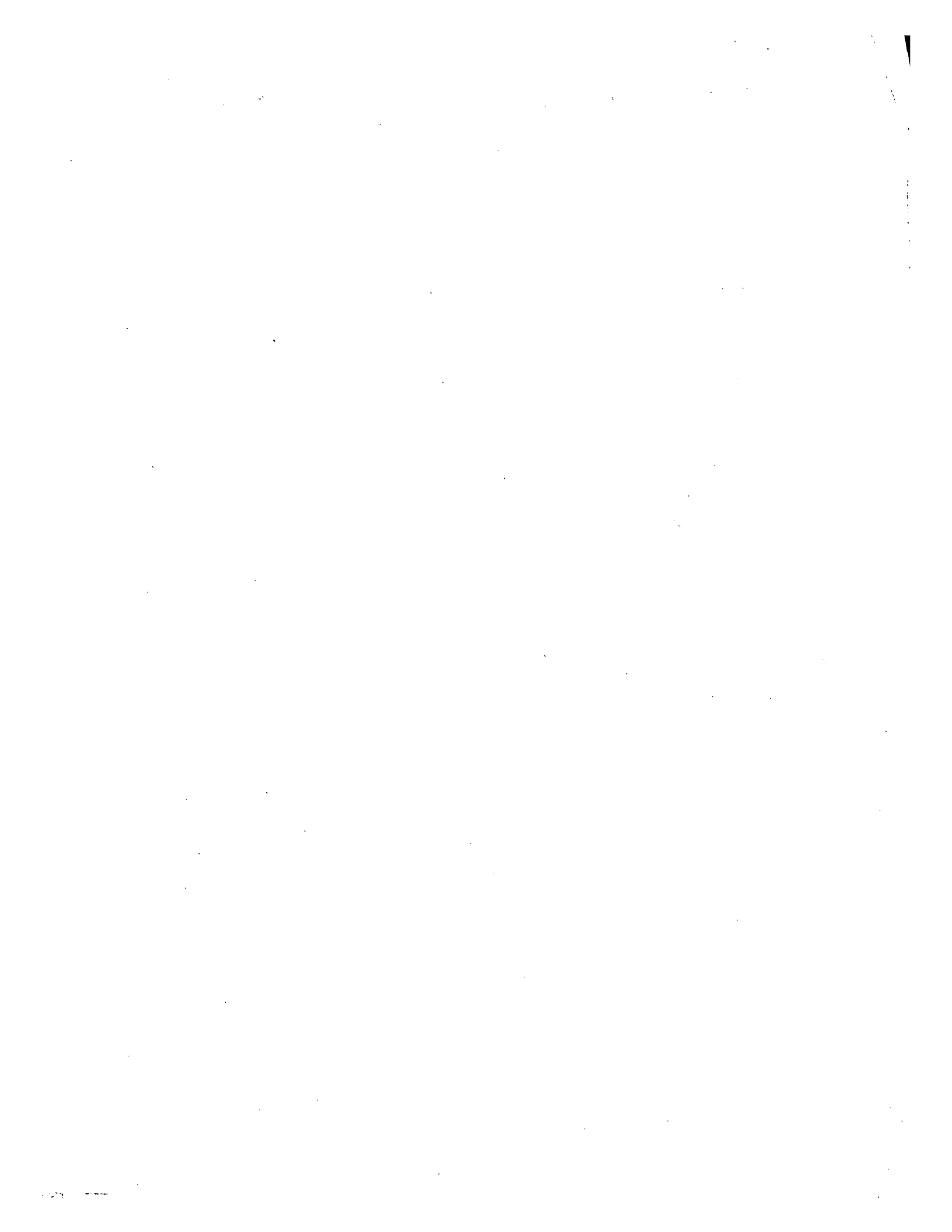
## CORRIGENDA

Page 4, 1st column, 5th full paragraph - Delete paragraph and replace by:

"It was in Mexico and Peru that the most striking contrasts in agricultural production were recorded, especially in consequence of the action of adverse weather factors. In Mexico, agriculture developed unevenly. In fact, while on the one hand there was a sharp decline in cotton (22 per cent in the output of fibre) and in maize (6 per cent), Mexico's two staple products, as well as decreases in other minor crops 6, on the other hand, there were significant increases in the production of coffee (23 per cent), wheat (41 per cent), linseed (27 per cent), coquito (19 per cent), and, on a smaller scale, in that of other products such as tobacco, cacao, peanuts, rice and industrial fibres. Nevertheless, taken as a whole, the country's production decreased by 4.5 per cent because of the strong influence exerted on the total by cotton and maize. The small output of maize must be attributed to the drought which affected the dry-soil farming area in the northern states."

Page 4, footnote 6 - Delete and replace by:

"For example, centrifugal sugar, chick-peas, copra and beans fell by 18.2, 2.0, 3.0 and 2.0 per cent respectively."



# ECONOMIC BULLETIN FOR LATIN AMERICA



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ECONOMIC COMMISSION FOR LATIN AMERICA

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## PRELIMINARY VIEW OF THE ECONOMIC SITUATION IN LATIN AMERICA DURING 1956\*

### I. INTRODUCTION

The economic situation in Latin America was not on the whole as favourable in 1956 as in the preceding year. According to estimates, the growth of the gross product and gross income failed to do more than approximately keep pace with that of the population, a state of affairs which contrasts with the vigorous upward movement registered in both as from 1954. The favourable situation of the external sector, of which the positive effects on the domestic economy were even more marked than a year previously, tended to be offset by the decline in agricultural production—almost universal throughout the region—by certain depressive influences which affected domestic demand in some large countries, and by difficulties observable in others with respect to availabilities of capital goods, raw materials and energy.

The foreign exchange income accruing from exports was more than six per cent higher in 1956 than in 1955, partly on account of a more marked increase in the quantum exported, since Latin America as a whole had been affected by a slight deterioration in the terms of trade. The increment in the current value of exports amounted to over 15 per cent in Cuba, Peru and Uruguay, and 12 per cent in Mexico, while it fluctuated around 5 and 7 per cent in Brazil and Venezuela; in Central America it was moderate, and in Argentina very slight. Chile, whose exports attained exceptional levels in the first half of the year, despite a falling-off in the second half, registered on the whole a much higher figure than in 1955. Lastly, in Colombia the current value of sales abroad decreased.

Imports also increased, by an estimated 5 per cent. This growth, however, was less widespread than in the case of exports. In Cuba, Mexico, Peru and Venezuela purchases abroad expanded by over 10 per cent. In Colombia they increased by only 2 per cent, while in Argentina, Uruguay and very possibly in Brazil the value of imports declined.

\* These pages contain a preliminary examination and discussion of the evolution of the Latin American economy during the year just ended. In the *Economic Survey of Latin America 1956*, now in course of preparation, a more complete analysis of the development in question will be made. The present article includes a first estimate—highly tentative in some cases—of the levels attained in the various economic sectors.

As a result of these export and import movements, Latin America's trade balance, traditionally positive, was on this occasion considerably more favourable than in 1955. As at the same time the greater inflow of capital seems to have exceeded the estimated increase in remittances of profits and interest, the balance of payments for the region as a whole showed a surplus of some significance, which can be favourably compared with the small deficit registered a year before.

As has already been pointed out, the stimulating influence exerted on total demand by the external sector was counteracted in 1956 by the depressive behaviour of certain factors. Agricultural income underwent a fairly heavy contraction on account of poor harvests throughout most of the region. In Brazil the output of coffee was one of the lowest in recent years; that of cotton declined in Brazil, Peru and other countries. Production in Argentina was also affected by decreases in the harvests of both the staple cereals and linseed. In Colombia and Chile, too, downward movements in agricultural production were observed.

It was partly owing to the difficulties attendant upon the supply of energy and raw materials in some countries, and to the measures whereby others sought to stabilize the currency so as to preserve balance-of-payments equilibrium and curb inflation, that industrial production grew only at the same rate as the population. A falling-off was thus recorded in this sector after the progress achieved in former years. To judge from available data, Brazil and Chile seem to constitute the most outstanding cases in point, since in both these countries manufacturing output declined. In Mexico, on the other hand, industrial production continued to increase at the same rapid rate already noted in the two immediately preceding years.

While prices and the means of payment rose higher still in some of those countries where the inflationary process was already more or less advanced—Bolivia and Paraguay, for instance—in others, such as Argentina, Brazil and Chile, measures aimed at checking the excessive upward movement of these factors were adopted, or their application was continued with varying success. At the same time, specific countries like Colombia and

<sup>1</sup> Harvests for the farm year 1955/56.

Peru, which had maintained some degree of stability up to 1955, witnessed a more rapid increase in the means of payment and in prices during 1956. Among the countries where the previous relative stability continued to prevail, Costa Rica, Cuba, the Dominican Republic, Guatemala, Mexico and Venezuela deserve particular mention.

In *Argentina* prices rose between September 1955 and November 1956 by 18.1 per cent. Of this increment, about 10 per cent is estimated as attributable to the effects of the devaluation of the currency, and the remainder to wage increases which outstripped the improvement of productivity. Furthermore, the means of payment expanded by 22 per cent between September 1955 and November 1956, and between December 1955 and November 1956 by only 9 per cent, despite the fact that towards the end of the year more ample credit margins were granted, with the special aim of adjusting the volume of the money supply to the greater requirements deriving from the price and wage increases mentioned.

*Bolivia's* inflationary process was sharpest in 1956. Between December 1955 and September 1956 the means of payment expanded by 146 per cent, prices had risen 200 per cent by October, and the dollar exchange rate went up from 4,000 Bolivian pesos in January to 10,000 in October. In mid-December the Government adopted a series of measures aimed at stabilizing the economy within a relatively short space of time. Among these, stress must be laid on the reform, standardization and devaluation of exchange rates; the abolition of exchange permits for foreign trade; and subsidies on imports of essential goods, as well as the abolition of cheap company stores. To mitigate the effects of the rise in the cost of living to which these measures led, compensations were fixed which were incorporated in salaries and wages. At the same time, however, to safeguard future stability when such effects were no longer operative, salaries and wages were frozen for a period of one year.

In *Brazil*, inflation was still the most urgent of the country's short-term problems. Prices continued to

rise at the same rate as before, and in 9 months the means of payment expanded by more than 12 per cent. Nevertheless, the authorities made every effort to maintain firm credit controls, which, while not entirely fulfilling their purpose with regard to prices because of minimum wage increases and the Government's deficit spending, seem to have combined with restrictions on imports to produce a surplus in the balance of payments and to bring down the price of foreign exchange sold at auction.

Thanks to the exchange reform and the stabilization measures adopted in *Chile*, the previous rate of growth of both prices and the means of payment, which had been especially rapid in the preceding year, declined very considerably in the course of 1956. The cost of living, which in 1955 had risen by 80 per cent, increased by only 38 per cent in 1956. During 10 months of the latter year, the means of payment expanded by 29 per cent as against 66 per cent in 1955. The exchange rate also displayed relative stability, although monetary reserves at the end of the year seem to have amounted to a rather lower sum than in 1955.<sup>2</sup>

*Colombia's* increasing balance-of-payments difficulties were combined in 1956 with a patent trend towards currency and price instability.

In *Peru*, despite the marked expansion of over-all economic activity observable during 1956, and the favourable evolution of foreign trade, the effects of a rise in the means of payment and in prices were plainly evident.

Lastly, in *Mexico*, whose gross product and gross income continued to grow, the stability of the currency was maintained and that of prices increased. Nevertheless, as the principle consequence of a substantial expansion of imports, the trade balance does not seem to have been as favourable as in 1955.

<sup>2</sup> For a more detailed examination of the new policies pursued in *Argentina* and *Chile*, see "The economic situation in Latin America during the early months of 1956", in the *Economic Bulletin for Latin America*, vol. I, No. 2, Santiago, Chile, September 1956, pp. 12 and 14.

## II. AGRICULTURE

### 1. OVER-ALL SITUATION

Latin American agriculture was affected in 1956 by adverse factors of both external and internal origin, which offset government efforts to expand production and increase productivity. Unfavourable weather conditions caused considerable losses in the majority of countries, their effects being felt in some cases by specific crops, and in others by agriculture and stock-breeding in general over wide areas. Furthermore, in view of the rather unpromising world market prospects created by the accumulation of surplus stocks in various countries and the consequent competition to dispose of them, some of the countries growing such products for export had to take steps to restrict the area under seed. In these circumstances, according to what are still very preliminary data, agricultural production in Latin America as a whole appears to have registered a slight decline—about 1 per cent—in relation to the previous year's good harvest, although it compared advantageously with that

of 1954, which it exceeded by almost 5 per cent. (See table 1.)

As in previous years, it was to production for domestic consumption that most attention was devoted by Governments and farmers, in the desire to make every possible endeavour to meet the growth of demand. Their efforts were rewarded by an increment of approximately 3 per cent in this sector. Thus supplies for the population seem to be ensured at a slightly higher level than the year before, since the *per capita* output was a little larger. This result was influenced by the continuance of a development policy aimed at increasing availabilities of certain foodstuffs and raw materials of which production was insufficient, such as wheat in *Brazil*, *Colombia* and *Mexico*; sugar and rice in *Bolivia* and *Venezuela*, and edible oil seeds in almost all countries.

In production mainly for export, one of the most marked contrasts since the Second World War was registered, since it decreased by 9 per cent in relation to

**Table 1**  
**LATIN AMERICA: QUANTUM INDICES OF AGRICULTURAL PRODUCTION**  
(1950 = 100)

Production	1951	1952	1953	1954	1955	1956
Total agricultural production .....	104.0	101.7	109.8	112.7	119.7	118.0
<i>Per capita</i> agricultural production .....	101.5	96.9	102.1	102.4	106.2	102.3
Production for domestic consumption .....	104.2	100.3	108.5	112.5	118.2	121.8
<i>Per capita</i> production for domestic consumption .....	101.7	95.6	100.9	102.2	104.9	105.5
Production for export .....	103.6	104.0	112.2	113.0	122.2	111.2
<i>Per capita</i> production for export .....	101.1	99.1	104.4	102.6	108.4	96.4
Production of foodstuffs .....	105.2	99.9	111.1	112.9	118.3	119.9
<i>Per capita</i> production of foodstuffs .....	102.6	95.2	103.3	102.5	105.0	103.9
Cereals .....	116.6	88.4	131.0	130.4	138.0	131.2
Roots and tubers .....	105.3	101.7	111.3	118.4	117.7	122.1
Dry pulses .....	99.2	93.9	108.0	119.5	113.8	114.5
Oil-seeds and oleaginous plants .....	115.9	114.6	99.6	106.4	105.7	130.4
Sugar and "panela" .....	106.6	122.8	107.6	109.3	107.4	111.0
Fruit .....	99.3	106.9	109.9	114.5	120.5	127.3
Vegetables .....	100.1	105.4	117.9	123.5	131.3	121.8
Livestock products (meat) .....	98.4	97.8	97.6	97.6	103.9	108.2
Wines .....	94.0	83.2	103.8	91.4	132.1	133.2
Cacao .....	86.3	87.3	92.8	108.2	111.0	108.3
Production of stimulants .....	99.6	107.4	108.3	108.4	122.8	108.3
<i>Per capita</i> production of stimulants .....	97.2	102.4	100.7	98.5	109.0	93.8
Coffee .....	97.5	108.8	107.5	105.5	122.7	105.6
Production of raw materials .....	100.9	107.1	102.7	116.1	125.3	115.8
<i>Per capita</i> production of raw materials .....	98.4	102.1	95.5	105.4	111.2	100.3
Fibres .....	101.9	111.7	103.7	121.5	131.8	122.7
Industrial oil-seeds .....	92.2	69.7	94.7	72.6	73.7	60.1

Source: ECLA, on the basis of official data.

the preceding year, and, if *per capita* production is considered, reached the lowest level in the last 15 years.<sup>3</sup> Almost all export products declined considerably, so that a decided fall in exportable balances for the trade year 1957 may be expected.

Two main factors gave rise to this situation. In the first place, bad weather of various kinds was seriously detrimental to the production of coffee in Brazil and, to a lesser degree, in Colombia, Cuba, the Dominican Republic and Venezuela. The low prices fixed for wheat in Argentina before September 1955 led to a 12.3 per cent reduction of the area under seed, but in addition the unfavourable weather which prevailed throughout the growing season brought production down by 32 per cent. Other crops affected by weather conditions were cotton in Brazil and Mexico; sugar in Cuba; and bananas in Costa Rica.

Secondly, the world market situation described above as arising from the accumulation of surplus stocks in several countries compelled some of the Latin American Republics to concentrate their production in the areas where productivity was highest. The drop in cotton fibre prices and the restriction of credit to marginal producers caused the area under seed in Mexico to decrease by 21 per cent. Producer countries in Central America adopted a variety of measures to limit the area under cultivation. Uruguay, which had become a regular exporter of wheat only some few years previously, reduced the guarantee

<sup>3</sup> The *per capita* production index for the export sector (1950 = 100) was only 95.9 in 1956.

price paid to farmers by 13 per cent with a view to eliminating the less efficient producers. This measure, however, did not have the desired effects, for the area under wheat increased by 4 per cent.<sup>4</sup>

Worthy of mention within the export sector is the partial recovery in sugar. A favourable turn in the world market situation caused by the increase in consumption, enabled Cuba to dispose of some of the surpluses carried over from the 1952 crop,<sup>5</sup> and to extend the area under sugar-cane to a little over 900,000 hectares—a figure between 9 and 10 per cent above that of the previous year. Weather conditions were responsible for the fact that Cuba's sugar production reached only 4.74 million tons, exceeding the volume of the preceding crop by 4.7 per cent. The Dominican Republic was in a similar position. Thanks to the larger quota assigned to it under the International Sugar Agreement, it raised its output to 651,000 tons (6 per cent more than in 1955).

A brief examination of the agricultural situation in individual Latin American countries—which will subsequently be examined in greater detail—gives a clearer idea of the stagnation of production. *Argentina's* output was slightly higher than in 1955, mainly owing to the marked increase in livestock production, which reached a peak level; the agricultural sector, however, felt the effects of the low prices fixed for certain products be-

<sup>4</sup> In 1957 the price has fallen still lower, and the area under seed has decreased by 18 per cent.

<sup>5</sup> Stocks in Cuba on 1 August 1956 had dropped to practically half the volume registered on 31 December 1955.

fore September 1955 and of adverse weather conditions which especially affected winter crops.

In *Brazil* aggregate production fell by 2 per cent, essentially on account of a sharp drop in the output of the country's staple product, coffee. The frosts which ravaged the Parana district in August 1955 and the heavy rainfall in the states of São Paula and Minas Gerais during harvest-time reduced production by 22 per cent. To a lesser extent, production of cotton, cacao, peanuts and rye also decreased. In all other crops, and in livestock production, increments of varying size were recorded.

*Colombia* seems to have made substantial progress in agriculture. Indeed, despite slight decreases in its output of coffee and cotton because of bad weather, significant increases were registered in the banana, rice, tobacco, maize, barley and wheat harvests. Most of these increments are attributable to the use of more advanced techniques and of varieties giving better yields. It should be mentioned that more than 30,000 hectares were sown with improved and hybrid strains of maize. Despite the smaller area under cultivation, the output of wheat rose by about 9 per cent, thanks to the new variety called "Bonanza", which almost doubled the former yield of about 1,800 kilogrammes per hectare. A similar development took place in the case of barley, with the new variety known as "Funza".

In *Chile* agricultural production declined slightly in consequence of the decrease in the area under cultivation and the bad weather which prevailed in various parts of the country. Among winter cereals, barley registered a 13 per cent increment; the remainder—wheat, oats and rye—were grown over smaller areas, owing to the lower real prices received by the farmer. The output of maize and beans rose by approximately 10 per cent, and that of the other dry pulses increased on a smaller scale.

Agricultural production in *Cuba* registered a slight increase of 2.8 per cent, almost entirely attributable to the expansion of the areas under sugar cane and peanuts. The drought which affected the greater part of the country prevented sowings of the remaining crops, which had also been more extensive, from producing the yields expected. Smaller harvests of rice, maize, beans, coffee, potatoes, tomatoes, bananas and henequen were obtained. The drought in question combined with a new disease of as yet undetermined origin to reduce the output of rice by 1.5 per cent, although the area under seed had been 7 per cent larger than in the preceding year. Potatoes were influenced not only by bad weather but also by the accumulation of surpluses carried over from previous crops, which could not be exported because of the contraction of the world market and the fall in prices.

It was in Mexico and Peru that the most striking contrasts in agricultural production were recorded, especially in consequence of the action of adverse weather factors. In *Mexico*, agriculture developed unevenly. In fact, while on the one hand there was a sharp decline in cotton (28 per cent in the output of fibre) and in maize (10 per cent), Mexico's two staple products, as well as considerable decreases in other minor crops,<sup>6</sup> on the other hand, there were significant increments in the production of coffee (31 per cent, according to the

<sup>6</sup> Tobacco, for example, declined by 27 per cent, and chick-peas, centrifugal sugar and peanuts fell by 15.5, 18.2 and 6.3 per cent respectively.

latest available estimate), wheat (36 per cent), linseed (30 per cent), rice (23 per cent), coquito (12 per cent), beans (11 per cent), and, on a smaller scale, in that of other products such as copra, cacao and industrial fibers. Nevertheless, taken as a whole, the country's production decreased by 8 per cent because of the strong influence exerted on the total by cotton and maize. The small output of maize must be attributed to the drought which affected the dry-soil farming area in the northern states.

In *Peru*, agricultural production was seriously affected by the severe drought in the south of the country which caused heavy losses in the Sierra districts. The crops that suffered most damage were potatoes, barley and quinoa. The potato crop of 902,000 tons was 35 per cent smaller than that of the preceding year. Barley declined by 30 per cent and quinoa by 25 per cent. The other products of this zone also registered substantial losses; but it was in livestock production that the most disastrous effects were felt, a large quantity of cattle—including those for breeding purposes—having to be sent to market without being properly fattened. According to a preliminary estimate issued by the Ministry of Agriculture, losses must easily have reached 1 billion soles. Coastal production for export, comprising mainly sugar and cotton, remained stationary.

Most of the countries of Central America enjoyed conditions favourable to agriculture, and although final data are not yet available, it is estimated that agricultural production substantially improved, especially in the case of coffee, sugar, beans and other foodstuffs. The result of government action designed to limit cotton production was a 6 per cent decrease in the output. The production of bananas increased by only 4 per cent in relation to the preceding year.

## 2. SITUATION IN SELECTED COUNTRIES

### (a) *Argentina*

The new agricultural policy and the various incentives provided by the Government from October 1955 onward in order to lift agriculture out of the stagnation—as compared with its pre-war situation—in which it had remained during the last ten years, only partly benefited production in 1955/56. The whole of the winter crops had already been laid in and the ground had been prepared for spring and summer sowings. Moreover, owing to adverse weather conditions, these latter were less extensive than farmers might have wished. Agricultural production in 1955/56—assessed on the basis of provisional data, especially with respect to stock-breeding—seems to have exceeded the previous year's figure by only a very small margin, and that in virtue of the marked increase in livestock production, the number of cattle slaughtered having probably constituted a record for the last 25 years. In fact, aggregate production was 1.4 per cent higher than in 1954/55, and 25 per cent greater than that of 1949/50. (See table 2.)

*Crops.* An analysis of the composition of total production reveals that the crops sector underwent a decided setback both in consequence of the price policy pursued up to September 1955 and because of the weather conditions affecting certain crops. Thus a decline of 4.4 per cent was registered, for which the smaller harvests of winter cereals and industrial oil seeds (linseed) were mainly responsible.



**Table 2**  
**ARGENTINA: QUANTUM INDICES OF AGRICULTURAL PRODUCTION**  
(1950 = 100)

Sector	1950/51	1951/52	1952/53	1953/54	1954/55	1955/56
TOTAL AGRICULTURAL PRODUCTION	108.1	92.9	121.2	118.7	123.4	125.1
<i>Total crops</i> .....	120.1	92.0	142.3	136.5	139.5	133.4
Cereals .....	151.9	80.2	204.7	189.3	179.8	166.6
Roots and tubers .....	120.5	84.6	110.0	130.2	107.0	118.9
Dry pulses .....	107.0	59.9	84.9	115.2	96.4	75.0
Edible oil-seeds .....	139.9	119.8	102.8	86.0	65.7	141.3
Sugar .....	112.4	116.6	128.2	130.4	124.5	134.1
Fruit .....	115.5	102.3	125.0	113.3	146.7	130.7
Vegetables .....	85.9	111.1	140.8	158.9	185.9	131.5
Stimulants .....	118.4	131.6	134.2	129.7	161.6	163.2
Fibres .....	90.8	91.3	96.2	100.9	92.3	89.9
Grapes (wines) .....	90.4	86.5	103.4	83.7	139.7	111.6
<i>Total livestock</i> .....	94.5	94.0	97.3	98.5	105.0	115.7

*Source:* ECLA, on the basis of official data.

The area sown to wheat decreased by 12.3 per cent, covering 5.2 million hectares, but the low yields caused by bad weather brought production down to only 5.25 million tons, that is, 32 per cent below the preceding year's good harvest.

The other winter crops were sown over a somewhat larger area than in 1954/55, but, as in the case of wheat, harvests declined, by figures ranging from 22.3 per cent for rye to 14.5 per cent for oats, owing to unfavourable weather conditions. In consequence of these poor harvests, stocks of wheat and winter feed grains for export and reserve purposes were reduced to the smallest volumes recorded in recent years. The situation was aggravated by the considerable increase in the area sown for 1956/57, which meant—especially in the case of wheat—that export availabilities were still further cut down because more seed was required.

Linseed—which constitutes one of Argentina's staple export items—dropped to its lowest level in the last 40 years. Among the reasons for this was the 9 per cent reduction in the area under cultivation, as well as the poor harvest, which amounted to only 238,000 tons, in comparison with 405,000 in the preceding year and 2.27 million tons in the peak year 1932.

The new agricultural policy adopted as from December 1955, and comprising a sharp rise in prices (see table 3), modifications in exchange policy and freedom of trade, was too late to influence the farmers' decisions as to maize sowings, as the season was already far advanced. Nevertheless, despite the smaller area under cultivation, the harvest exceeded that of 1954/55 by 52 per cent, reaching 3.87 million tons.

The position was very different with respect to edible oil seeds, especially sunflower and peanuts. Price increases of 116 per cent in the former and 80 per cent in the latter case provided farmers with sufficient incentive to take advantage of the land which had not been utilized for maize and even to resort to late sowings in the stubble of the cereal and linseed crops. The sunflower harvest amounted to 754,000 tons—the highest since that of 1950/51—and was 149 per cent larger than the small output of the preceding year. A record

crop of 216,000 tons was registered for peanuts, as against 118,000 tons the year before.

**Table 3**  
**ARGENTINA: GUARANTEE PRICES FIXED**  
**BY THE GOVERNMENT**

*(Argentine pesos per metric quintal f.o.b. Port of Buenos Aires)*

Product	1954-55	1955-56	1956-57
Wheat .....	50.00	70.00	75.00
Maize .....	45.00	70.00	80.00
White oats .....	39.00	56.50	61.50
Yellow oats .....	38.00	55.00	60.00
Rye .....	42.00	50.00	60.00
Barley (for beer) .....	43.00	55.00	60.00
Barley (for feed) .....	39.50	50.50	55.50
Linseed .....	75.00	140.00	165.00
Sunflower .....	60.00	130.00	135.00
Peanuts .....	100.00	180.00	190.00

*Source:* Ministry of Agriculture.

Such satisfactory harvests of both these oilseeds, in addition to an improvement in cotton-seed production, ensured Argentina abundant supplies of raw material for its edible oils industry. It is estimated that the country will probably have an exportable balance of more than 100,000 tons of oil, after three consecutive years in which recourse to imports was necessary.

No significant changes seem to have been registered in the production of other crops during the year under review as a result of the new direction taken by agricultural policy. Some products—most of the dry pulses and fruit—were affected by the severe weather conditions, and output fell by as much as 15 per cent.

*Livestock.* Up to the close of 1955 price relationships between basic crops and livestock production had steadily deteriorated to the disadvantage of the former. A greater impetus had therefore been given to stockbreeding,<sup>7</sup> and in 1956 the largest number of cattle ever recorded in the country—45.4 million head—was attained. Owing

<sup>7</sup> Many farmers who had previously only fattened cattle became stock-breeders, and, furthermore, large areas used for crops—especially marginal land—were turned over to pasture.

to the improvement in agricultural prices in December 1955, to the subsequent increment in May 1956 and to the fact that the price of livestock rose only slightly, price relationships, especially between wheat and cattle on the hoof, were restored to their pre-war level, that is, one metric quintal of wheat to 33 kilogrammes of live cattle.<sup>8</sup> In view of this situation, many farmers, wishing to take advantage of the greater benefits offered by agriculture, began to get rid of their fat stock and in some cases even of their breeding cattle.<sup>9</sup> A marked increase was thus produced in the supply of cattle, which in many cases exceeded demand and slaughtering possibilities, the result being a fall in prices and many difficulties in disposal of cattle on the Liniers market, which supplies Buenos Aires.

The output of beef thus reached peak levels of 2.5 million tons of meat and 11.7 million head slaughtered, which implied a 23 per cent increase over the previous year's already high slaughter figure.

This production, and relatively slight fluctuations in the slaughter of sheep and pigs, meant that the volume of exports of livestock products was 39 per cent larger in 1956 than in 1955.

Livestock production would undoubtedly have attained still higher levels had it not been for the serious difficulties arising from the lack of transport facilities. Many stock farmers could not send their cattle to market because the railways were unable to meet the demand for trucks. It should be pointed out that other sectors of agriculture were similarly handicapped from the same cause.

*Prospects for 1956/57.* The prices fixed by the Government in May 1956 for the 1956/57 harvest provided farmers with a real incentive. Winter sowings were undertaken with unwonted enthusiasm, and significant increases were registered in the area under cultivation for all crops, especially wheat, linseed and oats. The figure reached in the case of wheat was 6.13 million hectares, while in that of linseed the area was practically doubled, rising to 1.3 million hectares. Preliminary estimates of the harvest give grounds for the assertion that in agricultural production a process of recovery has set in, since the wheat crop amounted to 7.13 million tons and linseed to 650,00 tons. On the other hand, maize, which was also sown over an area 17 per cent larger—3.1 million hectares—seems to have been affected by various kinds of bad weather, especially the December drought. It is, therefore, to be feared that the harvest will be a poor one, of 3-3.5 million tons. If this is so, the effect on maize exports will be serious.

#### (b) Brazil

Brazil's agricultural production seems to have declined slightly in 1956 from the high level attained in the preceding year. In fact, its total value, calculated at 1950 prices, amounted to 79.66 billion cruzeiros, that is, 2.1 per cent less than in 1955. Even with this decrease, however, production was maintained at a level 8 per cent above that of 1954 and 21 per cent higher than that of 1950. *Per capita* production was 4.4 per cent lower than in 1955, but remained 5.1 per cent above the 1950 level. (See table 4.)

Table 4  
BRAZIL: QUANTUM INDICES OF AGRICULTURAL PRODUCTION

(Constant values at 1950 prices)  
(1950 = 100)

	1951	1952	1953	1954	1955	1956
Total agricultural production.....	100.1	106.9	107.9	112.0	123.6	121.0
<i>Per capita</i> agricultural production.....	97.8	102.0	100.6	101.9	109.9	105.1
Production for export.....	96.6	110.8	101.2	99.5	121.5	104.2
<i>Per capita</i> production for export.....	94.3	105.7	94.3	90.5	108.0	90.5
Production for domestic consumption....	102.4	104.3	112.2	120.0	125.0	131.8
<i>Per capita</i> production for domestic consumption .....	100.0	99.5	104.6	109.2	111.1	114.5

Source: ECLA, on the basis of official data.

This recession in Brazilian production constitutes a fact of some importance, as for the first time the steady upward trend observable since 1948 was interrupted. Nevertheless, this setback did not imply any serious disequilibrium in the country's agricultural activities as a whole, since *per capita* production remained at a level considerably above the average for the years 1950-54.

*Production for export.* A more detailed analysis of production reveals that the decline indicated was almost entirely due to poor harvests of the three most important

export crops, i.e. coffee, cotton and cacao. Indeed, it was only in these three harvests, together with those of rye and peanuts, that decreases were registered, but the fact that export products carry so much weight in the quantum index brought down the total for the country.

The severe frosts which ravaged the coffee-growing districts in the north of Paraná during August 1955, and the heavy and continuous rainfall which in May and June 1956 affected this area and the states of São Paulo and Minas Gerais, reduced the output of coffee to only 1.07 million tons as against the 1.37 million of the preceding harvest. Thus one of the lowest levels in the last five years was registered.<sup>10</sup> The yield per hectare was only 318 kilogrammes, the poorest, that is, since 1939.

<sup>10</sup> It should be noted that in addition this year coincided with the downswing in the São Paulo coffee cycle.

<sup>8</sup> In some cases, and especially as between oil-seeds and cattle, this relationship favoured crops to a greater extent than that prevailing before the war.

<sup>9</sup> The percentage of cows sold in the Liniers market and on the farms during the first eleven months of 1955 amounted to 43.6 per cent of the total. In 1956 this proportion reached 50.1 per cent.

Such unsatisfactory harvests involved a considerable decrease in the exportable balance for 1956/57,<sup>11</sup> perhaps less than half the abundant 1956 surplus of 23.5 million sacks,<sup>12</sup> which included carry-overs. Precise data have not yet been ascertained, but while the United States Department of Agriculture estimates that production will amount to 12.5 million sacks, the Instituto Brasileiro do Cafe calculates that it will reach only a little more than ten million. In the previous year production for export had stood at 21.3 million sacks.

After a year in which exports attained peak levels for the last quinquennium, Brazil's coffee stocks on 30 June 1956 stood at 7.6 million sacks, including the reserves held by the Government. This figure represented barely 900,000 sacks more than the number available on the same date in the preceding year.

Cotton-growing was not seriously affected by the world market situation and the existence of surpluses both within the country and abroad at the time when the sowing season opened. The Government's policy of guaranteeing a market with a minimum price enabled the area under cultivation to be maintained at virtually the same level as the year before.<sup>13</sup> Nevertheless, the heavy rainfall in the states of São Paulo and Minas Gerais when harvesting was in full swing adversely affected not only the quantity but also the quality of the crop. Brazil's production was only 1.1 per cent less than in 1954, amounting to 423,943 tons of fibre, but the falling-off in quality was so great that the Government had to restrict exports of the higher-grade cottons in order to safeguard domestic supplies.

Cacao production registered its second consecutive decrease after the abundant harvest of 1954, reaching only 154,619 tons in comparison with 162,947 in 1954 and 157,921 in 1955. Here too the decline was due to weather conditions, as the sanitary campaign against "brown rot" successfully controlled its incidence on cacao production.

The other export products—bananas, pineapples, castor oil, tung and sisal—showed increases varying from 9 per cent in the case of bananas to 2 per cent in that of sisal.

*Production for domestic consumption.* The position as regards production for domestic consumption was very different from that of export production, as, thanks to higher productivity per hectare than in the preceding year,<sup>14</sup> harvests increased by 5.5 per cent and livestock production by 5.4 per cent, while the *per capita* production index (1950 = 100) rose to 114.5 as against only 111.1 the year before.

Broadly speaking, this optimum result may be attributed to a 1.1 per cent increment in the area under cultivation, to favourable weather conditions for most products, and to the progressive improvement of farm-

<sup>11</sup> Exports in 1956/57 represent the marketing of the previous farm year's production.

<sup>12</sup> 60-kilogramme sacks.

<sup>13</sup> A partial shift took place in the geographical distribution of the crop, for while the state of São Paulo reduced the area under cultivation by 9.7 per cent, Minas Gerais and Parana in the centre of the country, as well as Rio Grande do Norte and Ceará in the northwest, increased it sufficiently to offset this decline.

<sup>14</sup> In the agricultural sector, 3,499 cruzeiros per hectare in comparison with only 3,377 cruzeiros in 1955 (expressed throughout at constant 1950 prices).

ing techniques, especially with respect to staple items such as rice, wheat, sugar-cane, etc. Other contributory factors were the increased use of fertilizers<sup>15</sup> and the higher degree of mechanization attained.

Most of the crops cultivated for domestic consumption more or less kept pace with the growth of the population, but some easily exceeded this rate. Prominent among these were onions and tomatoes, production of which rose by 20 and 15 per cent respectively, reaching 186,112 tons in the former case and 272,733 in the latter.

Striking advances were made in fruit-growing as a whole, but outstanding progress was achieved in the production of peaches and grapes, which both increased by 17.3 per cent, and of water-melons and figs, with respective increments of 12.3 and almost 10 per cent.

As regards basic foodstuffs, mention may be made of the 10.6 per cent increase in the potato crop and the increment of 9.6 per cent in maize. As in previous years, development policy continued to encourage wheat farming, and a price of 460 cruzeiros per 60-kilogramme sack was fixed, as against the 420 cruzeiros in force at the time of the previous harvest. The area under cultivation, however, seems to have expanded more slowly, and it was only by virtue of a higher average yield per hectare—a record figure of 930 kilogrammes—that production rose 10 per cent above the previous year's level, totalling 1.2 million tons.<sup>16</sup>

Among this group of crops grown for domestic consumption, the only harvests smaller than in 1955 were those of peanuts and barley; production of the former was adversely affected by the low prices consequent upon the previous bumper crop, and the latter registered a much lower yield per hectare because of bad weather.

Sugar production reached 2.1 million tons, a figure slightly below that of 1955 (by 0.6 per cent), although the cane harvest was 4.6 per cent larger. The explanation was that the saccharine content of the cane had been reduced by the abnormally heavy rainfall in certain sectors.

Final figures for slaughter of the various kinds of livestock are not yet available, but according to preliminary estimates livestock production may be assumed to have risen considerably above that of the preceding year—by 5-7 per cent—and to have yielded an exportable surplus of more than 20,000 tons of beef. Moreover, it seems that the reserves of jerked beef in the State of Rio Grande do Sul alone are sufficient to supply the north and north-west of the country up to September 1957.

Within the livestock group, the greatest expansion seems to have been registered in milk production, which rose by 9-10 per cent, attaining an approximate volume of 4.21 billion litres.

Production in 1956 enabled the domestic supply of foodstuffs to maintain a rate of increase similar to that achieved during the last three years; demand, however, apparently grew equally fast or even faster, as, except for the situations of a seasonal nature, prices do not seem to have fallen, and on the contrary, most products registered price increases in excess of the increment

<sup>15</sup> Imports of fertilizers in 1955, mainly for use during the farm year 1955/56, increased by 91 per cent.

<sup>16</sup> The wheat statistics given correspond only to a forecast made some long time before the harvest.

in production costs. Only in the case of potatoes had a part of the crop to be sold at low prices because of its relative abundance and perishable character. The lack of a satisfactory storage system was prejudicial not only to this product but to most of the cereals and other commodities of a semi-perishable type. This situation led to a certain amount of speculation on the part of the intermediaries.

#### (c) *Chile*

In 1955/56, Chile's agricultural production declined slightly—by 1 per cent—in relation to that of the preceding year, mainly in consequence of unfavourable weather conditions which in certain districts affected such products as wheat, rice and citrus fruit. The total area under cultivation was practically the same as in 1954/55, but in the use of the land some modifications took place. Thus, while the area sown to wheat decreased by rather more than 26,000 hectares, totalling 778,950, and rice sowings by 1,500, covering 28,460 hectares, the expansion of the area under oats, barley, maize and dry pulses offset these contractions.

Wheat production fell to 1.05 million tons or by 3.8 per cent; that is, in almost the same proportion as the area under seed. In the south, however, wheat-growing was adversely affected by the abnormally heavy rainfall, owing to which the grain had to be artificially dried, and in many cases its quality deteriorated, large consignments being usable only as feed. This loss was counterbalanced by the good yields obtained in the central and south central zones of Chile.

Rice-planting, in which various fluctuations had been registered since 1946 within a marked downward trend in both production and yields, witnessed its worst year on account of low spring temperatures; from 31.1 metric quintals in 1954/55, yields dropped to only 21.4, and production, which amounted to no more than 61,000 tons, decreased by 35 per cent. Production of sunflower-seed stood at 63,800 tons as compared with 67,800 tons in the preceding year.

Among the crops in which significantly larger harvests were obtained, attention should be called to barley, which attained one of the peak figures for the last 15 years, i.e. 100,700 tons, representing an increase of 12.6 per cent. Also deserving of mention were dry pulses, with a 14 per cent increment attributable to the expansion of the area under seed; and onions and garlic, which thanks to favourable prices and export prospects were more widely grown and yielded harvests larger by 15.3 and 24 per cent respectively.

Small as is the area used for sugar-beet, production is gaining in importance. The volume delivered to the Los Angeles plant was 51,000 tons, as against only 35,600 in the preceding year. The sugar output amounted to 6,680 tons, or more than double the figure reached when production first began, just over three years ago. Beet-growing has aroused enthusiasm among some farmers, especially in view of its advantages from the standpoint of dairy production and the improvement of the soil.

No figures that can give a precise idea of livestock production are as yet available. There are, however, grounds for the statement that it was probably slightly lower than in 1955, especially where cattle were concerned. The competition put up by imports of Argentine cattle—both registered and contraband—and of frozen meat brought

prices down and kept supplies at levels sufficient to meet the needs of the population.

Production of mutton and pork seems to have increased, in the former case as a result of the resumption of exports of frozen meat from Magallanes and in the latter because of the growth of consumption. In fact, in Magallanes' three largest packing-houses the number of sheep slaughtered rose from 215,605 head in 1955 to 315,514 in 1956. The volume of frozen meat obtained increased from 3,620 to 4,678 tons.

The increment in the sheep population was such that despite smaller yields per animal, the clip rose from 19,000 to 21,000 tons.

The dairy products industry continued to develop rapidly from the standpoints of both production and processing. Output increased from 748 million litres in 1955 to 800 million in 1956, and processing improved with the installation of two new dehydrating plants.

As regards Chile's agricultural policy, stress should be laid on the continuance and intensification of the Agricultural and Transport Development Programme, better known as the "Plan Chillán". To this have been allocated additional funds deriving from the sale of agricultural surpluses imported from the United States under the terms of agreements concluded between that country and Chile. Now that the programme has been in operation for three years, it is beginning to yield results, and within the area where it is being implemented a considerable improvement is observable in production and in the productivity of the soil. Production of milk, in 90 per cent of the dairies in this zone, increased by more than 30 per cent. The average yield per cow rose from 5.7 to 9.9 litres. An additional 9,000 hectares were sown to selected fodder crops, and production of seed, formerly nil, reached 200 tons. The area under irrigation was extended by 5,000 hectares, with the consequent over-all benefits.

Price controls have been lifted for the 1956/57 harvest—as they were in 1956—for all agricultural produce, except that a minimum wheat price was fixed as a guarantee for farmers.

The outlook for 1956/57 is not very satisfactory. According to preliminary estimates of the area under seed, there would seem to be a slight contraction in almost all winter crops. Wheat-farming and agriculture in general in the southern zone of Chile have been affected by a prolonged drought which will reduce yields.

#### (d) *Uruguay*

The preliminary statistics available on harvests for the farm year 1955/56 show that agricultural activity in Uruguay remained practically stationary. The provisional index for the quantum of production indicates a slight rise of 1 per cent, which is less than the 1.7 per cent increment in the population.

When agricultural production is divided up into its two component sectors—crops and livestock—it can be seen that in the former the area under seed remained almost unchanged, but that, because of the smaller yields consequent upon a notably dry spring and a very rainy summer, production as a whole decreased by 1.5 per cent. As regards the crops for which more or less final statistics are available, it would seem that slight increases were registered in the production of maize (13.4 per cent,

with an output of 217,719 tons), oats (23.8 per cent and 40,693 tons), canary seed, production of which was practically doubled (with an increment of 86.2 per cent and a volume of 2,707 tons) and peanuts, which, although grown over an area only 3.4 per cent larger than in the preceding year, produced a harvest of 6,776 tons.

Among the crops which contracted in volume, special attention must be called to linseed, the output of which was 23.8 per cent below that of the previous farm year, despite its having been sown over an area 15.4 per cent larger. Price and weather considerations determined a 41 per cent reduction of the area sown to brewers' barley, in relation to the year before; however, thanks to slightly higher yields the harvest was only 37 per cent smaller, attaining a volume of 19,291 tons.

In the face of the world wheat market situation and the heavy losses involved by the high subsidy on this cereal, the Government of Uruguay adopted certain measures to prevent the continued expansion of the crop. To this end the guarantee price was lowered from 16 to 14 pesos, with a view to eliminating from the market those marginal producers who had been growing wheat on very thin top-soils that had been utilized only for pasture previously to 1953/54, the date when the expansion in question began. The results of the measure did not fulfil expectations, as the area under seed was 3.2 per cent larger than a year before, and only on account of a slight deterioration in yields did the output stand 13,600 tons below the preceding harvest's 853,600 tons. No major difficulties as to disposal arose, and the whole of the exportable surplus was sold, most of it—320,000 tons—to Brazil, under the terms of the bilateral agreement signed by these two countries in 1954. Other consignments found markets in Bolivia, Czechoslovakia, Ecuador, Switzerland and Yugoslavia.

In the stock-breeding sector, production only partially improved despite the measures adopted to accelerate recovery, and it is still far below the levels reached at the opening of the present decade. In fact, the over-all agricultural census of 1956 shows that stocks of cattle amounted only to 7.3 million head in comparison with the 8.1 million head registered in the 1951 census. In the sheep population, which totalled 22.95 million head, a slight decrease of 450,000 was also recorded. This shows that the marked increment in agricultural production since 1953/54 has been achieved mainly at the expense of stock-breeding.

### III. INDUSTRY

Latin America's industrial production in the first six months of 1956 stood at levels somewhat higher than those recorded for the same period in 1955. An estimate based on statistics for five countries<sup>20</sup> which account for about 80 per cent of the region's industry gives grounds for the assumption that the increase in the volume of industrial production in the course of the year did not greatly exceed the growth of the population. The contraction in Brazil's industrial output during the second quarter of the year, which was not offset by any vigorous expansion of that of the other countries—except in the

<sup>20</sup> Argentina, Brazil, Chile, Mexico and Venezuela.

Although final statistics are not available, the output of beef seems to have been slightly larger than that of the previous year, thanks to various government measures relating especially to slaughtering in the inland districts and to the unregistered cattle trade with Brazil.<sup>17</sup> To judge from the cattle slaughtered in establishments supervised by the authorities, in 1956<sup>18</sup> the figure for slaughtering may possibly be as much as between 580,000 and 600,000 head, in comparison with only 522,953 in 1955 and approximately 800,000 in normal periods.

Finally, it should be pointed out that meat exports also rose substantially, and that the wool clip increased from 93,000 to 95,000 tons during the year under review.

*Farm year 1956/57.* At the beginning of this period the Government of Uruguay intensified the measures aimed at substantially reducing wheat production and accelerating the sowing of fodder crops, in accordance with its livestock recovery programme. The price of wheat was fixed for this year at 13 pesos per metric quintal, but subsidies of various kinds were established to promote its cultivation by farmers possessing up to a maximum of 300 hectares and growing this cereal on 150 hectares. The fact that these subsidies were granted only to farmers who had grown wheat in previous years discouraged the extension of wheat-growing to land which had been used for other branches of farming. After the sowing season, on account of increases in production costs, the minimum price again rose to 14 pesos.

The effects of this policy did not fail to make themselves felt almost at once, as the area under wheat declined by almost 18 per cent, falling to only 656,986 hectares. Part of the land left available in this way was taken up by other winter crops. For example, the area under brewers' barley—which has substantial export prospects at good prices—almost doubled, totalling 43,783 hectares,<sup>19</sup> and that sown to linseed—which also has export possibilities—expanded by 44 per cent. When all the winter crops are taken into account, it would seem that the total area under cultivation decreased by 4.5 per cent.

<sup>17</sup> Slaughtering in the inland districts was reduced by 20 per cent. According to some sources, illicit exports of cattle from Uruguay to Brazil are estimated at about 300,000 head annually.

<sup>18</sup> Statistics for the first 8 months of the year.

<sup>19</sup> If this preliminary estimate is confirmed, the area indicated will represent the largest known to be used for this crop in Uruguay.

case of Mexico—was undoubtedly the cause of this low increment in the total output for Latin America as a whole. And although early in the second half of the year some degree of recovery was to be noted in Brazilian manufactures, it seems very likely that by the end of 1956 Latin America's industry had not succeeded in attaining the same development rates as in the two preceding years.<sup>21</sup>

The volume of production expanded by 6 per cent in *Argentina* during the first half of the year in relation

<sup>21</sup> Seven per cent in 1954 and 6 per cent in 1955.

to the same period in 1955. The index remained steady until August, but as from September it began to fall, on account of wage strikes which brought production to a standstill for several weeks in some sectors. The metallurgical sector was one of the most seriously affected. Demand was active, especially as from February, in which month an over-all 10 per cent increase in the minimum wage was granted; this proved on an average much larger, because of the raising of women's wages to equal men's. But while industry met with no sales difficulties, it was faced with financing problems, in view of the credit controls maintained by the Government with the aim of checking inflation. These difficulties were aggravated by the rise in the price of raw materials due to the modification of the exchange rates. Balance-of-payments problems prevented the importation of the necessary capital goods, so that no substantial expansion of productive capacity was possible. Where installed capacity was concerned, the restricted supply of energy, as in previous years, constituted a serious limitation.

In *Brazil*, production declined in several of the sectors manufacturing consumer goods. The rise in the cost of living weakened domestic demand, and some industries—especially textiles and footwear—were obliged to reduce their rate of production in view of the exceptional accumulation of stocks. This circumstance, and the fact that several sectors of Brazilian industry had attained so high a degree of development that the home market was beginning to prove too small, induced industrialists to seek a remedy for this situation by sales promotion and the opening-up of new markets. The Government, in its turn, endeavoured to encourage exports. In fact, in May 1956,<sup>22</sup> manufactured goods were placed in a higher preferential exchange category, on condition that domestic raw materials and labour accounted for not less than 70 per cent of production costs. In industries producing capital goods and other basic manufactures, such as chemicals, the dynamic impetus of the last three years did not slacken. The imperative need for import substitution continued to provide a strong incentive, encouraging the growth of productive capacity, and rendering the country an attractive field for fresh investment in these branches.

