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THE PROCESS OF INDUSTRIAL DEVELOPMENT IN LATIN AMERICA

VOLUME I

Submitted by the secretariat of the Economic
Commission for Latin America

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/FOREWORD

FOREWORD

Industrialization has always been regarded by the Economic Commission for Latin America as one of the basic factors for achieving economic development in the region. The Commission's concern with industrialization, expressed in a large number of resolutions, has been reflected by the secretariat, both in its annual economic surveys of Latin America, at the more general level, and in various sectoral and country studies.

The aim of the present study is to give an account of some of the experience with industrialization in the Latin American countries, and assess this experience in the light of the past evolution of manufacturing in the region, and the existing structural features of this sector. In addition, past experience has been projected in an attempt to anticipate some of the problems likely to arise in industry's future development.

The basic data on which the analysis is founded, and the methodology used in making the analysis, are in the main set forth in the statistical annex, document E/CN.12/716/Add.2. In most cases the sources not given in the tables and figures of the main part of the text will be found in the annex referred to.

The secretariat was fortunate in obtaining the valuable assistance of a number of Latin American professionals who helped to assess developments in their own countries, mainly in relation to chapter III, on industrial policy. Although these distinguished men cannot be mentioned individually, the secretariat wishes to express its gratitude for their contribution, without renouncing exclusive responsibility for the text that follows, in accordance with the usual practice in this type of study.

/Chapter I

Chapter I

SALIENT FEATURES OF THE HISTORICAL EVOLUTION OF INDUSTRY IN LATIN AMERICA

1. Conditions which made industrial development essential

The present dimensions and characteristics of industry in Latin America are the product of a long-term growth process influenced by factors of various kinds, some of which are connected with salient economic events at the world level, and others with conditions peculiar to the region, and, among these, with the industrial policy pursued by the countries of Latin America.

Although these factors have many features in common, their importance has differed widely in each individual Latin American country, so that a considerable variety of situations is observable within the general picture of Latin American industry today. If the region is considered as a whole, the present phase of Latin America's industrial development process exhibits obvious achievements. The manufacturing sector has come to account for approximately 24 per cent of the region's gross product and to employ no less than 14 per cent of the active population. Domestic production satisfies much of the regional demand for non-durable consumer manufactures, and an appreciable contribution is now made to total supplies of durable consumer goods, intermediate products, building materials and production machinery and equipment. Alongside the expansion of the so-called "traditional industries" (primarily foodstuffs and beverages, textiles and clothing, chemical preparations, furniture, cement and other building materials, etc.), considerable strides have been made in the development of the basic industries (steel-making, manufacture of chemical products) and of those producing transport machinery and equipment (including the motor-vehicle industry) and machine tools. In terms of size and diversification, certain major industrial centres in Latin America are nowadays comparable to some of those found in economies

/at much

at much more advanced stages of development and enjoying far higher income levels; in many instances these centres present a startling contrast with the retarded state of Latin America's vast rural areas, while in other cases they have contributed to the modernization and dynamic impetus of specific agricultural enterprises.

Thus, industrialization would seem to have constituted a fruitful part of Latin America's over-all economic development process. But such a conclusion is subject to reservations from more than one point of view, and, in particular, the advances made should be compared with the historical evolution of the factors determining industrialization requirements in Latin America. In other words, it is not enough to note the progress achieved; what must also be evaluated is the measure in which it has sufficed to meet the needs emanating from the over-all development process.

Many of the factors which make industrial development an indispensable part of the over-all growth process are common to all kinds of economies, whose respective stages of development determine the mode and intensity of their operation. In this sense, the industrial development of Latin America can be visualized over the long term as a way in which the region can share in the benefits of technical progress at the international level, and can join in the industrialization process of the whole world. Viewed from this standpoint its participation proves to be modest indeed; Latin American industry today accounts for only 3 per cent of world industrial output, although the population of the region represents exceeds 6 per cent of total world population.

The significance of this share should be related, to its long-term trends and to the length of time it has taken to materialize. In fact, the real incorporation of each of the Latin American countries into the over-all industrialization process has taken place in different periods and at different rates. Some Latin American countries had already established important foreign trade flows in the second half of the nineteenth century, which facilitated their assimilation of technical progress and the opportunities of creating better living conditions that this progress

/afforded; whereas

afforded; whereas others did not enjoy the same opportunities until much later on. It is therefore not surprising that in each case, too, the three major international events of the last half-century - the two world wars and the depression of the thirties - produced different effects, encouraging or hampering internal development, according to the degree of dependence of the country concerned upon and the outside world, and the extent to which each had built up its own production basis.

The aim of the ensuing paragraphs is not to present a systematic analysis of the evolution of industry in each country or in specific groups of countries over a set period, but merely to assemble a few data which will help to clarify the general characteristics of certain situations that may be regarded as illustrative of the process in Latin America. In preparing them, it has been borne in mind that several of the general factors which make industrialization a normal development requirement seem to have operated particularly powerfully in the case of the Latin American countries.

Foremost among these factors is the rate of population growth. At the beginning of the century, the population of Latin America represented barely 4.1 per cent of that of the world. Twenty-five years later, this proportion had risen to 5.2 per cent, and by 1950 it had reached 6.5 per cent. During the fifty years in question, while the population of the world as a whole increased by 61.1 per cent, that of Latin America more than doubled (showing an increment of 158.7 per cent). These trends have persisted and even sharpened in recent years; between 1950 and 1958, the annual rate of demographic growth in Latin America was 2.4 per cent, whereas it ranged from 1.6 to 1.9 per cent in Africa, Asia, North America and the Soviet Union, and was barely 0.7 per cent in Europe (excluding USSR).[1/]

1/ See "The Demographic situation in Latin America", Economic Bulletin for Latin America, Vol. VI, N° 2, October 1961, p. 22 (table 8).

/In these

In these circumstances, for per capita manufacturing output to expand at a specific rate, the over-all growth rate of industry would have had to be more rapid in Latin America than in other areas. Moreover, although the rate of increase of the labour force is not necessarily exactly the same as that of the population, given such demographic trends it must have been much higher in Latin America than elsewhere.

To the rapid growth of the total population was added, in Latin America, a second demographic characteristic - the trends followed by the distribution of the population between urban and rural areas - which was to exert a powerful influence on the composition and diversification of demand for goods and services. For reasons linked to the patterns of economic growth in its early stages - when development was strongly outward-directed, there was little integration of the internal economies and a substantial immigration flow developed -, a vigorous urbanization process started in the Latin American countries at a very early date. Even in 1925, one-third of the population of Latin America could already be classified as urban, and at the present time the corresponding proportion is about 50 per cent.[2/] If the concept of urban population is defined as the percentage of total population living in places with 20,000 inhabitants or more, it will be seen that the proportion registered in Chile in 1920 was slightly smaller than that recorded in the United States in 1910 (28 and 31 per cent respectively), and that by 1950 the two indexes were practically the same (a little over 40 per cent). Ever since the twenties, Cuba has been showing urbanization indexes higher than Sweden's, while those of Argentina considerably exceed the corresponding figures for any European country, excluding the United Kingdom but including the Federal Republic of Germany.[3/]

2/ For a precise definition of what is regarded as urban population, see "Changes in employment structure in Latin America, 1945-55", Economic Bulletin for Latin America, Vol. II, N° 1, February 1957, pp. 15 et seq.

3/ See "The demographic situation in Latin America", loc. cit., pp. 33 and 34 (tables 16 and 17).

/There is

There is more than one indication that the speed with which the Latin American urbanization process has taken place has been much greater than might have been expected in view of the absolute levels and growth rates of per capita income. In other words, urbanization might be envisaged - in the specific context of the corresponding stages of Latin America's development - as supplementary industrialization requirement, determining changes in the structure of demand that were characterized by the greater diversification linked to urban patterns of living, and that extended beyond those which might strictly be associated with higher income levels.

There is an additional factor which, although its effects on the growth of manufacturing activity have been contradictory, has helped, up to a point, to determine the characteristics of industrial development: namely, the influence that must have been exerted on the region's industrialization process by income distribution patterns, in the broadest sense of the words. As one sector of the population, in a few large urban centres, underwent rapid modernization, huge groups of rural population lagged farther and farther behind, while the distribution of urban income itself (by income steps or by socio-economic groups) showed a high degree of concentration. These general income distribution characteristics were bound to produce twofold and, as already pointed out, somewhat contradictory effects upon industrial development: on the one hand they affected the rate of capitalization and accelerated the diversification of demand in a relatively small sector of the population, with the resultant supply requirements in respect of a steadily widening range of manufactures; on the other hand, they limited the size of the aggregate market for manufactured goods, from which a considerable proportion of the Latin American population was largely cut off.

This factor - the coincidence of pressures for rapid diversification in response to the characteristics of one sector's demand with the concurrent limitation of the market by the slow expansion of demand in other sectors with lower income levels - probably made its presence felt at a very early stage of Latin America's industrialization process, and, in any event, could not fail to leave its mark on the subsequent features of the region's industrial growth.

/There was

There was a possibility of partly meeting the over-diversification of demand by means of imports. But here again, the long-term evolution of Latin America's external sector differed in significant ways from that of other under-developed areas. In several countries of the region, exports, and consequently the capacity to import, reached their peak levels prior to the First World War, and later suffered considerable setbacks, so that per capita imports were higher in the years preceding the First World War than at the end of the twenties. (This was the case in Argentina, for example, and to a still more marked extent in Brazil, which had to cope with the 1910 coffee crisis.) The slackening in the international trade of some Latin American countries spread and was aggravated as a result of the depression of the thirties, which finally broke up the development pattern followed until then. Eloquent testimony to its decisive importance is borne by the persistent long-term decline registered from that time onwards in Latin America's share in world exports. Whereas in 1928 the foreign trade of Latin America had accounted for 9.1 per cent of total world exports, in 1938 it represented only 7.9 per cent, and by 1960 barely 6.8 per cent.4/

Setting aside the wide variations in over-all growth rates from one country to another, such basic factors as the rapid tempo of urbanization, the patterns of income distribution and the premature weakening of the external sector have probably done more in Latin America than in other developing areas to intensify industrialization requirements. There were also particularly favourable factors that made it easier to meet these needs. Among the most important were, on the one hand, a somewhat higher overage level of culture and, on the other, a strong flow of immigration, which attained significant proportions in several countries of the region. In so far as it implied contributions in the shape of technical and organizing skills, and in many cases capital resources as well, mass immigration acted as a stimulus, and notably facilitated the early stages of Latin America's industrialization process. In others it boltered the agricultural export sectors and thus contributed indirectly to the development of industry by transferring to industry part of the surpluses of those sectors.

4/ See The Economic Development of Latin America in the Post-War Period, United Nations Publication, Sales N°: 64.II.G.6, p. 124 (table 123).

/To sum

To sum up, many of the Latin American economies seem to have found themselves faced not only with the normal industrialization requirements entailed by an ordinary development process, but with an intensification of such needs attributable to particularly rapid rates of urbanization and over-all population growth, as well as to contractions occurring in the external sector at too early a stage in relation to over-all development requirements. These characteristics were not uniformly manifested in each and all of the countries of the region, but they were fairly widespread, and the extent to which they apply to specific individual situations will be discussed in due course.

The factors in question were to constitute a powerful stimulus to industrialization, implicit in them at the same time were certain hidrances to the process. Thus, for example, while rapid urbanization created new or broader markets for manufactured goods, it simultaneously tended to absorb, in the expansion of typical urban services, a high proportion of resources that could have been mobilized for capital formation. The fact that the development process was not effectively integrated and that the rural sectors lagged so far behind - except, perhaps, in some cases of export agriculture such as São Paulo - resulted in a lack of complementarity in agricultural expansion, which was reflected in the limited size of the rural market for manufactured goods, in inadequate contributions to domestic capital formation - except in Argentina and Brazil during certain periods - in heavy balance-of-payments pressures deriving from imports of primary commodities, in the limited growth of agricultural exports and in other similar handicaps. The counterpart of the rapid diversification of demand deriving from urbanization and income distribution was the cramped development of mass production of current consumer manufactures to supply the needs of broader population sectors. The speed of demographic growth, while it made for the enlargement of individual country markets that were often very small in terms of population numbers, meant that - in default of faster rates of increase of total income and in the face of social pressures or demands -, a considerable proportion of available resources still had to be channelled towards satisfying the basic requirements of the population in the matter of health, education and other services. Lastly, the unfavourable behaviour of external sector during the past half-century,

/while it

while it promoted and emphasized the need for industrialization, hampered the process by limiting the region's capacity to import the machinery and equipment and the raw materials and intermediate products required for industrial development itself.

Clearly, in face of such a complex of determining influences, an evaluation of Latin America's industrialization process in abstract or absolute terms will not suffice. It is not enough to note that industrial development did take place, and that nowadays the manufacturing sector accounts for an appreciable proportion of Latin America's total product; the rates and patterns of that development must also be compared with the evolution of requirements over the past, in order to assess how far it was capable of meeting them. Particular importance must be attached to such questions as whether it did in fact fulfil the role incumbent upon it in relation to the basic objective of opening up sufficient productive employment opportunities for the increment in the active population, and whether it was able to play its due part not only in breaking down the barriers to the growth of the whole economy set up by the unfavourable evolution of the external sector, but also in the replacement of this latter as the mainspring of over-all development.

Such a comparison will be attempted in the ensuing sections. It will facilitate appraisal of the industrial policy pursued in the past, will give a clearer idea of the root causes that determined the existing structural characteristics of Latin American industry, and will afford at least a glimpse or two of future prospects.

2. Main stages of the industrialization process in Latin America

The behaviour of the factors referred to above, and of others equally pertinent, was not always uniform, nor did they affect all the various Latin American countries at the same time and in the same degree. Consequently, industrial growth rates were also uneven, and the industrialization process did not take place simultaneously throughout the region. On the other hand, its general characteristics seem to mark out a succession of stages which all the Latin American economies traversed, although at different periods, and each in its own way.

/(a) The

(a) The period before the depression

It is often said that the world depression of the thirties initiated a phase of radical changes in the rate and patterns of development in Latin America, and that these changes particularly affected the region's industrialization process. Until the end of the twenties the Latin American economies were characterized by their "outward-directed" development; since then the new world trade conditions caused a change towards "inward-directed" development. Broadly speaking this feature is associated with the expansion of the primary production sectors that was the dominant feature of the pre-depression period, and with the subsequent emphasis on import substitution, which in turn was to be reflected in the inception or invigoration of the industrialization process.

In so far as these generalizations are taken to mean that until the time of the depression external demand constituted the main and almost the only source of dynamic impetus to growth, whereas from the depression onwards the motive power was generated rather by factors linked to internal demand, they would seem to be fully applicable to Latin America as a whole. But once they begin to evoke an image of Latin American industry as almost non-existent up to the beginning of the depression, and developing rapidly only as from that date, it becomes essential to probe more deeply into individual situations, the study of which will reveal quite sharp distinctions between specific groups of Latin American countries.

Indubitably, in more than one instance a series of factors arose in the decades preceding 1930, which exerted a dynamic influence on the domestic manufacturing industry. This was partly true, even with respect to the increase in exports of primary products, since they required at least a measure of local primary processing, which led to the consolidation of sizable manufacturing nuclei, such as packing-plant, sugar mills, ore dressing plants, and so on. These activities entailed closer contact with technical advances, increasing familiarity with industrial organizations and its development opportunities, and a better assessment of technical and professional ability. Moreover, the basic and complementary services required by export activities themselves (railways, repair and maintenance

/services, etc.)

services, etc.) were not only instrumental in spreading at least part of the income generated in the sector, but at the same time promoted a large-scale urbanization process. This concentration in urban areas formed a market for a broader and more diversified flow of manufactured goods, favourable to the development of "light" consumer industries, an appreciation of which may be obtained from a few figures. For example, in Argentina, even before the First World War, more than half the population was classified as urban; in eight of the larger towns, the number of inhabitants exceeded 100,000, and in another thirty-nine it was over 20,000. By 1920 there were at least six towns in Brazil whose population amounted to more than 100,000 persons, and twenty-one with more than 20,000 inhabitants. In 1930, one-third of the population of Mexico was living in urban centres, among which the Federal District alone had an urban population of over one million. The population of Buenos Aires already numbered more than one and a half million in 1914; by 1920, that of Rio de Janeiro exceeded one million, while São Paulo and Santiago, Chile, each had more than 500,000 inhabitants; Mexico City had a population of over a million in 1930, and in 1931 more than 600,000 persons were living in Havana.

The increase in exports provided a capacity to import sufficient for the needs of the urban centres, whose size nevertheless offered a constant incentive to the local manufacture of some products without a specific protectionist policy being required for industry. This incentive was even stronger during the external supply shortages which occurred during the First World War, a development which promoted local manufacture. In other words, the dynamism of the external sector was not inconsistent, in some countries, with a measure of import substitution which might be called "spontaneous" to distinguish it from the "forced" substitution which had to be undertaken later when foreign trade conditions worsened. "Spontaneous" substitution stemmed from initiatives based on sufficiently low costs whereas "forced" substitution took place mainly in the form of protectionist measures.

The extent to which industrialization could be stimulated by urbanization and by increased export earnings depended upon the absolute size of the markets concerned, a factor which even then was beginning to

/loom up

loom up as one of those exerting the most powerful influence on the industrialization process in the Latin American countries. These factors, plus the very important element of immigration, explain why by the end of the twenties several countries of the region already possessed an industrial base - which was, moreover, relatively diversified - apart from the manufacturing nuclei directly linked to export activities. As was natural, by far the most prominent were the industries producing foodstuffs, beverages, textiles and clothing, with others whose characteristics were similar but which were maily in the form of artisan industries, manufacturing activity included the metallurgical and metal-transforming industries themselves, although the degree of integration and relative importance varied considerably from country to country.

The country where the combination of factors was most favourable was Argentina. Its income from exports was relatively high, and spread fairly widely over the country's population as a whole; relatively speaking also, a considerable degree of urban concentration had also been attained; and in addition a substantial immigration flow amounting to over 2 million persons in thirty years, brought with it a new potential in respect of private enterprise and technical skills. As a result of the flow of immigrants, in 1944 aliens represented 30 per cent of the population.

It is thus understandable that at the beginning of the century Argentina's manufacturing industry already accounted for an appreciable proportion of the total national product and that by the eve of the First World War this sector was also absorbing about a relatively large proportion of the total economically active population.[5/] The rapid development of infrastructure and the inflow of foreign capital were other favourable factors, whose operation was reinforced by the stimuli emanating from agricultural expansion itself, until by 1910 one-third of the country's internal requirements in respect of farm machinery could be supplied by domestic industry. Later, by 1930, a complete petroleum refinery manufactured virtually entirely in the country, could be set up.

5/ A census taken as early 1895 had recorded the existence of more than 22,000 manufacturing establishments, employing about 150,000 workers.

/Although its

Although its share in the product was smaller than in Argentina, manufacturing industry in Brazil was also displaying some measure of development and diversification long before the depression. The concentration of export earnings in what has been termed the "Rio-São Paulo axis", where even at that time a sizable urban market existed, provided a substantial groundwork for industrial activity, which was further facilitated by immigration and the transfer of financial resources from the export sector.[6/]

Similar conditions likewise prevailed in Mexico, as regards market size and urban concentration, although average per capita income levels were much lower than in Argentina. Signs of a drive towards industrialization were in evidence long before the depression of the thirties, by which date the industrial base was significant. At the beginning of the century, the textile industry alone provided employment for some 30,000 persons, and possessed nearly 700,000 spindles and over 20,000 looms, most of this equipment being in line with the most advanced contemporary technology. Steel-making, in its turn, began in Mexico as early as the year 1903.

Among the countries whose markets are smaller in absolute terms, Chile and Uruguay are those whose industrial development efforts date farthest back. In the former country, the dynamic impetus of the external sector, although it had helped to promote a relatively high average income level, had more than once been halted by a contraction affecting the staple export product, until this was compensated by the expansion of a new line of production; and as a result, concern for the development of a domestic manufacturing industry was sharpened. Among its manifestations were the creation of the Society for the Development of Manufacturing Industry (Sociedad de Fomento Fabril) in 1883 and the incorporation of deliberately protectionist measures in a law passed in 1897, as well as the production of agricultural equipment, transport material and even some types of steam-driven machinery during the same period. In the case of

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6/ The 1920 census registered over 13,000 industrial establishments, employing a total of more than 310,000 persons.

Uruguay, although insufficient data are available, some indirect indications suggest that in the pre-depression period the relative size of industry rose to one of the highest figures recorded in Latin America, with the exception of Argentina. Uruguay's packing-plan industry dates from the early years of the century, and so does the fairly large-scale development of tanneries, wool textiles and other manufacturing activities. Furthermore, industrial development in these initial stages was encouraged to a greater extent in Uruguay than in other Latin American countries by direct and indirect promotion activities on the part of the Government.

The situation seems to have been different elsewhere, particularly in such countries as Colombia, Peru and Venezuela, which in view of the size of their populations might also have achieved a fairly high rate of industrial development. In fact, this did not prove of Colombia until after the depression of the thirties. In Venezuela, the petroleum boom that started at the time of the First World War made the economy one of the most "open", with an external sector that was not only very broad in absolute terms but also rapid in its growth. In Peru, the earliest industrial efforts - such as the National Association of Industries (Sociedad Nacional de Industrias), established as early as 1896 - were feable and sporadic, and lacked the support of a groundwork of urban concentration like that existing in other countries of the region.7/

In Cuba, the relatively high level of per capita income, the degree of urban concentration, and the large manufacturing nuclei constituted by the sugar mills, were all factors that apparently stimulated a certain amount of industrial development from a very early date.

In most of the other Latin American countries, in contrast, two circumstances that were much less propitious to a steady industrialization process usually tended to occur in conjunction: smaller market sizes, in absolute terms, and a continuing possibility of importing any type of goods.

7/ Only in 1940 did the population of Lima reach a figure in excess of half a million inhabitants.

/Accordingly, when

Accordingly, when the depression came, and with it the need to alter their traditional growth patterns, the Latin American countries were in such different positions as regards the industrial base they had succeeded in establishing up to that time, that a generally applicable description can hardly be offered. In those where industrialization had made any significant headway, manufacturing activity was concentrated mainly on the production of a somewhat limited range of non-durable consumer goods for the supply of a few urban centres that had grown up under the stimulus of foreign trade. This spread of dynamic repercussions from the external sector to domestic industries tended to take place solely (or mainly) through demand for consumer goods, as well as through the primary processing of export commodities, while on the other hand the substantial demand for manufactures created by the installation and expansion of the basic utilities required for the expansion of the export trade itself failed to produce a similar reaction. Whereas in more advanced economies the development of transport infrastructure, for example, provided a tremendous incentive to the expansion of their own industries, in Latin America it was reflected almost entirely in voluminous imports, often financed by foreign loans which later on were to exert protracted pressure on the region's balance of payments. The more extension of the railway networks must have been a powerful spur to the development of the iron and steel industry in the more highly-developed countries, while for Latin America it simply meant that hundreds of thousands of tons of track and some indirect items deriving from the installation of repair workshops had to be imported.

(b) From the depression of the thirties onwards

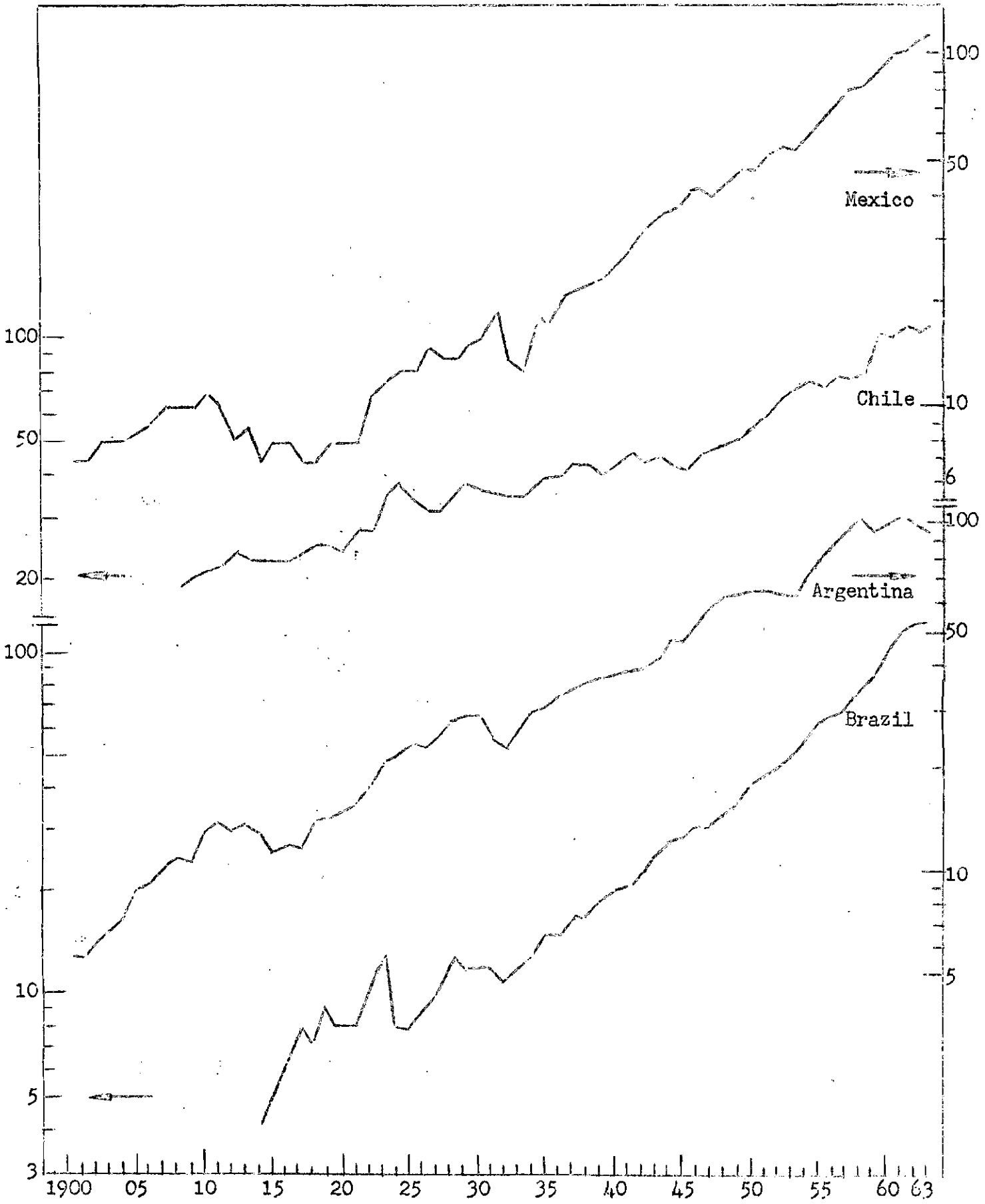
Certain indicators of long-term trends in the volume of manufacturing output may first be considered (see figure I). Two main features clearly emerge: on the one hand, the relatively early date at which the process began, as shown by the magnitude of the relevant indexes in relation to the base year (1960); and on the other, the disparities in rates and levels of industrial development at different periods, in particular those marked out by the world wars and the depression of the early thirties. Thus,

/Figure I

Figure I

LATIN AMERICA : INDICATORS OF LONG-TERM TRENDS IN THE VOLUME OF MANUFACTURING OUTPUT
(Index : 1960 = 100)

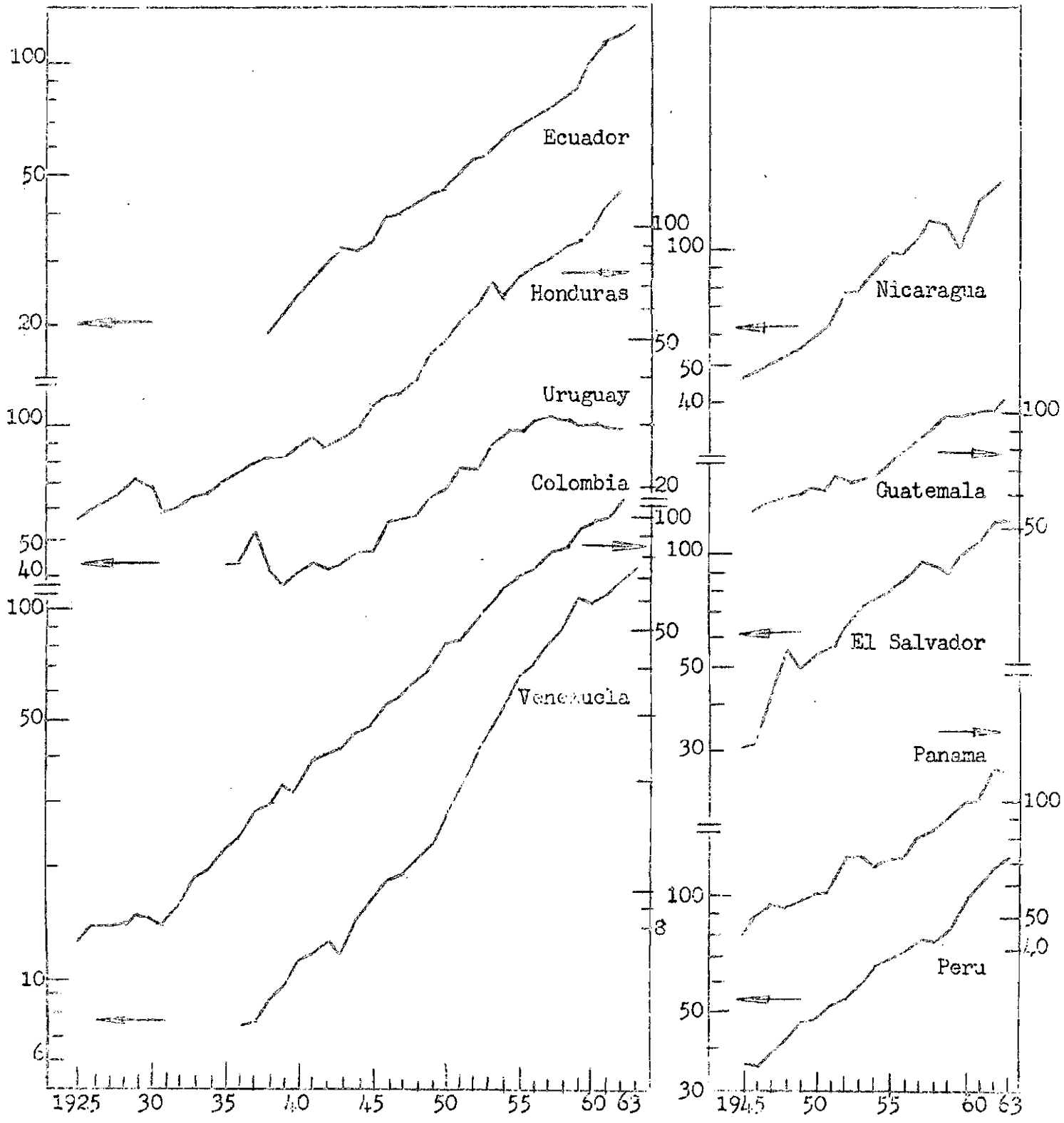
Semi-logarithmic scale



/Figure I (Concluded)

Figure I

(Concluded)



/the growth

the growth of manufacturing activities in Argentina was very rapid from the beginning of the century to the outbreak of the First World War; the recession that took place during the war years affected only a few branches, while stimulating others, and moreover, was quickly left behind, and anew phase of speedy development was embarked upon, which culminated in 1929. From the Depression until the early post-war years a further period of sustained growth was registered, although the growth rate was lower than in the previous stages. Marked variations occurred in the last fifteen years.

With respect to Chile, its industrial effort is as long-standing as Argentina's; indeed, the indexes registered during the First World War (in relation to the base year 1960) were actually higher than in the latter country. Subsequently, the trends followed were widely divergent in these two cases, to judge from the incomplete indicators available. Between 1918 and the pre-depression years, the rate of industrial growth was much lower in Chile than in Argentina, and the disparity became yet more marked in the next three quinquennia. The Chilean economy was prevented from taking due advantage of the new incentives implicit in industrialization by the severity of the depression's impact on aggregate demand and of its restrictive effects on imports of the capital goods and intermediate products essential for the expansion of manufacturing activities; and in its turn, this slow growth limited the possibilities of increasing industrial production in face of the fresh external supply difficulties that arose during the Second World War. Only from 1945 onwards did Chilean industry once again enter upon a new phase of relatively rapid development, particularly towards the mid-fifties.

In Mexico, too, the evolution of the manufacturing sector displays clearly distinctive features. The conditions that prevailed throughout the revolutionary period precluded any significant expansion of the industrial enterprises that had been launched at the beginning of the century. But as from the early twenties, a swift and steady growth rate was established which, apart from a few short-term fluctuations, has been maintained up to the present time. The relatively favourable development of the external sector enabled it to recover rapidly from the effects of the world depression, and in fact it was from 1933 onwards that the most rapid rate of development was registered, continuing right up to the Second World War.

/In the

In the period between the First World War and 1960 the rate of industrial growth in Brazil was much the same as in Mexico, but the trends pursued were not always identical, the development of Brazilian industry having been slower during the twenties and faster from 1947 onwards. In Brazil too the rapid recovery of the external sector immediately after the depression of the thirties accompanied the expansion of manufacturing activity and the consolidation of an industrial base sufficient for the maintenance of a high rate of growth even in the restricted external supply conditions that prevailed during the Second World War.

Unfortunately, no quantitative data are available on the long-term evolution of industry in Uruguay, which is the other Latin American country where industrialization began at an early date. At least from 1936 onwards, the average rate of industrial development seems to have been lower than in Chile, although the stages distinguishable are not the same. It was slow until the end of the war, it slightly outstripped the growth rate of Chilean industry, between the end of the war and 1955, and has remained in absolute terms virtually stationary since.

Colombia seems to be one of the countries which found the decisive incentive to their industrialization process in the depression of the thirties. Previously its industrial development had been scanty but the expansion of new manufacturing activities was reflected in a very rapid rate of growth in the sector as a whole, which was maintained, with few fluctuations, at least until the mid-fifties, from which point onwards it declined appreciably, although still remaining fairly high.

The cases of Ecuador and Peru are probably similar to that of Colombia. In both, the industrialization process gathered momentum as from the time of the depression, particularly in Peru. The evolution of the external sector was favourable, since it did not drastically limit the capacity to import equipment and raw materials, but not to such a point as to discourage the expansion of internal import substitution activities. This was what happened in Venezuela and, together with the extremely wide

income distribution gap, explains why the industrialization process began relatively late in that country, although the size of its population and its average level of income were such that its market for manufactured goods was much bigger than that of many other countries in the region. Venezuelan industry's systematic development effort dates only from the time of the Second World War although the growth rate achieved since then, has been not only steady, but also the highest in Latin America if a sufficiently long period is taken into account (see again Figure I).

With the exception of Cuba, whose relatively high levels of income and urban concentration had fostered a measure of industrial development since a much earlier date, the progress of industrialization in the remaining countries of the region has been much more recent, and narrower in its scope. During the last fifteen years, the volume of manufacturing output has remained virtually stationary in Bolivia and has increased relatively slightly in Paraguay, these being the two South American countries that are most alike in respect of the factors that militate against industrialization - numerically small populations and low income levels. In the Central American and Caribbean countries (other than Cuba) manufacturing industry has also developed only on a small scale, but its rate of growth was reasonably satisfactory in the post-war period, and has been given fresh impetus under the Central American Economic Integration Programme. This schematic presentation of the long-term trends of Latin America's industrial production relates to the manufacturing sector in its broad sense. It therefore covers both the manufacturing industry proper and the wide complex of artisan industry. The latter's relative importance is fairly substantial: its share of industrial output may be estimated at 30 per cent in 1925 and 12 per cent in 1960, and even higher this year in a number of Latin American countries. Its vegetative growth had a significant effect in that the growth rates shown were certainly far below those of manufacturing activities proper. For the same reason, the industrial growth trends do not provide an adequate indication of the powerful effect of the Second World War and of more recent developments, which led to the initiation or consolidation of important dynamic sectors of industry which respond typically to levels of productivity and manpower absorption that characterize modern industry.

/Admittedly, a

Admittedly, a single indicator of the kind under consideration will not suffice to characterize the industrialization process in the different countries of the region. In the first place, the various growth trends start from widely disparate absolute levels of industrial output; furthermore, they occur in conjunction with rates of over-all economic development that are often completely dissimilar, so that they do not necessarily reflect the degree of intensity of the industrialization process, if this is defined in terms of the steady growth of the manufacturing product's share in the total product; lastly, it is important to take into account not only the development of industry as a whole, but also the changes observable in its internal structure, i.e., in its composition by branches of manufacturing activity.

The desirability of knowing the long-term trends relating to the relative size of the manufacturing industry in various countries of the region, as reflected in the share of the national product generated by the manufacturing sector - which may be considered, up to a point, representative of the degree of industrialization attained - lies in the fact that they permit a comparison to be made between the rate of industrial growth and that of over-all economic growth, and hence an evaluation of the size of the expansion of manufacturing not only in absolute terms, but also in the broader context of the over-all economy in which it occurred (see Figure II). To put it in another way, the dynamic role industry may play depends not only on its growth rate but also on its relation to the growth of other sectors of the economy. Thus, the same rate of industrial growth may make a dynamic contribution in a country where over-all economic development has been slow, yet prove inadequate within an economy whose growth rate has been more rapid.

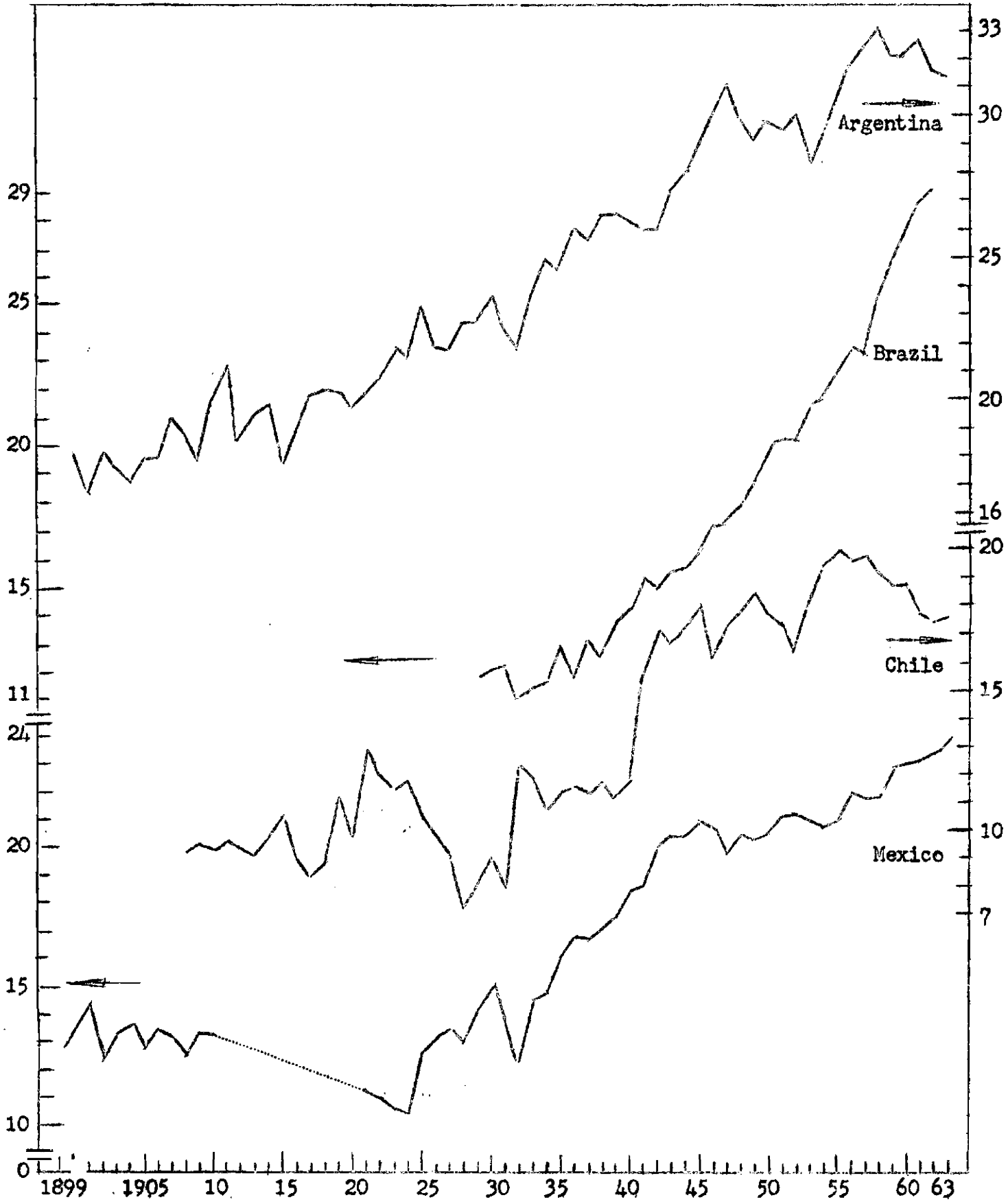
Viewed from this angle there are a number of typical situations in Latin America. One may be considered to be broadly reflected in the trends demonstrated by Argentina and Chile, countries in which a moderate industrial growth rate is combined with a relatively sluggish over-all economic growth rate. This explains why in Argentina the share of the manufacturing product in the total product not only stands among the highest in the region but is also steadily increasing. Chile's position is somewhat similar over the long term, although at lower levels and with more irregular trends.

/Figure II

Figure II

LATIN AMERICA : PAST TRENDS IN THE MANUFACTURING SECTOR'S SHARE OF THE TOTAL PRODUCT

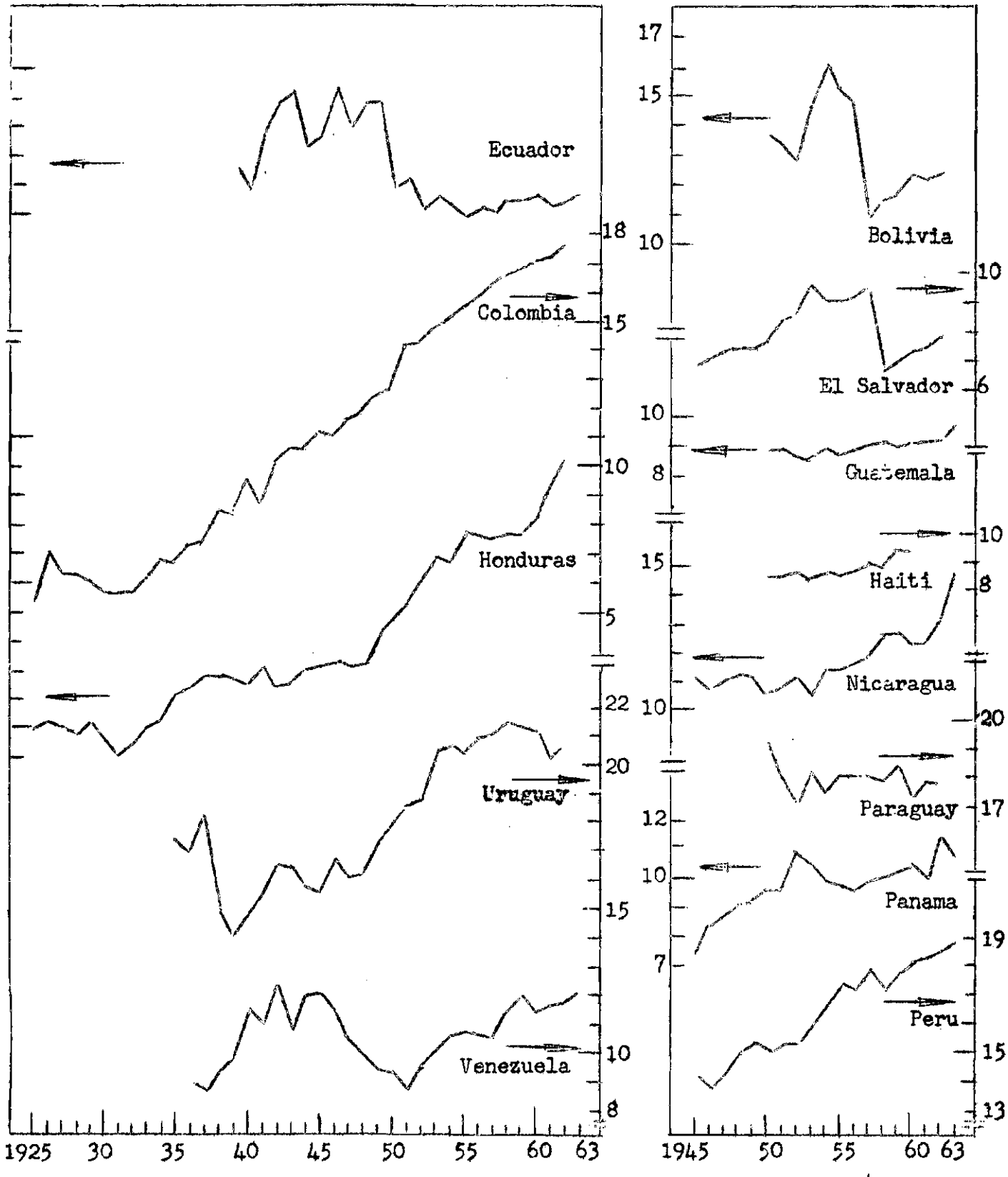
(Percentages)
Natural scale



/Figure II (Concluded)

Figure II

(Concluded)



/The case

The case is different in Brazil and Mexico, whose more rapid industrial development was accompanied by an expansion of other sectors of the economy that was also relatively rapid, with the result that their industrial effort was not reflected in as marked an upward trend in the degree of industrialization, at any rate up to the early years of the post-war period. Since then, however, the situations of the two countries have sharply diverged. In Brazil, the manufacturing sector's share in the total product has grown fast, and is approaching the levels currently registered in Argentina; in Mexico, on the other hand, it has increased but slowly, at a much lower rate than in the period following the depression of the thirties, despite the fact that industrial expansion has been speedy in itself.

This is not the place to say whether these variations were favourable or adverse but merely to record the fact that the different industrial growth rates occurred under over-all economic development conditions which were also different. This may be useful, for example, with a view to a comparative evaluation of the effectiveness of specific industrial promotion policies.

Figure II also shows, although in relation to shorter periods for lack of data, the trends followed by the corresponding ratios in other countries of the region. In some, the particularly favourable evolution of the external sector, reflected in a vigorous expansion of primary export activities, greatly retarted progress in respect of the degree of industrialization (measured in terms of industry's contribution of the total product), although manufacturing industry made very substantial advances in absolute terms. This helps to account for the relative stagnation of the ratio in Venezuela, its decline in Ecuador, and, up to a point, its comparatively slow increase in Peru. It is partly for the same reason that, generally speaking, the Central American countries in the post-war period witnessed no major changes in the manufacturing sector's share in the total product, which remained at distinctly low levels.

In short, the foregoing comparisons suggest that for the purposes of evaluating the long-term rates of industrialization in the various Latin American countries indicators of the volumes of manufacturing output will not suffice in themselves, and must be considered in relation to the corresponding rates

of development of the economy as a whole. Moreover, from another point of view, it is essential to bear in mind that the increase in the industrial sector's relative importance in the economy as a whole has resulted not so much from the expansion of a specific set of manufacturing activities, as from the growing diversification of industrial production. To some extent, these are structural changes inherent in any industrialization process; but, as was implied in previous sections, in Latin America the the tempo of the diversification process seems to have been set by circumstances more or less peculiar to the region, and primarily by the characteristics of the individual country markets, determined in their turn by either a numerically small population, a low average level of per capita income, a marked degree of concentration in income distribution, or the combined effect of two or more of these factors. Protectionist policy itself was another source of incentives to diversification. If these considerations are taken in conjunction with other factors of a mainly technical nature - minimum economic scales of production, capital density, degree of technological complexity -, it will be clear that the changes in the composition of manufacturing output constitute another of the indicators which help to shed light on the stages traversed by the various Latin American countries in the course of their industrialization process.

Unfortunately, the real degree of diversification is not adequately illustrated by the more or less general data available. At the level of major groupings by branches of industry, a notable feature in the Latin American countries at a more advanced stage of industrial development is the steady increase in the relative importance of the chemical and, above all, the metallurgical and metal-transforming industries, while in the other countries of the region the production of foodstuffs, beverages, textiles and clothing still predominates. Furthermore, study of the import substitution process and the characteristics of foreign trade in manufactured goods suggests that within each of the branches of manufacturing activity that have been gradually expanding, the tendency has been to cover the widest possible range of products, in quest of a very high level of self-sufficiency. This has been the case, for example, not only in the traditional

/industries themselves,

industries themselves, but in the iron and steel industry, the manufacture of electrical appliances for household use, and many other industrial activities, while recently the same process has been taking place in the development of motor-vehicle production. In short, specialization does not seem to have been a clearly-defined objective of industrialization policy in Latin America, with the result that industrial growth has been of a type primarily based on the progressive incorporation of new lines of production. This partly accounts for the weakness shown by the Latin American countries - even in comparison with those of other under-developed regions - as regards incorporating manufactured goods in their normal export flows, as well as for the minimal volume of their reciprocal trade in manufactures.

Thus it is with the foregoing reservation respecting the degree of "internal" diversification in each branch of industry that the varying structures of the manufacturing sector in the different countries of the region must be evaluated from the standpoint of its composition by branches of industry and without prejudice to the more detailed references in the following chapter. To this end, it is enlightening to study the comparisons presented in figure III, relating to the more general structural characteristics found in three Latin American countries at widely differing stages of industrial development, i.e., Brazil, Colombia and El Salvador.

A comparison between these three examples, while representing recent situations, may be regarded as indicative of the long-term structural changes that have accompanied Latin America's industrialization process. In El Salvador more than half (58 per cent) of the manufacturing product is concentrated in the food, beverages and tobacco industries, and almost another one-fourth (24 per cent) in textiles, footwear and clothing; in contrast, the many branches of manufacturing activity comprised by the rubber, petroleum derivatives, wood and furniture, paper and paper products, metallurgical and metal-transforming industries and the processing of non-metallic ores, etc., do not account in the aggregate for as much as one-fifth of the total industrial product.

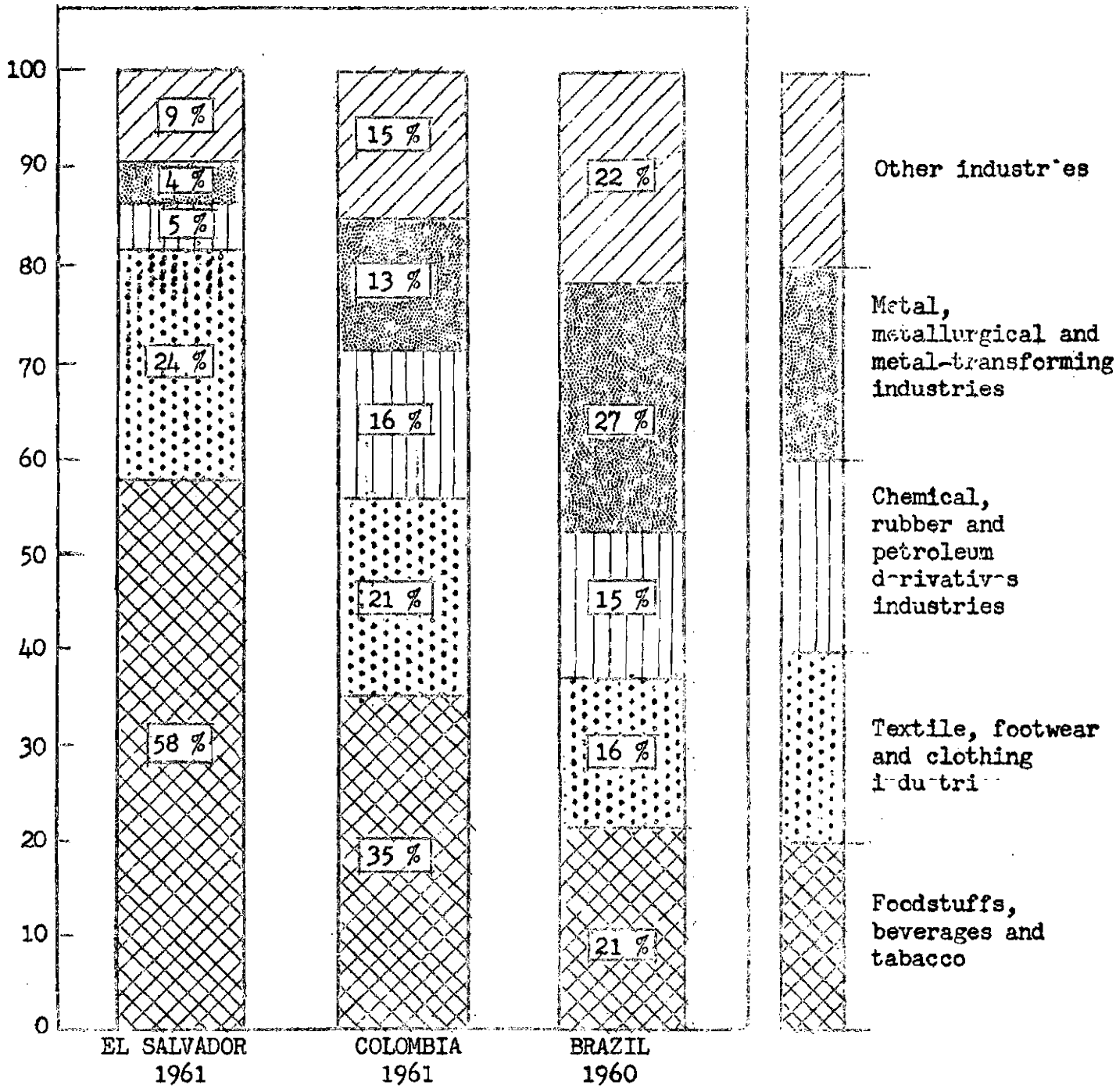
/Figure III

Figure III

SELECTED LATIN AMERICAN COUNTRIES :
STRUCTURE OF THE MANUFACTURING SECTOR

(Percentages of value added in the branches of industry mentioned as compared with the total)

Natural scale



Source: National industrial censuses

/On the

On the other hand, in Colombia, another Latin American country which may be regarded as occupying an intermediate position within the framework of the region's industrial development at the present time, the relative importance of the food, beverages and tobacco industries is much less (35 per cent of the total manufacturing product), and the same is true - although on a far smaller scale - of the textile, footwear and clothing industries. Conversely, the proportions of the total manufacturing product contributed by chemicals, rubber and petroleum derivatives, and by the metallurgical, metal-transforming and machining industries, have more than trebled, rising from 5 to 16 and 4 to 13 per cent, respectively. The share of other industries - while constituting a category too broad and heterogenous for significant conclusions to be drawn - has also substantially increased.

An examination of the industrial structure of Brazil suggests that such changes persist and are intensified at more advanced stages of industrial development. Here again there is a decrease, similar in its degree of intensity, in the relative importance of the food, beverages, tobacco, textiles and clothing industries, which in the aggregate represent only 37 per cent of the total manufacturing product. Most of this contraction seems to have been absorbed by a very marked expansion of the metallurgical and metal-transforming industries, whose share in the total amounts to 27 per cent; on the other hand, the proportion corresponding to chemicals, rubber and petroleum derivatives has tended to remain constant, although no doubt highly significant changes have taken place in the internal composition of this group of industries.

It is true that the structures compared here cannot fail to reflect, in addition to the degree of industrialization of the countries concerned, certain special characteristics of their development or of their available natural resources. But the trends noted are sufficiently marked to be accepted as broadly indicative of the long-term changes that took place during Latin America's industrialization process, and of its various phases. It is also worth while to point out that since the loss of relative importance suffered by specific branches of industry is in no case attributable to decreases in absolute levels of production, but to growth rates lower than those of more dynamic industries, the over-all rate of development of the industrial sector as a whole must have been quite high for such marked structural changes to have taken place within a reasonable space of time.

/From another

From another point of view, it is natural that the advances made in the industrialization process, and the changes in the structure of manufacturing output which accompany it, should also be very clearly reflected in the characteristics of industrial employment. These repercussions include not only the changes occurring in the absolute level of employment in manufacturing or in its relation to the total active population or to total urban employment, but also those that take place in the distribution of employment by branches of manufacturing activity, and particularly in its composition in terms of the distinctions usually drawn between employment in cottage industries, in artisan industry and in factories proper.8/

The contribution made by Latin American industry to the necessary absorption of manpower will be discussed in some detail at a later stage. All that is of immediate concern is to point out the long-term changes in the composition of manufacturing employment, in so far as they also help to define certain typical features of the evolution of the region's industrialization process.

It may be estimated that by 1925 the labour force absorbed by manufacturing activities in Latin America totalled about 4.5 million workers, of whom barely one-fourth could be regarded as employed in factories proper, while about 3.3 million were classifiable under the general head of employment in artisan industry.9/ Even at that date, marked differences were observable from one country to another. The proportion of factory employment was as high as 40 per cent in Argentina, and very close to that figure in Uruguay; about 30 per cent in Brazil, Chile, Cuba and Mexico; a little over 10 per cent in Colombia and Venezuela; and smaller in other countries.

The increase in the share of factory employment which by 1940, represented over 40 per cent of total employment in manufacturing industry, seems to have been accompanied by a rapid drop in cottage industries.

8/ These categories are described in Chapter II with reference to industrial establishments.

9/ Including employment in cottage industries and small establishments not registered in industrial statistics proper.

/During that

During that period, the process was particularly intensive in Brazil, Chile and Mexico, where factory employment succeeded in catching up with Argentina and Uruguay, so that in those five countries, as well as in Cuba, it came to account for about 50 per cent of total employment in industry. Proportions exceeding 20 per cent were also attained in Colombia, Venezuela, Costa Rica, El Salvador, Panama and the Dominican Republic, and in scarcely any of the countries of the region did the corresponding figure fall below 10 per cent.

The rate at which these changes in the structure of industrial employment took place slackened considerably during the forties, and throughout the post-war period as a whole, so that by 1950 factory employment still represented less than half the regional total, and in 1960 had only just reached 52 per cent. In the Latin American countries at more advanced stages of industrial development, the progress of industrialization since then has taken the form of the installation and expansion, on a priority basis, of manufacturing activities whose manpower absorption capacity is relatively small, while over against these the incidence of artisan employment is still substantial. Only in Argentina, Mexico and Uruguay did the proportion of factory employment proper come to exceed, in the last of the years mentioned, 60 per cent of total employment in industry, while it stood between 50 and 60 per cent in Brazil, Chile and Cuba. In contrast, the shift of relative emphasis from employment in artisan industry to factory employment has continued to take place fairly rapidly in the countries whose industrial development is of more recent date, particularly that of Venezuela. Thus, there is at present a wide variety of situations, which do not depend strictly upon the existing degree of industrialization, but also upon historical factors and on the period during which the industrial development effort has been most strenuous.

(c) Characterization of some phases of the process

If indicators relating to the proportional importance of the manufacturing sector's share in the national product as a whole, to the composition of industry by branches of manufacture, to the characteristics of industrial employment, and also, up to a point, to trends in the external sector are studied in conjunction, they evoke the image of a series of stages which

/have been

have been traversed by the various countries of the region, in different periods and at different rates, or upon which they are beginning to embark.

A preliminary stage, which might be described as the "pre-factory phase", is of little use today for reference purposes, since by this time practically all the Latin American countries have left it behind. It was the period when demand for manufactured goods - small in absolute volume, and under-diversified - was very largely satisfied by means of imports; local manufacturing activities were confined to cottage industries, thus determining the prevailing pattern of industrial employment. Nevertheless, even at that early date industrial establishments proper, engaged in the processing or simple transformation of primary export products, were consolidated in many countries of the region. Geared by their very nature to the world market, and often developed on the basis of direct foreign investment placed by those of the industrialized countries themselves that were interested in importing their products, they constituted islands, as it were, cut off from the rest of the internal economy as far as the distribution of their output and the supply of their inputs were concerned, with the result that they had few dynamic repercussions on other internal activities, except through very indirect channels (such as taxation, for example). The small nuclei of factory employment to which they gave rise, limited in size by the absorption of the most up-to-date contemporary technologies, although their dynamic effect was somewhat greater, also represented exceptions to the general rule in the national economies, and showed substantial differences in productivity.

The rise in income levels deriving from the expansion of exports, the rapid formation of large urban population nuclei, and in some instances the appearance of the first symptoms of devitalization in the external sector, paved the way for a new stage of the process, which chiefly took the form of development of the range of activities that are nowadays usually described as traditional industries. Basically, this meant that the primary food processing, tobacco and beverages industries were developed, together with the manufacture of textiles - particularly important from the standpoint of the absorption of technology and the concentration of big employment nuclei which really began to look like a typically industrial

/sector -, and

sector -, and the production of cement and other simple building materials, chemicals (simple preparations, compunds and distillations), and containers for pharmaceutical products (still largely based on imported raw materials), etc.

This phase is characterized by a sharp reduction in employment in cottage industries and the formation of sizable nuclei of factory employment proper, while at the same time employment in artisan industries and in establishments representative of small-scale industry likewise increases. Furthermore, the fact that the activities developed were generally of a relatively labour-intensive type had a favourable effect on the industrial sector's capacity to play a significant part in the provision of employment for the increment in the active population.

Broadly speaking, this is the phase that countries like Argentina, Brazil, Chile and Mexico went through before the thirties. Others, of which Colombia is perhaps a representative example, were not definitely launched upon it until the depression of the thirties, while in Central America, as well as in Venezuela, the decisive effort really dates only from the time of the Second World War.

The possibilities for the long-term maintenance of an industrial development more or less confined to activities of the type under discussion are limited. In the first place, their products are as a rule consumer goods in whose case the elasticity of demand - although its size also depends upon the income level - is low, so that demand for them tends to expand comparatively slowly, especially if the over-all development process does not involve significant changes in the direction of more progressive income distribution. Hence the rapid rates of growth recorded in various countries of the region could be kept up as long as the expansion of domestic production displaced a previous flow of imported supplies; but naturally the dynamic stimulus of import substitution tends to wear itself out, and in the more developed Latin American countries it has already done so in the group of industries under consideration. Moreover, substitution has its counterpart in increased import requirements in respect of the machinery and equipment and the raw materials and intermediate products

essential for the operation of these industries themselves, so that unless exports expand sufficiently fast, its own dynamics necessitate the extension of the process to new manufacturing activities.

Thus begins what may be regarded as a third stage in the industrialization process, characterized as a rule by the development of basic industries and of those manufacturing simple equipment. It is the phase of the expansion of steel-making, simple iron and steel transforming industries, the chemical industry (mainly inorganic products), oil refining, assembly of vehicles, and so forth. At the same time requirements are stepped up in respect of the assimilation of technology and the utilization of capital per unit of output or of employment. Since in the meanwhile technical progress also spreads to the "traditional" industries, there is a tendency for factory employment proper to increase and employment in artisan industry to decrease, at least in relative terms. As a result, in view of the technical characteristics of the new industries in course of development, the aggregate manpower absorption capacity of the manufacturing sector as a whole is weakened.

Alongside the needs that conduce to the inception of the new phase, there are also factors which have a much more obstructive effect than in relation to the traditional industries. Foremost among these is market size since in many cases the new lines of development are conditional upon minimum economic scales of production, below which unduly heavy sacrifices are entailed in terms of idle capacity, inefficiency and high production costs. Their higher capital-intensity makes it harder to assemble the necessary financial resources, and their greater measure of complexity entails more rapid assimilation of technological progress, while at the same time it increases the shortage of skilled labour, in an environment in which unskilled labour is plentiful.

Foreign investment and technical assistance, direct State promotion of new industries and intensive training programmes are partly overcoming some of these obstacles. But, particularly for countries with relatively small populations and narrow domestic markets, or for those with lower income levels in which increase in capital formation are harder to achieve,

the difficulties and disadvantages connected with economies of scale that are inherent in many industries of this type still subsist. Other obstacles stem from the absence of specific natural resources, especially ores and energy.

Perhaps the only Latin American country that has completed the phase under review is Brazil, where a broad market and plentiful natural resources (with the notable exception, so far, of petroleum) have coincided with a dynamic entrepreneurial class, systematic technical training efforts, and effective direct State promotion. A somewhat similar situation seems to prevail in Argentina and Mexico. In Mexico, moreover, especially favourable balance-of-payments trends have facilitated the maintenance of a comfortably adequate flow of imports of equipment and other goods essential for the expansion of the industrial base, while at the same time they have encouraged foreign capital to play a greater part in the country's industrial development. Chile, Colombia, Venezuela and Peru have made significant advances in this stage; but they have been encountering increasing difficulties as a result of the limitations imposed by the size of their respective national markets. For the same reason, the Central American countries have only just begun to give concrete form to their first major undertakings in these fields of manufacturing development, in so far as they have progressively improved their economic integration arrangements.

In recent years, Argentina and Brazil, and to some extent Mexico likewise, have had to push forward into a new phase of their industrialization process, mainly characterized by the promotion of new and more complex transforming industries, and the manufacture of equipment for them. Since the maintenance of the existing industrial base entails a great deal of renewal and expansion of equipment, as well as the use of intermediate products that require much more complex processing, further advances are called for in the development of the metal-transforming industries - including the production of motor-vehicles and spare parts - and of important branches of the basic chemical industries. Moreover, in the countries in question, it is only in these fields that import substitution can continue in the future if it is to be a potentially dynamic factor in the industrialization process, if not an imperative need stemming from the inadequacy of the external sector's growth.

/The progress

The progress that is still being made in this direction will probably once again bring about further changes in the characteristics of industrial employment, leading to a consolidation of factory employment proper and a decrease, in relative terms, in employment in artisan industry. In so far as the tempo of this process speeds up, the weaknesses of industry's manpower absorption capacity will be aggravated.

The foregoing problem is certainly not the only one liable to arise at this stage. Apart from the increasing capital density and more stringent technological demands of these new lines of industrial development, the countries mentioned are not exempt from the difficulties relating to economies of scale and the consequent need for specialization, even though their markets are the biggest in the region. Thus, in different phases and at different levels of industrialization, the limitations implicit in market size are a factor operating to a varying degree in practically all the Latin American countries today, with, perhaps, a very few temporary exceptions in cases where the development of industry has lagged behind.

These are, in very broad outline, the main phases characterizing the long-term evolution of industrial development in Latin America. Their analysis may be useful for the purpose of foreseeing some of the problems likely to arise in the subsequent phases of the process, and contributing to the formulation of a more appropriate industrialization policy.

It should not be assumed that history will automatically repeat itself, especially as regards those countries of the region which are nowadays passing through stages already traversed by other Latin American countries at more advanced levels of industrial development. Just as the latter have not followed the same development patterns as did the industrialized economies at an earlier date, the former will also have to adapt their subsequent evolution to new conditions and requirements. Venezuela is an interesting case in point, since there the traditional industries are making up leeway while at the same time new activities are being promoted - as, for instance under the Guianas project - which might well appear to belong to much more advanced stages of the industrialization process.

/3. Import

3. Import substitution

The rate and patterns of industrial development were largely determined by the behaviour of the external sector. Between 1929 and the last few years Latin America has been gradually transformed from a region exceptionally "open" to international trade to one in which the ratios between imports and the total domestic product are among the lowest in the world. Up to 1929, in the region as a whole, imports accounted for between 20 to 25 per cent of the total product, whereas in 1963 the corresponding coefficient was barely 10 per cent or thereabouts.

Import substitution thus represented, at one and the same time, an imperative requisite for the over-all development of the Latin American economies and one of the mainsprings of their industrialization process. As in the case of other factors, the degree of influence it exerted of course varied greatly from one individual Latin American country to another; this can be seen from the import coefficient trends shown in figure IV, which also presents the long-term trends followed by the volume of manufacturing output.

In some countries, the symptoms of growing weakness, and above all of instability, in the external sector made their appearance long before the depression of the thirties. For instance, after the rubber boom in 1906-12, Brazil found itself compelled to deflect its export trade towards coffee and cotton; Chile was forced to offset the decline in nitrate by means of its copper exports; and Mexico had to substitute hemp for cotton. The progressive shift of the dynamic centre of world trade from the United Kingdom to the United States, and the events that took place during the depression itself - including the establishment of the restrictive Smoot-Hawley tariff in the United States in 1930 and of the British Commonwealth Preference System, the abandonment of the gold standard and the reformulation of monetary policies - meant the breakdown of the whole of the classic pattern of world trade, with drastic consequences for many Latin American countries.

The effects produced in each individual case depended upon the levels of the import coefficients of the countries concerned, and upon how far they had developed an industrial base which might serve as a groundwork for

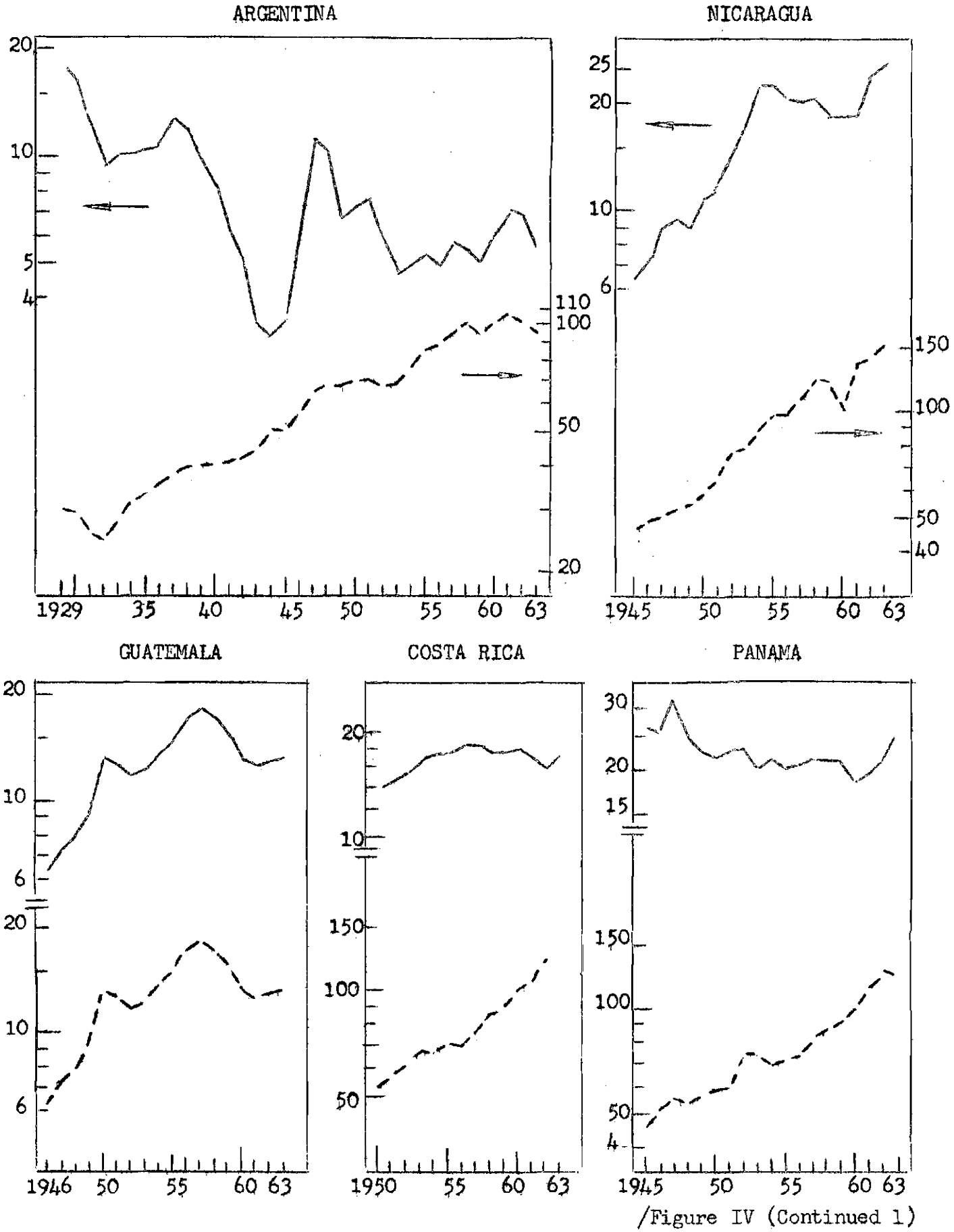
/Figure IV

Figure IV

LATIN AMERICA : IMPORT COEFFICIENT TRENDS AND THEIR RELATIONSHIP WITH MANUFACTURING OUTPUT TRENDS

Semi-logarithmic scale

——— Import coefficient + - - - Industrial output index

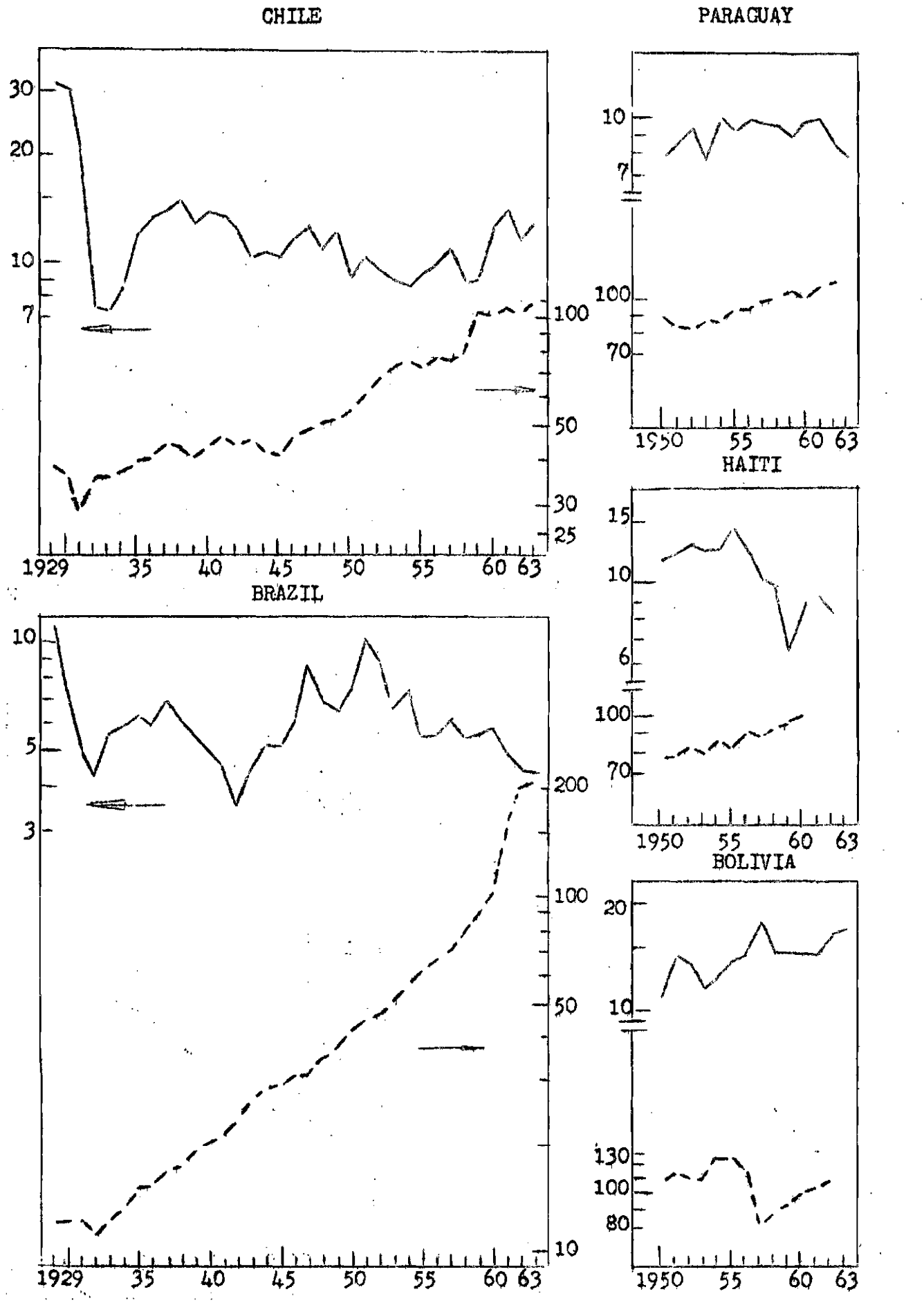


/Figure IV (Continued 1)

Figure IV

(Continued 1)

——— Import coefficient - - - - - Industrial output index



/Figure IV (Continued 2)

Figure IV

(Continued 2)

——— Import coefficient - - - - - Industrial output index

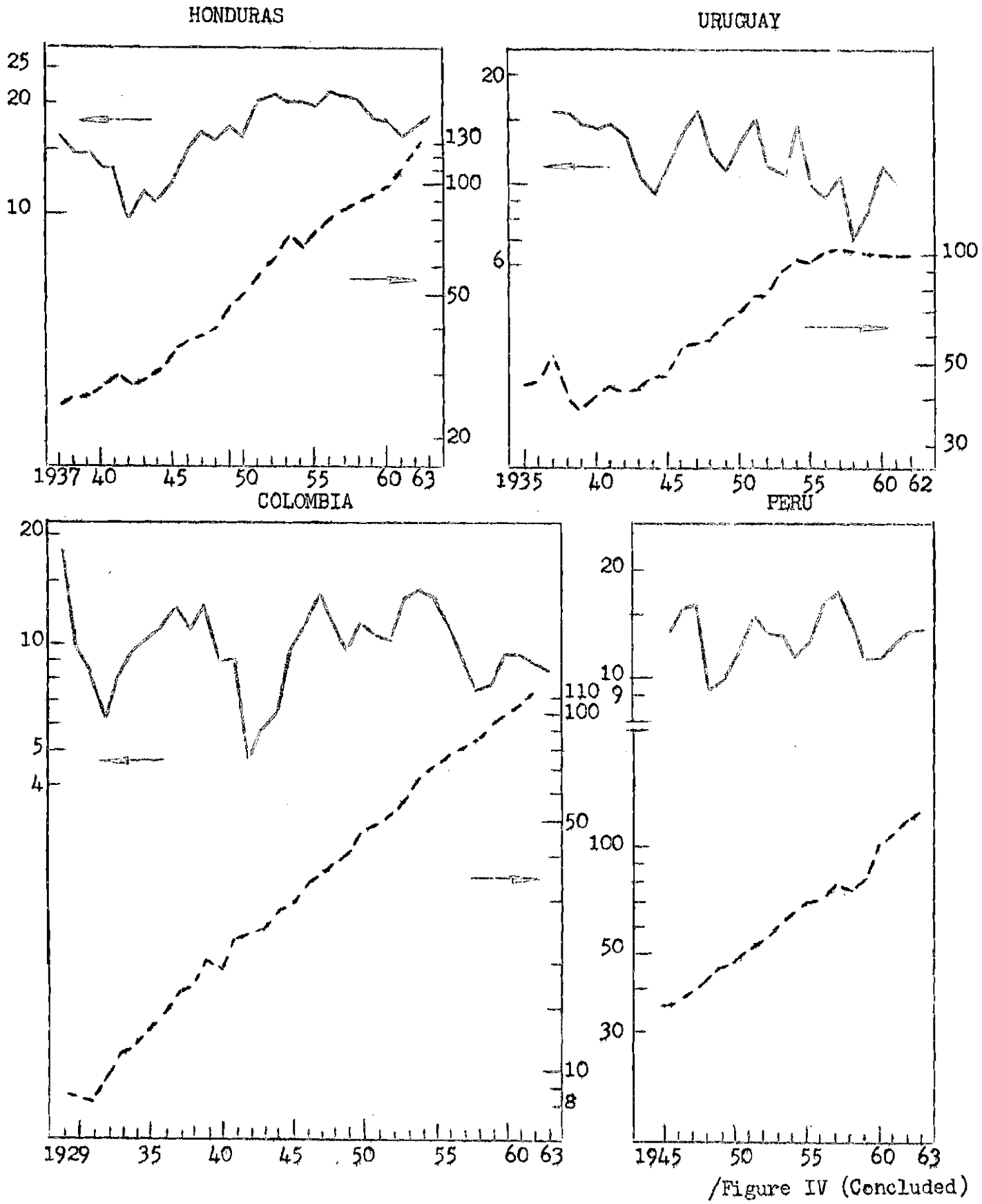


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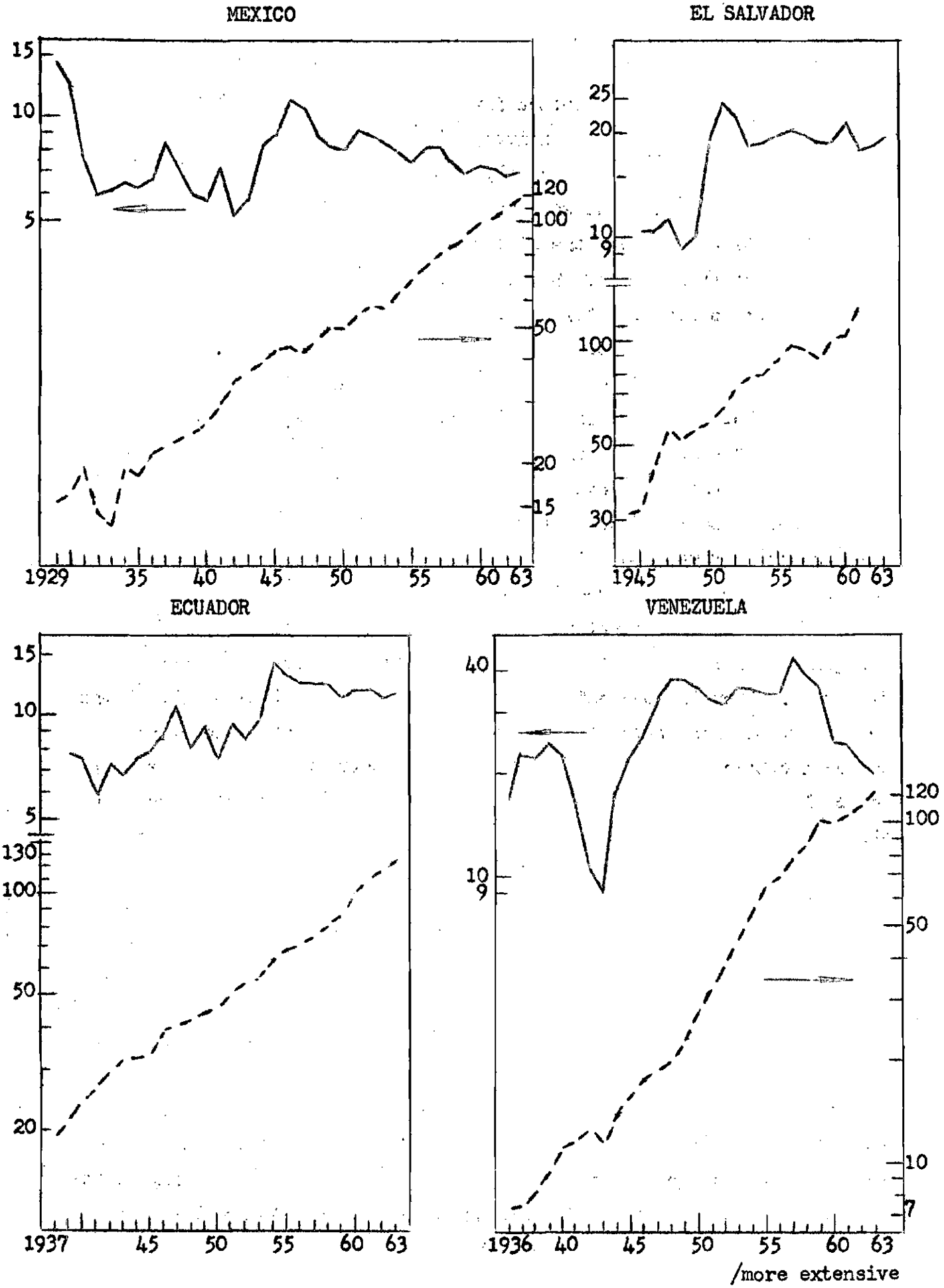
Figure IV
(Concluded)

—— Import coefficient - - - - Industrial output index



/more extensive

more extensive efforts to replace imports. Among those whose degree of industrialization had been relatively high even before the depression, Chile found itself in a particularly disadvantageous position, since in 1929 its import coefficient was one of the highest in Latin America and at the same time underwent one of the most severe contractions. Nor was the subsequent evolution of this coefficient favourable, for after a rapid recovery during the thirties, it continued to decline until the mid-fifties, and only since then has shown some improvement.