Industrial production in *Mexico* made steady progress in 1956. Demand for manufactured products, especially capital goods, rose above the already high 1955 levels. The output of iron and steel and the generation of electric energy—which are alike highly sensitive barometers of industrial activity—increased during the first nine months of the year by 19 and 11 per cent respectively over the figures for the same period in 1955.

In *Chile*, on the other hand, there was an accentuation of the downward trend observable since the last quarter of 1955. The failure of salary and wage adjustments to keep pace with the rise in the cost of living, and the severe credit restrictions imposed, considerably weakened real demand. Industrial sales in June—valued in pesos of constant purchasing power—amounted to 85 per cent of the figure for December of the preceding year. Logically, the rate of production was bound to decline, as towards the end of the first quarter the manufacturers had considerable stocks on their hands. According to estimates, during the first six months of 1956 the level

<sup>22</sup> See Instruction No. 131, issued by the Superintendencia da Moeda e do Crédito (SUMOC).

of production fell 7 per cent below that prevailing in December 1955,<sup>23</sup> a situation which tended to persist in July and August. The falling-off in production led to a decrease in industrial employment, which in the aggregate was calculated as amounting to 10 per cent of the figures registered at the end of 1955.

An appraisal of manufacturing activities in *Peru* during the first nine months of 1956 proves encouraging, as it is clear that some degree of expansion took place. Nevertheless, some of those sectors of industry producing consumer goods—especially textiles—passed through a highly critical period, mainly brought about by the effects of foreign competition. For purposes of protection, tariff duties on imported textiles were raised by 20 per cent. Construction, vigorously active in previous years, began to weaken somewhat, especially in the public sector, as the Government cut down its public works programme with a view to the elimination of all inflationary pressure.

*Uruguay's* industry continued to be affected throughout the whole of the first half of 1956 by the same unfavourable factors as are analysed in another of this secretariat's studies relating to the preceding year.<sup>24</sup> These factors are in essence the excess of productive capacity in relation to domestic consumption and the gradual contraction of demand as the cost of living rises;<sup>25</sup> competition from similar goods of foreign origin; and high production costs, which lead to export difficulties. The decline in sales noted in the course of the first six months of the year was accompanied by a slackening of the rate of the productive process, and this in turn resulted in some sectors in a reduction of working hours and even in some degree of disemployment.

Industrial production in *Venezuela* in the first half of 1956 exceeded the levels attained in the corresponding six months of the preceding year. Virtual self-sufficiency was attained in several lines and for textiles and ready-made garments, certain processed foodstuffs such as sugar, paints, etc., the market even reached saturation-point. On this account, producers applied for tariff protection to avoid competition from imported goods. Construction does not seem to have displayed the same activity as in the last two years, although in the private sector some expansion was registered.

It should be pointed out that the strongest impetus in Latin America's industrial development during the first nine months of 1956 was to be noted in the capital goods sector. Industries producing consumer goods made relatively less progress. The iron and steel industry improved its output by 10 per cent during the first half of the year in relation to the same period in 1955. The increase was particularly large in Mexico, but sizable increments were also registered in Brazil and Chile. The boom in Mexico assumes substantive proportions. In fact, the steel mills worked at higher capacity than in 1955,

<sup>23</sup> According to the Departamento de Estudios Económicos de la Sociedad de Fomento Fabril.

<sup>24</sup> See *Economic Survey of Latin America, 1955* (E/CN.12/421), United Nations publication, Sales No.: 1956.II.G.1, page 59.

<sup>25</sup> It would seem that this aspect is tending to become more serious, because in the process of capital formation industry is attempting to lower costs by means of an increase in production which gives rise to still keener competition, on account of this expansion of supply. Undoubtedly, only by a well-established export trade could the situation be modified.

and by the end of the year 845,000 tons of ingots had been produced, implying a 17 per cent increase in relation to the preceding year. Mexican industry continued to receive encouragement from the authorities. In Chile, more than 130,000 tons of finished iron and steel products were manufactured at Huachipato in the first half of the year, an output which, if the period covered is taken into account, was the largest obtained since the entry into operation of this integrated mill. Sales on Chile's domestic market dropped sharply, especially during the second quarter, and deliveries within the country amounted to only 81 per cent of the volume programmed, which was some 77 per cent of total production. Alongside the decline of the domestic market, shipments abroad gradually increased, and purchases were made not only by Huachipato's regular customers—Argentina, Peru and Uruguay—but also by other countries such as the United States, the United Kingdom, Canada, Brazil, Colombia and Cuba.<sup>26</sup>

The growth of demand in the mechanical and metallurgical transforming industries outstripped that of iron and steel production, especially in Argentina, Brazil and Mexico. Chile constituted the exception among the main Latin American producers. The most important advances were made in Brazil, especially in the heavy

<sup>26</sup> World demand for iron and steel products remained high, and although increments in production were registered in almost all countries they were not as a rule sufficient to meet requirements.

mechanical industries and the progressive manufacture of motor vehicles. The entry into production of the new textile machinery plant in the state of Hidalgo was the major event recorded in Mexico in the sector concerned.

Cement manufacturing also expanded, and it seems very probable that by the close of the year production in Latin America must have exceeded 12.5 million tons, a very considerable reduction being recorded in imports, which in 1955 had reached more than 600,000 tons.

The chemicals industry was active, especially in Argentina and Brazil. In both countries steady progress is being made towards the production of increasingly complex articles, which call for advanced techniques and high capital density. The manufacture of synthetic resins is a case in point; this expanded considerably in Brazil, where it is likely that more than 20,000 tons were produced by the end of 1956.

Paper and its main raw material—pulp in all forms—also benefited by the satisfactory volume of demand, and, broadly speaking, the mills operated at high levels of activity. In contrast, over-production was to be observed in the textile and footwear industries in the larger countries, as the result of a falling-off in domestic demand. It must, however, be recognized that in recent years production capacity has grown faster than effective demand in several of the countries concerned, and that the export trade alone could provide an adequate outlet for such surpluses.

#### IV. FOREIGN TRADE<sup>27</sup>

##### 1. EXPORTS AND IMPORTS

Latin America's foreign trade attained a higher level in 1956 than in 1955, with increments of approximately 6 per cent in the total value of exports and 5 per cent in that of imports. (See table 5.) Thus, the region's trade balance showed a slightly larger surplus in the year just ended, being estimated at some 892 million dollars as against the 763 million registered in 1955. At the same time, it is calculated that Latin America as a whole succeeded in increasing its total reserves of gold and foreign exchange, and although figures for the end of the year are not available, it is worth while noting that on 30 September an increment of about 200 million dollars was shown.

Table 5

LATIN AMERICA: TOTAL FOREIGN TRADE VALUES AND TRADE BALANCES  
(Millions of dollars)

	1955	1956 <sup>a</sup>	Percentage variation 1956/55
Exports f.o.b. ....	7,974	8,480	+ 6.3
Imports c.i.f. ....	7,211	7,588	+ 5.2
Balance .....	763	892	+16.7

Source: ECLA, on the basis of official data.

<sup>a</sup> Preliminary statistics, based on data for 10 or 11 months.

The conditions under which the foreign trade of the Latin American countries develops differ widely even among traditional exporters of similar products. However, broadly speaking, it may safely be asserted that the increase in the value of the region's total exports was mainly due to their larger volume, and only to a slight extent, and in the case of some few products, to an improvement in prices. Consequently, final statistics may very probably indicate a moderate deterioration in the terms of trade, as during the major part of the year import prices have shown an obvious upward trend, especially for purchases from the United States.

On the export side, special attention should be drawn to the expansion achieved by Cuba, Venezuela, Mexico and Peru, next in order of magnitude being the increments in the sales abroad of Brazil, Chile, Uruguay and the Central American republics. On the other hand, a decline was registered in exports from Colombia, which was perhaps the country most handicapped by unfavourable conditions. In fact, not only did the value of its exports decrease, but in addition that of its imports rose slightly, the result at the close of the year being a trade deficit more than 50 per cent higher than that of 1955. Consequently, by the end of 1956 Colombia's trade arrears reached the unwonted figure of 300 million

<sup>27</sup> The present article includes the preliminary estimate of the figures attained in the trade of all the Latin American countries during the year under review, together with some remarks on the geographical distribution of this trade in the interval between 1954 and the first half of 1956. In this latter context, table 6 below relates only to twelve countries which account for 85 per cent of total trade in both directions.



dollars, approximately equivalent to the value of 6 months' imports. In contrast, Brazil's trade balance in 1956 showed a surplus of about 300 million dollars (almost three times as large as in 1955), attributable to the combination of a moderate expansion of exports with a substantial contraction of imports. In Argentina very slight changes were registered between 1955 and 1956, but as the decrease in imports was relatively greater than the falling-off in exports, a small reduction of the deficit in the trade balance resulted.

It is well known that the major share of Latin America's exports is concentrated in a small number of basic products, some of which have to face keen competition with similar goods from other parts of the world. Consequently, in most cases world market conditions constitute the factor determining fluctuations in the volume and value of Latin America's exports. During 1956 these conditions were on the whole favourable to the sale of Latin America's basic export products. It was possible for petroleum, copper, iron ore, wool, meat and sugar to be exported in increasing quantities; a decisive contribution was thus made to the increment noted in the total value of exports, despite the lower prices quoted for some export products, especially meat. In the two most outstanding cases where the volume exported substantially decreased (wheat from Argentina and coffee from Colombia), this development was due to the smaller exportable surpluses produced by the countries concerned. In other instances, like that of cotton, on which heavy pressure was brought to bear by the United States surplus disposal policy, the weakening of the foreign market was mainly reflected in a fall in prices, limited, moreover, to those staples which compete most directly with United States cotton. Only in Brazil did the lower prices coincide with a contraction of the volume exported, also on account of a smaller harvest. In Peru, on the other hand, not only did the volume of exports increase, but there was also an improvement in the prices of certain varieties of cotton (the long-staple fibres).

As has already been stated, imports expanded slightly less than exports, their growth being accounted for mainly by Mexico, Cuba, Venezuela and Peru, and to a smaller extent by Colombia, the Dominican Republic, Ecuador and the Central American countries (with the exception of Honduras), while total purchases declined in Brazil, Uruguay, Chile and Argentina. However, the detailed information needed is not yet available, and the changes which have taken place in the composition of imports cannot be determined with precision.

## 2. TRADE BY MAIN GEOGRAPHICAL AREAS

In the brief period reviewed here no important changes are to be noted in the geographical distribution of Latin America's foreign trade. The United States maintained its predominant position in trade in both directions, a fact which becomes clearly explicable if it is recalled that two products which alone represent almost 50 per cent of Latin American exports—coffee and petroleum—find their largest market in that country. For two other commodities—sugar and copper—the United States market is also of decisive importance, but the part played by other markets has gained in significance during the last three years, under the influence of specific factors, such as the greater demand for sugar in

European countries<sup>28</sup> and the higher copper prices quoted in the London as compared with the New York market in 1955 and part of 1956.

Although in relative terms few changes are to be noted in exports to the United States, there were fairly wide fluctuations sometimes in the volume and sometimes in the prices of coffee exports. These fluctuations, however, tended to cancel one another out, so that their effects on foreign exchange income in Latin America as a whole were relatively moderate. For other products the market in general remained stable, though a steady increase in shipments of petroleum, iron ore and wool was to be observed during 1956. Cacao is perhaps the only product sold to the United States whose export values have uninterruptedly declined since 1954. In 1956 the lowest figure in recent years was registered.

The share of imports from the United States within Latin America's total purchases abroad increased slightly during 1956, this increment coinciding with a certain falling-off in imports from the countries of the region itself. The fundamental reason for such a change lies in the purchases of United States surpluses (wheat, cotton, and edible oils) effected under the favourable terms offered by the surplus disposal programme which recently came into operation. However, the greater part of the region's imports from the United States consists of machinery (including motor vehicles), chemicals and iron and steel products, for all of which (with the exception of automobiles) slight increments were registered in 1956. In the textiles group a decline took place, undoubtedly as a result of the protectionist measures applied by almost all the Latin American countries in the interests of their local industries.<sup>29</sup>

As can be seen in table 6, trade with the Western countries of Europe showed no marked fluctuations in any direction. Clearly, there were minor changes in trade with certain countries, mainly on the imports side. These modifications were largely due to the amount and to the debit or credit nature of the balances in the bilateral accounts within which the principal Latin American countries conduct their trade with Europe. At the beginning of August 1955, Brazil launched a movement aimed at imparting greater flexibility to its trade with this area, by setting up with four European countries a limited convertibility régime (The Hague Club), to which other countries subsequently acceded. This constitutes a recognition of the advantages which may derive from the system, despite the fact that there has been no net increment in trade with the member countries, but rather a contraction and re-distribution of such trade. In mid-1956 Argentina adopted a similar procedure with the majority of the western European countries (the so-called Paris Club), but the negotiations for putting it into full effect have taken longer than was foreseen, on account of the failure of certain countries to reach agreement on the settlement of outstanding debts.

<sup>28</sup> The reform of the sugar law in the United States reduced Cuba's percentage share in the increase in annual consumption of this product in the former country. Nevertheless, Cuba's exports to this market were higher in 1956 than in the preceding year, owing to the increments in the over-all quotas allocated by the United States Department of Agriculture to foreign areas. More significant was the expansion of exports to certain European countries, such as the United Kingdom (where rationing came to an end), Japan and the Soviet Union.

<sup>29</sup> Peru and Venezuela provide the most recent examples of this protectionist policy, which has already been in force for many years in other Latin American countries.



**Table 6**  
**LATIN AMERICA: FOREIGN TRADE OF SELECTED COUNTRIES,<sup>a</sup> BY MAIN AREAS**  
**OF ORIGIN AND DESTINATION**  
*(Percentages of total value)*

	1954		1955		1956
	January- June	July- December	January- June	July- December	January- June
<b>A. Exports</b>					
Countries of destination:					
United States .....	42.0	39.6	41.8	43.3	44.6
Canada .....	1.0	1.0	1.0	1.1	1.0
Western Europe .....	31.6	31.3	30.5	29.7	30.4
Germany .....	(6.7)	(6.4)	(5.5)	(4.8)	(6.4)
United Kingdom .....	(7.7)	(7.6)	(8.1)	(8.2)	(8.5)
France .....	(3.2)	(2.5)	(2.0)	(1.7)	(2.5)
The Netherlands .....	(3.5)	(3.5)	(3.8)	(3.9)	(3.9)
Belgium .....	(1.7)	(1.7)	(1.5)	(1.6)	(1.2)
Italy .....	(1.8)	(2.2)	(2.8)	(2.4)	(1.8)
Other countries .....	(7.0)	(7.4)	(6.8)	(7.1)	(6.1)
Soviet Union and Eastern Europe	1.6	1.5	1.3	1.3	1.0
Japan .....	2.6	2.8	2.0	2.1	2.3
Other Asiatic countries .....	0.8	0.8	0.4	0.4	0.4
Latin America <sup>b</sup> .....	10.6	13.4	12.1	12.6	9.5
Total value (millions of dollars)	3,329.9	3,353.3	3,188.3	3,543.2	3,552.6
<b>B. Imports</b>					
Countries of origin:					
United States .....	46.4	44.5	44.2	43.2	47.9
Canada .....	2.5	2.3	2.1	2.1	1.9
Western Europe .....	31.3	28.8	32.2	29.8	29.7
Germany .....	(8.2)	(6.8)	(7.5)	(6.9)	(8.2)
United Kingdom .....	(5.2)	(4.4)	(5.3)	(4.4)	(4.7)
France .....	(3.8)	(3.9)	(4.1)	(3.4)	(2.5)
The Netherlands .....	(2.5)	(1.7)	(2.4)	(2.2)	(2.7)
Belgium .....	(1.8)	(1.7)	(1.8)	(2.0)	(1.6)
Italy .....	(1.9)	(2.7)	(3.4)	(2.7)	(2.6)
Other countries .....	(7.9)	(7.6)	(7.7)	(8.2)	(7.4)
Soviet Union and Eastern Europe	0.8	1.7	1.5	2.6	1.8
Japan .....	2.2	2.9	2.5	2.8	3.2
Other Asiatic countries .....	1.8	2.4	1.6	2.6	0.9
Latin America <sup>b</sup> .....	14.1	16.6	14.4	15.4	12.6
Total value (millions of dollars)	2,899.8	3,336.4	3,129.2	3,195.7	3,196.0

*Source:* ECLA, on the basis of official foreign trade statistics.

<sup>a</sup> Including Argentina, Brazil, Chile, Colombia, Ecuador, Peru, Uruguay, Venezuela, Mexico, the Dominican Republic, El Salvador and Panama.

<sup>b</sup> Including only the intra-regional trade of the selected countries.

*Note:* Figures in parentheses are provisional.

The volume of transactions with two other groups of countries—the Soviet Union and Eastern Europe on one hand, and Japan and the rest of Asia on the other—is very small. Trade with the former group was most active on the part of Argentina and Brazil (which export mainly coffee, wool and hides, and import machinery and fuel), and of Cuba, which in 1955 exported a sizable tonnage of sugar to the area in question. With Japan and the rest of Asia trade flows were slightly more intensive; the steady growth of imports from Japan is worthy of special mention.<sup>30</sup>

Finally, stress should be laid on the decline of inter-Latin-American trade in 1956. Apart from the obstacles which have traditionally hampered intra-regional trade and which have been analysed in detail in various ECLA

<sup>30</sup> On such trade see the article in this same number of the *Bulletin* on "Recent developments and prospects in trade between Latin America and Japan".

documents,<sup>31</sup> influence was also exerted in 1956 by two important facts. The first was the considerable decline in Argentina's exportable balance of wheat, which is of great importance in trade with Brazil; and the second was the introduction of exchange reforms in Argentina and Chile which have given rise to maladjustments in the quotations for the units of account used in trade between these two countries. A third circumstance, to which attention has already been called, is the increase in imports of United States surpluses.

<sup>31</sup> See especially *Study of inter-Latin American trade* (E/CN.12/369/Rev.1), United Nations publication, Sales No.: 1956.II.C.3, as well as the documents presented to the First Session of the Trade Committee of the Economic Commission for Latin America, held in Santiago, Chile, in November 1956. These documents, together with the Report of the Trade Committee, have been compiled in a volume now in press under the title of *Inter-Latin American trade: current problems* (E/CN.12/423).

### 3. THE TREND TOWARDS MULTILATERALISM

In effect, the majority of the Latin American countries conduct their trade on virtually multilateral bases, either because, like the group in which Cuba, Mexico, Peru and Venezuela may be included, they apply no system of exchange restrictions, or because their export products are mainly destined for the United States market and the proportion disposed of in non-convertible currency markets is consequently very modest (as is the case with the group comprising Colombia, Ecuador and the Central American countries). The countries forming a third group, small in number but representing about one quarter of the total value of Latin American trade (Argentina, Brazil and Chile), have in recent years maintained the bilateral régime for a fairly considerable share of their foreign trade, although during the last eighteen months this system has partly given place to multilateral practices in the countries in question.

The trend towards the introduction of such multilateral practices in bilateralist countries was the most salient feature of Latin American trade during the period just ended.

Brazil opened this movement with the agreement concluded with four European countries in August 1955 on the creation of the "limited convertibility area" to which reference was previously made.<sup>32</sup> Under this régime, the Banco do Brasil centralizes in its accounts the foreign exchange export earnings of the signatories to the agreement. A proportion of this foreign exchange is allocated to the amortization of debts and payment for official imports. The rest is sold to importers through the auction system in force, and when the demand for any currency exceeds availabilities, the Bank itself makes the necessary conversion. Thus the foreign exchange accruing from exports to any one of the members of the Club can be used to finance imports from any other of the contracting parties, a system whereby the rigidity characteristic of bilateral trade is largely eliminated. It would seem that after being in operation for more than a year, the agreement has proved to work satisfactorily, and three other European countries have subscribed to it, while negotiations for the accession of new members have already reached an advanced stage. Thus the limited convertibility area has been gradually widened, whereas the number of countries with which the bilateral system is still maintained is being progressively reduced.

It should be pointed out, however, that in the first six months of 1956 the volume of Brazil's trade with the four original European member countries of The Hague Club was smaller than during the corresponding period of 1955, before the agreement came into existence, and that this decline was relatively sharper than the falling-off in trade with the other countries of Western Europe. This development can be attributed partly to the reduction of Brazil's total imports in 1956 resulting from

a more restrictive bank credit policy, and partly to the fact that a certain proportion of the foreign exchange obtained was used for the amortization of debts; this proportion was undoubtedly greater in the first six months of 1956, on account of the temporary standstill in cotton exports.

During the first half of 1956 Argentina concerted with most of the Western European countries an agreement similar to that concluded by Brazil, to which effect consolidation of the trade debts outstanding on 2 July of the same year was agreed upon in the preliminary negotiations. Time has gone by, but the régime has not yet come into operation, because some European countries decided to make their final accession to the Agreement conditional upon the previous settlement of certain problems at present awaiting solution, in connexion with investments placed by these same countries in Argentina. However, the fact that this country has taken the necessary steps to establish a considerable share of its foreign trade on multilateral bases is of great importance within the trend towards multilateralism already pointed out, precisely because Argentina is one of the countries with the longest tradition of bilateral trade.

The reform of the exchange rate and foreign trade regulations adopted by Chile in April 1956 greatly simplified the complicated payments mechanism hitherto maintained by this country. Thus the various restrictions burdening the import trade gave way to a system of schedules of authorized imports, for which prior deposits of varying percentages had to be placed in the Banco Central. After this reform an agreement was signed in November 1956 whereby clearing-account trade with Germany was abandoned in favour of a system of payment in convertible currencies. Chile's bilateral trade was thus confined to four countries (Argentina, Brazil, Ecuador and Spain); and its trade with Germany, which before that date had belonged to the clearing-agreements group, was switched over to the multilateral area, with a volume that in 1956 exceeded the trade registered with any of the other four countries in the group.

The foregoing notes constitute a brief summary of the progress towards multilateralism achieved by three Latin American countries in their trade with Europe. The same aspiration can be observed within inter-Latin-American trade, although the difficulties that have to be overcome in this case are undoubtedly greater because of the competitive character of the exportable products of some countries in the region. In any event, as must be emphasized here, the recent discussions of the Trade Committee of the Economic Commission for Latin America clearly revealed that the time had come to leave behind the phase of strict bilateralism through which inter-Latin-American trade has passed, and the Governments Members of the Commission represented at the Committee adopted resolutions on the preparation of preliminary studies for the concerting of multilateral agreements within Latin America.

<sup>32</sup> See "Trade by main geographical areas", p. 12.

# CHANGES IN EMPLOYMENT STRUCTURE IN LATIN AMERICA, 1945-55\*

## INTRODUCTION. DEMOGRAPHIC BACKGROUND<sup>1</sup>

The annual rate of growth of the population is higher in Latin America than in any of the other large regions of the world. At the same time, the gross product also increased very rapidly during the decade 1945-55, when it grew by about 60 per cent, so that the *per capita* gross product rose during this period by 26 per cent, i.e., at an average rate of 2.3 per cent per annum; during the last five years, however, its growth displayed a tendency to slow down. This process of development was accompanied by significant structural transformations, probably more rapid and far-reaching than had been recorded during any of the previous decades. Such transformations found their pre-eminent expression in changes in employment structure. The analysis of changes of this kind is therefore important for an understanding of the general economic development of the region during the last ten years.

Before embarking upon systematic discussion of the structure of employment, it may be useful to give some prior account of the main demographic trends observable in Latin America during the period under consideration.

It should be noted, first, that not only was the rate of growth of the population exceptionally high in Latin America, but that, furthermore, it has steadily risen during the last quarter-century, from 18.6 per mil in 1930-35 to 24.2 per mil in 1950-55. (See table 1.)

The rising rate of population growth in the region is due to systematically falling death-rates, together with fairly constant birth-rates, which in some cases have even been increasing during the past decade. The result is that while during the decade 1925-35 the population of Latin America augmented by about one-fifth (20.8 per cent), it increased during 1945-55 by more than one-quarter (26.7 per cent).

It must be pointed out that the period 1925-30 was one of large-scale immigration from overseas, with the result

that the increase in the population during this period was slightly higher than during the following decade, when immigration to Latin America virtually ceased to be a factor appreciably contributing to demographic expansion.

Table 1

LATIN AMERICA: AVERAGE ANNUAL RATE OF GROWTH OF THE POPULATION DURING THE LAST THREE DECADES, BY 5-YEAR PERIODS

Period	Increase		Annual rate of growth per mil
	Millions	Percentage	
1925-30 .....	9.7	10.3	19.9
1930-35 .....	9.8	9.5	18.6
1935-40 .....	11.0	9.8	18.8
1940-45 .....	14.3	11.5	22.1
1945-50 .....	17.0	12.4	23.7
1950-55 .....	19.7	12.7	24.2

It is also important to note that among the great regions of the world, Latin America has one of the lowest proportions of people of working age, i.e., 15 to 64 years old. This implies that the maintenance of those unable to work constitutes a heavier burden on the active population than in most of the other regions.

However, there are also certain advantages attaching to the age composition of the Latin American population. It comprises an exceptionally high percentage of children and adolescents below 15 years of age, and among people of working age there is a marked prevalence of young age-groups. Thus, the economic disadvantages of a low proportion of people of working age are at least partially compensated by the high degree of mobility of labour and the adaptability of the labour force to structural changes within the economy.

Another salient demographic feature of Latin America is the very rapid process of urbanization. The rate of growth of the urban population<sup>2</sup> in 1945-55 was probably

\* The present article seeks to indicate the nature and significance of the changes which have taken place during the last decade in the structure of employment in Latin America. After a brief exposition of the demographic background, the body of the article is divided into two main sections, dealing with employment structure and its changes first on general lines and secondly in relation to the main sectors of the economy. Section I comprises a description of general employment structure around 1950, an examination of the employment pattern observable in individual countries of Latin America, and an indication of the alterations in employment structure during the decade 1945-55, with a subsequent analysis of facts related to the productivity of manpower in the main economic sectors and of the trends to be noted in the changes that have occurred. In section II the situation as to the labour force and its changes is discussed in relation to agriculture, mining, industry and services, and finally, consideration is given to the characteristics of Latin American urban employment and to the principal tendencies observed during the past decade. By way of conclusion, an attempt is made to qualify all the changes indicated from the standpoint of their relative influence on economic growth, and to determine whether this latter development was adequately balanced.

<sup>1</sup> The twenty Latin American Republics, with an aggregate population in 1950 of 155.3 million, including sylvan population.

<sup>2</sup> The definition of urban population in Latin America is not uniform. In this article an attempt has been made to use, wherever possible, a uniform criterion for measuring the urban population in various countries, localities with over 1,000 inhabitants being considered as "urban". This definition of urban population applies to figure I and table 29, except in the case of Colombia and Mexico, where localities with over 1,500 and 2,500 inhabitants respectively are considered as "urban". In the case of Cuba, in the 1953 census, as distinct from previous censuses, localities with over 1,000 inhabitants and having certain urban characteristics are apparently considered as urban. Accordingly, urban growth in Cuba between 1943 and 1953 was probably in fact greater than the figures presented would suggest, while rural population growth was even less pronounced. When the historical

higher than during the previous decades. It was, indeed, so rapid that from 1945 to 1955 urban population expanded by as much as 43 per cent, while total population increased by about 27 per cent and rural population by less than 17 per cent. (See tables 2 and 3.)

**Table 2**

LATIN AMERICA: RURAL AND URBAN POPULATION, 1925-55<sup>a</sup>

Year	Total population <sup>b</sup> (Millions)	Rural population		Urban population	
		(Millions)	(Percentage)	(Millions)	(Percentage)
1925....	92.8	61.9	67	30.9	33
1935....	112.3	72.6	65	39.7	35
1945....	137.5	83.9	61	53.6	39
1950....	154.5	89.8	58	64.7	42
1955....	174.1	97.7	56	76.4	44

<sup>a</sup> Estimates.

<sup>b</sup> Excluding sylvatic population in Bolivia, Panama and Peru, and recent additions to total population figures for Chile to compensate census omissions.

**Table 3**

LATIN AMERICA: GROWTH OF RURAL AND URBAN POPULATION, 1925-55<sup>a</sup>

Year	Total population <sup>b</sup> (Annual rate of growth per mil)	Rural population		Urban population	
		Increase (in millions)	Annual rate of growth per mil	Increase (in millions)	Annual rate of growth per mil
1925-35 ....	19.2	10.7	15.9	8.8	25.5
1935-45 ....	20.4	11.3	14.6	13.9	30.3
1945-55 ....	23.9	13.8	15.3	22.8	36.1
1945-50 ....	23.6	5.9	13.6	11.1	38.6
1950-55 ....	24.1	7.9	17.0	11.7	33.6

<sup>a</sup> Estimates.

<sup>b</sup> Excluding sylvatic population in Bolivia, Panama and Peru, and recent additions to total population figures for Chile to compensate census omissions.

The basic reason for the mass movement of the rural population to the towns is undoubtedly the wide disparity in income which exists between agricultural and non-agricultural branches of employment. (See section I, point 4.) Other factors related to the socio-economic background of the urbanization process are explained in point 4 of section II of the present article. It must here be pointed out that the intensiveness of this process, as measured by the average annual rate of urban growth during the last decade, apparently bears no relation either to gross product *per capita* or to the rate of growth of the national product recorded during the same period. There is, however, as may be seen from table 4, a closer relationship—with some notable exceptions—between the

development of urban and rural population (the latter taken as a residual) was computed, as shown in tables 2, 3 and 4, a deviation from the criterion of a minimum of 1,000 inhabitants in localities to be considered as "urban" was adopted in the case of some additional countries. In Panama, localities with over 1,500 inhabitants were considered as urban. In Brazil, Guatemala, Haiti and Honduras, the administrative definition was used, giving in all these cases an urban population closely approximating in size the aggregate population of localities with over 1,000 inhabitants, but covering some localities with less than 1,000 inhabitants.

"rate of urbanization of the population"<sup>3</sup> during the decade 1945-55, and the level of gross product *per capita* for the mid-decade, i.e., for 1950.

**Table 4**

LATIN AMERICA: AVERAGE RATE OF URBANIZATION OF TOTAL POPULATION DURING THE DECADE 1945-55, AND GROSS PRODUCT *PER CAPITA* IN 1950<sup>a</sup>

Country	Urbanization rate of the total population (per mil) <sup>b</sup>	Percentage increase in urban population	Gross product per capita (dollars)
1. Venezuela .....	29	57	over 400
2. Mexico .....	17	50	200-250
3. Argentina .....	17	29	over 400
4. Colombia .....	17	58	200-250
5. Chile .....	16	32	300-400
6. Panama .....	15	54	250-300
7. Uruguay .....	14	20	over 400
8. Costa Rica .....	13	55	250-300
9. Brazil .....	13	44	200-250
10. Ecuador .....	12	52	100-150
11. Paraguay .....	12	48	under 100
12. Peru .....	11	41	100-150
13. Honduras .....	10	52	150-200
14. Guatemala .....	10	43	150-200
15. Dominican Republic	10	53	150-200
16. Cuba .....	9 <sup>c</sup>	40 <sup>c</sup>	300-400
17. El Salvador .....	9	38	150-200
18. Bolivia .....	8	31	under 100
19. Nicaragua .....	8	33	100-150
20. Haiti .....	5	44	under 100

<sup>a</sup> Estimates.

<sup>b</sup> The urbanization rate of total population was only roughly calculated, so that results are subject to revision.

<sup>c</sup> Probably underestimated; see footnote 2.

The reason is not far to seek. The towns in more advanced countries have, relatively to the population, a higher total figure of urban natural increase; they also offer employment opportunities to a relatively larger number of rural dwellers willing to immigrate to towns than is the case in less developed countries, where urban structure is only beginning to take shape.

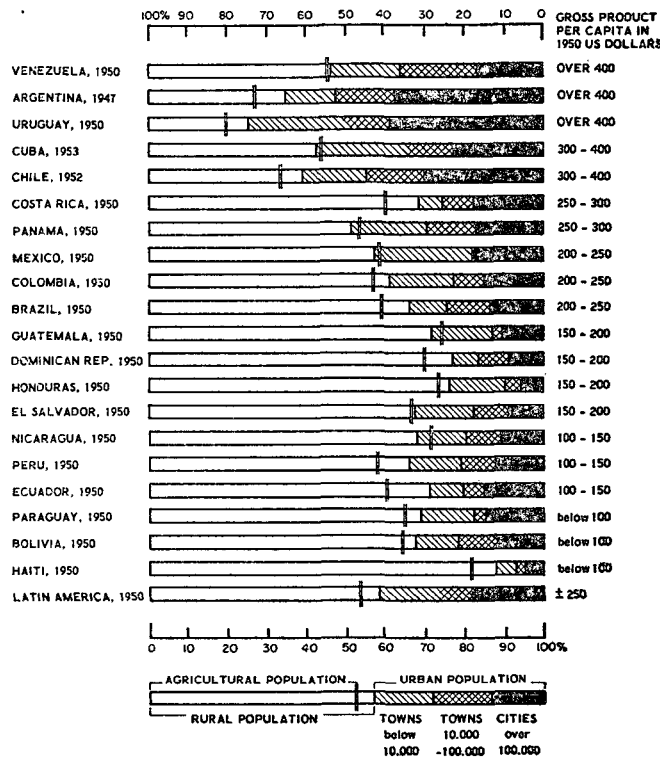
A specific characteristic of Latin American urban structure is the high proportion of the urban population—about 43 per cent in 1950—living in large cities

<sup>3</sup> Measurement of the intensiveness of the urbanization process in any country by the percentage addition to the number of town-dwellers or by the annual rate of growth of the urban population may lead to wrong conclusions. Obviously, even a small addition in absolute terms to the urban population of a country where such population represents a tiny proportion of the total number of inhabitants, may signify a large percentage addition, while in a highly-urbanized country, a substantial absolute increment in the number of town-dwellers would add but a relatively small percentage to the existing urban population. An appropriate measure of the intensiveness of the urbanization process which should supplement the former method of assessing urban growth would be the number of persons per thousand inhabitants of the country who were annually added to the number of urban dwellers. The yearly increment in urban population per mil of total population is called in the present article "Urbanization rate of the total population". This is itself composed of two rates, i.e., (i) that resulting from the natural increase of the urban population, and (ii) that resulting from the shift of population from rural to urban areas. When the first rate is known, the second may be obtained as the residual. The latter is the measure of the intensiveness—in relation to total population—of the annual shift of former rural dwellers acquiring urban status. This shift per mil of rural inhabitants may be called "urbanization rate of the rural population".

of over 100,000 inhabitants, while a relatively small proportion of the urban population lives in medium-size towns of 10,000 to 100,000 inhabitants. The distribution of urban population in the countries of Latin America in 1950 is shown in figure I.

Figure I

LATIN AMERICA: PERCENTAGE DISTRIBUTION OF THE POPULATION BY SIZE OF LOCALITIES



Furthermore, this trend towards concentration of the urban population in large cities is persistent, so that the percentage share of the cities with over 100,000 inhabitants tends to grow. For example, in Argentina, during the period 1914-47, the population in towns with over 100,000 inhabitants increased by 192 per cent, while in those of below 100,000 it rose by 89 per cent only. In Chile, during 1940-52, population in towns above the 100,000 level increased by 44 per cent, and in those below it, by 27 per cent. In Colombia, in 1938-51, the population of four major cities increased by 110 per cent, whereas that of the remaining towns grew by 65 per cent.

The relative under-development and the slower growth of medium-sized towns is due to economic as well as social causes. In the first place, medium-sized towns usually develop well when an advanced and wealthy countryside has to be provided with various services. But rural districts in Latin America are as a rule poor and neglected. Secondly, there are techno-economic reasons, deriving from the shortcomings of the transport and communications systems, as well as of various public utilities and general services outside main cities, which compel industrial, commercial and other enterprises to over-concentrate in the better-provided main urban centres, neglecting those of secondary importance. The other reasons comprise purely sociological factors, chiefly

connected with the wider range of opportunities offered by big towns as compared with small ones and with the general attractions of city life.

Owing to the marked excess of births over deaths, the rural population has grown in absolute numbers despite the rural-to-urban migration which has taken place. The intensified migration to towns has of late been counter-balanced by the rising rate of natural increase, so that the resulting rate of growth of the rural population during the last ten years did not substantially differ from that registered during the previous two decades. (See again table 3.)

The combined influence upon the growth of rural population of its natural increase and of its outflow to the cities has had, during the decade, very unequal repercussions in the individual countries of Latin America. These countries can be classed, according to the percentage increase in their rural population from 1945 to 1955, in four groups: (a) countries with quasi-stabilized or declining rural population, i.e., Chile, Cuba,<sup>4</sup> Uruguay and Venezuela, whose combined rural population increased by 2 per cent only; (b) countries where rural population growth was substantially slowed down, i.e., Argentina and Colombia, whose combined rural population increased by about 11 per cent; (c) countries where the rate of growth of the rural population remained steadily high despite a rapid process of urbanization, i.e., Brazil, Bolivia, the Dominican Republic, El Salvador, Mexico and Peru (in ascending order of rapidity of rural growth), whose combined rural population increased by about 18 per cent; and (d) countries with an exceedingly high rate of growth of the rural population, i.e., Costa Rica, Ecuador, Guatemala, Haiti, Honduras, Nicaragua, Panama and Paraguay, whose combined rural population increased by about 27 per cent.

The main significance of these figures lies in the fact that the rapid growth of rural population implies an almost equally high rate of growth of agricultural population and the related manpower.

Changes in the size of agricultural population are closely related to rural population changes, although far from being identical with these. Moreover, the ratio of agricultural to rural population varies widely from country to country, and with the passage of time it tends to fall. It may be roughly estimated that during the decade 1945-55 this ratio for Latin America as a whole declined from 94 to 92 per cent.

In general, the concept of the agricultural population is much more important for an analysis of economic development than that of the rural population. The definition of rural population<sup>5</sup> is, as a matter of fact, like that of urban population, almost purely arbitrary, and although it has a general value as a guide, only very superficially reflects the structure of the economy. On the contrary, the figures for the size of the agricultural population—when calculated on the basis of the various available definitions of agricultural popula-

<sup>4</sup> In connexion with the changed definition of urban and rural areas in the 1953 as compared with the 1943 population census, the actual growth of rural population in Cuba was different from the figures presented. See also footnote 2.

<sup>5</sup> The definition of rural population—which corresponds to that of urban population—is not uniform. Localities are considered here as "rural" when they have less than 1,000 inhabitants, except in the case of Brazil, Colombia, Mexico, Panama and possibly Cuba (see footnote 2).

tion—<sup>6</sup>would not show unduly great differences, and such figures as may be computed, as well as those relating to changes taking place with regard to the agricultural population, have a deep economic significance, reflecting fundamental aspects of the life of the community and of its evolution.<sup>7</sup>

The estimated size of the agricultural and the non-agricultural sections of the population in Latin America and a rough calculation of the corresponding changes which have taken place during the last decade<sup>8</sup> are presented in tables 5 and 6.

Table 5

LATIN AMERICA: AGRICULTURAL AND NON-AGRICULTURAL POPULATION, 1945-55

Year	Total population (Millions)	Agricultural population		Non-agricultural population	
		(Millions)	(Percentage)	(Millions)	(Percentage)
1945	137.5	78.6	57	58.9	43
1950	154.5	83.2	54	71.3	46
1955	174.1	89.9	52	84.2	48

Table 6

LATIN AMERICA: GROWTH OF AGRICULTURAL AND NON-AGRICULTURAL POPULATION, 1945-55

Period	Total population (Percentage increase)	Agricultural population		Non-agricultural population	
		Increase (in millions)	Percentage increase	Increase (in millions)	Percentage increase
1945-55	26.6	11.3	14.3	25.3	43.1
1945-50	12.4	4.6	5.9	12.4	21.1
1950-55	12.7	6.7	8.0	12.9	18.1

For a closer analysis of the economic situation of agricultural population and its changes, agricultural population-land ratios, the agrarian structure and the land tenure systems would have to be investigated. A broad indicator of the general economic situation of

<sup>6</sup> Three main criteria are used for defining agricultural population, as follows: (i) occupational affiliation with agriculture; (ii) principal source of income derived from agriculture; (iii) residence on farms. In this article the first criterion is considered to be basic and is complemented by the second criterion in the case of countries where a substantial proportion of the agricultural population is engaged in homecraft activities. For details, see Food and Agriculture Organization of the United Nations, *Studies of Census Methods, No. 3, Problems of Defining, Identifying and Measuring the Agricultural Population*, Lake Success, New York, March 1948.

<sup>7</sup> The necessity of identifying and measuring agricultural population—independently of the rural population—was lately re-stated and emphasized by two regional meetings of statisticians to discuss the revised draft of the United Nations recommendations for the 1960 World Population Census Programme. These were (a) the fourth session of the Committee on Improvement of National Statistics of the Inter-American Statistical Institute (IASI), held in Washington, D.C., 22 October-2 November 1956, and (b) the second session of the Working Group on Censuses of Population and Housing of the Conference of European Statisticians, held in Geneva, 19-24 November 1956. (See E/CN.9/135/Add.1, 19 December 1956, mimeographed, pages 13 and 24-26.)

<sup>8</sup> For methods of estimating agricultural population see methods appended to the *Manpower Survey in Latin America* which will appear in mimeographed form shortly.

the agricultural as against the non-agricultural sections of the population is obtainable by comparing gross product *per capita* of the non-agricultural and the agricultural population. For Latin America as a whole, in 1950, this ratio was higher than 3.6, which reveals the great disparity of wealth between the agricultural and the non-agricultural sectors. This disparity is characteristically small in countries in the early stages of economic development, where all sectors of the economy are more or less equally primitive; but it increases sharply in countries undergoing a rapid urban and industrial development, with agriculture progressing at a slower pace than industrial development, as is the case in Brazil, Mexico and Venezuela. Again, it tends to become smaller in countries which have attained a higher degree of development, like Argentina, Uruguay, Chile, and Cuba, where a relatively small agricultural population accounts for a large agricultural production. This phenomenon is, of course, much more pronounced in the countries where, by the nature of their agriculture itself, the productivity of agricultural manpower is very high. Argentina and Uruguay are the outstanding cases in point.

The tendency described is confirmed by the example of the United States, where the ratio of the average monetary income of urban and rural non-farm families to the corresponding income of rural farm families in 1950 was 1.8 only, though subject to fluctuations ranging between 1.6 and 2.2.<sup>9</sup> (For further discussion see section I, point 4 and section II, point 1.)

Owing to the existence of under-developed agricultural possibilities and large untapped land resources, in the majority of Latin American countries the continuing growth of the agricultural population during the last decade, as during previous periods, has not produced agricultural congestion, but in some cases merely local pressures on land. The situation of a genuine agricultural over-population in the country as a whole became more serious during the decade in two republics only—El Salvador and Haiti.

It is estimated that during the whole of the decade 1945-55 the non-agricultural population increased by as much as 43 per cent. So large an increase in the number of people depending on non-agricultural activities is perhaps the best indicator of the magnitude of the changes which have taken and are still taking place in the economy of the region.

The rapidity of growth of the non-agricultural population throughout the decade was not equal. The highest rate of growth was observed during the period 1945-50, while during 1950-55 this rate declined, as a result of the slackening pace of increase of industrial employment, which must in consequence have lowered the rate of urban growth (see again table 4).

The composition of the non-agricultural population is, however, very complex, so that the full significance of the figures for its growth cannot be appreciated without an additional exposition of facts related to its basic structure. This structure is, of course, primarily related to the employment composition of the economically active population. Moreover, the non-agricultural population includes a certain proportion of population which is either altogether non-productive—rentiers, pension-

<sup>9</sup> See Wilson Gee, *The Social Economics of Agriculture*, 3rd edition (New York, Macmillan Company, 1954).

ers, etc., with their dependants, and persons in institutions and living on charity—or which may be called semi-productive.

To the latter sections of the population belong members of the lowest working classes with their families—small traders and street peddlers, persons engaged in various petty services, casual labourers, building workers occupied only for short periods during the year, and the unregistered, usually unskilled, unemployed. All these compose the so-called marginal labour force, which, if it ever appears in employment statistics, is in many cases shown under the heading “Activities not specified”. The lack of data makes it impossible to establish any exact figures referring to the size and changes of the non-productive and the marginal population. There

are reasons to believe that during the decade 1945-55 this group of the population bore a more or less constant ratio to the total population. If such is the case, the growth of the productive sections of the non-agricultural population was even more rapid than indicated by the 43 per cent mentioned previously, and was approaching 45 per cent.

Undoubtedly such a change in the structure of employment was one of the fundamental reasons for the impressive growth of Latin America’s gross product during the last decade. The discussion which follows will help to define the relative weight of the factors which determined the total increase of gross product and the contribution of individual sectors of employment to over-all economic growth.

## EMPLOYMENT STRUCTURE AND ITS CHANGES DURING THE DECADE 1945-55

### 1. GENERAL EMPLOYMENT STRUCTURE AROUND 1950

The characteristic feature of employment structure in Latin America as a whole is, firstly, the predominance retained by primary production in total employment and secondly, the relatively much greater employment in services than in industry.

In 1950 the total Latin American labour force of about 53 million was distributed as shown in table 7.

Table 7

LATIN AMERICA: DISTRIBUTION OF THE TOTAL LABOUR FORCE IN 1950

Sector	Employment	
	Millions of persons	Percentages of total
Agriculture .....	28.1	53.1
Mining .....	0.6	1.1
Manufacturing .....	7.7	14.5
Construction .....	2.0	3.7
Services <sup>a</sup> .....	13.4	25.3
Activities not specified.....	1.3	2.4
TOTAL	53.1	100.0

<sup>a</sup> Including public utilities, transport and communications. (See also footnote 18.)

Perhaps the most significant point emerging from these figures is the fact that the aggregate labour force employed in primary production even in 1950 only slightly exceeded 50 per cent (contributing less than 28 per cent of the national product), and—as may be judged from the figures presented in table 13—by 1960 will have fallen below the 50 per cent mark. This constitutes a fair indication that thanks to the changes taking place in the economic structure of the Latin American countries, the economy of the region as a whole has already ceased to be over-dependent on the primary sector, and has begun to assume the shape of a diversified modern-type economy. However, there are still serious maladjustments in the Latin American socio-economic structure.

A comparison of the percentage break-down of the Latin American labour force with a similar break-

down for selected countries, which can be considered as representative for other regions of the world—North America, Western and Southern Europe, and South-Eastern Asia—gives some general idea of the degree of development achieved by Latin America by the middle of the century in relation to that of other large regions (see table 8).

Among the regions listed, with regard to the prosperity level achieved, English-speaking North America occupies the first place, followed by the two Commonwealth countries of Oceania and by Western Europe. As far as employment structure is concerned—as well as with reference to the *per capita* gross product—the average development of Latin America in 1950 may be estimated to correspond to the degree of development of Southern Europe, excluding northern Italy.

Four of the most characteristic features in the development of employment structure in all countries in their drive towards economic maturity are the following: (a) the decline in the percentage of the labour force employed in primary production; (b) the percentage increase of those employed in industry; (c) the percentage increase of those employed in services; and (d) the change in the service-to-industry employment ratio. Of these, the last is of special significance for a better understanding of the recent structural development of Latin America and of its deficiencies.

The service-to-industry ratio is usually high in primitive economies, especially in tropical countries where clothing and housing needs are generally very limited and the making of furniture and utensils requires relatively small effort from professional craftsmen. In the same countries, however, the transport and distribution of agricultural products and of locally produced or imported industrial goods employ a large number of people, to whom those performing service functions of other kinds should be added.

As the path of economic progress is paved primarily by development in the field of transformation of raw materials and by the expansion of construction and building activities, it is the industrial sector which grows most rapidly, with services holding only a secondary place. Thus, in countries whose economic de-

velopment is properly balanced, the service-to-industry employment ratio gradually tends to close to 1, as can be seen in those countries of Western Europe that can be considered as having a well-balanced economic structure. Of course, even among European countries there are marked deviations from the basic pattern, but the ratio 1.0 may be considered as pivotal.

Only after the highest income level has been reached, owing to exceptionally high productivity in the primary and secondary sectors, does the service-to-industry employment ratio rise again, reaching 1.5 in the extreme instances of the United States and New Zealand and over 1.3 in the case of Canada and Australia.

The four development characteristics enumerated above confirm that Latin America as a whole, from the point of view of employment structure, is close to the level of Southern Europe, with the substantial difference that industrial development, instead of preceding the development of services, definitely lags behind. Thus in Latin America a service-to-industry ratio is obtained which is not a sign that the structure of the region is more advanced than that of Southern Europe, but, on the contrary, reveals certain deficiencies in this structure.

## 2. PATTERN OF EMPLOYMENT IN THE INDIVIDUAL COUNTRIES OF LATIN AMERICA

The differences in the degree of economic development and accordingly in the composition of employment among the individual countries of Latin America are very great. (See table 9 and figure II.)

The percentage distribution of the labour force by main sectors varies between countries at opposite ends of the scale of *per capita* gross product as widely as from 77 per cent (Haiti) to approximately 22 per cent (Uruguay) in the primary sector; from 7 per cent (Haiti) to 28-29 per cent (Argentina and Uruguay) in industry; and from 11 per cent (Haiti) to approximately 44-46 per cent (Argentina and Uruguay) in services.

A study of the relationships (a) between the percentage distribution of the labour force by sectors and the national product *per capita* (table 9), and (b) between the percentage relationship of the labour force by sector to total population and the national product *per capita* (table 10), clearly shows the general tendency for the proportion of employment in primary production to decrease, and in the secondary and tertiary sectors to increase, as *per capita* income rises.

**Table 8**  
PERCENTAGE DISTRIBUTION OF THE LABOUR FORCE BY MAIN SECTORS  
IN SELECTED COUNTRIES OF THE WORLD AND IN LATIN AMERICA,  
AROUND 1950

Region and country	Year	Primary production (I)	Industry (II)	Services (III)	Activities not specified (IV)	Services-to- industry employment ratio
<i>North America</i>						
United States . . . .	1950	14.1	33.6	49.6	2.7	1.48
Canada . . . . .	1951	21.2	33.8	44.4	0.4	1.31
<i>Oceania</i>						
New Zealand . . . . .	1951	19.4	32.4	47.5	0.7	1.47
Australia . . . . .	1947	17.1	32.5	43.3	7.1	1.33
<i>Western Europe</i>						
United Kingdom . .	1951	8.8	43.6	47.2	0.4	1.08
Switzerland . . . . .	1950	16.8	46.3	36.1	0.8	0.78
Sweden . . . . .	1950	20.8	39.4	39.1	0.7	0.99
West Germany . . .	1950	25.9	38.9	33.0	2.2	0.85
Austria . . . . .	1951	33.8	34.7	30.3	1.2	0.87
France . . . . .	1946	38.3	26.8	30.9	4.0	1.15
Finland . . . . .	1950	46.3	26.9	25.4	1.4	0.95
<i>Southern Europe</i>						
Italy . . . . .	1954	40.8	28.2	27.2	3.8	0.96
Portugal . . . . .	1950	49.1	23.9	26.7	0.3	1.12
Spain . . . . .	1950	50.4	22.9	25.0	1.6	1.09
Yugoslavia . . . . .	1953	68.4	13.8	12.0	5.8	0.87
Turkey . . . . .	1950	85.9	7.2	6.9	—	0.96
<i>Latin America</i> . . . .	1950	54.1	18.2	25.3	2.4	1.39
<i>Middle East</i>						
Egypt . . . . .	1947	65.6	12.2	22.2	—	1.82
<i>South Eastern Asia</i>						
Malaya . . . . .	1947	66.6	7.6	21.3	4.5	2.82
Philippines . . . . .	1948	66.0	7.9	17.1	9.0	2.17
India . . . . .	1951	71.1	10.1	18.8	—	1.85
Pakistan . . . . .	1951	76.5	7.3	12.4	3.8	2.17
Thailand . . . . .	1947	84.8	2.3	11.7	1.2	5.16

Source: *Yearbook of Labour Statistics 1955*. For Latin America: figures calculated by the Economic Commission for Latin America.



There are, however, substantial differences, and even apparent irregularities, occurring in this respect, which reveal several distinct development patterns in Latin America, among countries which have a similar income level. This can be seen from the following examples.

Among countries which have reached the highest *per capita* product levels, Argentina and Venezuela display widely divergent characteristics. Argentina's intensive economic development began relatively early, two or three generations ago. The structure employment in this country clearly reflects a degree of economic maturity higher than that attained in other countries of the region, Venezuela not excepted. This also corresponds to the advanced degree of urbanization achieved in Argentina. Fairly high agricultural productivity has resulted in the employment of a relatively small number of people in the agricultural sector, with consequently large percentages in industry and services. From the latter sectors a major proportion of the national product is derived, despite the importance of agriculture. Venezuela's prosperity—already probably greater than that of Argentina—is of more recent origin, and its main source—petroleum—represents a very narrow sector within the economy, accounting for less than 1 per cent of total employment, and enjoying extraordinarily high productivity. In this connexion, the process of adjusting the whole structure of the economy and of employment to the high *per capita* income in Venezuela was still in its early stages in 1950, so that relative figures for employment in manufacturing and services lagged far

Figure II  
LATIN AMERICA: PERCENTAGE DISTRIBUTION OF THE LABOUR FORCE BY COUNTRIES, 1950

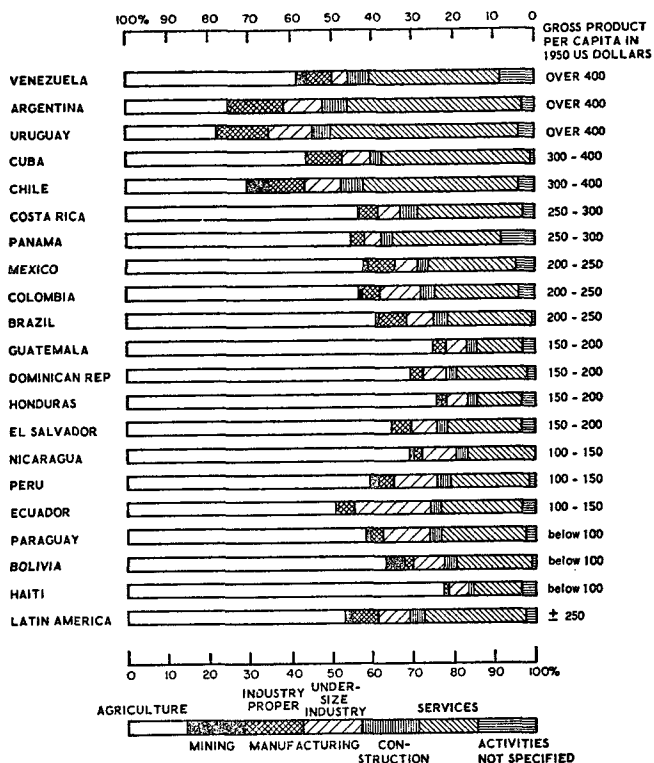


Table 9

LATIN AMERICA: PERCENTAGE DISTRIBUTION OF THE LABOUR FORCE BY MAIN SECTORS IN RELATION TO GROSS PRODUCT *PER CAPITA*, BY COUNTRY, IN 1950

Country	Gross product per capita (dollars)	Primary production			Industry			Services	Activities not specified	Services-to-industry employment ratio
		Total	Agriculture	Mining	Total	Manufacturing	Construction			
Venezuela	Over 400	43.8	41.2	2.6	15.5	10.1	5.4	32.3	8.4	2.08
Argentina	Over 400	25.2	24.7	0.5	29.0	22.9	6.1	43.7	2.3	1.51
Uruguay <sup>a</sup>	Over 400	21.8	21.7	0.1	28.1	23.8	4.3	46.4	3.7	1.65
Cuba	300-400	44.2	43.8	0.4	18.3	15.6	2.7	36.6	0.9	2.00
Chile	300-400	34.6	29.8	4.8	24.0	18.5	5.5	37.6	3.8	1.56
Costa Rica	250-300	56.7	56.4	0.3	14.7	10.6	4.1	25.7	2.9	1.75
Panama	250-300	55.0	54.9	0.1	9.7	7.1	2.6	25.7	9.6	2.65
Mexico	200-250	59.0	57.8	1.2	14.8	12.0	2.8	21.8	4.4	1.48
Colombia	200-250	57.9	56.4	1.5	17.5	14.4	3.1	21.1	3.5	1.21
Brazil	200-250	61.8	61.1	0.7	16.7	12.8	3.9	21.2	0.3	1.27
Guatemala	150-200	74.9	74.8	0.1	10.3	8.3	2.0	11.6	3.2	1.12
Dominican Republic	150-200	69.7	69.7	0.0	10.8	8.1	2.7	17.5	2.0	1.62
Honduras	150-200	76.4	75.7	0.7	9.3	7.4	1.9	11.0	3.3	1.17
El Salvador	150-200	64.4	64.2	0.2	13.9	11.1	2.8	18.5	3.2	1.34
Nicaragua	100-150	70.6	69.7	0.9	13.2	10.7	2.5	16.2	—	1.23
Peru <sup>a</sup>	100-150	60.2	59.8	1.4	18.4	15.5	2.9	19.6	1.8	1.06
Ecuador	100-150	51.3	50.9	0.4	25.3	23.1	2.2	19.1	4.3	0.76
Paraguay	Below 100	59.1	58.3	0.8	17.5	14.8	2.7	20.8	2.6	1.18
Bolivia	Below 100	67.5	63.3	4.2	13.2	10.7	2.5	18.4	0.9	1.40
Haiti	Below 100	77.4	77.4	0.0	7.4	6.6	0.8	11.5	3.7	1.56
LATIN AMERICA	± 250	54.1	53.1	1.1	18.2	14.5	3.7	25.3	2.4	1.39

<sup>a</sup> Rough estimate.

Table 10

LATIN AMERICA: LABOUR FORCE AS A PERCENTAGE OF TOTAL POPULATION BY SECTOR AND COUNTRY,<sup>a</sup> IN 1950

Country	Gross product per capita (dollars)	Total labour force	Primary production			Industry			Activities not specified	
			Total	Agriculture	Mining	Total	Manufac- turing	Construction		Services
Venezuela .....	Over 400	33.8	14.8	13.9	0.9	5.2	3.4	1.8	10.9	2.9
Argentina .....	Over 400	39.6	9.9	9.7	0.2	11.5	9.1	2.4	17.3	0.9
Uruguay <sup>b</sup> .....	Over 400	38.7	8.4	8.4	0.0	10.9	9.2	1.7	18.0	1.4
Cuba .....	300-400	33.0	14.6	14.5	0.1	6.0	5.1	0.9	12.1	0.3
Chile .....	300-400	35.5	12.3	10.6	1.7	8.5	6.6	1.9	13.3	1.4
Costa Rica .....	250-300	35.3	20.0	19.9	0.1	5.2	3.7	1.5	9.1	1.0
Panama .....	250-300	33.6	18.5	18.5	0.0	3.3	2.4	0.9	8.6	3.2
Mexico .....	200-250	31.4	18.6	18.2	0.4	4.6	3.8	0.8	6.8	1.4
Colombia .....	200-250	34.8	20.2	19.7	0.5	6.1	5.0	1.1	7.3	1.2
Brazil .....	200-250	32.9	20.3	20.1	0.2	5.5	4.2	1.3	7.0	0.1
Guatemala .....	150-200	34.7	26.0	26.0	0.0	3.6	2.9	0.7	4.0	1.1
Dominican Republic ..	150-200	33.2	23.1	23.1	0.0	3.6	2.7	0.9	5.8	0.7
Honduras .....	150-200	35.3	26.9	26.7	0.2	3.3	2.6	0.7	3.9	1.2
El Salvador .....	150-200	36.2	23.3	23.2	0.1	5.0	4.0	1.0	6.7	1.2
Nicaragua .....	100-150	33.3	23.5	23.2	0.3	4.4	3.6	0.8	5.4	..
Peru <sup>b</sup> .....	100-150	34.4	20.7	20.2	0.5	6.4	5.4	1.0	6.7	0.6
Ecuador .....	100-150	39.8	20.4	20.2	0.2	10.1	9.2	0.9	7.6	1.7
Paraguay .....	Below 100	32.8	19.4	19.4	0.0	5.7	4.8	0.9	6.8	0.9
Bolivia .....	Below 100	35.6	23.7	22.2	1.5	4.6	3.7	0.9	6.4	0.9
Haiti .....	Below 100	44.3	34.3	34.3	0.0	3.3	2.9	0.4	5.1	1.6
LATIN AMERICA .....	± 250	34.4	18.6	18.2	0.4	6.3	5.0	1.3	8.7	0.8

<sup>a</sup> Excluding sylvatic population in Bolivia, Panama and Peru, and recent additions to total population figures for Chile to compensate census omissions.

<sup>b</sup> Rough estimate.

behind the rise in income. It is only in the field of construction activities that the income level achieved in Venezuela has produced an immediate effect by raising the relative employment figures. The relative employment figures for Argentina and Venezuela, as might be expected, were among the highest in the region. The other country which showed a comparably high relative figure for employment in construction was Chile, but there the source of intensive building activity must be looked for not only in the average income level, but also in the characteristics of income distribution which account for the existing strong preference for investment in real estate. The third high-income country in Latin America—Uruguay—has developed along lines very similar to those traceable in Argentina.

Among countries which have reached a moderately high income level—Chile and Cuba being typical examples—differences in existing development patterns may again be observed. Cuba derives its prosperity mainly from the sugar industry, that is, chiefly from agricultural sectors, well supplemented by secondary transformation of raw products. On the contrary, Chile's external economy depends to a much lesser degree on agriculture, though its dependence on primary production, especially on copper mining, is very great. Apart from this, Chile registers much lower figures for employment in agriculture and is much more advanced industrially than Cuba, records a slightly higher relative employment in services, and has a markedly higher percentage of urban population. Nevertheless, gross product *per capita* in Cuba is probably substantially higher than that of Chile, though the exact figures are unavailable.

Panama, whose *per capita* income places it in the higher medium-income range in Latin America, has the

characteristics of an economy dependent on a specific single factor perhaps to an even more pronounced extent than Cuba. The former country, which owes its prosperity to the Panama Canal, with an assured and profitable market for products and services, still has a high percentage of its labour force engaged in agricultural pursuits, and a strikingly low proportion of industrial employment—relatively, it would appear, the lowest in the whole region. Conversely, the service sector seems to be over-developed, so that the service-to-industry employment ratio (2.65) is the highest in Latin America.

Here it may appropriately be remarked that in general, in all countries whose economic development was promoted by some specially favourable natural conditions in the field of primary production, the service-to-industry ratio tends to be high. For example, in both the cases previously discussed—Venezuela and Cuba—this ratio exceeded 2.0, and was, respectively, the second and third highest in the region after Panama. A relatively simple explanation can be given for this sort of development. In the countries where a large income is derived from a single branch of agriculture or mining, the process of industrialization usually lags behind the country's increasing wealth, with a consequent expansion of demand for goods and services. Exports of primary products being substantial, manufactured goods are easily imported, but the service sector has adjusted itself to the new situation and expanded in accordance with the growth of the total gross product. Also, a substantial development in one or a few branches of agriculture or mining creates a situation where the wealth thus acquired tends to be concentrated in the hands of the Government and of a limited number of independent producers, who spend most of their earnings in the towns. This stimulates the urbanization process, which

in the early stages contributes to a greater expansion of various services than of industry. Only as further advances take place can manufacturing industries and construction activities be expected to employ a high percentage of urban labour and thus restore to its proper proportions the service-to-industry ratio under discussion.

The group of countries whose *per capita* product is close to the Latin American average includes three out of the four largest countries, which obviously enjoy a wide range of natural resources. Brazil, Mexico and Colombia have all achieved a fair—though not yet an adequate—diversification of their economies, with the national product generated in more or less satisfactory proportion by all sectors of the economy. In these countries the development of the employment structure and the level of the national product *per capita* are closely related. This may be taken as a demonstration of the influence of the size of the internal market and of the diversification of resources upon the pattern of employment. This pattern, in the three countries mentioned, may be defined as representing a regular type of employment structure, although in general at a less advanced stage than that encountered in Argentina and perhaps in Chile.

The remaining countries belong to the below-the-medium income group, with a gross product of less than 200 dollars *per capita*. Among these, the coffee-, banana- and sugar-cane-growing countries of Central America, and also the Dominican Republic, had the highest *per capita* product—150-200 dollars—despite the fact that in terms of employment composition and general diversification of production they were far behind both Peru and Ecuador, whose *per capita* product remained at a low level, between 100 and 150 dollars. In the latter countries higher employment figures in the industry sector and in services were largely offset by the very low average productivity of manpower in industry, a sector which, as is typical of Andean countries in their early stages of economic development, comprised very numerous homecrafts.

These preliminary general observations concerning the characteristic patterns of employment structure are fully confirmed by a more detailed analysis of employment by sectors and of its changes.

### 3. CHANGES IN EMPLOYMENT STRUCTURE DURING THE DECADE 1945-55

The distribution of manpower by sectors for the whole series of years from 1945 to 1955 can only be estimated. The results of such estimates are presented in table 11 and figure III.

It should be noted that the margin of error in the estimates referring to the period preceding the general censuses around 1950 is narrower than such margins in estimates referring to the last five-year period (1950-55). Despite the tentative character of such estimates and the probable errors involved, the general trends emerging therefrom—expressed in terms of the percentage growth of employment in each sector (table 12) and in the percentage distribution of the total labour force (table 13) give a reasonably reliable picture of the changes which occurred during the period under consideration. Only very substantial adjustments of the basic figures could radically alter the tendencies presented.

The most pronounced feature of the changes in employment structure during the period 1945-55 was the relatively slow increase of the agricultural labour force as compared with the rapid growth of the aggregate labour force engaged in non-agricultural activities (see tables 14 and 15). Among the latter only the mining sector showed no marked increase in employment. Other sectors grew much more rapidly than agriculture.

Hence the percentage of persons employed in agriculture to the total labour force has declined during this decade rather sharply, falling by 1955 to a figure close to 50 per cent. This may be considered as a salient mark of the transition from a predominantly agricultural to a diversified economy, a phase upon which Latin America as a whole has entered, and in which good progress has been made during the last decade.

**Table 11**  
LATIN AMERICA: ESTIMATED CHANGES IN THE LABOUR FORCE BY MAIN SECTOR,  
1945-55

(Thousands of persons)

Year	Total labour force	Agriculture <sup>a</sup>	Mining	Industry				
				Total	Manufacturing	Construction	Services <sup>b</sup>	Activities not specified
1945.....	46,860	26,330	560	7,960	6,500	1,460	10,890	1,120
1946.....	48,000	26,670	560	8,460	6,880	1,580	11,170	1,140
1947.....	49,200	27,020	560	8,800	7,130	1,670	11,650	1,170
1948.....	50,470	27,370	560	9,120	7,330	1,790	12,220	1,200
1949.....	51,760	27,710	560	9,370	7,480	1,890	12,890	1,230
1950.....	53,070	28,150	560	9,670	7,680	1,990	13,430	1,260
1951.....	54,420	28,570	560	9,970	7,910	2,060	14,030	1,290
1952.....	55,720	29,010	560	10,090	8,000	2,090	14,740	1,320
1953.....	57,110	29,460	570	10,190	8,090	2,100	15,540	1,350
1954.....	58,490	29,930	570	10,550	8,420	2,130	16,050	1,390
1955.....	59,910	30,390	570	11,020	8,820	2,200	16,510	1,420

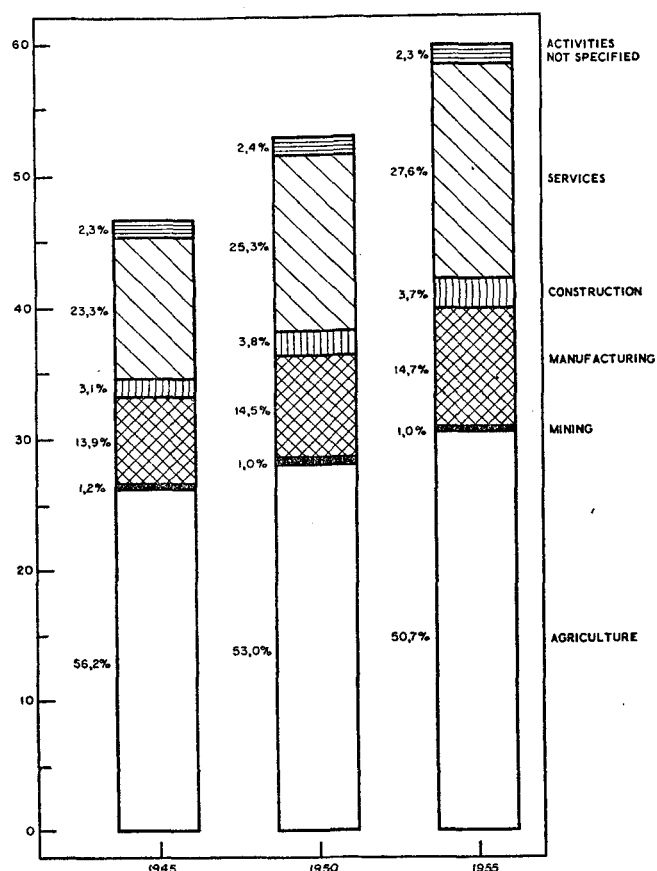
Note: Figures are rounded to the nearest ten thousand, and therefore totals do not represent the exact sum of the items.

<sup>a</sup> Including forest activities and fishing.

<sup>b</sup> Including public utilities, transport and communications.

Figure III

LATIN AMERICA: DISTRIBUTION OF THE LABOUR FORCE BY SECTORS AND EVOLUTION DURING THE DECADE 1945-55



The decline in the percentage of persons engaged in all primary activities was even more pronounced than when reference was made to agricultural activities alone, without mining. In connexion with the almost stationary position of the aggregate labour force in all mining activities, for reasons which will be explained under section II, point 2, the percentage relationship of employment in mining to the total labour force steadily declined throughout the whole decade.

After the phenomenon of the rapid shift in the relative weight of manpower employed from primary to secondary and tertiary activities, the next marked feature of the changes in employment structure was the significant alteration in the tendencies observable in the service-to-industry employment ratio during the two successive five-year periods of the decade. On an average, during the period 1945-50 total industrial employment increased only a little less rapidly than employment in services. The labour force engaged in construction activities grew by a fraction more than that employed in the service sector. During the next five-year period, 1950-55, this situation, except possibly in a few countries, tended to be reversed. The labour force increased much more in services than in industry.

The phenomenon described took place despite the further rapid growth of the industrial gross product. Such industrial growth means, however, a much more rapid increase in the value of industrial production than in the total number of people employed in industry. During the decade 1945-55, in the majority of the Latin American countries, manufacturing industry proper, which may otherwise be called factory industry, since it is composed mainly of factory-type units, and which by its very nature is much more capital-intensive and less labour-intensive than dwarf industry and handicrafts, developed a great deal faster than the latter. Simulta-

Table 12

LATIN AMERICA: PERCENTAGE INCREASE IN THE LABOUR FORCE BY MAIN SECTORS, 1945-1955

Period	Total labour force	Agriculture	Mining	Industry			
				Total	Manufacturing	Construction	Services
1945-55.....	27.9	15.4	1.4	38.4	35.7	50.7	51.7
1945-50.....	13.2	6.9	-1.1	21.5	18.2	36.3	23.4
1950-55.....	12.9	8.0	2.5	14.0	14.8	10.6	22.9

Table 13

LATIN AMERICA: CHANGES IN PERCENTAGE DISTRIBUTION OF THE LABOUR FORCE BY MAIN SECTORS, 1945-1955

(Total labour force = 100)

Year	Primary production			Industry			Services	Activities not specified
	Total	Agriculture	Mining	Total	Manufacturing	Construction		
1945.....	57.4	56.2	1.2	17.0	13.9	3.1	23.2	2.3
1946.....	56.7	55.5	1.2	17.6	14.3	3.3	23.3	2.4
1947.....	56.0	54.9	1.1	17.9	14.5	3.4	23.7	2.4
1948.....	55.4	54.3	1.1	18.1	14.5	3.5	24.2	2.4
1949.....	54.6	53.5	1.1	18.1	14.5	3.6	24.9	2.4
1950.....	54.1	53.0	1.1	18.2	14.5	3.7	25.3	2.4
1951.....	53.5	52.5	1.0	18.3	14.5	3.8	25.8	2.4
1952.....	53.1	52.1	1.0	18.1	14.4	3.7	26.4	2.4
1953.....	52.6	51.6	1.0	17.8	14.2	3.6	27.2	2.4
1954.....	52.2	51.2	1.0	18.0	14.4	3.6	27.4	2.4
1955.....	51.7	50.7	1.0	18.4	14.7	3.7	27.6	2.4

Table 14

## LATIN AMERICA: ESTIMATED SIZE OF AGRICULTURAL AND NON-AGRICULTURAL LABOUR FORCE, 1945-1955

Year	Total labour force Millions of persons	Agricultural		Non-agricultural	
		Millions of persons	Percentage of total labour force	Millions of persons	Percentage of total labour force
1945.....	46.8	26.3	56	20.5	44
1950.....	53.1	28.2	53	24.9	47
1955.....	59.9	30.4	51	29.5	49

Table 15

## LATIN AMERICA: ESTIMATED INCREASE OF THE AGRICULTURAL AND NON-AGRICULTURAL LABOUR FORCE, 1945-1955

Period	Total labour force Increase of millions of persons	Agricultural labour force		Non-agricultural labour force	
		Increase of millions of persons	Percentage increase	Increase of millions of persons	Percentage increase
1945-55.....	13.1	4.1	15	9.0	44
1945-50.....	6.3	1.9	7	4.4	21
1950-55.....	6.8	2.2	8	4.6	18

neously the most labour-intensive type of manufacturing, that is, homecrafts, tended to disappear. The development of manufacturing industry proper is, however, still only gathering momentum, and until now has been unable to absorb an adequate proportion of total incoming labour, the majority of which is thus forced into the services sector.

Moreover, in general, industrial development in Latin America between 1950 and 1955—during which the value of industrial production increased by about 28 per cent—slackened in comparison with the period 1945-50, when industrial production expanded by as much as 40 per cent.<sup>10</sup> Such development was the result mainly of industrial stagnation in Argentina, from 1948 to 1954, and, to a lesser extent, of the slowing-up of industrial growth in Chile and Mexico.

Employment in construction, on an average, maintained its relative position within the non-agricultural labour force, thus not influencing to any substantial extent the latter's percentage composition and the service-to-industry employment ratio. Over the period 1945-50 the labour force in construction activities developed faster than employment in any other sector; from 1950 to 1955, however, it may be estimated to have grown at a somewhat lower rate than the manufacturing labour force.

As regards activities not specified—the bulk of them representing the marginal and sub-marginal labour force—not much can be said about their evolution during the last decade. That the percentage of the numerical strength of this section to the total labour force remained constant would seem to be a rather conservative assumption. On the basis of observations in various countries, the marginal and sub-marginal labour force grew during the decade 1945-55 at a rate slightly higher than the rate of growth of the population. Rapid urbanization, much in advance of the industrialization process, has

undoubtedly influenced the accumulation of marginal labour in towns, the increase of which was, to some extent, related to the growth of urban population, though perhaps somewhat slower.

The fact that there is no distinct line of demarcation between the marginal labour force and the labour force engaged in services, makes it highly probable that the impressive increase of the labour force in the service sector observed during the decade 1945-55 (as shown in tables 11, 12, 13) was in reality to a certain extent, a development in the field of marginal labour, allied to services.

#### 4. PRODUCTIVITY<sup>11</sup> OF MANPOWER IN MAIN SECTORS OF THE ECONOMY AND THE CHARACTERISTIC RATIOS AND TRENDS OF CHANGES

Great differences in the productivity of manpower in the main sectors of the economy result in a wide discrepancy between the contribution of given sectors to the gross domestic product and employment numbers in those sectors (see tables 16 and 17).

The high product per employed person in the mining sector should be noted. It means that despite the tiny proportion which employment in mining represents within the total labour force, the contribution of mining

<sup>11</sup> The word "productivity" is used throughout this section for the sake of simplicity. What is meant here is product per man-year. It should also be added, in connexion with the relativity inherent in the term "productivity", that exact comparison between the productivity of various units of labour is possible only when its volume is measured in homogeneous terms. In all other cases, particularly when productivity in various sectors or in various countries is being compared, only apparent productivity—incorporating differences in the evaluation of the product in various branches or countries resulting from specific characteristics and variations in price structure, and from the more or less arbitrary rates used for converting national currencies into dollars or other units of measurement—can be taken into consideration. This does not mean that under such conditions the term productivity becomes meaningless; it is only a demonstration of its limitations for measuring and comparing the results of human activities in countries with highly different price-structures, strongly influenced by institutional factors and arbitrary decisions.

<sup>10</sup> See *Economic Survey of Latin America, 1955* (E/CN.12/421/Rev.1), United Nations publication, Sales No.: 1956.II.G.1, p. 58, table 45.

to the region's total gross product is very substantial. This contribution was greater than, for example, that of so important a branch as construction activities.

Another noticeable phenomenon is the relatively high product-per-person figure referring to services together with unspecified activities. This high average is the more remarkable in that the sector under consideration includes non-specified activities covering mainly marginal labour whose productivity is very low, as well as numerous domestic services whose productivity, measured by wage levels, is also inclined to be low.

The situation described may be observed in almost all countries for which there are reliable gross product statistics broken down by sectors (see table 17).

Table 16

LATIN AMERICA: GROSS PRODUCT PER EMPLOYED PERSON AND PERCENTAGE DISTRIBUTION OF TOTAL GROSS PRODUCT BY SECTORS

Sector	Percentage distribution of the gross product <sup>a</sup>	Percentage distribution of the labour force	Indices of productivity of labour by sectors (average productivity of all sectors = 100)
Agriculture .....	24.5	53.0	46
Mining .....	4.3	1.1	410
Manufacture .....	18.2	14.5	126
Construction .....	4.6	3.7	122
Other activities ....	44.4	27.7	175
TOTAL	100.0	100.0	

<sup>a</sup> Percentages do not add up to 100, because the contribution of housing rents, representing 4 per cent of the total gross product, is not included.

The above table shows, *inter alia*, the wide variations in the relative productivity of the manufacturing sector.

The reasons are explained in section II, point 3 (compare also table 28). The relatively high product-per-person in manufacturing industries in the two largest countries of Latin America—Brazil and Mexico—as well as in Columbia, is a phenomenon which should not escape attention. It is possible that figures for the relative product-per-person, such as those shown, to a certain extent reflect the existence of a highly protected market for industrial products in the countries in question, with high prices and profits as a consequence, artificially raising the level of productivity in industry. Nevertheless, it seems that these high figures confirm the especially important role played in the development of these two countries in recent times by the manufacturing industry, and the fact that its contribution to the increment in the national product has been greater than could be judged from employment figures alone. In the same two countries, as in Venezuela, the relatively very low product-per-person registered in the agricultural sector is worthy of remark.

The low productivity in agriculture as compared with the average productivity figures for each country and for other sectors is a general phenomenon. This is, however, less marked in countries which owe their wealth largely to their agricultural development, as, for example, in the cases of Costa Rica, Ecuador, Honduras and Peru.

Of special significance from the socio-economic point of view is the ratio of the average product-per-person of the non-agricultural labour force to product-per-person in agriculture. As shown later, in table 20, this ratio displays wide variations. A characteristic tendency can, however, be discovered. The ratio is usually low in countries with very low agricultural productivity, increases to very high figures in some countries, and diminishes again in countries with high productivity in agriculture.

Of even greater significance is the ratio between product-per-person in manufacturing industry and in agriculture. This ratio, calculated for a group of selected countries, is presented in the last column of table 18.

Table 17

LATIN AMERICA: INDICES OF PRODUCTIVITY OF LABOUR, BY SECTORS, IN SELECTED COUNTRIES IN 1950

(Average gross product per employed person = 100)

Country	Gross product per capita (dollars)	Agriculture <sup>a</sup>	Mining	Manufacturing	Construction	Other activities <sup>b</sup>
Latin America ....	250	46	410	126	122	175
Venezuela .....	Over 400	21	1,069	88	104	147
Argentina .....	Over 400	64	220	102	120	110
Chile .....	Over 400	50	122	92	53	136
Costa Rica .....	250-300	81	..	111	84	135
Colombia .....	200-250	69	251	141	131	129
Mexico .....	200-250	36	409	167	76	218
Brazil .....	200-250	46	133	130	132	213
Honduras .....	150-200	74	124	112	47	234
Peru .....	100-150	73	548	69	30 <sup>c</sup>	175
Ecuador .....	100-150	76	561	69	131	79
Paraguay .....	Below 100	75	—	107	190	159

Note: Countries are enumerated in descending order of magnitude of gross product *per capita*.

<sup>a</sup> Including forest activities and fishing.

<sup>b</sup> Services and unspecified activities.

<sup>c</sup> Probably building output corresponds to a part only of construction activities, while the total labour force is assumed to be meant. The productivity ratio in building is therefore in reality higher.

Table 18

LATIN AMERICA: RATIO BETWEEN PRODUCT PER PERSON EMPLOYED IN MANUFACTURING AND AGRICULTURAL SECTORS IN SELECTED COUNTRIES IN 1950, AT DIFFERENT STAGES OF ECONOMIC DEVELOPMENT

Country	Indices of economic development				
	National product per capita (dollars)	Percentage of urban population <sup>a</sup>	Percentage relationship of agricultural to total labour force	Percentage relationship of employment in industry proper to population	Manufacturing-to-agriculture product-per-person ratio
Latin America ....	± 250	42	53	2.4	2.1
Honduras .....	150-200	23	76	0.6	1.5
Paraguay .....	below 100	30	59	1.1	1.4
Ecuador .....	100-150	28	51	1.4	0.9
Peru <sup>b</sup> .....	100-150	34	59	1.6	0.9
Brazil .....	200-250	33	61	2.2	2.8
Mexico .....	200-250	43	58	2.1	4.7
Venezuela .....	over 400	54	42	2.2	4.3
Chile <sup>c</sup> .....	300-400	59	30	3.3	1.8
Argentina .....	over 400	66	25	5.3	1.6

Note: Countries are enumerated approximately in order of the stage of their structural development, according to various indicators.

<sup>a</sup> See footnote 2.

<sup>b</sup> Excluding sylvatic population.

<sup>c</sup> Excluding population unregistered by censuses.

The manufacturing-to-agriculture product-per-employed-person ratios demonstrate that in countries in the early stages of economic development the wide productivity gap between agriculture and manufacturing industry, which is characteristic of most countries at the stage of rapid transition, has not yet had time to develop. Both agriculture and manufacturing are, in the former group of countries, on an average fairly primitive and therefore the productivity of manpower everywhere is low. (See section II, point 3.) This is especially true in all the Andean countries, where the average productivity in the manufacturing sector is greatly lowered by the numerically strong homecrafts which still thrive in all this mountainous region. Ecuador is an extreme case in point, followed by Honduras and Peru.

The reverse position characterizes countries like Brazil, Mexico and Venezuela. A high manufacturing-to-agriculture product-per-person ratio (4.7) reflects the basic phenomena of the structural development of Mexico, whose over-populated agricultural sector is burdened with a mass of under-employed small-holders, small land-tenants and landless people, constituting a large source of cheap migratory agriculture labour, in contrast with a rapidly developing, modern and fairly productive industry, after which come the relatively efficient services. Thus, in this rapidly progressing country the co-existence of two systems in which productivity is so very unequal marks the phase of rapid transition from the old pre-industrial era to the modern period.

The same phenomenon can be observed—though not in so acute a form—in Brazil, where the manufacturing-to-agriculture product-per-person ratio is 2.8. This proportion apparently reflects the fact that although Brazil's industry is developing as fast as Mexico's, or possibly faster, with regard to the general intensiveness of the economic transition now taking place it seems to be slightly behind Mexico, where exceptionally rapid urbanization is forced upon the population by the scarcity of agricultural land, which is much less acute in Brazil.

In Venezuela, on the other hand, the rapidity of the transition process is even greater than in Mexico. As compared with Mexican conditions, the agricultural population in Venezuela has relatively much more land and greater facilities for obtaining investment credit. Certain agricultural products in this country are also heavily protected. Consequently the apparent productivity of agriculture in Venezuela is much higher than in Mexico. Nevertheless, the manufacturing-to-agriculture product-per-person ratio is almost as high as in Mexico, and becomes the highest in Latin America, when the product-per-person ratio of all non-agricultural to agricultural activities is considered. (See later table 20.)

In this respect a special case is that of Colombia. Although Colombia was among the most rapidly progressing countries in the region in 1950, its manufacturing-to-agriculture product-per-person ratio was rather low (2.0). The reason is twofold. Colombia in 1950 was a country whose economic development was stimulated largely by the agricultural sector, where a relatively high product-per-employed-person was achieved. Rapid industrialization therefore was to some extent the result rather than the prime cause of economic growth, and by 1950 modern manufacturing had not had time to develop sufficiently to counter-balance the discriminating influence of handicrafts and homecrafts upon average manufacturing productivity. The latter, as is typical of Andean countries, was still numerically strong in 1950, though relatively much less so than in Bolivia, Ecuador and Peru. With the weakening of the influence of rural homecrafts and the intensive growth of large-scale industry, the ratio under discussion is at present rising rapidly in Colombia.

It is interesting to compare the manufacturing-to-agriculture product-per-person ratios in the above-mentioned group of countries with that of Argentina, which may safely be considered as the most advanced country in Latin America from the point of view of the stage reached in the process of transformation from a

predominantly agricultural and rural to an industrial and urban economy. Chile, though much behind Argentina, in many respects shares its structural characteristics. In both countries—as well as in Uruguay, for which however, reliable data are lacking—manufacturing-to-agriculture product-per-person coefficients are low. This reflects, on one hand, the favourable demographic situation and high degree of urbanization resulting in the low pressure of agricultural population on land, combined with the nature of agricultural production in these countries, and, on the other hand, the relatively good results achieved with regard to the productivity of manpower<sup>12</sup> in agriculture as against manufacturing activities.

In Latin America as a whole, the rise in the product per employed person during the decade 1945-55 in the main sectors was very unequal (see table 19).

A remarkable increase in product-per-person was observed in the mining sector, followed by a moderately rapid increase in manufacturing and agriculture.

It may be added that productivity in manufacturing increased fairly steadily, though less rapidly than might have been expected in view of the profound structural changes taking place within this sector. In construction, the advance from the point of view of higher productivity was considerably behind the progress made in manufacturing, and seemingly very slow, despite the rapid increase shown by cement consumption per person employed in construction. This can be attributed to the fact that public works developed more intensively than housing activities during the last decade. The former branch of construction consumes much more cement than the latter, and utilizes a large number of workers with lower average wages and possibly for shorter periods during the year; whereas residential building, in addition to paying better wages, is an activity with a wider profit margin. Thus the slow increase in productivity is mainly the result of structural changes within the construction sector.

It can also be seen that in general the increase of productivity observed in the total labour force was attributable to the progress achieved in the field of production of physical goods, primary production revealing a slightly greater advance than secondary production.

According to reliable evidence from various sources, the services sector, together with that of activities not specified, has shown an almost negligible improvement in productivity. This striking fact should be analysed, and its weight upon economic development assessed, in the light of the very rapid growth of over-all employment figures in the services sector and of the internal com-

position of services, as well as with regard to the relative numerical strength of services as such on one hand, and of various semi-productive occupations allied to services, on the other. A closer analysis of such figures and of their changes during the last decade would probably reveal that within the services sector under-employment, together with genuinely marginal labour, was gaining ground, thus tending to lower the average productivity of the whole sector, with a consequent levelling of average income.

The development described in the field of productivity and average income is a reflection of the structural disequilibrium prevailing throughout the region, and expressing itself in the development of services, in excess of the production of commodities. Between 1945 and 1955—especially during the last five years—this disequilibrium tended to become more pronounced, with the result that the impressive shifts of the population from rural to urban areas, and of manpower from agriculture to various non-agricultural occupations, was not accompanied by appropriate improvements in the standard of living of the greater part of the population, both rural and urban, and to a considerable extent produced merely a redistribution of incomes.

True, the shift of population from agricultural to urban occupations was itself accompanied by a very substantial increase in the monetary income of this section of the population, and therefore was also reflected in a rise in total income. However, the average productivity and consequently the standard of living of the great majority of the urban population did not improve sufficiently as numbers increased, and for some sections of this population even declined.

The underlying reasons for this, with all the economic and social consequences involved, are too complex to be discussed in this article. The general conclusion which may be drawn with regard to the background of increases in Latin American income during the last decade, is that changes in the over-all composition of the labour force played an important role in the rise of the total gross product, while the increment in genuine productivity per employed person in some of the sectors of the economy appears to have been unsatisfactory, the most adverse situation being observable in the sector of services and allied unspecified occupations. Here technical and administrative improvements were too few for a significant increase in the volume of services rendered per employed person to be possible.

It may be roughly estimated that to the 64.4-per-cent increment in the Latin American gross product between 1945 and 1955, the increase in employment contributed 27.9 per cent, and the rise in the average product per employed person almost the same proportion, i.e. 28.6 per cent.

<sup>12</sup> This is not an indicator of a more productive use of land.

Table 19

LATIN AMERICA: PERCENTAGE INCREASE OF GROSS PRODUCT PER EMPLOYED PERSON, BY SECTORS, 1945-55

Years	Total labour force	Agricultural labour force	Non-agricultural labour force	Mining	Manufacturing	Construction	Services
1945-55...	28.5	29.1	18.6	75.9	32.1	7.6	10.7

Note: A part of manufacturing and building handicrafts in Brazil was included under other activities.



In turn, the change in the basic composition of employment, through the shift from less to more highly remunerated branches of the economy, contributed by 5.3 per cent to the growth of the total gross product, leaving 22.1 per cent to be assigned to the influence of the increment in the gross product per person in individual main sectors.

Further investigation into the internal structure of each sector of the economy can, however, give the answer only to the general question of how far changes in productivity in each sector were influenced during the last decade by changes in the relative strength of the com-

ponent branches; how far they were due to genuine improvements in production techniques in the existing branches; and how far they were only apparent, and attributable to higher profit margins. The first impression is that the most noticeable genuine improvements were to be observed in primary production, with mining leading, while in the secondary and tertiary fields, greater importance has to be attached to changes in structure. The changes in structure, on balance, exerted a much more advantageous influence in manufacturing than in services.

## II. EMPLOYMENT STRUCTURE AND ITS CHANGES IN THE MAIN SECTORS OF THE ECONOMY

### 1. THE AGRICULTURAL LABOUR FORCE AND ITS CHANGES

The numerical strength of the agricultural labour force<sup>13</sup> in 1950 in relation to total manpower employed and to the population in Latin America as a whole and in each country is presented in tables 13 and 15.

With regard to the internal structure of the agricultural labour force, a striking phenomenon is the high proportion (59 per cent) of all economically active males employed in agriculture and related activities.<sup>14</sup> This figure was recently (in 1950) much higher than the proportion of the agricultural to the total population (54 per cent). The phenomenon in question appears in all

the countries without exception. It is explained not only by the predominance in Latin America of agricultural, forest and fishing activities, which demand mostly male labour, and the fact that agriculture makes more intensive use of child and superannuated labour, but also by the scarcity of opportunities for males to find suitable work outside agriculture, where a relatively large number of females find employment.

The combined result of the scarcity of opportunities for males to work outside agriculture, of the unbalanced agrarian structure in many regions, of the shortage of agricultural land in some countries, and of the prevailing lack of adequate progress in agricultural production, is the widespread under-employment of males in the agricultural sector. This under-employment of males is much more acute than that of females, who have an easier outlet to towns, where, at the present stage of economic development, a relatively large number of women are needed, to work in domestic service, in a variety of other services and in light industries. This phenomenon has strongly stimulated internal and inter-Latin-American migration of male workers, although opportunities for such migrants in new areas are often limited.

As regards the agricultural product per person employed, the Latin American average in 1950, according to the latest calculation, was only 0.46 of the average product-per-person of the whole labour force, and only 0.29 of the product-per-person of the labour force in the non-agricultural sectors of the economy.

Differences in the product per unit of agricultural manpower from one individual country of Latin America to another were, of course, very great, as shown in table 20.

Of all the Latin American countries, it is indisputably Argentina and Uruguay that attain the highest productivity in agriculture. Owing to their exceptionally favourable natural conditions and labour-extensive type of production, their agricultural productivity ranks high in the world scale, though still far below that achieved in the United States and Canada.

Among the other countries, Cuba, Chile, Colombia and Venezuela register an agricultural product-per-person much above the regional average. Cuba's productivity is high, but its product-per-person is undoubtedly lower than the figure shown in table 20, and therefore substantially below the standard reached in the two leading countries. The main reason is that the agricultural prod-

<sup>13</sup> The term "agricultural labour force" in a broad sense includes forest activities and fishing, and should be so understood if not otherwise defined. The labour force in agriculture proper—excluding forest and fishing manpower—was adjusted with a view to making the figures for those economically active in agriculture internationally comparable, and at the same time obtaining data more truly reflecting the real situation as to employment of females, and also of males outside the active age group (15-64). The measurement of the agricultural labour force in terms of full-time adult agricultural workers was accepted as a basic principle, and consequently adjustments were made with regard to the number of females employed, as well as boys below 15 and elderly and old men above 64. To the latter group the following conversion coefficient was applied: males below and above the active age to males of active age, as 2 to 1. All males of active age were considered as full-time adult workers. On the female side, the proportion of the total agricultural labour force represented by females (in terms of full-time workers) was approximately estimated by classing all the Latin American countries in the following five groups: (a) those in which a very high proportion of females, corresponding to 25 per cent of full-time adult agricultural workers, was employed, and which comprised Peru, Bolivia, Guatemala, Honduras and Haiti; (b) those with a high female proportion (20 per cent), i.e., Colombia, Ecuador and Paraguay; (c) those with a medium female proportion (15 per cent), i.e., Brazil, Costa Rica, the Dominican Republic, El Salvador, Nicaragua, Panama; (d) those with a low female proportion (10 per cent), i.e., Mexico, Venezuela, Uruguay; (e) those with a very low female proportion (below 10 per cent), i.e., Argentina (in accordance with the 1947 population census), Chile (in accordance with the 1952 population census) and Cuba (assumed to be 5 per cent). The agricultural labour force figures, converted, as explained above, into terms of employed full-time adult workers, are used everywhere in this article for the sake of international comparability, and should be so understood. All this would not take into account the well-known under-employment of the majority of the agricultural labour force.

<sup>14</sup> This high proportion, which to some extent is a reflection of the employment in agriculture of a large number of boys under 15 years and old men over 65, would be higher still had not the number of persons outside the active age group been reduced to the equivalent number of active-age persons (see footnote 13 above).

Table 20

LATIN AMERICA: COMPARISON OF PRODUCT PER EMPLOYED PERSON IN THE AGRICULTURAL AND NON-AGRICULTURAL SECTORS OF THE ECONOMY, BY COUNTRIES, IN 1950

Country	Agricultural labour as percentage of total labour force	Ratio of agricultural product per employed person by country to Latin American average	Ratio of non-agricultural to agricultural product per employed person	
			Including unspecified activities	Excluding unspecified activities
Latin America .....	53	100	3.3	3.5
1. Uruguay <sup>a</sup> .....	22	356	0.7	0.7
2. Argentina .....	25	267	1.7	1.7
3. Cuba .....	44	237 <sup>b</sup>	1.5	1.6
4. Costa Rica .....	56	191	1.4	1.5
5. Panama .....	55	158	1.7	2.4
6. Nicaragua .....	70	150	1.4	1.4
7. Chile .....	30	133	2.2	2.3
8. Colombia .....	56	121	1.8	2.0
9. Venezuela .....	41	113	7.4	8.7
10. El Salvador .....	64	99	1.5	1.6
11. Honduras .....	76	97	2.0	2.3
12. Guatemala .....	75	85	3.6	4.1
13. Dominican Republic .	70	84	3.3	3.5
14. Peru <sup>a</sup> .....	60	81	1.8	1.9
15. Brazil .....	61	79	3.8	3.8
16. Mexico .....	58	69	5.0	5.5
17. Ecuador .....	51	68	1.4	1.6
18. Paraguay .....	58	63	1.8	1.9
19. Bolivia .....	63	50	1.3	1.4
20. Haiti .....	77	49	1.2	1.4

Source: ECLA, on the basis of national estimates of agricultural product, converted into dollars.

<sup>a</sup> Rough estimates.

<sup>b</sup> The taking into account of the value added by sugar mills would give a lower figure for primary agricultural production.

uct in Cuba includes value added by sugar mills; in addition, it seems that figures for the agricultural product are somewhat over-valued. Chile possibly represented the reverse case, so that its agricultural productivity in reality is closer to that of Cuba than it appears from the figures quoted. As to Venezuela, where some agricultural products, owing to protection, are more highly priced than similar products in other countries, its agricultural productivity in real terms is somewhat below that presented in the table.

An agricultural product-per-person close to the Latin American average is achieved in a group of small tropical countries, where the predominance of labour-intensive methods of production is counter-balanced by the relatively large proportion of export products fetching fairly good prices.

All three remaining major countries—Brazil, Mexico and Peru—belong to the medium-low productivity level, with Peru leading. This grouping of course relates to the average for the countries. Within individual countries, especially the larger ones, almost the same variations in agricultural productivity levels can be seen as among the different countries of Latin America. These disparities are strongly marked between the various states of Brazil. In Peru the discrepancies between the average productivity of agricultural manpower in the coastal and in the highland areas are immense. It is the overpopulated highland agriculture which lowers the country's average so greatly, the coastal agriculture being fairly efficient. A similar situation can be observed in

Ecuador, where the average for the country does not differ much from that of Peru. In Mexico, too, the phenomenon described is striking.

The lowest agricultural productivity in Latin America is encountered, in general, in the Andean uplands and in the over-populated areas of the Caribbean. Hence Bolivia, with its almost entirely Andean agriculture (in 1950), and the overcrowded Haiti registered by far the lowest product-per-person level in agriculture.

As regards changes in the agricultural labour force<sup>15</sup> within the decade 1945-55, for the region as a whole they represented a moderate increase estimated at 15 per cent. Among individual countries such modifications varied widely. Agricultural employment, almost stationary in some countries (Chile, Cuba and Uruguay), increased during the ten-year period by more than 25 per cent in certain others (Costa Rica, Guatemala, Nicaragua, Paraguay). From the point of view of the rate of growth of the agricultural labour force, all the twenty republics could be divided into four groups, as was done with reference to rural population, to which the agricultural labour force is closely related. (See table 21, and also section I, point 1.)

The enlargement of the agricultural labour force was accompanied by a more rapid increase in the volume of production, so that a rise in productivity resulted (see table 22).

<sup>15</sup> Labour force employed in agriculture proper, excluding forestry and fishing. (See also footnote 13.)

**Table 21**

LATIN AMERICA: INCREASE IN THE AGRICULTURAL LABOUR FORCE AS COMPARED WITH THE TOTAL LABOUR FORCE, BY COUNTRIES, 1945-55

Country	Percentage increase	
	Agricultural labour force <sup>a</sup>	Total labour force
1. Cuba <sup>b</sup> .....	-3	22
2. Uruguay .....	0	15
3. Chile .....	2	20
4. Colombia .....	8	25
5. Venezuela .....	8	37
6. Argentina .....	8	26
7. Peru .....	14	23
8. Brazil .....	14	27
9. El Salvador .....	18	27
10. Bolivia .....	18	23
11. Dominican Republic .....	18	28
12. Panama .....	20	34
13. Mexico .....	21	32
14. Honduras .....	23	31
15. Haiti .....	24	28
16. Ecuador .....	25	35
17. Costa Rica .....	26	37
18. Nicaragua .....	26	33
19. Paraguay .....	26	35
20. Guatemala .....	28	33

Note: Countries are enumerated in ascending order of rapidity of growth of agricultural labour force.

<sup>a</sup> Excluding labour employed in forest activities and fishing.

<sup>b</sup> See footnote 2.

A very similar result is obtained when the increase in the gross agricultural product per employed person in the agricultural sector—including forest activities and fishing—is computed (see table 23).

Naturally all these figures are only approximations, as is clearly demonstrated in the case of Chile, where a much greater increase in the gross agricultural product than in the volume of agricultural production—calculated independently—is shown. In some countries (e.g., Argentina, Colombia), both these series had been calculated from a single basic source, and therefore, showed a uniform increase.

However approximate all these calculations may be, they demonstrate that the increase in the productivity of agriculture—basically common to all the countries presented in tables 22 and 23—was not related in any way to the density of the agricultural population and the rate of growth of the corresponding labour force which differed very widely among these countries.