Argentina's import coefficient, too, was fairly high before the depression, but not equal to Chile's; and furthermore, its subsequent evolution - to some extent influenced by the nature of the country's staple export products, together with the fact that these products were partly used to satisfy internal demand - was quite as unfavourable as in Chile's case, or more so, with the result that nowadays Argentina shows one of the lowest import coefficients in the region.

Mexico's situation prior to the depression resembled that of the foregoing countries, but the trends subsequently pursued were very different. From the beginning of the thirties to the time of the Second World War, the aggregate import coefficient, rather than recovering, showed a continuing tendency to decline; in contrast, it rose sharply in the early years of the post-war period, and despite subsequent decreases still stands at a level higher than those registered in Argentina and Brazil. Furthermore, it must be remembered that Mexico's position differed from that of Argentina and Chile inasmuch as this evolution of the coefficient was accompanied by a much more rapid growth of the total product, which involved substantial increases in the absolute volume of imports, facilitated by the increasing diversification of Mexico's exports and by the income accruing from tourism, which represented a considerable contribution to the country's total capacity to import.

Brazil has come to be the Latin American country with the lowest over-all import coefficient, since the figures registered of late have dropped below the levels noted in Argentina. But the relative importance of the role played by Brazil's external sector in the national economy as a whole was never as great as in the other countries mentioned; the

import coefficient barely exceeded 10 per cent even in 1929, and was lower still in the peak years of the early fifties. As in the case of Mexico, this long-term decline in Brazil's over-all import coefficient does not imply that the absolute volume of imports followed a very unfavourable trend, since the rate of growth of the total product was relatively rapid.

These differences between individual cases stand out yet more clearly if the comparison is extended to other Latin American countries. Thus, for example, Colombia has become one of the Latin American countries with the lowest import coefficients, as a result of the decline that has taken place since the mid-fifties. Venezuela maintained very high coefficients between 1948 and 1957, comparable to those shown by other countries before the depression; since then, a sharp downward movement has been registered - partly attributable to the rapid growth of the total product - but the levels reached are still among the highest in the region. Despite marked fluctuations, Peru has succeeded in maintaining a relatively high coefficient, which at present is among the highest in South America. Among the Central American countries, Nicaragua has a particularly high coefficient, and so has Panama; Costa Rica, Honduras and El Salvador record medium coefficients, somewhat higher than that of the Dominican Republic; while that of Guatemala is relatively low, although still a good deal higher than Haiti's.[10/]

The range of different situations is thus sufficiently wide to make it difficult to generalize with respect to Latin America as a whole. Nevertheless, the dominant feature is a substantial long-term decline in over-all import coefficients; and furthermore, - a point of basic importance, particularly for the purposes of defining a future development strategy - the average coefficients registered today, and especially, therefore, the figures for some individual countries, have dropped to levels lower than those recorded in most of the other regions of the world.

10/ For a more detailed analysis of the evolution of imports and their relation to the total product since 1945, see The Economic Development of Latin America in the Post-War Period, op.cit.

Obviously, this dominant feature of Latin America's development during the past three decades necessarily exerted a powerful influence on the industrialization process, and the consequent import substitution requirements were bound to constitute one of the main dynamic factors motivating the expansion of domestic manufacturing production.

In five countries of the region - Argentina, Brazil, Chile, Colombia and Mexico - imports of manufactured goods amounted to about 3,300 million dollars in 1929,[11/] while the total product was approximately 23,000 million and the product generated in the industrial sector represented some 3,500 million. In 1960, the figures for the last two items were 71,300 million and 18,700 million dollars, respectively. To have kept up the same average import coefficient in the latter year would have called for a total volume of imports of manufactures equivalent to approximately 10,100 million dollars, a fact which, if related to the external purchases of manufactures, actually effected (4,600 million), implies import substitution to a value of about 5,500 million dollars.[12/] Meanwhile, between the same two dates the industrial product increased by 15,200 million dollars. From these illustrative calculations, therefore, it may be inferred that in the case of the five countries under consideration

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11/ These and the following data are expressed in terms of dollars with constant 1960 purchasing power. It will also be noted that whereas in earlier paragraphs reference has been made to total imports, only manufactured products are taken into account here; however, in view of the broad definition of the industrial sector usually adopted, which includes even primary processing of foodstuffs and other commodities, imports of non-manufactured goods work out at a fairly low level.

12/ The concept of import substitution itself gives room for various interpretations. It can be taken to mean either the equivalent of a decrease in the absolute volume of imports; or the difference between the potential import demand which would have existed if the import coefficient had remained constant, and the imports actually effected; or a similar difference, but in respect of a potential demand estimated on the assumption of a measure of elasticity - generally exceeding unity - of import demand in relation to the total product. For the purposes of the present hypothetical calculations, the second of these definitions of the concept is adopted.

about 36 per cent of the expansion of the industrial product was directly related to the import substitution incentive. Were Brazil excluded, the relation would rise to over 43 per cent, and if the comparison were confined to Argentina, Chile and Colombia, the increase attributable to substitution would exceed 50 per cent. If this conclusion were corroborated by a more detailed analysis, it would be of supreme interest in connexion with the evaluation of Latin America's industrial development prospects, especially in relation to those countries which are finding it increasingly difficult to continue their substitution process, either because it has reached a very advanced stage as far as the less complex types of imported manufactures are concerned, or because the over-all import coefficient has fallen by now to relatively low levels, or because the narrowness of the domestic market constitutes an obstacle to the development of new lines of manufacturing production for import substitution purposes.

Decisive as the import substitution incentive has been, figure IV does not always show sufficiently clear correlations between the long-term evolution of the import coefficient and that of the volume of domestic manufacturing output.

The implication is that the external sector has exerted a twofold and contradictory influence on industrial development. This latter is encouraged by a contraction in the external sector, inasmuch as import substitution requirements are intensified; but at the same time it is handicapped by the consequent restrictive effects on imports of the machinery, equipment and intermediate products essential for industrial expansion. A conclusion of this nature, which goes a long way towards accounting for the disparities in the response made by industry in the various countries to the import substituion incentive, was expressed in a recent analysis of Brazil's experience, in the following terms:[13/] "In fact, although restrictions in the external sector may be responsible for generating strains and disequilibria in some sectors of the economy, they

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13/ See "The growth and decline of import substitution in Brazil", Economic Bulletin for Latin America, Vol. IX, No. 1, March 1964, p.51.

constitute the spur to achieving the structural changes required by an import substitution process. The whole problem .... lies in the fact that the restrictions in absolute terms should not last too long, so that the economy can advance through successive stages of diversification. Thus the theory can be advanced that each period of increasing restrictions in the external sector should be followed by a period of relaxation to facilitate the transition to the next stage...

In Brazil, the behaviour of external conditions was of a cyclical nature that, generally speaking, followed such a pattern, although the trend was naturally towards a sharp reduction in the import coefficient."

Hitherto, the import substitution process has been viewed mainly from the angle of the decrease in the over-all import coefficient. By definition, substitution does not necessarily entail a contraction in the absolute volume of imports, but simply means that they increase more slowly than the total product. With few exceptions, this has been the general characteristic of the process in Latin America. But it is not merely that the growth of aggregate imports has lagged behind; concurrently, there have been radical changes in the composition of imports.

The basic trends represented by these changes can be easily deduced from an examination of the general characteristics of Latin America's industrial development and the various stages it has covered, as described in earlier paragraphs. Furthermore, the subject of changes in the structure of imports and their repercussions on internal economies has been discussed in detail in

/other studies.

other studies.[14] It will suffice here, therefore, to make certain brief supplementary comments which will shed some light on the nature and magnitude of the long-term changes that have taken place.

A useful comparison for this purpose is that presented in figure V, in which an attempt is made to illustrate certain typical relations between the composition of imports and the degree of industrialization, on the postulate that this latter can be identified with the share of manufacturing industry in the total product.[15]

Of course, there are many factors other than the degree of industrialization - including the volume and diversity of natural resources - which may exert an appreciable influence on the composition of imports. In

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14/ See, for example, the ECLA study on the economic development of Latin America in the post-war period, referred to above, which presents an analysis of this kind relating to 1948-60, and in which consideration is given not only to the evolution of the over-all import coefficient, but also to the relations between imports of consumer goods and total domestic consumption, imports of capital goods and fixed investment, and imports of raw materials, fuels and intermediate products and the total gross domestic product. At the same time, the countries of the region are grouped in four categories, according to specific characteristics of their development in the post-war period. The import coefficient for consumer goods shows a clearly marked downward trend, and reaches the lowest levels, with an average of slightly more than 3 per cent in recent years, of which more than two-thirds corresponds to durable consumer goods (including some types of motor-vehicles); moreover, while for some groups of countries it barely exceeds 2 per cent, in one category - comprising the Central American and Caribbean countries - it is even higher than 10 per cent. The relation between imports of capital goods and total fixed investment significantly decreased in certain groups of countries between 1948-49 and 1960, in particular because of the contraction in respect of building materials, but the average coefficient shown is still quite high, namely, a little over 25 per cent, the main components being imports of machinery and equipment. Lastly, in the region as a whole the coefficient of imports of raw materials, intermediate products and fuels, of which the last-named continue to represent a significant proportion, has followed a trend towards stabilization at levels fluctuating between 5 and 6 per cent of the gross domestic product.

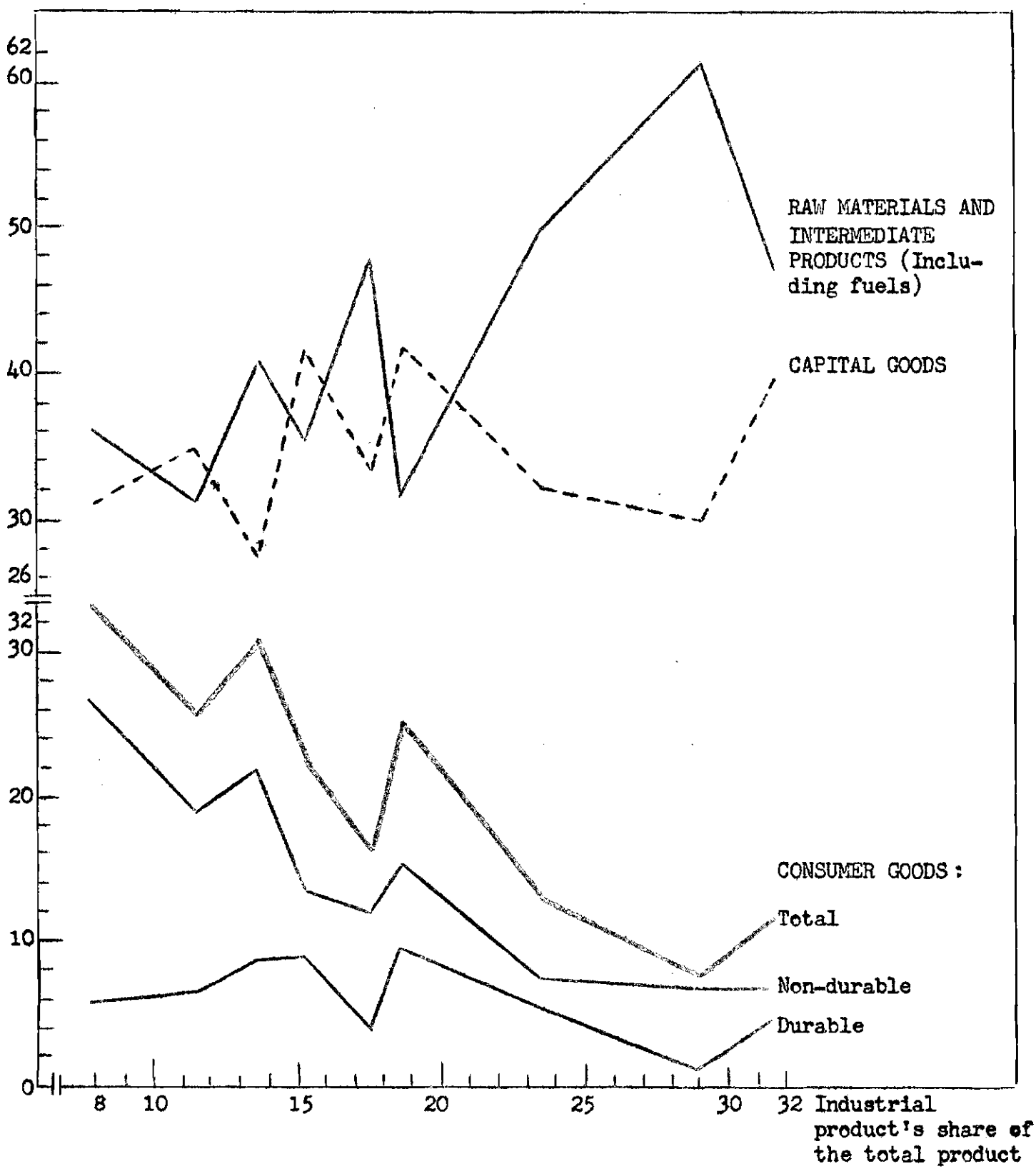
15/ The countries were selected, partly with the aim of covering margins that would include the widest possible diversity of situations with respect to levels of industrial development, although also on account of the restrictions imposed by the lack of basic data. Accordingly, for specific countries data relating to two different years are utilized (Chile, 1929 and 1963; Colombia, 1948 and 1962).

Figure V

LATIN AMERICA : SOME TYPICAL RELATIONS BETWEEN THE COMPOSITION OF IMPORTS AND THE MANUFACTURING INDUSTRY'S SHARE OF THE TOTAL PRODUCT

(Percentage of each group in total imports)

Natural scale



/these comparisons

these comparisons as a whole, however, clearly-defined trends are manifest. A first outstanding example is the rapid downward movement in the proportion of total imports represented by consumer goods, although in the end it seems to have settled at about 10 per cent. Until a certain degree of industrialization is attained, this decline is almost entirely attributable to import substitution in respect of non-durable consumer goods, while imports of consumer durables tend to maintain and even increase their share in total external purchases. But even before the import substitution process reaches saturation point in respect of non-durable consumer goods, it extends to consumer durables as well, and once a slightly more advanced level of industrial development has been reached, these latter are the only dynamic element in import substitution as far as consumer goods are concerned, the share of non-durables in aggregate imports remaining practically constant.

The behaviour pattern of imports of raw materials and intermediate products - which for the purposes of the present comparisons include fuels and lubricants - is entirely different. Although very marked fluctuations are observable, the general trend is towards a substantial increase in their participation in total imports, of which they ultimately absorb about 50 per cent. However, these figures are strongly influenced by the special situation of Brazil, whose imports of fuels are particularly heavy (accounting for a little over 18 per cent of total imports in 1962).

Lastly, the share of capital goods in aggregate imports also follows a behaviour pattern of its own. It increases during the first stages of industrial development, remains at a fairly constant figure in a second stage, (the proportion being distinctly high, in the neighbourhood of 40 per cent), and declines substantially during a third phase. As the replacement of capital goods by domestic production is largely linked to the expansion of the metal-transforming industries, which also produce the biggest range of durable consumer goods, it is not surprising that in this final stage the changes in the share of capital goods and in that of consumer durables keep markedly parallel.

/The variations

The variations in the structure of imports during different periods and in countries at different stages of industrial development suggest a rational graduation of the import substitution process. First come the simpler types of manufactured goods characterized by lower capital-intensity, smaller economic production scales and, in general, less exigent technological requirements; later, the process is extended to more complex lines of production, and headway is made in the manufacture of consumer durables, intermediate products and capital goods.

For a proper evaluation of the economic rationality of the process, however, a much more detailed analysis would be required than the consideration of such broad manufacturing categories permits. To begin with, while the behaviour of factors relating to scales of production, capital-intensity, requirements in respect of assimilation of technology, etc., can be roughly associated with the above-mentioned categories of manufactured goods, it is not absolutely consistent in each. In practice, import substitution in respect of a particular consumer good, especially if it is a consumer durable, may make severer demands with respect to investment and technical know-how than other alternative substitution possibilities in the field of capital goods or intermediate products. Again, the net effects of import substitution may be very slight, if it is confined to certain of the later stages of a manufacturing process of which a very high proportion is still based on imports of intermediate products and parts, as well as of the equipment needed to install and maintain the production capacity concerned. Such a situation has frequently arisen, for example, in the so-called packing and assembly industries. In these cases, apart from the fact that import substitution is more apparent than real, the external vulnerability of the economy concerned is aggravated rather than reduced, since even short-term fluctuations in the capacity to import not only affect the possibilities of importing specific final goods, but directly influence the tempo of internal activity. The point at issue is not the desirability of establishing industries initially based on a high proportion of specific raw materials and imported intermediate products, but the questionable advantages of allowing such

a situation to persist, since its usual outcome is that resources are dissipated over a wide range of products rather than used for the consolidation of other new ventures. This generates a sort of chain reaction, whereby substitution in respect of a given item immediately entails a new import requirement, which has to go on being satisfied until fresh restrictions on the capacity to import impel domestic industry to develop the line of production concerned.

It is likely that the expansion of the share of raw materials and intermediate products in total imports has not always been the result of deliberate selection, based on priority criteria dictated by the interests of the economy as a whole, but has been determined by factors of another sort, largely deriving from the patterns of the protectionist policy applied. The policy in question has, as a rule, tended to provide indiscriminate protection for finished goods in the aggregate, and particularly consumer goods. Preferential incentives have thus been given to a rapid diversification of manufacturing activity, mainly confined, however, to goods in the consumer categories. This procedure at the same time, has weakened efforts to move towards a higher degree of specialization and the ensuing improvement of productivity and efficiency.16/

16/ See Ruth Kelly, "Foreign trade of Argentina and Australia, 1930 to 1960: a comparative study". Economic Bulletin for Latin America, vol. X, N°1. The author stresses the differences between the general import substitution strategies practised in Australia and those characteristic of Latin America. Data cited by R.S. Gilbert in "Structural Trends in Australian Imports", The Economic Record, April 1959, are quoted to indicate that in Australia the process has been better balanced, with a greater degree of synchronization of import substitution in respect of the various categories of goods. This is reflected, for example, in a more moderate long-term decline in the proportion of imports represented by consumer goods, which, excluding motor-vehicles, accounted for 28 per cent in 1913, 24 per cent in 1928-30 and 18 per cent in 1954-58.

The extremely wide range of products usually processed in one and the same establishment, with a great variety of designs and specifications, and often with quite short production series, also bears eloquent testimony to this under-specialization. For the same reason, tariff duties designed to restrict luxury consumption of specific imported goods have in practice created powerful incentives to their domestic manufacture in conditions of dubious economic efficiency, with the result that neither are the social objectives implicit in the restriction of this type of consumption achieved, nor is its incidence on the balance of payments substantially lightened.

This is, of course, a fairly complex phenomenon, which is the main reason for one of the striking anomalies of industrialization in Latin America: on the one hand, certain institutional factors lead to a great lack of initiative in reinvesting industrial profits, which tend to be continually used in the same enterprise even where this means creating considerable surplus capacity that is not used; on the other hand, a number of factors encourage a rapid diversification in the industries producing consumer goods, at the expense of the consolidation and fruitful growth of lines already established. This aspect of the problem, that might be described as the choice between industrial development in breadth or in depth, has been dealt with in an earlier study in the following terms.[17/]

> "In development in depth, most of the annual reinvestment by entrepreneurs is made in their own enterprises, in the form of progressive modernization and consequent reduction in costs. The proportion of products manufactured in the country does not increase rapidly from year to year, but the efficiency of the existing activities does.
>
> In development in breadth, the most usual type in Latin American industry, profits are usually reinvested in new activities, the production of new items, which can replace those formerly imported,

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17/ Problemas y perspectivas del desarrollo industrial latinoamericano. (E/CN.12/664, April 1963).

while the existing activities remain at a standstill as regards average productivity. Development in breadth appears to offer more advantages to the private entrepreneur, because in new lines of production, at least for the first few years, competition is very limited and the producer may have a virtual monopoly, whereas reinvestment in the same field continually increases competition, and also because it is easier to establish a wholly new production unit than to keep modernizing and improving existing plants, where routine is strongly entrenched. However, widespread development in breadth tends to increase and perpetuate situations of monopoly or restricted competition, and the stagnation of traditional industries. This is apparently one reason why such industries in Latin America are now faced with an urgent need to renew the obsolete equipment they have accumulated, and why their levels of organizational and operational efficiency are so low".

Two related questions are of particular importance for a general evaluation of the substitution process. The first concerns certain additional analytical comments on the behaviour of imports of intermediate goods, and the second is a more detailed consideration of recent trends in import substitution that reveal a considerable weakening in this process.

Broadly speaking the substitution of intermediate goods is strongly affected by considerations of market size and economies of scale. Furthermore, a direct evaluation of market size (reflected in estimates of apparent consumption which, in turn, is determined by the sum of the domestic output and imports of the product concerned) often leads to a considerable under-estimation of the real scale of the supply requirements of intermediate goods. This is always so in the case of products involving concealed imports, in the form of imported inputs or components of the end product, which are thus not taken into account in the apparent consumption of the intermediate product as such. This problem does not, of course, arise in relation to end goods, and market evaluations for such goods are generally much more accurate, but the degree of under-estimation can be very substantial for intermediate goods, since the registered imports may represent only a fraction of the actual imports, which also include items imported in the form of intermediate goods incorporated in imported end goods.

/As soon

As soon as substitution begins to take in end goods, the higher level of imports needed for the intermediate goods becomes clear. But this means not only an increase in the imports of intermediate goods, but a change in the form of the imports: instead of their being imported as inputs in an end good, they are imported directly, and the concealed import becomes a registered import. This is no doubt one reason why import substitution, which concentrates mainly on end goods, leads to a rising proportion of intermediate goods in the total import schedule.

This situation is well illustrated by the steel industry, which typically supplies intermediate goods for a wide range of uses. Market estimates, usually based on estimates of apparent consumption, are often shown within a short period to lag far behind the actual demand, since the development of domestic production of steel products in the strict sense has been accompanied by considerable efforts to replace imports of end goods with a high content of steel inputs.

A comparison of the series for imports, production and apparent consumption of rolled and sheet steel in Brazil and Mexico, indicates that the expansion of domestic production goes far beyond the mere replacement of imports, and is accompanied by a striking increase in apparent consumption (see figure VI). This has led, in turn, to a belief that the steel industry has its own dynamic impulse, and that the mere fact of establishing and developing the industry is an essential factor in the broadening of the market. There is undoubtedly a considerable dynamic effect, in so far as import substitution is extended to additional types of end products, but the actual expansion of consumption of steel products in the strict sense is certainly much less than would appear to be indicated by the figures in question.

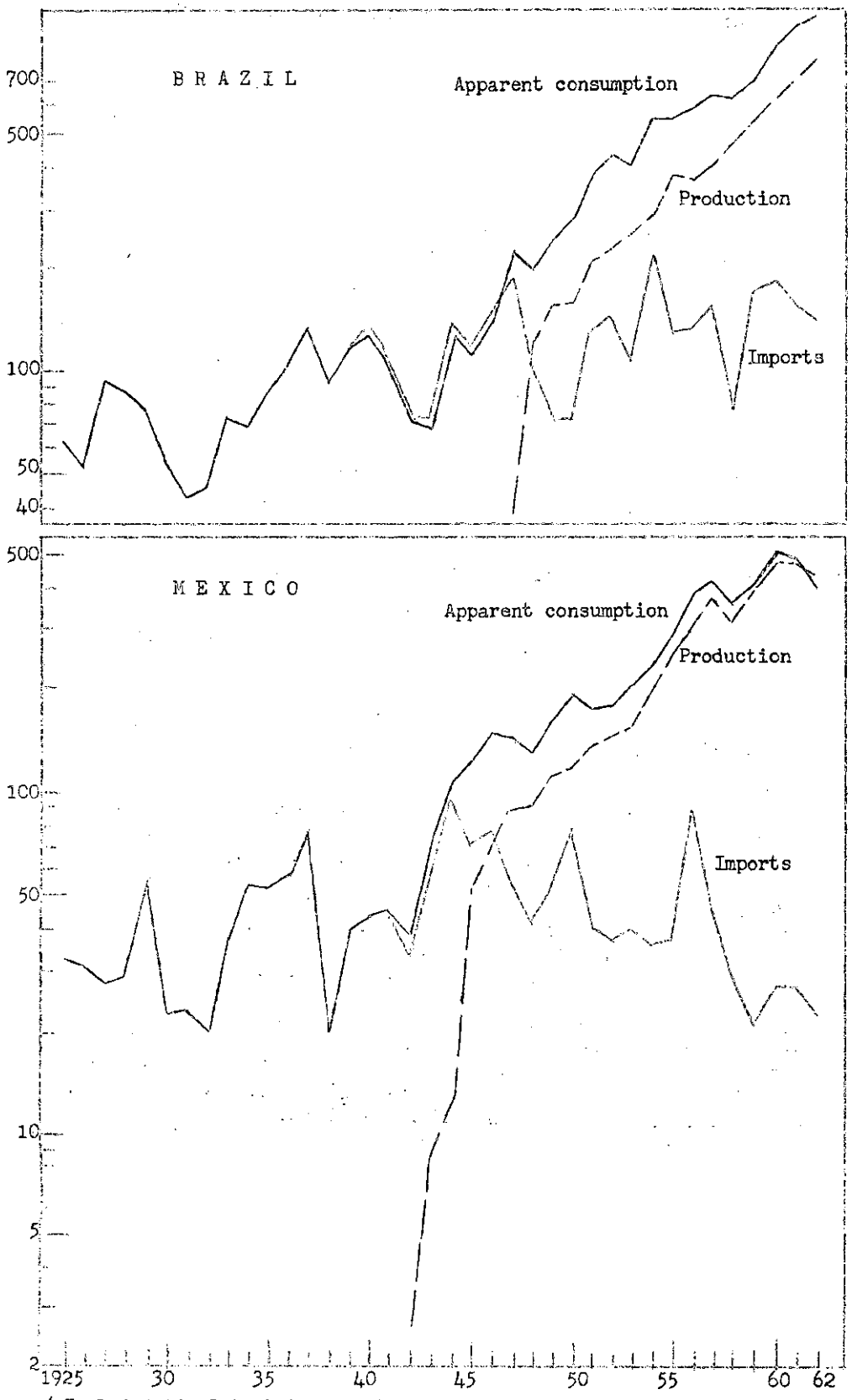
To illustrate these comments more exactly would mean entering into a very detailed analysis of the structure of imports. Despite the approximations involved, an illustration is provided by the estimate of imports into Brazil in 1947, when import substitution in respect of rolled and sheet steel had just begun. Direct imports of these actual items alone indicated a Brazilian market fro rolled and sheet steel (including tinplate but not tuber) of about 190,000 tons a year, and in fact there were imports of 188,700 tons, plus the small initial output

Figure VI

BRAZIL AND MEXICO : APPARENT CONSUMPTION
OF ROLLED AND SHEET STEEL a/

(Thousands of tons)

Semi-logarithmic scale



a/ Included tinplate but not tubes

/of the

of the domestic industry. But detailed examination of each item of imports in this category shows that in the same year rolled and sheet steel imported indirectly in the form of inputs or components of end goods represented a volume of the order of 192,000 tons.[18/] In other words, real imports were double the imports registered for these products as such, and consequently apparent consumption calculated according to the usual method amounted to only about half the real consumption of rolled and sheet steel.

These comments, which could probably be applied to many other categories of intermediate goods, especially in the chemical industry, throw some light on the interdependence of the import substitution of final and intermediate manufactured goods, and help to explain the increasing share of intermediate goods in the composition of Latin American exports. They also make possible a sounder approach to the problem of extending import substitution to intermediate goods, in the light of the greater importance in this field of market size and economies of scale.

These considerations become more significant when they are related to the second point referred to above: the weakening of the import substitution process in recent times. There is no doubt that the long-term trend towards a sharp reduction in the total import coefficient has been less widespread in recent times. Thus, for example, the decline from 9.6 to 8.1 per cent, between the second half of the fifties and 1963 was due mainly to the reductions in the coefficients for Brazil and Venezuela, and to a lesser extent also for Mexico. On the other hand, there were no

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18/ This figure covers about 12,000 tons of containers imported as such, about 26,000 tons of metal containers filled with a wide range of imported goods (canned goods, chemical products, etc.), and over 150,000 tons of rolled and sheet steel in the form of components or inputs in final goods covering a range of about 200 tariff items, without including in this estimate imports of tubes, which amounted to over 50,000 tons. It should be noted that these are somewhat rough estimates, put forward only by way of illustration. They were calculated by applying to the net weight of each import item an approximate coefficient for the content of rolled and sheet steel per unit of weight. These coefficients in turn, were estimated on a rather arbitrary basis, except for some of the most important cases, which were calculated on the basis of the study Primera Matrice Siderúrgica Italiana, Strumento di Pianificazione del Settore, Società Finanziaria Siderurgica dall'Istituto di Ricerche Gestionali e di Mercato, Rome, 1962.

significant changes in the coefficients for Argentina, Costa Rica, Ecuador, El Salvador, Peru and Uruguay, and in some countries there were substantial increases (Bolivia, Chile, Nicaragua and Panama). In the countries, other than Venezuela, that still have fairly high coefficients, namely, Guatemala, Honduras and Paraguay, the reduction in the coefficient was only moderate.

In many cases the return of the import coefficient to former levels, or at any rate the slackening off in its decline, had already begun before the second half of the fifties. Furthermore, the improvement cannot always be attributed to particularly favourable behaviour by the external sector, in view of the difference between import and export trends, and the increasing contribution of capital flows to the financing of current deficits on the balance of payments.

These changes in the general import coefficient were accompanied by a weakening in the rising trend of the share of manufacturing in the total product. Between the second half of the fifties and 1963 there was an appreciable increase in this share only in Brazil; it also increased, to a lesser extent, in Colombia, Honduras, Mexico, Nicaragua, Peru and Venezuela, whereas in most of the other Latin American countries it either declined or remained at more or less the same level.

These facts lead to the conclusion that with few exceptions import substitution has slackened considerably, and that the end of one stage has been reached, at least as regards the patterns typical until now. If this is the case, Latin American industrialization must seek new stimuli, since up to now import substitution has been one of the basic dynamic factors. Moreover, it is a striking fact that this situation has not arisen solely, or even mainly, in the Latin American countries where substitution has been taken furthest and the import coefficients are the lowest in the region; it also exists in countries where substitution is at an intermediate stage, and even in those where import coefficients have remained relatively high. In the last group the limitations imposed by market size may be sufficiently stringent to constitute an obstacle even at a stage when the scale and structure of imports seems to leave open a vast range of substitution opportunities.

/4. Employment

4. Employment targets and industry's contribution

Latin America's population has expanded rapidly, especially in urban areas. Since this expansion has been accompanied by a progressive decline in the contribution of agricultural employment to the total labour force, other economic sectors, have a responsibility for providing productive employment to the growing population of working age. Thus employment requirements have been another reason why industrialization is an inescapable need, from the standpoint of Latin America's development. Consequently a comparison of the facts of the employment problem with trends in manufacturing employment provides an objective basis for an evaluation of the vigour of Latin American industrialization, and how far the region's industrial development has met the basic requirements deriving from the special characteristics of the Latin American economies.

In making such a comparison, it should be borne in mind that the question of industry's capacity to absorb manpower is a controversial topic. On the one hand, it is argued that industrial development should aim at acquiring as many advanced techniques as possible in order to raise manpower output in manufacture to peak levels. Industry would thus be contributing very little to manpower absorption, and the slack would have to be taken up by other branches of the economy, since an industry with a high level of output and a high investment figure per person employed might provide enough of a surplus to constitute a powerful incentive to over-all economic development. The other argument is that the employment problem is sufficiently serious to require a solution to which every branch of the economy, including industry, must contribute by determining how far it is economically feasible for them to absorb manpower. The economic criteria on which resource allocation and technical decisions are based must take into account the relative supply of capital and manpower in the economy concerned.

This is not the place for a detailed study of the controversy, although some background data may be provided as an illustration of the specific trends being followed in Latin America. Moreover, a few structural characteristics of employment in the region will be compared with those prevailing in the industrialized economies. This implies taking as a frame of reference situations in which advantage has been taken of the opportunities afforded by modern technology.

/A few

A few figures suffice to illustrate the magnitude of the problem within the context of Latin American development. For example, it is estimated that by 1925 the economically active population of Latin America was about 32 million, while in 1960 it had reached about 68 million; in other words, after thirty-five years the region's labour force increased by about 36 million. In the United States an increase on a similar scale took place between 1900 and 1960, that is, it took sixty years.

In addition to this increase in its labour force, Latin America also experienced profound changes in the structure of employment, mainly due to a sharp decline in the share of agricultural employment. Between 1925 and 1960 the labour force engaged in agriculture increased from nearly 20 million to 32 million, which meant that its share of total employment fell from over 60 per cent to less than 48 per cent. Consequently non-agricultural employment had to expand almost three-fold, from 12.5 million in 1925 to nearly 36 million in 1960, whereas agricultural employment increased only by just over 50 per cent.

From the qualitative standpoint these are normal trends in a development process, in accordance with the past experience of the more advanced economies, where these changes in the structure of employment have gone even further. What is not normal is the speed with which these changes have had to take place in Latin America, particularly in view of the growth factors that have determined them. Thus, for example, a change of similar magnitude in the share of agricultural employment took place in Italy between 1881 and 1936, that is, the process took more than half a century (the reduction was from 57 to 48 per cent).[19/] In addition, in Italy, as in other industrialized economies, the reduction in agriculture's share of employment was an induced phenomenon resulting from the growing demand for labour in urban activities. Technical progress, associated mainly with the reduction in the volume of work required per unit of output, is also largely a response to an increasing shortage of labour, both in urban activities and in agriculture itself.

19/ See International Labour Office, The World's Working Population, (Geneva, May 1956), Volume III, N° 5.

/Conditions have

Conditions have been quite different in Latin America. In general emigration from agriculture has not waited upon the consolidation of urban demand for labour, but has been determined by more autonomous factors, as shown by the high urbanization indexes in relation to the income levels concerned, and the proliferation of "marginal" population groups, without any steady employment, in the main urban centres of Latin America. Technical progress, moreover, has not been the fruit of local effort, but has been merely transplanted from the more advanced economies, where it developed out of local conditions, so that it bears the impress of those conditions.

The ratio between agricultural and non-agricultural employment is naturally affected by various important factors relating to the general level of development or industrialization, and differences in natural resources. For the purpose of analyzing manufacturing employment, therefore, it is preferable to leave aside the question of the general structure of employment, and confine attention to matters relating to urban activities. In this connexion it should be noted that past experience in the more advanced economies has pointed to two basic features: a relatively high percentage of industrial employment in urban employment, and a rather steady persistence of this percentage even over long periods. Thus, for example, it has been shown[20/] that the percentage in the United Kingdom in 1951 (51.9 per cent) was practically the same as in 1901 (51.1 per cent); in Italy, after a slight decline during the twenties, the percentage remained little below that for the beginning of the century (59.5 per cent in 1901, 56.6 per cent in 1939 and 53.5 per cent in 1954); in Australia it remained almost the same between 1911 and 1947 (45.8 per cent and 45.5 per cent, respectively), and the same is true of Sweden (51.4 per cent in 1910 and 51.7 per cent in 1950); France (51.4 per cent in 1881 and 51.3 per cent in 1954) and other countries. In the United States the percentage has been lower, but has also shown very little tendency to decline over the long term (47 per cent in 1870, 44 per cent in 1900, 45.4 per cent in 1920 and 42.3 per cent in 1950).

20/ Ibid.

The situation has been quite different in Latin America, in relation both to the share of industrial employment in all urban employment, and to the long-term trend of the ratio.[21] The highest percentages reached in Latin America have in fact been much lower than those in the other economies referred to were either in recent times or at much earlier stages of their economic development. Furthermore, over the long-term the share of manufacturing employment in all non-agricultural employment for the region as a whole has followed a notably declining trend, which has been particularly marked throughout the post-war period.

These trends are clearly shown in Figure VII, which shows that the decline took place not only in Latin America as a whole, but also in each separate country. For the region as a whole the difference between 1925 and 1960 was significant; the percentage of industrial employment in non-agricultural employment fell from 35.4 per cent to only 27.1 per cent, which means that manufacturing was able to absorb only slightly over 5 million out of the 23 million persons added to the urban labour force during this period.

From a broader standpoint, a comparison of the contribution of various sectors to the growth of Latin America's active population between 1925 and 1960 is provided by the following estimates:

	Millions of persons
Increase in total employment	35.7
Increase in agricultural employment	12.2
Increase in non-agricultural employment	23.5
Increase in industrial employment	5.3
Increase in employment in other urban activities	18.2

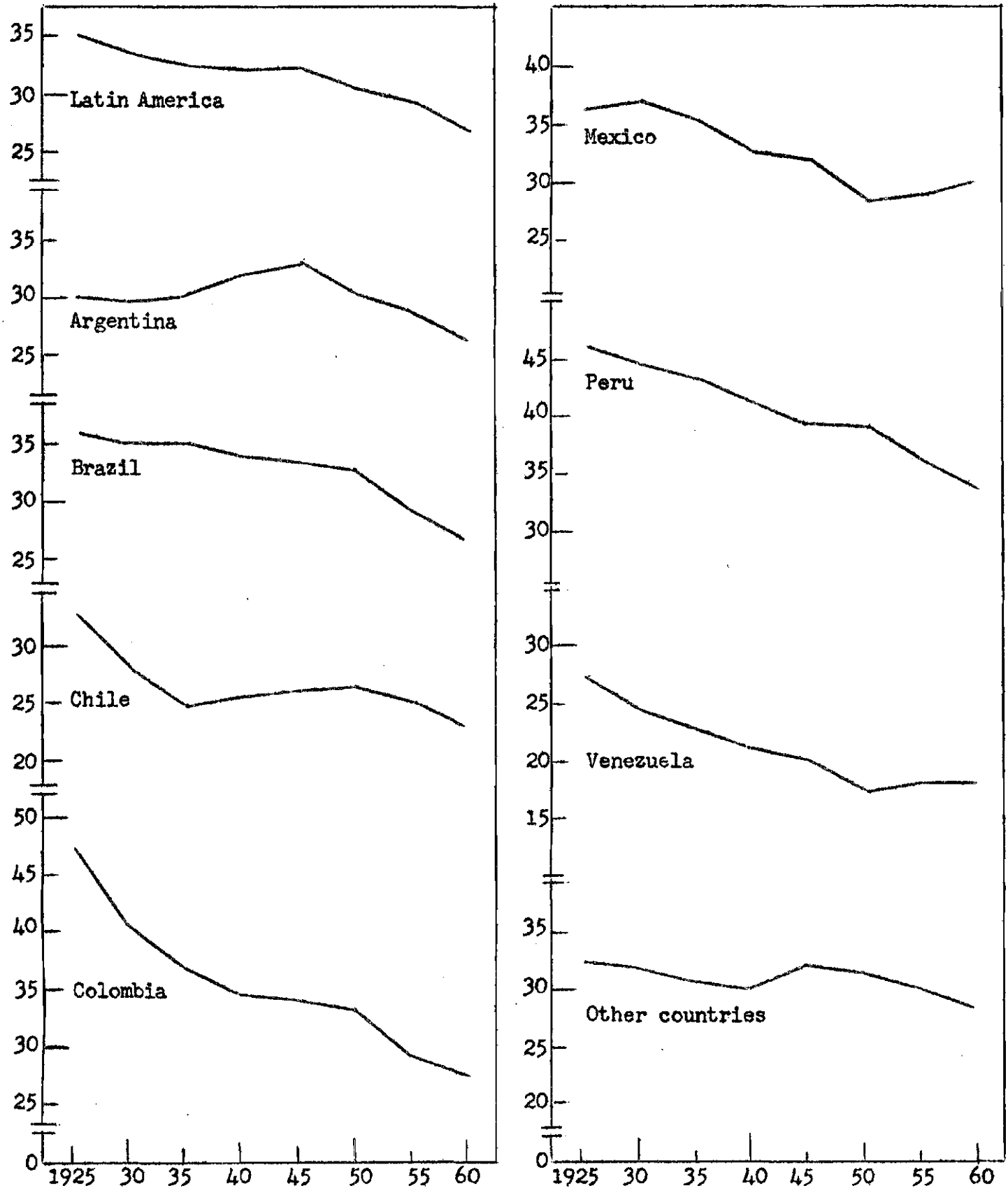
21/ The percentages previously referred to and those given below for Latin America are not strictly comparable, since the first refer to total industrial employment, including mining, construction and the provision of such services as electric power, whereas the Latin American figures relate only to employment in manufacturing. The conclusions reached as regards the absolute percentages are based on estimates prepared from incomplete data which indicate that in the economies listed employment in manufacturing alone represented about 75 or 80 per cent of industrial employment in the broader sense.