The widespread increase in the productivity of agricultural labour in countries with such different manpower conditions may be interpreted as an indicator of the generally low level of productivity at the beginning of the period, which allowed ample margin for improvement, in combination with the existence of large agricultural resources that could easily be more efficiently utilized. This increase in productivity, when compared with developments in North America and Europe, was rather slow. It was achieved mainly through the mechanization of farming operations, extended use of fertilizers and, in some cases, new irrigation systems. Mechanization was, however, introduced on a modest scale only, and no significant structural changes in Latin American agriculture took place during the decade.

Even when the influence of the relative changes in agricultural and non-agricultural prices is eliminated, the rise in the agricultural product in real terms is found to be greater than the increase in non-agricultural productivity. In such a case, the result will be a tendency towards a reduction of the disparity between product-per-person in agricultural and in non-agricultural activities in Latin America.

This gap between agricultural and manufacturing product-per-person was, nevertheless, increasing. (Compare table 19.) If the latter is the case, such a development would be in contrast with the situation observed in countries like Canada, Sweden, the United Kingdom and the United States, where during the post-war period the increase in the productivity of labour has been as fast in agriculture as in industry, or faster, so contributing further to the narrowing of the gap<sup>16</sup> between agricultural and non-agricultural income.

Apart from agriculture proper, the agricultural sector includes also forest activities and fishing. Forest activities employ a substantial proportion of the total labour force in only a few countries of Latin America. In Paraguay this proportion is as much as 6 per cent; next in order

<sup>16</sup> See FAO, *The State of Food and Agriculture, 1955*, Rome, September 1955, chapter VI.

**Table 22**

LATIN AMERICA: PERCENTAGE INCREASE IN AGRICULTURAL PRODUCTION, LABOUR FORCE AND PRODUCT PER EMPLOYED PERSON IN SELECTED COUNTRIES, 1945-55

	Uruguay	Chile	Colombia	Venezuela	Argentina	Brazil	Mexico	Ecuador
Volume of agricultural production <sup>a</sup> ..	58	15	29	78	20	58	105	148
Agricultural labour force .....	0	3	8	8	8	14	21	25
Volume of agricultural product-per-person .....	58	12	20	65	11	38	69	99

Note: Countries are enumerated in ascending order of percentage growth of the agricultural labour force.

<sup>a</sup> At 1950 prices.

Table 23

LATIN AMERICA: INDICES OF GROSS PRODUCT PER EMPLOYED PERSON IN AGRICULTURAL SECTOR,<sup>a</sup> IN SELECTED COUNTRIES AND IN THE REGION AS A WHOLE, 1945-55

(1945 = 100)

Year	Latin America	Uruguay	Chile	Colombia	Venezuela	Argentina	Brazil	Mexico	Ecuador
1946.....	105	115	117	106	103	105	106	104	117
1947.....	107	103	105	109	100	112	100	105	132
1948.....	112	116	121	109	110	112	107	117	145
1949.....	112	133	116	115	128	102	110	123	136
1950.....	113	137	116	105	119	95	112	137	180
1951.....	115	154	111	108	120	99	112	137	178
1952.....	118	151	128	119	131	87	119	128	207
1953.....	121	159	132	118	140	110	117	138	200
1954.....	124	170	127	117	144	107	123	157	205
1955.....	129	163	135	120	149	111	133	166	176

<sup>a</sup> Including forestry activities and fishing.

come Brazil (1.5 per cent), Argentina (1.2 per cent), Honduras (1.1 per cent) and Nicaragua (0.9 per cent). In other countries the corresponding figure was below 1 per cent.

The aggregate labour force engaged in forest activities (not including sylvatic population) numbered about 480,000 persons in 1950, representing approximately 0.9 per cent of the total labour force.

In some countries there is a tendency towards a slower growth of this sector, and even for a declining number of people to depend upon it, despite the fact that forest cultivation proper is only beginning. Formerly, the gathering of forest products provided the bulk of employment, but with the development of regular agriculture and plantation of trees, this activity is diminishing. In other countries, however, largely in connexion with an expanding demand for timber, firewood and charcoal, forest activities are tending to increase.

As Brazil, whose forest activities represent more than 50 per cent of total forest employment in Latin America, belongs to the second group of countries, the general tendency of manpower in this field in Latin America was towards growth. It may be estimated that during the decade 1945-55 the labour force engaged in forest activities increased by 20-25 per cent.

Fishing—which in the whole of Latin America employed only approximately 200,000 persons in 1950, as compared with about 480,000 engaged in forest activities—is a rapidly developing branch of production with good prospects for employment. It may be estimated that during the decade 1945-55 the labour force in fishing increased by as much as 30.35 per cent.

## 2. MINING LABOUR FORCE AND ITS CHANGES

Employment in mining in Latin America is somewhat modest, having totalled approximately 560,000 in 1950, or less than 1.1 per cent of the total labour force; but in comparison with the percentage of industrial employment at that time (5.8) it was fairly high.

Among the countries where employment in mining accounted for the highest proportion of the total labour force were the following: Chile (4.7 per cent), Bolivia (4.2 per cent), Venezuela (2.6 per cent), Colombia (1.5 per cent), Peru (1.4 per cent), Mexico (1.2 per cent)

and Nicaragua (0.9 per cent). In other countries the corresponding figure was substantially below 1 per cent.

However, the importance of mining in particular countries is only partially reflected in employment figures, because of the sharp contrasts in output per miner, depending on the type and structure of mining activities, which range from large-scale modern mines to very small mines and individual gold-washers and prospectors. In eight leading mining countries in 1950, out of a total employment figure of about 560,000 miners, mining on an industrial scale employed only about 330,000 people, i.e., about 60 per cent of the total. Among those eight countries the highest percentage of large-scale mining is found in Venezuela, followed by Argentina and Mexico (close to or above 90 per cent in all three), and the lowest, in Colombia and Brazil (where large-scale mining employed less than one-third of the active mining population).

Broadly speaking, it is in the mining sector that the productivity of manpower is the highest among the main sectors of the economy, as seen in all countries with well-developed mining activities—Venezuela, Mexico, Chile, Colombia, Peru, Bolivia and Argentina (enumerated in the order of the gross value of their mining product). The same holds true for the mining countries of secondary importance, i.e., Cuba, Ecuador and Nicaragua. The sole exception is Brazil, where the character of employment in mining is very different from that in other countries.

Table 24 shows the gross value of the product per person employed in the mining sector, with reference to the proportion of mining employment in industrial-scale enterprises.

With regard to the different branches of mining, the employment figures reflect the characteristic fact that in Latin America by far the most important are the branches engaged in the extraction of mineral oil (accounting in 1950 for 70 per cent and in 1955 for 73 per cent of total gross product from mining) and non-ferrous metals (23 per cent in 1950), which are mainly exported; while coal mining (1.3 per cent in 1950), iron-ore mining (1.4 per cent in 1950, and in 1955, 3.0 per cent) and the extraction of chemical minerals (apart from nitrates, in 1950, 0.7 per cent) remain greatly undeveloped. This situation is, to a large extent, caused

by under-industrialization, national industries being normally the main consumers of the latter minerals, and by the shortage of transport facilities which would permit an even more rapid development of extraction of iron-ore and some other minerals which are well suited for export. Under these conditions future prospects in mining depend not only on export opportunities but also on industrialization and on the expansion of transport facilities.

**Table 24**

LATIN AMERICA: PRODUCTIVITY OF MANPOWER IN THE MINING SECTOR AND THE MINING LABOUR-FORCE IN PRINCIPAL MINING COUNTRIES IN 1950

Country	Gross value of production per person (dollars) <sup>a</sup>	Total number of persons employed in mining sector	Employment in medium-and-large-scale mining as percentage of total
1. Venezuela .	31,474	44,509	90-100
2. Mexico ...	3,785	97,143	80-90
3. Chile .....	2,922	98,000 <sup>b</sup>	60-70
4. Peru .....	2,584	40,000 <sup>c</sup>	70-80
5. Argentina .	2,346	31,000 <sup>d</sup>	90-100
6. Ecuador ..	2,086	5,211	80-90
7. Cuba .....	1,991	7,000	90-100
8. Bolivia ...	1,849	43,441	40-50
9. Colombia ..	1,819	60,000 <sup>b</sup>	30-40
10. Brazil .....	361	115,661	30-40
<i>Latin America</i> .	4,486	557,000	± 60 per cent

<sup>a</sup> Quantum of production—building materials excluded—valued on the basis of world prices.

<sup>b</sup> Estimate for 1950 based on population census data.

<sup>c</sup> Approximate estimates.

<sup>d</sup> Estimate for 1950 based on industrial census data.

The analysis of the productivity of manpower in various branches of mining shows clearly why in several countries oil extraction and the mining of non-ferrous metals are engaged in specially for export purposes, while coal mining, for example, is undertaken almost exclusively to meet domestic consumer requirements. In general, within the mining sector disparities in the productivity of manpower are very great, as can be seen in the case of Chile (see table 25) and of Peru (see table 26).

**Table 26**

PERU: PRODUCTIVITY OF LABOUR BY BRANCH OF MINING, 1950 AND 1954

(Dollars at 1950 prices)

Branch	Gross value of production (thousands of dollars)		Number of persons employed		Gross value of production per employed person (dollars)	
	1950	1954	1950	1954	1950	1954
Oil extraction ....	37,680	50,110	5,875	6,787	6,414	7,383
Coal mining .....	1,049	1,102	1,365	1,814	768	607
Metal mining .....	55,124	84,840	22,119	26,025	2,492	3,260
Extraction of salt..	264	333	393	534	672	624
All other branches.	9,243	11,440 <sup>a</sup>	10,248 <sup>b,c</sup>	—	902 <sup>c</sup>	—
<b>TOTAL MINING</b>	<b>103,360</b>	<b>147,825</b>	<b>40,000<sup>c</sup></b>	<b>—</b>	<b>2,584</b>	<b>—</b>

<sup>a</sup> Data for 1954 not complete, therefore not comparable with 1950.

<sup>b</sup> Residual figure.

<sup>c</sup> Rough estimates, excluding part-time gold-washers.

**Table 25**

CHILE: PRODUCTIVITY OF LABOUR BY BRANCH OF MINING, 1950

(Dollars)

Branch of mining	Gross value of production (thousands of dollars)	Number of persons employed	Gross value of production per employed person (dollars)
Oil extraction .....	1,579	776	2,035
Coal mining .....	11,861	16,618 <sup>a</sup>	714
Copper mining <sup>b</sup> .....	143,131	11,994 <sup>c</sup>	11,934
Extraction of nitrates..	68,330	23,067 <sup>d</sup>	3,503
All other branches <sup>e</sup> ...	61,411	45,545 <sup>f,g</sup>	1,348 <sup>g</sup>
<b>TOTAL MINING</b>	<b>286,312</b>	<b>98,000<sup>g</sup></b>	<b>2,922</b>

<sup>a</sup> Excluding manpower employed in maritime transport.

<sup>b</sup> Large mines only.

<sup>c</sup> Excluding smelting and refining, estimated as 3,000.

<sup>d</sup> Including elaboration.

<sup>e</sup> Including small and medium copper mines.

<sup>f</sup> Residual figure.

<sup>g</sup> Approximate estimates.

True, productivity in oil extraction in Chile was low as compared with that of Peru, but in 1950 it was only in the development stage, with the prime aim of covering domestic requirements, while Peruvian oil mining was already a well established export industry.

In both countries mining of non-ferrous metals was exceedingly productive, remarkably high productivity being recorded in large-scale copper-mining in Chile.

In both countries, too, in coal-mining, carried on mainly for the supply of domestic markets, productivity was low. A fair level of productivity was achieved in the extraction of nitrates in Chile—a typical export branch.

In most of the remaining branches of mining average productivity was rather on the low side in comparison with the mining average, falling very low in some branches. The main reason was that in this section of mining in both countries medium and small-scale enterprises predominated, among these being reckoned a number of individual gold-washers and prospectors.

With regard to changes during the period 1945-55, total employment in the mining sector remained almost constant. This was the result of two opposite phenomena. In large-scale mining—particularly in extraction of mineral oil, in metallic ore mining and in coal mining—employment figures increased. Simultaneously however, small-scale and minimum-scale mining dwindled.

In addition to the over-all economic growth and development of the export mining industries, important changes took place within both types of mining enterprises. Some large-scale mines, in Bolivia and Brazil for example, tended to adopt labour-intensive processes, owing to exchange control procedures, which often resulted in failure to obtain import licences for items of capital equipment.<sup>17</sup> More general, however, was the increase of productivity in large-scale mining and the expansion of its operations, which squeezed out of the

<sup>17</sup> See Charles Rollins, "Economic Theory and Bolivian Tin", *The Review of Economics and Statistics*, November 1955, and George Stigler, "A solution to the Brazilian Dollar Shortage", *Current Economic Comment*, September 1955.

market a large proportion of small mining enterprises and individual miners. In gold-mining—which is the most typical field of activity of small mining units and of individual gold-diggers and prospectors—small-scale operators producing only gold have been beset for more than a decade by rising costs without a compensating increase in the price of their product. This is reflected in a downward trend in employment in such important gold producers as Chile, Peru, Colombia and Ecuador.

With employment in the mining sector almost stationary, mining production was increasing rapidly, signifying an equally rapid increase in the product per unit of mining manpower (see again table 19).

### 3. INDUSTRIAL EMPLOYMENT AND ITS CHANGES

The total industrial employment figure for Latin America in 1950 was some 9,660,000, of which 7,680,000 corresponded to manufacturing (3,700,000 to industry proper and 3,980,000 to handicrafts and homecrafts), and 1,980,000 to construction (see table 27).

**Table 27**  
LATIN AMERICA: EMPLOYMENT IN THE INDUSTRIAL SECTOR, 1950<sup>a</sup>

Countries	Total industrial employment	Manufacturing industry					Construction
		Total	Industry proper		Handicrafts and homecrafts		
			Number of persons	Percentage	Number of persons	Percentage	
Argentina .....	1,905,000	1,560,000	920,000	59	640,000	41	420,000
Chile .....	496,000	383,000	189,000	49	194,000	51	113,000
Brazil .....	2,864,700	2,191,600	1,150,000	52	1,041,600	48	673,100
Peru .....	514,000	434,000	130,000	30	304,000	70	80,000
Colombia .....	690,000	570,000	170,000	30	400,000	70	120,000
Venezuela .....	263,600	172,500	110,000	64	62,500	36	91,100
Mexico .....	1,197,100	972,600	540,000	56	432,600	44	224,500
Cuba .....	333,000	283,000	145,000	51	138,000	49	50,000
Larger countries .....	8,263,400	6,566,700	3,354,000	51	3,212,700	49	1,771,700
Guatemala .....	100,000	80,000	30,000	38	50,000	62	20,000
El Salvador .....	93,100	74,400	31,100	42	43,300	58	18,600
Honduras .....	47,100	37,600	8,400	22	29,100	78	9,500
Nicaragua .....	46,400	37,700	7,000	19	30,700	81	8,700
Costa Rica .....	41,500	29,900	13,500	45	16,400	55	11,600
Central America excluding Panama .....	328,000	259,600	90,000	35	169,500	65	68,400
Panama .....	24,700	18,000	7,700	43	10,300	57	6,700
Central America .....	352,700	277,600	97,700	35	179,800	65	75,100
Paraguay .....	81,100	68,300	15,000	22	53,300	78	12,800
Bolivia .....	135,300	109,600	28,000	26	81,600	74	25,700
Ecuador .....	322,100	294,700	45,000	15	249,700	85	27,300
Dominican Republic .....	76,500	57,100	21,000	37	36,100	63	19,500
Haiti .....	95,600	85,300	15,000	18	70,300	82	10,300
Smaller countries excluding Uruguay .....	710,600	615,000	124,000	20	491,000	80	95,600
Uruguay .....	260,000	220,000	120,000	55	100,000	45	40,000
Smaller countries .....	970,600	835,000	244,000	29	591,000	71	135,600
<i>Latin America</i> .....	9,661,700	7,679,300	3,695,700	48	3,983,500	52	1,982,400

<sup>a</sup> Statistical data and estimates; data in thousands, rounded to nearest hundreds.

The degree of industrialization of individual countries shows wide variations. (See again tables 9 and 10.) While the average Latin American percentage of industrial employment to total population in 1950 stood at 6.3 per cent (and that of employment in manufacturing at 5.0 per cent) the percentage in individual countries varied from 3.1 per cent in Haiti and 3.3 in Honduras to 11.5 per cent in Argentina, followed closely by Uruguay (about 11 per cent) and Chile (8.5 per cent). This percentage is on the average distinctly higher in the eight larger countries of Latin America—those with over 5 million inhabitants—where the average ratio is 6.4 per cent, than in the remaining twelve smaller countries, where it is 5.5 per cent, or, if Uruguay is excluded, only 4.9 per cent.

The distribution of total industrial employment between (a) manufacturing industry proper, comprising workshops employing more than 5 persons per establishment; (b) under-size industry, handicrafts and homecrafts of manufacturing type; and (c) construction activities, also varies widely from one country to another.

The proportion of employment in total manufacturing represented by employment in industry proper (or "factory industry") which in 1950 was below 50 per cent (48 per cent) for Latin America as a whole, varied in particular countries from about 25 per cent or under (Bolivia, Ecuador, Haiti, Honduras, Nicaragua and Paraguay) to nearly, or over 60 per cent (Argentina, Mexico and Venezuela).

Such a percentage relationship is only loosely correlated with income level. It reflects, to some extent, the stage reached in the process of disappearance of rural homecrafts, and also the extent to which people thus employed are registered in national statistics or remain unaccounted for.

The proportion of employment in factory industry to the total population—which varies from 0.5-0.7 per cent in Haiti, Honduras and Nicaragua to over 5 per cent in Uruguay and Argentina—bears a slightly closer relation to the income level than the proportion of total industrial employment to the population.

The general phenomenon of great disparities of productivity observed between countries in different sectors of the economy is also strongly marked within the manufacturing sector (see table 28.)

Manufacturing industry proper gives, as a rule, a higher value of output per employed person than the services sector. After mining, manufacturing on a factory scale offers the most productive employment in the national economy. However, factory industry represents in Latin America only half of total employment in manufacturing, the other half being accounted for by handicrafts and homecrafts, whose joint average productivity is only a fraction—usually less than 50 per cent—of the productivity achieved in industry proper. The discrepancy between productivity coefficients of industry proper and handicrafts in Latin American countries is kept within fairly moderate limits by the fact that the average productivity of the labour force working in factories remains at a relatively low level.

It is the average productivity in homecrafts, which is extremely low, that creates excessive margins of difference between the manufacturing productivity averages of the various countries. Statistical data in this respect

Table 28

LATIN AMERICA: PRODUCTIVITY OF MANPOWER IN MANUFACTURING IN SELECTED COUNTRIES IN 1950, IN COMPARISON WITH THE REGIONAL AVERAGE

Country	Gross product per capita (dollars)	Ratio of product-per-person of total manufacturing labour force to regional average
1. Venezuela .....	Over 400	177
2. Argentina .....	Over 400	158
3. Cuba .....	300-400	132 <sup>a</sup>
4. Chile .....	300-400	89
5. Costa Rica .....	250-300	96
6. Mexico .....	200-250	118
7. Colombia .....	200-250	90
8. Brazil .....	200-250	82
9. Honduras .....	150-200	54
10. El Salvador .....	150-200	30
11. Peru .....	100-150 <sup>b</sup>	28 <sup>c</sup>
12. Ecuador .....	100-150	23 <sup>c</sup>
13. Paraguay .....	Below 100	33 <sup>c</sup>
14. Bolivia .....	Below 100 <sup>b</sup>	8 <sup>c</sup>
<i>Latin America</i> .....	<i>250</i>	<i>100</i>

<sup>a</sup> Approximate estimate, probably excluding contribution of the sugar mills.

<sup>b</sup> Sylvatic population excluded.

<sup>c</sup> Manufacturing labour force includes a large proportion of workers engaged in homecrafts.

are very scarce. The one country which attempted to draw up industrial statistics with a clear-cut division between (a) industry proper (units of above 5 persons per establishment), (b) handicrafts, and (c) homecrafts, and which also included productivity data in its 1950 industrial census, was Honduras. The census in question shows that if the value added per employed person in industry proper was 100, it was 48 in handicrafts, and in homecrafts 11 only.

There are grounds for the belief that a similar situation with respect to the vast differences in productivity between manufacturing industry proper and homecrafts exists in all the countries where the latter are still numerically strong. Employment in homecrafts reaches its highest level in the Andean countries, Bolivia, Peru, Ecuador and Colombia. It is also substantial in some of the Central American and Caribbean Republics. In all those countries the extremely low productivity level of homecrafts is a considerable factor in the reduction of average manpower productivity in the manufacturing sector, and the main explanation of the great disparities between the various countries concerned.

To turn to the labour force employed in construction, its relative strength, varying in 1950 from 0.3 to 2.4 per cent of the total population (Latin American average = 1.3 per cent), does not faithfully reflect actual construction activity in various countries. The term "employment in construction" covers partly full-time, regular construction workers, and partly those that are only seasonal, if not altogether casual, labourers. The first category is relatively more strongly represented in advanced countries, while in the less advanced, the latter type of construction worker is more common. Allowing for a much greater productivity among regular workers, this indicates that the actual disparity noted in the gross

product derived from construction activities as between more and less advanced countries is in fact greater than would appear from the employment figures only.

During the last ten years total manufacturing employment has demonstrated a rapid growth. This increase may be assessed at about 37 per cent for the whole decade, 19 per cent for the five-year period 1945-50 and 15 per cent for the period 1950-55.

The growth of manufacturing employment in Latin America is, however, a complex matter, since it comprises several greatly different, though interdependent, processes. Therefore, changes in total figures for manufacturing employment only very superficially reflect the trends of industrial development.

Among changes in industrial employment the most important are those relating to industry proper, that is, to establishments employing 5 or more persons. During the decade preceding 1950, in most of the countries of Latin America employment in industry proper developed faster than in manufacturing activities where the units involved were very small.

The highest annual rate of growth of factory employment was registered during this period in Venezuela and Mexico, where it was 9.7 and 9.3 per cent respectively. In Brazil, with its already large industry, the rate was lower—4.7 per cent—and in Colombia it was 4.9 per cent. In Chile, the rate was only 3.3 per cent. In Argentina a very high rate of growth—7.4 per cent per annum—was recorded during the period 1935-45. Between 1945 and 1947 it slowed down to 1.7 per cent annually, and, afterwards the growth of industrial employment was brought to a standstill, so that over the whole decade 1945-55 the average annual rate of increase was only 0.2 per cent. After 1948 factory employment actually declined, and only in 1954 did it begin to rise again.

Among the smaller countries, a rapid growth of factory employment was observed in Uruguay (where around 1950, the annual rate of increase was over 4 per cent), Ecuador, El Salvador, Honduras and Costa Rica. In other countries employment in factories grew more slowly.

It is estimated that in Latin America the labour force in industry proper increased by 24 per cent between 1945 and 1950, which implies an average annual rate of growth of 4.4 per cent.

During the five-year period 1950-55, the growth of employment in industry proper in Latin America as a whole became a little slower, factory employment having increased by about 16 per cent, so that the average annual rate of growth was 3.0 per cent.

Such growth, in the more highly industrialized countries, became less uniform than before. While some countries, like Brazil and Venezuela, maintained their previous high rate of growth, or even accelerated it, as Colombia did, in others, as in Argentina and Mexico, there was a marked slackening of the rate of expansion of factory employment. The moderate rate of growth of factory employment in Chile remained pretty steady over both five-year periods, though after 1950 it declined slightly.

Employment outside industry proper was subject to the following characteristic changes. Manufacturing in-

dustry of dimensions limited to five persons per establishment, or fewer—which may be called “under-size industry”—is composed of several distinct types of units, among which the most important are dwarf industry, handicrafts and homecrafts.

Total employment outside industry proper during the last decade grew on the average at a lower, but more steady rate than employment in factory industry. It may roughly be estimated on the basis of trends observed between two successive censuses in some of the major countries that in Latin America, between 1945 and 1950, manufacturing employment at below-factory level increased by about 15 per cent, i.e., at an average rate of 2.8 per cent per annum. Between 1950 and 1955 the corresponding increase was slightly slower, representing an average rate of some 2.6 per cent per annum, and giving an increment of about 14 per cent for the period. Thus, for the whole decade 1945-55, an over-all increase of about 30 per cent is recorded; this implies an average annual rate of growth of 2.7 per cent, slightly higher than the rate of growth of the population.

Within such over-all changes, however, the development trends of each of the three above-mentioned types of sub-factory manufacturing unit followed characteristic and clearly-distinguished patterns during 1945-55.

Homecrafts, which, despite their steady decline, retained until 1945 in certain regions of Latin America, principally in the Andean countries and in Central America, substantial numerical strength, continued to shrink rapidly during the decade 1945-55, especially in countries showing a marked advance in competitive branches of factory industry. In Venezuela, homecrafts—still pretty numerous in 1941—had almost disappeared by 1950, judging at least from employment statistics. It may be estimated that in Colombia homecrafts were reduced between the 1938 and 1951 censuses to less than half (perhaps to one-third) of the strength registered in 1938. In the case of Ecuador, the crisis through which the traditional Panama hats homecrafts industry is passing may be cited as an example. Observations in other countries confirm the rapid downward trend in the traditional domestic crafts in rural areas.

Certain groups of homecrafts located mainly though not exclusively in urban areas show a greater capacity to survive under changing conditions, but they are losing those characteristics which are distinctive of a regional people's art, and are practically merging with dwarf industry as the line of demarcation between them becomes indistinguishable.

Handicrafts, unlike homecrafts, can maintain their growth under modern conditions bringing about the diversification of typical artisan functions—despite the gradual extinction of certain arts—without being much disturbed by the development of factory industry. Genuine artisans with full qualifications for training young handicraft workers are, however, scarce on the whole in Latin America, so that the whole of the handicrafts section of industry remains under-developed and is growing slowly. The shortage of qualified handicraftsmen in urban centres in Latin America persisted with the same intensity throughout the whole of the period 1945-55, which seems to suggest that the growth of handicrafts was no more rapid than the growth of urban population.



Dwarf industry, devoted usually to production of the simplest type of goods, in competition with factory industry, grew rapidly during the last decade. Because of the accumulation of favourable conditions for this type of industry prevailing in many of the Latin American countries, its growth in some cases outstripped that of factory employment, and in the last few years more than compensated for the decline of rural homecrafts. Thus aggregate manufacturing employment outside factories increased at a pace between the rate of growth of urban population and that of the rise in total population figures.

Even when these developments in the field of industry in recent years are taken into account, the characteristics of industrial structure—common to all countries of Latin America—that were brought to light by the employment figures included in the most recent industrial and population censuses (around 1950) still persist. These are as follows:

(i) The predominance of industries producing non-durable as compared with durable goods;

(ii) The high proportion of total industrial manpower employed in the three major consumer goods industries, i.e., textiles, clothing and foodstuffs (under which last head beverages and tobacco are included);

(iii) The relative importance of industries producing minor non-durable consumer goods, such as paper products and printed matter, simple rubber products, leather and leather goods, miscellaneous consumer and fancy goods;

(iv) The much greater development of the transforming industry based on chemicals, producing mainly non-durable consumer goods, as compared with the basic chemical industry, which is extremely weak in Latin America;

(v) The relative under-development of the building materials, pottery and glass industries, in proportion to the size of the labour force employed in construction activities; and

(vi) The preliminary stage of development of those sections of industry which produce final capital goods, especially mechanical equipment.

The first important conclusion which can be drawn from an employment analysis of the main groups of industry, by branches, is that, at Latin America's present stage of industrialization, within related industries, the branches devoted to mass production of basic intermediate products are greatly under-developed. This under-development is most marked in the groups concerned with metals, electric manufactures and chemicals, but is also acute in the case of more elaborate construction materials, such as clay and cement products, as well as in that of plate glass, plywood, pulp and paper, and some branches of textile manufacturing, beginning with spinning-mills. All these are largely capital-intensive industries. Naturally, it is more economic to import some intermediate products than to produce them at an excessive cost at home. The fact, however, that the capacity to produce basic intermediate products is, as a rule, far from commensurate with the capacity to produce final consumer goods (with the exception of high-grade industry products), or with the capacity of building teams, results in the serious bottleneck which must be overcome at this stage of industrial development if economic growth is to proceed at a satisfactory rate.

The second main conclusion to be drawn from an analysis of employment by branches of industry, with particular reference to the more industrially advanced countries of Latin America, is the extreme weakness of industries producing final and semi-final capital goods, i.e., all types of agricultural, industrial, transport and other service equipment. This is the second grave bottleneck in the economy of the Latin American countries, the remedying of which is essential if economic development at its present stage is not to be increasingly handicapped.<sup>18</sup>

Over-all productivity in manufacturing industry, and its evolution in the course of time in Latin America, is very closely connected with the internal structure of the manufacturing sector and with alterations in the basic structural pattern of industry, expressed in changes in the relative strength of the main types of manufacturing and their component branches. Hence, in Latin America as a whole, despite the rapid process of industrialization it was undergoing, fundamental changes in the pattern of industrialization were not observed; on the contrary, drastic variations were limited rather to a few countries, and in general modifications were produced rather slowly. This fact was reflected in the relatively slow rate of productivity changes.

Throughout the whole 10-year period 1945-55—with the possible exception of the two post-war years—average productivity in the industry sector increased steadily but not rapidly. (See again table 19.)

The over-all increase in the product-per-person in the manufacturing sector during the decade, amounting to about 32 per cent, was much lower than in the mining sector, where the product-per-person increased by about 75 per cent. It was higher—although only by a relatively small margin—than the increment in the agricultural product-per-person, which should be considered as low.

The apparent slowness of the increase in the product-per-person employed in manufacturing industry, which rose at an average annual rate of only 2.8 per cent, despite the fact that this was a period of rapid industrialization of Latin America marked by the installation of many modern industries, is easily explained. Alongside modern-type industrialization comprising well-equipped medium- and large-scale plants, the efficiency of which is far above the average, there springs up in the urban centres a vast mushroom growth of small, inefficient workshops, which can operate at a profit owing to the ample supply of cheap labour, provided by the steady immigration of rural population to towns and by the already-existing local stock of marginal population.

This phenomenon should be taken in conjunction with the continued existence of numerous handicrafts and homecrafts, a situation to which reference has already been made. Not only do both groups of activities lower average industrial productivity in any given year, but also, because their own progress in introducing more efficient production methods is tardy, they slow down the rate of increase of productivity in the whole manufacturing sector.

<sup>18</sup> A fuller explanation of the facts referred to here will be given in the *Manpower Survey in Latin America*, which will shortly appear in mimeographed form. See also "Progress Report on the Manpower Survey in Latin America" (E/CN.12/375), Bogotá, August 1955 (mimeographed), section IV, point 5.

#### 4. EMPLOYMENT IN SERVICES<sup>19</sup> AND ITS CHANGES

Purely from the standpoint of employment figures, services are relatively more developed in Latin America

<sup>19</sup> In economics the term "services" has two meanings, often used side by side, a fact which creates a certain degree of confusion. "Services" in the broader sense means "the service sector", which is synonymous with "the tertiary sector", devoted to the production of services, as opposed to the production of goods by the primary and secondary sectors. It corresponds to the use of the common term "tertiary production" alongside "the production of services", these two being synonymous. When the term "tertiary production" is used it emphasizes that a full range of services is covered.

"Services" in the broader sense consist in the transport, storage and distribution of goods, energy and information, and in various services rendered directly to individual persons and to the community as a whole.

"Services" in the narrower sense is used for the latter type of service only, i.e., services rendered directly to individuals and to society, and comprising personal services, community welfare services and public administration and security services, but excluding passenger transport; energy, gas and water supply to private houses; and telephone and postal services.

Within the International Standard Industrial Classification of all economic activities (ISIC) the second definition of "services"—of a merely conventional character—is used, as it fits better into the decimal system of classification of all branches of the economy.

In this article the first definition of the term services was preferred because of its greater simplicity and wider application. The "service sector" approach is more consistent with the fundamentals of economic theory and more convenient for making an over-all analysis of manpower related to the production of goods and services.

than industry. In 1950 8.7 per cent of the total population and 25.3 per cent of the total labour force were employed in services, as against 6.3 and 18.1 per cent, respectively, in industry.

Figures for total employment in services in individual countries are strongly influenced by the proportion of females employed. In general, the highest proportion of females is employed in the services sector; the figures vary, with few exceptions, between 30 and 45 per cent, resulting in an average of 40 per cent. Those countries with more intensive industrial growth apparently tend to show a lower percentage of females in services than other countries.

All services can be divided into the following five main groups: (a) public utilities, transport and communications; (b) commercial services; (c) personal services; (d) community welfare services; (e) public order services.<sup>20</sup> (See table 29.)

<sup>20</sup> (a) Energy and gas supply; water supply and sewage; transport, storage and communications; (b) distributive trade; banking; insurance; miscellaneous commercial, financial and similar agencies; (c) lodging; catering; cleaning and hygienic services; domestic services; (d) medical and health services; recreational and educational services; cultural and scientific activities; religious institutions; social and welfare institutions; legal services; business services (e.g. accountancy, technical consultants, etc.); (e) public administration; justice; public security services.

Table 29

#### LATIN AMERICA: PERCENTAGE DISTRIBUTION OF THE LABOUR FORCE BY MAIN GROUPS OF SERVICES, AROUND 1950

Country and year	Percentage relationship of services to total labour force in 1950	Public utilities, transport and communications	Commercial services	Personal services	Community welfare services	Public administration and security services	Services not specified
Latin America .....	25.3	16.8	30.7	—	52.5	(12.2)	—
Venezuela 1950 .....	32.3	10.5	27.2	33.1	8.4	20.8	—
Argentina 1950 <sup>a</sup> .....	43.7	17.9	31.3	19.5	10.6	20.7	..
Uruguay 1950 .....	46.4 <sup>b</sup>	..	..	..	..	..	..
Cuba 1953 .....	36.6	15.6	32.2	24.8	16.8	10.6	0.0
Chile 1950 .....	37.6	14.2	27.2	37.0	10.0	11.6	—
Costa Rica 1950 .....	25.7	15.2	29.5	—	55.3	( 9.9) <sup>b</sup>	—
Panama 1950 .....	25.7	12.0	30.4	—	57.6	(11.5) <sup>b</sup>	—
Mexico 1950 .....	21.8	13.3	38.7	26.4	12.6	9.0	—
Colombia 1951 .....	21.1	15.3 <sup>c</sup>	21.8 <sup>c</sup>	—	49.9	13.0	—
Brazil 1950 .....	21.2	22.5	29.6	26.5	13.0	8.4	0.0
Guatemala 1950 .....	11.6	12.5 <sup>b</sup>	25.0	—	62.5 <sup>b</sup>	(15.6)	—
Dominican Republic 1950.....	17.5	11.4	33.5	27.6	11.5	16.0	—
Honduras 1950 .....	11.0	14.6	23.2	—	52.2	( 9.6)	—
El Salvador 1950 .....	18.5	8.8	28.7	38.0	12.8 <sup>d</sup>	11.7	..
Nicaragua 1950 .....	16.2	11.8	26.8	—	61.4	(12.3)	—
Peru 1950 .....	19.6 <sup>b</sup>	12.9 <sup>e</sup>	27.4 <sup>e</sup>	39.1 <sup>e</sup>	10.2 <sup>e</sup>	7.9 <sup>e</sup>	2.5 <sup>e</sup>
Ecuador 1950 .....	19.1	11.9	28.8	32.4	4.8	20.0	2.1
Paraguay 1950 .....	20.8	10.7	31.1	—	57.8	( 9.2) <sup>b</sup>	—
Bolivia 1950 .....	18.4	11.3	30.2	36.8	12.2	9.5	—
Haiti 1950 .....	11.5	5.0	41.2	—	53.8	( 8.0) <sup>b</sup>	—

Note: Countries are enumerated in order of gross product *per capita* in 1950.

<sup>a</sup> Estimates. For details of methods used, see Notes on Sources and Methods appended to the *Manpower Survey in Latin America* which will appear shortly in mimeographed form.

<sup>b</sup> Rough estimate.

<sup>c</sup> Census results in 8 departments, not including Cundinamarca with Bogotá.

<sup>d</sup> Including services not specified.

<sup>e</sup> According to the 1940 Census.

Among these five main groups of services the greatest number of persons are employed in commercial services (about 31 per cent of total manpower in services) and in personal services. Of these two groups, commercial services predominate in all the largest countries, i.e., Argentina, Brazil and Mexico. The same applies to all the three republics of the Caribbean area—Cuba, the Dominican Republic and Haiti—and to Costa Rica and Panama. In the remaining countries personal services employ more people than commercial services, as is the case in Chile, Peru, Colombia, Venezuela, Bolivia, Ecuador and El Salvador; or, in some instances, employment figures in both sections are more or less equal.

Hence it can be noted that the distinction indicated between the various countries is, in Latin America, relatively loosely connected with the degree of economic development and the rate of economic progress achieved, although it seems logical that in more advanced countries commercial rather than personal services should predominate, and this is confirmed by the evidence of the three largest republics. On the other hand, personal services have a striking numerical superiority over those of a commercial character in all the Andean and all the typical Pacific coast countries, irrespective of income level and of the rapidity of economic progress.

The other three groups of services, employing far fewer people than those previously discussed, are public utilities, transport and communications, public administration and security services and community welfare services—enumerated in that order according to the decreasing number of people they employ in the region as a whole.

The first of these groups—which in conjunction might be briefly called “basic services”—represents in general a low ratio of employment to total population, in comparison with the figures recorded in the industrialized countries of the world, though its share in the labour force in all services (estimated at 16.8 per cent) cannot be considered as small. There is no close correlation between relative employment figures in basic services and the national product *per capita*, though in the more developed countries relative employment in this branch of services tends to be higher than in those which are less advanced.

These groups seem to be in a relatively stronger position in the larger countries, which very naturally have the greatest commitments in the field of transportation. The first place is occupied by Brazil, followed by Argentina. These are also the countries where the biggest cities have developed, with their extensive and varied technical city services. In the smaller and less urbanized countries public utilities employ the smallest number of people among all groups of services.

Public administration and security services—which might be briefly called “public order services”—do not seem to be in general over-developed. The percentage relationships of these services to total services (estimated at 12.2 per cent) as well as to the total labour force (3.1 per cent) and to total population (1.1 per cent) are moderate. Only in some countries can the numerical development of public administration, police and similar activities be considered as fairly advanced; Argentina, Venezuela and Chile are the main cases in point.

Community welfare services appear to be the least developed category of services in the region. In the

majority of the countries, despite relatively low employment figures in public administration and security services, services devoted directly to the welfare of the community employ still fewer people. In a few countries only—like Brazil, Mexico and Cuba—which are far from belonging to the bureaucratic type, more people are employed by the latter than by the former type of services.

Prior to 1945-55 the development of services in Latin America mainly pursued its own pattern, and was only loosely related to industrial development. In the pre-industrial communities, services develop to suit the purposes of an economy based mainly on primary production. Income distribution of a type specific to this stage of economic development also has a strong influence upon the service pattern. Such manufacturing as exists does not greatly affect the magnitude and the structure of employment in services. This is still the case in the majority of small countries in Latin America.

In countries of the transitional type, industry begins to influence the pattern of services by stimulating the development of those which are complementary to industrial development, such as, in the first place, the technical services, and also various banking, educational, health, social and business services. This is true of the majority of the larger countries of Latin America; and since these larger countries greatly predominate, such a situation may be considered as characteristic of Latin America as a whole.

In the more advanced countries, or in industrialized regions of the large countries, such as the São Paulo region in Brazil, the development of services becomes increasingly closely linked to industrial growth.

There is a relatively close connexion between employment in services and the degree of urbanization. The average percentage relationship between over-all employment in services and the urban population in Latin America around 1950 was approximately 21 per cent. Individual countries, with few exceptions, did not show a deviation of more than one-fifth from this average relationship.

The increase in over-all employment in services during the decade 1945-55, which was about 50 per cent, was higher than the rate of urban growth (estimated at 43 per cent). The rate of growth of services, in terms of employment figures, was, over the whole decade, steadier than that of industry, especially factory industry, whose rapidity of growth was subject to substantial fluctuations. During the period 1945-50, employment in manufacturing industry proper seems to have increased a little faster than employment in services (about 24 per cent as against 23 per cent) while during 1950-55, employment in services rose much more rapidly (by an estimated 22 per cent, as against an increment of 16 per cent for employment in factory industries).

There is little to be said of internal structural changes within services. The general tendency, as observed in the examples provided by a few countries during the period between the last two consecutive censuses, was for the fastest growth to take place in governmental and technical services, with a rapid increase in personal services in some cases. The rate of growth of commercial services was moderate, and the slowest expansion was registered in community welfare services. This, how-

ever, does not mean that certain branches of the latter group failed to develop very rapidly.

Nor can a great deal be added as regards the productivity of manpower in the services sector and its changes. In the secondary and to a much greater extent in the tertiary sectors, international comparison of productivity is very difficult, because the value added in many cases reflects profit, price, wage and salary levels as much as the genuine productivity of manpower in physical terms. A more profound analysis of this problem, with proper checking of national figures in order to ensure their comparability, is beyond the scope of this article.

##### 5. CHARACTERISTICS OF URBAN EMPLOYMENT IN LATIN AMERICA AND MAIN TENDENCIES OBSERVED DURING THE LAST DECADE

Perhaps the most important characteristic of Latin American urban structure, as seen through employment figures, is the low level of industrialization of urban areas. In view of the shortage of published statistics referring directly to the employment structure of urban population, the percentage relationships of employment in the manufacturing industry proper to urban population are sufficiently significant, since it may be safely assumed that the bulk of the manufacturing labour force employed in factories of all kind will be concentrated in towns. For Latin America in 1950 this relationship was 5.7. Figures based on statistics and estimates computed during the most recent population censuses taken in the Latin American countries around 1950 show that the highest percentage relationships in the industrially advanced countries of the region are maintained between 5 and 8 per cent, while in the remaining countries such relationships fluctuate between 3 and 5 per cent. (See table 30.)

In connexion with the fact that the over-all growth of the urban population was slightly more rapid after 1950 than that of employment in manufacturing in general, as well as in manufacturing industry proper, the relationship under discussion, which, during the period 1945-50, rose from 5.2 per cent to 5.7 per cent, declined after 1950, falling to some 5.6 per cent by 1955.

Of course, the situation described is not applicable to typical industrial towns. In the leading industrial city of São Paulo, for example, the manufacturing labour force in establishments with 5 and more persons represents 15 per cent of the population.

As has already been pointed out, in view of the relatively small proportion of people in Latin America who depend on manufacturing, the urban population appears overburdened with services, whose development is apparently out of proportion to existent manufacturing activities. To a certain extent such a situation is the reflection of a variety of services rendered by the urban centres to the agricultural countryside, which is devoted to primary production. With the dwindling ratio of rural-to-urban population, however, and the generally unsatisfactory productivity of agriculture and low purchasing power of the agricultural population and other rural dwellers, the high proportion of the urban population depending on services can be justified neither by the volume of total goods produced which has to be distributed, nor by the needs of the countryside, and becomes excessive.

**Table 30**

LATIN AMERICA: PERCENTAGE RELATIONSHIP OF EMPLOYMENT IN MANUFACTURING INDUSTRY PROPER TO URBAN POPULATION IN 1950

Country	Urban population as percentage of total population <sup>a</sup>	Employment in industry proper as a percentage of urban population
Venezuela .....	54	4.1
Argentina .....	66	8.1
Uruguay <sup>b</sup> .....	75	6.7
Cuba .....	55	4.8
Chile .....	59	5.5
Costa Rica .....	31	5.4
Panama .....	48	2.7
Mexico .....	43	4.9
Colombia .....	38	4.0
Brazil .....	33	6.6
Guatemala .....	28	3.8
Dominican Republic ..	23	4.3
Honduras .....	23	2.5
El Salvador .....	32	5.2
Nicaragua .....	32	2.1
Peru <sup>b</sup> .....	34	4.0
Ecuador .....	28	4.9
Paraguay .....	30	3.5
Bolivia .....	32	3.0
Haiti .....	12	4.2

*Note:* Countries are arranged in order of gross product *per capita*.

<sup>a</sup> Excluding sylvatic population.

<sup>b</sup> Rough estimate.

The estimated changes in the ratio of total employment in services to urban population—taking into account the fact that part of the services growth occurs in rural areas—seem to suggest that during the decade 1945-55, particularly during the second five-year period, if this ratio has not actually increased, it has at least remained the same, i.e., similar to the situation observed around 1950.

Despite the fact that the proportion of marginal to total population in the countries of Latin America has not greatly changed on the average during the last decade, the geographical distribution of the former has been subject to significant alterations. The rural marginal population, originally chiefly connected with agricultural and related activities, or in some cases with those branches of traditional domestic crafts that are threatened with extinction, has everywhere demonstrated a noticeable tendency to move to the towns, displaying a preference for large cities.

There is plenty of evidence that this shifting process during the years 1945-55 occurred in all parts of the region. The varying intensiveness of such movements, and the fact that a number of people found fully productive employment in towns, ultimately affected the changes in proportion of the marginal urban population, so that these do not reveal any uniform trend.

As far as inactive population living on its own resources is concerned, it should first be noted that since the colonial period Latin American towns have been the place of residence of wealthy landowners, who are traditionally urban rather than rural dwellers. Despite this specific characteristic, the residential function of the towns in Latin America is probably less important than

in the more advanced countries of the world. Latin American countries have in general a smaller percentage of people living on unearned income—rentiers, pensioners, students, persons in institutions, etc.—than more economically advanced countries. Although the bulk of such people congregate in towns, their over-all numerical strength is not so great as to exert much direct influence on urban growth. It should, however, be pointed out that such persons as rentiers and pensioners employ on the whole a number of servants and con-

tribute fairly substantially to commercial and other activities in urban areas, thus indirectly stimulating the inflow of people from rural areas.

During the last ten years the proportion of total urban population accounted for by persons living on unearned income has slowly increased, without, however, a resultant modification of the main characteristics of Latin American urban structure, in which, with few exceptions, services maintain their strong predominance.

#### CONCLUDING REMARKS

This article attempts to analyse several forms of structural transformation of employment that have accompanied economic growth and have in turn influenced the pattern of development in Latin America. The most important of these changes have been an intensive process of urbanization; a shift from agricultural to non-agricultural activities, with services growing more rapidly than other sectors; alterations in the composition of employment within manufacturing, as between small (mainly handicraft or shop) industries on the one hand and factory industry on the other, and in the relative weight of individual branches within factory production; and lastly, modifications within various sectors of the economy that have brought substantial gains in productivity.

The extraordinarily rapid growth of urban population reflects to a considerable degree—particularly in large towns other than capital cities—the role of industrial expansion in economic growth during the period 1945-55. However, other economic and social forces, such as higher income levels or the redistribution of income derived from exports, and the attraction of urban life, exerted a powerful influence on the movement of population towards cities. Such manpower movements are generally towards more energy-consuming types of occupation and patterns of living.<sup>21</sup> This in itself—apart from the accelerated demographic growth—creates additional demand for food and manufactured products which further stimulates economic growth.

Nevertheless, the data presented above show that, although there are wide differences as between countries, employment and the production of physical goods did not keep pace with the increase in services (excluding transport and public utilities) and urban population. The number of those employed in manufacturing as a percentage of total active population remained about the same throughout the period; on the other hand, the proportion employed in agriculture decreased significantly. In other words, the displacement of the growing active population from agriculture to services was more intensive than the corresponding shift to industry.

This is a question that calls for more detailed and thorough investigation, especially with respect to the rate of capital formation required for the full utilization of manpower resources at different levels of economic development. Regardless of the causes—whether these

were insufficient capital formation, rapid urbanization, imbalance as between agriculture and industry, or other factors—the increase in services may apparently not have been fully justified, in certain Latin American countries at least, by increased productivity in agriculture and expansion of industrial production. The experience of the United States and the more advanced Western European countries indicates that only when an economy has achieved high productivity through technological progress in primary and secondary production can it support at a satisfactory rate of growth the continually increasing proportion of total employment in services.

#### EXPLANATORY NOTE

The statistics shown in the article should be regarded as basic documentation for or as illustration of the analysis of employment structure and its changes in Latin America during the decade 1945-55. They are therefore somewhat different in nature from the figures normally published in statistical yearbooks, economic censuses and other publications of a purely statistical nature.

First, when no official statistics are available, it is often preferable to have an estimate rather than no figure at all. Consequently, estimated figures which have a wider margin of error than is usually allowed in statistical publications are sometimes shown in the various tables. The general scarcity of data referring to manpower problems in Latin America enforces frequent use of estimates; otherwise the analysis of facts and changes would be too incomplete.

In the second place, the available national statistics have, for the sake of comparability as between countries, often been adjusted to more uniform definitions. For this reason, the figures shown here differ in many instances from those given in national publications, or in other publications of the United Nations and its specialized agencies.

Finally, the methods of compilation have been chosen with a view to the special use for which the data are intended. This does not necessarily mean that for other purposes other methods might not have been preferable.

Slight discrepancies between constituent items and the totals shown in some tables are due to rounding.

The tables include information received up to mid-1956. In general, figures more recent than those provided by the last population and economic censuses are to be regarded as provisional, and subject to revision.

<sup>21</sup> For a discussion of the effects of changes in occupation on consumption and patterns of living see "Three Social Aspects of Economic Development", *Economic Review of Latin America* (special issue), Bogotá, August 1955, pp. 56 *et seq.*

The population figures for the years 1925-1955 have as a rule been taken from *Demographic Yearbook 1955*, and—for the last year—from *Population and Vital Statistics Reports (Statistical Papers, Series A)* with the exception of those relating to Bolivia, Haiti and, for the years 1953-55, Chile. Gross product statistics and all economic data relating to Latin America as a whole are

those prepared by the Economic Commission for Latin America.

A full list of sources and a detailed explanation of the methods of calculation used would have been too lengthy for inclusion within the limits of an article, and will be appended to the *Manpower Survey in Latin America* now in course of preparation by the secretariat.

## POSSIBILITIES FOR THE EXPANSION OF WHEAT PRODUCTION IN BRAZIL\*

The rapid rise in both the over-all and the *per capita* consumption of wheat in Brazil during the last few years and the process of supplying the resulting requirements have constituted problems of great importance for the country's agriculture and foreign trade.