/Figure VII

Figure VII

LATIN AMERICA : SHARE OF MANUFACTURING EMPLOYMENT
IN TOTAL NON-AGRICULTURAL EMPLOYMENT

(Percentages)
Natural scale



/In absolute

In absolute terms the absorption of labour in manufacturing therefore represented only slightly over one-seventh of the increase in total employment (including a percentage of disguised unemployment), and between one-fourth and one-fifth of the increase in the active urban population.

If, as in other economies, Latin America's industry had maintained its share of urban employment over the long-term, the total employed in industry in recent times would have been about 12.8 million, instead of the 10 million so employed. Furthermore, this would have represented only the maintaining of a percentage which was already comparatively low. If the percentage had been similar to those existing at the beginning of this century in France, the United Kingdom, Italy and Sweden, the total number employed in Latin American industry by 1960 would have been about 15 million, that is, 50 per cent more than were in fact so employed at that date.

These figures are already sufficiently significant to indicate that one of the outstanding features of industrialization in Latin America is a marked failure to contribute sufficient employment to permit the absorption of the rapidly growing labour force. This is a fact that has far-reaching consequences for the Latin American economies, where the employment problem has been an overriding concern.

Another fact worth mentioning is the speed with which the share of industrial employment in total non-agricultural employment has fallen in certain countries. The most striking example is Colombia, where the percentage fell from nearly 48 in 1929 to about 28 in 1960; in Chile it fell from 33 to 23 per cent, and in Venezuela, where, moreover, the percentage is one of the lowest, the decline was also very marked, from 27.5 to 18.1 per cent in the same period (see again Figure VII).

It is also noteworthy that neither the earlier figures nor those for recent years reveal any definite ratio between the coefficient for industrial employment (in relation to all urban employment) and the level of industrialization. Thus, for example, there is very little difference between the employment coefficients for Argentina and Colombia, although in Argentina the contribution of industrial output to the total domestic product is nearly twice what it is in Colombia. This makes it essential to enter into the internal structure of industrial employment, and in

/particular into

particular into its composition in terms of what might be called artisan employment[22/] as against manufacturing employment strictly speaking in the sense of factory employment.

The estimates shown in Figure VIII illustrate the composition and trends of industrial employment considered from this standpoint, for Latin America as a whole and for selected individual countries. The figure indicated that up to 1925 there was a great variety of situations reflecting a wide range of percentages for the contribution of factory employment to all industrial employment, from less than 7 per cent for Peru to over 40 per cent for Argentina. The percentages for Colombia (10.7 per cent) and Venezuela (14.3 per cent) were also very low, and those for Brazil, Chile and Mexico (about 30 per cent) relatively high.

These sharp differences were greatly modified during the course of the subsequent industrialization. For Latin America as a whole the share of factory employment in all manufacturing employment nearly doubled (from 25.7 to 52.3 per cent); in absolute terms this represented an increase of about 4 million in the number employed in factories (from 1.1 to 5.1 million), whereas the number in artisan employment increased by only 1.3 million (from 3.3 to 4.6 million). But in addition this trend was much more marked in those countries where the share of factory employment was particularly low at the beginning of the period, so that industrial employment in the various countries became much more homogenous in structure in recent years. In other words, most of the industrial growth of the past thirty-five years was through expansion of factory activities, and very little through expansion of artisan activities, and this trend seems to have been wholly unrelated to the level of industrial development in the various countries.

There is no doubt that this relative reduction in artisan employment as against factory employment is one of the factors most responsible for the failure of Latin American manufacturing as a whole to absorb much of the increase in the labour force. Its effect can be better appreciated

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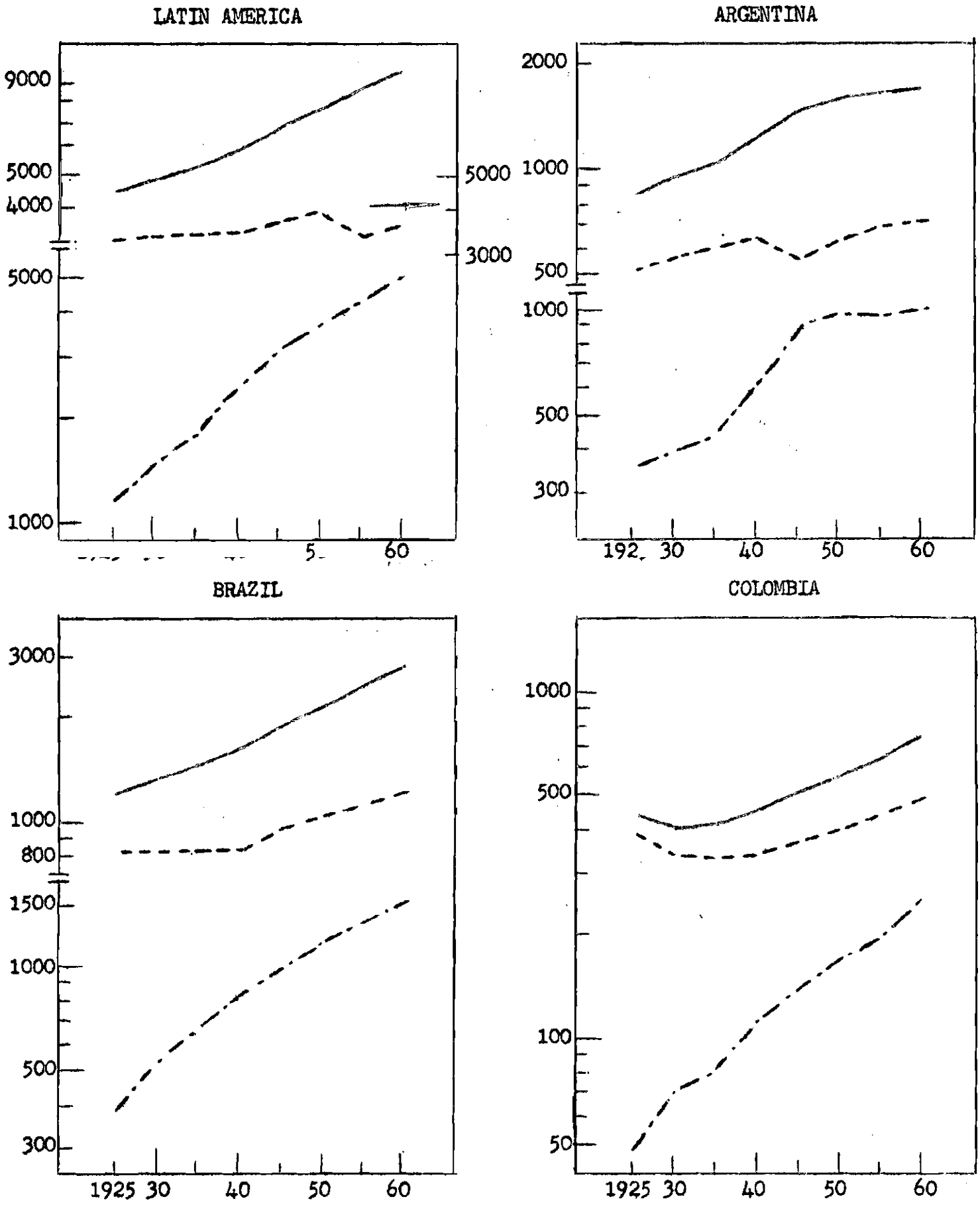
22/ In addition to what is strictly the artisan type of employment, this includes cottage industries, that is to say all non-factory employment.

Figure VIII

LATIN AMERICA : COMPOSITION AND TREND OF INDUSTRIAL EMPLOYMENT

(Thousands of persons)
Semi-logarithmic scale

—— Industrial employment – – – Artesan employment – · – Factory employment

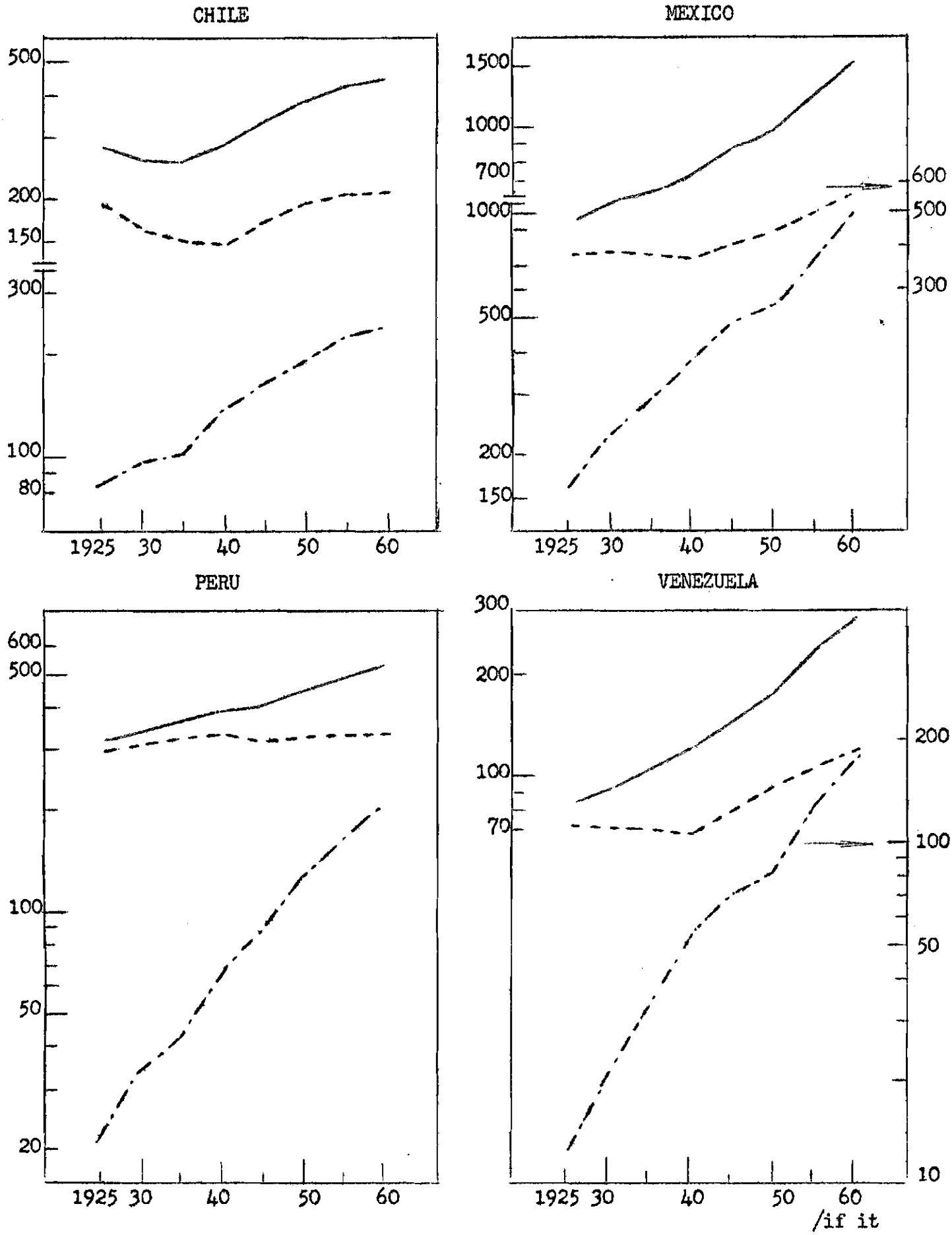


/Figure VIII (Concluded)

Figure VIII

(Concluded)

—— Industrial employment – – –Artesan employment — · — Factory employment



/if it

if it is recalled that the productivity (in terms of the product generated per person employed) in these two categories of activity, differs greatly, the ratio of artisan to factory productivity being estimated as about 1 to 7 or 1 to 8.[23/] In other words, one person employed in the factory sector can usually generate the same product, and therefore replace, about eight persons employed in the artisan sector.

It is likely that estimates of this type, for recent periods and for countries that may not be sufficiently representative, do not apply to the region as a whole and to situations in the past. But even if more moderate estimates are accepted - for example ratios between artisan and factory productivity of 1 to 5 in the manufacturing sector - several hypothetical calculations are needed to illustrate the magnitude of the problem. Thus, for example, it should be noted that if these changes in the structure of industrial employment had not taken place, that is to say if there had not been a shift from artisan to factory industry, an equal growth in the manufacturing product between 1925 and 1960 would have required an additional labour force in the region of 5 million. Even so, the total number employed in manufacturing would have represented only 40 per cent of all urban employment.

Needless to say, these hypothetical figures in no way imply any judgement as to the desirability of maintaining the structure of industrial employment unchanged, since this would in fact mean that no real development was taking place as modern industry cannot adopt artisan methods. The sole aim of the calculation is to show how the manpower absorption problem in Latin American industrialization has been met by the manufacturing sector itself, through the relative replacement of artisan by factory

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23/ In Colombia, for example, the product per person employed in manufacturing as a whole amounted in 1950 to about 4,000 pesos (1958), which represented 9,500 pesos in the factory sector and only 1,400 in the artisan sector. In 1960 the corresponding figures (also in 1958 pesos) were 5,200 pesos, 12,400 pesos and 1,600 pesos, respectively. In Peru the industrial product per person employed in industry in 1955 was about 9,000 soles a year, based on figures of the order of 28,000 soles in the factory sector and only slightly over 4,300 soles in the artisan sector. See Part II, on industry, of the Colombian development plan Plan General de Desarrollo Económico y Social, and The industrial development of Peru (United Nations publication, Sales N° 59.II.G.2).

employment, with much higher levels of productivity. It is also important to note this point because the artisan sector, as a source of additional manpower to be absorbed, is far from being exhausted. In fact its absolute volume today is nearly as large as the factory sector itself, and consequently the effects of the internal replacement will continue for a long time, restricting the industrial sector's capacity to absorb its proper share of the addition to the total active population.

From another standpoint, it can apparently be concluded that the speed of the absorption of artisan by factory employment is not closely related to the type of industry being developed, but relates rather to the rate of absorption of technology and of capital formation in the industrial sector. This explains the increasing homogeneity, among Latin American countries at very different levels of industrialization, of the coefficients for the share of factory employment in all manufacturing employment. Venezuela is perhaps one of the best examples, although somewhat extreme: in the absence of any long artisan tradition, and with stimuli to industrialization that did not become vigorous until recent times, it has rapidly built up an employment structure in manufacturing in which factory employment predominates. Of the increase of 211,000 in industrial employment between 1925 and 1960, only 46,000 could be classified as in the artisan sector, as against 78 per cent in the factory sector. At the same time Venezuela has both one of the lowest percentages of manufacturing employment out of total urban employment (18.1 per cent in 1960, as against the Latin American average of 27 per cent), and one of the highest percentages of factory employment out of all industrial employment (60 per cent in 1960, as against the Latin American average of 52 per cent).

These changes in the internal structure of manufacturing employment to some extent obscure the trends in the share of factory employment in total non-agricultural employment, and consequently the behaviour of manpower absorption capacity in industry proper (see Figure IX).

This figure shows a clearly rising trend over the long-term in the coefficients concerned, both for Latin America as a whole and for each country individually. But at the same time it can be seen that there are considerable variations in this trend, and different lines of behaviour in

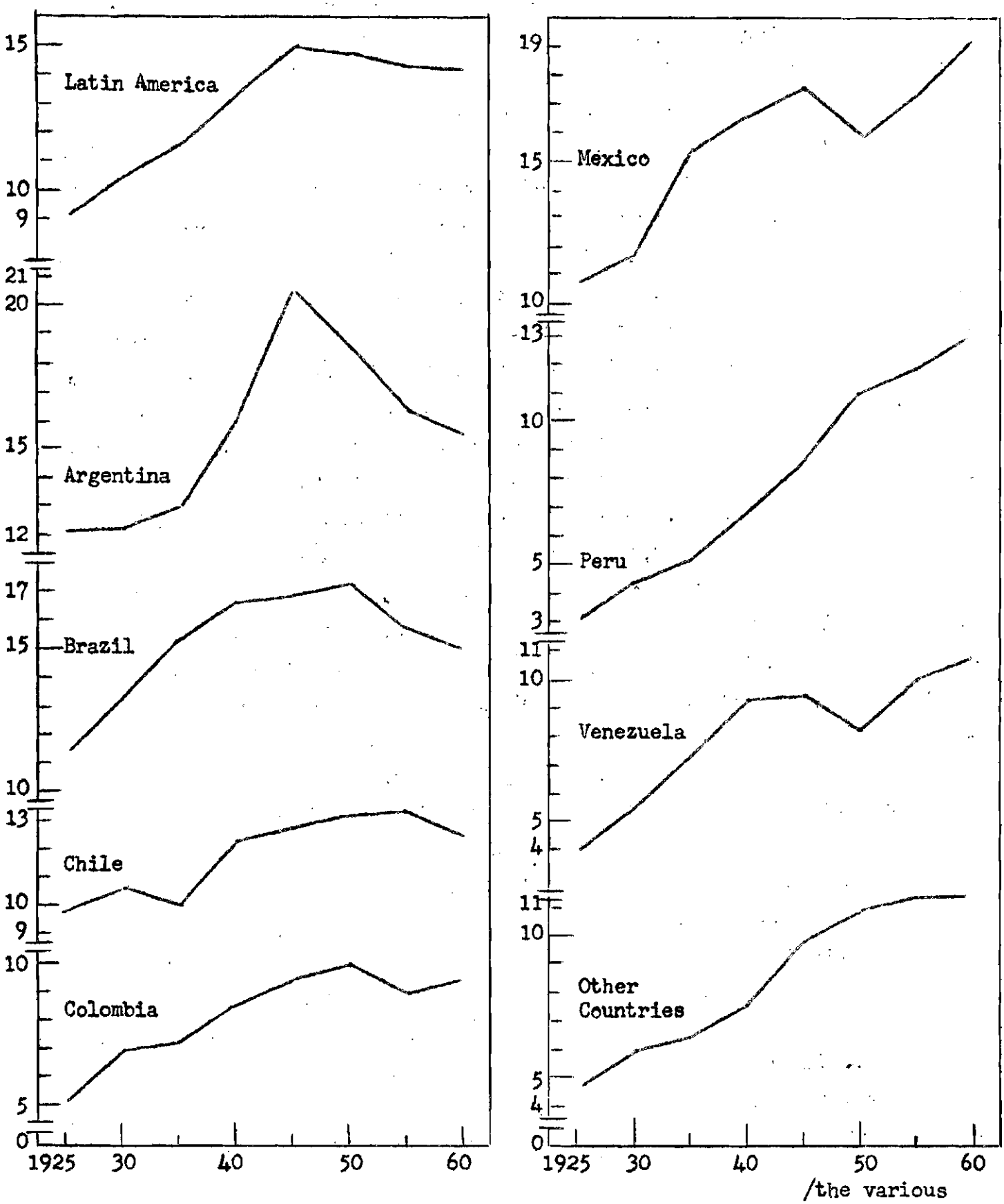
/Figure IX

Figure IX

LATIN AMERICA : SHARE OF FACTORY EMPLOYMENT
IN TOTAL URBAN EMPLOYMENT

(Percentages)

Natural scale



/the various

the various countries, that can be associated with the different stages of industrial development passed through. For Latin America as a whole, the share of factory employment in all urban employment increased rapidly between 1925 and 1945, but since then it has remained the same, or even shown a tendency to decrease. Argentina, and to a lesser extent Brazil, had a sharper decline after 1945, whereas the coefficients for Chile and Colombia remained stationary; in Peru and Venezuela they continued to rise, although much less sharply than in previous decades, while in Mexico the coefficients followed an irregular course.

Thus it is not only the manufacturing sector as a whole that has failed to make a sufficient contribution in absorbing the increase in the active urban population; it is also the factory branch of manufacturing. However, the taking over of artisan employment alone, although it had a considerable effect, is not sufficient to explain the whole of this failure. The comparisons in the last paragraph suggest that another widely recognized factor had an undeniable effect, namely, the changes in the structure of manufacturing production, where there was, with important exceptions, a considerable relative increase in capital-intensive industries, at the expense of the traditional industries that are characteristically labour-intensive. A detailed illustration of this point would call for the analysis of other relevant data, such as those given in Chapter II relating to the differences inthe product per worder in various branches of manufacturing. However, it is sufficient for the purpose of the argument here to refer to the data in Figure IX, which indicate that despite the differences in the general industrial growth rate in the various countries, the higher the level of industrialization, the less the capacity to absorb additional manpower, even in the factory sector.

In this connexion, the expansion of what are termed the traditional industries is particularly important, since those are the industries with the greatest potential capacity to increase the manufacturing sector's manpower absorption. Unfortunately it is the products of these industries that have a relatively low elasticity of demand, which makes it appear that a weakening in manpower absorption is an inherent characteristic of industrial development.

/However, occasion

However, occasion will arise in later sections of the present study to examine how, in the particular case of Latin America, the demand for traditional manufactures could be made much more dynamic in the context of a general policy of income redistribution to modify the strongly regressive nature of the present distribution pattern. In so far as this was achieved, industrial employment would be increased not only through a speeding up of the rate of development and the ensuing rise in production levels, but also through the higher labour inputs per unit of output characteristic of these branches of manufacturing.

In addition to these "factual" causes - replacement of artisan by factory employment, and changes in the industrial structure in favour of less labour-intensive activities - there are other factors that have been aggravating the problem of manpower absorption in Latin America's manufacturing industry. These are mainly technological and institutional factors, and the effects of the actual industrial policy followed in the past. Although detailed examination of these factors will be left to later chapters, it is necessary to state here at least a few of the conclusions concerned.

It is widely recognized that in the industrialized economies technical progress has been moulded according to a basic pattern imposed by the constellation of available resources, notable mainly for an increasing supply of capital and a growing shortage of labour. The less developed economies, whose supply of productive machinery and equipment depends largely on imports from the industrial countries, are consequently faced with the need to assimilate techniques designed for conditions alien to them, and unsuited to their supply of basic resources, more especially to their large supply of labour and shortage of capital. The consequences of this situation have been discussed at length, from the two-fold standpoint of the magnitude of the investment required for a given rate of industrial development based on relatively capital-intensive techniques, and the restrictions imposed on the manufacturing sector's capacity to absorb the increase in the active population. Considerable thought has also been given to defining the most suitable criteria for choosing between alternative techniques, with a view to adapting them to this combination of resources,

/while not

while not losing sight of the possible drop in manpower productivity that might result in the long run from a decision to adopt techniques other than the most advanced. In addition, stress has been placed on the possibility of developing "intermediate technologies", suited to the basic features of the developing economies, that would not represent a mere taking over of techniques already more or less obsolete in the industrialized countries.[24/]

Although it may not be generally true, it is the fact that, at least in certain cases, a form of technique can be found where the economic advantage is clearly on the side of less capital intensity and greater manpower absorption. However, in the past other factors have complicated the situation in Latin America by encouraging a preference for less labour-intensive techniques. These factors relate mainly to the differences between the market prices of the factors of production, and what are termed shadow prices or opportunity costs. The industrial policy pursued has in fact helped to reduce the costs of capital through preferentail treatment for imports of machinery and equipment, and other methods of stimulating capital formation in manufacturing, whereas such policies as the financing of social security systems have tended to bring about a relative increase in labour costs. The result has been that wherever the criteria governing the choice between different techniques are based on calculations of returns in relation to existing market conditions, there has been a bias towards greater capital intensity, despite the relative availability of factors, which, viewed in the light of social productivity instead of private profit, would lead to different decisions. In addition, the decisions taken are not exempt, in Latin American conditions, from the influence of other considerations of a non-economic nature, such as the resistance often observed to expanding employment lest it strengthen the bargaining power of trade unions, with

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24/ For a detailed discussion of these points, see some of the documents submitted during the discussion on problems of industrial development at the Cambridge Summer Conference in 1964.

the result that in some cases more advanced techniques are preferred, even though they are not economically justifiable, in order to restrict the total number of workers in a given enterprise.

In the light of these conditions it is not to be wondered at that over a long-term the trends in industrial employment have been unsatisfactory, and that manufacturing industry's contribution in absorbing the increase in the active population has been declining sharply. This is undoubtedly one of the factors responsible for the establishment of the employment structure now characteristic of many Latin American countries, with a proportion of service employment, often of minimal social productivity, quite out of line with the income levels and level of general development attained. The disguised unemployment to which this has given rise, not only in agriculture but also in urban activities, is hard to measure, but there are many indications that it is on a considerable scale, and represents another extensive potential source of labour that will subsequently further increase the growing labour force.

With this background of industrial employment, Latin America has departed considerably from the ideal concept of a gradual emigration of labour from agriculture to the towns, where a considerable number are absorbed in the manufacturing sector at much higher productivity levels. Even apart from the immigration from the country, the accumulated disguised unemployment in many urban activities, the modernization and rationalization of such services as marketing, and the persistence of a large volume of artisan employment, all now constitute potential sources of labour in the towns, on a scale that appears vast in relation to the employment opportunities that manufacturing has succeeded in making available. Since to all this must be added the factors of a progressive adoption of less labour-intensive techniques, and the changes that are taking place in the meantime in the composition of industrial production, it is easy to see that the prospect that the manufacturing sector can offer an effective contribution to the employment problem is even less promising than in the past.

/However, these

However, these obstacles are not insuperable, provided (as will be explained in later sections) that employment targets are explicitly included in a planned policy of industrial development, to say nothing of the contribution that can be made by a progressive redistribution of income in Latin America. For the moment it is sufficient to present this general evaluation of how far Latin American industrialization has been able to meet this basic need arising from rapid population growth.

The ill-effects of the various factors listed naturally depend largely on the pace of the industrial development that is taking place. An industrialization process is conceivable that is sufficiently vigorous to ensure that even with rapid urban growth, progressive replacement of artisan by factory employment, appreciable changes in the structure of industrial production and rapid technological assimilation, the manufacturing sector can play a dynamic part in absorbing the active urban population. But this has not happened in Latin America, and is not likely to happen. Thus, for example, throughout the period between 1940 and 1960, in the group of nine Latin American countries for which the necessary data is available,[25/] the per capita industrial product increased at an annual cumulative rate of 3.8 per cent, while the share of manufacturing employment in all urban employment declined from 32.5 to 26.8 per cent. All other relevant factors being the same, the maintenance of manufacturing employment at its 1940 percentage would have required an average annual industrial growth rate of about 4.8 per cent, that is, a rate 26 per cent higher than the rate actually achieved. The higher rate would have permitted the employment in manufacturing of about another two million persons. This hypothetical calculation, while illustrating the scale of the problem in the past, also gives an idea of future industrialization requirements, in conditions which from this standpoint may be even more unfavourable than in the past.

25/ Argentina, Brazil, Chile, Colombia, Ecuador, Honduras, Mexico, Uruguay and Venezuela.

5. The role played by industry in general economic development

The industrialization requirements arising from the need for import substitution and manpower absorption, although fundamental, are not, of course the only such requirements that have emerged during the development of the Latin American economies. Thus, for example, in view of the limitations of the external sector, industry's responsibility could not be confined to replacing the flow of imported goods by a domestic supply; it also had to provide a dynamic impetus for the development of the national economy as a whole. In view of the persistence of highly regressive patterns of the income generated in certain traditional sectors, industry should have contributed to a more equitable distribution, and in view of the increasing difficulty in expanding Latin American exports of primary commodities, industry should have helped to diversify foreign trade through the introduction of manufactured goods into the normal export flows. Industrial development might also have been expected to constitute an essential factor for integrating the national economies and promoting an increasing balance in regional development, both at the national level and for the Latin American economies as a group, by encouraging a more efficient use of the natural resources of each region or modifying the effects of sharp differences in natural resources.

An analysis of the behaviour of industrial development in relation to factors of this kind provides grounds for an evaluation of the part played by industrialization in Latin America's general economic development. The next chapter refers in more detail to some of these factors - relative productivity, distribution of income in manufacturing compared with that in other sectors, foreign trade in manufactures, and location and degree of concentration of industrial development. For the moment, the general background data presented in preceding sections will no doubt provide sufficient grounds for a superficial evaluation of the dynamic force shown by Latin American industry during its evolution in the past.

This dynamic force cannot, of course, be judged in a vacuum, but must be evaluated in relation to the general features of Latin American economic development, including a very slow long-term growth in the

agricultural sector, which weighs heavily in the total product, and a very slow rise in per capita income. In any case, the aim is not to enquire whether in other general circumstances a more vigorous industrial development would have been possible, but rather whether industry's contribution represents a slowing down of industrialization or a truly dynamic stimulus likely to affect the development of the other sectors.

Needless to say, the problem is so complex that no clear-cut answers can be looked for, merely certain more or less objective indications. In what follows, the first step is to examine certain general indicators, such as the evolution of the per capita industrial product, for both the total and the urban population, and the relations between the growth rate of the industrial product and those of the total product and the agricultural product; in addition, a comparison is made between the last two growth rates and those for other economies for similar periods. Next, certain hypothetical calculations are presented as to how the demand for manufacturers would have developed on the basis of the parameters set out below. This is compared with the changes that took place in the internal supply and in imports. The result of this comparison provides an idea of the extent to which industrial growth may have gone beyond the mere substitution of imports and took the form of an effective expansion in the consumption of manufactures. The indications thus obtained as to the relative progress or lag in Latin American industrialization are then compared with coefficients for other countries, from various studies, relating industrial production to average per capita income levels and to the total population figure. Lastly, an evaluation is made of the differences in industrial progress in the various Latin American economies, on the basis of coefficients obtained solely from regional data, including additional factors that appear to be particularly important for Latin America, such as the level of urbanization and the relative importance of the external sector.

The first indicators referred to relate to the per capita industrial product, and show that an appreciable expansion might reasonably have been expected over the long term. Unfortunately, the data available do not permit the preparation of series for the region as a whole except for a

relatively short period;[26] moreover, the sharp differences between countries mean that the regional totals are not highly significant. In Argentina, for example, where the base figure is relatively high and population increases - at least at the beginning of the period - were affected not only by the vegetative growth but also by strong migratory flows, the process has been relatively slow, since the scanty data that can be got together lead to the conclusion that the per capita industrial product rose to twice its former level between the beginning of the century and the end of the thirties, and failed to increase by the same amount between 1925 and 1960. In Chile the growth rate, though higher, was still sluggish, the average cumulative annual rate between 1930 and 1963 being only 2.9 per cent.[27] On the other hand, the level rose over four-fold in Brazil and Colombia, and over three-fold in Mexico.

However, a comparison between industrial growth and the urban population is much less favourable, considering the particular rate of urbanization referred to earlier. During the whole of the post-war period, and more particularly between 1945 and 1960, the per capita industrial product for the urban population remained stationary in Chile, increased very little in Ecuador, and rose by only about 25 per cent in Argentina and Mexico, whereas it rose by 50 per cent in Colombia and 90 per cent in Brazil. An estimate for Latin America as a whole, confined to the period 1950-60 (when the pace of industrialization declined in several large countries) gives an increase in the per capita industrial product for the urban population of only 19 per cent, which is an average annual rate of only about 1.5 per cent.

The choice of the urban rather than the total population for the purposes of the comparison may appear somewhat arbitrary, but it is justifiable from several standpoints. Firstly, the very low per capita income levels in the rural areas of Latin America (in conjunction, moreover, with

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26/ For 1950-1960, for example, it can be estimated that the per capita industrial product for Latin America as a whole rose from about 80 to slightly under 110 dollars.

27/ The per capita growth rate of industrial production was even slower.

particularly regressive distribution patterns) means that even though the rural population constitutes about half the region's total population, it represents in fact a very small market for the most widely consumed manufactured goods. The low levels of agricultural mechanization and the backward techniques used, which are reflected in a limited use of industrial inputs, also reduce the capacity of the rural sectors to absorb intermediate and capital goods. Furthermore, as will be shown below, thus far urbanization has been one of the factors that has been most effective in stimulating industrial development in the region.

Thus although the coefficients in question are open to certain reservations, the evolution of the per capita industrial product for the urban population is not without significance. However, basically the problem cannot be considered divorced from the general rate of development for the Latin American economies. In this connexion the speed of industrialization, although insufficient from the standpoint of urban expansion, has exceeded the growth rate of the economy as a whole, which has led over the long term to an increase in the contribution of the industrial product to the total product, as previously noted. As regards more recent trends, table 1 gives the data available for 1950-62 in the form of the ratio between the two series, which can be interpreted as an indication of the elasticity of industrial development in relation to the total product during the post-war years.

It should be noted that this elasticity varies widely for the different countries of the region: in four of the eighteen countries covered, industrial growth is lower than that of the total product, while in five countries the elasticity is only moderate. Furthermore, the average elasticity for the whole group, 1.38, is very much influenced by the industrial expansion of Brazil. If this country is excluded, the ratio drops to only 1.15. This figure should be compared with that obtained in a study dealing with the problem on the basis of a large number of observations for countries in different parts of the world[28/] (although they refer to current periods,

28/ See A study of industrial growth (United Nations Publication, Sales N° 63.II.B.2), p. 7.

/Table 1

Table 1

LATIN AMERICA: RATIO BETWEEN INDUSTRIAL GROWTH AND TOTAL DOMESTIC PRODUCT DURING 1950-62 a/

(Ratio between the percentage increase in the industrial product and in the total product, 1950-62)

Argentina	1.24
Bolivia	0.26
Brazil	1.90
Chile	0.91
Colombia	1.56
Costa Rica	1.28
Ecuador	0.94
El Salvador	1.01
Guatemala	1.09
Haiti	1.52
Honduras	2.94
Mexico	1.28
Nicaragua	1.51
Panama	1.41
Paraguay	0.78
Peru	1.49
Uruguay	1.80
Venezuela	1.46

a/ Excluding Cuba and the Dominican Republic because of the lack of available data.

/and not

and not to past series); it is concluded in that study that the income elasticity of output for total manufacturing is about 1.37, which means, to quote that study, that "assuming that population is constant, the value added of total industry increases slightly over one-third more than proportionately with per capita income".

The reason why elasticity of Latin American industry is not greater can be partly explained by the fact that the growth of the regional product is strongly affected by the expansion of services, whose real contribution to the product is open to question.

These comparisons lead to the conclusion that in spite of the general development that took place industrialization, one of the factors in this process, has not been very dynamic in Latin America (with few exceptions, notably Brazil), at least during the post-war period.

A similar conclusion seems to derive from an analysis of the problem when viewed from a different approach, relating for example to the study of the long-term evolution of the total supply of manufactures. As previously noted, in connexion with import substitution, the drastic reduction of the import coefficient raises the question of how far Latin America's industrial growth has been able to go beyond the mere replacement of the flow of imported goods, and achieve a real expansion in the consumption of manufactures.

Once again, the scanty nature of the data available make it necessary to resort to somewhat hypothetical calculations confined to a few countries of the region, although these countries are the most important from the standpoint of both size and level of industrialization. Subject to these reservations, and others of a statistical nature, a rough estimate is made of the supply of manufactures in 1929 in five Latin American countries, calculated as the sum of the gross value of industrial output and the c.i.f. value of imports, expressed in all cases in terms of 1960 dollars (see table 2).

/Table 2

Table 2

ESTIMATES OF THE SUPPLY OF MANUFACTURES IN FIVE LATIN AMERICAN COUNTRIES, 1929

(Millions of 1960 dollars)

	Gross value of domestic output	Imports of manufactures	Total supply of manufactures
Argentina	4 589.5	1 326.9	5 916.4
Brazil	2 081.5	707.6	2 789.1
Chile	481.0	541.8	1 022.8
Colombia	282.6	267.2	549.8
Mexico	1 637.1	418.5	2 055.6
Total	9 071.7	3 262.0	12 333.7

/It is

It is assumed for the purpose of this illustration that the potential demand for imports for each country can be calculated by estimating the average elasticity - for example, 1.3 - of imports in relation to the gross product, and applying this elasticity to the growth of the domestic product during 1929-60.[29/]

The difference between the potential demand and actual imports in in 1960 represents what might be termed the increase required in manufacturing output merely to replace imports, and thus the comparison of this required increase with the actual increase during 1929-60 will provide a measure of how far industrialization represented import substitution and a dynamic element from the standpoint of expanding the total supply of manufactures (see table 3).

This table shows that for the five countries as a group nearly 25 per cent of the expansion of domestic production represented import substitution. This general appraisal is, of course, the result of a wide variation between the five countries considered. Thus the expansion for substitution purposes represented nearly half of industrial production in Chile, and no less than 30 per cent in Argentina and Colombia, whereas the corresponding percentages were much lower in Brazil and Mexico (about 20 per cent). In turn, these differences are closely connected with the general trend of income and distribution growth, factors only partly attributable to the intensity and nature of industrial development. However, although these and other reservations caution against placing undue emphasis on specific situations,

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29/ It can be seen that the criteria for formulating these hypothetical calculations differ from those presented in the preceding section on at least three points. Firstly, the potential demand for imports is estimated on the basis of an elasticity of demand for imports in terms of the product, instead of assuming that the coefficient remains the same as in 1929; secondly, the value of imports represents only the value of manufactures imported, and excludes imports of primary commodities, and thirdly, domestic output is valued in terms of gross values of production instead of as value added. Moreover, only a very general estimate is made and should not be applied to a specific country unless carefully examined in order to take into account factors such as differences in the structure of the economy or in the available supply of basic resources, which might produce different elasticities for each country.

/Table 3

Table 3

ESTIMATES OF THE CONTRIBUTION OF DOMESTIC PRODUCTION AND IMPORTS TO THE INCREASE IN THE TOTAL SUPPLY OF MANUFACTURES IN FIVE LATIN AMERICAN COUNTRIES

(Increases 1929-1960 expressed in 1960 dollars)

	Imports			Domestic production	Total supply
	Potential demand	Actual imports	Effects of substitution		
Argentina	2 553	-294	2 847	9 509	9 215
Brazil	2 612	518	2 094	11 119	11 637
Chile	738	-62	800	1 969	1 907
Colombia	883	230	653	2 371	2 601
Mexico	1 932	925	1 007	5 107	6 032
Total	8 718	1 317	7 401	30 075	31 392

/there is

there is general confirmation of the basic role of import substitution in providing a dynamic impetus to Latin American industrialization, so that in some cases it equalled or surpassed the effect of the expansion of total domestic demand.

Nevertheless, the absolute increase in the total supply of manufactures is appreciable, since its real value more than tripled between 1929 and 1960 for the five countries as a group, as a result of the doubling of the figures for Argentina and Chile, and much higher increases for Brazil, Colombia and Mexico.

These increases, however, are more modest in relation to the population growth during that period, and especially in relation to that of the urban population (see table 4).

The position of individual countries will, once again, have to be determined in the light of such factors as the difference in the absolute level of each country during the period taken as the basis of comparison. In short, despite the rise in the average income levels, and the relatively high elasticity of demand generally associated with the consumption of manufactures, the data considered above do not indicate large increases in in the supply of manufactures, which in itself may be regarded as an additional indication of a certain weakness in Latin America's industrialization process, considered as a whole, although differences between countries are considerable.

Current data, which can be extended to cover more countries in the region and are less subject to the statistical reservations that apply to figures for past periods, tend to confirm this conclusion. The relations in recent years between the industrial product and the level of income appear to be less close than in other areas, and the income elasticity of industrial development is lower. This is true even if full account is taken of the effects of the absolute size of the population, which in many countries of the region may be regarded as an obstacle to a higher level of industrialization.

/Table 4

Table 4

ESTIMATES OF THE LONG-TERM EVOLUTION OF THE TOTAL SUPPLY OF MANUFACTURES IN FIVE LATIN AMERICAN COUNTRIES, 1929 AND 1960

(Totals in millions of 1960 dollars; per capita figures in 1960 dollars)

	Total supply		Per capita supply		Per capita supply for urban population	
	1929	1960	1929	1960	1929	1960
Argentina	5 916	15 131	510	722	963	1 068
Brazil	2 789	14 426	85	205	303	536
Chile	1 023	2 930	238	384	481	603
Colombia	550	3 151	77	204	296	442
Mexico	2 056	8 088	126	225	376	410
Total or averages	12 334	43 726	171	291	498	600

/It may

It may be useful here to refer in more detail to the study on industrial growth referred to earlier, which, on the basis of data for fifty-three countries, including fourteen Latin American countries, established a high degree of correlation between industrial output and per capita income and population size.[30] With few exceptions the use of the same parameters (elasticity of industrial output in relation to income and population) will give, for the basic Latin American figures for 1960, "calculated" values for industrial output that are consistently higher than the real figures. The differences, although exaggerated by definitions of the variables that are not strictly homogeneous,[31] are considerable. Thus, for example, in Argentina and Brazil the actual industrial output was only 70 per cent of what was calculated as the normal, and in other Latin American countries the percentages were even lower: between 60 and 66 per cent in Chile, Ecuador, Peru and Uruguay, and less than 60 per cent in Colombia and Mexico.

A similar ratio calculated solely on the basis of Latin American data for 1960 gives significantly different results. In particular there are striking differences between the coefficients that reflect the relative influence of income level and population size: the first is about 1.28, compared with 1.37 for the ratio calculated for other countries, and the second is 1.17 compared with 1.12. That is, the absolute size of the population is a relatively more important factor in Latin America, whereas per capita income is relatively less important. The reduction in the importance of the latter becomes even more marked if, in addition to the above variables, others are taken into account, that reflect the influence of the level of urbanization

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30/ A study of industrial growth, op. cit. The ratios concerned are expressed by the equation $\log V_o = -2{,}637 + 1{,}369 \log y + 1{,}124 \log P$, in which V_o is industrial output, in terms of value added, in millions of dollars at 1953 prices, y is per capita income, also in 1953 dollars, and P is the population in millions. The variables and constants are expressed as common logarithms.

31/ In line with the data available, the ratio in question was calculated for the Latin American countries on the basis of the figures for the gross per capita product in 1960 dollars, instead of per capita income in 1953 dollars.

/(expressed in

(expressed in terms of the percentage of urban in relation to the total population) and the relative importance of the external sector (reflected in the import coefficients concerned).

In sum, the following ratios are arrived at, of which the first represents the ratio of countries outside Latin America, taken from the study referred to, and the others those calculated for the Latin American countries only:

$$\log V_o = -1.637 + 1.369 \log y + 1.124 \log P_t$$

$$\log V_o = -1.709 + 1.283 \log y + 1.173 \log P_t$$

$$\log V_o = -1.742 + 1.084 \log y + 1.174 \log P_t + 0.336 \log P_u$$

$$\log V_o = -1.460 + 1.016 \log y + 1.100 \log P_t + 0.501 \log P_u - 0.297 \log C$$

where V_o is the industrial output (in millions of dollars), y the per capita product (in dollars per year), P_t the total population in millions, P_u the level of urbanization (percentage of total population represented by the urban population) and C the import coefficient.

The steady decline in the elasticity of the industrial output in relation to the total per capita product or income is striking, when observations are confined to Latin America and the additional factors of level of urbanization and import coefficient are considered. With the ratios that now exist for Latin America as a whole, and in the absence of any fresh stimulus from urbanization and import subsitution, industrial development will tend to do very little more than keep pace with the population growth, and consequently subsequent increases in the level of industrialization will be very slight.

It should be noted that these ratios, by reason of the very way they have been defined, show a very close link, with extremely high correlation coefficients between the variables concerned, especially total population and income level. However, for a more exact appraisal of the factors that have most influenced the region's industrial development, it is better to relate the variables concerned to the level of industrialization (as reflected for example, in the percentage of manufacturing output in total output) instead of the absolute level of industrial output. As the statistical annex explains

/in detail,

in detail, the result of this is that there is no very close association with any of the four variables considered singly, but there is with all taken together, and the per capita income level even appears to be less relevant than the other variables.[32/]

Apart from their value in providing a general picture, such as that sketched out above, of how far Latin American industrialization is a dynamic process, the ratios referred to are useful for the purpose of evaluating the relative position of the various Latin American countries from the standpoint of industrial development. If account is taken, for example, of the various levels of per capita product, total population, percentage or urban population and import coefficients for 1960, figures can be obtained on the basis of the broader ratio relating to the absolute levels of industrial output, that indicate the "normal" or "theoretical" value of that output. The calculation is, of course, one relating to levels compared with that for Latin America as a whole, in a strictly comparative sense, which is nevertheless useful for the purpose of comparing the theoretical levels with those actually attained by the countries included in the calculation. The results of this comparison, details of which will be found in the statistical annex, can be summarized as follows, with reference to the degree of deviation between the actual and theoretical values:

(a) Countries whose industrial output is over 20 per cent higher than the theoretical values (Honduras, Paraguay);

(b) Countries whose industrial output is between 10 and 20 per cent higher than the theoretical values (Argentina, Brazil, Costa Rica, Ecuador, Peru);

32/ The coefficients for the simple correlation between the level of industrialization, on the one hand, and per capita income, total population, percentage of urban population and import coefficients, on the other, are 0.57, 0.67, 0.55 and 0.57, respectively. The multiple correlation coefficient for the four separate variables taken as a whole is 0.85. Moreover, the individual correlation coefficients throw into even greater relief the relative importance of the variables other than the average per capita income.

/(c) Countries

(c) Countries whose industrial output does not differ by more than 10 per cent from the theoretical values (Bolivia, Chile, Haiti, Mexico, Nicaragua, Uruguay);

(d) Countries whose industrial output is between 10 and 20 per cent lower than the theoretical values (Panama);

(e) Countries whose industrial output is over 20 per cent lower than the theoretical values (Colombia, El Salvador, Guatemala, Venezuela).

The static nature of this appraisal, in that it relates solely to the situation in 1960 and not to the trends occurring over given periods, is the reason for findings that might be considered to contradict previous analyses. Thus, for example, Argentina appears in the same category as Brazil, although the latter's industrial growth in recent decades has been much more vigorous. However, the placing of Argentina reflects the results of an industrial process of long duration that, although it has weakened recently, still puts Argentina well ahead in this field. The opposite is true for Mexico, whose more rapid industrial growth rate has not apparently resulted in its being able to rise above the levels that might be considered "normal" in relation to its population, income level, degree of urbanization and import coefficients. Similary, a study of the trends of these variables shows why those countries where the level of industrialization is still low are to be found in practically every category, including the two extremes.

In the light of these and other factors it is difficult to accept the validity of any generalization put forward as to the industrial development of Latin America as a whole. Nevertheless, at the risk of over-simplification, on the basis of the series of considerations presented in the course of the present chapter it can be concluded in general that the contribution of manufacturing has been important in a number of ways, but that at the same time industrialization has not succeeded in attaining either the vigour or the patterns called for by the existing situation in the region. Thus, for example, it can be stated that industrialization was an effective means of overcoming the limitations on general development resulting from the unfavourable behaviour of the external sector, through

successful efforts at import substitution, but less effective in replacing the external sector as the stimulant to a self-sustaining growth; that per capita manufacturing, though it increased significantly, did so at rates that were very modest in relation to the increase in urban population, especially in relation to the evolution of the total per capita supply of manufactures; that although there was a steady increase in the absolute number employed in manufacturing, the percentage of the total active population absorbed by industry was rather modest in comparison with countries in other regions, while its contribution to total urban employment declined; that the diversification that had accompanied general industrial growth had had contradictory effects, because an excessively wide range of finished goods was produced, while there was a lag in the consolidation of activities aimed at the production of intermediate goods, with a resulting increase in the vulnerability of the Latin American economies to fluctuations in the capacity to import; and that industrial development did not appear to have contributed much to improving income distribution, or economic integration, either within the various countries or at the regional level.

Within this general picture there were a wide range of individual situations, ranging from countries where manufacturing came to represent a considerable proportion of the total domestic product, to others where its contribution remained very low; and from countries that had achieved a considerable degree of self-sufficiency for most manufactures of durable and non-durable consumer goods, and a substantial range of capital goods and important intermediate goods, with a view to entering on more complicated production lines, to other countries where there was not as yet sufficient consolidation of the so-called traditional industries.

Furthermore, this wide range of situations appears only partly related to the respective per capita income levels; on the other hand the absolute population size, the level of urbanization and the degree to which import substitution needs were pressing, were all important additional factors. However, some of these factors have recently shown clear signs of weakening, a phenomenon largely attributable to the levels already reached. Thus, for example, in some of the countries of the region the present import coefficients are among the lowest in the world, and consequently substitution can hardly continue to be a major dynamic factor for further industrialization.

/Similarly, the

Similarly, the concentration of population in a few urban centres has also become in relative terms a characteristic of Latin America, even more so than in the industrialized areas of the world, and this has led to increasing concern with the formulation of policies aimed at a more balanced regional development.

These and other factors lead to the belief that Latin American industrialization is faced, or will be shortly, with a basic need for reorientation and reliance on stimuli other than those that have played the main part in its past development. Moreover, it is important to point out that despite the various very different levels and stages of industrial development that exist in the countries of the region, the need for reorientation seems to be arising at the same moment in most of them. The countries with the largest domestic market are generally those that have gone furthest with import substitution and where industrialization has reached the most advanced stage, and thus to make any further progress in existing conditions poses new problems, and could mean increasing sacrifices in terms of productivity and efficiency. In the countries with intermediate levels of population and income, where the same limitations arise at less advanced stages of the process, the possibilities of import substitution have largely been exploited, and at the same time there is a substantial degree of industrial diversification. The countries where the external sector is still relatively important, and where consequently there would seem to be a broad field open for substitution activities, are in fact those in which the size of the domestic market imposes the most severe limitations, even at the earliest stages of development through which they are now passing.

There are, of course, exceptions. It can happen that in one country a relatively large population and high income level exist in conjunction with import subsitution possibilities that are still extensive, while in others there may be a conjunction of adverse factors. Any such comparative evaluation as that presented above necessarily reveals that some countries are more favourably situated than others, with respect to development, but the important point to note is that in present conditions the favourable or unfavourable nature of these different situations does not appear to

be necessarily associated with the size of the country or the stage of industrialization it has reached. As has been seen, in the differentiation of categories based on the ratios between the actual and "theoretical" values of the industrial product, they are shown as equal in the various groups of countries at different levels of industrialization, which supports the conclusion that the problems involved are fairly widespread throughout the region.

If this is so, it would mean that earlier industrialization needs will be either replaced or aggravated by others. For example, if commodity exports continued to expand shortly there would be, in addition to the earlier need for import substitution, a need to introduce manufactures into the traditional flows of Latin American exports, either to other Latin American countries or to areas outside the region. In addition, providing employment will continue to call for some contribution on the part of industry, in view of the unemployment that already exists in the large towns, and at the same time one of the most difficult to meet, because of the new stages of industrial development that must be embarked on, and the absorption of more modern technologies that will be involved. Even if there is a reasonable measure of success in promoting manufacturing exports, the external sector's failure as a stimulus to the rest of the economy means that the manufacturing industry will have to take over more of that function, and must not be content merely to respond passively to the stimulus of demand in existing conditions. This has important implications as regards patterns of industrial development, especially in relation to the industry's capacity to tranfer to the economy as a whole part of the benefits of its technical progress (inter alia, through its relative prices).

The outcome will not, of course, be determined wholly by what can be done within the manufacturing industry. The restricted markets, for example, are largely due to the lack of rural development and to the institutional factors that are responsible, and in more general terms to the pattern of income distribution. A progressive redistribution of income would not only have a considerable effect on the total demand for

manufactured goods, but would also stimulate the demand for mass consumption manufactures by giving a more dynamic character, at least temporarily, to the industries now termed the slow-growth industries, which are also the industries that can most easily absorb manpower. Similarly, the development of industrial activities with a view to exports will raise standards of efficiency not only in the industrial sector, but also in the sectors that will have to supply the raw materials and ancillary services needed.

Nevertheless, despite recognition of the industry's dependence on conditions in the general economy within which it is developing, it must be concluded that it is, by its very nature, called on to provide the main impetus to the structural changes needed, as responsibility which it has not properly fulfilled in the past.

Chapter II

PRESENT CHARACTERISTICS OF LATIN AMERICAN INDUSTRY

The intensity and nature of the past process of industrialization, as reviewed above, have stamped on Latin American industry many of its present distinguishing features and caused the radical disparities noted between the various countries of the region. To specify those characteristics and to systematize the principal basic data supporting them are imperative steps towards clarifying the major problems and substantiating a few recommendations at least concerning the basic principles that should be emphasized or embodied in the industrial policy hitherto pursued.

That, then, is the aim of the present chapter, although the considerations dwelt on will necessarily be limited, by the quantity of information and basic background data available, to certain of the most important facets. The first step will be to classify what may be defined as the "industrial establishment", in terms of the following: numbers and size; the importance and distinctive features of artisan industry and manufacturing industry proper, and - within the latter category - of what is generally termed small, medium and large-scale industry; the structure of the industrial establishment according to the level and composition of manufacturing production; its legal status; industry's powers of organization and administration; and so on.

This will be followed by a study of the essential facts relating to industrial capital. In particular, an attempt will be made to summarize the available background data on the total capital accumulated by industry and the relationship between capital and the manufacturing product; the composition of industrial capital by types of assets; the level of capital formation according to size of establishment and types of activity; and, especially, the degree of efficiency with which the available capital is being used; in other words, the utilization of installed capacity and the factors influencing it.

/The third

The third section will deal with industrial employment, including the most significant classifications and endeavouring to define their characteristics: employment in the artisan and factory sectors, its distribution by branches of industry and employment categories, etc. Essential background data will be gathered on the skill and level of training of the industrial labour force and on the special manpower training programmes being carried out in the region, as well as on the wages and general working conditions of the economically active population employed in the manufacturing sector, including aspects dealing with its trade union organization and negotiating capacity.

Once the main factors of production utilized by industry have been thus analysed, it will be time to review the results of industrial activity in recent years, on the basis of essential data relating to the level and structure of manufacturing production, as shown by the latest industrial censuses or surveys undertaken in the various Latin American countries.

This over-all analysis will be supplemented by some brief studies on specific branches of the manufacturing sector which are of particular importance in the existing context of Latin American industry. Since the aim is merely to illustrate, from the standpoint of certain specific sectors, the nature and wide range of problems which may be implied in the over-all analysis, such studies will be confined to a few industries that are representative of diverse situations, e.g., textiles, pulp and paper, chemicals, steelmaking and metal transforming.

Based on the background data for domestic production and foreign trade in respect of industrial products, an effort will be made to present as complete a picture as possible of the supplies of manufactures, in over-all terms and by types of products, according to both origin (by branches of industry) and use (intermediate products, consumer goods and capital goods). This will help to ascertain the present position with respect to the level and structure of consumption of manufactured products and the proportion absorbed by domestic production and imports in meeting the supply needs in different categories of industrial products.

/Lastly, attention

Lastly, attention will be paid to one of the major problems confronting Latin American industry, namely, its high cost and price levels. In addition to evaluating the relative prices of manufactured goods on the regional markets in quantitative terms, an effort will be made to discover how far those prices are determined by equally high production costs, and to examine some of the factors which might be considered responsible.

To sum up, the aim is to supplement the analysis of past events presented in the previous chapter by an essentially descriptive and systematized analysis of data concerning the present status of industry, with a view to achieving a more comprehensive interpretation of the region's industrial development process which, together with the analysis of industrial policy dealt with in the following chapter, will make it possible to forecast some of the problems and requirements that might arise in subsequent stages of Latin America's industrialization.

1. The industrial establishment

According to the latest industrial censuses or surveys available for eighteen of the twenty Latin American countries, the region's industry at present comprises just over 400,000 units classified as "industrial establishments". The characteristics of those units, in turn, may be considered one of the most illustrative signs of the present status of industry in Latin America. Nevertheless, over and above the reservations formulated below in respect of their number, an attempt to establish the characteristics of the industrial establishment as defined in its broadest sense is hardly warranted, inasmuch as it would simultaneously cover both traditional and newly established activities, units with outmoded production methods and others where up-to-date techniques had been introduced, in proportions varying in line with the noticeable disparities between the various countries of the region. Rather than an over-all typology, therefore, what is required is an effort to establish distinguishing features which will take into account at least some of the main differentiating factors within that wide range of situations.

/The difficulty

The difficulty of doing so on the basis of census data or information provided by the available industrial surveys is obvious, even in regard to the total number of establishments and their distribution by countries (see table 5). Some countries record only establishments employing five or more workers; others insist on the additional requirement that only establishments whose annual production value exceeds a certain level should be considered; others, again, include a specified number of establishments employing less than five persons, but in one case the limit extends to ten workers; often the information covers an unspecified number of establishments employing from one to four workers, and in one instance "industrial units" which employ fewer than five persons but may consist of more than one establishment are recorded. Moreover, wherever the data cover all types of establishments, it may easily be assumed that the list includes a very low proportion of the total number of small establishments.

Within this complex of heterogeneous information, it would be useful first to draw a distinction between two levels of industry, based on radical disparities in their methods of organization, size, productivity and other characteristics. These levels are the "factory industry" which is usually defined as including establishments that employ at least five workers, and the "artisan industry", which is the term used to describe units employing fewer than five persons.1/ The previous chapter makes it clear that, broadly speaking, artisan industry has gradually shrunk in relative importance as the process of modernization has forged ahead in the region. Yet it is still very important in absolute terms, and certainly far more so than might be inferred from the figures in table 5, in those countries which include it only in part. Other estimates obtained from different sources (mainly population censuses) conclude that artisan employment still covers about 4.5 million persons, that is, only

1/ Thus "artisan industry" is a fairly broad and ambiguous term, since the artisan sector proper includes the traditional cottage industry. Some countries prefer to call it "unregistered industry", i.e., that which owing to its size is not covered by regular industrial statistics; while, admittedly, it may include a certain number of industrial establishments which for one reason or another escape constant statistical coverage.

Table 5

NUMBER OF INDUSTRIAL ESTABLISHMENTS RECORDED IN THE LATEST INDUSTRIAL CENSUSES OR SURVEYS OF EIGHTEEN LATIN AMERICAN COUNTRIES

Country	Source of information	Number of establishments	Category
Argentina	1954 Industrial Census	148 371	Including 72 780 establishments employing no labour and 64 978 with up to 10 workers each
Bolivia	1957 Industrial Statistics	1 284	Including an unspecified number of establishments employing under 5 workers
Brazil	1960 Industrial Census	108 163	Including 66 301 establishments employing from 1 to 4 workers
Chile	1957 Manufacturing Census	5 854	Covers only establishments employing 5 workers or over
Colombia	1960 Industrial Survey	10 446	Including 3 280 establishments employing from 1 to 4 workers
Costa Rica a/	1962 Industrial Survey	780	Covers only establishments employing 5 workers or over
Dominican Republic	1960 Industrial Statistics	2 349	Including an unspecified number of establishments employing under 5 workers
Ecuador	1961 Industrial Survey	522	Covers only establishments employing over 5 workers, and having an annual production value of more than 180 000 sucres
El Salvador	1962 Industrial Survey	1 658	Covers only establishments employing 5 workers or over
Guatemala	1962 Industrial Survey	2 078	Covers only establishments employing 5 workers or over
Honduras	1962 Industrial Survey	510	Covers only establishments employing 5 workers or over
Mexico	1960 Industrial Census	100 335	Including an unspecified number of establishments employing under 5 workers
Nicaragua	1962 Industrial Survey	567	Covers only establishments employing 5 workers
Panama	1958 Industrial Survey	2 033	Including 1 550 establishment employing under 5 workers
Paraguay	1958 Industrial Census	2 732	Including 1 596 establishments employing from 1 to 4 workers
Peru	1960 Industrial Statistics	4 174	Including 919 establishments employing under 5 workers
Uruguay	1959 Industrial Statistics	27 548	Including an unspecified number of establishments employing under 5 workers
Venezuela	1961 Industrial Survey	7 531	Covers only what are classified as "industrial units" (which can consist of more than one establishment) employing over 5 workers

a/ The data for Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua have been taken from the Central American Industrial Survey carried out by the Joint Central American Programming Mission.

slightly below what is classified as employment in manufacturing proper (some 4.8 million persons). Furthermore, similar estimates indicate that the disparities in productivity - in terms of value added per worker - between the artisan industry level and the factory industry level averaged a ratio of 1 to 8, which implies that the distinction does not depend solely on size, but also on wide differences in quality.

To go into the nature of these qualitative differences would mean delving into a problem about which very little is known, although it affects a considerable proportion of Latin America's population, and no doubt presents, in its turn, widely differing circumstances. The image of an artisan industry representing a certain cultural tradition and involving elements of artistic creativeness, which is of lasting value and consequently deserving of systematic measures to stimulate and protect it, may be valid for only a small fraction of the total, established in the Andean countries (Bolivia, Ecuador, Peru and part of Colombia), Central America and certain parts of Brazil and Mexico. On the other hand, within the sector weighing most heavily in terms of employment and not included in that category, a distinction should be drawn between activities which are, in essence, "industrial services", such as maintenance work (primarily of motor vehicles) and repair workshops (including shoe-mending), and manufacturing activities proper. Within the latter category yet a further classification can be made: first, what can be regarded as pre-manufacturing production, which is sometimes supplementary to agricultural work, and other activities consisting in the rough processing of manufactures susceptible of being industrialized, which, even if a proportion might develop to the level of the manufacturing industry, are generally condemned to disappear as industrialization advances; secondly, what might be termed "competitive artisan industry", which co-exists with manufacturing activities whenever the latter operate on the basis of relatively high costs and prices; and, thirdly, a type of "supplementary artisan industry", which absorbs the benefits of modernization and is closely linked to the manufacturing industry level through the supply of parts or inputs in whose production economies of scale are not applicable.

/A distinction

A distinction of this kind, even if it cannot be substantiated or defined on the basis of quantitative data, is undoubtedly useful in providing a clearer insight into the industrialization process and into the formulation of more effective industrial development policies, and thus constitutes an improvement on the broad generalizations all too frequently made on this subject. In any case, it might be as well to add a few partial figures illustrating the forms of artisan industry likely to predominate in Latin American countries or regions at varying stages of industrial development.

The ratio of factory productivity to artisan productivity - which, as previously stated, would appear to average 8 to 1 in terms of value added per worker - seems on the whole to be very much underestimated in industrial statistics, which probably cover only what is usually called the "improved artisan level", easily covered by censuses; but even so, the differences between specific situations may be regarded as significant. Thus, for example, employment in manufacturing proper in the five Central American countries is estimated at about 150,000 persons, while artisan employment is over 210,000; without regard to the employment ratio between the two levels - in which the artisan figures are undoubtedly underestimated - it is interesting to note that the ratio between them, in terms of value added per worker, would thus be 4 to 1, while in Colombia it would be 3 to 1 and in Brazil only 2 to 1. Although such results are inevitably affected by the extent of the statistical coverage for the artisan sector,[2/] they probably also reflect certain qualitative differences in their internal structure, as determined by a growing share absorbed by the competitive artisan industry first, and by the supplementary artisan industry at a later stage of industrialization.[3/]

2/ The industrial statistics used for Colombia cover only some 10,000 persons at the artisan level, compared with nearly 250,000 in the factory sector; while the figures for Brazil (taken from the 1960 Census) are 150,000 and 1.6 million, respectively.

3/ For the same reason, the industrialized economies, particularly in Europe, also record a significant proportion of employment in establishments with fewer than five workers.

In any case, it would be wrong to assume that there has been an abrupt change in the characteristics of the artisan and factory sectors, defined as they are on the basis of an arbitrary standard of five workers per establishment. This prompts the need also to try to analyse certain distinctions within the factory industry itself. To that effect, an estimate of the number of manufacturing establishments existing in Latin America should be taken as the point of departure (see table 6).

Unfortunately, only in the case of certain countries are the data available sufficiently detailed to permit some grouping of those 150,000 manufacturing units so that a study can be made of the internal structure of this sector. Of the 42,500 manufacturing establishments in Brazil, for example, some 20,600 employ between 5 and 9 workers, and more than 10,000, from 10 to 19 workers, while only 170 apparently have more than 1,000 workers per establishment. If, for purposes of comparison, they are grouped in what are usually defined as small industry (employing from 5 to 20 workers per establishment), medium industry (20-100 workers per establishment) and large-scale industry (over 100 workers per establishment), their distribution would be as follows:4/

	Number of establishments	Number of workers employed
Small industry	30 771	263 733
Medium industry	9 010	370 254
Large-scale industry	2 775	1 005 109

4/ This grouping, which will be referred to again repeatedly, is admittedly arbitrary and of questionable validity. In particular, 100 workers per establishment may be considered a very low figure for large-scale industry. The only reasons for adopting it are the possibility of a homogeneous grouping of the different census tabulations available and the fact that this has been the criterion used in certain national studies serving as a basis for other considerations which are presented later. In general, it should be noted, too, that employment on its own is not an appropriate criterion for classifications of this nature, which ought to take into account other important characteristics as well.

/Table 6

Table 6

ESTIMATED NUMBER OF MANUFACTURING ESTABLISHMENTS IN EIGHTEEN LATIN AMERICAN COUNTRIES ACCORDING TO THE LATEST INDUSTRIAL CENSUSES OR SURVEYS

Country	Number of establishments	Source of information and nature of estimate
Argentina	31 600	1952 Industrial Census, excluding establishments employing no labour and two-thirds of those with under 10 workers
Bolivia	1 000	Estimate based on 1957 Industrial Statistics, excluding an unspecified number of establishments employing under 5 workers
Brazil	44 038	1960 Industrial Census: establishments employing 5 workers or over
Chile	5 854	1957 Manufacturing Census
Colombia	7 166	1960 Industrial Survey, excluding establishments employing under 5 workers, according to the the same Survey
Costa Rica	780	1962 Industrial Survey
Dominican Republic	1 160	1960 Industrial Statistics, excluding a rough estimate of the number of establishments probably employing under 5 workers
Ecuador	1 000	1961 Industrial Survey, to which figure is added a rough estimate of the number of establishments probably employing 5 or 6 workers
El Salvador	1 658	1962 Industrial Survey
Guatemala	2 078	1962 Industrial Survey
Honduras	510	1962 Industrial Survey
Mexico	32 535	1960 Industrial Census, excluding an estimated number of establishments employing under 5 workers
Nicaragua	567	1962 Industrial Survey
Panama	483	1958 Industrial Survey, excluding establishments which, according to the same source, employ under 5 workers
Paraguay	1 136	1958 Industrial Census, excluding establishments which, according to the same source, employ under 5 workers
Peru	3 255	1960 Industrial Statistics, excluding the 919 establishments which, according to the survey, employ under 5 workers
Uruguay	5 000	1959 Industrial Statistics, excluding a rough estimate of the number of establishments probably employing under 5 workers
Venezuela	7 531	1961 Industrial Survey
Total	147 351	

/Accordingly, in

Accordingly, in terms of employment, large-scale industry in Brazil apparently represents a little over 60 per cent of the factory sector as a whole, and small industry only about 16 per cent. But most significant of all is the nature of certain relationships which might well imply substantive qualitative disparities between those groupings. In this respect, if consideration is given to two basic indicators - value added and available installed capacity (in terms of HP) per worker - the somewhat surprising conclusion would be reached that there is a great similarity between small and medium industry; by contrast, the differences between these two and large-scale industry is apparently far more pronounced. While the value added per worker employed in medium industry is less than 15 per cent higher than the figure for small industry, it is 30 per cent lower than the average for establishments employing over 100 persons. The same similarity between the first two groups and an even wider disparity with regard to the third group are noted in the distribution of installed capacity: the number of HP per worker is 2.2, 2.4 and 3.3 in small, medium and large-scale industry, respectively.

The information on Chile, although not up to date (it is taken from the 1957 industrial census), indicates an even smaller difference between the first two factory sector groups - which represent 15 and 27 per cent respectively in terms of employment - and a notable gap between them and large-scale industry. While the value added per person employed in medium industry is less than 25 per cent higher than the figure for small industry, it is over 50 per cent lower than that for large-scale industry. The difference in installed capacity per worker is also far smaller between the first two groups than between medium industry and the group of establishments employing over 100 persons.

Table 7 summarizes this information, together with other comparable data relating to the group of five Central American countries, and Colombia and Venezuela. It will be noted that the situation observed in Brazil and Chile is repeated in the last two countries, although the difference between small and medium industry is greater. In Central America, for its part, the disparity in terms of value added per worker (there are no figures available for installed capacity) is quite clear if small industry is compared with medium industry, but there is little difference between the latter and large-scale industry.

/Table 7

Table 7

SOME STRUCTURAL CHARACTERISTICS OF THE FACTORY SECTOR OF MANUFACTURING INDUSTRY IN SELECTED LATIN AMERICAN COUNTRIES, BY SIZE OF ESTABLISHMENT

	Brazil (1950 Census)	Central America (1962 Survey)	Chile (1957 Census)	Colombia (1960 Survey)	Venezuela (1961 Survey)
Structure of factory sector (percentages of total employment)					
Small industry	16.4	25.5	15.4	18.7	36.6
Medium industry	22.5	37.4	27.4	27.2	26.1
Large-scale industry	61.1	37.1	57.2	54.1	37.3
Value added per worker ratios a/					
Small industry	100.0	100.0	100.0	100.0	100.0
Medium industry	114.9	207.5	124.5	169.7	146.2
Large-scale industry	145.5	259.7	189.7	289.7	294.9
Installed capacity per worker ratios b/					
Small industry	100.0	-	100.0	100.0	100.0
Medium industry	109.1	-	141.2	153.8	212.5
Large-scale industry	150.0	-	229.4	315.4	818.8

a/ In the currency of the separate countries.

b/ HP per worker.

/The general

The general uniformity in the relationships between the value added and available installed capacity per worker in the three factory sector groups and the widening of the disparity referred to industrial development advances, suggest the existence of certain fundamental elements in the pattern of Latin America's industrialization process. To identify them is no easy matter, however, and may require specific and far more detailed research. Merely by way of a hypothesis, it might be concluded that, in general, it is a process of technological absorption circumscribed essentially to the new major projects, which presents clearly distinct features at the level of large-scale industry,5/ but in which medium industry participates to a far smaller extent, since its techniques, organization and productivity are still largely traditional, barely differentiating it from small industry. Moreover, the medium-sized industrial establishment, instead of being a homogeneous production unit, often represents the grouping together of a wide range of production lines, each of which retains its virtually artisan characteristics.

Furthermore, these are matters upon which any generalizing in respect of the manufacturing sector as a whole is open to question, and which would therefore call for studies at the level of specific branches of industry, particularly if it is borne in mind that the relative importance of each branch in the whole structure of industry differs widely between one country and another.

For the same reason the serious disparities in the level of industrialization attained by the various Latin American countries are not reflected in equally sharp differences between the average employment figures for each manufacturing establishment. Some countries which have made more headway towards industrial development are among those registering the highest figures (an average of a little over 37 workers per establishment in Argentina and Brazil); but they share that position

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5/ The exception represented by Central America, where a comparatively small number of establishments is affected, is probably explained by the inclusion in large-scale industry of traditional activities recording a low proportion of value added in the production process, as happens, for example, in the sugar plants and other similar activities producing primary commodities. In this respect, it might be as well to emphasize the reservations set out in footnote 4 to this chapter.

/with other

with other more backward countries in this respect (nearly 40 workers per manufacturing establishment in Peru and over 35 in Nicaragua). Conversely, relatively low ratios are recorded simultaneously in countries with a higher or lower level of industrial development (for example, Mexico and Paraguay present the same average of less than 25 workers per establishment). This is so wherever certain traditional branches of manufacturing production tend to be organized in large units, whereas other typically up-to-date dynamic sectors do not necessarily involve a high employment density per establishment. This consideration is strengthened by the absence of a sufficiently close relationship between the average size of the establishments for each branch of industry and the pertinent figures for installed capacity per worker. In Brazil, for example, employment figures per establishment are considerably higher than the average in such sectors as rubber and pulp and paper - which also register a relatively high level of installed capacity per worker -, as well as textiles and, in particular, tobacco, where the installed capacity ratio is well under the average. On the other hand, the chemical industries - whose heterogeneity tends to detract from the significance of the average figures, which in this case also include those for petroleum products - present the same average of level employment per establishment as the factory sector as a whole, but the relationships in respect of installed capacity per worker are notably higher.

Only for Colombia are data available on those relationships that may be classified at once by branch of industry and by size of establishment, which again seems an essential requirement if the question is to be analysed more accurately. The want of similar information for other Latin American countries, for its part, makes it difficult to extend the comparisons to economies outside the region, which would facilitate a broader evaluation of the typical features of Latin America's manufacturing establishments reviewed in this study.

Furthermore, in addition to the disparities between the characteristics of actual production in manufacturing establishments, there are others which also constitute important factors illustrating the existing picture of Latin American industry, as, for instance, in its legal status, a point which is dealt with briefly below.

/The background

The background data assembled in table 8 for four Latin American countries - Argentina, Brazil, Chile and Colombia -- are sufficiently illustrative, though not strictly comparable, since the figures for the first two include a sizable proportion of artisan establishments, while in Chile they refer exclusively to factory establishments, and in Colombia to a limited number of units employing fewer than 5 workers per establishment. Even so, it is clear that the individually-owned enterprise easily predominates as a form of legal status, if consideration is given to the proportion it absorbs of the total number of registered establishments; while, on the other hand, its share is somewhat insignificant in terms of employment and, still more so, of value added. The stock company form of organization, for its part, although it would seem to comprise a fairly limited number of establishments, accounts in every case for the largest proportion of the total value added. Moreover, for the reason given above, with the exception of Chile the proportion of stock companies with respect to the total number of manufacturing establishments proper is apparently much larger than would appear from the table, i.e., over 10 per cent in Argentina (with the additional reservation that the pertinent information is by no means up to date), about 18 per cent in Brazil and nearly 7 per cent in Colombia. Among other forms of associations, which in general represent approximately one-third of the total in terms of establishments and employment, and a little less in terms of value added, limited liability companies easily predominate.

The general similarity between the proportions indicated might lead one to associate these forms of legal status with the levels of small, medium and large-scale industry reviewed above, and thus to complete an image of the first system as a typically individual enterprise, of the second as largely family-type associations, and of the third as the major impersonal enterprise, to whose financing a large number of persons contribute and whose management is characterized by a wide delegation of powers. However, such a picture would hardly correspond even partially to the facts, for several reasons. In the first place, the limited requirements imposed on the stock company make this form of legal status accessible to many medium-sized enterprises, besides the fact that at

/Table 8

Table 8

FORM OF LEGAL ORGANIZATION OF INDUSTRIAL ESTABLISHMENTS IN SELECTED LATIN AMERICAN COUNTRIES

	Private enterprises			Public enterprises
	Individual enterprises	Stock companies	Other concerns	
Argentina (1954 Census) a/				
Number of establishments	85 997	3 273	60 926	1 478
Percentage of total number of establishments	56.6	2.2	40.1	1.0
Percentage of total employment	14.8	35.3	36.3	13.5
Percentage of total production value	10.9	42.2	36.4	10.3
Brazil (1960 Census)				
Number of establishments	66 657	7 459	35 074	1 149
Percentage of total number of establishments	60.4	6.8	31.8	1.0
Percentage of total employment	14.3	57.8	26.9	1.0
Percentage of total value added	7.5	68.5	23.5	0.5
Chile (1957 Census)				
Number of establishments	3 190	459	2 205	b/
Percentage of total number of establishments	54.5	7.8	37.7	b/
Percentage of total employment	23.2	45.2	31.6	b/
Percentage of value added	14.1	63.2	22.7	b/
Colombia (1962 Industrial Statistics)				
Number of establishments	7 377	464	3 241	b/
Percentage of total number of establishments	66.7	4.2	29.1	b/
Percentage of total employment	21.7	35.7	42.6	b/
Percentage of total value added	8.4	53.2	38.4	b/

a/ Including extractive industries.

b/ Not classified separately.

/some time

some time or another their change-over to this legal system has been deliberately encouraged by means of taxation. Meanwhile, the very lack of any major requirements enables them to continue operating, to all intents and purposes, as individual or family enterprises, without absorbing - except purely as a matter of form - the procedures for delegating authority, and others considered typical of the stock company. Even if nearly all the major establishments, in their turn, are stock companies, often neither their size nor their legal status prevents them from constituting de facto family enterprises. Thus, there are many major enterprises in which a high proportion of the shares is concentrated in the hands of a small group of persons; the shares themselves are not sold on the stock market, nor are they open to public subscription; and major policy and management decisions are adopted on the same lines as in a limited liability company.6/

Under the circumstances, the most advanced forms of legal status are not necessarily compatible with the modernization of production organization and business administration methods. In turn, the persistence of personal authority, together with the elements of tradition and paternalism it involves, sometimes result in perhaps excessive emphasis being laid on the theme of the "entrepreneur" as a fundamental factor of Latin America's industrial development.

The technological disparities noted between different industrial levels suggest a superimposing process rather than the progressive promotion of enterprises to a higher level. This phenomenon deriving among other things from the difficulty of securing funds, tends to be associated, in turn, with inadequate "entrepreneurial capacity". The same factor is usually regarded as partly responsible for other adverse characteristics of Latin American industry, which will be studied in the following sections of this study, including its lack of "agressiveness" in cornering new markets or expanding lines that supplement other manufacturing activities, its adherence to protectionist mechanisms and the scant progress it has made towards improving productivity and efficiency.

6/ Some characteristics of the capital markets in Latin America will be described in detail in the review of industrial policy and, specifically, of financing problems in chapter III, which will permit a clearer evaluation of the nature of a substantial proportion of the industrial stock companies in Latin America.

/Admittedly, entrepreneurial

Admittedly, entrepreneurial capacity is an important factor of industrialization, but at the same time it would be going too far to consider that entrepreneurial action alone is responsible for the dynamics of the process. Among other things, it is doubtful whether the question can be expressed in terms of the quality and quantity of entrepreneurial resources, which would be tantamount to defining in the abstract certain ideal prerogatives of the entrepreneurial role, whereas the latter cannot be separated, in the last analysis, from the specific conditions under which development takes place in each particular case. Economic growth itself is, in fact, accompanied by a growing mobilization of management capacity which seemed not to exist previously, and, therefore, can logically be assumed to exist in latent form. What is more, diverse fragmentary research has recognized the existence of particularly valuable "entrepreneurial talent" even at the level of the small enterprise.

If that is so, it is important to take cognizance of those characteristics of the Latin American environment on which the materializing of existing entrepreneurial capacity depends, in addition to the basic characteristics relating to the limitation of access to technical resources and capital.

The most important feature of all is the uncertainty deriving not only from political factors or general economic conditions, but also from the lack of precision, internal consistency and steadfastness in industrial policy. An inevitable consequence of the climate of uncertainty and insecurity, in those countries in which it exists, is that entrepreneurs tend to evaluate their opportunities and to adopt decisions on the basis of immediate considerations, limiting their predictions to very restricted periods. Thus decisions apply only to the short term, which in itself necessarily implies the lack of "aggressiveness" noted in entrepreneurial action.

The long-term predictions and far-reaching decisions concerning new industrial developments are reserved, by force of circumstances, for government institutions, which serves to reinforce their role as promotors of industry, either by providing the proper incentives or, in some cases, by creating the enterprises directly. Indeed, the initiation of a large

/number of

number of heavy industries in Latin America is linked to public enterprise, whether they retain the status of State enterprises or are transferred wholly or in part to the private sector.

Accordingly, the short term criteria underlying private decisions, because of the climate of uncertainty among other reasons, as against the possibilities open to public agencies of predicting over the long term, usually result in the following distribution of entrepreneurial resources: those having a high level of technical training but lacking in practical experience are concentrated in State institutions, where their main function is programming, while those with more pragmatic training are to be found in the direct operation of private enterprises. The usual distinction between the public and private sector which is typical of the operation of mixed economies does not therefore ultimately limit the availability of entrepreneurial resources, which are actually found both inside and outside the enterprise as such and often move from one sector to the other.

This differentiation between entrepreneurial resources according to their skill leads to the conclusion that, from the standpoint of the private sector, the overcoming of such uncertainty would not suffice to back longer-term decisions; that would also require adequate financial and organizational capacity to absorb the technical personnel trained for that type of work, and such capacity is often beyond the possibilities of the small and medium-sized enterprises.

These and other factors help to explain the difficulties hampering the small and medium concerns in their evolution towards industrial projects of broader scope, while the super-imposition of levels with varying structural characteristics referred to above is maintained. Under these conditions large-scale industry, except where conditions are particularly favourable, can only flourish usually as a result of deliberate State action to promote it, of direct foreign investment, or of the association of the Latin American private entrepreneur with foreign capital or technical assistance.

There will be occasion later to revert to this subject, particularly when dealing with industrial policy and the forms of relationship existing between the private sector and industrial planning mechanisms. For the time being, the intention is merely to establish these general considerations to the extent that they help to explain the typical features of industrial establishments at different levels of industry.

2. Industrial capital

The shortage of capital is often regarded as one of the main obstacles to a more rapid expansion of Latin American industry, and the particularly heavy incidence of capital charges as one of the principal reasons for the high costs of production in many branches of the region's manufacturing activity. Capital is thus a key factor, and a searching study of its intensity, composition and utilization should form a structural part of any analysis of the present industrial situation.

Unfortunately the possibilities of an analysis of this kind are limited by the fragmentary and heterogeneous nature of the information available. Capital measurement is, in fact, a singularly weak point in Latin American statistics, which are of very little use for comparative purposes because of the plethora of definitions and methods of valuation employed. For instance, the figures for net worth, as they appear in the industrial census that also cover this aspect, usually represent assets purchased at a number of different price levels and subsequently revalued, sometimes in line with criteria that are based on tax provisions rather than on actual conditions. Deductions for depreciation of assets are also made in conformity with the same type of criteria. Other independent estimates of net worth in terms of capital depreciation and replacement costs tend to be too general and are therefore apt to have a fairly wide margin of error. Then, again, the fact that there is no uniformity in industrial structure or in the various types of manufacturing establishment makes for wide disparities in intensity and methods of capital utilization between the different industrial branches and even individual strata in the same branch. In short, there are a number of reservations to be borne in mind for a strict analysis of the facts considered in the following pages; they will not, however, affect the general tenor of the more important conclusions to be drawn from them.