To meet the increasing demand generated by the growth of the population, higher income levels and the expansion of transport and distribution networks, as well as, in part, by the Government's own policy of maintaining advantageous relative prices for wheat and its derived products, progressively heavier imports had to be effected. At the same time, in order to reduce the pressure thus exerted on the capacity to import, the Government redoubled its efforts to encourage domestic production, granting producers highly remunerative prices and affording them every facility for wheat-growing.

An attempt was thus made to exploit an extensive area in the three most southerly States of Brazil, where wheat can be grown economically and on a scale large enough to meet a sizable proportion of consumer requirements.

Despite the many difficulties that have had to be overcome, the development of wheat production in the course of only a few years has been so exceptional that it may well be described as one of the most substantial in the history of Brazilian agriculture. Even so, much ground yet remains to be covered, and many problems are still clamouring for solution, especially if imports are to be stabilized and the rapid growth of consumption met with domestic production.

### I. DEMAND

Although during the last thirty years irregular short-term fluctuations have been registered in *per capita* wheat consumption—largely because of import difficulties—the long-term trend has shown a decided upward movement which has sharpened in the decade just ended. Thus, while average *per capita* consumption in the five-year period 1925-29 stood at 32 kilogrammes, it rose to 39 kilogrammes in 1951-55, and in 1955 the peak *per capita* figure of 47 kilogrammes was recorded.

In consequence of this rapid increase in consumption, wheat has become one of the staple items in Brazilian diet. In fact, according to estimates of apparent consumption, in terms of volume it is second only to maize, manioc and rice (see table 1).

Viewed in its broadest aspect—*per capita* increments plus increases due to the growth of the population—apparent consumption in Brazil as a whole has more than doubled, rising in the period mentioned from an average

of 1 million tons in 1925-29 to 2.22 million in 1951-55. So rapid an expansion is not, however, indicative of the real demand situation, since despite all efforts to keep the market supplied, there are many districts, especially in areas remote from the large urban centres, and above all in the north and north-west of Brazil, which cannot obtain enough flour and flour products to satisfy normal demand. The result of such shortages has been the formation of a black market where flour prices are sometimes as much as twice the official quotation. Estimates made in various official and private circles alike indicated that effective demand at the price and income levels prevailing in 1955 was probably between 20 and 30 per cent in excess of apparent consumption for the year in question.

Table 1

BRAZIL: APPARENT PER CAPITA CONSUMPTION OF SELECTED STAPLE FOODSTUFFS

(Kilogrammes)

Year	Wheat <sup>a</sup>	Rice	Beans	Potatoes	Meat <sup>b</sup>
1925-29 .....	32	27	21	9	.. <sup>c</sup>
1930-34 .....	28	31	20	10	.. <sup>c</sup>
1935 .....	29	35	22	10	.. <sup>c</sup>
1936 .....	30	31	22	9	26
1937 .....	29	31	21	8	27
1938 .....	32	37	22	10	26
1939 .....	29	35	20	13	25
1940 .....	24	31	19	11	20
1941 .....	24	40	21	11	21
1942 .....	28	42	19	10	19
1943 .....	29	41	21	12	18
1944 .....	34	43	23	10	17
1945 .....	32	45	21	13	16
1946 .....	17	55	21	12	18
1947 .....	25	49	21	12	19
1948 .....	25	47	23	13	20
1949 .....	27	54	25	15	21
1950 .....	32	60	23	14	21
1951 .....	36	58	23	14	22
1952 .....	31	51	21	14	21
1953 .....	42	57	25	15	21
1954 .....	42	55	27	15	21
1955 .....	47	53	25	15	..

Source: ECLA, on the basis of official statistics.

<sup>a</sup> Including wheat flour in terms of wheat.

<sup>b</sup> Including only meat slaughtered in supervised establishments.

<sup>c</sup> No data are available.

A number of causes have combined to raise the consumption of wheat and wheat products to its present level.

An analysis of Brazil's wheat consumption from the geographical standpoint reveals that the ecological characteristics of the different regions, as well as transport and distribution problems, have led to wide divergencies in dietary habits. Whereas in the large and medium-sized towns—especially in the central and southern zones—and in the rural areas of the south, wheat is one of the staple

\* The present article contains a factual analysis of wheat consumption and production in Brazil and of future prospects for this crop, but does not touch upon questions of economic policy. The facts have been stated as concisely as possible, so as to enable attention to be concentrated on the projections based on the results of the analysis. This exposition should therefore be regarded as a preliminary outline of developments which will be more fully examined in a study to be published shortly.

foodstuffs, in rural districts in the rest of the country, and in the smaller towns, it is only a secondary article of diet, and in some instances is actually unknown.

Hence it can be inferred that consumption of wheat is mainly confined to the bigger towns, and that the increase in the demand for this cereal is therefore essentially bound up with urban growth, the influence of which operates not only through the greater number of people living within reach of the supply facilities offered by the towns, but also through the town-dwellers' higher income levels. This statement is confirmed by the marked similarity—observable in the various censuses and apparent consumption figures—between the rates of growth of the large urban centres and the rates of increase of over-all wheat consumption in Brazil.

Concurrently with the expansion of total and *per capita* consumption in the major towns, some progress was recorded in the matter of supplies for the remoter districts. Thanks to the steady enlargement of the communications network and the consequent improvement in distribution systems, it was possible to push the frontier of wheat consumption beyond the normally accessible cities to the smaller townships, and even to some agricultural areas. Thus a vast potential market has been created. Further, in the more isolated districts there is considerable unsatisfied demand, owing to the difficulty of obtaining regular supplies.

The rise in income levels has played an important part in the growth of demand. It is an established fact that the income-elasticity of demand is close to unity among the lower-income groups, and gradually decreases in the sectors where incomes are higher, until in some cases a negative coefficient is reached. Although available data have not provided enough evidence to prove the truth of this assertion for all sectors, a survey carried out in two working-class districts in a large town in the north-east of Brazil demonstrated how quickly the proportion of families eating foods derived from wheat increases as income rises. Estimates for the country as a whole place the income-elasticity of demand at 0.6.

Special influence is exerted on consumption by relative prices and dietary habits. The Government's policy of granting exchange subsidies for wheat imports and maintaining artificially low price levels for flour and flour products has fostered consumption of these by enabling their prices to rise more slowly than those of rival articles of diet, and in some cases has even meant that substitutes have been ousted altogether. An analysis of price relationships between bread and other competing foodstuffs (see table 2) shows that with the passage of time they have gradually become more and more favourable to bread. This advantage would seem clearly to coincide with the rapid advance in consumption registered during recent years.

Table 2

BRAZIL: AVERAGE CONSUMER AND RELATIVE PRICES OF SELECTED FOODSTUFFS COMPETING WITH BREAD IN LOCAL DIET

	Price per kilogramme (cruzeiros)				Price relationships (percentages)		
	Manioc flour	Maize	Rice	Bread	Manioc flour bread	Maize bread	Rice bread
<i>Average for Fortaleza y João Pessoa</i>							
1938.....	0.7	0.40	1.60	2.70	0.27	0.16	0.58
1945.....	1.30	0.92	2.72	3.00	0.45	0.31	0.91
1948.....	1.90	1.50	3.90	7.80	0.25	0.20	0.50
1949.....	2.60	1.50	4.50	7.50	0.35	0.20	0.61
1950.....	2.60	1.40	4.50	6.80	0.39	0.21	0.67
1951.....	3.80	2.05	5.00	6.90	0.56	0.30	0.72
1952.....	4.50	2.90	5.80	8.25	0.55	0.35	0.71
1953.....	5.15	3.60	9.50	7.95	0.65	0.45	1.19
1954.....	4.45	2.50	10.25	8.45	0.53	0.30	1.21
1955.....	4.60	2.95	11.20	9.70	0.47	0.30	1.15
<i>Average for Rio de Janeiro and São Paulo</i>							
1938.....	0.95	0.55	1.85	1.75	0.54	0.32	1.06
1945.....	1.54	1.26	3.40	2.72	0.57	0.46	1.25
1948.....	2.50	2.20	4.70	6.10	0.41	0.36	0.77
1949.....	2.75	3.30	5.85	5.25	0.52	0.44	1.11
1950.....	2.70	2.15	5.60	4.50	0.60	0.48	1.24
1951.....	2.80	2.50	5.50	4.30	0.65	0.59	1.28
1952.....	4.60	3.20	7.05	5.50	0.84	0.58	1.28
1953.....	5.50	3.80	12.15	6.00	0.92	0.63	2.02
1954.....	5.60	4.15	14.25	7.10	0.79	0.58	2.01
1955.....	5.65	4.85	15.95	8.90	0.63	0.54	1.79

Source: ECLA, on the basis of official statistics.



## II. SUPPLY

Until the mid-'forties, Brazil had depended upon foreign markets for over 80 per cent of its wheat requirements. Thenceforward, thanks to an energetic development programme, domestic production gained ground, and by 1954 and 1955 was contributing rather more than 30 per

cent of the country's total needs. Even so, in consequence of the rapid growth of consumption, Brazil still has to satisfy two-thirds of its consumer demand with purchases abroad. (See table 3.)

**Table 3**  
BRAZIL: PRODUCTION, IMPORTS AND TOTAL AND PER CAPITA APPARENT CONSUMPTION OF WHEAT

	<i>(Thousands of tons)</i>		<i>Apparent consumption</i>		<i>Percentage composition of consumption</i>	
	<i>Production</i>	<i>Imports<sup>a</sup></i>	<i>Total</i>	<i>Per capita (kilogrammes)</i>	<i>Production</i>	<i>Imports</i>
1925.....	114.9	749.0	863.9	28	13	87
1926.....	147.5	850.1	997.6	32	15	85
1927.....	112.9	879.1	992.0	31	11	89
1928.....	125.4	985.9	1,111.2	34	11	89
1929.....	125.0	972.4	1,097.4	33	11	89
1930.....	135.2	859.7	995.0	30	14	86
1931.....	170.5	881.0	1,051.6	31	16	84
1932.....	141.6	779.3	920.9	26	15	85
1933.....	164.2	917.6	1,081.8	30	15	85
1934.....	156.0	946.9	1,102.9	30	14	86
1935.....	144.5	944.9	1,089.4	29	13	87
1936.....	146.1	990.4	1,136.6	30	13	87
1937.....	143.6	988.2	1,131.7	29	13	87
1938.....	149.4	1,096.8	1,246.2	32	12	88
1939.....	137.7	1,013.7	1,151.0	29	12	88
1940.....	101.1	883.0	984.1	24	10	90
1941.....	101.7	919.8	1,021.6	24	10	90
1942.....	231.4	967.4	1,198.9	28	19	81
1943.....	216.7	1,078.1	1,295.0	29	17	82
1944.....	223.1	1,302.1	1,525.2	34	15	85
1945.....	170.6	1,287.1	1,457.7	32	12	88
1946.....	233.3	550.9	784.2	17	30	70
1947.....	212.5	1,009.0	1,221.5	25	17	83
1948.....	359.7	871.6	1,231.0	25	29	71
1949.....	405.1	988.4	1,393.6	27	29	71
1950.....	437.5	1,237.6	1,675.1	32	26	74
1951.....	532.4	1,393.2	1,925.6	36	28	72
1952.....	423.6	1,265.3	1,688.9	31	25	75
1953.....	689.5	1,657.8	2,347.3	42	29	71
1954.....	771.6	1,646.1	2,417.8	42	32	68
1955.....	871.3	1,854.8	2,726.2	47	32	68

Source: ECLA, on the basis of official statistics.

<sup>a</sup> Wheat and wheat flour in terms of wheat.

### 1. IMPORTS

Up to 1949, imports of wheat and flour were the item that exerted the heaviest pressure on Brazil's capacity to import, since in terms of value they outstripped any other product purchased abroad. Later, they yielded first place to fuel imports, which rapidly increased as a result of the development of motorized transport.

During the last thirty years Brazil has had to earmark, on an average, about 12 per cent of the total value of its imports for purchases of wheat and flour. In the past five years, however, this proportion has fallen to only 8.4 per cent, not because of a reduction in purchases of these products abroad, but on account of the substantial increase in the total value of imports, average figures for which were almost 150 per cent higher than in the preceding five-year period, while the value of wheat and flour imports rose by only 72 per cent.

Brazil's need to import wheat has exerted constant pressure on its balance of payments. As a rule, it has been able to effect most of its purchases abroad through trade agreements with Argentina, Uruguay and other countries, but on recurrent occasions (in 1932, 1946, 1947, 1948 and 1952), and almost always on account of the limited export availabilities of the countries in question, it has had to have recourse to the dollar area for a considerable share of its requirements. From 1945 onwards such purchases never represented less than 8 per cent of total imports, and in 1951 and 1953 amounted to as much as 39 and 43 million dollars' worth, respectively. While it is true that these sums constitute only a small proportion of the country's dollar income, it is equally undeniable that in the phase of active economic development through which Brazil is passing, it needs all its convertible foreign exchange resources for the purchase of capital goods, raw

materials and consumer goods which it cannot produce at home.

Brazil's wheat imports have undergone frequent contractions over the past 30 years, mainly in consequence of poor harvests in Argentina, its chief supplier. Only on three occasions was the reduction in imports due to other causes. The first was in 1930-32, when Brazil's capacity to import was seriously affected by the world crisis, and purchases abroad had to be to some extent restricted. However, the relative inelasticity of demand for wheat meant that imports of this food decreased pro-

portionately less than total imports. The second occasion was in 1939-42, when the country's increasing balance-of-payments difficulties led to a reduction of wheat imports and the enforced use of substitutes in bakery. Thirdly, in 1946-48, in view of the shortage of wheat on the world market, Argentina raised its prices and channelled its exports in new directions so as to take fuller advantage of the market situation, whereupon Brazil was obliged to cut down its purchases from Argentina to little more than a third of the volume they had reached in the preceding five-year period. (See table 4.)

**Table 4**  
BRAZIL: IMPORTS OF WHEAT AND FLOUR IN TERMS OF WHEAT,  
BY COUNTRY OF ORIGIN

(Tons)<sup>a</sup>

Year	Over-all total	Argentina	Canada	United States	Uruguay	Other countries
1925/29	887,300	702,644	24,824 <sup>b</sup>	132,316	31,702	779
1930/34	876,910	675,833	4,766 <sup>b</sup>	181,704	13,144	2,415
1935/39	1,006,808	978,772	451 <sup>b</sup>	7,440	15,594	4,590
1940/44	1,030,095	1,006,108	121 <sup>c</sup>	15,707	9,600	2,578 <sup>c</sup>
1945/49	941,414	562,338	9,110	326,594	95,364	5,226
1950/54	1,440,023	762,735	127,105	357,162	103,444	111,971 <sup>b</sup>
1950	1,237,623	963,439	19,965	116,264	2,968	134,987
1951	1,393,214	925,151	80,132	321,470	66,457	4
1952	1,265,310	45,253	119,299	948,815	157,943	..
1953	1,657,839	1,117,749	206,422	256,717	31,779	45,172
1954	1,646,127	762,081	209,709	142,544	264,071	267,722

Source: ECLA, on the basis of official statistics.

<sup>a</sup> For the conversion of wheat flour into terms of wheat an extraction coefficient of 72 per cent was used.

<sup>b</sup> Average for 4 years.

<sup>c</sup> Only one consignment was imported during the five-year period; the figure indicates its total volume and not a 5-yearly average.

To safeguard its supplies, Brazil has concluded various trade agreements with its regular suppliers, Argentina and Uruguay. From the former it has engaged to buy 1.2 million tons yearly, providing that exportable surpluses exceed a given limit and that prices are the same as those quoted on the world market, and from the latter 300,000 tons, against its own sales of tropical and semi-tropical products, especially timber. Owing to fluctuations in production and commitments with other customers, the years when Argentina has been able to fill its wheat quota have been few.

In 1955 Brazil signed an agreement with the United States for the purchase, on the basis of long-term credit, and mainly against cruzeiros, of 500,000 tons of wheat and smaller quantities of other farm products.<sup>1</sup>

In order to place bread within the reach of the less privileged classes, the Government has intervened in every aspect of the trading and processing of wheat and wheat products. The most important of the measures designed to lower the price of bread has taken the form of a sub-

stantial exchange subsidy granted to imports of wheat and flour. Up to 1943, these were invariably allotted the minimum preferential rate of 18.72 cruzeiros to the dollar. When the régime of surcharges and exchange auctions was established, wheat and flour were still retained in the highest preferential category, with a basic exchange rate of 18.82 cruzeiros and a surcharge of 7 cruzeiros to the dollar, i.e., a total of 25.82 cruzeiros.<sup>2</sup>

## 2. PRODUCTION

Until 1938 Brazil's output of wheat remained virtually stationary, fluctuating only in accordance with weather conditions. Left to his own devices, the farmer received little direct assistance from the State, and confined his efforts to small-scale production designed in the main to supply his own needs, but often sufficient to allow of the marketing of some surpluses.

Wheat production had been mainly concentrated in the so-called *zonas coloniales* of the States of Rio Grande do Sul, Santa Catarina and Parana. These were mountainous areas where smallholdings predominated and where a number of factors had combined to keep farming techniques at the same primitive levels as when they had been introduced by the first settlers.

<sup>2</sup> In 1955 the free dollar fluctuated between a maximum of 87 and a minimum of 66 cruzeiros. In the foreign exchange auctions, dollar quotations reached 349 cruzeiros in the fifth category, 213 in the fourth, 169 in the third and 111 in the second.

<sup>1</sup> In December 1956 Brazil concluded a new agreement with the United States Government for the supply of 1.8 million tons of wheat and flour over a term of three years as from the date on which the contract was signed. This transaction was negotiated on the basis of a 40-year loan payable in cruzeiros, under the terms of the United States agricultural surpluses act. In one of the clauses of the agreement Brazil names the United States as its regular supplier, and further engages to purchase in addition a minimum of 80,000 tons annually out of its own resources.

In face of the increasing difficulty, from 1932 onwards, of meeting consumption with imported wheat, the Government decided in 1937 to make an integrated effort to encourage domestic production, in the conviction that there was an area in the south of the country ecologically suitable and large enough to produce, if not all, at least a considerable proportion of consumer requirements. Various measures were adopted, ranging from the setting-up of experimental stations to the reproduction and distribution of improved seed,<sup>3</sup> the fixing of a minimum price and the establishment of a guaranteed market. Thanks to these incentives, the area under cultivation began to increase, rising from 170,000 hectares in 1938 to 328,000 in 1944.

Farmers had been watching with growing interest the experiments that were being carried out by official organizations and a few private individuals in the prairies—the Campos Gerais area—in the centre and south of the State of Rio Grande do Sul. Here the land, gently undulating but deficient in nutritive elements and with a high degree of acidity, had hitherto been used for extensive stock farming, with poor yields.<sup>4</sup> The experiments in question demonstrated that economically satisfactory results could be obtained from this land through the application of fertilizers and correctives, the sowing of suitable varieties and the use of machinery. The Government launched a vigorous promotion and propaganda campaign aimed

<sup>3</sup> The principal aim of the various experimental stations which had been in operation since the twenties was the production and acclimatization of varieties suited to the region's different ecological environments.

<sup>4</sup> This region and those resembling it in the same State and in the States of Santa Catarina and Parana will henceforth be referred to as *zonas de campo* (prairies).

at the rapid expansion of production. More technical assistance was given to the farmer, the selected-seed distribution service was more widely extended, facilities were afforded for the importation and application of fertilizers, and the process of mechanization was intensified both through the hiring-out of machinery and through the direct importing of equipment by the official organizations and its sale to farmers at cost prices. The authorities also began to grant credits specially for the financing of wheat-growing and the purchase of machinery.

However, it was the price factor that gave the decisive impetus. The high quotations for wheat on the world market influenced the price of the domestic product, since as soon as the decree authorizing free trade was promulgated in 1946, the price of wheat soared to more than 70 per cent above the preceding year's level. Thus the terms of trade improved for wheat production sufficiently to offset the relatively high production costs and provide a guarantee for capital invested with a view to expanding production and improving productivity. Wheat was thereby placed in an advantageous position with respect to other crops or types of farming competing with it for the factors of production.

With these measures and the incorporation of the *zonas de campo*, there began a veritable boom in wheat-growing. The area under cultivation rose between 1946 and 1949 from 301,000<sup>5</sup> to 630,000 hectares, and the volume of production from 213,000 to 437,000 tons. (See table 5.)

<sup>5</sup> Between 1944 and 1946 the area under cultivation decreased by 28,000 hectares, in consequence of the deterioration in relative prices.

Table 5  
BRAZIL: AREA UNDER CULTIVATION AND VOLUME OF WHEAT PRODUCTION

Year	Area (Thousands of hectares)					Volume of production (Thousands of tons)				
	Brazil	Parana	Santa Catarina	Rio Grande do Sul	Others	Brazil	Parana	Santa Catarina	Rio Grande do Sul	Others
1925-29 .....	155	4	2	129	..	128	4	2	122	..
1930 .....	164	22	3	139	..	171	22	2	146	..
1931 .....	142	26	4	111	..	142	26	4	111	..
1932 .....	164	20	5	139	..	164	20	5	139	..
1933 .....	168	30	6	132	..	156	26	5	125	..
1934 .....	172	26	7	139	..	145	21	5	118	..
1935 .....	145	23	6	116	..	146	23	5	118	..
1936 .....	154	23	6	125	..	144	20	5	118	..
1937 .....	162	27	8	126	..	149	25	9	115	..
1938 .....	170	9	17	143	..	137	8	13	116	..
1939 .....	207	14	19	174	..	101	12	11	77	..
1940 .....	201	13	21	165	2	102	11	16	74	..
1941 .....	272	16	37	216	2	231	14	35	181	1
1942 .....	277	19	47	208	3	217	16	40	160	1
1943 .....	292	18	50	219	3	223	16	46	161	1
1944 .....	328	19	48	261	..	171	16	32	122	..
1945 .....	316	24	40	251	..	233	15	39	179	..
1946 .....	301	25	48	227	..	213	13	31	168	..
1947 .....	391	26	73	292	..	359	22	77	259	..
1948 .....	536	35	89	411	..	405	33	85	287	..
1949 .....	630	52	97	479	2	437	49	99	287	2
1950 .....	652	57	101	490	4	532	47	107	376	2
1951 .....	725	58	106	557	3	424	38	72	310	3
1952 .....	810	63	136	605	5	689	51	132	503	3
1953 .....	910	72	150	683	5	772	50	138	580	3
1954 .....	1,081	76	146	855	3	871	57	112	699	2
1955 .....	1,120	70	140	910	4	983	59	124	797	2

Source: ECLA, on the basis of official statistics.

The subsequent intensification of development measures, and especially the annual fixing of remunerative guarantee prices (see table 6), mechanization and credit, enabled the rate of expansion to be maintained with

little change. Thus, by 1955 1.12 million hectares had been brought under cultivation and an output of almost one million tons had been achieved, or the equivalent of 32 per cent of apparent consumption in Brazil.

**Table 6**  
BRAZIL: MINIMUM PRICES FIXED BY THE GOVERNMENT FOR DOMESTIC WHEAT  
AND AVERAGE PRICES OF IMPORTED WHEAT  
(Cruzeiros)

Year	Basic price (with packing)		Average price for kilogramme of imported wheat (without packing) <sup>a</sup>	Year	Basic price (with packing)		Average price for kilogramme of imported wheat (without packing) <sup>a</sup>
	Per sack	Per kilogramme			Per sack	Per kilogramme	
1938.....	36	0.60	0.52	1950.....	150	2.50	1.65
1941.....	48	0.80	0.54	1951.....	170	2.83	1.85
1942.....	52 <sup>b</sup>	0.86	0.61	1952.....	150	2.50	2.14
1944.....	60	1.00	0.91	1953.....	180	3.00 <sup>d</sup>	2.09
1946.....	60	1.00 <sup>c</sup>	1.92	1953.....	230	3.83 <sup>e</sup>	2.09
1948.....	170	2.83	3.66	1954.....	300	5.00	2.22
1949.....	170	2.83	2.42	1955.....	420	7.00	2.18

Source: ECLA, on the basis of official data.

<sup>a</sup> Calculated at the official exchange rate fixed for imports.

<sup>b</sup> For wheat with specific weight of 80.

<sup>c</sup> Relates to the minimum price fixed by *Portaria No. 18* of 9 January 1946, which leaves maximum prices free of controls.

<sup>d</sup> 29 April 1953.

<sup>e</sup> 4 December 1953.

### III. PRESENT SITUATION AND MAIN PROBLEMS OF PRODUCTION

The ecological adaptability of wheat allows of its cultivation in different regions in Brazil. However, it is grown for commercial purposes almost exclusively in the States of Rio Grande do Sul, Santa Catarina and Parana; elsewhere, it is felt, the experimental stage has not yet been left behind, and a great deal of research would be required to discover varieties whose yields would be high enough for them to compete with traditional crops.

In the principal producer area, wheat-growing falls into two distinct sectors, namely, small-scale or "colonial" farming, and medium- or large-scale mechanized farming in the *zona de campo*. Both have their own particular characteristics, and differ in kinds of soil, in farming practices, land tenure systems and other technical and economic aspects.

#### 1. SMALL-SCALE FARMING

Small-scale farming is concentrated in the *zona colonial* of the three states mentioned; the ground used is fertile and was originally covered with woods or tall scrub, but is of so broken and hilly a character as to limit mechanization possibilities to the minimum and even to render the use of animal traction difficult. The average size of holdings varies from 25 to 35 hectares, but the high input of manpower needed for any crop and the relative shortage of labour reduce the area farmed to what can be looked after by the members of the family of the *colono* (settler or smallholder). Thus the average area under cultivation ranges from 5 to 7 hectares. About a third of this may be taken up by wheat and the remainder by other crops, chiefly maize.

As the result of a combination of unfavourable physical, economic and social factors, very little progress has been made in this region as regards farming systems and methods of work. Primitive practices are still employed which, apart from their low productivity, have facilitated a gradual process of erosion and impoverishment of the

soil. For its cultivation to be continued, even with mediocre yields, in many areas the ground has to be left to lie fallow for long periods at a time in order partly to restore the fertility of the soil. Techniques of soil conservation and scientific rotation of crops are virtually unknown.

In the *zona colonial* of the State of Rio Grande do Sul, possibilities of expanding the area under wheat are practically exhausted. In the States of Santa Catarina and Parana the position is different, as there are large districts only recently opened up, with highly fertile virgin soil. Here wheat-growing has developed rapidly, production figures having more than doubled between 1947 and 1953. Nevertheless, there is but scant prospect of an accelerated future expansion of the area under cultivation. The wooded, hilly and sometimes precipitous topography constitutes a problem as regards reclamation, while the shortage of manpower and the high input required for farming represent other important restrictive factors.

Despite these difficulties, the outlook is favourable for an increase in production in the *zona colonial* through the introduction of better techniques and more intensive farming within the existing area under cultivation. Significant increments in yields could be obtained in a relatively short space of time by means of a vigorous development campaign combined with the adequate use of pilot farms and technical assistance. The aims of such a campaign would be to propagate the use of selected seeds, fertilizers and pesticides; to improve manual farming techniques; and to promote the adoption of soil-conservation and crop-rotation practices. An indispensable prerequisite for its implementation would be the establishment of a liberal system of controlled credits accessible to the farmer.

In 1955 tillage in the *zona colonial* accounted for rather less than half (about 47 per cent) of the country's total area under wheat.

## 2. MECHANIZED FARMING

As from the mid-forties, and more intensively since 1950, the expansion of wheat-growing has mainly taken place in the prairies of the state of Rio Grande do Sul. The improvement in the relative prices of wheat, the existence of a guaranteed market and the introduction of improved techniques, enabled advantageous use to be made of these vast tracts of flat or slightly undulating land.

Over against the three adverse factors which had impeded cultivation—the poverty of the soil, its high degree of acidity and the shortage of manpower—the region offered a combination of counterbalancing advantages. The climate was propitious to wheat-growing, properties were of a size which permitted the organization of large- and medium-scale enterprises, the topography was such that heavy mechanized equipment could be used, which more than compensated for the scarcity of labour, and agricultural research had developed suitable strains and farming techniques that enabled the crop to be grown in satisfactory conditions, productivity, above all, being much higher than that of the stock-breeding for which this land had formerly been used.

By virtue of the improvement in the terms of trade for wheat production, the various development measures and the intensive propaganda undertaken by the Government, and, in conjunction with these, the factors described above, an up-to-date type of farming quickly evolved, characterized by substantial capital formation, almost complete mechanization, advanced techniques and a commercial approach previously unknown in local agriculture.

Modern mechanical equipment was introduced in the shape of such machinery as medium-size or large diesel tractors, ploughs and disc harrows, seeders, fertilizers and harvesters, either self-propelled or combines. Furthermore, the new generation of farmers displays a marked tendency to buy the most up-to-date equipment that can be obtained.

According to estimates, of the 8,800 tractors in existence in 1955 in the three most southerly States of Brazil, about 5,100 were used mainly for wheat-growing.

Although the farming systems in vogue are by no means free from shortcomings arising from the entrepreneurs' lack of experience in this branch of cultivation, they are moving along the right lines in the direction of the most modern techniques. Not only is the work of preparation of the ground, sowing and harvesting fully mechanized, but the use of selected seed,<sup>6</sup> fertilizers<sup>7</sup> and pesticides is reasonably widespread. Farmers are also beginning to show interest in the application of soil-conservation practices, restricted hitherto to that of contour farming, which is in very common use, but is inadequate to provide effective protection.

The cultivation of wheat quickly brought about a change in the land tenure system; the practice of renting farms increased rapidly, and so, on a smaller scale, did

<sup>6</sup> In 1954, the quantity of selected seed sold or loaned to farmers amounted to 10,254 tons. In 1955 this figure was exceeded in the state of Rio Grande do Sul alone, where 10,433 tons were distributed.

<sup>7</sup> In 1954 consumption of fertilizers for the wheat crop reached a volume of 69,600 tons, giving an average of about 140 kilogrammes per hectare in the *zona de campo*—a much larger amount than was used for any other crop.

that of share-cropping. Most of the local landowners—stock-breeders by tradition—were not interested in wheat-growing, and confined themselves to renting their land to a new type of entrepreneur attracted by the favourable commercial prospects for wheat and the ample State credit facilities. This led to the creation of medium-sized or large farms of which the average area, according to a sample taken in the district, would seem to vary between 500 and 600 hectares, with an average under cultivation of approximately 230 hectares of wheat and 50 hectares of other crops; enough, that is, to provide work for two 35-45 h.p. tractors with the corresponding equipment, and a large-size self-propelled harvester.

About 55 per cent of these wheat farms are rented, 5 per cent are run on a basis of share-cropping and the remaining 40 per cent are operated directly by the owners.

Under these favourable conditions, wheat-growing in the *zona de campo* forged rapidly ahead, since between 1947 and 1955 the area under cultivation apparently increased from a little under 100,000 hectares to about 565,000, representing approximately 53 per cent of the total area used for this cereal in the *zona colonial* and the *zona de campo* together. Although average yields in the *zona de campo* seem so far to have been slightly lower than those obtained in the *zona colonial*, the outlook for their improvement is encouraging, for by 1955 there were already many farms on which the yields attained exceeded 1,500 kilogrammes per hectare.

The area available for the expansion of this crop in the region in question is considerable, since according to quite conservative estimates, if the whole of the Campos Gerais zone in the States of Rio Grande do Sul, Santa Catarina and the south of Parana is taken into account, rather more than 5 million hectares should be suitable for wheat-growing. However, if a sound system of farm management is to be adopted, involving proper rotation with fodder and other crops and a satisfactory balance between agriculture and stock-breeding, it would not be advisable to plan for the cultivation of wheat on more than 2 million hectares of this land.

## 3. MAIN PROBLEMS WITH WHICH WHEAT-GROWING IS FACED

The efforts made by the Government and many private individuals to improve Brazil's wheat production have yielded encouraging results as regards the expansion of the volume of output and the attainment of a promising level of progress in mechanized farming. However, for such rapid strides to have been made, many difficulties have had to be overcome, and precisely because of this unregulated development and the lack of an integrated programme to co-ordinate all services and project the public and private investments that should have been made at the appropriate moment, grave shortcomings exist, and there are serious technical, economic and institutional problems to be solved which have often proved a source of discouragement or bewilderment to farmers. The most important of these problems are outlined below.

### (a) From the technico-agricultural standpoint

*Technical assistance.* Despite the efforts of official organizations and their staff, the technical assistance actually received by the farmer is relatively slight, owing to

the limited number of personnel available and the modest budget resources at their disposal. Such restricted collaboration has the following negative consequences:

(i) Systems of cultivation are gravely defective, especially where the tilling of the soil and the varieties of wheat employed are concerned. Many farmers, especially in the *zona colonial*, still sow varieties which give low yields and are highly vulnerable to disease. The systems for the reproduction of selected seed have remained in the hands of the official organizations, with the collaboration of farmers, since the maintenance of this development service represents a considerable outlay for the State. For this very reason, supply fails to meet demand, and only about 20 per cent of the farmers can benefit. It seems that, in a large mechanized wheat-farming sector at least, the use of selected seed is sufficiently widespread for this service to be handed over to private enterprises.

(ii) Soil erosion has increased to a marked extent in both the *zona colonial* and the *zona de campo*. No soil-conservation programme exists, and in most cases the practices adopted are inadequate, being confined to contour farming. Owing to the slope of the ground and the heavy rainfall, this method cannot afford the soil enough protection.

(iii) There is no proper crop rotation designed, if not to improve, at least to maintain the fertility of the soil. Relatively little research has been carried out on this point in relation to the land used for wheat, and in most cases such relevant recommendations as exist cannot be put into effect because of the lack of suitable varieties of seed for the complementary crops. This deficiency is still more in evidence with respect to leguminous fodder crops, by means of which a balance between agriculture and stock-breeding could be established.

(iv) General recommendations on the use of fertilizers are available, but the lack of local experience and of acquaintance with the economic aspects of this practice result in the unsystematic and sometimes excessive application of fertilizers. The soil analysis and commercial fertilizer control services are still inadequate, as they fail to meet all requirements.

(v) Only small quantities of green manure are being incorporated.

*Mechanization.* This problem is of great importance from both the technical and the economic points of view. The development of mechanized farming in the prairie region was too rapid for a systematic import policy to be worked out or the necessary maintenance facilities to be prepared, with the result that the following drawbacks are encountered:

(i) Suitable types of machinery are permanently in relatively short supply. In order to save their crops, some farmers have been obliged to buy what equipment they could find, even when it was not technically ideal for the purposes it was to serve. On many farms there is a wide variety of makes, sizes and kinds of machinery, which renders operation and upkeep of the equipment both difficult and expensive. In many cases this same shortage means that the prices quoted for the machinery are unduly high.<sup>8</sup>

<sup>8</sup> In the United States a set of medium-sized equipment, comprising tractor, plough and harrow, could be bought in 1955 for 445 metric quintals of wheat, while in Brazil the corresponding figure was 604.

(ii) It has not been possible to train as fast as necessary the tractor-drivers, mechanics and technicians to run and repair the existing machinery. Nor have the service stations needed for the execution of major repairs been established. Spare parts are in short supply.

(iii) From the economic standpoint, no consistent policy has been followed. While, on the one hand, substantial facilities were afforded for imports of a limited number of machines at preferential exchange rates, on the other, the same treatment was not granted to the private import trade. Hence marked price differences were registered, which redounded to the detriment of wheat-growing.

(iv) Broadly speaking, operation costs for agricultural machinery are heavy, not only because of its original high price, but also because spare parts and repairs are expensive. Lack of experience on the part of tractor-drivers and mechanics shortens the useful life of the equipment and necessitates more numerous and more frequent repairs.

(v) The lack of mobile mechanized equipment available on hire and the limited number of service stations compels many wheat-growers to buy more machinery than is strictly necessary, and this in turn raises production costs.

#### (b) *From the economico-commercial standpoint*

Here the farmer's problems are still more varied, and are in many cases bound up with those of national economic policy. Owing to the importance of each, and the extent to which they are interrelated, they cannot be dealt with in order of their influence on wheat-growing. The chief of them are listed below.

1. The ease with which the soil of the prairies in the wheat zone could be brought under cultivation, at minimum cost, and the enthusiasm aroused for this crop, created a great demand for the land in question. Rents rose to exaggeratedly high levels. Furthermore, as a result of the inflation affecting the Brazilian economy, contracts were drawn up for short periods and afforded the farmer no security of tenure. These two problems gave rise to the following consequences: (i) The establishment of a type of farming predominantly characterized by the cultivation of a single crop, with all its economic drawbacks. On many of the rented farms livestock production is no longer engaged in; (ii) very limited investment of profits in improvements of a permanent nature; (iii) scant attention to the matter of soil conservation and improvement, and (iv) insecurity of tenure for the farmer.

2. The high prices and scarcity of machinery and spare parts, as well as the virtual lack of maintenance services and skilled operators, have substantially raised production costs and slowed up the rate of expansion. In present circumstances, to start a small farm, even with a single set of mechanized equipment, an initial capital outlay of well over a million cruzeiros is required.

3. Wheat prices have almost invariably been fixed at remunerative levels and the farmer has been able to rely upon the continuance of such a policy. Nevertheless, the fact that prices are established only a short time before the harvest is gathered, introduces an element of uncertainty at the time when sowings are being planned. Moreover, the want of a system drawn up on technical bases and uniformly applied year after year creates additional

problems for the farmer, even though he may not always realize it.

4. Possibly the difficulties that have exerted the strongest restrictive influence on the expansion of wheat production are those relating to transport and storage. Neither has developed at the same pace as production. The limited freight capacity of the State railways and the high cost of road transport have meant long periods of waiting in the course of the year before the wheat can be moved to the mills. Owing to the almost complete absence of proper storage facilities, the grain has had to be kept in improvised storehouses where it is exposed to the effects of damp and the ravages of insects and rodents. The losses due to this lack of a satisfactory storage system probably amount to approximately 10 per cent, according to estimates prepared by the Department of Agriculture of the State of Rio Grande do Sul.

Other drawbacks which must be noted as arising from the same cause are the following:

(i) Harvesting costs are heavier and the input of manpower is greater. As bulk transport, which can be efficient only where a system of silos and elevators exists, is not feasible, the wheat has to be carried in sacks, a method which necessitates an increased input of manpower, both for the actual work of harvesting and for the process of transport. Similarly, more working capital is needed for the purchase of sacks.

(ii) Transport costs have increased sharply. The constant shifting of sacks calls for more manpower; and at least one per cent of the grain is lost through its trickling out of the sacks during transport. Railway trucks carry less wheat in sacks than in bulk. The distances covered by road transport are anti-economic, and the bad state of repair in which the roads are kept renders this system expensive, even when freight is transported for relatively short distances.

(iii) Delays in transport favour the intermediaries, since the farmer often finds himself compelled to sell his wheat at low prices in order to meet his financial commitments and avoid worse losses for want of proper storage facilities.

(iv) The limited rail transport available also affects seed, fuels, fertilizers, etc., and causes grave difficulties in the sowing season. The farmer's working capital has to remain invested for a longer period, as he must lay in his supplies farther ahead.

(v) The lack of storage facilities prevents the establishment of a credit system based on warrants. Moreover, it means that transport facilities are heavily overloaded as a result of the official decree fixing a maximum term of 150 days for the purchase of the whole harvest by the flour mills.

5. From the point of view of the marketing of wheat, the regulations in force lay down minutely detailed instructions for the conduct of such transactions, but since it is physically impossible for the Serviço de Expansão do Trigo to supervise their implementation, all sorts of fraudulent practices are perpetrated, and the farmer has to put up with such inconveniences as delay in payment for his sales, and frequent refusals on the part of the mills to receive his wheat, so that he sometimes has no alternative but to take the load back to the farm or look for temporary and improvised storage facilities on the spot. Furthermore, his interests are prejudiced by the

action of the intermediaries who in many cases monopolize the means of road transport.

The existence of all the above-mentioned technical problems has prevented a more rapid improvement in the relatively low unit yields at present registered for the wheat crop, and it is partly due to them that production costs are high, especially in comparison with those prevailing in other countries where ecological conditions are more favourable. The solution of at least some of these problems would help to raise productivity and to place Brazilian wheat in a position to compete on advantageous terms with wheat from foreign sources, without subsidies or special protection.

Alongside these problems are to be found several others of a more general nature, which, besides directly or indirectly affecting the farmer, have repercussions on the rest of the Brazilian economy. The chief of these, there can be no doubt, lies in the Government's policy of maintaining an artificially low level of prices for flour and its derivatives with a view to fostering consumption. To achieve this end, and ensure satisfactory supplies for a market essentially dependent upon foreign sources, the Government has to grant increasingly large amounts of foreign exchange, at preferential rates, for importing the wheat that cannot be produced at home. The burden of this exchange subsidy, which in 1955 would seem to have represented a sum of over 1.771 billion cruzeiros, has to be borne by the whole of the Brazilian people, but its benefits are felt almost exclusively by the urban sector, which consumes the major share of the wheat.

Owing to this preferential treatment, imported wheat reaches the hands of industrialists at a price much lower than that of the domestic product. In 1955 the price of imported grain was 2.18 cruzeiros per kilogramme, whereas that of home-grown wheat was 5 cruzeiros. This situation has created serious problems with respect to the distribution of quotas for milling, and gives rise to many fraudulent practices, like those known as *trigo papel* (paper wheat) and *nacionalização do trigo* ("nationalization of wheat"),<sup>9</sup> aimed at securing larger quotas of foreign wheat and reaping the benefit of the price differential. According to the Serviço de Expansão do Trigo, the amount represented by such illegal devices is probably about 250 million cruzeiros annually.

The policy of an exchange subsidy on imports conflicts to some extent with that of guaranteeing a market for domestic production, as it makes the latter seem anti-economic, and in addition gives rise to all sorts of difficulties in connexion with the sale of the Brazilian product.

From the administrative point of view, the organizations concerned have neither the budgetary resources nor the staff they need for directing, encouraging and supervising the development, marketing and processing of the wheat output. Furthermore, there seems to be duplication

<sup>9</sup> Under the regulations in force, the mills are required to certify that they have bought the whole of their quotas of domestic wheat—called "sacrifice quotas", because the price is higher than that of imported wheat—before they can receive their quotas of grain from abroad. To enlarge these latter, and profit to a still greater extent by the price differential, some millers have resorted to all kinds of devices, such as the apparent purchase of non-existent consignments of wheat, for which there are farmers who will consent to make out the appropriate invoices; the recording of one and the same purchase as two or more transactions; and the representing of foreign wheat as home-grown, simply by changing the packing and finding a supposed vendor.



of effort both within the services of the Ministry of Agriculture of the Federal Government, and between their activities and those of the Departments of Agriculture of the individual States.

The policy of granting foreign exchange for imports of agricultural machinery, fertilizers, pesticides and other capital and consumer goods for agriculture is not consistent, and does not afford the same privileges as the wheat import policy.

Investigation as to how far it is desirable to maintain the policy of promoting wheat consumption by the con-

cession of artificially low prices is outside the scope of the present article. Suffice it to point out that in an essentially tropical country, where a great many substitutes of similar nutritive value exist, and where there are large population groups whose dietary habits do not include the consumption of wheat, it does not seem advisable to provide facilities designed to increase demand, especially if this latter cannot be satisfied without recourse to foreign markets, and the corresponding purchases abroad involve a heavy drain on the capacity to import.

#### IV. ANALYSIS OF A GROUP OF WHEAT FARMS

In order to obtain more exact information on certain details of wheat farming, to confirm the opinions already expressed, to verify the real possibilities of launching a development programme, and, above all, to define the problems of organization and administration with which farmers are faced, a survey was made of a group of eighty-nine farms, sufficiently characteristic of the different wheat-farming districts and the varying conditions under which the crop is grown for the conclusions drawn to be applicable to the area as a whole. Although it is true that owing to staffing and time limitations statistical sampling was impracticable, the farms to be studied were so chosen as to represent in as correct a proportion as possible the various subdivisions of the area surveyed, i.e., the *zona de campo* and the *zona colonial* of the State of Rio Grande do Sul.

The main conclusions drawn from this analysis are noted below.

(a) *Size of the property.* The farms on which wheat is grown by mechanized methods in the *zona de campo* cover as a rule more than 300 hectares, the area under cultivation providing fully enough work for two medium-sized tractors.

Medium-sized farms with from 25 to 150 hectares under wheat are fewer, and mechanization is less complete.

In both cases, properties farmed directly by their owners were substantially larger than those run by a rent-paying tenant.

In the *zona colonial* the model size of farm would seem to be between 35 and 45 hectares, wheat being grown on about 5 hectares.

(b) *Land tenure.* In the *zona de campo* probably about 55 per cent of the farms where wheat is grown are rented, 40 per cent are farmed directly by their owners and about 5 per cent are run under different forms of share-cropping. Pronounced variations from the average are to be found.

In the *zona colonial* the tenancy and share-cropping systems do not account for as much as 5 per cent of the total.

(c) *Use of the land.* The following were the most striking points recorded:

(i) the arable area is much more intensively utilized under the renting system than under any of the other arrangements existing in the region studied;

(ii) on rented farms, much fuller use is made of the land where diversified agriculture is practised than in

those where a single crop is grown, as in the former case, such part of the arable area as is not under seed but under grass is used for stock-breeding. Moreover, there was a larger proportion of instances in which the same crop was grown more than once on the same soil in the course of a single farm year; (iii) among the properties farmed directly by their owners, the degree of utilization of arable land is highest on those specializing in a single branch of production, being lower on those with diversified agriculture because ground is given up to stock-breeding; and (iv) in the *zona colonial* only 44 per cent of the arable area was used for annual or perennial crops.

(d) *Types of farming.* Those properties were regarded as specialized (single-crop) farms where the area under wheat took up at least 80 per cent of the total area, and where, in the case of mixed farms, the value of the wheat crop was higher than 80 per cent of the total value of the estate. Farms where the reverse situation existed were regarded as diversified.

It was verified that more than half the properties covered by the survey (52 per cent) were used almost entirely for a single crop, as 92 per cent of their arable area was devoted exclusively to wheat-growing.

Among the diversified farms it was once again wheat that predominated by a wide margin over all the other crops combined. Of the area under seed, 58 per cent was sown to wheat. Stock-breeding, though acquiring some degree of importance in this sector, accounted for only 20 per cent of the total value of production.

Farmers were sometimes found to be at a loss as to how to plan efficiently, especially with respect to crop rotation and the economic aspects of farm management.

In the *zona colonial* the diversified type of farming was exclusively prevalent. The importance of wheat-growing varied from one district to another; in many it was seen to hold a merely secondary place, being mainly a subsistence crop.

(e) *Manpower.* Diversified farms run by their owners, especially those on which stock-breeding is of some importance, make the fullest use of their manpower capacity. While such farms can keep labour on permanent contract employed for 240 days in the year, specialized farms can do so for only 200 days. This discrepancy becomes more marked as the system of tenure varies. Specialized farms run by rent-paying tenants register lower employment coefficients because most of them go



in almost exclusively for wheat-growing. In contrast among the diversified farms it is on those managed by their owners that utilization of the labour force is least efficient.

Pronounced under-employment was noted in the *zona colonial* as a result of the small size of the holdings. On an average, the farmer and his family worked only 202 days in the year.

(f) *Mechanization*. Most farms in the *zona de campo* are characterized by almost complete mechanization, with the most up-to-date equipment obtainable. Only on the medium-sized farms are there still to be found, in isolated instances, partially mechanized systems such as the use of the reaper-binder and the stationary thresher.

As a rule, the available equipment was in excess of requirements, but, in contrast to the normal state of affairs in well-organized farming, it was the farms where a single crop predominated that made the most efficient use of their equipment, operating it during the appropriate season at the maximum levels permitted by the means at their disposal. The farms with diversified agriculture, being older-established, had more equipment and could afford to be more lax in its utilization. In this group the average available horse-power per hectare was 0.315, whereas in the former the corresponding figure was only 0.299.

On the medium-sized farms a great waste of traction power was to be noted, since most of them possess much larger tractors than they really need. Available power for this group amounted to 0.49 h.p. per hectare under cultivation.<sup>10</sup>

Broadly speaking, more implements and harvesters than necessary were available.

(g) *Productivity*. The productivity of the different groups studied was found to vary substantially, the influ-

<sup>10</sup> By technico-economic standards, a diversified farm of the type envisaged here should attain its maximum degree of efficiency with 0.25 h.p. per hectare.

ence of mechanization and the type of farming being strongly in evidence.

The productivity of manpower, measured in terms of gross value added, is much higher on the large-scale specialized farms, owing both to the more efficient utilization of machinery and to the higher relative value of wheat production.

Although the large-scale diversified farms make better use of their labour force, the productivity registered is 38 per cent less than in the preceding group,<sup>11</sup> both on account of the low price of certain crops and because the standard of efficiency of stock-breeding is low.

In medium-scale mechanized farming the relationship observed was much the same as in the two previous groups, but at a considerably lower level.<sup>12</sup>

In the *zona de colonia* productivity per worker sharply decreases as a result of the high input of manpower required for the various crops.

With regard to the productivity of the soil, the picture obtained is up to a point diametrically opposed to the foregoing, as estimates are substantially affected by the value of production. In the *zona colonial* and on the medium-size mechanized farms, productivity—again assessed in terms of gross value added—is much higher than in the specialized or diversified farms of the *zona de campo*. The high value of certain products, such as fruit, grapes, vegetables and potatoes, raises the value added per hectare in farms of this kind.

Certain local experiments suggest that in the not-too-distant future, when the acidity of the soil in the *zonas de campo* has been partially neutralized, it will be possible to use the land for growing such products as these and thus to raise productivity per hectare.

<sup>11</sup> Only 90,900, as against 125,600 cruzeiros per man/year on the large specialized farms.

<sup>12</sup> Productivity on medium-size specialized farms amounts to 82,400 cruzeiros per man/year, as against only 68,800 on those with diversified agriculture.

## V. PROJECTION OF DEMAND

Owing to the numerous factors affecting the demand for wheat, and because some of these, especially prices, are government-controlled and stand at artificial levels, the projection of future wheat consumption is a difficult task. However, to obtain an approximate indication of Brazil's requirements in 1962, with a view to the drawing-up of a development programme which will permit a properly regulated expansion of the crop, two estimates were made by different methods, so as to test their accuracy.

The first was calculated by fitting a regression curve, in accordance with the minimum squares method, to the data for apparent consumption over the period from 1945 to 1955. If it is assumed that future consumption will follow the same trend as hitherto, future demand can be found by extrapolating this curve up to the year desired,

a process which for 1962 would give an apparent consumption of 3.5 million tons.

The second estimate was made on the basis of the income-elasticity of demand for wheat. For the period 1949-53 this coefficient was 0.6. On the assumption that current price relationships will be maintained more or less unchanged in the future and that annual growth rates of population and income will be 2.4 per cent and 2 per cent respectively, it is estimated that apparent consumption in 1962 will probably be 3.2 million tons. The application to these data of a rate of 3 per cent for the growth of income would give a possible consumption of 3.3 million tons.

To sum up, if price relationships between wheat and substitute products are fairly similar in 1962 to those prevailing in 1955, it may be forecast that demand will fluctuate between 3 and 3.5 million tons.

## VI. PROJECTION OF PRODUCTION

The possibility of Brazil's being able to produce all its own wheat requirements is very remote, not so much because of any lack of land suitable for this crop, but on account of the rapidity with which consumption increases. Current techniques and known average yields suggest that the area available in the three wheat-growing States may perhaps be sufficient for the economic production of from 2.5 to 3 million tons, an amount slightly in excess of present consumption; but by the time such an output can be attained, consumer demand will have reached 4 million tons, or more. Further, it must be taken into account that wheat cannot be produced at the expense of other items, and if expansion is to be economic, it must be promoted in accordance with an integrated programme providing for wheat to be complemented with other crops and, above all, with stock-breeding.

Consideration will next be given to Brazil's prospects of increasing its production by 1962 at three different levels, under properly planned and integrated programmes, but without the need for extreme protectionist measures.

The first hypothesis (A) was formulated by fitting a trend curve to production data for 1945-54 and projecting it up to 1962. According to this estimate, output for that year should amount to 1.4 million tons, a volume which could be achieved by the continuance, on somewhat more intensive lines, of the development policy pursued hitherto.

To determine the other two hypotheses (B and C), the elements taken into account were the physical and economic possibilities of the wheat-growing zone, of the available increment in the human factor—entrepreneurs and manpower—and of the Government organizations that would have to take part in the programme. It was thus estimated that it would be perfectly feasible to obtain outputs of 1.6 and 1.8 million tons for the year in question, even on the decidedly pessimistic assumption that the current relatively low average yields were to remain unchanged.

These production hypotheses once established, it remains to be determined what different factors of production would be required for their implementation.

### 1. GENERAL CONSIDERATIONS

The land suitable for wheat-growing available in the States of Rio Grande do Sul, Santa Catarina and Parana—the only ones in a position to develop this crop economically under existing technical conditions—seems to be extensive enough for the production, under a satisfactory rotation by which existing stock-breeding activities would not be affected, of all the grain necessary to fulfil and even surpass any of the hypotheses formulated.

According to responsible estimates, of the 17 million hectares of prairies existing in the three States mentioned, about 50 per cent—or some 8.5 million hectares—should prove suitable for mechanized agriculture. However, by way of safety margin, it is as well to reduce this figure by another 20 per cent of the total, which would leave rather more than 5 million hectares. Such an area would be more than large enough for the attainment of the most optimistic hypothesis, and, moreover, for the estab-

lishment of a rotation that would allow of diversified agriculture and the progressive development of artificial pastures.

In addition, the *tierras de mato* or *colonia* also offer possibilities for the expansion of wheat-growing, although on a much smaller scale than the *zona de campo*. The amount of land of the former type which could be brought under cultivation is particularly large in the States of Santa Catarina and Parana. Nevertheless, the problem of deforesting, the heavy investment that would be required for the reclamation of the land in question and the high input of manpower needed for its cultivation, severely limit the extent to which it can be included in short-term expansion programmes.

When the historic rate of growth of wheat-growing in the *zonas de campo* and *de colonia* is taken into account and future possibilities are examined, it seems desirable that in view of reclamation facilities 90 per cent of the land required for the attainment of production targets should belong to the *tierras de campo* and only the remaining 10 per cent to the *zona colonial*. This 10 per cent corresponds to normal growth, and does not therefore imply additional investment or special programming. The development programme set forth below will therefore deal almost exclusively with the *zona de campo*.

Any programme for the expansion of a particular crop must necessarily provide for an increase in other crops and in stock-breeding, if it is to avoid the pitfall of single-crop farming, which in the end may create problems in the sphere of agriculture itself, as regards soil conservation, and of an economico-agricultural nature, in connexion with inadequate utilization of manpower and equipment. There would also be the danger of sharp competition with other crops for the use of the soil, especially should the present guarantee-price policy, which favours only wheat, be maintained.

The wheat expansion programme has therefore been outlined on the basis of a rotation system which, while far from technically planned, is at least aimed at the diversification of farming, and, above all, at promoting soil conservation and counteracting, through the improvement of pastures and the raising of their carrying capacity, the tendency for livestock to be ousted by crops.

This rotation would consist in alternating the sowing of wheat for two consecutive years with one year of other annual crops—maize, rice, beans, soya bean or linseed, according to the characteristics of the local climate and soil and to the machinery and manpower available—and three years of perennial fodder crops.<sup>13</sup>

There are three or four types of fodder crops which have already yielded relatively satisfactory results in the region's arid areas—*azeben* or rye grass, certain *feteritas*, *grama misionera* (*Axonophus compressis*) and *cornechón*—but even if these are not sown, there can be no doubt that the mere natural pasture would permit of much better yields as a result of soil improvement and the residual effect of the fertilizers used for other crops. The establishment of a rotation would also allow of more efficient pasture management, as the meadows would have

<sup>13</sup> Of the area under fodder crops, only one-third would be sown each year. The other two-thirds would correspond to the previous two years' sowings.

to be much smaller than those at present used for stock-breeding. According to estimates, carrying capacity would thus be at least doubled; and this would more than offset the displacement of about 578,000 head of cattle consequent upon the bringing under cultivation of approximately 1.5 million hectares of natural grassland.

## 2. LAND

In order to determine the area that will have to be brought under cultivation, possible future yields must first be ascertained.

According to official statistics, average wheat yields seem to have remained virtually stationary during the last twenty years. In actual fact, there is reason to believe that a considerable improvement has been registered, mainly owing to the introduction of varieties with higher yields and a lower degree of vulnerability to pests. The increasing use of fertilizers and the adoption of improved techniques must also have helped to raise average figures.

Official statistics indicate that the medial yield for the last five years in the three producer States has been 815 kilogrammes per hectare.<sup>14</sup> The projections will be based on a yield of 900 kilogrammes, since by 1955 the average figure for the country was already 906 kilogrammes per hectare, and in several cases a volume of over 1,500 kilogrammes was recorded. That year's exceptionally favourable weather conditions preclude the adoption of these last figures as permanent factors. It is believed, however, that with the dissemination of the new varieties about to be delivered for distribution<sup>15</sup> and the more rational application of fertilizers and correctives, equally large or even larger yields will be obtained without difficulty.

Table 7 shows the area that would have to be cultivated in order to attain the proposed wheat targets, specifying how much land is already under cultivation and how much would have to be incorporated both in the *zona de campo* and in the *zona de colonia*, as well as the areas needed for the implementation of the rotation mapped out.<sup>16</sup>

In all, with the inclusion of the increments (in wheat only) appertaining to the *zona colonial*, rather more than 3.5 million hectares will need to have entered production by 1962 to fulfil hypothesis A as a whole, 4.2 million for hypothesis B and 4.8 million for hypothesis C.

In the foregoing estimates no allowance was made for the possibility of producing more than one crop on the same soil in the course of a single year, for lack of knowledge as to how far this practice may be beneficial.

<sup>14</sup> Expert opinion holds that average yields probably vary from 800 to 850 kilogrammes in the *zona de campo*, while in the *zona de colonia* they are apparently slightly over 850 kilogrammes.

<sup>15</sup> The most important of these is the variety known as *Colotana*, with its different strains, which experiments have shown to be highly adaptable to the region's wide range of soils and climates and to have registered yields exceeding those of the *Frontana* variety by 30 and even as much as 50 per cent. This type of wheat was produced at the Bage Experimental Station run by the Department of Agriculture of Rio Grande do Sul. In the course of the experiments carried out, yields of more than 1,500 kilogrammes per hectare have consistently been obtained.

<sup>16</sup> No crop rotation system for the *zona colonial* is included, since it is felt that in the course of normal expansion more land will be reclaimed for the cultivation of other crops.

Hitherto it has been fairly regularly pursued on certain farms, but further research would be desirable before its adoption is recommended.

Table 7

### BRAZIL: AREA UNDER CULTIVATION AND ADDITIONAL AREAS REQUIRED TO ATTAIN PRODUCTION TARGETS

	Hypothesis A	Hypothesis B	Hypothesis C
Total area under cultivation in 1955 .....	1,215,00	1,215,000	1,215,000
<i>Zona de Campo</i> .....	695,000	695,000	695,000
Wheat .....	565,000	565,000	565,000
Other crops .....	113,000	113,000	113,000
Fodder crops .....	17,000	17,000	17,000
<i>Zona de Colonia</i> .....			
Wheat .....	520,000	520,000	520,000
Area to be incorporated by 1962 .....			
<i>Zona de Campo</i> .....	1,780,750	2,281,250	2,776,250
Wheat .....	418,500	625,500	823,500
Other crops .....	378,750	482,250	581,250
Fodder crops <sup>a</sup> .....	966,500	1,173,500	1,371,500
<i>Zona de Colonia</i> .....			
Wheat .....	46,500	69,500	91,500
Total area to have entered production by 1962 .....			
<i>Zona de Campo</i> .....	2,950,500	3,571,500	4,165,500
Wheat .....	983,500	1,190,500	1,388,500
Other crops .....	491,750	595,250	694,250
Fodder crops .....	1,475,250	1,785,750	2,082,750
<i>Zona de Colonia</i> .....			
Wheat .....	566,500	589,500	611,500
TOTAL WHEAT .....	1,550,000	1,780,000	2,000,000
Total area under crop rotation .....	3,517,000	4,161,000	4,777,000

Source: Joint ECLA/BNDE Group.

<sup>a</sup> Only one third of this area is sown annually. The other two-thirds correspond to the second and third year of perennial grasses.

Prospects for using the interval between the last harvest and the next sowing for the growing of green manure is on a totally different plane. The introduction of organic matter into the soils of the *zona de campo*, where it is as a rule present only in a very low degree, is desirable for the improvement of both the chemical and the physical qualities of the soil, and its incorporation at least once in the course of every rotation cycle will be envisaged.

It should be noted that the chief aim of the programme for the formation of artificial pastures is to reconstitute within a smaller area, by means of an improvement in quality, the carrying capacity of the natural pasture of which already-established stock-breeding activities will be deprived. Again, since the improvement of stock-breeding proper is outside the scope of the present study, only a constant livestock population will be taken into account, and no detailed consideration will be given to its possible development.

Nor will a special programme be drawn up for the *zona de colonia*, since the larger areas assigned to this region are regarded as representing normal increases which do not call for *ad hoc* programming or exceptional capital outlays. All that would be recommendable

in this zone would be the maximum intensification of efforts to encourage the expansion of production through the use of improved techniques, selected seed and fertilizers.

### 3. MANPOWER

It has not been possible to determine even approximately the active population at present engaged in wheat-growing and in complementary agricultural activities in the *zona de campo*. However, if the conclusions drawn from the sample studied are assumed to be acceptably significant, and are extended to the universe, the inference is that probably about 19,600 full-time workers or their equivalent are employed in this type of farming in the mechanized zone.

Furthermore, according to the sample,<sup>17</sup> the productivity of this labour force per hour of work would seem to be similar to the figure for the less developed Latin American countries, but much lower than in countries like the United States, where farming techniques have reached more advanced levels. (See table 8.) It should also be borne in mind that such productivity figures would be considerably reduced if, instead of the days actually worked, the potential working capacity of the labour force were taken into account. The resident labourer paid on a monthly basis worked on an average only 221 days of eight effective hours each (ten nominal hours) per year. Such limited utilization of the available labour force is chiefly attributable to excessive specialization in wheat on a considerable proportion of the farms studied.

In establishing the demand for manpower implied by the various targets under consideration, substantial progress in yields of certain products and a relative improvement in productivity were taken into account.

Although productivity is already at a reasonably acceptable level, especially where cereals are concerned, there are still many possibilities of obtaining large increments, both through the improvement of yields and by means of more efficient utilization of manpower.

<sup>17</sup> Henceforward all figures relating to mechanized wheat-growing in the *zona de campo* as a whole will be those resulting from the extension of the sample studied.

In the projections, with a view to the attainment of these ends, due consideration was given to the need for intensifying research, broadening the scope of the extension services, rationalizing the use of fertilizers and encouraging their more widespread application to all crops. Allowance was also made for the possibility of improving farm practices—among them the use of pesticides and weed-killers—and securing a more intensive degree of mechanization, not merely within wheat-growing, but by its extension to certain operations—such as maize harvesting—hitherto carried out entirely by hand.

The new future inputs per hectare under these new conditions of improved yields and more efficient mechanization, as well as the extent to which greater productivity of manpower could be achieved, were approximately estimated. Table 9 contains the various factors involved in the calculation of productivity for 1955 on the eighty-nine farms studied in the sample. In table 10 are noted the conditions that will have to be achieved by 1962 if the hypotheses put forward are to become reality.

#### (a) Crops sector

Although relatively little research has been carried out in the *zona de campo* with respect to crops complementary to wheat-farming, enough data are available to guarantee the short-term improvement of yields and therefore of productivity. The more intensive efforts involved in the experimental programmes envisaged in the present scheme can hardly be expected to show tangible results by 1962, since six years is too short a period for such a long-term task as is the acclimatization and creation of new varieties.

It has already been explained why the targets for the various hypotheses were based on a yield of only 900 kilogrammes per hectare. However, a significant improvement in productivity could be achieved through the use of more suitable types of machinery, especially on the medium-size farms, where harvesting should be done by self-propelled harvesters rather than by stationary combines. In cases where it is not economic for farmers to buy these machines individually, because of the small extent of the area under seed, they should be purchased on a co-operative basis or hired from commercial enter-

Table 8

ARGENTINA, BRAZIL AND THE UNITED STATES: COMPARISON OF INPUT OF MANPOWER PER HECTARE AND PER METRIC QUINTAL FOR SELECTED CROPS<sup>a</sup>

Crop	Man/hours per hectare <sup>b</sup>				Yield in metric quintals per hectare				Man/hours per metric quintal			
	Brazil		United States	Argentina	Brazil		United States	Argentina	Brazil		United States	Argentina
	Zona campo	Zona colonia			Zona campo	Zona colonia			Zona campo	Zona colonia		
Wheat .....	21	184	10.9	25	8.85	9.0	11.5	12.9	4.2	20.4	1.0	1.9
Maize .....	81	241	32	64	14.0	16.8	22	17.3	5.8	14.3	1.4	3.7
Rice .....	95 <sup>c</sup>	480 <sup>c</sup>	36.3	95	30.5 <sup>d</sup>	32.0	27.0	30.3	3.2	15.0	1.3	3.2
Barley .....	24	181	14.3	25	12.5	9.5	14.7	11.5	1.9	19.1	1.0	2.2
Potatoes .....	430	616	166.9	104	58.2	120.2	166.8	75.4	7.4	5.1	1.0	1.4

Sources: For Brazil: *Zona de Campo*. Average on 69 mechanized farms in the wheat-growing district of Rio Grande do Sul; *Zona de Colonia*. Average for non-mechanized family-size farms.

For Argentina: ECLA, *Economic Development of Argentina*.

For the United States: United States Department of Agriculture, *Statistical Bulletin No. 144, Labour used in field crops*.

<sup>a</sup> For Brazil, 1955. For Argentina, 1955/56. For the United States, yearly average for 1950-53.

<sup>b</sup> Including only effective work performed by farm hands and excluding miscellaneous activities and management.

<sup>c</sup> Average for irrigated and dry-soil rice.

<sup>d</sup> Weighted average for yields on irrigated and dry-soil farms.

prises specializing in harvesting. On the large farms, improvements of some importance might be achieved through the use—in special instances where the ground permitted—of the harrow plough with drill attachment, and the replacement of the combine by the self-propelled harvester. It may be, too, that by 1962 the network of silos of which the building is to be financed by the Banco do Desenvolvimento Econômico will be in full operation, in which case some farmers at least will be able to adopt the system of bulk transport, with the consequent saving in manpower and working capital (on sacks, wages and transport). According to estimates, it should be possible to reduce the average input of manpower from the present 21 hours per hectare to only 18. Productivity might be raised from 42 to 50 kilogrammes per effective hour of work (on the basis of a constant yield of 900 kilogrammes per hectare).

In the case of maize there are plenty of possibilities of improving productivity both through better yields and by the mechanization of harvesting. From the former angle, the more widespread use of hybrid varieties, fully tried out in the *zona de campo*, might easily raise the yield per hectare by 20-30 per cent,<sup>18</sup> providing their adoption was accompanied by the application of fertilizers. Moreover, if these varieties of maize were sown it would be possible to introduce mechanized harvesting, which is very difficult with the strains in common use because they do not ripen evenly. The mechanization of earthing-up and weeding, or the use of weed-killers, might still further help to reduce the input of manpower.

<sup>18</sup> In the Carazinho district a private company is engaged in commercial-scale reproduction of hybrid maize seed yielding from 2,500 to 3,000 kilogrammes per hectare on fertilized land.

**Table 9**  
BRAZIL: PRODUCTIVITY OF MANPOWER ON 89 FARMS IN THE WHEAT-GROWING DISTRICT OF RIO GRANDE DO SUL, 1955. AGRICULTURAL SECTOR

Crop	Area under cultivation (hectares)	Production (tons)	Yield per hectare (kilogrammes)	Total days worked <sup>a</sup>	Input of manpower per hectare (man/hours) <sup>a</sup>	Productivity (kilogrammes per hour worked)
<i>Zona de Campo</i>						
(Mechanized) .....	19,187	..	..	66,801	..	..
Annual crops—Total ...	19,081	..	..	66,190	..	..
Wheat .....	15,878	14,294.1	900	42,158	21	43
Maize .....	1,008	1,419.5	1,408	10,157	81	17
Rice (irrigated) ....	407	1,242.0	3,051	4,852	95	32
Beans .....	59	59.7	1,011	598	82	12
Potatoes .....	43	250.3	5,821	2,311	430	13
Manioc .....	92	623.0	6,771	3,375	293	23
Green manure .....	1,024	..	..	1,077	8	..
Soya beans (oil crop)	6	6.7	1,116	58	78	14
Linseed .....	245	151.5	618	600	20	31
Oats (grain crop) ....	251	300.0	1,195	822	26	46
Barley .....	60	63.0	1,050	182	24	43
Other crops .....	8	..	..	..	..	..
Perennial crops—Total..	106	..	..	..	..	..
Fruit-trees .....	23	..	..	297	103	..
Vineyards .....	5	..	..	124	199	..
Fodder crops .....	78	..	..	190	19	..
<i>Zona Colonial</i>						
(Non-mechanized) ..	374.1	..	..	..	..	..
Annual crops—Total ...	331.1	..	..	..	..	..
Wheat .....	166.0	149.4	900	3,794	184	5
Maize .....	108.0	180.9	1,675	3,252	241	7
Rice (irrigated) ....	7.7	24.9	3,233	462	480	7
Beans .....	12.6	18.0	1,428	345	219	6
Potatoes .....	8.0	96.2	12,025	616	616	19
Manioc .....	7.5	57.0	7,600	373	386	20
Barley .....	13.0	12.3	946	295	181	5
Other crops .....	8.3	..	..	..	..	..
Perennial crops—Total..	43.0	..	..	..	..	..
Fruit-trees .....	17.8	..	..	246	111	..
Vineyards .....	14.6	..	..	496	272	..
Other crops .....	10.6	..	..	..	..	..

Source: Joint ECLA/BNDE Group.

<sup>a</sup> Taking into account 8-hour days actually worked, and excluding hours lost for miscellaneous reasons.

Table 10

## BRAZIL: PRODUCTIVITY OF LABOUR AND DISTRIBUTION OF AGRICULTURAL MANPOWER IN PROJECTIONS FOR 1962. "ZONA DE CAMPO".

	Area under cultivation (thousands of hectares)	Man/hours per hectare (man/hours)	Total days worked <sup>a</sup> (thousands)	Yield per hectare (kilogrammes per hour worked)	Production (thousands of tons)	Productivity (kilogrammes per hour worked)
<b>Hypothesis A</b>						
Wheat .....	983.5	18	2,212.8	900	885	50
Maize .....	245.9 <sup>b</sup>	55	1,690.5	2,500	615	45
Rice (dry-soil) .....	147.5 <sup>c</sup>	19	346.0	1,100	162	57
Linseed .....	73.8 <sup>d</sup>	18	166.0	900	66	50
Beans (soya beans) ..	24.6 <sup>e</sup>	50	153.7	1,300	32	26
Fodder crops .....	491.7 <sup>f</sup>	10	614.6	..	..	..
<b>TOTAL</b>	<b>1,967.0</b>	<b>—</b>	<b>5,183.6</b>	<b>—</b>	<b>—</b>	<b>—</b>
<b>Hypothesis B</b>						
Wheat .....	1,190.5	18	2,688.7	900	1,071	50
Maize .....	297.6 <sup>b</sup>	55	2,046.0	2,500	744	45
Rice (dry-soil) .....	178.6 <sup>b</sup>	19	424.2	1,500	268	79
Linseed .....	89.2 <sup>c</sup>	18	200.7	900	80	50
Beans (soya beans) ..	29.8 <sup>d</sup>	50	180.6	1,300	39	26
Fodder crops .....	595.2 <sup>e</sup>	10	744.0	..	..	..
<b>TOTAL</b>	<b>2,380.9</b>	<b>—</b>	<b>6,284.2</b>	<b>—</b>	<b>—</b>	<b>—</b>
<b>Hypothesis C</b>						
Wheat .....	1,388.5	18	3,124.1	900	1,250	50
Maize .....	347.1 <sup>b</sup>	55	2,386.2	2,500	868	45
Rice (dry-soil) .....	208.3 <sup>b</sup>	19	497.7	1,500	312	79
Linseed .....	104.1 <sup>c</sup>	18	234.2	900	94	50
Beans (soya beans) ..	34.7 <sup>d</sup>	50	216.9	1,300	45	26
Fodder crops .....	694.2 <sup>e</sup>	10	867.8	..	..	..
<b>TOTAL</b>	<b>2,776.9</b>	<b>—</b>	<b>7,326.4</b>	<b>—</b>	<b>—</b>	<b>—</b>

Source: Joint ECLA/BNDE Group.

<sup>a</sup> Working days of 8 effective hours of work, equivalent to normal 10-hour days.

<sup>b</sup> 50 per cent of the area under other crops.

<sup>c</sup> 30 per cent of the area under other crops (dry-soil rice).

<sup>d</sup> 15 per cent of the area under other crops.

<sup>e</sup> 5 per cent of the area under other crops.

<sup>f</sup> Relating only to that part of the total area under fodder crops which is sown annually.

It is estimated that the adoption of these systems would raise the productivity of manpower from the 17 kilogrammes per man/hour recorded during the survey to approximately 45 kilogrammes.

Few data are available as to the possibilities of using higher-yield varieties for the other crops included in the rotation system. Estimates are therefore based on the assumption that any increment in yields and productivity would be achieved by the use of fertilizers and by means of more efficient methods of farming. At present almost all such crops are sown without fertilizers in the wheat stubble, so that they can profit by the residual effect of the fertilizer used for the latter crop. The additional application of the equivalent of half the fertilizers normally used for wheat would be enough to give satisfactory results with any crop.

Table 11 offers an objective comparison of the unit yields, inputs and productivity recorded in the sixty-nine *zona de campo* farms included in the sample, since it was on these that the calculation of targets was based.

It should be noted that the estimates of future rice sowings take into account only the dry-soil crop, in

which, although yields are low in comparison with those of irrigated rice, productivity per man/hour works out at a higher level owing to the completeness of mechanization and above all to the saving of the heavy input of manpower required for irrigation.

No other crops have been included in the proposed rotation system, either for want of information on their behaviour in the *zona de campo* or because some, like manioc, for instance, call for a high input of manpower. It may be of interest to grow them in special situations where there is no shortage of labour and where the product can be used for breeding pigs and for stockfarming in general.

It is also likely that barley, oats and rye can be grown economically and incorporated into the rotation. Their utilization will depend on the possibility of improving price relationships and guaranteeing a steady demand.

In studying the prospects of increasing yields and productivity, an attempt was made to take into account only such improvements as might feasibly be introduced over the short term, within a broad agricultural development programme which would not only include fuller exten-

**Table 11**

BRAZIL: COMPARISON BETWEEN YIELDS PER HECTARE, INPUTS OF MANPOWER PER HECTARE AND PRODUCTIVITY PER MAN/HOUR REGISTERED IN 1955<sup>a</sup> AND PROJECTED FOR 1962 UNDER THE HYPOTHESES POSTULATED. "ZONA DE CAMPO"

Crop	1955			1962		
	Yield per hectare (kilogrammes)	Input of manpower per hectare (man/hours)	Productivity (kilogrammes per man/hour)	Yield per hectare (kilogrammes)	Input of manpower per hectare (man/hours)	Productivity (kilogrammes per man/hour)
Wheat .....	900	21	43	900	18	50
Maize .....	1,408	81	17	2,500	55	45
Rice .....	3,051	95	32	1,100	19	57
Linseed .....	618	20	31	900	18	50
Beans .....	1,011	82	12	1,300	50	26

Source: Joint ECLA/BNDE Group.

<sup>a</sup> In a sample of 69 farms in the wheat-growing district of the *Zona de Campo* in Rio Grande do Sul.

sion services, but would also allow for the provision of selected seed and of machinery, as well as for a satisfactory system of agricultural credits. It was also borne in mind that under a properly-managed crop rotation, planned with a view to soil conservation, correction of acidity and fertilization, the land in the *zona de campo* will progressively improve, a process which will assist in the obtaining of better yields and may even allow of a partial reduction of the input of fertilizers.

(b) *Livestock sector*

The poor quality and low carrying capacity of the pasture, particularly in the districts known as Planalto Medio and Misiones in the State of Rio Grande do Sul and in the *zonas de campo* of the States of Santa Catarina and Parana afford grounds for the belief that it will not be difficult to double current yields through the sowing of fodder crops and even simply by the improvement of the soil and better pasture management. It may therefore be considered that under the rotation system recommended, it will be possible to maintain, on an area half the size of the former natural grasslands, virtually the same number of cattle as before the land in question was brought under crops.

With smaller areas under pasture and greater density of fences, the productivity of manpower in stock-breeding is very likely to increase. It is assumed, however, that both the original livestock population and the manpower needed to look after it will remain unchanged. These figures served as a basis for computing the number of cattle that would be displaced when the new areas envisaged in the various hypotheses were brought under cultivation, and that would in turn be concentrated on the land which, under the rotation system, would be sown to fodder crops. Manpower requirements for the care of this livestock population are not given, since the assumption is that they would be practically the same as before the programme was put into effect.

(c) *Miscellaneous activities*

This term covers all those activities of a general nature which cannot be separately classified under each of the individual branches of farming. They include those involving substantial inputs of manpower, such as administration, repair of machinery, and the upkeep of build-

ings, roads and fences; transport of products to and from the farm; activities calling for investment, such as the building of barns and sheds, roads, fences, etc.; the reclamation of soil where work other than mere ploughing is needed, and so forth.

The 1955 survey already mentioned served as a general basis for estimates of days worked in this sector, but some variations were introduced into the projections for 1962. Thus, within "miscellaneous activities", 14 per cent of the total was absorbed by transport, both on the property itself, and from the farm to the market and vice versa. In view of the improvements that are expected to accompany the partial installation of the new network of silos and the adoption of better marketing systems, this proportion was reduced to only 12 per cent. (See table 12.)

**Table 12**

BRAZIL: ESTIMATE OF WORKING DAYS TO BE EMPLOYED IN MISCELLANEOUS ACTIVITIES NOT ATTRIBUTABLE TO ANY SINGLE BRANCH OF FARMING

	1955	1962		
		Hypothesis A	Hypothesis B	Hypothesis C
Farm management .....	394	884	1,088	1,284
Total miscellaneous activities	420	757	918	1,071
Repairs <sup>a</sup> .....	42	88	107	125
Transport within and outside the farm.....	59	105	128	149
Upkeep and repair of machinery .....	243	440	534	623
Other work .....	75	124	149	174
Investment .....	140	549	664	775
Fences .....	38	148	179	209
Construction .....	63	247	299	348
Roads .....	21	82	100	116
Reclamation of soil.....	15	61	73	85
Miscellaneous .....	3	11	13	16
TOTAL	954	2,190	2,670	3,130

Source: Joint ECLA/BNDE Group.

<sup>a</sup> For repairs to buildings, 3 per cent of the total was envisaged, 2 per cent for road repairs and 5 per cent for repairs to fences.

In 1955 repairs and upkeep of agricultural machinery on the farm<sup>19</sup> absorbed 58 per cent of the total. When it is taken into account that by 1962 tractor drivers and mechanics will be much more efficiently trained and the machinery will consequently be better looked after, it can be reckoned that the input of manpower for work of this kind will fall to only 50 per cent of the total. The item "other work", comprising all the many tasks that normally have to be performed on a farm, and that range from the marking-out of contour lines to weeding the roadsides or keeping down ants and rodents, was also cut down from 18 to 14 per cent in view of the higher degree of organization that will have been achieved by 1962.

To sum up, the item "miscellaneous activities", which in 1955 represented 13.1 per cent of direct input in agricultural production, will by 1962 account for little more than 10 per cent.

The proportion of time devoted to administrative work is much the same as that recorded in 1955, which is considered to have been fairly satisfactory, since in that year a large majority of wheat farms were run either directly by their owners or by managers under the supervision of the entrepreneurs.

In the activities involving investment, the proportion indicated by the survey was increased from 4.4 to 7 per cent, in view of the desirability of providing the areas recently turned over to wheat-growing with minimum facilities for the storage of grain and fuel and the upkeep of machinery. Allowance was made in addition for the necessity of increasing such facilities on existing farms to the minimum indispensable for the prevention of losses through storage and through the undue deterioration of machinery; and the need for practically twice as much fencing was also taken into account.

Table 13 sums up all manpower requirements under each of the different hypotheses, on the basis of an estimated average yield of 900 kilogrammes per hectare. With the obtaining of larger yields these inputs would increase on only a very small scale, as nothing more than the transport of the additional production would be implied.

Table 13

BRAZIL: MANPOWER REQUIRED FOR THE FULFILMENT OF THE DIFFERENT HYPOTHESES

	1955	1962		
		Hypothesis A	Hypothesis B	Hypothesis C
Days worked (thousands)				
Agriculture .....	2,469	5,183	6,284	7,326
Stock-breeding .....	713	2,661	3,202	3,740
Farm management ....	394	884	1,088	1,284
Miscellaneous activities	420	757	918	1,071
Investment activities ..	140	549	664	569
TOTAL	4,136	10,034	12,156	13,900
Number of persons				
With an average of 221 days per year.....	18,714	45,404	55,004	63,303
With an average of 250 days per year .....	..	40,136	48,624	55,960
With an average of 280 days per year.....	..	35,835	43,414	49,964

Source: Joint ECLA/BNDE Group.

<sup>19</sup> Lubrication, changing of oil, minor repairs, etc.

#### (d) Active population

According to the findings of the survey, there is marked under-employment of the worker on wheat farms, who in 1955 worked on an average only 221 days in the year.<sup>20</sup> So low a degree of utilization of manpower is attributable to over-specialization.

In establishing future active population requirements, it was borne in mind that the diversification aimed at would enable such population to be much more efficiently utilized. As in the group of large-scale diversified farms studied in the sample, there would be no difficulty in attaining a standard of utilization of at least 250, or even possibly as many as 280, days worked per man/year. Active population requirements for wheat farming in the *zona de campo* are indicated in table 13, according to the number of days worked that they would permit. The figures given relate to farm hands on permanent contract or to their equivalent in temporary workers.

#### (e) Productivity of manpower

Despite the higher input of material and services projected for farming, productivity, assessed on the basis of gross product per worker, should substantially improve even with the low yields which, as a precautionary measure, have been postulated for the various crops.

In view of the wide disparity existing in 1955 between the high price of wheat and quotations for the other products complementary to wheat-growing in the *zona de campo*, it was to be expected that if the proportion of the latter increased from 1 hectare to every 5 of wheat in 1955 to 1 hectare to every 2 of wheat in 1962, productivity per day worked and per man/year would decrease. But these price differences<sup>21</sup> are more than offset by the increment forecast in the yields of the complementary crops, so that the gross product should rise from 475 cruzeiros per day worked in 1955 to 489 in 1962.

The improvement becomes more striking still if it is taken into consideration that when the proposed diversification targets are attained, the active population will be more fully utilized, and productivity per man/year should substantially increase. According to the sample, productivity thus measured stood at 106,000 cruzeiros in 1955, with an average of only 221 days worked in the year. It would rise to 122,300 cruzeiros per man/year if 250 days were worked annually, and would reach almost 137,000 cruzeiros should as many as 280 days be worked. Real significance would attach to a 30 per cent increment in a productivity figure which even in 1955 could already be considered high.

#### 4. INVESTMENT

To complete the projections, the investment required for the attainment of the proposed targets should be determined, as well as the extent to which it would be justified by the production increments forecast. Consideration will also be given to the amount of foreign exchange needed for imports of machinery, fuel, fertilizers, etc., and to whether the resulting saving in wheat imports would be sufficient to warrant this outlay.

The vegetation and topography in the *tierras de campo* of Brazil's wheat-growing area are such that all the land

<sup>20</sup> The average on specialized farms was only 208 days, while in those with diversified agriculture it rose to above 239.

<sup>21</sup> Taken at the 1955 level.



required for the attainment of the targets could be brought under cultivation without investment in deforestation, irrigation or drainage. Little preparation is needed before the gently-sloping ground, practically free of trees and bushes, can be tilled. Its reclamation would call only for investment in the necessary farm facilities, fences and machinery.

#### (a) Fences

In 1955 the approximate density of fences on wheat farms was 17 lineal metres to the hectare. In stock-breeding areas not reclaimed for agriculture, the corresponding figure seems to have been only 8 lineal metres per hectare.

Future requirements were determined by taking the whole area that would have been brought under cultivation by 1962 for the different hypotheses, and calculating

the fences that existed in 1955. Total needs were then estimated by dividing the optimum size of farm—600 hectares—into 6 fields of 100 hectares each, which would permit the maintenance of the crop rotation recommended and facilitate more efficient utilization of pasture. Boundary fences between properties as well as those within the farm were taken into account, and on this basis a probable density of 20 lineal metres per hectare was computed. By subtracting the amount of fences existing in 1955 from total requirements for 1962, the length that would have to be put up in the seven intervening years was determined.

The value that would be represented by this investment was computed on the basis of average 1955 prices and expenditure on replacements was calculated on the assumption that the fences would last twenty years, that is, at an annual rate of 5 per cent. (See table 14.)

Table 14

BRAZIL: FENCES EXISTING IN 1955 AND REQUIREMENTS FOR 1962 ON THE DIFFERENT HYPOTHESES. NET AND TOTAL INVESTMENT UNDER THIS HEAD

	Hypothesis A	Hypothesis B	Hypothesis C
Area concerned (thousands of hectares).....	2,950.5	3,571.5	4,165.5
Fences in existence in 1955			
1,332 million hectares incorporated <sup>a</sup> (kilometres).....	22,697.0	22,697.0	22,697.0
Area to be incorporated <sup>b</sup> (kilometres).....	12,944.5	17,916.0	22,668.0
Total available in 1955 (kilometres).....	35,641.5	40,613.0	45,665.0
Additions required for a density of 20 metres per hectare (kilometres) .....	23,369.0	30,817.0	37,645.0
Total available fences in 1962 (kilometres).....	59,010.0	71,430.0	83,310.0
Investment in additional fences (millions of cruzeiros)....	467.4	616.3	752.9
Investment in replacements <sup>c</sup> (millions of cruzeiros).....	331.3	392.1	450.7
Total investment (millions of cruzeiros).....	798.7	1,008.4	1,203.6

Source: Joint ECLA/BNDE Group.

<sup>a</sup> Density of 17 lineal metres per hectare.

<sup>b</sup> Hypothesis A = 1,618.5 thousand hectares; Hypothesis B = 2,239.5 thousand hectares;

Hypothesis C = 2,833.5 thousand hectares. Density of 8 metres per hectare.

<sup>c</sup> Assuming an annual replacement rate of 5 per cent.

#### (b) Construction

In order to compute investment in construction, it was thought preferable to make separate calculations of expenditure on the main types of buildings, so as to assign to each its proper degree of importance and provide the minimum indispensable for the methodical running of the farm.

*Farmhouses and offices.* According to the findings of the survey, on only 67 per cent of the properties studied were buildings of this sort available on the land used for wheat, and it is estimated that in the area to be brought under cultivation in the future such facilities will be found on only 30 per cent of the wheat farms, since most of these represent sections of large estates rented *ad hoc*. The extension of these results to the universe gave the approximate number of farmhouses in existence in 1955.

The calculation of future requirements was based on the postulate that 90 per cent of the total number of farms should possess buildings of this kind, as the remaining 10 per cent were near enough to population centres to be run by entrepreneurs or managers living within the urban radius. The difference between the number of farmhouses in existence in 1955 and those needed

for 1962 represented the net additional number to be built.

Net investment was computed on the basis of an average allocation of 130,000 cruzeiros per building, this being the medial price recorded in the survey. To estimate investment in replacements, lineal growth of construction was assumed in the period under consideration. The annual replacement rate envisaged was 2 per cent; that is, an average life-span of 50 years was postulated for the type of building in use locally. (See table 15.)

*Workers' dwellings.* It would seem that in 1955 the average number of houses per property was 1.74, and the relationship between this figure and the number of farm hands was apparently one house to every 3.35 farm hands on permanent contract. In the case of land not yet brought under cultivation, only one house per farm was assumed, i.e., the equivalent of one to every 7 permanent workers, in view of the kind of diversified wheat-farming projected.

The minimum target proposed is one house for every 3 resident farm hands. The approximate number of dwellings required in 1962 will therefore be 10,200, 12,300 and 14,200 for hypotheses A, B and C respectively.

Table 15

## BRAZIL: ESTIMATE OF TOTAL INVESTMENT IN FARM BUILDINGS IN THE ZONA DE CAMPO BETWEEN 1955 AND 1962

(Millions of cruzeiros at 1955 prices)

	Hypothesis A	Hypothesis B	Hypothesis C
<b>Farmhouses</b>			
Existing in 1955 <sup>a</sup> .....	267.2	298.6	328.8
Investment in replacements up to 1962 <sup>b</sup> .....	53.7	63.3	72.4
Net investments up to 1962.....	233.5	306.9	377.5
<b>Workers' dwellings</b>			
Existing in 1955 <sup>a</sup> .....	213.2	244.8	274.9
Investment in replacements up to 1962 <sup>b</sup> .....	40.1	47.3	54.0
Net investments up to 1962.....	146.7	186.4	221.2
<b>Sheds</b>			
Existing in 1955 <sup>a</sup> .....	321.0	351.4	380.4
Investment in replacements up to 1962 <sup>c</sup> .....	104.8	110.2	125.5
Net investments up to 1962.....	255.9	347.3	434.6
<b>Other buildings</b>			
Existing in 1955 <sup>d</sup> .....	71.6	71.6	71.6
Investment in replacements up to 1962 <sup>c</sup> .....	25.9	31.3	35.2
Net investments up to 1962.....	103.7	155.0	192.7
<b>Summing-up</b>			
Total buildings existing in 1955.....	873.0	966.4	1,055.7
Total investments in replacement up to 1962.....	224.5	252.1	287.1
Total net investments up to 1962.....	739.8	995.6	1,226.0

Source: Joint ECLA/BNDE Group.

<sup>a</sup>Including both buildings actually in existence on farms incorporated by 1955, and those assumed to exist on farms to be incorporated in the future.

<sup>b</sup>The dwelling-house calculations were based

on an annual replacement rate of 2 per cent.

<sup>c</sup>For sheds and other buildings calculations were based on an annual replacement rate of 3 per cent.

<sup>d</sup>Buildings of this kind are assumed to be lacking on farms not yet incorporated.

Net investment was calculated on the basis of an average price of 35,000 cruzeiros per house, while investment for replacement was computed as in the preceding case.

*Sheds and supplementary buildings.* The survey showed that only 78 per cent of the farms possessed storage facilities, or, more specifically, barns. On 67 per cent there were minor or supplementary facilities, consisting of lean-tos, small sheds or some form of protection for machinery, supplies and fuel. It was assumed that only 25 per cent of the prospective new farms would have any kind of storage facilities.

As a minimum objective on which to base an estimate of investment, it was established that each farm must be provided with a storehouse and a supplementary building. In both cases, the 1962 target figures would be the equivalent of the number of farms in operation, namely, 4,274, 5,176 and 6,037 for hypotheses A, B and C respectively. If the buildings existing in 1955 are discounted, the net additions to be put up by 1962 would amount to 1,896, 2,573 and 3,919 sheds for each of these three hypotheses, and a considerably larger number of buildings of the other type.

To calculate net investment in storage facilities, an average value (at 1955 price levels) of 135,000 cruzeiros was envisaged and only 43,800 cruzeiros for the supplementary outhouses. Investment in replacements

was computed in the same way as for dwelling-houses, except that a rate of 3 per cent was adopted, as buildings of this type are apt to deteriorate more rapidly and are, in many cases, of light fabric.

*Byres.* Future requirements of byres or cow-sheds and other buildings needed for the livestock sector were not taken into account, since within the development of wheat farming no increment in the livestock population is contemplated, and the assumption is that current facilities will continue to meet requirements as hitherto. This aspect would be of vital importance in a fuller study, and will have to be taken into consideration in any programme for the improvement of stock-farming.

(c) *Agricultural machinery*

The exaggerated specialization characteristic of wheat farming, and a certain lack of method both in farm management itself and in the policy pursued with respect to imports of machinery and spare parts, together with the very limited servicing facilities available, have compelled entrepreneurs to maintain the density of machinery per cultivated hectare considerably above optimum levels. It is hoped that in the future, thanks to the proposed diversification, to the experience in the handling of their machinery which farmers will gradually acquire, and to better maintenance services, more efficient utilization of available equipment will be achieved.

Projections of future needs were based mainly on the prospects of utilizing the machinery for winter and summer crops, a practice which gives much more time for preparing the soil within the limits imposed by the sowing seasons. The density postulated for most of the machines was lower than in 1955, being higher only in the case of small-grain drills, non-motorized transport vehicles and fertilizing-machines.

Table 16 shows the stocks of the various types of machinery in 1955, the density figures for that year and those projected for 1962. In the same table are presented requirements of the different sorts of machinery under the three hypotheses; they were calculated by taking the

total area under the various crops for which the machines would have to be used, and dividing this by the proposed density. The difference between total requirements and the number of machines in existence in 1955 represents the net additions that will have to be purchased in the 7 years up to 1962.

In the foregoing calculations no special provision was made for tractors and harrows for fodder crops, since it was felt that the densities forecast were sufficiently generous to cover tillage of the land used for this purpose, especially as in the greater part of the area concerned the ground would only have to be harrowed once or twice before sowing.

**Table 16**  
**BRAZIL: ESTIMATE OF FARM MACHINERY TO BE REPLACED BY 1962**

Type of machine	Stocks in 1955 (units)	Approximate useful life (years)	Replacement rate (percentage)	Hypothesis A		Hypothesis B		Hypothesis C	
				Additions after 1955 (units)	Number of machines to be replaced by 1962	Additions after 1955 (units)	Number of machines to be replaced by 1962	Additions after 1955 (units)	Number of machines to be replaced by 1962
Tractors .....	5,194	8	12.5	2,320	6,576	3,355	7,480	4,345	8,346
Ploughs .....	5,300	12	8.3	1,449	3,921	2,310	4,421	3,135	4,900
Harrows, .....	3,993	12	8.3	1,282	3,065	1,972	3,466	2,632	3,849
Grain drills .....	2,900	10	10.0	1,896	3,357	2,600	3,850	3,525	4,498
Corn drills .....	..	12	8.3	1,690	982	2,046	1,189	2,386	1,386
Cultivators .....	..	10	10.0	902	631	1,092	764	1,271	890
Self-propelled harvesters	2,968	8	12.5	1,026	3,495	1,554	3,956	2,060	4,400
Corn harvesters .....	..	10	10.0	1,025	718	1,240	868	1,446	1,012
Corn-shellers .....	400	15	6.7	1,166	734	1,454	870	1,728	998
Non-motorized vehicles.	1,766	15	6.7	2,068	1,798	2,688	2,089	3,282	2,367
Fertilizing machines ..	212	10	10.0	385	418	489	491	489	491
Mowers .....	..	6	16.7	246	288	297	347	348	407
Hay-rakes .....	..	6	16.7	246	288	297	347	348	407

Source: Joint ECLA/BNDE Group.

Estimates of machinery replacements between 1955 and 1962 were based on the assumption that the experience already acquired in relation to preservation and upkeep would enable the useful life of almost every type of machine to be prolonged one or two years beyond the limits computed for amortization.

Table 16 above gives details as to estimated future machinery replacements under the three hypotheses postulated.<sup>22</sup>

A prerequisite for the calculation of investment in the purchase of agricultural machinery at 1955 prices was the prior establishment of that year's values for the replacement of existing machinery. The devaluation of the cruzeiro, the various preferential exchange rates assigned to imports effected directly by the official organizations, and the fact that commercial firms had to import at exchange rates sometimes higher than those prevailing on the free market, precluded conversion of the original purchase values on the basis of an average coefficient of

currency devaluation, so as to present them at 1955 price levels. A price was therefore calculated which represented an average between those charged by the Department of Agriculture of Rio Grande do Sul for its most recent imports and trade quotations for October 1955. The resulting prices were those given in table 17, which were applied to the appropriate number of machines in order to determine the investment required both for the expansion of the various crops and for replacements.

Up to now attention has been devoted to such permanent investment as will be absolutely necessary if the area under cultivation is to be enlarged in conformity with the targets proposed. An indication must now be given of the investment needed for improving yields and providing sufficient work for the machinery available. Such investment really comes under the head of working capital, as it is recoverable in the course of the year, but it was considered wise to include it in this estimate in order to determine the approximate amount of additional capital which the farmer will need over and above his current expenditure, and which will have to be at least partly financed by the State through land reclamation credits.

#### (d) Fertilizers

Although technical experiments in the use of fertilizers have not yet succeeded in determining precisely how far

<sup>22</sup> In this as in the foregoing tables, the figures noted are exactly those resulting from the various calculations made; they are so presented for the sake of methodological continuity, but in reality rounded figures should have been given, as it was only the order of magnitude that it was sought to establish, not minute details which may vary for a great many reasons. The same remark applies to subsequent tables.

Table 17

## BRAZIL: INVESTMENT IN NEW FARM MACHINERY UNDER THE DIFFERENT HYPOTHESES

(Millions of cruzeiros at 1955 prices)

Type of machine	Unit value (thousands of cruzeiros each)	Hypothesis A			Hypothesis B			Hypothesis C		
		Investment in new machines	Investment in replacements	Total investment	Investment in new machines	Investment in replacements	Total investment	Investment in new machines	Investment in replacements	Total investment
Tractors .....	300	1,392.3	1,972.8	3,365.1	2,013.0	2,244.0	4,257.0	2,607.3	2,503.8	5,111.1
Ploughs .....	50	144.8	196.0	340.8	231.0	221.1	452.0	313.5	245.0	558.5
Harrows .....	38	97.4	116.5	213.9	149.8	131.7	281.5	200.0	146.3	346.3
Grain drills .....	50	189.6	167.8	357.5	260.0	192.5	452.5	352.5	224.9	577.4
Corn drills .....	30	101.4	29.5	130.9	122.8	35.7	158.5	143.2	41.6	184.8
Cultivators .....	35	63.1	22.1	85.2	76.4	26.7	103.1	89.0	31.1	120.1
Self-propelled harvesters .....	460	943.9	1,607.7	2,551.6	1,429.7	1,819.8	3,249.4	1,895.2	1,024.0	3,919.2
Corn harvesters .....	170	348.5	122.1	470.6	421.6	147.6	569.2	491.6	172.0	663.7
Corn-shellers .....	18	42.0	13.2	55.2	52.3	15.7	68.0	62.2	18.0	80.2
Non-motorized vehicles .....	35	144.7	62.9	207.7	188.2	73.1	261.3	229.7	82.8	312.6
Fertilizing machines .....	22	17.0	9.2	26.2	21.5	10.8	32.3	21.5	10.8	32.3
Mowers .....	32	15.7	9.2	25.0	19.0	11.1	30.1	22.2	13.0	35.3
Hay-rakes .....	36	17.7	10.4	28.1	21.4	12.5	33.9	21.0	14.7	39.7
Other machinery .....	..	67.5	61.9	129.4	86.7	68.6	155.3	118.9	80.0	198.9
Tools .....	..	..	..	39.9	..	..	50.5	..	..	60.9
<b>TOTAL MACHINERY</b> ..	..	<b>3,585.7</b>	<b>4,401.3</b>	<b>8,027.0</b>	<b>5,093.5</b>	<b>5,010.8</b>	<b>10,154.8</b>	<b>6,572.0</b>	<b>5,608.1</b>	<b>12,240.9</b>

Source: Joint ECLA/BNDE Group.

their application may economically be carried, the preliminary conclusions reached at the experimental stations and the practical observations made in the course of general farming permit the establishment of what may for the moment be regarded as optimum volumes.

For wheat, the estimated input comprised 50 units of  $P_2O_5$ , 25 units of nitrogen and only 12.5 of potassium. These quantities represent an average for the region as a whole, but the calculation was made with due regard to the fact that the Campanha, Depresión Central and Sierra do Sud Este districts, with their richer soils, require smaller doses, which, in the case of phosphoric anhydrite, for instance, would range from about 30 to 35 units per hectare. The lesser amounts applied to these areas would counterbalance the heavier requirements of the poorer soils in the remainder of the wheat-growing zone. A small quantity only of potassium was included, because of its slight influence on wheat yields in most of the local soils.

Only 50 per cent of the amounts prescribed for wheat were budgeted for in the case of other crops.