As the development of the manufacturing sector is often associated with its need for a substantial capital investment, the first aspect to be examined is the over-all volume of capital accumulated in the sector and its relation to the value of the output resulting therefrom.

/Figures relating

Figures relating to the Argentine economy in 1955[7] indicate that the total amount of fixed capital invested in manufacturing industry was about 28,000 million pesos (at 1950 prices), i.e. 12 per cent of the country's entire capital. A comparison of this sum with the industrial product for the same year gives a product-capital ratio of about 0.6 which is twice as large as the coefficient for the whole economy. Similar estimates for Colombian industry[8] place the ratio at 0.35 to 0.44 and for Ecuador at about 0.54.[9] Limited to factory industry, it was 0.63 for Venezuela in 1961,[10] while for Peru it was practically the same as the coefficient for the over-all economy, namely, around 0.4 in 1955.[11] These are all indirect estimates of capital in terms of the value of depreciation and of replacement cost. However, calculations based on census data relating to net worth generally arrive at much higher ratios (e.g. higher than unity for Chile, according to the 1957 industrial census, and for Peru, as shown by the industrial statistics for 1960). This indicates the extent to which the book value of industrial capital is underestimated.

The fairly satisfactory ratios quoted for a sector that is generally characterized by intensive use of capital are largely explained by the inclusion of the broad category of artisan activities, which normally use little capital and thus have a much higher ratio than factory industry.[12] Hence, the constant replacement of artisan industry by

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7/ El desarrollo económico de la Argentina, United Nations Publication, Sales N°: 59.II.G.3, Vol. I, annex II.

8/ The economic development of Colombia, United Nations Publication, Sales N°: 57.II.G.3, ch. III, and General economic and social development plan, Part II.

9/ Estimates of the National Economic Planning and Co-ordination Board.

10/ CORDIPLAN, Industrial survey of 1961.

11/ The industrial development of Peru, United Nations Publication, Sales N°: 59.II.G.2, ch. IV.

12/ For instance, the estimate of 0.54 for the manufacturing sector as a whole in Ecuador is divided into 0.32 for the factory sector and 6.03 for artisan activities.

factory production, which has been mentioned in the previous chapter, implies a decline in the product-capital ratio for the manufacturing sector as a whole. This, in its turn, means that a larger amount of capital has to be invested to keep up a given rate of industrial growth.[13/]

Apart from this general distinction, there are also notable variations in capital absorption per unit of output among branches of industry, and in size of establishment among individual strata in a single branch. Differences in capital absorption are well known, mainly consisting in higher product-capital ratios in the slow-growing branches - except textiles - than in the dynamic branches, particularly those manufacturing intermediate goods. As regards variations in size of enterprise, some indirect information can be obtained from the figures for installed capacity per worker in establishments belonging to the different strata described in the preceding section. The findings of an industrial survey in Venezuela also throw light on this point.[14/] It appears from these that the figure of 0.63 for factory sector as a whole is an average of ratios that reach 1.58 for small industry, range from 0.62 to 1.5 in two strata of medium-scale industry and are only 0.48 for large-scale industry (petroleum refining being excluded in every case).

This information is intended simply to indicate some orders of magnitude of industrial capital and their relations to the industrial product. Because of the variety of concepts employed and the fact that the figures quoted are not definitive, it would be unjustifiable to draw other conclusions which, if used for estimating the additional investment needed to achieve certain rates of industrial growth in future, might lead to considerable underestimation. On the other hand, it would be useful to pursue the analysis in order to shed light on some aspects of the composition of industrial capital in Latin America.

13/ These are long-term trends, and do not exclude the possibility of a different pattern of behaviour at certain times, mainly as a result of more intensive use of production capacity. One instance was the Second World War, when imports of equipment were restricted and domestic manufacturing industry had to be expanded as much as possible. Moreover, the relative substitution of factory production for artisan activities has been influenced by changes in the internal structure of the factory sector.

14/ CORDIPLAN, Industrial survey, 1961.

/The most

The most outstanding and also fairly widespread feature, is the rather low ratio of fixed capital to the total tangible assets of industrial enterprises in Latin America. For instance, Chile's industrial census of 1957 shows that industrial capital amounted to about 450 million escudos in all, with some 165 million in the form of stocks of raw materials, finished goods and work under way. The resulting coefficient of 64 per cent for the ratio of fixed assets to total capital corresponds fairly closely to that of other Latin American countries,[15/] and contrasts with the ratios of 74 per cent for Canada (1955), 83 for the Netherlands (1952), 84 for Norway (1953) and 78 for the United States.

The same problem emerges even more clearly from the results of surveys on the sources and uses of funds in selected groups of existing industrial enterprises which therefore exclude investment in new undertakings. An evaluation of the balance-sheets of a sample of industrial firms in Argentina indicates that the amount of funds earmarked for maintaining and adding to inventories was the same as for fixed assets in 1952-55 and equal to two-thirds of the latter in 1960-61.[16/] This last proportion tallies with the figure obtained from a similar analysis of Brazilian enterprises in 1959-62. In Chile, over the much longer period between 1949 and 1961, the funds allotted to inventories were one and a half times as much as those destined for fixed capital. In Colombia and Venezuela, the corresponding ratios were lower, but still quite considerable, being 36 per cent in 1958-62 and 45 per cent in 1961 respectively. In the United States, the ratio in 1960 was only 27 per cent.

The fact that inventories account for a large proportion of the total tangible capital held by Latin American industry obviously has an important bearing on the financing of industrial development, since funds are thus appropriated that could be better employed in improving or adding to the fixed assets on which, in the last analysis, the scale and efficiency of production depend. There seem to be a variety of reasons

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15/ The 1960 industrial census in Mexico shows a still lower ratio, with fixed assets constituting only about 53 per cent of the capital.

16/ The source and scope of this and other information are explained in chapter III of this study in relation to the financing of industrial development.

for the unfavourable nature of the ratios, apart from shortcomings in the inventory policies followed by the enterprises themselves. As regards stocks of raw materials, which, in Chile at least, form more than half the total, the question is complicated, first, by the fact that industry uses a large proportion of imported raw materials and therefore has to stock enough for several months of work as a safeguard against possible shipping delays or changes in over-all import policy. Secondly, manufacturers are compelled to buy, within a given period of time, a large enough supply of certain domestic raw materials (mainly seasonal agricultural products) to cover their entire annual requirements, owing to the complete lack of a national distribution system to defray the cost of keeping inventories replenished, or, to the shortcomings of such machinery where it exists. Then, too, the deficiencies of the marketing system mean that industrial firms have to hold large inventories of finished goods, without being able to shift more than a part of the financial burden involved to the trade sector.

The impact of these factors is made even greater by the other working capital requirements of Latin American industrial undertakings in present circumstances. These requirements are mainly due to the credit granted by manufacturers for the placement of their products, which, as will be demonstrated later, often far exceed the short-term loans received by industry from lending agencies. The same surveys on sources and uses of funds in respect of industrial enterprises indicate that, in some Latin American countries, during the periods referred to, more funds were alloted to working capital than to fixed assets, the proportion of the total amount of capital being 30 per cent in Argentina (in both periods), 44 per cent in Brazil, 28 per cent in Chile, 25 per cent in Colombia and 19 per cent in Venezuela against only 14 per cent for United States enterprises. Similar conclusions are suggested by other estimates, although the concepts involved are slightly different. For instance, it is calculated that in the United States, in 1953, 0.32 units of circulating capital were needed per unit of gross output, while in Mexico in 1962 the equivalent figure was 0.47.

/In short,

In short, working capital requirements - including inventories, credit, demand deposits and other values - absorbed a proportion of the total funds ranging from 55 per cent in Colombia and Venezuela to about 70 per cent in Argentina, Brazil and Chile, against only 32 per cent in France (1953) and 37 per cent in the United States (1960).

The unsatisfactory structure of industrial capital in Latin America, which is distorted by the unduly heavy emphasis placed on working capital in comparison with the balance maintained in other countries, is revealed as even more unfavourable if the composition of fixed capital is analysed by types of assets, with machinery and equipment on the one hand, and buildings and general installations on the other. To judge by the information available, machinery and equipment represent barely 60 per cent of total fixed assets in the Latin American countries, as against 70 per cent in the Federal Republic of Germany (1955). In Venezuela, at least, there seem to be no marked differences in this respect between the various industrial categories for small industry the coefficient is 57.4, in two strata of medium-scale industry it is 60.8 and 33.4 respectively and in large-scale industry 57.9 per cent.

In short, the picture presented by this combination of factors as regards the composition of industrial capital in Latin America and the financial resources needed for the development of the manufacturing sector is singularly unfavourable.

The fact that the price of capital goods tends to be higher than in other economies, and the frequent need of investment in sectors that are not part of the productive process itself (energy, water supplies, social services) means that more capital is required per unit of output. This is not always revealed by comparative analyses because of the structural differences in the various branches of industry or the arbitrary inclusion of certain artisan activities. Then, too, a relatively high proportion of buildings and other works to machinery and for equipment production proper intensifies demand for fixed capital investment. In addition, a vast amount of working capital is

needed to keep up a proportionately large stock of raw materials and end goods, and a fairly sizable volume of credit has to be granted by the industrial firms themselves to facilitate the sale of their products.

Industrial financing policy and the possibilities it offers of dealing with this body of adverse factors will be the theme of the following chapter. The point focussed on at this juncture is the vital need for the fullest and most efficient use to be made of the production capacity available, precisely because of the harmful influence of those factors and the shortage of capital characteristics of less advanced countries.

Here, too, the information and opinions that can be pieced together add up to a bleak picture. In fact, they indicate that one of the salient features of Latin American industry at the present time is its failure to make proper use of the production capacity available.

This contention is applicable to most of the Latin American countries, although in varying degrees depending on the nature of the manufacturing activities existing there. In Argentina, for instance, a survey of the industrial outlook[17/] in 1961, 1963 and 1964 showed that the coefficient of utilization of capacity - expressed in terms of actual production as a percentage of the maximum attainable - varied from 40 to as much as 82 per cent during the intermediate or most unfavourable period. The lowest coefficients recorded in 1963 were for metal-working, motor vehicles, machinery and electrical apparatus (between 40 and 45 per cent), and the three-yearly averages were also less than 60 per cent in the food, beverages, wood and paper and paperboard industries. The highest coefficients were for tobacco, leather and petroleum products, under-utilization being

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17/ See Encuesta sobre expectativas económicas de producción e inversión de las empresas industriales. Preliminary findings of a study undertaken by the National Development Council, National Budget Section in November 1961.

about 25 per cent (although inclined to vary greatly) in such branches as textiles and made-up goods, printing, chemicals, rubber and non-metallic ores.[18]

In Colombia, rather old estimates (for 1953) show that utilization was low in the food industries, 30 to 40 per cent in tobacco manufacturing, and incomplete in the chemical industries which have a single working shift. The cotton textile industry, with three shifts used its capacity intensively, and in the silk mills utilization was virtually 100 per cent. For woollen goods, however, it was only 30 to 60 per cent. The metal-transforming industries generally operate on the basis of one-eight-hour shift, and the rubber industries on two shifts, while the paper mills work round the clock, but for three days a week only.

The estimates relating to Chile are for 1957, and are expressed in terms of actual production as a percentage of the maximum gross production attainable. This is understood to mean the production level attainable by large-scale industry if full use is made of installed capacity with three shifts of eight hours each,[19] by medium-scale industry with two shifts and by small-scale industry with one shift, due allowance being made for the special methods of work adopted in certain industrial branches. On the basis of this concept, utilization was estimated to be 55.3 per cent in the major industries, 33.1 per cent in the medium-scale branches and 50.3 in

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18/ In order not to interpret these figures wrongly, particularly in comparing them with the figures for other countries that will be quoted later, it should be borne in mind that the concepts on which they are based are often very varied and subjective criteria are followed rather than precise statistical measurements. For instance, it has to be decided what number of working hours per year should be taken as the standard figure and how to make an over-all assessment of an establishment in which the different sections or departments do not have the same maximum production capacity.

19/ The broad definition of large-scale industry, which begins at a rather low level of employment per establishment, may lead to an overestimation of its production potential on the basis of three shifts.

small industry, against the entrepreneurs' own figures of 69.3, 53.9 and 51.4 per cent respectively. The metal-transforming, chemical, wood, clothing, footwear and tobacco industries have particularly low utilization coefficients, whereas those for the basic metal trades, petroleum and coal products, pulp and paper and beverages are much higher than the average.

Estimates for industry in Ecuador, in 1959 and 1961, show that idle capacity in factory sector amounted to about 40 per cent and, although varying from one branch to another, was fairly high in all cases, except for that of petroleum products in 1961.

The estimates for Venezuelan industry in 1961 are equally significant. They show that a large number of production lines used less than 50 per cent of their installed capacity, while others utilized proportions ranging from 50 to 75 per cent.

Many reasons can be found to explain the paradox of an industrial sector which, on the one hand, does not have a particularly rapid rate of growth, suffers from general shortage of capital and has great difficulty in financing its operations and, on the other, has an appreciable amount of installed capacity that is not used to the full. Some of these are undoubtedly related to the market, which is too small to justify an expansion in the volume of production despite the presence of all the necessary factors of production. The market is, however, too general an explanation, since it involves in its turn, a whole host of different situations.

In some cases, the activities concerned may, although concentrated in a small number of enterprises or even constituting a monopoly, be compelled for technical reasons to use minimum economic scales that go well beyond the limits of the present market. Hence, as demand expands, a certain amount of surplus capacity is bound to result unless more old-fashioned technologies are reintroduced. This seems to be the state of affairs in some newly developed branches of the dynamic industries. Conversely, in the case of some activities that also count as dynamic industries and are subject to the same technical

limitations, a large number of plants has been deliberately established even though their aggregate capacity may exceed the immediate absorption capacity of the market. In such cases the margin of underutilized capacity is to some extent the price paid for maintaining a certain amount of competition among domestic suppliers. However, surplus capacity is also apparently to be found in traditional industries, where the number of undertakings is greater and the technological restrictions of minimum production scales count for far less.

In cases such as this, the underlying reasons have less to do with the market - although its enlargement would naturally help to solve the problem - than with shortcomings in production planning, or failure to use the resources accruing from the reinvestment of profits which tend to be ploughed back into the same activity instead of being diverted to others that are still short of production capacity. The problem is thus bound up with the inefficiency of capital markets and with the generally unselective nature of the machinery and incentives used to promote industrial investment which, moreover, seldom include specific provisions for rewarding the more intensive use of available capacity. The very fact that many enterprises are family concerns whose members are reluctant to hand over responsibility to salaried employees, combined with the shortage of technical personnel capable of assuming such responsibility, limits the number of hours that can be worked per day, and means that a good many establishments prefer to increase their equipment rather than add to the number of shifts. The same result is obtained by certain labour regulations that raise the cost of the wages payable to workers on the extra shifts.

There are, in short, a whole host of factors which range from the structural to those connected with types of industrial policy. Their effects, however, are equally prejudicial, as regards both the financing of industrial development as a whole and the incidence of capital charges on operational costs, and intensify another adverse feature in the Latin American manufacturing sector, namely, the high costs of production, which will be dealt with at length in later sections.

3. Industrial employment

The analysis of the history of Latin American industrial development and of the characteristics of the present-day industrial establishment have brought to light some of the fundamental aspects of labour absorption capacity in the manufacturing sector and the pattern of industrial employment. It has been demonstrated that in a context of rapid demographic growth and even swifter urbanization set against relatively slow growth for the over-all product, the continuous increase in the labour force has given rise to a serious employment problem, which manufacturing industry is ill-equipped to solve. Although, over the long term, industry is employing a larger proportion of the active population, this is not true of total urban employment, the result being an increasing margin of labour that is either underemployed or else employed in services with an extremely low productivity level. Moreover, industry's capacity for labour absorption is not merely low in relative terms, but has tended, for structural, technical and institutional reasons, to decline in proportion to the march of industrialization. The very diversification of manufacturing production in response to the changes in demand and the possibilities of import substitutions has led to more rapid development of the production lines that tend to be less labour intensive in comparison with the traditional branches, whose naturally slow tempo of growth has been made even more sluggish by persistently regressive features in income distribution. Then, too, technological assimilation has tended to be passive, and to consist in the incorporation of techniques designed for economies with an entirely different set of productive resources and, above all, a more or less marked shortage of labour. The preference for capital-intensive techniques has been strengthened by another series of factors that form part of the Latin American development process: namely, sharp distortions in the prices of the factors of production in relation to the levels that may be considered as representative of their "social cost" (for one reason because of the import policy adopted and preferential treatment generally accorded to machinery and equipment); heavy increases in labour costs as a result of the levels and modes of financing social security expenditure;

/in some

in some cases, a preference based on political and social considerations for techniques that limit the absolute volume of employment in individual enterprises, and thus make it difficult for trade unions to be placed on a strong footing or even to be set up at all; and the incentive to adopt more automatic production processes that stems from the shortage of trained personnel to handle equipment that is less costly but whose performance depends to a greater extent on the skill of the workers. Lastly, the gradual modernization of the industrial sector as a whole has led - in relative terms at least - to the steady replacement of artisan activities by factory industry with a very much higher level of productivity and hence a much lower labour input per unit of product.

As the process of substitution is still far from coming to an end, artisan activities can continue to be one of the main sources of labour for the future expansion of factory employment, in addition to the relatively rapid increase in the active population.

At the present time, Latin American manufacturing industry employs about 10 million persons, representing 5 per cent of the total population and 14 per cent of the active population. The distribution of this labour force by countries and by factory or artisan employment is set forth in table 9. The figures relate to 1960 and are subject to the reservations already expressed with respect to definition and coverage.

Table 9 indicates that nearly half the total number of persons employed in manufacturing industry are in the artisan sector. The proportion naturally varies a great deal among the different countries, depending mainly on their respective degree of industrialization but also quite considerably on the extent to which artisan tradition has been preserved in their economic and social organization.[20/] The very significance of artisan employment and its relation to factory employment usually vary as

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20/ This is true of Bolivia, Ecuador and Paraguay, and to a lesser extent of Colombia and Peru, but not of Uruguay and Venezuela. For the same reason, the ratio of employment in manufacturing (which is heavily influenced by artisan employment) to the total active population is seldom a sound indication of the progress made by industrial development.

/Table 9

Table 9

LATIN AMERICA: ESTIMATED STRUCTURE OF EMPLOYMENT IN MANUFACTURING, 1960

Country	Total employment in manufacturing (thousands of persons)	Factory sector	Artisan sector
		Percentage	
Argentina	1 720	58	42
Bolivia	185	12	88
Brazil	2 850	56	64
Chile	447	54	46
Colombia	748	34	66
Costa Rica	43	44	56
Cuba	400	59	41
Dominican Republic	90	50	50
Ecuador	251	20	80
El Salvador	98	44	56
Guatemala	105	36	64
Haiti	101	18	82
Honduras	44	30	70
Mexico	1 556	64	36
Nicaragua	51	24	76
Panama	26	58	42
Paraguay	82	22	78
Peru	536	38	62
Uruguay	210	71	29
Venezuela	295	60	40
Total	9 838	52	48

Source: ECLA, on the basis of official statistics.

/well, as

well, as has been indicated in the discussion of the characteristics of Latin American industrial establishments. At that time, a study was made of some data on labour productivity in terms of the value added per employed person in the artisan and factory sectors and in different strata of factory industry, and on installed capacity per worker, which is fairly indicative of the extent to which the production process has been mechanized. These ratios will be supplemented by similar coefficients when the present composition of manufacturing production is examined. The incidence of productivity levels and nominal wages on the cost of goods manufactured can thereafter be gauged in a proper perspective, in relation to the price and cost of industrial products in Latin America.

The statistical annex includes the principal data on employment distribution by branches of industry. It brings out clearly the fact, which is well-known in a general way, that a large proportion of the labour force is absorbed by the traditional industries, particularly those making foodstuffs, clothing and textiles.

As many points will be dealt with in other sections, it has been thought best to confine the discussion at this juncture to two factors that have a particularly important bearing on employment in the manufacturing sector: the training given to industrial labour and the share of industrial income that accrues to the wage-earners in the sector.

Training for the industrial labour force has been increasingly emphasized as a vital problem, in the light of both present conditions and future prospects of industrialization in Latin America. For instance, lack of proper training is thought to be partly responsible for the relatively low level of industrial productivity in the region and for the preference that is sometimes given to more automatic production techniques in which skilled labour counts for much less, although they may be more capital-intensive and thus offer fewer employment opportunities. Similarly, lack of training is regarded as a barrier to more rapid growth and to changes in the structure of industrial production involving the assimilation of techniques that call for a more highly skilled labour force.

/The very

The very nature of the subject makes it difficult to analyse in the light of the kind of statistical data normally collected on existing industry. General information of this kind would be too limited for exploring the relationship between the labour force's degree of training and level of productivity in particular branches or sectors; comparisons of this kind can only be useful to the extent that it is possible for allowance to be made for such factors as capital investment per employed person, and the efficiency with which production is generally organized and administered. However, stress has been laid on their importance in some studies that have made projections of skilled labour requirements in specific lines of industrial development and their relation to current training facilities, although they have tended to confine themselves to the technical and professional categories.

For instance, a survey of establishments with more than 50 workers and a total employment of nearly 200,000 persons carried out in Colombia in 1963 indicates that unskilled workers constitute more than 46 per cent of the entire number employed, skilled workers 33 per cent and office staff nearly 15 per cent, with 2.1 per cent for management, 1.4 per cent for professional personnel and 1.1 per cent for professional staff at the intermediate level and technical staff. For economic activities in the aggregate, slightly over 6 per cent of the high level personnel, which comprise the last three categories mentioned, are foreigners. Employers' estimates of their additional requirements as regards professional and technicians in 1963-70 exceed present levels by nearly 70 per cent.[21/]

A previous estimate relating to Peruvian industry in 1955 [22/] shows that less than 22 per cent of the total number of persons employed were skilled workers, the proportion varying considerably according to the particular branch of industry, from less than 10 per cent for food and manufactured goods to nearly 50 per cent for machinery and electrical

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21/ Instituto Colombiano de Especialización Técnica en el Exterior (ICETEX), Recursos y requerimientos de personal de alto nivel, 1963.

22/ The industrial development of Peru, op.cit.

equipment and printing and about 70 per cent for made-up goods and rubber. The professional and technical staff represented 2.5 per cent of the total, again with appreciable differences from one branch to another - the maximum being 8.1 per cent for machinery and electrical equipment. If these figures are compared with possible requirements in accordance with certain hypotheses on the development of the manufacturing sector in the following decade, the proportions of skilled workers and technical staff will rise to 31.8 and 3.2 per cent respectively. In absolute terms this means that more than 50,000 workers and nearly 5,000 professional and technical staff have to be trained.

A similar estimate for Argentina industry in 1956 [23/] indicates that of a total of 750,000 industrial workers, 28 per cent consisted of skilled hands. This proportion was much the same for the slow-growing as for the dynamic industries, but varied widely from one branch to another. In the case of engineers and technical staff, on the other hand, the respective proportions of the total were 4.2 per cent in the dynamic industries as a whole and 2.1 per cent in the slow-growing industries. A hypothesis concerning educational and training requirements in relation to certain rates of industrial growth estimates that by 1967 the proportions will be 32 and 37 per cent for skilled workers in the slow-growing and dynamic industries respectively, and 2.3 and 5.8 per cent for technicians and engineers in the same industrial groups. In other words, in the space of ten years, 270,000 workers must be trained together with 25,000 technical experts and 8,000 engineers.

Information such as this, however general and fragmentary, does at least serve to indicate the magnitude of the problem. Its complexity has also been brought out by the efforts that are being made in the region to satisfy these requirements and by the difficulty of deciding which are the best lines of action to take.

23/ El desarrollo económico de la Argentina, op.cit.

/In fact,

In fact, the mass of data that has been collected[24/] seems to show that there is no general solution to the problem of how to train labour to work efficiently in industry. Time and place are factors of decisive importance, while the continuous assimilation of new techniques makes it particularly difficult to reach fairly clear-cut conclusions on the kind of training that is essentially required.

Modern techniques do not inevitably create a demand for homogeneous productive skills, and the superimposition of skills that correspond to a number of different technological stages within a single enterprise and production process is more frequent than is supposed. The fact that some of the old-fashioned industrial jobs continue to exist side by side with the new posts created in response to the demands of modern equipment, counsel prudence in the search of a suitable solution. The variable nature of the tasks that have to be performed is another notable feature of contemporary industry, and means that the ability to adjust quickly and efficiently to changing production conditions is a manpower attribute greatly sought after in manufacturing. But over and above all this, although connected with the power to adapt, what the world of industry demands of its workers is the ability to come to terms with the social values and norms implicit in the rational organization of the work and an

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24/ An extensive bibliography exists on this subject. With respect to the situation in Latin America there are the papers presented at the first seminar on the planning of vocational training (Río de Janeiro, October 1964), in particular: Leonardo A. Cozza, La formación en centros y escuelas (Brazil, Chile and Ecuador), Cinterfor/64; Servicio de Cooperación Técnica Filial Corfo, Informe sobre la planificación de la formación profesional en Chile (Santiago, Chile, August 1964); Report of the Instituto Nacional de Cooperación Educativa (INCE), Venezuela, September 1964; Report of the Universidad del Trabajo of Uruguay, August 1964; Seani, Departamento Nacional Divisao de Ensino e Orientaçao Escolar, Escolas, cursos, matriculas (Argentina, Chile and Uruguay), Buenos Aires, August 1964; H. I. Jasminoy, Informe preliminar sobre la formación de la empresa en Brasil, 1964; G. Preciado Calvo, La formación de la empresa (Colombia, Perú and Venezuela) 1964; R. Martínez Tono and A. Wilches Martínez, La planificación de la formación profesional en el "Sena" de Colombia (Bogotá, 1964). See also M. Goldway, Planning as vocational education in Chile (UNESCO, Tab/182/64) and Informe sobre la creación del Instituto Nacional de Adiestramiento - INA (Ministry of Labour and Social Welfare, Costa Rica, 1964). There are also a number of other works which have been used purely as reference material for lack of time.

improvement in productivity; that is, the need for what is sometimes termed a sense of responsibility, devotion to duty and a certain amount of initiative transform the problem from one of training pure and simple to one of education and willingness to accept the obligations imposed by effective "industrial discipline".

The problem thus exceeds the bounds of training for a particular purpose. The information and practical experience accumulated in this field, and, in particular, in some of the Latin American countries, indicate that flexibility will be a key element in the respective solutions adopted at a given moment as a counterbalance to the changeability that is an inherent feature of industrial development and exists side by side with the variety of technical and professional qualifications that is demanded at each stage. The choice of an unduly rigid institutional formula is thus easily apt to lead to incompatibilities between production capacity and the skills required by industry in terms of both quantity and quality.

A second point, which leads on from the conditions described above, concerns the advantages of maintaining the closest and most direct co-ordination possible between manufacturing activities and training programmes so that optimum use can be made of the resources available and the programmes can be adapted to the constant changes that take place in manpower requirements during the course of development.

It is also clear that technical training programmes cannot replace the fundamental education provided by a general school curriculum. The development of certain modes of thought and mental attitudes, adaptability, and quick reactions are qualities that are best nurtured by those educational establishments whose purpose is to give the whole population a broad education. In many of the new industrial branches the staff are required to possess these basic qualifications, which make them technically equipped to carry out duties that are as highly specific as they are changeable.

High-level manpower training often involves the reorganization of technical courses of studies at the advanced level so as to slant them towards productive work. In this respect, it is vital to strike a balance

/between purely

between purely academic goals and the more specific needs of manufacturing industry. The solution often chosen has been to establish separate institutions for training the higher industrial cadres but, despite its success, the co-ordination of these institutions with the central educational system still presents some problems.

The difficulties are to be found less in the more formal aspects than in student recruitment. The traditional careers that are furthest removed from productive activities tend to have more prestige and to exert a greater attraction for the better-qualified candidates, technical training thus being left as an inferior alternative for students at lower levels. Rather than the addition of specialized programmes, the basic requirement therefore seems to be the inclusion of science and technology as key elements in general school curricula, so that a form of education geared to productive activities can gradually be brought into being and made accessible to the population as a whole.

These observations are merely intended to illustrate the nature of the problems confronted in training manpower and technical staff for industry, which in itself warrants a special study. Consequently a similar analysis should now be made of the other important aspect mentioned, namely, the share of the income generated by the manufacturing sector that falls to the wage-earners; in other words, the distribution of industrial income and hence the part played by industry in moulding the general features of income distribution in the Latin American economies.

Some points of interest emerge from the analysis of census data on the wage rates paid by industry and the number of persons employed. For instance, table 10 shows that wages per person varied considerably from one branch of industry to another, the ratio between the extremes being 1 to 2 in Brazil, 1 to 3 in Chile, Mexico and Venezuela, and 1 to 5 in Colombia. The lowest levels are usually found in the footwear and made-up goods and the wood and furniture industries, while the highest are for petroleum and coal products and transport equipment in the case of Brazil and for rubber in that of Peru. As the classification is made by very broad branches of industry, the differences will become much more pronounced if a further division takes place by more specific industrial sectors, or if a distinction is made between different strata on the basis of size or degree of modernization.

/Table 10

Table 10

SELECTED LATIN AMERICAN COUNTRIES: DIFFERENCE IN AVERAGE WAGES PER EMPLOYED PERSON BY BRANCHES OF INDUSTRY

(Index for industrial industry average)

Branch of industry	Brazil (1960)	Chile (1957)	Colombia (1960)	Mexico (1960)	Peru (1960)	Venezuela (1961)
Food, beverages and tobacco	82.3	101.8	98.2	84.9	85.5	91.9
Textiles	84.8	84.4	107.0	99.0	123.3	93.0
Footwear and made-up goods	89.6	74.9	62.0	55.4	71.7	75.6
Wood and furniture	77.5	70.2	73.0	74.2	74.4	84.8
Paper	108.4	122.3	109.1	142.6	103.2	116.5
Printing	117.7	149.2	108.1	119.7	128.4	114.9
Leather	83.9	103.8	88.9	83.4	83.0	76.3
Rubber	140.5	114.6	129.1	141.9	184.1	127.5
Chemicals	138.4	130.5	132.9	150.8	110.5	136.0
Petroleum and coal products	a/	168.4	320.5	161.3	85.4	212.6
Non-metallic ores	76.0	106.9	88.2	102.6	120.9	102.0
Basic metals	123.2	161.5	125.3	150.9	120.9	129.7
Metal-transforming	141.2	99.5	105.1	95.6	92.7	94.7
Miscellaneous	108.3	79.7	95.7	89.6	88.6	69.4

Source: Basic data from censuses or official industrial surveys.

a/ Included in chemical industries.

/On the

On the last point, the only information available relates to Colombia and Venezuela. If artisan activities are discounted, the average wage per person employed in small-scale industry in Colombia is two-thirds of the rate paid in medium industry and less than half the average in large-scale industry. Although these disparities are partly attributable to structural differences between the strata, they are fairly well-marked even within a single branch of industry. The same is true of Venezuela, although to a lesser extent, the average wage paid per person employed in large-scale industry as a whole being over 80 per cent more than the average in small industry.

This wide margin of variation is coupled with another equally significant factor, i.e. the very low ratio usually found between the amount of wages paid and the value added by industry. The averages are almost the same (between 26 and 27 per cent) in Brazil, Chile and Colombia and slightly higher (31 per cent) in Venezuela (see table 11). The differences between branches of industry are also appreciable, while maintaining an inverse proportion to the variations in wages per person, the lowest wages in absolute terms tending to coincide with a higher relative share of wages in value added, and vice versa. The same conclusion can be drawn in relation to the classification of the strata by size of establishment in the two countries on which information is available. In Colombia, the ratio of wages to value added is 33 per cent in small industry, 30 per cent in the intermediate sector and 24 per cent in large-scale industry, while in Venezuela it is 42, 32 and 25 per cent respectively.

These data give rise to two main conclusions. First, the share of wages and salaries in value added by industry is very low in comparison with their share in other economies, which means that industry is also helping to some extent to preserve the generally regressive nature of income distribution in Latin America. Secondly, the wide disparities between per capita remuneration in different industrial strata and branches seem to be connected to a certain extent with the respective levels of productivity, with the result that the lowest wage levels account for a relatively larger share of the value added in the sector concerned.

/Table 11

Table 11

SELECTED LATIN AMERICAN COUNTRIES: RATIO OF WAGES TO VALUE ADDED BY INDUSTRY a/

(Percentages)

Branch of industry	Brazil (1960)	Chile (1957)	Colombia (1960)	Venezuela (1961)
Food, beverages and tobacco	0.19	0.19	0.17	0.21
Textiles	0.35	0.31	0.31	0.43
Footwear and made-up goods	0.37	0.33	0.37	0.41
Wood and furniture	0.32	0.30	0.46	0.57
Paper	0.22	0.28	0.24	0.34
Printing	0.36	0.41	0.42	0.48
Leather	0.29	0.34	0.28	0.36
Rubber	0.19	0.23	0.31	0.31
Chemicals	0.20	0.26	0.22	0.28
Petroleum and coal products	b/	0.08	0.19	0.23
Non-metallic ores	0.28	0.33	0.35	0.36
Basic metals	0.27	0.22	0.12	0.62
Metal-transforming	0.28	0.36	0.41	0.43
Miscellaneous	0.32	0.29	0.30	0.40
Total	0.26	0.27	0.26	0.31

Source: Basic data from censuses or official industrial surveys.

a/ Mexico and Peru have not been included in this table for want of comparable data.

b/ Included in the chemical industries.

/Viewed from

Viewed from another standpoint, the figures indicate that, in the economic and social conditions prevailing in many Latin American countries, the possibility of maintaining a wide range of wage rates has become an expedient for counterbalancing many of the disparities in productivity and efficiency between different types of enterprises. By dint of paying lower wages, the less productive enterprises are able to keep their footing in the market, from which they would certainly be dislodged if other forces powerful enough to support a more uniform wage system were to prevail. In other words, the need to maintain specific salary and wage rates is not a factor which in itself makes for modernization and greater efficiency in the more backward enterprises. Meanwhile, the enterprises enjoying a higher productivity level are able to retain a larger proportion of the value added, of which a small portion is spent on raising the wage of their workers in absolute terms. This, then, is a situation which embodies more than one adverse factor, as regards both the forces that make for increased industrial productivity and the income received by the wage-earners.

The general characteristics of low proportions of wages and salaries in the total amount of value added by industry and relatively marked differences in average wage levels per person in different branches or strata of the manufacturing sector can be traced to a number of factors, among them the ineffectiveness of the legislation on minimum wage rates, which either offers loopholes or else keeps the statutory payments low in absolute terms.

The general employment situation, to which repeated references have been made, is undoubtedly a basic factor. Because of this situation, urban centres already contain an extremely large reserve of labour either unemployed or engaged in unproductive activities for whom openings in industry mean a substantial improvement, at least as regards the prospect of steady and permanent work.

Given these structural conditions, it is almost inevitable that trade unions should be weak, their weakness being the second reason for the levels and variability of industrial wages. Some of the general features of the trade union movement in Latin America will be outlined here since they help to explain its debility.

/To begin

To begin with, the legal framework within which the trade unions operate often has a restrictive effect on their activities by limiting their functions, excluding, for instance, many of those proper to mutual benefit societies, keeping strict control over the ends for which they may meet and handle funds, and, prohibiting, among other things, the establishment of federations.

Government legislation on trade unions during the thirties favoured the replacement of the former groups of labour élite by institutions capable of absorbing much bigger numbers of workers, but endeavoured at the same time to temper their political and ideological position by increasing the bureaucratic functions in the new systems of labour relations. As a result of the emphasis placed on bureaucratic functions, the trade union movement became widespread not only - or even mainly - by dint of the workers' own efforts but also because of deliberate action by the State. In fact, in most of the Latin American countries, the growth of the trade union movement has been tied to certain government policies, trade union locals and national unions being promoted "from the top" with the dual purpose of securing more control over their activities and assuring their backing for certain power groups. Consequently, the trade union structure that has emerged must have government support in order to obtain satisfaction in labour disputes and the influence of the Government is often a key factor in settling such disputes and obtaining benefits and concessions for the workers.

Other factors prejudicial to the strengthening of the trade unions have played their part in the outcome. For instance, the rural origin of large groups of the labour force, in a process in which urbanization has generally preceded the development of industry, has reduced the strength and significance of workers' organizations. Instead of trying to improve their working conditions as such, they have concentrated on obtaining a firmer footing in urban life, thereby embarking on a struggle for services and better living conditions that can hardly be regarded as part of the work of a union. More generally, as a result of the new forms of mass consumption that have sprung up, the economic participation of the working sectors in urban life, - however high they may aim -, is only indirectly

connected with the trade union movement. Instead, other types of organization such as new community committees and neighbours' associations are founded and expanded, thus giving rise to a "workers' movement" of an entirely different kind from the unions proper.

The structure of the industrial enterprise does nothing to disturb this pattern. The great number of small, scattered establishments virtually precludes a satisfactory level of organization and trade union membership therefore tends to be very low in relation to the labour force as a whole. With productivity varying widely among the different industrial strata, workers in the least efficient have little prospect of improvement and promotion and tend to become resigned to their fate, while the better openings offered by the more efficient industrial enterprises undermine the solidarity of the trade union movement as a whole.

Apart from the general weakness of this movement and the fact that a large proportion of the labour force is unorganized, another factor making for disparities in wage rates is the type of trade union organization that predominates in Latin America. The distinction drawn between the legal status of a "professional" and an "industrial" trade union inevitably leads to a state of affairs that does little to bring about a more uniform wage system. But the root of the problem continues to be the organizational barriers to joint action on the part of the broad production sectors that comprise the main body of workers, coupled with the piecemeal nature of trade union organization which makes for the emergence of small groups of workers each pursuing interests that are seldom compatible and often conflicting.

An important exception to the ratios described is the case of Argentina. The last published census (1954) showed a coefficient of 35 per cent for the ratio of wages to value added by industry, which is much higher than in other Latin American countries.[25/] This increase in the share of wages coincides with a trade union organization which, although displaying some of the basic features described above, seems to be more developed and to have broader scope for action. Membership is high and there is a particularly

25/ On the basis of the national accounts recently published by the National Development Council, a similar ratio can be calculated for 1961 between wages and salaries paid in the manufacturing sector and the gross domestic manufacturing product at market prices. According to the same source, the ratio between the two in 1964 should be 40 per cent.

/strong national

strong national union comprising the bulk of the labour organizations. The ample funds at the union's disposal give it a wider and more effective radius of action, and enable it to engage technical experts to assist it in studying the main problems of its member locals.

Lastly, it must be pointed out that no definite improvement can be discerned either in the share accruing to wages in the industrial product or in the sharp disparities between the average wages paid in the different strata of the manufacturing sector.[26/]

Labour legislation - except for the basic minimum wage provision which is limited in application - seems to have done little to modify these conditions. Moreover, the fact that certain countries are primarily concerned with controlling inflation has led to the institution of a general system of wage and salary adjustments related to some extent to the rise in the cost of living. The wage problem has thus become a question of preserving a given level of purchasing power rather than of ensuring that the workers benefit from increased productivity, or that wages account for a larger share of the total industrial product. In some cases, the extension of social security and the provision of other services such as housing, day nurseries, etc., has had a compensatory effect and, in practice, represents indirect additional income.

The problem of income distribution should not, of course, be approached from the standpoint of industry alone but should be regarded as a part of economic and social development policy in general. At the same time, however, it should be borne in mind that manufacturing industry is better equipped than other sectors to contribute to a more progressive pattern of income distribution in Latin America. Then, too, the problem is of particular interest to industry over the long term, since it involves the size of markets for manufactured goods, whose present limitations are largely a result of the prevailing income structure, as will be explained in detail in a subsequent section dealing with the volume and characteristics of the supply of manufactured goods.

26/ It is difficult to make an exact comparative analysis of censuses taken at different dates because of the medley of census tabulations. In Brazil, the share of wages in industrial value added should have declined from 23 to 19 per cent between 1950 and 1960 according to the relevant censuses. In other countries, the trend follows the pattern displayed by general national accounts statistics, such as those of Argentina.

4. Level and composition of manufacturing production

As explained above, manufacturing has come to absorb a significant proportion of the capital accumulated by the Latin American economies, and to employ as much as 14 per cent of the region's total active population. With this fund to draw upon, it has been able to generate over 23 per cent of Latin America's gross product, which is a clear indication of the sector's ability to achieve a higher productivity of the factors of production than the other sectors of the economy.

In absolute terms it can be estimated that the gross value of manufacturing production in Latin America now amounts to close to 50,000 million dollars a year, and that the value added is in the region of 20,000 million dollars a year. These figures show clearly that despite the region's considerable progress in industrialization, Latin American industry is very small in world terms, since it represents only 3 per cent of the world industrial product (including mining), although it absorbs nearly 6 per cent of the world labour force employed in manufacturing, and over 5 per cent of the world gross product. Another indication of its relatively low level is that the manufacturing industry in Latin America as a whole is only 20 per cent larger than the industry in Canada, where manufacturing was begun not much sooner than in the Latin American countries that are most developed in this respect.