Applications of lime, regarded as absolutely indispensable for the neutralization of acidity, were calculated at a rate of 1,500 kilogrammes per hectare in three annual instalments of 500 kilogrammes during the three-year period covered by the rotation.

Alongside the programme for the application of fertilizers, much more intensive research into their use under the various conditions existing in the zone should be carried out.

Table 18 gives the annual investment in fertilizers required for each of the hypotheses.

## (e) Pesticides and weed-killers

The use of pesticides in the *zona de campo* in 1955 reached a relatively satisfactory level as a result of official action against septoriosis (*Septoria nodorum* and *Septoria tritici*), wheat caries (*Tilletia foetida* and

*Tilletia caries*) and *lagarta* (*Cirphis unipuncta*). The first two were controlled by means of disinfection of the selected seed distributed by the Serviço de Expansão do Trigo and the Departments of Agriculture, and the last by direct spraying of the crops affected with camphene chlorate. Other pests attacking wheat and the complementary crops were satisfactorily dealt with by the farmers themselves. Total investment in purchases of pesticides amounted to somewhat less than 6 per cent of the value of fertilizers.

For the forecasting of future pesticide requirements allowance was made for an increase of only 1 per cent over the value of fertilizers, since these in turn were placed at a higher level than in 1955. To this item was added a further 3 per cent for weed-killers, which will gradually have to be brought into more common use. The amount allocated to this item is shown in table 18, indicating total investment.

## (f) Seed

Expenditure on seed might be considered purely nominal where the farmer selects the seed himself out of his own production; but as the aim is to spread the use of certified or at least selected seed in the case of wheat and other small grain and of hybrid varieties in that of maize, a calculation was made of the investment which this item would represent. (See again table 18.)

## (g) Fuel and lubricants

Table 18 also shows the projection of investment in fuel for agricultural machinery. Owing to discrepancies in rates of consumption and differences in the fuels used, it was thought preferable to keep the amounts needed for preparation of the ground, sowing and cultivation separate from consumption for harvesting operations.

## (h) Development services

No detailed information could be obtained as to the budgets of the various official organizations or as to what

**Table 18**  
**BRAZIL: TOTAL INVESTMENT FOR ATTAINMENT OF 1962 PRODUCTION TARGETS**  
*(Millions of cruzeiros)*

	Investment in expansion of area farmed (over 7 years)			Investment in materials				Total
	Machinery <sup>a</sup>	Buildings	Fences	Fertilizers <sup>b</sup>	Pesticides	Fuel and lubricants	Seed	
<i>Hypothesis A</i>								
Total investment .....	8,027.0	1,612.8	798.7	2,003.4	200.3	421.4	761.0	13,824.6
Expansion after 1955.....	3,585.7	739.8	467.4	2,003.4	200.3	421.4	761.0	8,179.0
Replacements .....	4,401.3	873.0	331.3	..	..	..	..	5,605.6
<i>Hypothesis B</i>								
Total investment .....	10,154.8	1,962.0	1,008.4	2,425.1	242.5	512.2	921.1	17,226.1
Expansion after 1955 .....	5,093.5	995.6	616.3	2,425.1	242.5	512.2	921.1	10,806.3
Replacements .....	5,010.8	966.4	392.1	..	..	..	..	6,369.3
<i>Hypothesis C</i>								
Total investment .....	12,240.9	2,281.7	1,203.6	2,828.4	282.8	597.4	1,074.4	20,509.2
Expansion after 1955 .....	6,572.0	1,055.7	752.9	2,828.4	282.8	597.4	1,074.4	13,163.6
Replacements .....	5,608.0	1,226.0	450.7	..	..	..	..	7,284.7

Source: Joint ECLA/BNDE Group.

<sup>a</sup> There are discrepancies between total and partial investment in machinery because of investment in tools, estimated at 39,900

cruzeiros for Hypothesis A; 50,000 for Hypothesis B, and 60,900 for Hypothesis C.

<sup>b</sup> Ten per cent of investment in fertilizers. Weed-killers and herbicides are included.

proportion of them directly or indirectly benefited wheat. The only data available are those relating to the Serviço de Expansão do Trigo, an organization whose regular budgetary funds amounted in 1954 to 74.4 million cruzeiros, plus extraordinary resources of 40 million for purchases of seed, fertilizers and machinery. This budget covered only 4.5 per cent of that of the Ministry of Agriculture.

The Departments of Agriculture of the three wheat-producing states do not earmark specific sums for the promotion of wheat-growing, but incorporate such expenditure in that of their experimental stations and development services. Clearly, however, the funds allocated to the development of production, research and market control are from every point of view highly inadequate.

The Serviço de Expansão do Trigo, which is responsible for supervising the marketing and milling of wheat, and at the same time takes an active part in the work of expanding production, is unable to fulfil either of these two aims as efficiently as would seem to be essential,<sup>23</sup> owing to its scanty budget resources. The Departments of Agriculture, in spite of all their efforts, find serious difficulty in providing the indispensable technical assistance needed by the ever-increasing number of wheat farmers and in raising their research work to an optimum level. As in the previous case, the main obstacle is constituted by their unduly limited budgets.

In the future the responsibilities of the various organizations connected with the development of wheat production should be properly demarcated, so that duplication of effort is avoided. The Serviço de Expansão do Trigo could confine itself to supervision of the marketing and processing of wheat, while the Departments of Agriculture, in collaboration with the Institutos Agronômicos

<sup>23</sup> See *Diário do Congresso Nacional*, 24 November 1955, report of the commission for research into the real situation of the national wheat economy.

and the Postos Agropecuarios of the Ministry of Agriculture of the Federal Government should devote themselves to development and research. If really efficient work is to be done, the budgets of the various organizations should be increased commensurately with the importance attaching to them.

(i) *Storage and transport*

It has already been pointed out that the problems relating to storage and transport are among the most serious with which wheat production is faced.

Under the programme drawn up by the Government of the State of Rio Grande do Sul, a beginning will shortly be made, with the help of credit granted by the Banco do Desenvolvimento Econômico, on the construction of eleven grain elevators with a capacity of 85,000 tons. Moreover, out of its own resources the State is to embark on the building of an additional network with a capacity of 45,000 tons. At the best, these two networks will be able to handle a maximum of five times their storage capacity, or, in other words, even in combination with currently available storage facilities, they would barely be sufficient to deal with a harvest somewhat smaller than that of 1955.

An estimate of future storage requirements is outside the scope of the present article, and a separate study by the appropriate experts should be devoted to their determination, location and specification.<sup>24</sup> Suffice it to say here that in view of the projected diversification of production, any calculation of the capacity to be constructed will have to take into account the possibility of storage for the various cereals and types of grain included in the production programme, and not merely wheat. Another element which must be taken into consideration in the preparation of programmes is the possibility of gradually

<sup>24</sup> Such a study will have to take into consideration, as being absolutely essential, the extension of the network to the states of Santa Catarina and Parana.

changing over from the system of transport in sacks to that of bulk transport. The saving of manpower, sacks and transport that would be achieved would alone justify further investment.

A similar procedure would have to be followed with respect to the extension of the transport network in the three producer states. While it is true that the construction of the network of silos and storage facilities, the adoption of a single price for wheat and the modification of the regulations as to the minimum period allowed for the marketing of the crop would all greatly help to ease the burden on the transport system, it is equally certain that this system itself has serious defects which raise costs and hamper its operation. The studies to be carried out should cover transport not only by rail and road but also by inland waterways between certain producer areas and the ports, as well as maritime transport for the shipping of wheat to mills in the central and northern zones.

#### (j) Total investment

Table 18 presents an outline of the investment which would be necessary during 1955-62 for the attainment of the targets proposed under the three hypotheses. It should be recalled that permanent investments are cumulative and that figures for those of a temporary nature represent only such as would be required in 1962, since they are recoverable.

#### (k) Foreign exchange investment

A major share of future investment will have to be effected in foreign exchange. To ascertain the amount of such expenditure and compare it with the foreign exchange outlay which would be involved if the wheat produced as a result of that investment had to be imported, an approximate calculation was made of the sum (in dollars) which would be needed for imports of the equipment and material indispensable for the attainment of the production targets.

The various situations that might arise are presented in table 19. First, the c.i.f. values of all the machinery that would be imported throughout the whole period of execution of the programme were calculated, together with the c.i.f. values of the fuel, lubricants, fertilizers and pesticides needed for one year. The saving that might be achieved through domestic production was then computed. In the light of known government programmes, it was estimated that by 1962 it will be possible to produce about 25 per cent of annual tractor requirements. Only 15 per cent of domestic production was assumed for fuels and lubricants, but in contrast it was calculated that domestic production of fertilizers might easily cover 50 per cent or more of total requirements, especially as regards phosphates and nitrogenous fertilizers. Under the head of pesticides and weed-killers a saving of only 5 per cent was forecast.

Table 19

#### BRAZIL: FOREIGN EXCHANGE INVESTMENT FOR ATTAINMENT OF 1962 TARGETS

(Thousands of dollars)

	Machinery		Fuel	Lubricants	Fertilizers	Pesticides and weed-killers	Total
	Total in 7 years	Yearly					
<b>Hypothesis A</b>							
Total Investment .....	91,912	13,130	6,035	833	29,779	298	128,857
Additions after 1955 .....	40,852	5,836	6,035	833	29,779	298	77,797
Investment in replacement.	50,652	7,236	..	..	..	..	50,652
<b>Hypothesis B</b>							
Total investment .....	116,293	16,613	7,328	1,010	35,561	356	160,548
Additions after 1955 .....	58,125	8,304	7,328	1,010	35,561	356	102,380
Investment in replacement.	57,651	8,236	..	..	..	..	57,651
<b>Hypothesis C</b>							
Total investment .....	140,165	20,024	8,546	1,177	41,098	411	191,388
Additions after 1955 .....	75,040	10,720	8,546	1,177	41,089	411	126,263
Investment in replacement.	64,501	9,214	..	..	..	..	64,501
<b>Value (in dollars) of proportion replaceable with domestic production</b>							
Hypothesis A .....	19,982	2,855	905	125	14,890	15	36,051
Hypothesis B .....	25,233	3,605	1,100	152	17,780	18	44,443
Hypothesis C .....	30,411	4,344	1,282	177	20,545	21	52,620
<b>Real foreign exchange investment<sup>a</sup></b>							
Hypothesis A .....	71,930	10,276	5,130	708	14,889	283	92,940
Hypothesis B .....	91,060	13,009	6,228	858	17,781	338	116,265
Hypothesis C .....	109,754	15,679	7,264	1,000	20,544	390	138,952

Source: Joint ECLA/BNDE Group.

<sup>a</sup> Excluding possible domestic production.

Lastly, on the basis of these savings net foreign exchange expenditure was projected. If linear growth of production is assumed, foreign exchange expenditure would amount in 1962 to 31.3, 38.2 and 44.9 million dollars for hypotheses A, B, and C respectively.

The annual wheat output resulting from such investment in the *zona de campo* might range—with yields of 900 kilogrammes per hectare—from 885,000 tons in hypothesis A to 1.25 million tons under hypothesis C.<sup>25</sup>

If this production is evaluated at the c.i.f. price of imported wheat in 1955—84 dollars per ton—Brazil would have to invest from 90 million (hypothesis A) to 105 million dollars (hypothesis C) in the purchase of a similar quantity on foreign markets.

The resultant saving is significant, since it would vary from 43 million dollars in the case of hypothesis A to 52.8 million in that of hypothesis B and 60 million for hypothesis C. (See table 20.)<sup>26</sup>

**Table 20**  
BRAZIL: POSSIBLE ANNUAL SAVING OF FOREIGN EXCHANGE THROUGH WHEAT PRODUCTION IN THE ZONA DE CAMPO

	<i>Hypothesis A</i>	<i>Hypothesis B</i>	<i>Hypothesis C</i>
1. Wheat production (thousands of tons) .....	885.1	1,071.4	1,249.6
2. Value of wheat production (thousands of dollars).....	74,353	90,002	104,971
3. Total foreign exchange investment in machinery, fertilizers, etc. (thousands of dollars) <sup>a</sup> .....	50,075	60,868	71,246
4. Net foreign exchange investment in machinery, fertilizers, etc. (thousands of dollars) <sup>b</sup> .....	31,286	38,214	45,877
5. Possible saving of foreign exchange if the whole of the supplies indicated (2-3) had to be imported (thousands of dollars) .....	24,278	29,134	33,725
6. Possible saving of foreign exchange through domestic production of part of the supplies indicated (2-4) (thousands of dollars) .....	43,067	51,788	59,094

Source: Joint ECLA/BNDE Group.

<sup>a</sup> Equivalent to one-seventh of total investment in machinery, as shown in table 18, plus annual investment in material.

<sup>b</sup> Discounting the proportion that might be produced by domestic industry.

Again, it should be borne in mind that the production generated through the investment of this foreign exchange would not be confined solely to wheat, since the implementation of the programme would involve a considerable increment in the production of various other crops in an area which had hitherto been unsatisfactorily farmed with minimum productivity of the land. With the transition from extensive stock-breeding to agriculture the productivity of the soil—assessed in terms of the gross product—would rise from 430 cruzeiros per hectare to 2,700 cruzeiros (at 1955 prices).

There would be no difficulty in disposing of the new output on the home market, and some of it (especially in the cases of maize and rice) might even reach the export markets, which would mean that the saving in foreign exchange was still greater.

Lastly, attention must once more be called to the fact that projections of future production were based on very conservative estimates of wheat yields which might easily be exceeded. Hence there is a possibility that both the volume and the value of the production of this cereal and the other products may be higher than the figures on which all the projections were based, in which case the investment effected would be even more fully justified.

<sup>25</sup> No allowance was made in this calculation for the wheat produced in the *zona colonial*, as it calls for virtually no foreign exchange investment.

### (1) Productivity of capital

New investments to increase fixed and circulating capital in the future should produce a slight improvement in the productivity of total capital. In 1955 the productivity of the capital invested amounted to 0.54. In 1962 this coefficient should rise to 0.56. (See table 21.) The product-capital ratio would be the same in all three hypotheses, since increments both in investment and yields were calculated in proportion to the area under cultivation.

**Table 21**  
BRAZIL: PRODUCTIVITY OF CAPITAL IN WHEAT FARMING IN THE ZONA DE CAMPO

	1955	1962
Total investment <sup>a</sup> (millions of cruzeiros)	3,746.8	8,981.7
Gross product (millions of cruzeiros) .....	2,031.6	5,008.1
Product-capital ratio .....	0.54	0.56

Source: Joint ECLA/BNDE Group.

<sup>a</sup> Amortized values.

<sup>26</sup> Annual dollar investments were estimated by taking one-seventh of total investment in machinery and investment in material for one year.

## RECENT DEVELOPMENTS AND PROSPECTS IN TRADE BETWEEN LATIN AMERICA AND JAPAN

Recent developments in Latin American-Japanese trade are of special interest on account of the changes that have taken place in the economies of Japan and Latin America during the past decade. Owing to the great density of a still growing population, to the loss of various areas that formerly constituted important sources of supply for raw materials and foodstuffs, and to the slow recovery of export production in many countries of south-east Asia, Japan has had to increase its imports of essential goods and to seek them in more distant regions. On the other hand, its rapidly-expanding industries (which are no longer as interested in manufacturing textiles and other light consumer goods as in producing chemicals, iron and steel and other metal products, and industrial and transport machinery) continue to increase their exports, and are thus gradually helping to reduce the still considerable deficit in Japan's balance of payments. During the same period, the Latin American countries have witnessed a rise in their import requirements of basic products for industry and of machinery, while there has been an expansion of their export production of certain foodstuffs and raw materials, particularly cotton, which accounts for a high proportion of Japanese imports.

Thus a higher degree of commodity complementarity has developed between the Latin American and Japanese economies than existed in the pre-war period. This basic factor has been reflected, over the past five years, in a relatively large expansion of trade between the countries in question.

During the period under review, Japan, which at first had considerably increased its imports from Latin America, later expanded its exports also, and by 1955 the marked disequilibrium previously registered in its trade balance with Latin America had been very substantially reduced. The 20 per cent decline in Japan's imports and 10 per cent reduction in its exports *vis-à-vis* Latin America which took place in 1954-55 have involved a series of problems relating to the immediate prospects for the trade under consideration, especially as this contraction coincided with the introduction of changes in the commercial policies of the countries under consideration.

The earlier expansion of the trade between Japan and Latin America had been promoted, at least partially, by

temporary measures, such as domestic subsidies and foreign credit for Japanese exports, and bilateral agreements and barter arrangements. In 1955, Japan and two of its principal trading partners in Latin America—Argentina and Brazil—took significant steps to achieve the liberalization of trade and the reorganization of their external receipts and payments systems on a multilateral basis. Under such circumstances, in which the level of real prices begins to resume a major role in international competition, Japan will have to apply still more vigorous measures than in previous years to increase the efficiency of its export industries. This same observation holds true, in certain cases, for Latin American export activities, although the measures adopted by the United States to increase exports of surplus products (especially cotton and wheat) constitute a new factor of the problem which might prove decisive in determining the volume of Japanese imports from Latin America, over the short term. Furthermore, the recently accelerated recovery of agricultural production in the Far East may also have a negative effect on these trade movements.

In brief, given the present situation of the factors which in combination will determine the trends in trade between Japan and Latin America during the near future, the volume of Latin American exports to Japan seems to depend primarily on external factors. On the contrary, the development of Japanese exports to Latin America will depend more on Japanese domestic factors, such as the capacity of its industrial sector to expand output and to improve conditions with respect to prices and the production of such types and qualities of goods as meet the individual requirements of the Latin American countries. In this connexion it should be noted that the need to increase its exports is even more pressing for Japan than it is for most Latin American countries.

In the following article, an outline of some typical aspects of the Japanese economy in relation to its over-all foreign trade, will be followed by an analysis of the development of Latin American commerce with Japan in recent years, and the prospects for the region's staple exports and imports to and from Japan will be studied.

### I. IMPORTANCE OF FOREIGN TRADE FOR JAPAN'S ECONOMY

Well before the advent of the Second World War, a basic characteristic of the Japanese economy had been the close and important interrelationship between foreign trade and domestic economic activity.<sup>1</sup> The reason lies

<sup>1</sup> Total foreign trade, i.e. exports and imports, accounted for 30 per cent of national income in pre-war years. It represented 25 per cent in 1951-54.

in the fact that Japanese imports mainly comprise foodstuffs for direct consumption, and to an even greater extent, raw materials for the industrial processing of a wide variety of items to be resold on the home market or exported as manufactures and intermediate products. This characteristic is explained by Japan's large supply of cheap though skilled labour; its well developed manu-



facturing sector; and, in particular, its lack of many basic natural resources.

Since 1945, several factors have combined to render the external sector of even more critical importance to Japan's over-all economic revival and development. Prior to the Second World War, Japan was already one of the world's most densely populated areas, both in terms of total area and especially in relation to arable land. After the cessation of hostilities, when a substantial growth-trend in population continued to persist while at the same time Japan's total area was reduced, the ratio of population to land was exceptionally high.

Japan's loss of ownership or control of traditional supply sources in Asia, such as Korea and Formosa, and the post-war financial problems inherent in importing from various other currency areas, have served to aggravate Japan's long-standing domestic shortages of essential natural resources.

Table 1

JAPAN: COMPOSITION OF IMPORTS  
BY MAIN CATEGORIES OF PRODUCTS

(Percentage of total, on the basis of current yen values)

Period	Foodstuffs	Raw materials	Intermediate products	Finished products	Others
1936-39 . . . . .	7.6	53.1	25.5	13.0	0.7
1950-55 . . . . .	30.0	49.3	8.7	12.0	0.1

Source: ECLA, based on data from *Economic Statistics of Japan*, 1955, Bank of Japan.

Before the War, Japan relied upon its dependent territories in Asia for an important proportion of the rice, sugar, fish, fats and oils it consumed.<sup>2</sup> In post-war years, despite intensive efforts towards greater self-sufficiency from domestic production, an estimated 20 per cent or more of the foodstuffs consumed by its large population have to be imported.<sup>3</sup> As clearly indicated in table 1, foodstuffs now represent a far greater proportion of total imports than in the late thirties. At the same time, as shown in table 2, imports from Asia are less important, proportionally, than in pre-war years.<sup>4</sup>

Furthermore, Japan had, before the war, been able to utilize convertible multilateral payments arrangements

<sup>2</sup> Products obtained, before the war, from Korea and Formosa were not registered as imports.

<sup>3</sup> In 1954, values of imported food grains, sugar, flour, soya-beans and other foodstuffs totalled over 700 million dollars.

<sup>4</sup> Should the flow of trade from Korea and Formosa to Japan in pre-war years be considered as imports, the percentage figure for imports from Asia would be 53, with a correlative reduction in the figures for the other areas.

for such imports from Asia and from several other areas of the world as well. Since 1945, on the contrary, a large proportion of total Japanese imports of raw cotton, raw wool, crude rubber, hides and skins, chemicals, crude oil, iron ore and various other metals and minerals in crude or processed forms have necessarily been effected directly from dollar countries or from other currency areas requiring bilateral rather than multilateral balancing.

Since Japan has recorded a much greater increase in its dollar-area imports than in its exports to the same area, a correspondingly heavy dollar-account trade imbalance has been the inevitable result. Moreover, the Japanese transport fleet, which prior to the Second World War earned a net export surplus in Japan's over-all balance of payments, has, since the war, been a net user of current foreign exchange earnings.<sup>5</sup>

All these factors have emphasized, much more sharply than before, the heavy corollary reliance upon exports as the main source for generating external purchasing power to finance essential import needs, which, in current dollar values, have trebled since pre-war years.

Two important post-war trends have been very noticeable with respect to overseas markets for Japanese exports. On the one hand, Japan's sizable pre-war export trade with Asian countries (including the adjacent mainland areas as well as India, the Dutch East Indies and others) has declined in relative importance.<sup>6</sup> This has been the result both of political circumstances and of the fact that these areas now produce — and in some cases export — certain items, such as textiles, formerly purchased from Japan.

On the other hand, in its post-war trade outside Asia, Japan has had to face keen competition from the efficient United States and West European export sectors; furthermore, many other potential market areas of the world, such as Latin America, have created new domestic industries designed to supply their own internal needs of items once purchased from Japan. In the specific and still important case of textiles, moreover, changes in technology as well as in tastes have not only reduced to one-tenth the pre-war demand for Japanese silks, but

<sup>5</sup> In 1939, Japan's merchant fleet numbered 1,740 vessels, and carried 70 percent of Japan's total export tonnage and 63 per cent of its import tonnage. By 1955 the number of vessels totalled only 1,180 and carried only 43 per cent of the total export and 52 per cent of the total import tonnages. As recently as 1953 and 1954, therefore, net balance-of-payments deficits for transport and insurance were about 180 million dollars annually, in contrast with large surpluses for the same transactions during the pre-war period.

<sup>6</sup> In the late 'thirties, China alone accounted for 25 per cent of Japanese exports. During the 1951-54 period this proportion was reduced to 0.5 per cent.

Table 2

JAPAN: IMPORTS OF PRODUCTS BY AREAS OF ORIGIN

(Percentage of total, on the basis of current yen values)

Period	Asia	Europe	United States and Canada	Latin America	Africa	Australia and Oceania
1935-39 . . . . .	39	13	38	3	3	5
1951-55 . . . . .	32	8	39	11	3	8

Source: See table 1.

**Table 3**

**JAPAN: EXPORTS OF PRODUCTS BY AREAS OF DESTINATION**

(Percentage of total, on the basis of current yen values)

Period	Asia <sup>a</sup>	Europe	United States and Canada	Latin America	Africa	Australia and Oceania
1935-39 .....	57	10	20	3	6	3
1951-55 .....	48	11	20	9	8	4

Source: See table 1.

<sup>a</sup> Excluding Korea and Formosa in 1935-39. Should they be included, the percentage figure for exports to Asia would climb to 69, with a correlative reduction in the figures for all other areas.

have also substituted synthetics for many items previously based mainly upon woollen and cotton materials.<sup>7</sup>

Given the above circumstances, Japanese post-war exports and imports have consistently yielded very heavy over-all trade-account deficits. Of still greater significance, in addition, is the fact that Japan's deficits with the dollar-account area alone have been equally high and continuous throughout the entire post-war decade. During the past two years, Japan has made substantial progress in adjusting its balance of payments to the changing conditions of the post-war decade. As can be seen from table 4, trade-account imbalances were reduced from 1,135 million dollars to 461 million between 1953 and 1955. What is most noticeable is that this improvement is due entirely to increased exports, the over-all value of imports having presented very little variation in the same period.<sup>8</sup>

Basically, the progress in Japanese export activities<sup>9</sup> was made possible through the over-all development of

<sup>7</sup> During the period 1934-36, textiles accounted for more than half of total Japanese exports. By 1952-54, in contrast, they had fallen to only a third of total shipments.

<sup>8</sup> Since 1946, various sources of non-commodity trade income have been extremely important to Japan's balance of payments. Of major significance in this context were the direct United States aid payments prior to 1951, and the "special government receipts" (mainly comprising special government procurements for United States forces in Japan and expenditure by military personnel in or visiting Japan) after the Korean war. Together these income sources have yielded a total of over 5 billion dollars, substantially assisting Japan in the financing of its current transactions and strengthening its war-depleted volume of exchange reserves.

<sup>9</sup> The quantum of Japanese exports rose by 60 per cent between 1953 and 1955 alone. Even so, it was still only 57 per cent of the 1934-36 average.

**Table 4**

**JAPAN: TRADE ACCOUNT BALANCES BY CURRENCY-TRADING AREAS<sup>a</sup>**

(Millions of dollars)

	Total	Dollar area	Sterling area	Open-account area
1945-46 <sup>b</sup> .....	-202	-221	+ 2	+16
1947 .....	-353	-442	+ 32	+58
1948 .....	-426	-476	+ 12	+62
1949 .....	-395	-512	+ 88	+20
1950 .....	-154	-264	+ 22	+88
1951 .....	-641	-863	+132	+92
1952 .....	-755	-825	+ 38	+31
1953 .....	-1,135	-815	-285	-35
1954 .....	-770	-850	+ 60	+21
1955 .....	-461	-516	+ 50	+ 6

Source: See table 1.

<sup>a</sup> The currency-area headings shown above are those listed in the Japanese exchange and import control regulations.

<sup>b</sup> September 1945 - December 1946.

industrial production, but of most significance in this respect are the changes in the pattern of Japanese industry indicated by the figures in table 5.

Thus the emphasis placed upon selective output for export markets—metals, machinery, chemicals—allowed Japan to offset the loss of pre-war markets for its textile production. As will be seen later, such changes in the pattern of Japan's industrial output have played a very important part in the expansion of Latin American markets for Japanese goods.

**Table 5**

**JAPAN: INDICES OF CHANGES IN INDUSTRIAL OUTPUT**

(1934-36 = 100)

Year	Total industrial activity <sup>a</sup>	Manufacturing industries						
		Durable goods			Non-durable			
		Total <sup>b</sup>	Metals	Machinery	Total <sup>c</sup>	Textiles	Chemicals	Food and tobacco
1938 .....	141	170	148	193	119	99	153	119
1948 .....	62	75	40	107	35	22	51	41
1950 .....	88	110	97	126	67	41	103	84
1955 .....	188	223	219	250	168	86	317	207

Source: See table 1.

<sup>a</sup> Includes public utilities and mining, not shown separately.

<sup>b</sup> Includes ceramics, and lumber and wood products, not shown

separately.

<sup>c</sup> Includes rubber and leather goods and printing, not shown separately.

## II. THE POST-WAR EXPANSION OF LATIN AMERICA'S TRADE WITH JAPAN

After the Second World War, Japan's foreign trade took several years to regain its pre-war level, even in terms of current values. Trade began to recover only after 1950, and at a much more accelerated rate as from 1951; by 1955 a level three times higher than during the pre-war period had been attained.<sup>10</sup>

During the same years, trade with Latin America also expanded, but in a much higher proportion, accounting for more than 9 per cent of Japan's total trade as against only 4 per cent in the pre-war period. (See table 6.)

Japanese exports to Latin America rose from 22 million dollars in 1938 to an annual average of 125 million during the years 1951-55. Japanese imports from Latin America increased even more—from 28 million to 249 million dollars—in the same interval. This development was due to the changes in Japan's geographic and economic structure previously described, and to the higher degree of complementarity between reciprocal export and import requirements, as well as to various other temporary factors to be examined subsequently.

A somewhat more detailed analysis of recent trends in trade between Japan and Latin America reveals two factors which should be emphasized. In the first place, a very uneven increase can be observed in Japanese exports to and imports from Latin America. Secondly, there are also noticeable differences in the development of Japan's trade with the two monetary areas of Latin America. (See table 7.)

In pre-war years, Japan had a debit balance in its trade account with Latin America, but attached only slight importance to the deficit, owing to the very low

<sup>10</sup> Unless otherwise indicated, all data included in this article refer to current dollar-equivalent values taken from official Japanese statistics, with Japanese exports recorded f.o.b. and imports c.i.f.

levels involved. In the past five years, however, Japan's trade deficit with Latin America reached an annual average of 124 million dollars, or about one-sixth of Japan's total trade deficit. Elsewhere in this study<sup>11</sup> a more detailed analysis will be made of the factors that have influenced the development of Japanese trade transactions in Latin America. In brief, however, the disequilibrium between Japanese imports and exports has resulted from two contributory causes. Latin American export products that are of primary importance for the Japanese economy have been available, as a rule, without quantitative restriction and have been sold on an internationally competitive price basis. On the other hand, despite its recent industrial progress, Japan does not seem to have reached completely competitive price levels for all its export production,<sup>12</sup> nor a volume of production enabling it to respond to foreign demand in a measure that would restore its trade equilibrium. However, Japan has substantially improved its merchandise balance with Latin America in recent years, reducing its deficit from 161 million dollars in 1953 to only 64 million in 1955 (see again table 7), thanks to a sharp increase in its exports and a small decrease in its imports.

The figures given are based upon f.o.b. values for Japanese exports and c.i.f. values for imports. To measure more exactly the degree of equilibrium or disequilibrium in commodity trade between Latin America and Japan, it is necessary to adjust Japanese imports to an f.o.b. basis.<sup>13</sup> Thus, if a 15 per cent margin is assumed

<sup>11</sup> See Section III.

<sup>12</sup> For a detailed examination of this problem see *Economic Survey for Asia and the Far East, 1955*, Chapter 11: "Japan"; and the *Annual Report of the Japanese Economic Planning Board*.

<sup>13</sup> Latin American trade statistics reveal marked discrepancies in comparison with Japanese figures. Such differences derive in large part from the fact that over half of Japan's cotton imports

Table 6  
JAPAN: FOREIGN TRADE WITH ALL AREAS, AND WITH LATIN AMERICA  
(Data based on current dollar-equivalent values)

	1935-39	1948-50 (Yearly averages)	1951-55	1955
<b>A. Japanese exports</b>				
Total: Index 1935-39=100	100	65	184	245
To Latin America: Index 1935-39=100	100	52	403	577
Latin America as percentage of total	3.8	3.0	8.3	8.9
Latin America (millions of dollars in current values)	31	16	165	179
<b>B. Japanese imports</b>				
Total: Index 1935-39=100	100	104	274	300
From Latin America: Index 1935-39=100	100	170	755	737
Latin America as percentage of total	4.0	6.6	11.1	9.8
Latin America (millions of dollars in current values)	33	56	249	243
<b>C. Japanese exports plus imports</b>				
Total: Index 1935-39=100	100	84	229	272
With Latin America: Index 1935-39=100	100	113	584	657
Latin America as percentage of total	4.0	5.1	9.9	9.4
Latin America (millions of dollars in current values)	64	72	374	422

Sources: ECLA, with data from *Direction of International Trade*, United Nations, and Economic Stabilization Board, *Japanese Economic Statistics*, 1952.

Table 7

JAPAN: TRADE ACCOUNT BALANCES WITH THE WORLD AND WITH LATIN AMERICA<sup>a</sup>

(Millions of dollars at current values)

Year	World			Latin America <sup>b</sup>								
	Exports	Imports	Balances	Total			Dollar countries			Other countries		
				Exports	Imports	Balances	Exports	Imports	Balances	Exports	Imports	Balances
1938 .....	769	759	+ 8	22	28	- 6	9	3	+ 6	14	25	-11
1951 .....	1,355	1,996	-641	89	259	-170	16	155	-139	74	104	-30
1952 .....	1,273	2,028	-755	50	168	-118	26	131	-105	25	37	-12
1953 .....	1,275	2,410	-1,135	104	265	-161	60	140	- 80	45	125	-80
1954 .....	1,629	2,399	-770	201	309	-108	65	143	- 78	136	166	-30
1955 .....	2,011	2,472	-461	179	243	- 64	55	142	- 87	124	101	+23
Av'g												
51-55 .....	1,509	2,261	-752	125	249	-124	44	142	- 98	31	107	-26
1956 <sup>c</sup> .....	755	948	-191	61	91	- 30	9	51	- 42	53	40	13

Source: ECLA, with data from United Nations, *Direction of International Trade*, selected issues.

<sup>a</sup> The export data are shown here on an f.o.b. basis and the imports are shown c.i.f.

<sup>b</sup> The "dollar" and "other countries" are those listed in the *Direction of International Trade*.

<sup>c</sup> January - April.

for c.i.f. charges, Japan's real net trade deficit falls from 121 million dollars in 1953 to only 28 million in 1955.<sup>14</sup> In other words, Japan's capacity to cover the f.o.b. value of its imports by means of its exports rose in 2 years from 46 to 86 per cent.

If a separate examination is now made of Japan's trade balances with each of the two monetary areas in Latin America—as is justified by the different methods of covering the respective balances—some distinctly

from Mexico appear in Mexican statistical sources as being exported to the United States, whose traders act as intermediaries in selling Mexican cotton exports. For this reason preference has been given to the Japanese data, which are more realistic with respect to trade with Latin America.

<sup>14</sup> If the problem is considered from the Latin American side, i.e., if the f.o.b. value of Japanese imports is taken, and Japanese exports are raised to a c.i.f. basis, trade between Latin America and Japan was almost exactly balanced in 1955.

different situations will be observed. When both imports and exports during the years 1953 to 1955 are considered on an f.o.b. basis, a much greater degree of stability is apparent in trade with the Latin American area of convertible currencies, in which an annual deficit of about 60 million dollars is registered against Japan. Conversely, in its trade with the non-convertible currency countries of Latin America—a trade which has increased substantially in recent years owing to bilateral agreements and clearing accounts—Japan has increased its exports more than its imports, to the point of achieving a 38-million dollar surplus in 1955. (See table 8.)<sup>15</sup>

<sup>15</sup> Data already available for 1956 (January-April) show similar tendencies, as can be seen in tables 7 and 8. The most salient feature of the 1956 figures is the increased discrepancy between the trends of Japan's balances of trade with the dollar and non-dollar areas of Latin America.

Table 8

## JAPAN: COMMODITY TRADE WITH LATIN AMERICA

(Millions of dollars in current f.o.b. values)

Years	Dollar countries			Other countries			Total Latin America			Percentage coverage <sup>b</sup>
	Imports <sup>a</sup>	Exports	Balance	Imports <sup>a</sup>	Exports	Balance	Imports <sup>a</sup>	Exports	Balance	
1951 .....	132	16	116	88	74	-14	220	89	-131	40
1952 .....	112	26	-86	31	25	- 6	145	50	- 95	34
1953 .....	119	60	-59	106	45	-61	225	104	-121	46
1954 .....	121	65	-56	141	136	- 5	262	201	- 61	77
1955 .....	121	55	-66	-86	124	38	207	179	- 28	86
1956 <sup>c</sup> .....	43	9	-34	34	53	19	77	62	- 15	81

Source: ECLA, on the basis of official Japanese statistics.

<sup>a</sup> F.o.b. import values calculated on the basis of a 15-per-cent deduction from the c.i.f. values.

<sup>b</sup> The "Percentage coverage" indicates the proportion of f.o.b. imports that could be covered by the f.o.b. value of exports.

<sup>c</sup> January-April.

### III. THE ROLE OF TEMPORARY FACTORS IN THE RECENT EXPANSION OF JAPANESE TRADE WITH DIFFERENT LATIN AMERICAN COUNTRIES

The growth of Japanese-Latin American trade in recent years has been due, in large measure, to temporary and non-recurring factors, and thus the expansion achieved to date cannot be wholly regarded as a sound basis for the future development of such trade. This seems to be confirmed by the decline observed in 1955.

Some of these temporary factors have not confined their effects to Japanese trade with Latin America, but have contributed to the expansion of Japan's overseas trade in general. Others have played a very important role in trade with the dollar-area of Latin America, while the rest have been especially active in relation with the non-convertible currency countries. These factors will be studied separately and consecutively below.

#### 1. FACTORS WHICH HAVE CONTRIBUTED TO THE EXPANSION OF JAPANESE TRADE IN GENERAL

Since the Second World War, and especially since 1950, Japanese official and private authorities have resorted to various special devices to promote foreign sales, and, in an accessory way, certain imports. An initial series of measures consisted in establishing institutional and financial bases for mitigating some of the risks inherent in foreign trade, for studying markets and for satisfying credit requirements. Among such measures, the most notable have been the organization of an export insurance scheme, the creation of a publicity and information system ("The Japanese External Trade Recovery Organization"), and the organization of the Export-Import Bank of Japan which provides medium-term credit financing for machinery exports.

Another group of measures was mainly designed to make Japanese export prices more competitive. In 1953, exporters were authorized to retain 10 per cent of their foreign exchange earnings to be used for sales promotion or for imports of certain items essential to the national economy. At the same time various tax exemptions were granted for specified export activities. Again, a special "export-import linking" system enabled exporters of given articles to import raw materials which had to be re-exported as an integral part of manufactured goods, or which could be sold at a high profit in the domestic market, a proceeding which in practice implied the granting of export subsidies. Finally, in 1953 and 1954, stringent credit restrictions were applied in order to eliminate the inflationary pressures derived from an excessive domestic demand; these had the effect, *inter alia*, of accelerating the growth of productivity, lowering prices, and inducing industries to increase their foreign sales.

Despite their apparent advantages, several of the more important development measures mentioned have been annulled or modified in the course of the last two years. Thus the proportion of foreign exchange earnings which exporters might retain in specific cases was reduced from 10 per cent to 5 per cent, while the "export-import linking system" is being abandoned. In effect, apart from being ineffective palliatives, over the long term, for an inadequate domestic productivity, these measures, and especially the last-named, had certain drawbacks, since they implied the existence of a dual price level. Although necessary, the measures still in force, such as medium-term financing of machinery sales, cannot help in the

long-run to increase Japan's share in Latin American imports at the expense of Latin American purchases from other areas, since other competing countries resort to the same methods. Finally, owing to the expansion in world production, and the disappearance of serious post-war hardships, the channelling of trade is being increasingly determined by considerations of price and quality, and the trade policies of many important countries are favouring and reinforcing this trend.

In view of all this, it is clear that the future expansion of Japan's foreign trade, and especially of its exports, will depend more on the country's real competitive ability in the world market, and much less on special devices and temporary incentives.

#### 2. SPECIAL FACTORS WHICH HAVE CONTRIBUTED TO THE EXPANSION OF JAPANESE TRADE WITH THE DOLLAR-AREA COUNTRIES OF LATIN AMERICA

The expansion of such trade has brought with it, as previously shown, a large deficit against Japan (a total of 489 million dollars between 1951 and 1955), and thus has depended upon Japan's ability to cover the debit balance with convertible currencies. It should be noted that this has constituted only one aspect of a more general situation, since Japan's total trade deficit with the dollar-area reached 3.870 billion dollars during the entire period 1951-55.

The special funds provided by the United States, which enabled Japan to cover such a large deficit,<sup>16</sup> have been declining since 1954. In 1955 they did not exceed 500 million dollars as against 800 million in 1953. On the other hand, it does not seem likely that the trade deficit with the United States will disappear in the coming years, and, in addition, Japan's noncommercial payments due on its long-term debts and post-war reparation obligations<sup>17</sup> will absorb a growing proportion of its exchange availabilities. Thus it would seem necessary for Japan to seek a better trade equilibrium with the dollar-area countries of Latin America, in order to avoid the transfer of so large an amount of convertible currencies. But, on the other hand, the products bought by Japan in those countries—mainly raw cotton and sugar—are essential for the Japanese economy, and thus the basic determinant of their purchase source may well be the most favorable pricing terms offered. Since Japan's gold and foreign exchange reserves now represent about 60 per cent of its 1955 imports, some flexibility in the selection of supply markets is possible.

Within the dollar-area countries, Mexico<sup>18</sup> received an average of 9 per cent of Japanese exports to Latin

<sup>16</sup> See footnote 2. Japan's balance of payments has also recorded a net inflow of capital between 1951 and 1955, but this contribution has been relatively small. Capital flows, *vis-à-vis* Latin America, have also been of slight importance.

<sup>17</sup> The recent servicing of Japan's external public debt has totalled around 40 to 50 million dollars annually. As to its wartime reparations, the agreements recently signed with Burma and the Philippines involve respectively the transfer of 200 million dollars in 10 years and of 550 million dollars in 20 years. With Thailand the total payment has been fixed at some 42 million dollars. Also some proportion of the initial United States post-war payments, as yet unspecified, is to be repaid in the future.

<sup>18</sup> For statistics on Japanese exports and imports *vis-à-vis* Latin America countries, see tables 9 and 10.

America over the period 1951-55, and accounted for 35 per cent of Latin America's exports to Japan during the same years. As a result, Mexico was Japan's largest Latin American supplier, with an average Japanese import level of 86 million dollars annually (c.i.f. values). Since Japan's average exports to Mexico did not reach 12 million dollars annually, the deficit during 1951-55 averaged about 75 million per year, or more than 75 per cent of Japan's total deficit with the dollar-area of Latin America. This deficit was financed by the transfer of dollars obtained from the United States, and thus, in the specific case of Mexico, the growth of Japanese imports might, at least partly, be attributed to the availability of temporary resources, though Mexican cotton is in fact highly competitive owing to its low cost and high quality.

Furthermore, Japan resorted as much as possible to barter methods in an effort to develop its exports to Mexico<sup>19</sup> in exchange for cotton. However, Mexico's domestic demand for Japanese products was much lower than the volume of supplies obtained by barter, and a considerable proportion of these products (as much as 90 per cent in 1954) was re-exported to the United States. This triangular trade had unfavourable effects on the normal development of direct Japanese trade with

<sup>19</sup> The proportion of exports effected by this system amounted to 90 per cent of total Japanese sales to Mexico in 1952-53.

the United States, and it is not surprising that the Japanese Government has taken measures, since July 1954, to suppress it. As an immediate consequence, exports to Mexico fell by 75 per cent between 1954 and 1955.

In trade with Cuba, Japanese imports have also risen at a more rapid rate than the average for Latin America, reaching 39 million dollars annually during 1951-55, or 16 per cent of the Latin American total, as against 0.1 million and 0.3 per cent respectively in the pre-war years. Japanese exports to Cuba, conversely, while somewhat higher than in 1935-39, remained at a very low level, averaging 2.8 million dollars annually during 1951-55. This meant a trade deficit against Japan equivalent to 93 per cent of its imports. The high volume of Japanese purchases was due, in this case, to a circumstantial factor, namely, the sharp reduction in the Indonesian sugar output as a consequence of the Second World War.

In contrast, Japanese trade with Latin America's dollar area has developed in a normal fashion, especially with respect to exports, without the intervention of any circumstantial factors other than the incentives given by Japan to all its foreign trade activities. It is also in this part of the Latin American market that Japan has encountered fewer obstacles derived from restrictive or selective import controls, or from exchange difficulties. Hence, it might be held that the fundamental trends of Japanese trade with Latin America are better reflected

Table 9  
JAPAN: EXPORTS TO LATIN AMERICA  
(Millions of dollars)

	1938	1948	1949	1950	1951	1952	1953	1954	1955	1956 <sup>b</sup>
WORLD TOTAL	766.5	258.6	509.7	820.2	1,354.5	1,272.9	1,274.8	1,629.3	2,010.8	754.7
Latin America Total <sup>c</sup> . . . . .	22.3	1.5	3.8	41.6	89.3	50.1	104.4	201.1	179.1	61.4
Dollar countries . . . . .	8.7	1.2	—	—	15.7	25.5	59.5	64.8	55.1	8.8
Other countries . . . . .	13.5	0.3	—	—	73.5	24.6	44.8	136.3	124.0	52.6
Argentina . . . . .	5.5	—	—	21.0	47.3	9.1	15.6	48.9	79.1	22.8
Brazil . . . . .	2.9	—	0.6	2.3	21.6	10.9	21.7	78.2	33.4	14.4
Mexico . . . . .	1.5	—	0.6	3.5	3.3	6.1	12.0	28.8	7.4	1.6
Venezuela . . . . .	1.5	1.0	1.1	3.4	3.8	5.9	7.4	9.1	13.4	4.7
Panama . . . . .	1.7	—	0.1	0.5	0.7	2.3	25.4	1.6	6.0	0.7
Colombia . . . . .	0.1	—	0.2	1.1	0.6	3.3	3.8	9.5	7.1	2.2
Peru . . . . .	1.6	—	0.1	0.5	1.0	2.3	2.8	4.6	5.0	2.2
Cuba . . . . .	0.3	—	0.3	3.9	2.7	1.8	1.8	3.0	4.9	1.1
Chile . . . . .	1.7	0.1	—	0.1	0.6	1.2	3.1	1.2	3.9	3.7
Nicaragua . . . . .	—	—	—	0.2	0.1	0.6	1.9	3.9	2.6	0.5
El Salvador . . . . .	—	—	—	0.5	0.6	0.8	1.6	2.2	3.8	2.9
Uruguay . . . . .	1.1	0.1	0.3	0.5	2.4	0.8	0.5	2.5	2.1	1.9
Honduras . . . . .	0.5	—	0.1	0.7	0.5	0.7	1.4	2.1	2.8	0.9
Costa Rica . . . . .	0.6	—	—	0.6	0.4	1.0	1.7	1.1	2.1	0.4
Dominican Republic . . . . .	0.6	—	—	1.0	1.2	0.7	0.6	1.3	1.6	0.6
Ecuador . . . . .	0.2	—	—	0.4	0.6	0.9	1.1	1.3	1.5	0.3
Bolivia . . . . .	1.1	—	0.1	0.1	0.6	0.7	0.2	0.7	1.2	0.4
Paraguay . . . . .	0.5	—	0.2	0.4	0.4	—	0.9	0.9	0.5	—
Guatemala . . . . .	—	—	0.1	0.1	0.1	0.1	0.1	0.2	0.6	0.1
Haiti . . . . .	0.1	—	—	0.8	0.1	—	—	—	0.1	—

Sources: 1949-50: Economic Stabilization Board, *Japanese Economic Statistics*, Tokyo, 1952. All other years: United Nations, *Direction of International Trade*, selected issues.

<sup>a</sup> Data refer to exports f.o.b. (including re-exports), and are

based on customs returns.

<sup>b</sup> January-April.

<sup>c</sup> May not equal total of individual Latin American republics listed below, owing to partial reporting for certain countries.

**Table 10**  
**JAPAN: IMPORTS FROM LATIN AMERICA<sup>a</sup>**  
*(Millions of dollars)*

	1938	1948	1949	1950	1951	1952	1953	1954	1955	1956 <sup>b</sup>
WORLD TOTAL	759.0	682.6	906.5	970.2	1,995.0	2,028.1	2,409.6	2,399.4	2,471.6	947.6
Latin America Total <sup>c</sup> . . . .	27.9	87.9	13.8	67.1	259.0	167.9	264.7	308.6	242.7	90.8
Dollar countries . . . . .	2.8	73.9			154.9	131.0	140.2	142.6	141.7	52.1
Other countries . . . . .	25.0	14.0			104.1	36.8	124.5	166.0	101.0	38.7
Mexico . . . . .	1.5	4.3	0.2	17.0	99.6	71.3	84.1	92.3	84.0	37.3
Brazil . . . . .	13.1	0.3	3.6	1.6	32.1	15.4	39.1	73.8	59.3	17.6
Cuba . . . . .	—	69.6	7.0	10.3	43.1	50.8	48.6	24.3	27.5	7.4
Argentina . . . . .	6.9	11.0	0.5	30.8	49.4	3.6	51.6	60.8	22.3	12.2
Peru . . . . .	0.5	2.2	—	0.6	6.6	11.1	15.2	20.3	10.8	5.4
Uruguay . . . . .	1.2	0.4	1.2	5.0	4.7	2.9	13.5	7.6	6.5	2.5
Nicaragua . . . . .	0.2	—	—	0.3	2.3	1.4	3.7	8.4	13.1	0.7
Paraguay . . . . .	—	—	—	0.1	9.8	1.6	0.8	1.1	1.3	0.2
El Salvador . . . . .	—	—	—	—	—	—	0.6	2.1	9.8	4.8
Ecuador . . . . .	0.1	—	—	0.1	—	5.8	0.2	5.9	0.2	0.1
Panama . . . . .	—	—	—	—	5.8	1.0	1.4	2.5	0.9	0.1
Chile . . . . .	3.1	—	0.7	—	1.3	2.0	4.1	2.4	0.8	0.8
Bolivia . . . . .	0.1	—	0.4	0.1	1.6	0.1	0.2	0.9	1.8	0.7
Venezuela . . . . .	0.4	—	—	0.3	—	—	0.3	3.8	0.3	0.1
Colombia . . . . .	0.2	—	0.2	0.7	2.3	0.3	0.4	0.6	0.7	0.6
Dominican Republic . . . .	—	—	—	—	—	—	—	1.3	1.9	0.1
Guatemala . . . . .	—	—	—	—	—	—	—	0.2	1.1	0.2
Haiti . . . . .	0.1	—	—	—	—	—	—	0.2	0.4	—
Costa Rica . . . . .	0.2	—	—	0.2	—	—	0.3	0.1	—	—
Honduras . . . . .	—	—	—	—	—	—	—	—	—	—

Sources: 1949-50: Economic Stabilization Board, *Japanese Economic Statistics*, Tokyo, 1952. All other years: *Direction of International Trade*, United Nations, selected issues.

<sup>a</sup> Data refer to over-all imports (c.i.f.), and are based on

customs returns.

<sup>b</sup> January-April.

<sup>c</sup> May not equal total of individual Latin American republics listed below, owing to partial reporting for certain countries.

in this sector than in any other.<sup>20</sup> Thus, if Japanese data on trade with Latin America's dollar countries, excluding Mexico and Cuba, are considered, it may be noted that Japanese exports were eight times higher in current values in 1955 than in 1938, i.e., they rose from 5.3 to 41.6 million dollars. At the same time, Japanese imports from these same countries<sup>21</sup> increased twenty-four times (from 1.2 million to 28.4 million dollars). Thus, acting under much freer competitive conditions, without special bilateral arrangements and within a system of multilateral payments, Japan has proved its ability to expand its markets during the past five years. This is further confirmed by the fact that the greatest progress was in the most highly competitive markets—those of Venezuela and Panama, the latter acting as a redistribution centre for all the Caribbean region. On the other hand, the growth of Japanese imports from this sector was almost entirely due to the development of cotton production for export in Nicaragua and El Salvador, which incidentally, shows that these countries too are able to compete in open markets.

<sup>20</sup> Nevertheless, it should be noted that the composition of demand for imported goods is very different in these countries. Manufactured consumer goods, especially textiles, still have a much larger market in these than in other Latin American countries.

<sup>21</sup> Namely, the Central American countries, those of the Caribbean excluding Cuba, Venezuela, Colombia and Ecuador.

### 3. TEMPORARY FACTORS WHICH HAVE CONTRIBUTED TO THE EXPANSION OF JAPANESE TRADE WITH THE NON-DOLLAR COUNTRIES OF LATIN AMERICA

As is already known,<sup>22</sup> Japanese exports to these countries increased much more in relation to imports than in trade with the dollar countries of Mexico and Cuba. This was particularly true of trade relations with Argentina. The trade account in this case registered a fluctuating but not very large deficit against Japan until 1954, and then left a substantial surplus in its favour in 1955.<sup>23</sup> During 1951-55, Argentina's average annual share in Japan's exports to and imports from Latin America totalled 32 per cent or 40 million dollars, and 15 per cent or 38 million dollars, respectively. On the basis of these figures, Argentina ranked first among Japan's Latin American customers and fourth among its suppliers.

In recent years, Argentine-Japanese trade has been carried on under a system of bilateral trade and payments agreements. A first agreement was signed in 1949, and shortly afterwards such trade, which had been in-

<sup>22</sup> See section II and table 8.

<sup>23</sup> At the termination of the bilateral trade treaty between these two countries on 31 March 1956, the clearing account showed a 55-million-dollar balance in favor of Japan. If pending shipments of Japanese merchandise are taken into account, Argentina's deficit by mid-1956 reached 60 million dollars.

significant in the early post-war years, experienced a notable development. This agreement was renewed until, in 1954, another was concluded which was extended to March 1956. The swing credits authorized by the contracting parties rose from 3 million dollars in 1949 to 20 million dollars in 1954, excluding Japan's medium-term credits designed especially to finance exports of machinery and transport equipment.

During the period when the agreements were in force, trade between the two countries was to some extent independent of world price variations, since in several cases prices of the products traded were fixed in advance. Likewise various direct barter operations were involved, whereby, for example, pre-determined quantities of Argentine wool were exchanged for Japanese steel. Since the termination of the bilateral régime, trade between Argentina and Japan has been governed by a temporary arrangement according to which Argentina must pay for its imports in sterling, while its export earnings are used to amortize its debit balance on the bilateral account.

All this shows that although the bilateral system applied in the past seven years did succeed in raising Argentine-Japanese trade to rather high levels, it did not achieve another of its basic objectives, namely, that of stabilizing the balance of the two countries' financial trade accounts. For the future, the common policy of both countries seems to be that of establishing a system of multilateral payments, which would restore the normal factors of international competition to much of their traditional significance.

Similar conclusions seem applicable to Brazilian-Japanese trade. Thus, after an initial bilateral agreement came into force in 1950, this trade improved substantially

in comparison with the very depressed initial post-war levels. After 1953 a new expansion took place as a consequence of another more comprehensive agreement in which Japan extended medium-term credit to Brazil for the purchase of capital goods. Finally, although Brazilian imports experienced a sharp decline in 1955 on account of circumstantial factors, Brazil's share in Japanese exports and imports during 1951-55 achieved average levels of 33 and 44 million dollars respectively. These figures represented 27 per cent and 18 per cent of the Latin American aggregates and gave Brazil the second place among Japan's Latin American customers and suppliers.

Another factor contributed particularly to the increase in Brazilian purchases from Japan in 1954. This was the considerable amount of Brazil's outstanding debts to the United States and certain European countries, which caused it to make preferential and large-scale purchases of Japanese products, utilizing the credit balances carried over from bilateral transactions in previous years.<sup>24</sup>

In mid-1956 the Japanese-Brazilian bilateral agreement was terminated. Provisionally, payments between the two countries are being made in sterling. For the future, even if Japan does not enter the Hague Club, bringing its trade with Brazil on to a restricted multilateral plane, and even if the present provisional system is extended, such a situation would have the same consequences as those previously indicated with respect to the evolution of Japan's trade with Argentina.

<sup>24</sup> A part of these balances was also utilized to pay for exports of Japanese silk to the United States, advantage being thus taken of the lower Japanese-dollar quotation in the Brazilian exchange market.

#### IV. THE JAPANESE MARKET FOR LATIN AMERICAN PRODUCTS: EVOLUTION SINCE THE PRE-WAR PERIOD, AND PROSPECTS

Prior to the Second World War, two commodities, cotton and wool, accounted for over half of Japanese imports from Latin America. The remaining imports were distributed over a relatively large number of items, among which hides and skins and quebracho were of prime importance. (See table 11.)

In recent post-war years cotton and wool steadily increased their share, which in 1955 amounted to exactly two-thirds of such imports, while with the addition of sugar, which had not been exported to Japan before the war, 85 per cent of Japanese imports from Latin America were thus covered. Apart from sugar, only one new product, rice, reached, in some years, a volume worthy of mention among Latin American sales to Japan. In 1954 rice accounted for 5 per cent of these, but none was exported in 1955. Sales of wheat, which had developed encouragingly in former years, dropped from 24 million dollars to 6 million between 1954 and 1955. Similarly Japan bought maize to a value of less than half a million dollars in 1955 as compared with about 6 million dollars' worth a year before. Latin American sales of coffee, cocoa and soya beans are continuously developing, though they still account for very low percentages of total Japanese imports from Latin America. Other products, especially hides and skins and quebracho extract, have lost importance in the trade with Japan.

Latin America's commodity exports to Japan, besides being only slightly diversified, are supplied by very few countries. In 1955, Mexico, Brazil, Cuba and Argentina accounted for about 80 per cent of Japanese purchases. Two other countries (Peru and Nicaragua) represented about 10 per cent, that is, almost as much as the fourteen remaining countries together. (See table 12.)

Only two countries, Brazil and Argentina, show some significant diversification in their exports to Japan. Peru might be added, since its exports to Japan various minerals not shown in table 12, and also rice occasionally. In the case of other countries, which—like Mexico, for instance—have otherwise been able to intensify their exports as a whole, the volume of trade with Japan depends on a single product. This characteristic of most of the Latin American countries in their trade with Japan makes the latter very vulnerable to fluctuations of both internal and external origin, which often affect market conditions for each of the main Latin American exports.

Thus a study of Japanese market prospects should be based on separate commodity surveys. Nevertheless, some general comments may be made. These refer primarily to the degree to which Latin American sales might potentially expand in relation to the volume of Japanese imports from other sources. The last column of table 11



**Table 11**

## JAPAN: IMPORTS FROM LATIN AMERICA BY COMMODITIES, 1938 AND 1955

*(Millions of dollars in current values, and percentages)*

Product	1938			1955		
	Value	Percentage of total Japanese imports from Latin America	Latin America's percentage share in total Japanese imports of each product	Value	Percentage of total Japanese imports from Latin America	Latin America's percentage share in total Japanese imports of each product
Total .....	27.9	100	3.7	242.7	100.0	9.8
Cotton .....	11.7	42	9.7	142.2	58.6	39.3
Sugar .....	—	—	—	46.2	19.0	39.8
Wool .....	2.8	10	10.9	19.4	8.0	11.8
Wheat .....	0.1	0.3	4.4	6.3	2.6	3.8
Maize .....	0.7	2.5	10.8	0.3	0.1	1.0
Soya beans .....	—	—	—	4.4	1.8	4.4
Cacao .....	0.3	1.1	84.0	3.6	1.5	80.1
Coffee .....	0.5	2.0	67.0	2.8	1.2	53.5
Lead .....	..	..	..	0.3	0.1	22.7
Hides and skins .....	2.2	8.0	23.7	1.2	0.5	5.5
Quebracho extract .....	1.2	4.0	79.8	2.1	0.9	100.0
Total listed .....	19.5	69.6	..	228.8	94.3	19.6
Other products .....	8.4	30.1	..	13.9	5.7	1.1

Source: ECLA on the basis of data from the *Annual Report of the Foreign Trade of Japan*.**Table 12**

## LATIN AMERICA: IMPORTS FROM JAPAN BY COMMODITY AND COUNTRY OF DESTINATION, 1955

*(Millions of dollars in current values)*

Commodities	Mexico	Brazil	Cuba	Argentina	Nicaragua	Peru	Others	Total Latin America
Total .....	84.0	59.3	27.5	22.2	13.1	10.8	25.7	242.7
Cotton .....	82.1	34.6	—	0.9	9.4	3.8	11.4	142.2
Sugar .....	—	12.0	27.5	—	—	4.5	2.2	46.2
Wool .....	0.2	2.2	—	10.3	—	0.2	6.5	19.4
Wheat .....	—	—	—	6.3	—	—	—	6.3
Maize .....	—	—	—	0.3	—	—	—	0.3
Soya beans .....	—	4.4	—	—	—	—	—	4.4
Cacao .....	—	3.6	—	—	—	—	—	3.6
Coffee .....	0.1	1.6	—	—	—	—	1.1	2.8
Lead .....	0.3	—	—	—	—	—	—	0.3
Hides and skins.....	—	—	—	1.2	—	—	—	1.2
Quebracho extract ...	—	—	—	2.1	—	—	—	2.1
Total listed .....	82.7	58.4	27.5	21.1	9.4	8.5	21.2	228.8
Other products .....	1.3	0.9	—	1.1	3.7	2.3	4.5	13.9

Source: As for table 11.

shows <sup>25</sup> that as regards three of the eleven staple products (quebracho, cocoa, and coffee), Latin America provides, in each case, 50 per cent or more of Japan's imports. Conversely, these same three items account for very little—only 3.6 per cent—of total Latin American exports to Japan. In contrast, the three major products (cotton, sugar and wool) which together comprise 85

per cent of Latin American exports to Japan represent from 12 to 40 per cent of Japanese imports of these items. The exportable surpluses of all these commodities are sometimes difficult to sell in the world market. Nevertheless, to judge by data for recent years, the Japanese market is already absorbing a high proportion of Latin America's exports of these same three products, although the region has to compete with other areas (such as the United States and Japan's neighbours) which have a great deal of importance in Japanese trade.

<sup>25</sup> The figures in table 11 refer to the year 1955. Data for 1954 do not show any very significant differences.

An analysis will subsequently be made of the present market situation and short-term prospects for cotton and sugar, and, succinctly, for the other commodities which are at present or which might be included in Latin America's trade with Japan.

### 1. COTTON

Both before and after the Second World War, cotton held the leading place among exports to Japan, of which it accounted for 42 per cent in 1938. In recent years the proportion has risen even higher, reaching 49 per cent in 1954 and 58 per cent in 1955.

In current values, Japanese c.i.f. costs for imports of Latin American cotton increased from 12 million dollars in 1938 to 153 million in 1954 and 142 million in 1955. At the same time, Latin America's share in Japan's total cotton imports rose from 10 per cent in the pre-war period to an average of 37 per cent during 1953-54, which represented an increase in volume of 50,000-160,000 tons. Exports expanded at an even higher rate than Latin America's cotton production, which doubled between 1934-38 and 1954-55.

The Japanese market is also of great importance for Latin American producers, since such sales accounted for nearly 28 per cent of the 466 million dollars<sup>26</sup> obtained from total exports.

In estimating the prospects for Latin American cotton exports to Japan, many different factors must be considered.

(a) *Failure of Japanese cotton textile production to regain pre-war levels, and deterioration in 1955.* The over-all index of Japanese textile production followed a continuous upward trend between 1945 and 1955. By 1955, however, it had reached only 86 (1934-36 = 100) as against 114 in 1937. Recent progress must be attributed more to the development of rayon and to a lesser extent silk production, than to cotton manufactures. During 1955 the index of cotton textile production fell by 5 per cent with respect to 1954. This was due to a reduction in exports during 1955 of 20 per cent in terms of volume and 16 per cent in value. In 1954 and 1955, stocks of manufactured goods accumulated to such an extent that the Japanese government imposed a restriction on the consumption of raw materials, which was not rescinded until mid-1956. It should be noted that the Japanese domestic market for cotton manufactures is adversely affected by the development of artificial textiles.

(b) *Expansion of cotton textile production in other Asiatic countries.* The recent decline in Japanese exports of cotton manufactures is directly linked with the industrial development of the main south-east Asian countries. Between 1951 and 1954, cotton textile production increased fourfold in Pakistan and was trebled in Formosa (Taiwan). These two countries have attained self-sufficiency and are already beginning to compete in foreign markets. Production has also progressed considerably in India, mainland China, and Indonesia.

(c) *The Japanese cotton industry's weak competitive position in Asia.* Since Japan must import all the raw materials required for its cotton industry, costs are higher than those borne by India and Pakistan, despite

the lower processing costs per unit of product. This is clearly illustrated in table 13.

Table 13

JAPAN, INDIA AND PAKISTAN:  
PRODUCTION COST OF COTTON YARN, 1953  
(Dollars per 400-pound bale of 20-count yarn)

Country	Raw cotton	Processing cost	Total
Japan .....	170	30	200
India .....	103	33	136
Pakistan .....	118	60	178

Source: All-Japan Cotton Spinners' Association, *Monthly Report of Japanese Cotton Spinning Industry*, No. 100, April 1955, p. 17, cited in *Economic Survey of Asia and the Far East 1955*, United Nations.

(d) *Stagnation of Japanese raw cotton imports.* On account of the factors previously listed, Japan's consumption and imports of cotton have returned to their 1952-53 level. (See table 14.)

Table 14

JAPAN: CONSUMPTION, IMPORTS AND STOCKS OF RAW COTTON  
(Thousands of bales<sup>a</sup>)

Year <sup>b</sup>	Consumption	Imports	Stocks <sup>c</sup>
1952-53 .....	2,065	2,064	524
1953-54 .....	2,441	2,443	523
1954-55 <sup>d</sup> .....	2,120	2,050	519
1955-56 <sup>e</sup> .....	2,100	2,000	429

Source: International Cotton Advisory Committee.

<sup>a</sup> One bale = 478 pounds = 216.8 kilogrammes.

<sup>b</sup> Cotton year, i.e., 1 August to 31 July.

<sup>c</sup> At the beginning of each cotton year.

<sup>d</sup> Data subject to revision.

<sup>e</sup> Partly estimated.

In view of the sharpening of world competition in cotton fabrics, and particularly the appearance of new competitors in the Asiatic areas, it does not seem likely that Japanese imports of raw cotton will increase.

(e) *Changes and alternatives in the sources of Japan's cotton imports.* Great changes have taken place in the sources of Japanese raw cotton imports. It has already been noted that Latin America's share rose from 10 per cent in the pre-war period to 33 per cent in recent years, and there was a corresponding decline in imports from the United States and Asiatic countries. In 1933-37, Japan bought 44 per cent of the cotton required by its transforming industry from the United States. That share rose to 74 per cent in the initial post-war years, but fell by over one-half in 1953-54, when it did not exceed 35 per cent.

Japan is fundamentally interested in buying as much as possible from neighbouring countries, so as to minimize the freight and insurance charges which, by increasing raw material costs, weaken its competitive capacity to export manufactures. Such possibilities, however, seem very limited and tend to decline. The Asiatic countries, which accounted for 19 per cent of Japan's cotton imports in 1953-54, were able to contribute only 15 per cent in 1955, when Japan's total raw cotton imports fell by one-

<sup>26</sup> In f.o.b. values.

sixth. At the same time, owing to the rapid development of their own textile industries, the export volume of raw cotton from the south-east-Asian countries fell by more than 40 per cent between 1952 and 1955. The short-term prospects for the development of their textile production indicate that the trend prevailing in recent years will become more marked.<sup>27</sup>

In short, Japan depends on the American countries for nearly 90 per cent of its current cotton requirements. This poses the problem of direct competition between the United States on the one hand and Latin America on the other. Since Japan has discarded barter policies and bilateral agreements, the issue of such competition must be determined by the lowest prices and the most advantageous payment conditions. In this context, measures taken by the United States to promote sales of excess Commodity Credit Corporation stocks acquire a great deal of importance.

(f) *United States exports of surplus stocks to Japan.* In their programme of promoting cotton exports, as tied to economic aid operations, the United States authorities have placed Japan in a very important position; so much so, that out of 311 million dollars allocated to financing cotton exports during the fiscal year 1955/56, no less than 94 million were earmarked for Japan.<sup>28</sup>

To judge from available data, it would appear that even with such high subsidies, sales have not increased very much. (See table 15.)

As can be seen, the volume of United States exports to Japan fell by 30 per cent between 1954 and 1955, i.e., from 220,000 to 155,000 tons. At the same time the average value per ton decreased from 800 to 780 dollars, or by 2.5 per cent.<sup>29</sup>

(g) *Present situation and prospects.* It is true that United States exports of raw cotton to Japan increased a great deal in the early months of 1956, but Mexican and Peruvian cotton exports to Japan also rose. On the other hand, to judge from incomplete data, Brazilian sales seem to have fallen.

In brief, it may be asserted that up to mid-1956, United States surplus disposal policies had not reduced the sale of Latin American cotton to Japan. However, it was only as from 1 August 1956 that the United States measures designed to stimulate the sale of that country's excess stocks entered into force. The main features of these new measures are the reduction of the sales price to 25 or 26 dollar cents per pound, and the availability for auction of longer-staple cotton, which means that cotton with a higher commercial value is to be sold for lower prices. On the other hand, total official funds available for financ-

**Table 15**  
UNITED STATES: COTTON EXPORTS TO JAPAN  
(Thousands of running bales)

By periods		By cotton years	By calendar years		
1952/53					
August-December	1952.....	315.2	663.3	1953:	630.1
January-July	1953.....	348.1			
1953/54					
August-December	1953.....	282.0	963.2	1954:	931.1
January-July	1954.....	681.2			
1954/55					
August-December	1954.....	249.9	653.2	1955:	646.6
January-July	1955.....	403.3			
1955/56					
August-December	1955.....	243.3			
January-July	1956 <sup>a</sup> .....	637.6			

Source: ECLA, based on data from *The Cotton Situation*, United States Department of Agriculture.

<sup>a</sup> Estimated on the basis of data for January-May.

ing cotton sales for economic assistance purposes were reduced from 311 million dollars in 1955/56 to 235 million in 1956/57. With these funds, the distribution of 1.5 million bales of cotton will be attempted, as contrasted with 1.8 million in 1955/56. This signifies an average price reduction from 173 to 157 dollars per bale, or by about 10 per cent.

<sup>27</sup> According to recent estimates for 1956, it seems that mainland China and Pakistan have increased their cotton production more or less in relation to their own raw material requirements. India, conversely, faces a 100,000-bale increase in consumption and a 600,000-bale decrease in production of raw cotton.

<sup>28</sup> 60 million dollars by the Export-Import Bank, and 34 million by the Administration of the Agricultural Trade Development and Assistance Act. See *Cotton: Monthly Review of the World Situation*, vol. 9, No. 2, September 1955.

Since the volume of cotton that the United States intends to export in the form of economic aid will decline, the impact of that country's increased competition will be manifested solely through lower prices.<sup>30</sup> Mexico has

<sup>29</sup> It is interesting to note that, during the same period, Mexico's direct exports to Japan rose from 53,000 to 62,000 tons, but with a 17 per cent decline in the average price, which nevertheless remained higher than United States cotton prices in 1955 (830 dollars per ton versus 780). This is due to the higher quality of the Mexican product.

<sup>30</sup> It must be noted that the United States Government has emphasized its intention of not disturbing cotton markets more than is necessary in order to restore the country's cotton exports to their former level. In Japan's specific case, it would be useful to know if the objective is the 44 per cent represented by imports from the United States in 1933-37 or the 74 per cent which was reached in 1947-50.

consequently reduced the export tax of 5.24 dollar cents per pound, while Brazil may be induced to revise the exchange rate applicable to cotton. Moreover, some difficulties may also arise in the evolution of certain Latin American countries towards the liberalization of their trade and payments systems. Mexico is already intensifying its bilateral arrangements in order to maintain its foreign outlets for cotton,<sup>31</sup> by importing capital goods for which Japan (among others) is seeking to expand sales. At the same time, the development of direct arrangements between Mexico and cotton-purchasing countries will make Mexican producers more independent of United States intermediaries, through whom a large part of Mexican exports are still marketed.

The final conclusion on Japanese market conditions affecting raw cotton imports, is that—excluding the problems deriving from the liquidation of United States surplus stocks—the Latin American countries find themselves in a very advantageous competitive position to maintain their exports over the long run and perhaps to expand them, even if the over-all volume of Japan's raw cotton imports does not improve.

## 2. SUGAR

Before the war there was no trade in sugar between Latin America and Japan. By 1954, in contrast, sugar ranked second among Japanese imports from the region. The total volume of Japanese sugar imports has fallen slightly since the pre-war period (from 1,046,000 tons in 1938 to 1,014,000 tons in 1954) although their value increased during the same period (from 53 million to 108 million dollars). In 1954 Latin America accounted for about 40 per cent of the value of Japan's sugar imports—43 million dollars—while Japanese purchases in that year represented nearly 7 per cent of the total value of Latin America's exports of sugar.

Three countries, with Cuba leading, followed by Peru and Brazil, share the Latin American sugar market in Japan. In 1954 Cuban sales were only half of the 1951-54 average. A relatively important increase in Peruvian and Brazilian exports did not come anywhere near offsetting the Cuban reduction, mainly because Indonesian sugar reappeared in the Japanese market. In 1955, however, there was a slight revival of Cuban sales, a trend which seems to have become more marked in 1956.<sup>32</sup> There was also an increase of Peruvian sales during the same year.<sup>33</sup>

Latin American producers compete with exporters from south-east Asia who are, taken as a whole, the main suppliers of the Japanese market. In 1954 the latter's participation in Japanese imports rose to 54 per cent, as compared with 39 per cent in 1953. This increase was due to the recovery in sugar production, particularly in Indonesia and also in the Philippines and Formosa. In 1934-

<sup>31</sup> During the first half of 1956, Mexico concluded barter arrangements with several European countries for a value of 35 million dollars, as contrasted with only 14 million in the whole of 1955.

<sup>32</sup> In the first 4 months of 1956, Cuba exported 124,000 tons of sugar to Japan, compared with only 40,000 in the same period of 1955 and 297,000 tons in 1955 as a whole.

<sup>33</sup> 26,000 tons in the first 4 months of 1956, as against 5,000 in the same period of 1955.

38, these three countries together exported an annual average of 2,780,000 tons of sugar, whereas in 1948-50 their joint exports did not exceed an average of 731,000 tons. By 1954, the Philippine and Formosan export capacity had returned to pre-war levels; not so that of Indonesia.<sup>34</sup> Also worth noting is the substantial increment in Pakistan's production, from 650,000 tons in 1935-39 to 1,220,000 tons in 1954, an increase which has not only reduced the area's imports but, if it continues at the same rate, will soon yield exportable balances.

At first glance, since the region's own supply sources are so much closer to Japan than are the Latin American exporters, one might expect the former to have a very considerable competitive advantage over the latter. However, this is not so, at least according to Japanese statistics. Thus in 1954, Latin American sugar accounted for 46 per cent of Japanese imports in terms of volume, but only 40 per cent in value, which signifies a lower net c.i.f. unit price for the Latin American product, despite the longer distances that ships have to cover from Cuba, Brazil or Peru.

To sum up, the expansion of production and of exportable supplies in the Asiatic countries, together with the low degree of stability in the world market, implies a sharpening of competition between the Asiatic and Latin American producers within the Japanese market. There is no doubt that production costs in Formosa are higher than in such Latin American countries as Cuba and Peru, since at the present level of international prices, the Taiwan authorities have to subsidize their producers. As regards the prospects of expanding its trade<sup>35</sup> with Japan, Taiwan has in its favour the existence of a bilateral trade account treaty and the handling of sugar exports by a state organization which permits the fixing of artificial prices.

With respect to the Philippines, in 1954 they were for the first time able to fill the very high quota available to them at protected prices on the United States market and the rather small quota accorded to them under the International Sugar Agreement; in 1955 they found difficulty in expanding their foreign sales at a rate consistent with the growth of their exportable surpluses. In view of these factors, it is likely that Japan will be in a better bargaining position as a potential customer for several suppliers, and it will be able to consider not only price conditions but also the degree of balance in its reciprocal trade with each sugar-exporting country.

## 3. OTHER PRODUCTS

Japanese *wool* imports have returned, in recent years, to their average 1935-39 level, i.e., nearly 190,000 tons. Here, as in the case of cotton, Latin America's share in such imports has increased considerably. Its contribution was 11 per cent in 1938, and the same in 1951, but it rose

<sup>34</sup> Indonesia exported 1,045,000 tons in 1934-38, and only 2,000 in 1952. Its sales abroad reached almost 100,000 tons in 1953, and between two and three times as much in 1954 and 1955. Meanwhile domestic consumption grew considerably, from 225,000 tons in 1938 to 500,000 in 1954.

<sup>35</sup> In 1954 Japan bought 50 per cent of Taiwan exports, and supplied 55 per cent of Taiwan imports. In April 1955, a new bilateral trade treaty was concluded with the objective, among others, of bringing the level of trade from 74 million to 94 million dollars in each case. The amount of swing credits was kept at 10 million dollars.

to 24 per cent in 1953 and to 27 per cent in 1954.<sup>36</sup> Argentina is Japan's main Latin American supplier, although Uruguay and, on a small scale, Peru and Mexico also export wool to Japan, which country has also at times absorbed almost all of Brazil's exportable balances. Except for very small quantities, the Japanese wool market is divided among the countries already mentioned plus Australia, which accounts for the largest proportion. During 1956, the official wool-import programme was increased to 900,000 bales (about 195,000 metric tons) of which Japan intended to purchase 650,000 in Australia and 150,000 in Argentina. In previous years, the existence of bilateral agreements between Japan on the one hand and Argentina and Brazil on the other contributed to the development of the wool trade, which was also largely promoted by operations involving direct barter for iron and steel products and boats. The heavy purchases of Argentine wool expected for 1956 are still related to the bilateral régime and to the reduction of Argentina's debit balance in the clearing account that is now in process of liquidation. In future, competition between Australia and the Latin American countries in the wool export market will take place on a more equal footing, since in both cases the payments will be made in free sterling within a system of restricted multilateralism. Australia will then have geographic proximity in its favour, with the disadvantage of having a much less balanced trade with Japan than its Latin American competitors, who are already important buyers of Japanese products. In 1954, Japanese exports to Australia did not exceed 28 million dollars in contrast with the 117 million at which imports were valued. Given this situation, it may be considered that the Latin American countries still have favorable prospects for keeping up and possibly increasing their wool exports to Japan, so long as they maintain competitive prices in the Japanese market.

Japanese imports of *cereals* more than doubled in volume between 1935-39 and 1954. The most remarkable development was the exceptional increase in wheat and barley<sup>37</sup> imports, which resulted from the high relative prices for rice registered between 1950 and 1955. (See table 16.)

Table 16

JAPAN: IMPORTS OF CEREALS IN SELECTED YEARS

(Thousands of tons)

Products	1935-39 average	1954
Rice .....	1,774	1,432
Wheat .....	212	2,187
Barley .....	4	764
Maize .....	249	195
TOTAL	2,239	4,578

Source: ECLA, on the basis of data supplied by the Economic Council Board (Japanese Government).

Latin America has played only a minor part in the widening of the Japanese market. In 1938 it provided 6 per cent of Japan's imports of cereal and in 1954

<sup>36</sup> Nevertheless, there was a severe setback in 1955, when only a 12 per cent share was secured.

<sup>37</sup> In Japan, barley is used for bakery.

only 9 per cent, despite the interest shown by Japan in expanding its trade with Argentina. Various factors have contributed to keep Latin America's participation at a low level, including, on the one hand, Argentina's policy of high export prices, and, on the other, the subsidy policy which stimulated United States exports. In 1954, for example, the first agreement signed between the United States and Japan for agricultural surplus disposal involved wheat exports to a value of 50 million dollars. In that year, United States wheat sales to Japan totalled 83 million dollars, or almost 50 per cent of all Japan's imports. Canada, favoured by its greater geographic proximity, also secured a quota much higher than Argentina's, i.e. 35 per cent as against 15 per cent.

Japanese purchases of barley are divided between Canada, Australia and the United States.<sup>38</sup> Maize imports are small and declining, and do not afford enough prospects to merit analysis. As for rice, Latin America (whose exportable surpluses have been declining in recent years while the production and exports of Asiatic countries were rising) can only be a marginal exporter. The largest exports were from Ecuador, but because of high production costs, they had to be subsidized.

In short, among the cereals, only Argentine exports might be expanded, in very strongly competitive conditions, if it were necessary either to achieve a trade balance with Japan or to find an outlet for possible exportable surpluses which might be difficult to place in foreign markets. Argentine barley might also be exported in the same circumstances.

Before the war, *metallic ores* were by no means a negligible item in Japanese imports. Trade in such primary materials, however, has been affected by the impetus that Japan has given to its own production; and to such an extent that a comparison of 1935-39 with 1951-54 will show the annual volume of total lead imports to have fallen from 95,000 to 7,000 tons. Total annual zinc imports dropped from 40,000 tons in 1935-39 to 23,000 in 1951 and to 3,000 in 1952-54. Some degree of recovery is probable, in view of Japan's industrial expansion and of its limited mineral resources. Furthermore, there seems to be a possibility of developing imports of copper concentrates, of which Japan has already made some purchases from Chile. Small quantities of iron ore have also been exported to Japan, and, in addition, Japan has recently shown some interest in tin ore and bismuth from Bolivia.

Perhaps the outlook is better for the recovery of *hide and skin* exports, which have been very low in recent years. In 1935-39, Japan imported an average of 36,000 tons of hides and skins annually; over 1951-54, the corresponding figure rose to 48,000 tons. In terms of value, Latin America (mainly Argentina) contributed 24 per cent of Japan's imports before war. This proportion rose to 30 per cent in 1951 but fell to 6 per cent in 1954. The inadaptability of Argentina's trade policy to the price reductions observed in other markets seems to have been the direct cause of so sharp a decline. An official Japanese publication<sup>39</sup> states, in this respect, that "Hides and skins too<sup>40</sup> will be imported in large quantities when their price goes down to world market levels."

<sup>38</sup> Before the war, Japan bought Chilean barley also.

<sup>39</sup> See *Japanese Foreign Trade*, 1953, page 89.

<sup>40</sup> The word "too" in this quotation refers to wheat and barley.

## V. THE LATIN AMERICAN MARKET FOR JAPANESE GOODS: EXPERIENCE AND FUTURE POTENTIAL

An analysis of the situation for Japanese products in the Latin American market, based on past experience and with the aim of evaluating future prospects, implies the separate examination of (1) the composition of Japanese exports in recent years, in comparison with Latin American requirements; (2) the sales prices and quality of Japanese products; (3) availabilities of exportable goods; and finally (4) certain factors related to the conquest of new markets. In the present section these four points will be examined in succession.

### I. THE COMPOSITION OF JAPANESE EXPORTS TO LATIN AMERICA AND LATIN AMERICAN REQUIREMENTS

Over 95 per cent of Japanese sales to Latin America in recent years have been exports of manufactured products, and among these, capital goods have been preponderant. In 1955, as shown in table 17, sales of iron and steel reached 38 per cent of the total, and if pig-iron, ferrous alloys, non-ferrous metals and alloys, metal products, machinery and transport equipment and some minor items included under "Others" are added, the share of capital goods reaches over 120 million dollars or about two-thirds of the total. In turn, textile products alone represented 16 per cent, and the balance was distributed among various commodities of which a significant proportion consisted of durable consumer goods, like household sewing-machines and optical equipment. (See table 17.)

**Table 17**  
JAPAN: EXPORTS TO LATIN AMERICA  
BY COMMODITIES, 1955

Product	Millions of dollars	Percentage
TOTAL	179.1	100.0
Iron and steel .....	68.4	38.2
Non-ferrous metals and alloys .....	11.6	6.5
Metal products .....	6.1	3.4
Textile machinery .....	1.0	0.6
Transport materials and equipment ..	10.7	6.0
Other machinery, including electrical..	12.2	6.8
Chemicals .....	5.1	2.8
Textiles .....	29.0	16.2
Sewing-machines .....	8.6	4.8
Optical apparatus, etc. ....	2.1	1.2
Other items .....	24.3	13.5

Source: ECLA, based on data from the *Annual Report of the Foreign Trade of Japan*.

Thus, the major part of Latin America's imports from Japan are products required for the region's economic development. This was more marked in 1955 than in former years, owing to the decline observed in Japanese exports to Mexico. This decrease, amounting to 21 million dollars in 1955 with respect to 1954, affected only articles of current consumption which in fact were not absorbed by the Mexican market but were redirected to the United States.<sup>41</sup> As a result, the proportion of capital goods in Japan's exports to Latin America rose from 50

<sup>41</sup> This was a consequence of the barter operations between Japan and Mexico.

to 66 per cent between 1954 and 1955, and from the standpoint of the contribution of the region's imports to its economic development, this composition compares very favourably with that of exports from other sources. (See table 18.)

**Table 18**  
INDUSTRIALIZED COUNTRIES: COMPOSITION OF  
EXPORTS TO LATIN AMERICA, 1955  
(Percentages)

Product	Japan	Western Europe <sup>a</sup>	United States	Canada
Capital goods ....	66.6	63.8	47.6	28.0
Raw materials ...	11.9	19.6	18.0	40.0
Fuels .....	0.4	0.5	4.7	0.1
Consumer goods ..	21.1	16.1	29.7	31.9
TOTAL	100.0	100.0	100.0	100.0

Source: ECLA, on the basis of data specially prepared by the United Nations Statistical Office, New York.

<sup>a</sup> Including Belgium, the Federal Republic of Germany, France, Italy, the Netherlands, Norway, Sweden and the United Kingdom.

On the other hand, of Japan's total exports of capital goods, 22 per cent went to Latin America in 1955, while Japan's participation in total Latin American imports of these same goods did not exceed 5 per cent. This emphasizes how important is the Latin American market for Japanese industry and how vast its future possibilities.

The study of what has happened in the cases of Argentina and Brazil, the incidence of which has been decisive in determining the composition of Japan's aggregate exports to Latin America, confirms the foregoing remarks. Sales to other countries have usually included a proportion of textile products and durable goods considerably higher than that previously mentioned, with a parallel reduction in the share of capital goods. (See table 19.)

In the case of Argentina, which is the most important buyer of Japanese products in Latin America and whose primary production of iron and steel covers only a minimum part of its consumption, sales of such products reached 36 million dollars in 1954, or 75 per cent of total Japanese exports to Argentina. Non-ferrous metals and alloys represented a further 10 per cent, and machinery 3 per cent (as against 12 per cent for Latin America as a whole); in addition Argentina imported a series of less essential products

For Brazil, which ranks second among Japan's customers in Latin America, and whose production of iron and steel supplies a higher percentage of its domestic requirements, the average proportion of these goods did not exceed 35 per cent.<sup>42</sup> However, the shares of non-ferrous metals, machinery and transport equipment (so necessary to remedy Brazil's shortcomings in such fields) reached 16 per cent, 10 per cent and 5 per cent respectively.

<sup>42</sup> In 1955, the share of iron and steel products fell appreciably while that of machinery and transport equipment rose. The reasons for this will be seen in section 3, where availabilities of exportable products will be examined.

Table 19

## JAPAN: COMPOSITION OF EXPORTS TO SELECTED LATIN AMERICAN COUNTRIES, 1954

(Percentages of total)

Country	Iron and steel, non-ferrous metals and alloys	Heavy ma- chinery	Sewing- machines	Textiles	Other items <sup>a</sup>
Argentina .....	85	3	..	—	12
Brazil .....	51	10	3	8	28
Mexico <sup>b</sup> .....	20	70	..	8	2
Colombia .....	7.4	5.4	26.6	49.8	10.8
Venezuela .....	7.4	4.5	12.5	48.1	27.5
Peru .....	1.1	2.0	24.2	38.4	34.3

Source: ECLA, on the basis of data from the Ministry of International Trade and Industry, *Foreign Trade of Japan*.

<sup>a</sup> Mainly light manufactured consumer goods.

<sup>b</sup> 1955 was taken as the basis for calculations relating to Mexico, since the minimum volume of Japanese exports re-routed to other countries was registered during that year, and statistical data were available.

Among exports to Mexico, machinery represented 70 per cent of the total, while the share of iron and steel was not more than 20 per cent. In fact, Mexico's iron and steel industry has developed rapidly in recent years, and the emphasis is now on expanding machinery production. It should be added, however, that sales of capital goods have been of very little importance, both in absolute figures and in relation to Mexican requirements. Apparently Japan's inability to sell more products indispensable for Mexico's economic development has been due in large part to insufficiently competitive export prices, in relation to those of the neighbouring industrialized country, the United States.<sup>43</sup>

As can be seen in table 19, the composition of Japanese exports to Colombia, Venezuela and Peru was very different from that indicated above. The share of capital goods did not reach 15 per cent, falling much lower in the case of Peru, whereas consumer goods (especially textiles and sewing-machines) represented between 60 per cent and 70 per cent of total Japanese sales. In these three countries the degree of development of consumer industries is lower than in Argentina, Brazil and Mexico, and, furthermore, imports are not subject to direct controls which take into account economic development requirements.

## 2. JAPANESE EXPORT PRICES

From the end of the Second World War until 1952, Japan underwent a sharp inflationary process, particularly in 1951, when wholesale prices rose by 40 per cent. Nevertheless, the exchange rate for the yen has not been modified since 1949 and thus export prices have undergone a considerable increase. The Korean war contributed to this increment, and its impact was greater for Japan than for many other industrial countries.

In the Latin American market, Germany, the United Kingdom and the United States are Japan's major and most direct competitors, and a comparison of their global export price indices indicate that Japanese prices have increased more than the others since the pre-war

period. Furthermore, the Japanese prices of most interest to Latin America (those of iron and steel products and transport equipment) have exceeded world market levels in recent years. The policy of export subsidies has attempted to compensate for this difference, but has not sufficed to bring Japan's competitive position back to normal. This explains the relative failure of Japanese metallurgical products and heavy goods in dollar-area countries, where free competition operated among foreign suppliers and there was no recourse to bilateralism. Conversely, Japanese exports to countries with which it had bilateral agreements were larger, since the necessity of obtaining products in short supply and of selling exportable balances was given priority over paying the lowest possible price.

For numerous items, however, Japan has offered more attractive pricing conditions during recent years than have its competitors, and has consequently been able to develop its exports at the latter's expense. This has been particularly true with respect to textiles, optical instruments, toys, and above all sewing-machines, the prices of which have been much lower than the world average, and whose sales volume<sup>44</sup> in the free and relatively large market of Venezuela, as well as in Colombia and Peru, has supplied a high and increasing proportion of domestic demand. Moreover, after 1952 the trend towards an increase in Japanese export prices first came to a halt and was later reversed, owing to severe anti-inflationary measures and to the modernization of industrial equipment. In this manner the decline in export prices since 1952 has surpassed that registered in the United Kingdom and the United States. Consequently, Japan's competitive position has been strong for certain products, and has shown a recent tendency to improve considerably as compared with its low post-war level.

The simultaneous existence of favourable and unfavourable factors does not permit a categorical conclusion as to possible future trends. On the one hand,

<sup>43</sup> At a Japanese exhibition held in Mexico during March 1956, contracts were signed for only 1 million dollars and orders were mainly for light machinery.

<sup>44</sup> In 1954 the value of sewing-machine sales represented 5.7 per cent of Japanese exports to Latin America. Among the articles that have had success in specific Latin American countries must also be mentioned textile fabrics, clothing and toys, which represented respectively 11.6, 2.1 and 2.6 per cent of total Japanese exports to Latin America in the year 1954.

Japanese technology is not in general superior to that of the great industrial centres except in a few light industries. Moreover, because Japan needs to import large quantities of raw materials from remote areas, the cost of final products is higher.<sup>45</sup> On the other hand, the large resources of relatively cheap manpower available in Japan make the industrialization process less onerous, and it is certain that this privileged situation with respect to other highly-developed economies will be still more advantageous once the monetary disequilibrium deriving from the Korean war can be totally eliminated.

It may be stated, therefore, that for products in which raw materials represent a relatively high proportion of total costs (i.e. for heavy-industry products), the reduction of export prices to a competitive level depends mainly on Japan's possibilities of obtaining these primary materials from supply sources closer than those to which it currently resorts.<sup>46</sup> There are cases (such as that of ships) where the situation is more favourable on account of the technical progress achieved by Japan, but these are not numerous. On the other hand, with respect to the price for light-industry products, which depends to a greater extent on labour costs, the position is very satisfactory, and it seems very probable that Japan will in future make full use of such advantages to achieve expansion in this field.<sup>47</sup>

Since the Latin American economies mainly require heavy industrial products, the previous conclusions do not open up very clear prospects for the development of Japanese sales to the region. The items in which Japanese exports to Latin America have been most active in the past few years are textile machinery and land and sea transport equipment. The still more recent and very rapid expansion of Japanese chemical industries might also give rise to some new foreign trade outflows. On the other hand, in Central America, Venezuela, Colombia, Peru and Ecuador there still exists a large market for many products which Japan produces at prices which are competitive or even lower than the world average; i.e., textiles and certain durable consumer goods. And this becomes yet more evident if consideration is given to the problem of quality, which is clearly inseparable from that of prices.

Prior to the war, many Japanese export products were of poor quality as well as low-priced. Recent experience shows that Japan is trying more and more to sell abroad lower-priced medium-quality features,<sup>48</sup> that is, products which are satisfactory but not highly perfected from the technical standpoint, and whose prices are well below the world average. As already stated, these articles have had great success in the free markets of the Caribbean

<sup>45</sup> Japan has to import a large part of its iron ore and coal from North American sources, at high prices, and defraying freight charges 6 or 7 times higher than it paid before the war for these same materials when they were supplied by Asia.

<sup>46</sup> A noticeable advance in this respect concerned the signing of a commercial agreement in 1955 between Japan and China for supplies of Chinese coal; however, the imports which can be anticipated at present represent only a small part of total purchases of primary materials.

<sup>47</sup> The variability of Japan's competitive capacity according to products explains, on the one hand, why, upon signing the GATT, Japan obtained tariff concessions for nearly a third of its 1954 exports; and on the other, why 14 of the 35 GATT members used their right to limit the concessions that would otherwise have become available to Japan.

<sup>48</sup> The Japanese authorities have established a strict control over the quality of certain export goods.

area, where their characteristics have responded to the income and requirements of certain population groups. Moreover, there can be no doubt that the Latin American countries, whose foreign exchange resources are not sufficient to cover all their import requirements, have had (and will have in the future) an interest in buying products cheaper than those originating from North America and Western Europe,<sup>49</sup> even if their quality is inferior. This observation applies not only to such durable consumer goods as sewing-machines, optical instruments, bicycles, etc., but also to non-durable consumer goods like textiles and toys, and to a certain extent to industrial machinery and equipment. In this range of production, Japan is obtaining a clear advantage over other industrialized exporter countries.

### 3. JAPAN'S EXPORTABLE PRODUCTION AVAILABILITIES

Japan's industrial sector, which from 1946 to 1950 had to satisfy its growing internal requirements, has had the stimulus of a strong external demand since 1950. The shortage of certain products in many countries because of rearmament plans had reduced much of the importance of pricing problems, and thanks to an exceptional expansion of its production capacity, Japan's exportable balances increased considerably. Thus Argentina and Brazil were able to buy, within the framework of bilateral agreements, large quantities of steel products and non-ferrous metals which were not available in their traditional markets, selling in return articles essential for the Japanese economy.

In recent years, the use of iron and steel in the machine-building and transport equipment industries has developed more rapidly than the basic production of metal, a situation which has already produced bottlenecks. In 1955 the domestic demand for these products was so large that the Government decided to ration exports of iron and steel, and this decision explains in large part the 1955 decline in Japanese sales to Brazil.<sup>50</sup> On the other hand, the Japanese authorities promoted the exports of more highly processed products. Thus Japan has stipulated in its last barter transaction with Argentina the substitution of cargo ships for iron, in exchange for Argentine wool.<sup>51</sup>

Japan's high degree of dependence upon coal and iron ore imports, and the approaching depletion of its nearer supply sources in Malaya and the Philippines, puts it in a very unfavourable situation *vis-à-vis* the United States and Europe. This dependency, plus the fact that it has already utilized the most immediate possibilities of industrial expansion (i.e., reopening marginal plants), does not permit a short-run forecast of Japan's iron and steel production's continuing to increase at a rate as intensive as in the recent past. Meanwhile, the volume of exportable balances of manufactured goods (especially of light products) continues to increase. But it is clear that such expansion cannot be maintained without a parallel development of the iron and steel industry.

<sup>49</sup> It is interesting to note, on the other hand, that Japan has recently been giving more importance to the sale of special high-quality textiles that are not generally produced within Latin America.

<sup>50</sup> By mid-1956, the situation was so far reversed that Japan was importing iron ingots from Brazil.

<sup>51</sup> The production of ships is increasing considerably in Japan, in order to satisfy both internal and external demand.



#### 4. TECHNICO-FINANCIAL OBSTACLES TO THE CONQUEST OF NEW MARKETS AND INVESTMENTS IN LATIN AMERICA

The fact that Japan has recently begun to sell machinery and other metallic products in appreciable amounts to Latin America is not enough, taken by itself, to warrant a continued expansion of such sales. Traditional supply sources long ago succeeded in establishing their trade marks, whereas Japan is still widely considered only as an exporter of low-priced appliances. The future expansion of Japanese machinery sales will depend appreciably upon the sending of engineers and the setting-up of centres that will supply technical assistance and spare parts<sup>52</sup> and thus prolong the life-span and promote the efficient utilization of such machines. Finally, sales of producer goods often have to be accompanied by medium- and long-term loans.

Japan's efforts to overcome these obstacles and create firm bases for developing its exports to Latin America have already been of some importance, but until now do not seem to have yielded the desired results. Apart from commercial advertising, the measures taken by Japan have been applied more particularly in the field of technical assistance and export financing. The Federation of the Japanese Mechanical Industry has established a training centre for Latin American technicians, and in Mexico, Japanese technicians are at present helping to construct, with Japanese equipment, a textile machinery factory.

As to export financing, the activity of the Japanese authorities has covered various aspects. In the first place, Japan had authorized, under the former bilateral agreement with Argentina and Brazil, deferred payments for certain machinery exports. Moreover, as already stated, the Japanese Exim-Bank created in 1951 has been principally in charge of the medium- and long-term financing of machinery sales abroad. In March 1955, the total credits authorized to Latin America amounted to some 22 million dollars, the main beneficiaries being Panama (for ship purchases), and Argentina and Brazil (for purchases of industrial machinery). While not insignificant, this volume of credit can be considered relatively small if compared either with total Japanese exports to Latin America over the period 1951-55 (some 625 million dollars) or with credits authorized by Europe and the United States for the same purpose.

Since 1952, and especially in 1954/55, Japan has placed various investments in Mexico, Brazil, Argentina and El Salvador in connexion with the sale of capital goods. In Mexico a Japanese enterprise has participated in the financing and construction of a textile machinery factory, whose cost has reached nearly 3 million dollars and whose initial production is estimated at 200 looms

<sup>52</sup> In one sense this prerequisite involves a vicious circle, since establishing such centres implies a sufficiently large volume of sales, which in turn is not easily achieved unless the previously-mentioned facilities have already been provided.

per month. In Brazil and El Salvador, Japanese capital has been channelled mainly into the cotton industry, while in Argentina fish products and wool transformation have been the sectors selected. These private direct investments have not exceeded 8 to 10 million dollars for Latin America in the aggregate, so in this field as well as in the extension of medium- and long-term credits Japan's efforts have been small in comparison to the achievements of North America and Europe, and in relation to the total value of Japanese exports to Latin America. In point of fact, Japan does not possess sufficient resources to permit of capital exports on a large scale, as is shown by the development of its balance of payments; Japan itself requires foreign capital to modernize and develop its own economy.

It is worth noting that Japanese migration to Latin America has played a small and highly-localized part in relation to the role of investment in trade development. In Brazil, for example, the large Japanese colonies have been engaged mainly in cotton production, and the continued increase of the latter has helped to expand exports of this raw material to Japan. On the other hand, the existence of these settlers has also favoured the import of certain Japanese products into Brazil.

To judge by measures recently adopted and by projects already under way, a future expansion of Japanese endeavour might be envisaged in the fields of both investment and migration. During 1956, in order to increase its foreign investments by reducing the risks inherent in such operations, Japan introduced into the export-insurance system an amendment permitting compensation for fortuitous and unforeseen losses of profits and capital. Furthermore, various entities, anxious to take part in Latin American industrial development, are studying the establishment of subsidiaries or the possibility of participation in creating new Latin American enterprises. Argentina, Peru, Colombia, Paraguay and especially Brazil are the main countries that will eventually benefit most from Japan's technico-financial assistance. The most important investment currently envisaged is a steel plant in Minas Gerais, Brazil, Japan's share being some 30 million dollars out of a total cost of 70 million. Information currently available, however, indicates that the execution of the project depends to a considerable extent on the possibility of the investing enterprises, obtaining financial assistance from the Japanese Government. The offer made in June 1956 by a Japanese industrial group to the Peruvian Government may also be mentioned. This concerns a 15-million-dollar credit to finance the construction of the Puno-Guaqui railway.

As for migration, the Japanese Government has recently sponsored the creation of an organization to promote outward movements, especially to Latin America. It is interesting to note, in this regard, that in certain cases such movements will mean that the emigrants take with them the equipment of the small factories in which they are employed.









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