Argentina, Brazil and Mexico (Group I), which have the highest levels of industrialization and the largest populations, account for nearly three-quarters of the total value of the region's manufacturing production, and over 80 per cent of the industrial product (that is, the value added in this sector). A second group of countries, at an intermediate level as regards population and level of industrialization, consists of Chile, Colombia, Peru, Uruguay and Venezuela (Group 2), and contributes about 17 per cent of the region's industrial product and one-fifth of the gross value of production.[27] The remaining proportions are provided by the

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27/ The proportions in terms of the gross value of production and of the industrial product are not strictly comparable, since the first are based on available data from censuses of industrial surveys, whereas the second are based on more general estimates on the sectoral distribution of the domestic product. For the purpose of comparability the analyses that follow are based mainly on the figures for the gross value of manufacturing production.

/other countries

other countries in the region (Group 3), with the exception of Bolivia, Cuba, Haiti and Paraguay, which are not included in these comparisons because of the lack of comparable data for 1960.

The same grouping of countries, in relation to the absolute size of domestic markets and levels of industrial development, can be used to study in greater detail the present structure of manufacturing in Latin America, omitting any sweeping generalizations which, as previously indicated, are unjustifiable in the light of the wide range of circumstances that must be recognized as prevailing in the present general picture of Latin American industry.

One comment of this nature relates to the structure of industry (see table 12). This table shows that for Latin America as a whole the food, beverage and tobacco industries represent nearly 30 per cent of the total value of manufacturing production, and if textiles, footwear and clothing are added the group represents 45 per cent of the total value. The chemical and petroleum-product industries accounted for slightly over 14 per cent, and the metallurgical and metal-transforming industries for nearly 22 per cent.

The preponderance in the regional total of the production of the three most highly industrialized countries (Group 1) means that the composition for Latin American industry as a whole corresponds closely to the composition in those countries, but the composition in the other countries is very different. One of the most striking differences relates to the participation of the food, beverage and tobacco industries, which declines sharply with an increase in the absolute size of the market and the relative level of industrial development. In the countries in group 3 this sector represents over 57 per cent of the total value of manufacturing output, as against less than 32 per cent for group 2 and only 27 per cent for group 1.[28/] The same is not true of the industries producing textiles, footwear and clothing; although in the less industrialized

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28/ These proportions are affected by the inclusion in the food industry of primary processing of certain foods, in some cases mainly for export, such as the threshing of coffee. In terms of value added, the proportion for these branches would be considerably less.

Table 12

ESTIMATES OF THE INDUSTRIAL STRUCTURE BY BRANCHES OF INDUSTRY IN THREE GROUPS OF LATIN AMERICAN COUNTRIES, 1960

(Values in millions of dollars and percentages of gross value of production)

	Total	Group of countries		
		Group 1 a/	Group 2 b/	Group 3 c/
Gross value of manufacturing production	47 831	36 034	10 122	1 675
Percentage composition	100.0	100.0	100.0	100.0
Food, beverages and tobacco	29.0	27.0	31.7	57.3
Textiles, footwear and clothing	16.1	15.0	19.9	17.0
Wood products and furniture made of wood	3.4	3.4	3.2	5.0
Paper and paper products	2.5	2.7	2.0	0.9
Printing and allied industries	2.2	2.2	2.4	1.9
Leather and leather products	1.5	1.6	1.3	1.3
Rubber and rubber products	1.9	1.9	1.9	0.8
Chemicals and petroleum products	14.3	14.3	15.8	6.8
Non-metallic products	3.7	3.7	3.6	3.8
Metallurgy and metal-transforming	21.9	25.0	13.6	3.6
Miscellaneous	3.5	3.2	4.6	1.6

a/ Argentina, Brazil and Mexico.

b/ Chile, Colombia, Peru, Uruguay and Venezuela.

c/ Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama and Dominican Republic.

/countries they

countries they represent a considerable proportion of the total (17 per cent), this proportion is even higher in group 2 (nearly 20 per cent), reflecting an almost complete substitution of imports of such goods, and then declines in group 3 (to only 15 per cent), as a result of greater diversification of manufacturing. Much the same is true of the chemical and petroleum products industries, although in this case there is a much greater difference between groups 2 and 3 - over two to one (15.8 per cent of the total as against 6.8), although it is probable that the high proportion for group 2 (higher than for group 1) is largely due to the inclusion of petroleum refining. For the metallurgical and metal-transforming industries, on the other hand, the proportion rises sharply and steadily, from less than 4 per cent for the less industrialized countries to 14 per cent in the intermediate group and 25 per cent as the average for Argentina, Brazil and Mexico.

Generally speaking these comparisons show that the sharpest differences in the structure of manufacturing is between groups 2 and 3, while the main difference between groups 1 and 2 is in the development of the metallurgical and metal-transforming industries.

Apart from the many features associated with the different branches of industry - a traditional or modern outlook, productivity, technological absorption, capital intensity, etc. - special importance attaches to these structural differences in so far as they reflect a greater or lesser predominance of activities classified, mainly with reference to the behaviour of demand for the products of those industries, as dynamic or slow-growth industries. The dynamic industries consist mainly of those producing chemicals, petroleum products, rubber products, paper and paper products, non-metallic mineral products, and, in particular, the metallurgical and metal-transforming industries. The slow-growth industries are those producing food, beverages and tobacco, textiles, footwear and clothing, wood products and furniture, and the printing and allied industries.

From this standpoint the differences in the industrial structure of the three groups of countries appears even more clearly in table 13. In the most industrialized countries nearly half the total value of manufacturing output is contributed by the dynamic industries; in group 2 the percentage is

/Table 13

Table 13

ESTIMATES OF THE INDUSTRIAL STRUCTURE IN TERMS OF DYNAMIC AND SLOW-GROWTH INDUSTRIES, IN SELECTED LATIN AMERICAN COUNTRIES, 1960

(Gross values of production and percentage of total value)

Groups of countries	Type of industrial activity		
	Total	Dynamic industries a/	Slow-growth industries b/
Absolute values (millions of dollars)			
Total	47 831	21 901	25 930
Group 1	36 034	17 750	18 284
Group 2	10 122	3 862	6 260
Group 3	1 675	289	1 386
Percentage composition			
Total	100.0	45.8	54.2
Group 1	100.0	49.3	50.7
Group 2	100.0	38.2	61.8
Group 3	100.0	17.3	82.7

a/ Includes paper and paper products, rubber products, chemicals, petroleum products, non-metallic minerals, and metallurgy and metal-transforming.

b/ Includes food, beverages and tobacco; textiles, footwear and clothing, wood products and furniture, and printing and allied industries.

38 and in group 1, with the lowest level of industrial development, it is only 17. However, the conclusions to be drawn from these comparisons are subject to certain reservations, from two standpoints. In the first place it is doubtful how far it is correct to define the demand for certain manufactured products in Latin America as slow-growth, in view of the low per capita consumption in most countries of the region and the margin for expansion in the context of a planned policy of general economic development. As will be explained in greater detail in subsequent sections, this question is closely linked not only to the level of income in Latin America, but also to its distribution, and consequently may be greatly affected by a policy of income redistribution, opening the way for a dynamic development of demand for many of the manufactures produced by what are now termed slow-growth industries.

Secondly, it is doubtful how far such groupings as those used in table 13 are valid, in view of the heterogeneity of the branches of industry defined at such a high level of aggregation. Even what may be regarded as typically dynamic activities, such as the chemical and metal-transforming industries, include varying proportions of a series of activities that are not really dynamic. Thus, for example, the chemical industries include the production of such articles as soap, candles and matches, and the metal-transforming industries include a vast number of semi-artisan workshops and occupations. The slow-growth industries, on the other hand, include certain lines of production for which the demand is undoubtedly more dynamic. Thus a more detailed analysis of the structure of industry is needed before a valid distinction on the lines indicated can be made. Such an analysis would probably show that for Latin America as a whole, and for each of the groups of countries referred to, the proportion of truly dynamic industries would be much lower, and the differences in the industrial structure of the groups of countries would be even greater from this standpoint.

In addition to the differences in the structure of industrial production by industrial branches, there is another significant structural distinction, relating to the trend of industrial production according to the use of its products.

/In Latin

In Latin America as a whole about a third of the present industrial output represents intermediate products for use as inputs both in other sectors (including building materials) and, above all, in the manufacturing sector itself (see table 14). Of the total output of end goods for domestic use, only 10 per cent are capital goods and 90 per cent manufactures for consumption; that is, there is a heavy emphasis on the latter, while the region's output of machinery and equipment of all types, and of transport materials, remains at a low level. Manufactures for export represent only 7 per cent of the total value of industrial production, and much of the export production consists of very simple processing of ores and agricultural products, so that the proportion of activities producing what might strictly be termed industrial products for export is in fact much lower than 7 per cent. Once again we have the same general features that are characteristic of industrialization in Latin America: the tendency to produce more for the consumer market, the under-development of basic production lines of capital goods and the major intermediate goods, the accent on import substitution and the small progress in the export of manufactures.

In relation to this general picture, also, the three groups of countries can be clearly distinguished in terms of the level of industrialization. If manufacturing production for export is excluded, for the reasons given above, the proportion of intermediate and capital goods in the region's total manufacturing output is determined by the industrial structure of Argentina, Brazil and Mexico, since in the other two groups the levels for these items are very low, particularly in group 3. With respect to the total value of production, intermediate goods represent over 35 per cent in group 1, about 26 per cent in group 2 and 22 per cent in group 3, and the corresponding percentages for capital goods are 8, 2 and 1.

Despite the imperfections of these comparisons, including an unavoidable arbitrariness in the grouping of the countries and the absence of a really uniform classification of production lines, there does emerge a picture of three more or less distinct industrial structures that should be borne in mind in describing the present situation of Latin American industry from the standpoint of its

/Table 14

Table 14

ESTIMATES OF THE COMPOSITION OF INDUSTRIAL PRODUCTION ACCORDING TO USE OF ITS PRODUCTS FOR THREE GROUPS OF LATIN AMERICAN COUNTRIES, 1960

(Gross values of production and percentages of total production)

	Total	Domestic use			Exports
		Intermediate use	Consumption	Capital formation	
Absolute values (millions of dollars)					
Total	47 831	15 974	25 382	3 127	3 348
Group 1	36 034	12 903	18 272	2 868	1 991
Group 2	10 122	2 696	6 004	239	1 183
Group 3	1 675	375	1 106	20	174
Percentage composition					
Total	100.0	33.4	53.1	6.5	7.0
Group 1	100.0	35.8	50.7	8.0	5.5
Group 2	100.0	26.6	59.3	2.4	11.7
Group 3	100.0	22.4	66.0	1.2	10.4

/composition by

composition by branches, the degree of predominance of the dynamic or slow-growth industries, and the distribution according to the use of its products.

Side by side with these distinguishing features there are others that tend to blur the distinction between the groups, and that appear in most Latin American countries regardless of the degree of industrialization or the absolute size of the market. Certain fundamental features of this type, such as relative costs and prices, are referred to in detail in later sections; here attention will be confined to a brief examination of two other aspects, the degree of concentration of manufacturing production and the trends with respect to location.

At the beginning of the present chapter there is a summary of the main background data on the industrial establishment and its classification by size, with emphasis on the fact that the group described as large-scale, in which there are comparatively few establishments, accounts for a substantial proportion of the total volume of manufacturing output. The degree of concentration of industrial production that this general ratio reflects cannot, however, be established on the basis of census data or general industrial statistics, nor would the results show significant differences in relation to an economy of such a different nature as that of the United States. On the other hand some studies on these lines provide information of an illustrative nature that gives at least a general impression of the situation in this respect. Thus, for example, what was defined in Chile in 1957 as large-scale industry consisted of 177 establishments, representing only 3 per cent of the total number but 50 per cent of the total gross value of manufacturing output, and an even higher percentage in terms of value added;[29] furthermore, even within this group, 12 establishments accounted for 40 per cent of the output of the whole group, and 20 per cent of the total industrial output in Chile.

29/ Max Nolff, in Geografía económica de Chile (CORFO, 1962), Vol. III, pp. 200 et seq.

/Similarly, in

Similarly, in Venezuela, it is estimated that in 1961 the 196 establishments in the large-scale group produced about 60 per cent of total industrial output.[30/]

These comparisons vary from sector to sector, and concentration is particularly high in the dynamic industries of recent development, where one or very few establishments represent relatively large volumes of production. Concentration also affects other sectors, including certain of the traditional industries, where the number of establishments is very high; for example, it is estimated that 10 per cent of Colombia's textile enterprises account for 70 per cent of the total output of this branch of industry.

As to location trends, Latin American industry is recognized as being concentrated in a very small number of large cities. It is estimated, for example, that the area of less than 5,000 square kilometres represented by the metropolitan area of Buenos Aires, the Municipality of Sao Paulo and Mexico City accounts for over a third of the total value of Latin American production, although it contains only about 8 or 9 per cent of the region's population. Within each country the two main industrial centres usually constitute a very high proportion of the nation's industry: 66 per cent, for the metropolitan area and Rosario, in Argentina; about 40 per cent for the municipalities of Sao Paulo and Guanabara in Brazil; 66 per cent for the economic areas of Santiago and Valparaiso in Chile; over 45 per cent for Mexico City and Monterrey in Mexico; 56 per cent for the Lima-Callao area in Peru, and about 75 per cent for the single city of Montevideo, in Uruguay.

In Argentina the trend is for the industrial concentration in the metropolitan area of Buenos Aires to spread all along the coast of the river Plate, to La Plata in the south and Rosario in the north. La Plata accounts for about 60 per cent of industrial production, the Province of Buenos Aires (including Rosario) as a whole for 66 per cent, and the provinces of Buenos Aires and Santa Fe together for 75 per cent. Apart

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30/ Encuesta industrial de 1961 (CORDIPLAN, November 1963).

/from Cordoba

from Cordoba the rest of the country consists of a series of small economic islands related more or less directly to the main or secondary industrial areas,[31] and moreover the communications between these islands is wholly inadequate. There is also a heavy concentration in the area of the capital for particular branches of industry, although to a lesser extent than for industry as a whole; for the food and beverage industry the proportion is 46 per cent, for non-metallic minerals (largely cement), 29 per cent, for textiles and rubber products it is extremely high, 92 and 98 per cent, respectively, and somewhat lower for electrical and leather products (80 per cent), paper and chemicals (72 per cent) and the metallurgical industries (78 per cent). For the machinery and motor vehicle industry, on the other hand, the concentration in the Buenos Aires area is being reduced because of the expansion in the provincial industrial centres of Cordoba and Santa Fe.

In Brazil the concentration in the coastal area around Sao Paulo and Rio de Janeiro, and in the region of Belo Horizonte in the interior, forms a triangle that accounts for about 80 per cent of the country's industrial production. Sao Paulo is the dominant centre, and contributes about 54 per cent of the total value added in industry, 39 per cent of employment and 28 per cent of the number of establishments. As in Argentina the concentration is less for some of the more traditional branches, particularly the food industry, where a higher proportion is in the States in the south and north of the country where there is more sugar production. On the other hand concentration is high for the intermediate and metal-transforming industries, and consequently the principal centres of Sao Paulo and Rio de Janeiro-Guanabara account for nearly 83 per cent of the output of the dynamic industries. For some specific branches there is a particularly high concentration in the Sao Paulo area: transport items (87 per cent), electrical machinery (80 per cent) and rubber products (84 per cent).

31/ Bases para el desarrollo regional argentino (C.F.I., Buenos Aires, 1963).

/In Chile

In Chile the Santiago area accounts for 47 per cent of industrial output, and Valparaiso for another 19 per cent, and recently a third industrial centre has been developing in Concepción. In Mexico only 38 per cent of industry is in Mexico City, because of a growing contribution from other areas of the country, especially the Monterrey area, which accounts for about 11 per cent of the total. In Venezuela, if petroleum refining is excluded, the same concentration in and around the capital is found, although the opening up of a new industrial centre in the eastern areas of the country is leading to a rapid change in this respect.

Colombia constitutes an important exception to the general rule; it has a much more balanced regional distribution of industrial production, with similar proportions contributed by the Departments of Cundinamarca (Bogota) and Antioquia (Medellin), and substantial production also in the Departments of Valle (Cali), with 18 per cent of the total, and Atlanta (Barranquilla), with 10 per cent.

Thus apart from a few exceptions the high degree of geographical concentration is another distinctive feature of the situation in Latin American industry today. This is one reflection (which may be regarded to some extent both as cause and effect) of the lack of internal integration and the very uneven economic development of different areas that is characteristic of the region's economies.

The causes of this high degree of concentration are varied, and in the absence of specific studies in this field it is difficult to determine their degree of responsibility. One main cause is, of course, the demographic concentration in a few towns that has long been a feature of the development of many Latin American countries, which in turn has been reinforced by an industrial development that adapted itself more or less passively to these existing conditions. In addition the concentration is also due to the actual form of industrialization, initially directed towards the immediate demand for consumer goods rather than to the development and increased processing of natural resources. The shortage of capital has also increased the need to make the maximum

/use of

use of the external economies provided by the existing towns in the form of social services, power supplies, transport and communication, etc.

These basic factors have been reinforced by others of a more institutional nature. For example, the weakness and instability of industrial policy has led to location as near as possible to the centres of government decision, to facilitate contact with the authorities responsible for protectionist and development machinery, price controls, foreign trade licences or permits, allocation of loan funds, etc. The great social and cultural differences between the large town and the rest of the country makes it more difficult to persuade the technical and specialized staff to leave the towns for other areas. There has also been a high concentration of financial machinery and institutions, whose regional or local offices are usually relatively ineffective from the standpoint both of their resources and their ability to adopt any important decisions.

This series of obstacles to more regional decentralization of industry have meant either that no steps have been taken to encourage decentralization, or that those taken have been ineffective. Exemptions from particular taxes, for example, have not been on a sufficient scale, and have sometimes tended to be equalized between regions, in so far as they depend on autonomous regional decisions, which means that they lose their discriminatory effect in favour of a particular locality.

Meanwhile new factors have appeared recently that have operated against geographical concentration of industry. In many cases the expansion of the dynamic industries, particularly the metal-transforming industries, have tended to increase concentration, mainly because of the institutional and market factors referred to, whereas in other cases, where the development of the industry is closely linked with the use of certain basic national resources, the location of the resources leads to the establishment of new industrial centres. In some of the principal towns the external economies represented by certain public services such as housing, urban transport and water and electricity supplies are either small or even negative, and consequently it may be economically preferable to invest in other smaller towns the additional funds needed for these

/purposes. Thus

purposes. Thus conditions are arising that may in the future, facilitate the location of much industrial development in new areas, quite apart from the political and social considerations that may lead to more emphasis on questions of better regional balance within the country in the general process of development, and other aims that may be desirable in the context of an integrated industrial development in Latin America.

However, these are trends that cannot go far in entirely uncontrolled conditions, and consequently their reinforcement depends very much on industrial policy, as recent experience has shown. This is not merely a matter of general incentives, nor even only of public investment in infrastructure to stimulate the development of new areas, but must include the formulation and execution of broad programmes covering a whole industrial complex, in order to ensure the economicity of the basic inter-industrial relations, which are beyond the scope of a single branch of industry. This question is dealt with again below, in connexion with industrial policy and the prospects for industrialization in Latin America at the regional level.

5. Some major sectors of industry

The above general analysis of the composition of manufacturing by branches of industry is now followed by an examination of certain individual sectors that throw more light on the present situation in Latin American industry. The existence of certain specialized studies makes it possible to settle on a small number of sector for this purpose that may be considered to some degree representative of the traditional or dynamic industries, and include both intermediate production and the production of final consumer and capital goods. It is by no means the aim here to embark on any extensive study of these sectors, but rather to point to certain characteristics that should be taken into account for the purpose of the analysis submitted in later chapters.[32/]

32/ For a broader description and analysis, see Los principales sectores de la industria latinoamericana: problemas y perspectivas (E/CN.12/718).

(a) The textile industry

The textile industry is one of the oldest-established industries in Latin America, and represents a major section of the region's manufacturing sector. In recent years it has accounted for 15 per cent of industrial employment and over 10 per cent of the gross value and the value added for all manufacturing.

Since the machinery can be divided up into small units, and thus the size of enterprises is not determined by economies of scale, the industry has been established in every Latin American country, and in all countries consists of a relatively large number of mills, varying greatly as to size and type of organization, and includes a considerable artisan and cottage industry sector.

Table 15 summarizes the main data on the installed capacity of spinning and weaving mills in eight countries (Argentina, Bolivia, Brazil, Chile, Colombia, Mexico, Peru and Uruguay) which together account for about 95 per cent of all Latin American textile production. This group of countries have about 9 million spindles and over 250,000 looms; the bulk of these are used for the production of cotton fabrics, a very small proportion for wool products, and an even smaller proportion for products made from man-made fibres (a much more recent development).[33/]

In general the production capacity represented by this equipment is usually more than sufficient to meet the region's present level of consumption of textile products. All the above eight countries except Bolivia are more or less self-sufficient in cotton products, and some are even net exporters, although on a small scale. A high level of self-sufficiency has also been achieved for wool products, and in this industry there is an appreciable flow of exports from Argentina and Uruguay. The situation varies widely from country to country as regards man-made fibre products; until 1960 Brazil was the only country that was

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33/ These data and most of what follows are largely taken from the United Nations publications forming the series entitled The textile industry in Latin America. The only study so far available in English is the one on Brazil, Vol. II.

/Table 15

Table 15

LATIN AMERICA: INSTALLED CAPACITY IN SPINNING AND WEAVING MILLS IN SELECTED COUNTRIES

		Spindles				Looms			
		Total	Cotton	Wool	Man-made fibres	Total	Cotton	Wool	Man-made fibres
Argentina	(1963)	1 379 482	1 019 492	360 000	a/	34 923	23 923	6 000	5 000
Bolivia	(1961)	37 158	19 448	17 710	-	916	566	204	146
Brazil	(1960)	4 294 400	3 840 000	301 900	153 000	131 860	102 760	5 500	23 600
Chile	(1959)	325 642	219 000	83 018	23 624	7 538	5 389	1 305	844
Colombia	(1961)	640 564	560 000	48 564	32 000	15 500	11 000	1 000	3 500
Mexico	(1962)	1 794 224b/	1 416 202	147 343	36 716	47 098b/	34 109	1 989	3 303
Peru	(1961)	307 890	215 216	64 253	28 421	8 034	5 811	970	1 253
Uruguay	(1961)	216 228	99 296	98 446	18 486	3 342	1 801	934	610

Source: Industria Textil Sudamericana, Nº 244-245 (Buenos Aires, January-February 1962) and ECLA survey.

a/ Included under cotton and wool.

b/ Including spindles and looms used for the manufacture of mixed-fibre yarns and fabrics.

/more or

more or less self-sufficient in this field, while in some of the other countries the percentage of consumption satisfied by domestic production was 88 for Argentina, 75 for Colombia, 60 for Chile, 25 for Uruguay and less than 15 for Peru.

The absolute levels of per capita consumption of fabrics also varies considerably from country to country, from 7 kg for Mexico, for example, to only 2 kg for Ecuador. However, these differences are closely related to the per capita income, and a comparison of the two variables shows that the elasticity of demand for textile products is fairly low, at least within the present framework of income distribution among the economic and social sectors in Latin America. Consequently demand forecasts evaluating the need for future expansion of the industry are based on rather moderate growth rates, except for the man-made fibres, which are expected to continue to benefit from changes in the structure of the total consumption of textile goods, at the expense of cotton and wool products.

With respect to cotton, and even more to wool, the present low utilization coefficients appear to indicate that installed capacity generally seems sufficient to meet the requirements of a domestic market expanded considerably beyond its present limits. Thus, for example, a recent study estimates that in comparison with the full use of the machinery available during a total of 6,600 hours a year (300 working days consisting of 22 hours of continuous operation), the existing utilization coefficients for installed capacity are represented by the percentages shown below:

/Cotton

	Cotton		Wool	
	Spinning	Weaving	Spinning	Weaving
Argentina	55.9	55.1	34.5	26.5
Bolivia	65.5	58.0	56.6	36.0
Brazil	85.3	76.7	74.5	53.0
Colombia	104.6	103.8	68.8	66.0
Peru	75.0	60.0	60.0	49.0
Uruguay	76.3	73.1	63.3	50.3

Apart from the cotton industry in Colombia, and from the many imbalances between the spinning and weaving mills, there seems to be no urgent need for any expansion of productive capacity to meet the growth of the Latin American market. On the contrary, the above data indicate that there is a considerable margin for expansion of production by better use of existing capacity, which would at the same time improve the capital output ratio for the industry as a whole, and liberate investment funds for other manufacturing sectors.

However, this comment should be qualified in the light of another characteristic feature of Latin America's textiles industry: the relatively high proportion of out-of-date and obsolescent machinery and the consequent need for reconditioning and modernization. Certain detailed studies of this question by ECLA indicate that in terms of the age of the machinery, its level of automation and other technological features, the extent to which the textile industry is up to date in the countries concerned is indicated by the following indexes:

/Cotton

	Cotton		Wool	
	Spinning	Weaving	Spinning	Weaving
Argentina	48.9	56.0	56.7	34.4
Bolivia	26.5	85.5	...	5.9
Brazil	20.8	31.5	51.9	37.8
Chile	81.3	82.8	43.8	45.0
Colombia	90.6	99.6	84.4	73.3
Peru	31.3	44.1	27.3	24.5
Uruguay	95.6	88.2	40.5	22.9

The defective nature of a large proportion of the machinery, particularly in the countries listed above, are one of the main reasons for the low productivity. For instance, it is estimated that in the cotton-spinning sector a reasonable standard of average productivity to aim at for Latin America would be 4,300 grammes per man/hour, as against an actual average productivity of 5,500 grammes achieved in Europe. It should be noted that the actual Latin American average represents a wide range of levels in individual countries, from the high level of 5,484 grammes per man/hour in Colombia, through the rather low level of 2,950 grammes for Argentina, to the very low level of only 1,996 grammes in Brazil (a figure which explains the importance attached in Brazil to preparation and execution of its vast plan for the modernization of the textile industry). From a more general standpoint, it it estimated that, in terms of what might be regarded as a suitable standard for Latin America, productivity indexes for cotton fabrics in metres per man/hour are as follows:

/Selected standard

Selected standard for Latin America	100
Argentina	33
Bolivia	34
Brazil	30
Chile	43
Colombia	107
Peru	54
Uruguay	31
United States	289
Japan	112

This list shows that only in Colombia does the cotton-weaving industry attain a productivity comparable with that of Japan, whereas in the other countries of the region for which the relevant data is available the level is much lower. The comparison with the United States is even less favourable.

The defective machinery not only results in low levels of output per worker, but also has adverse effects on production costs. Thus, for example, the unsatisfactory state of the equipment is considered at least partly responsible for the abnormally high level of wastage and loss of raw materials in cotton spinning and weaving, which are usually about 19.5 per cent, as against the level of 13 per cent that could be regarded as a normal standard of reference.

However, the studies referred to have indicated that the relatively out-of-date machinery is only one of the factors responsible for the high production costs of the Latin American textile industry. The under-utilization of the available production capacity referred to above leads to excessively heavy capital costs. These are further increased by the lack of specialization in the textile industry, where a single mill often produces a wide range of products, and deals with all stages of the production process, and there are consequent difficulties in achieving a balance between the production capacity of the various departments. Furthermore, although economies of scale are not a

/decisive factor

decisive factor in the textile industry, they can have an appreciable effect from the standpoint of investment per unit of output and operating costs. Thus, for example, it has been estimated[34/] that in the production of cotton grey goods (Ne 10c) with reasonable levels of productivity, differences in size result in the following indexes:

	Size I	Size II	Size III
Production	100	199	274
Investment per unit	100	88	85
Investment cost per unit	100	88	86
Operating cost per unit	100	95	93
Total average cost	100	90	88

In some Latin American countries another unfavourable factor from the cost standpoint is the need to import the basic raw material. Apart from the additional cost this involves in the way of freight and insurance, these imports are usually subject to substantial tariff duties, and in any case make it necessary to keep sufficient stocks to cover several months of operation, which means an additional financial burden. In other cases a policy aimed at stimulating a greater degree of self-sufficiency in raw materials results, at least temporarily, in guaranteed prices at a fairly high level involving a purchase cost to the industry higher than the import costs would be, or else costs are increased because the quality and specifications of the raw materials supplied are below normal.

The textile studies referred to also reach the more general conclusion that remedying of the serious administrative and organizational defects of production could result in appreciable reductions in the present costs of Latin America's textile industry.

It is difficult to assess the cost levels for some countries in the region with any precision, both because of the wide variation in the operating conditions of the industry, and because of the margin of error involved in any conversion from values in national currencies to values in a common currency. To obtain an approximate idea of the

34/ See Economías de escala en la industria textil (ST/ECLA/Conf.11/L.20).

problem, a study has been made to determine the levels of what might be defined as the "part cost" which, although it does not include all the cost components,[35] covers at least the main inputs. For the purpose of comparability a standard output unit was chosen of one metre of cotton fabric of yarn count Ne 8, 2,000 picks, weighing 130 grammes, produced in integrated plants. On this basis hypothetical calculations were made with the Japanese industry as the basis of comparison. The indexes of the estimated part cost for 1961 thus obtained were:

Japan	100
Bolivia	205
Brazil	121
Chile	160
Colombia:	
With imported cotton	94
With domestically produced cotton	144
Peru	138
Uruguay	244
United States	128

Although comparisons of this kind are subject to considerable reservations, these calculations undoubtedly reveal great differences in cost levels between the countries of the region, and a general situation (apart from certain exceptions such as the Colombian industry) that compares most unfavourably with that of countries that play a major part in world textile trade. This is why the high degree of self-sufficiency attained in the Latin American countries is still based on protectionist measures, in the form either of tariffs or of direct import controls, and on relatively high sales prices on the world market. Similarly, this explains why, although in the textile industry wage levels represent a high proportion of production costs, and countries are particularly well placed from the standpoint of raw materials, the Latin American countries have not yet succeeded in achieving any really significant volume of textile exports comparable to that attained by other under-developed regions.

35/ Excludes capital cost.

/(b) Pulp

(b) Pulp and paper industries

An eloquent indication of the level of development attained thus far by Latin America's pulp and paper industries is the balance-sheet of the levels and composition of supply registered in recent years[36] (see table 16).

Over two-thirds of the consumption of end-products, of the order of 2.7 million tons, was met in 1962 by internal production. Imports have declined gradually to a level of about 850,000 tons annually; they represent less than 20 per cent of the region's consumption of writing and printing paper and only 15 per cent of the consumption of other paper and paperboard, although they are still the main source of supply for newsprint, since only a quarter of the total needed is supplied locally.

These general self-sufficiency indexes also vary greatly between one country and another. In eleven Latin American countries either the whole or the bulk of total consumption is supplied by imports. They account for about half the total supply in Uruguay and Venezuela, approximately a third in Argentina, Colombia, Cuba and Peru, and a fifth in Brazil and Mexico. Chile has become the only net exporter of this type of product in Latin America, with an annual volume of newsprint in the neighbourhood of 30,000 tons. Argentina, Brazil and Mexico are the only Latin American countries besides Chile which have attained significant production levels for newsprint, which account for 7, 20 and 40 per cent of consumption, respectively; domestic production in other countries is confined to writing and printing paper and, in particular, to other paper and paperboard.

The same applies to the raw materials for these manufactures. Of the total pulp needs, of about 1.4 million tons, over 1 million tons, was supplied in 1962 from the regional output while imports have gradually

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36/ These and other data referred to in this section are mainly from Paper and pulp prospects in Latin America (United Nations publication, Sales N° 63.II.G.7).

/Table 16

Table 16

LATIN AMERICA: APPARENT CONSUMPTION OF PULP AND PAPER INDUSTRY PRODUCTS, 1962

(Thousands of tons)

	Production	Net imports a/	Consumption
Paper and board	1 890.3	850.2	2 740.5
Newsprint	162.1	538.9	701.0
Writing and printing paper	401.8	84.5	486.3
Other paper and board	1 326.3	226.8	1 553.1
Pulp	1 020.7	312.4	1 333.1
Mechanical pulp	256.6	3.9	260.5
Chemical wood pulp	514.1	308.5	822.6
Other chemical pulp	250.0	-	250.0

Source: ECLA/FAO/BTAO Pulp and Paper Advisory Group.

a/ Exports deducted.

/declined to

declined to about 300,000 tons annually,[37] consisting mainly of chemical pulp, since imports of mechanical pulp have been almost entirely replaced. Self-sufficiency in pulp also varies considerably from country to country: in some, imports are still the main source of supply (Venezuela, for example); in others, they still account for a significant proportion - between a third and a half - of total supply (Argentina, Colombia, Cuba, Peru and Uruguay); and in Brazil and Mexico they represent from 8 to 10 per cent of consumption ; Chile, on the other hand, is a net exporter of pulp, as well as paper.

The significance of the existing production levels will be better understood if it is borne in mind, first, that this is a comparatively new industry in the region, and secondly, that in many Latin American countries its expansion is faced with serious obstacles, relating mainly to the magnitude of the investment required and to the relationship between the size of the markets and the economies of scale of their production process.

In some of the less important items, the domestic production drive dates back over many years, and there was already a tendency to forge ahead and introduce modern techniques as early as the twenties. Today there is still a wide assortment of establishments operating in Latin America, including small units with annual production capacities of 1,500-2,000 tons (engaged mainly in the manufacture of low-quality paperboard for which there is a seasonal demand), intermediate units with annual capacities of 10,000-20,000 tons, specializing in the production of certain types of paper, and a small number of large plants producing 30,000-150,000 tons annually. The latter constitute the really up-to-date nucleus of the industry, comprising newly established integrated mills or pulp mills whose expansion is highly dynamic. The production of newsprint in Argentina, for example, was begun on a very small scale only in 1950; Brazil's output rose from about 12,000 tons in 1947 to over 70,000 tons in 1962; production in Chile, although it

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37/ These represent net imports after deducting exports, and about 30,000 tons more, were actually imported.

/started much

started much earlier, increased five-fold between 1955 and 1962, when it amounted to nearly 55,000 tons; and in Mexico the industry was established only in 1959, with an initial output of about 14,000 tons a year.

The financial problems involved in establishing or expanding these plants is illustrated by the fact that the direct investment needed for plants with an annual capacity of about 100,000 tons of chemical pulp are of the order of 35 million dollars, that is, about 350 dollars per ton and 70,000 dollars per worker. In addition the need to locate the plants near the sources of supply of the raw materials frequently adds to these direct investment costs other sums for essential infrastructure investment to provide the basic services (water, electric power, communications, housing, etc.) in the area where the plant is to be installed. Furthermore, unit investment and operating costs are greatly affected by the scale of production. It has been estimated, for example,[38/] that for the integrated product of kraft paper the doubling of the scale of operations (above a certain level) reduced investment per unit of output by nearly 40 per cent and total average cost by nearly 30 per cent, while if the scale is increased four-fold the corresponding cost reductions are 54 per cent and 43 per cent. Similarly, in a plant with a daily output of 50 tons the labour inputs may represent between 27 and 33 per cent of the cost of production, while this range is reduced to 19 to 25 per cent for a daily output of 100 tons and to 12 to 18 per cent for one of 200 tons. Apart from the cost weight of labour and capital charges, unit costs are also affected by other aspects of production associated with the scale of operation. Thus, for example, a chemical or semi-chemical pulp plant with a daily capacity of less than 100 tons generally has no system for the recovery of the chemical liquids employed in the process.

The obstacles deriving from the small domestic markets, the large investments needed and the effect of the scale of operations are partly offset by a fairly plentiful supply of basic resources. The best equipped country in this respect is Chile, which has vast reserves of conifers and can therefore develop its pulp production with a view to securing a

38/ Programming data and criteria for the pulp and paper industry (E/CN.12/702).

/substantial share

substantial share of the world trade in long-fibre pulp. Mexico and Central America also have conifer reserves, though they are less plentiful. The other Latin American countries have no such reserves, but some of them have stocks of suitable broad-leaved species, as well as other raw materials such as, in particular, sugar-cane bagasse.

In evaluating the future growth prospects of the Latin American pulp and paper industry, another useful factor (in addition to the margin for import substitution still open to some part of the industry, and the prospects of exports to other markets) is the foreseeable expansion in per capita consumption. Despite the considerable progress made in the last few year Latin America's average annual per capita consumption of paper and paperboard is only about 12 kg, a very low figure compared with that of countries outside the region, even with due regard for the difference in income levels. This justifies the tendency to foresee a vigorous growth of demand in the next few years, amounting to a two-fold increase in the regional consumption of paper and paperboard during the next ten years. If at the same time the degree of self-sufficiency in final and intermediate paper and paperboard products continues to increase, as expected, it appears likely that this industry will expand substantially, and that additional investment will be needed amounting to hundreds of millions of dollars. The allocation of this additional investment will have a decisive effect in changing levels of productivity and efficiency in this sector.

(c) The chemical industries

Unlike the textile and paper and pulp industries, the chemical industries do not constitute a fairly homogeneous industrial sector, since they cover a wide range of products with very different forms of production and use. However, some account of their development in Latin America is required here because of their great importance to the industrialization process.39/

39/ Most of the data have been taken from ECLA, La industria química en América Latina (E/CN.12/628/Rev.1), and two studies presented by ECLA at the Latin American Seminar on the Integrated Development of the Chemical Industry, held at Caracas in December 1964: Evolución de las industrias químicas de América Latina en el período 1959-62 (ST/ECLA/Conf.15/L.4/Rev.1) and La industria petroquímica en América Latina (ST/ECLA/Conf.15/6).

Some individual production lines were established long ago, such as the manufacture of simple final products, such as soaps, matches and candles, which in some cases are mainly artisan industries. Later on, especially in the thirties, there was a rapid growth of the production of pharmaceutical products and toilet preparations, based largely on imported raw materials, and the production of certain basic chemicals, mainly sulphuric acid, caustic soda and fertilizers, was introduced or expanded. As import substitution activities gradually shifted from consumer goods to intermediate goods, there was a further expansion and diversification of the chemical industry, which has recently included production of some of the main petrochemical products.

Thus Latin America's chemical industry has become fairly well established, especially since the Second World War, and has been able to enter more complex fields where technological and investment requirements are high.

The total value of the chemical output of the region is estimated at over 2,500 million dollars a year. Of this, about 40 per cent is contributed by Brazil, 20 per cent by Argentina, and slightly over 20 per cent by Mexico. Thus the degree of concentration in those countries of the region with the broadest markets and the highest degree of industrialization is higher for the chemical industries than for other branches of industry. However, the chemical industries are expanding fairly rapidly in other countries of the region where, as in the three most industrialized countries, new production lines are being introduced, with the effect of increasing diversification and reducing the predominant role of the old traditional lines of chemical production. Nevertheless, these industries still account for a considerably higher proportion of total chemical output than in Argentina, Brazil and Mexico, as can be seen from the figures in table 17, which are taken from a recent study on the distribution of the value of the chemical industry's output, by type of product, in seven countries of the region that together account for the bulk of regional production, and which are compared with the corresponding figures for the United States for 1957.

/Table 17

Table 17

STRUCTURE OF THE CHEMICAL INDUSTRY IN SEVEN LATIN AMERICAN COUNTRIES AND COMPARISON WITH THE UNITED STATES OF AMERICA

(Percentage of the total value of production)

	Groups of products	Latin America a/ (1962)	United States (1957)
I.	Major inorganic chemical products	4.3	8.2
II.	Major organic chemical products	6.4	9.3
III.	Chemical products for agriculture	4.8	3.3
IV.	Plastic materials and synthetic resins	5.1	8.8
V.	Artificial and synthetic fibres	9.9	9.5
VI.	Synthetic rubber and related products, including carbon black	0.8	4.7
VII.	Painting, dyeing, tanning and colouring materials	9.5	12.6
VIII.	Surface-active agents and bleaches	23.8	9.8
IX.	Products for explosives, matches and fireworks	2.8	1.4
X.	Industrial gases	1.9	1.2
XI.	Toiletry products, essences and flavourings	5.6	4.5
XII.	Products for other specific uses	2.6	5.8
XIII.	Tars, pitches and similar by-products	3.6	2.9
XIV.	Salts, oxides and other inorganic compounds of unspecified uses, excluding those in Group I	0.7	2.2
XV.	Organic compounds of unspecified uses, excluding those in Group II	0.8	2.3
XVI.	Pharmaceutical products	16.4	13.5
XVII.	Chemical products, unspecified	1.0	-

Source: Evolución de las Industrias Químicas de América Latina en el período 1959-62 (ST/ECLA/Conf.15/L.4/Rev.1).

a/ Aggregate production of Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela.

/As the

As the table shows, wetting and bleaching agents account for about a quarter of the total value of the region's chemical production; within this group, two-thirds of the value of production represents soaps, although the trend is for their replacement by the detergents, with the modernization that this entails because of the mainly traditional type of production in the manufacture of soaps. The group of products mainly for final consumption - pharmaceutical products and toilet preparations - also constitute a relatively high proportion of total output.

Basic organic and inorganic chemicals, on the other hand, account for less than 11 per cent of the total, although they include natural products used in agriculture, such as ethyl alcohol and glycerine. These natural products account for half the value of production of the whole category of basic products (consisting of groups I and II in table 17). Other products in these two groups include sulphuric acid, of which about a million tons a year are produced in the region; caustic soda, of which seven Latin American countries produce about 300,000 tons a year; ammonia, with an annual regional production of the order of 150,000 tons, and basic organic chemicals such as benzene and formol, of which output is about 20,000 and 4,500 tons, respectively.

About two-thirds of the chemicals for agriculture are pesticides, although their relative importance has been decreasing rapidly as a result of the expansion of fertilizer plants, and the establishment of new plants; annual production now amounts to 60,000 tons of nitrogen in the form of nitrogen fertilizers (excluding Chilean nitrate), and about 100,000 tons of phosphoric acid in the form of phosphates (these figures are for 1962).

There is a rapid increase in the relative importance of plastics and synthetic resins, and in 1959-62 their annual cumulative growth rate is estimated to have been about 22 per cent. The production of synthetic fibres - mainly of the polyamide fibres rather than the cellulose fibres - has expanded so rapidly that this group now represents nearly 10 per cent of the total chemical output of the seven countries referred to. Latterly great strides have also been made in the production of carbon black and synthetic rubber.

/Despite the

Despite the progress in these more dynamic sectors, in Latin America's chemical industry bulk chemicals and end products still predominate over intermediate products, whereas in the industrially more advanced economies intermediate products account for about two-thirds of all chemical output. However, this situation is bound to change gradually if the growth rate of the region's chemical sector as a whole is maintained, since, in view of the decreasing margin left for import substitution, and the slow growth of demand for many traditional chemical products, growth will have to depend more and more on intermediate products.

Furthermore, these structural changes are being increasingly facilitated by the growing importance of the petrochemical industry in some Latin American countries. The growth potential of this sector is illustrated by the fact that while in the United Kingdom only 9 per cent of organic chemical products were produced from petroleum in 1949, by 1962 this figure had risen to 65 per cent. In Latin America the first important step was taken in 1944, when the production of isopropyl alcohol was begun in Argentina; this was followed by the production of toluene in Argentina in 1951, and the production of synthetic ammonia in Mexico in the same year. At the present time a group of plants, mainly in Argentina, Brazil and Mexico, and to a lesser extent in Colombia and Venezuela, together represent a very considerable production capacity, already existing or in course of construction.[40/] Thus, for example, within a short time seven plants for the production of ethylene (three in Argentina, one in Brazil, one in Colombia and two in Mexico) will provide an annual capacity of about 150,000 tons, to be used mainly in the production of polyethylene and styrene. Similarly, installed capacity already exists or is under construction in Argentina and Brazil for the production of propylene from residual gases, to be used in the manufacture of isopropanol. The same countries will shortly have an annual capacity of over 60,000 tons of butadiene, for the manufacture of synthetic rubber. One plant each in Argentina, Brazil and Mexico will together have annual capacities amounting

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40/ See La industria petroquímica en América Latina, op.cit.

/to over

to over 170,000 tons of benzene and toluene, produced from naphtha. Projects already under way or partly completed will provide annual capacities amounting to 45,000 tons of xylenes (a Mexican plant), 30,000 tons of ethyl benzene (in Brazil and Mexico) and about 75,000 tons of methanol. Plants for the production of carbon black from aromatic residues are in operation or under construction (two in Argentina, two in Brazil, one in Mexico and one in Venezuela), with annual capacities amounting to 80,000 tons. Existing installed capacity for the production of carbon sulphide (Argentina) and sulphur (Mexico) from natural gas amounts to 14,000 tons and 62,000 tons a year, respectively. A number of plants in Brazil, Colombia, Mexico, Peru and Venezuela use natural gas, residual gases or fuel oil for the production of ammonia, mainly for fertilizers; their capacities range between 18,000 and 90,000 tons a year, and in all total about 350,000 tons.

Although a number of the products referred to may be produced in a single plant, the total number of products is relatively high in relation to the size of the national markets; this is partly due to the trend for such plants to integrate with enterprises engaged in the production or refining of petroleum. In this connexion, it has been pointed out that although this agglomeration of activities centred round the basic industry offers undoubted advantages, in the long run it has drawbacks from the standpoint of the size of the plants, since the lack of specialization often means the neglect of possible economies of scale, with a consequently higher cost level.

It should be noted that the undoubted progress made in Latin America's output of chemical products has not sufficed to meet the increase in demand; hence, imports have continued to expand in absolute volume, although their rate of growth has declined. In 1962, total imports of chemical products in the whole region - excluding Cuba - amounted to some 1,050 million dollars, which represented nearly 13 per cent of all imports of goods and services. The single group of imports comprising raw materials for man-made fibres and the finished fibres amounted to about 60 million dollars. Imports of synthetic rubber and pharmaceutical products continued to

represent a high proportion, amounting in 1962 to some 65,000 tons, for an approximate value of 210 million dollars, or more than one-fifth of the region's total imports of chemical products.

These figures, to which should be added those relating to a broad range of other products, show that chemical products still have an important effect on Latin America's capacity to import, and that a considerable import substitution margin is available for the subsequent development of this sector. Furthermore, the levels of supply - imports and domestic production - dealt with thus far relate to fairly low consumption levels as compared with those in other economies. For example, the region's average per capita consumption of plastic materials is of the order of 0.8 kg annually, as against 1.4 kg in Portugal, 2.1 in Ireland, over 4.5 in Austria and over 12.5 kg in the Federal Republic of Germany. Still more pronounced are the discrepancies in the use of fertilizers per unit of agricultural area: the regional average is about 10 kg per hectare, compared with 35 kg in Portugal and Greece, over 60 in the countries members of the Organization for Economic Co-operation and Development (OECD), and approximately 200 in Belgium and the Netherlands. The low per capita consumption levels apply equally to the traditional chemical products and to such semi-traditional products as paint (with an average per capita consumption for the region of about 1.5 kg annually, as against the 1958 figures of 4.4 kg for Ireland, 8 kg for France and 10.6 kg for Sweden) and detergents (5 kg annually in 1959, as compared with about 8 kg for Italy and Austria, and over 12 kg for Belgium, Denmark, Sweden and the United States).

While it is true that these disparities between the per capita consumption levels of Latin America and other regions are largely attributable to differences in per capita income, there are also other factors involved, including supply restrictions - due to insufficient domestic output and the adoption of measures likely to discourage imports or increase their cost - and relatively high prices. As regards the latter, it may be useful to give here the results of some comparisons which, subject to the inevitable reservations in all analyses of this kind, help to illustrate the importance of the price factor. In 1959

/the average

the average prices of an extensive group of chemicals produced by six Latin American countries were estimated[41] to be higher than United States prices in four of the countries (Chile, Colombia, Mexico and Peru), practically the same in Argentina, and somewhat lower in Brazil. It was further noted that these results were strongly influenced by the particularly favourable prices being paid for certain basic chemicals produced by the region; hence, it natural alcohol, glycerin and soaps are excluded, prices in the six Latin American countries were even higher compared with the United States. Even though some of the factors which determined this price ratio may have changed, it is a fact that the prices obtaining in the most dynamic sectors of the chemical industry, in particular intermediate products, continue to be far higher in Latin America than in the United States.

Obviously, the comparatively high prices of Latin America's chemical manufactures not only tend to limit domestic demand, but alos obstruct the development of a wider export flow of these products. Although in several instances there are abundant natural resources available, the f.o.b. value of exports in 1962 was under 120 million dollars, or less than 2 per cent of the region's total exports, and only 10 per cent of its imports of chemical products. Moreover, the range of manufactures is very limited and traditional products of natural origin predominate (quebracho extract, casein and essential oils). Even so, considerable progress has been made of late, particularly in Mexico, which now contributes nearly one-third of Latin America's total exports of chemicals and has embarked on the manufacture of a great many new products (in 1962, over twenty separate items accounted for exports worth over 100,000 dollars each). On a lesser scale, the chemical exports of Brazil and Colombia have also been stepped up and their range broadened. Of the region's total exports of chemical products, some 30 million dollars' worth comes under the head of intra-regional trade,

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41/ See La industria química en América Latina, op. cit.

/that is,

that is, only about 25 percent; this percentage would, of course, be much higher if traditional exports to other regions were excluded.

These recent export trends, though they relate to very small absolute values, are at least a sign that certain branches of the Latin American chemical industry can penetrate foreign markets, despite the persistence of such adverse factors as their inability to take full advantage of the economies of scale afforded by up-to-date techniques. In any case, it seems that the interaction between high costs and prices, on the one hand, and the small domestic markets and limited export opportunities, on the other, which governs the exploitation of economies of scale, will have to be overcome, to some extent at least, by a more rational development of the chemical industry based on the situation in the region as a whole, with a view to overcoming the difficulties that may arise as a result of development of the industry on a basis of strict national autonomy.

(d) The steel industry

The development of the steel industry is undoubtedly one of the more striking manifestations of the industrialization process. The demand for steel products shows, in general, a highly dynamic behaviour pattern and their use extends to a wide range of activities, including construction and transport, and to many other branches of the manufacturing sector linked to the production of both intermediate products and consumer and capital goods. Furthermore, its installation represents considerable progress in the absorption of technology and requires fairly substantial investments, whose value per unit of production is strongly influenced by the scale of operations.

/These broad

These broad characteristics of the steel industry have determined, at least in part, the lines along which it has developed in Latin America, especially its slow growth up to the forties and the tendency to be concentrated in those countries with the widest domestic markets. Up to the Second World War, the main projects which had borne fruitful, though still modest, results were confined to the steel mill at Monterrey (Mexico), established at the beginning of the century, with a blast furnace producing 350 tons daily; the mill at Corral (Chile), which began operations in 1910 and for which unseasoned wood was originally used as fuel; a Companhia Siderurgica Belgo-Mineira plant established at Sabará (Brazil) in 1925, and a second at Monlevade in 1937. Since then, the industry has developed rapidly, thanks to its having spread to other countries of the region. Thus, in Mexico, the Compañía Fundidora de Fierro y Acero de Monterrey installed a second blast furnace in 1942 with a daily capacity of 600 tons; two years later, Altos Hornos de México S.A. installed at Monclova, Latin America's second integrated plant fired with metallurgical coke, specializing in flat products; and in 1946 a new Mexican company was established - Hojalata y Lámina - which subsequently developed into an integrated plant through the adoption of a new process known as HYL, consisting in the direct reduction of iron ore by means of gas instead of by the blast furnace technique. That same year the Volta Redonda plant was established in Brazil as that country's major enterprise, others being added later, so that Brazil's consolidated steel industry came to represent the largest capacity in Latin America, and was composed of the largest number of integrated plants. In Chile, the Huachipato steel mill of the Compañía de Acero del Pacífico entered into operation in 1950. Colombia contributed to Latin America's steel industry in 1954 with the Acerías Paz del Río plant at Belencito. The Corporación Peruana del Santa installed a steel mill at Chimbote, Peru, in 1958. In Argentina the San Nicolás plant, owned by the Sociedad Mixta Siderúrgica Argentina (SOMISA), was inaugurated in 1960. Later on, the Corporación Venezolana de la Guayana established its Orinoco plant, and in Brazil the USIMINAS mill was set up and some headway was made in the construction of the COSIPA plant.

/These and

These and other advances made during the period concerned constitute the existing picture, that of a wide range of producing enterprises, both integrated and otherwise, differing in size and techniques.[42/] In 1963, 14 integrated mills contributed 96 per cent of the region's production of steel ingots. In addition, there was an appreciable number of semi-integrated mills in operation, 97 per cent of whose output was produced by the 35 largest. Altogether, both integrated and semi-integrated enterprises produced about 7 million tons of steel ingots in 1963, distributed by countries and according to the types of plants, as shown in table 18. Table 19, for its part, sums up the figures for pig iron and sponge iron production, also distributed by countries and according to the process employed and the use of the primary iron produced.

Production in 1963 fails to reflect the real magnitude of the growth of Latin America's steel industry, since owing to certain factors - the partial use of the capacities available, the failure to operate certain rolling mills or the fact that some of the plant sections were still under construction -, it was far below the capacities that will shortly be available. In fact, the final annual capacity - including the proposed expansion of some of the existing plants - totals about 16 million tons of steel ingots, of which rather more than 6 million tons would be produced by mills in Brazil, over 4 million by Mexico and over 3 million by Argentina, with figures also much above the existing levels in Chile, Colombia, Peru and Venezuela.

A future capacity so far above recent production levels is particularly important in the light of two basic considerations: the size of the investment needed for the development of steelmaking, and the serious deficit in the region's steel supplies which, despite the notable headway made in import substitution, continues to absorb a significant proportion of its import resources.

42/ For a broader description of the characteristics of these plants, see La economía siderúrgica en América Latina (E/CN.12/727), prepared jointly by ECLA, the Instituto Latinoamericano del Fierro y del Acero, (ILAFA) and the Inter-American Development Bank.

/Table 18

Table 18

LATIN AMERICA: PRODUCTION OF STEEL INGOTS IN INTEGRATED AND SEMI-INTEGRATED PLANTS, 1963

Country	Total output of steel	Integrated plants	Semi-integrated plants	Output of integrated plants as a percentage of total
Argentina	894.7	510.7	383.7	55
Brazil	2 840.8	2 426.8	413.4	85.5
Chile	521.5	500.0	21.5	96
Colombia	222.3	198.0	24.3	89
Mexico	2 016.9	1 560.4	456.5	77
Peru	76.3	76.3	-	100
Uruguay	6.5	-	6.5	-
Venezuela	358.4	288.4	70.0	80
Total	6 937.4	5 550.2	1 387.2	80

Source: Instituto Latinoamericano del Fierro y del Acero (ILAFA), Instituto Brasileiro de Siderurgia, and ECLA.

/Table 19

Table 19

LATIN AMERICA: PRODUCTION OF PIG IRON AND SPONGE IRON ACCORDING TO THE PROCESS EMPLOYED AND THE USE OF THE PRIMARY IRON, BY COUNTRY, 1963

(Thousands of metric tons, and percentages)

Country	Total output	Use		Process employed			
		Foundry	Steel-making	Blast furnace: Coke	Blast furnace: Charcoal	Electrical reduction	Sponge iron
Argentina	422.5	38.0	384.5	384.5	38.0	-	-
Brazil	2 323.1	368.7	1 954.7	1 154.2	1 106.5	62.4	-
Chile	418.3	15.0	403.3	418.3	-	-	-
Colombia	203.2	-	203.2	203.2	-	-	-
Mexico	1 002.8	90.0	912.8	833.1	-	-	169.7
Peru	29.0	-	29.0	-	-	29.0	-
Venezuela	283.2	5.0	278.2	-	-	283.2	-
Total	4 682.1	516.4	4 165.7	2 993.3	1 144.5	374.6	169.7
Percentage, according to use	100	11	89	-	-	-	-
Percentage by type of process	100	-	-	63.9	24.5	8.0	3.6

Source: Revista Latinoamericana de Siderurgia, No 50/51, p. 25.

/It is

It is common knowledge that the large sums that have to be invested in steelmaking constitute one of the major factors limiting its expansion, the normal figure being some 400 dollars per ton of steel ingots annually for an integrated plant, and about 60,000 dollars per person employed, according to United States employment standards. Moreover, external economies are often impossible, particularly when - because of the location of certain basic materials - steel mills have to be established in areas that are barely integrated in the national economy, in which case the additional investment in transport and even housing and other public services may be substantial. These factors, coupled with differences in the scale of operations, cause the amount of unit investment in Latin America to vary considerably.

As regards the ratio of Latin America's steel production to total requirements, a comprehensive estimate for 1962 shows the following results (in thousands of tons):43/

	Production	Imports
Bars and light shapes	2,181.2	395.4
Plates and rolled steel products	1,450.5	881.5
Tin-plate	234.2	269.4
Rails and heavy shapes	265.3	258.0
Wire rod	545.0	209.3

Notwithstanding the rapid growth of domestic production, imports still represent a sizeable proportion of Latin America's total consumption, with an absolute volume of about 2 million tons annually. The proportion of self-supply is highest in the category of non-flat products, particularly bars and light shapes, whereas import substitution has taken place on a relatively lesser scale in flats, especially tin-plate, imports of which still represent over half the region's consumption for that year. It should be borne in mind, moreover, that these are only direct imports of rolled steel products to which, in the interests of a more accurate evaluation, would have to be added the indirect imports in the form of rolled products included in the category of finished consumer or capital goods; while in the particular case of Argentina consideration would also have to be given to imports of steel billet for processing by the domestic steel industry.

43/ See ILAFA, Series históricas, período 1951-62

/Since steelmaking

Since steelmaking is concentrated in certain countries of the region, a large proportion of Latin America's steel imports is absorbed by the non-producing countries, although their markets are the narrowest in absolute terms. Of the producing countries, Brazil, Chile and Mexico are now 75-90 per cent self-sufficient, Argentina about 60 per cent, and Colombia, Peru and Venezuela somewhere between 25 and 50 per cent.

The reason why these self-suffiency indexes are not higher, despite the rapid expansion of domestic production, is the dynamic growth of demand. Between the pre-war period and 1962, the apparent per capita consumption of rolled steel products (in the equivalent of kilogrammes of steel ingots) increased by approximately 60 per cent in Argentina, more than doubled in Chile and Colombia, and practically trebled in Brazil and Mexico. These trends, moreover, will in all probability be maintained in the future, since even after such increases Latin America's per capita consumption is still relatively low compared with other economies, particularly in the more industrialized countries. In 1962 the apparent per capita consumption of rolled steel products (in the equivalent of kilogrammes of steel ingots) was estimated at about 82 kg in Argentina, a little over 40 kg in Brazil, 84 kg in Chile, less than 25 kg in Colombia and nearly 45 kg in Mexico, as against figures exceeding 500 kg per head in Czechoslovakia and Sweden, some 490 kg in the United States and the Federal Republic of Germany, over 330 in Australia and the Soviet Union, 240 in Japan and over 90 in Spain and Yugoslavia. 44/

The wide range of processes and scales of operation presented by the Latin American steel mills, as well as other factors related to the origin of their principal inputs and the costs involved in obtaining them, also make for appreciable differences in their operating costs, which are estimated to fluctuate between about 35 dollars and just over 50 dollars per metric ton of pig iron, and between a little over 60 dollars and nearly 80 dollars per ton of steel. 45/

Needless to say, these are merely illustrative estimates, which are often influenced by transitory factors - including the exchange rates at

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44/ ECLA and Economic Commission for Europe (ECE) publications.

45/ See La economía siderúrgica en América Latina, op.cit.

/which the

which the essential currency conversions are effected - the effects of which are likely to change appreciably as expansion projects materialize or the industries concerned become more firmly established. In some important components of the total cost, such as capital charges, a great deal of weight is carried not only by the basic scale of operations, but also by the proper adjustment between the capacities of the different mill sections, and even by the possibility of introducing technical innovations calculated to increase the operating efficiency or the production capacity of the equipment. A case in point is Huachipato, a plant in Chile, whose blast furnace, originally designed for a daily output of 650 tons of pig iron, was able to produce 1,250 tons daily in 1963, while the coke burden was reduced from 800 kg to 520 kg per ton of pig iron as a result of injecting fuel oil.

If in addition to the factors influencing production costs consideration is given to others connected with marketing, the treatment of imports and the exchange policy in effect, a pattern of serious disparities in the prices of steel products in the various Latin American countries begins to be formed. Purely for purposes of illustration, some figures on prices as at 31 August 1963, in terms of dollars per ton, contained in recent ILAFA publications and converted into dollars at the exchange rates indicated therein are set out below:[46/]

	Bars for concrete (10 mm in diameter)	Wire rod in rolls (8 mm in diameter)	Hot rolled flat sheet (1 x 3 m and 3 mm thick)
Buenos Aires	162.59	175.41	205.96
São Paulo	209.67	306.45	204.32
Santiago	160.84	197.78	212.56
Bogota	193.33	214.44	216.67
Mexico City	145.60	165.92	179.76
Lima	205.53	205.07	156.08
Caracas	129.96	134.36	-

46/ See ILAFA, Carta Mensual, September, October and December 1963. The following are the exchange rates used: 1,342 Argentine pesos, 620 cruzeiros, 1,895 escudos, 9 Colombian pesos, 12.5 Mexican pesos, 26,82 soles and 4.54 bolivars to the dollar.

/However imperfect,

However imperfect, the various comparisons referred to above, as regards both cost and prices, are undoubtedly useful for purposes of illustrating the present situation, particularly in an industry like steelmaking which, because of the dynamic nature of demand and the advantages afforded by specialization and scale of operations, presents particularly favourable structural characteristics from the standpoint of the prospects for Latin America's industrial integration.

(e) Metal-transforming industries

The metal-transforming industries group together a number of widely heterogeneous activities comprising the manufacture of metal products, machinery and equipment (including electrical appliances) and transport material (including motor vehicles). Because of the very nature of these products and the complex techniques involved in their manufacture, the development of these industries is regarded as one of the most striking features of the dynamic growth and maturity attained by the manufacturing sector.

If strict attention were paid to the statistical data available on fairly extensive groups or categories of manufactured products, it would be concluded that on the whole the metal-transforming industries play an important part in the structure of industry in the Latin American countries. In fact, they would appear to represent about 18 per cent of the total value added in the manufacturing sector for Latin America as a whole, and to absorb at least 16 per cent of the labour force employed in industry. Although this average contribution is mainly attributable to the most industrialized Latin American countries, it is by no means unimportant in others where industrialization is at a less advanced stage, and even in those where the manufacturing sector is weakest.

However, owing to their high level of aggregation, these data might well be conducive to highly misleading conclusions if they are interpreted as development indexes in those dynamic branches of industry which are usually associated with the concept of metal-transforming industries. The fact is that they include, sometimes to an overriding extent, repair and maintenance activities, which constitute services to industry and transport rather than actual production of materials or of machinery and equipment.

/In other

In other words, the internal structure of the metal-transforming industries differs widely according to the level of industrialization reached by the countries concerned. In some, it is predominated by repair workshops, besides the manufacture of certain simple metal products mainly for building purposes; later on they attain a higher level of diversification through the incorporation of such activities as the assembly and production of durable consumer goods, particularly household electrical appliances; and, finally, a growing share is absorbed by the manufacture of productive machinery and equipment, and of motor vehicles.

The information available is not sufficiently detailed to allow of a systematic presentation and analysis which would place the individual Latin American countries in one or another of those stages of development, except by means of certain general indicators to which reference has been made in the preceding section (for example, average employment or installed capacity per establishment). However, the existing import figures and certain studies which happen to be available on specific countries and industries serve to illustrate at least some important characteristics of this sector of manufacturing industry, as will be seen from the data summed up below.

In 1960, imports of items produced by what are usually termed the metal-transforming industries, including basic metal products, amounted to a little over 4,500 million dollars for the whole of Latin America, or more than 60 per cent of the region's total imports. Even if basic metal products are excluded, the products of metal-transforming as such represented over half the region's total imports, and if building materials and durable consumer goods are also excluded, farm, industrial and transport machinery and equipment alone would account for nearly one-third of Latin America's total imports.

Both the absolute volume of these imports and their incidence in the capacity to import bring into focus the tremendous room for development there is in the region's metal-transforming industries, and their strategic role in the over-all economic development prospects. The turning to account of these potential prospects of growth is

/hampered, however,

hampered, however, to a greater extent than in the case of other branches of the manufacturing industry, by those general obstacles which have been mentioned so often before: the narrow markets, which make it difficult to take full advantage of specialization and economies of scale; the shortage of funds in particularly capital-intensive activities, and the need for technical know-how and skilled personnel.

These and other general facts concerning the metal-transforming industries are sufficiently illustrated in two studies, one on Uruguay and another on Venezuela, which are not among the most advanced countries in this sphere of industry.47/

Uruguay's metal-transforming industry was estimated to have contributed 10.4 per cent of the country's total manufacturing output, and to have employed over 18 per cent of its industrial labour force (about 38,000 persons). These proportions were accounted for mainly by the general category of "construction of transport material", a smaller participation being absorbed by the "electrical machinery", "metal products" and "non-electrical machinery" groupings. It was pointed out, however, that the first category was chiefly concerned with maintenance activities rather than the actual manufacture of transport equipment or parts, which also explains why over 90 per cent of the establishments employed fewer than twenty persons. The total inventory of machine-tools was estimated at 8,000-9,000 units, two-thirds of which were partly obsolete, low-productivity cutting dies, while the remaining third were more powerful shaping dies, of better quality and in a better state of repair. Among other things, the inventory was found to be incomplete, not easily adaptable to the manufacture of products other than those currently produced, and to have a substantial under-utilized installed capacity. While some import substitution possibilities were noted, they do not appear to involve large quantities, since at present domestic industry absorbs nearly 60 per cent of the products of

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47/ La industria mecánica del Uruguay and Un programa de sustitución de importaciones para el desarrollo de las industrias mecánicas de Venezuela, as yet unpublished studies of the ECLA/INST/IDB Programme on Integration of Industrial Development.

the metal-transforming industries in general, including assembled final goods containing varying degrees of imported elements difficult to substitute. It was thought, on the other hand, that the country might develop some industries for metal-transforming light, precision manufactures, for which local conditions are favourable and export markets exist which might provide annual earning of some 18 million dollars.

The study on Venezuela shows that in 1961 its metal-transforming industries accounted for 9.4 per cent of the industrial value added and 14 per cent (some 22,000 persons) of the manpower employed in the manufacturing sector. But they absorbed only 4.2 per cent of this sector's total fixed capital, which indicates that these industries were oriented towards service and maintenance rather than towards production proper. The research was directed mainly at outlining an import substitution programme in respect of products of the metal-transforming industries, whose gradual implementation over a period of five years could result in the replacement of some 77,000 tons, representing 25 per cent of the weight and 23 per cent of the value (about 100 million dollars annually) of total imports of these products. A large proportion of the above-mentioned quantity (62 per cent in terms of weight and 44 per cent in terms of value) would consist of products involving no major technical difficulties - tin-plate containers and other items, wire products, screws and nuts - which would temporarily ease the position with regard to the shortage of skilled personnel.

The studies available on specific sectors within the wide range of metal-transforming industries include those on basic equipment in Argentina[48/] and Brazil,[49/] which - even though aimed mainly at

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48/ See La fabricación de máquinas y equipos en América Latina. III. Los equipos básicos en la Argentina (United Nations publication, Sales N°: 64.II.G.5).

49/ See The manufacture of industrial machinery and equipment in Latin America. I. Basic equipment in Brazil (United Nations publication, Sales N°: 63.II.G.2).

evaluating market prospects - show the level of maturity reached by these industries in the two countries concerned.

In Argentina, equipment needs in five industrial sectors - petroleum, natural gas and petrochemicals; generation and transmission of electric energy; steelmaking; shipbuilding; and pulp and paper - are estimated at 2,000 million dollars in the next ten years, three-fourths of which could be met by means of local manufacture, under the conditions prevailing in Argentina's metal-transforming industry. A similar evaluation for Brazil showed prospects of producing locally, with the existing installations and under the known expansion programmes, 86 per cent of the electric power generating equipment required (its total value exceeding 400 million dollars), 90 per cent of the equipment for pulp and paper production (about 200 million dollars), 77 per cent of that required for the steel industry (a total of 110 million dollars), 66 per cent of the equipment for cement production (some 65 million dollars), and an equally high proportion of the equipment needed for petroleum refining and the petrochemical industries.

Another significant sign of the growth potential of Latin America's metal-transforming industries, particularly in the more industrialized countries, is the size of the latent demand for railway material. In this respect, it is pointed out[50/] that in 1959 Argentina, with its huge railway network (some 44,000 kilometres of track), possessed 84,000 goods wagons, nearly two-thirds of which were over 40 years old and only 4 per cent less than 20; and that 1,300 of its total inventory of 4,400 passenger coaches would have to be taken out of service, as they had been in use for over fifty years. Again in 1959, 64 per cent of Uruguay's goods wagons and 77 per cent of its engines were over 40 years old. In Chile, over half of its 10,000 goods wagons in use were over 35 years old, and it is estimated that 20 per cent of the material was not being used because of its poor state of repair. The rehabilitation and re-equipment programmes demanded by these and other similar situations prevailing in Latin America

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50/ See The railway rolling stock industry in Latin America (E/CN.12/508), pp. 31, et.seq.

reach astronomical figures, quite apart from the expansion requirements. Thus, Brazil has to supply its needs of 2,000 goods wagons annually; and Mexico would require nearly 20,000 goods wagons, 350 passenger coaches and more than 300 engines within a period of ten years in order to maintain and expand its railway network.

In the face of these needs, it is considered that several Latin American countries have the necessary industrial capacity to supply a good deal of that material. Brazil's railway industry has reached a fairly advanced stage and is now in a position to export railway wagons; Argentina has specialized in the manufacture of large diesel motors; Mexico is equally capable of exporting various types of wagons and coaches; and other countries would be able to export at least important parts of that equipment (Chile, for example, could export axles and wheels). However, this sector more than any other branch of manufacturing production is faced with problems and obstacles other than those related to supply possibilities, namely the long-term financing of its sales of equipment, which make it difficult for the Latin American industry to compete.

Argentina and Brazil have made most headway in the wider field of the machine-tools industry. According to a specific study on the subject regarding Brazil,[51/] in 1960 this sector employed some 5,000 workers in 114 establishments located for the most part in the State of São Paulo and producing a total of over 13,000 tons annually. The inventory of machine-tools, including both cutting and shaping dies, seemed to be about 205,000; these on the whole were relatively new units (55 per cent were less than ten years old), a high proportion of them being simple machines in widespread use. The machine-tools industry is engaged in activities with relatively low volumes of production, and this is confirmed by the data on the average size of the establishments, three-fourths of which employed less than 50 workers, while less than 8 per cent employed from 100 to 500. Although this industry is capable of offering the market more than 50 types

51/ See La fabricación de máquinas y equipos en América Latina. II. Las máquinas-herramientas en el Brasil (United Nations publication, Sales N°: 63.II.G.4).

/of nearly

of nearly 150 models, its present structure does not yet provide a very full range of production in terms of the country's inventory of machine-tools; even so, it was able in 1957-61 to supply nearly 40 per cent of domestic needs.

One of the most significant events in the recent development of metal-transforming in Latin America is the establishment and growth of the motor vehicle industry, both because of its own importance and because of its impact on other sectors of the metal-transforming industries proper. In Brazil, its development began with import substitution in respect of certain parts and was given a strong impetus by the prohibition (in 1953) on imports of assembled vehicles. The import coefficient had already dropped to less than 42 per cent by 1957 and to insignificant proportions by 1961, when annual output amounted to some 200,000 units. In Argentina, assembly activities reached high levels in the early post-war years (in 1947, for example, about 350,000 units were assembled in the country) and assembly-line production began in 1951, later attaining an annual output of some 130,000 vehicles. The development of this industry is more recent in Mexico, where imports of engines for private cars and lorries have been banned since 1962, and imports of mechanical units for use and assembly prohibited since 1964. Venezuela is planning to incorporate a proportion of 30 per cent of locally produced parts in the vehicles assembled in the country by 1965, 60 per cent by 1970, and to manufacture complete vehicles by 1980. In Chile, 5,000 vehicles - both private cars and lorries - are assembled annually.

Table 20 presents figures for the manufacture and assembly of vehicles in the countries mentioned above, in 1962 and 1963, which incidentally illustrate the wide range of types and the relatively small scale on which the motor-vehicle industry operates in Latin America compared with the more industrialized countries. Added to this is the relatively large number of enterprises contributing to that output, which explains why the efficient utilization of economies of scale must constitute one of the most serious problems in the industry's future

/Table 20

Table 20

LATIN AMERICA: MANUFACTURE AND ASSEMBLY OF VEHICLES, 1962-63

(Units)

	1962	1963
I. Manufacture		
Argentina	129 014	105 424
Private cars	84 848	72 103
Jeeps	32 067	25 334
Lorries	12 099	7 987
Brazil	191 194	174 126
Heavy lorries and buses	4 113	3 478
Medium lorries	35 557	20 546
Light cargo and passenger trucks	54 390	50 157
Utility vehicles	22 247	13 922
Private cars	74 887	86 023
Total number of vehicles manufactured	320 208	279 550
II. Assembly		
Chile		5 149
Private cars		3 841
Light trucks, lorries and jeeps		1 308
Mexico	66 000	75 700
Private cars	41 700	48 900
Lorries and buses	24 300	26 800
Venezuela	11 666	24 440
Private cars and charabancs	8 768	18 090
Commercial vehicles and lorries	2 898	6 350
Total number of vehicles assembled		105 289

/development. Later

development. Later on there will be occasion to refer more fully to the scope and projections of this problem, as well as to other aspects of the industry's development, including the nature of the incentives and institutional arrangements that have facilitated its recent rapid expansion.

6. Available supply of manufactured goods

The data relating to the amount and composition of the supply of manufactured goods available in Latin American markets in recent years are undoubtedly among the most representative indicators of what the industrial process has come to signify in Latin America. In the last analysis, the ultimate aim of this process is to make possible increasingly large per capita supplies and consumption of manufactured goods and to augment the available quantities of production machinery and equipment, as well as to meet the demand for intermediate goods from other sectors of production and the manufacturing industry itself. It is therefore worth while to assemble a systematic body of quantitative data defining the characteristics of the available supply of manufactured products, both in terms of cumulative values for major categories or groups of manufactures, and of physical units for some important individual products.

Broadly speaking, on the basis of current activity in Latin American industry and the Latin American countries' imports of manufactured goods, the total supply of industrial products available to Latin America as a whole may be estimated to be worth over 50,000 million dollars per annum.52/

52/ For the purposes of the present analysis, the available supply is calculated as the sum of gross domestic production values, at ex-factory prices, plus import values (c.i.f.), export values (f.o.b.) being deducted where necessary. Although reference is made to the current available supply, strictly speaking the figures correspond to estimates for 1960, in view of the difficulties of obtaining statistical data for more recent periods. For the same reason, the regional totals really cover sixteen countries, in default of comparable estimates for Bolivia, Cuba, Haiti and Paraguay, countries whose aggregate product represents a small proportion of the total for Latin America.

/In other

In other words, the region's gross available supply[53] of industrial products per capita probably averages about 270 dollars per annum at the present time,[54] including both final goods (consumer and capital) and intermediate products.

The significance of these figures will grow clearer as the aggregate available supply is broken down by categories of manufactures and the substantial differences in level and composition registered within the region itself are taken into account. To this end, table 21 presents a general picture of the distribution of the total available supply, by countries and by source (domestic production or imports).

Naturally, the countries whose total population is biggest also absorb the major share of the region's available supply of manufactured goods: approximately three-fourths of it, if the 28 per cent corresponding to Brazil is taken in conjunction with the figures for Argentina and Mexico, which are, moreover, the most advanced of the Latin American countries as regards their industrial development. But the same is not true of the per capita values; although Argentina shows the highest figure in the region, other countries, such as Venezuela, Uruguay and Chile, far outstrip Brazil and Mexico.

These per capita figures are influenced by the corresponding total per capita income, by virtue of which per capita demand for consumer manufactures is greater; consequently, those countries where industrial development has made less headway attempt to compensate

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53/ The concept of gross available supply involves a measure of duplication in so far as it represents the sum of the values of intermediate products and of final manufactured goods in which those products may be incorporated. In later analyses the two categories are dealt with separately, in order to show more appropriate ways of measuring these concepts.

54/ Excluding exports of manufactured goods.

Table 21

LATIN AMERICA: ESTIMATES OF AVAILABLE SUPPLY OF MANUFACTURED PRODUCTS (IN TERMS OF VALUES), 1960

Country	Total available supply (millions of dollars)			Per capita available supply (dollars)
	Production a/	Imports	Total	
Argentina	14 099	1 032	15 131	722
Brazil	13 200	1 225	14 425	205
Chile	2 450	481	2 931	384
Colombia	2 654	497	3 151	204
Costa Rica	149	94	243	201
Dominican Republic	241	90	331	109
Ecuador	307	124	431	100
El Salvador	186	114	300	123
Guatemala	290	121	411	109
Honduras	121	61	182	93
Mexico	6 744	1 344	8 088	225
Nicaragua	96	57	153	104
Panama	112	75	187	177
Peru	1 461	328	1 789	177
Uruguay	733	151	884	355
Venezuela	1 641	1 348	2 989	408
Total	44 484	7 142	51 626	272

a/ Excluding exports.

/for the

for the proportionally smaller contribution of domestic production by means of relatively higher import levels.

It can be inferred from table 21 that thanks to the import substitution process described above, the region as a whole has reached a point at which domestic production accounts for 86 per cent of total supplies of manufactured goods.[55/] But although imports of industrial products represent only 14 per cent of the amount available, their annual value exceeds 7,000 million dollars, and in consequence there is still plenty of room for substitution. At the same time, these data throw into relief the marked differences between the Latin American countries as regards the origins of their aggregate supplies of manufactured goods. In two of them the share of domestic production is above the average for Latin America (93 per cent in Argentina, 91 per cent in Brazil); in others it stands at levels very close to this average (between 82 and 84 per cent in Chile, Colombia, Mexico, Peru and Uruguay); and in yet others the relative significance of imports is still very high, for instance, in Costa Rica (39 per cent), El Salvador (38 per cent), Honduras (34 per cent), Nicaragua (37 per cent), Panama (40 per cent) and Venezuela (45 per cent).

55/ It should be pointed out that this ratio is not determined on the same bases as the usual concept of "import coefficient", in which the value of imports is related to the product or value added in the various sectors of internal economic activity, whereas here gross industrial production values are used. In the light of the more conventional definition, therefore, the present comparisons tend to under-estimate the relative share of imports.

/The correlation

The correlation observable between the gross available supply of manufactured goods and the level of per capita income is not very close, despite the compensatory role played by imports in those countries which, irrespective of their income levels, are comparatively behind-hand with their industrialization process. For example, in countries like Brazil or Mexico the ratios between the available supply of manufactured goods and per capita income (50 and 42 per cent, respectively) tend to be relatively greater than in other countries where per capita income is higher and the contribution of imports is proportionally bigger. In Uruguay, for instance, where the level of per capita income is more than 60 per cent higher than in Mexico and more than twice as high as in Brazil, the ratio is only 41 per cent; and ratios of less than 40 per cent are shown by Costa Rica and Panama, where again per capita income exceeds that of Brazil.

The reason for these disparities is to be found in the differences in the composition of the available supply of manufactured goods, which is influenced in turn by the requirements of the industrial development process itself, and particularly by the relative importance of demand for intermediate manufactures. To a greater extent than any other sector of the economy, industrial activity is characterized by the proliferation of intermediate transactions among the various branches of manufacturing industry themselves, some of which specialize in the processing of goods which will be subjected to further stages of trans-formation, until they are turned out as products that meet final needs; and the farther industrial development advances, the more extensive and complex such transactions become. This is clearly reflected in the figures given in table 22, which shows the composition of the available supply of manufactures by uses. Of the 51,600 million dollars represented by the total available supply of industrial products in 1960, 33,500 million corresponded to final goods (26,700 million to consumer goods and 6,800 million to capital goods), and 18,100 million to intermediate products. The latter figure constitutes a proportion of the total (36 per cent) lower than those registered in industrialized economies - for example, 46 per cent in the United States in 1947 and

/Table 22

Table 22

LATIN AMERICA: ESTIMATED COMPOSITION OF AVAILABLE SUPPLY OF MANUFACTURED GOODS, BY USES, 1960

(Millions of dollars)

Country	Total	Intermediate products	Final goods	
			Consumer goods	Capital goods
Argentina	15 131	5 390	7 713	2 028
Brazil	14 425	5 687	7 067	1 671
Chile	2 931	707	1 879	345
Colombia	3 151	1 035	1 724	392
Costa Rica	243	63	128	52
Dominican Republic	331	76	207	48
Ecuador	431	121	241	69
El Salvador	300	85	154	61
Guatemala	411	113	231	67
Honduras	182	46	102	34
Mexico	8 088	3 041	3 943	1 104
Nicaragua	153	41	80	32
Panama	187	52	94	41
Peru	1 789	625	978	186
Uruguay	884	294	520	70
Venezuela	2 989	731	1 608	650
Total	51 626	18 107	26 669	6 850

/54 per

54 per cent in Japan in 1951 [56]/, thus implying that the internal structure of the Latin American economies is still under-integrated. On the other hand, this average proportion is given by ratios that differ widely from one country to another, since they exceed 35 per cent in Argentina, Brazil and Mexico (reaching a maximum of 39 per cent in Brazil); fluctuate between 30 and 35 per cent in Chile, Colombia, Peru and Uruguay; and fall below 30 per cent in Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama and Venezuela.

As regards supplies of domestic origin, there has already been an opportunity, in the section on the level and composition of manufacturing production, to consider the structure of internal supply, in terms of three broad categories of manufactured goods, and broken down by branches of industrial activity. The relatively large proportion of the region's output still represented by consumer manufactures is typical of a structure of production in which "traditional" sectors predominate, in particular the food, beverages, tobacco, textiles, footwear and clothing industries, etc.; on the other hand, higher percentages of intermediate and capital goods supplies are obtained from domestic sources in those Latin American countries that have reached more advanced stages of industrialization, and have therefore developed such branches as the chemical, metallurgical and metal-transforming industries to a greater extent.

The import component of supply, however, displays opposite characteristics in respect of both uses and industrial sources, as can be inferred from the quantitative data summed up in tables 23 and 24. Imports of consumer goods constitute only 18 per cent of total imports of manufactures, and less than 15 per cent if Venezuela is excluded; furthermore, about two-thirds of them come from the chemical, petroleum

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56/ Figures taken from H. Chenery and P. Clark, Interindustry Economics, tables 8.6 and 8.9. To make the original figures more exactly comparable, those corresponding to the non-manufacturing sectors were deducted and the pertinent values were reallocated to sectors 13 and 14 in the tables mentioned.

Table 23

LATIN AMERICA: COMPOSITION OF IMPORTS OF MANUFACTURED GOODS, BY USES, 1960

(Millions of dollars)

Country	Total	Intermediate products	Final goods	
			Consumer goods	Capital goods
Argentina	1 032	440	107	485
Brasil	1 225	402	148	675
Chile	481	134	95	252
Colombia	497	126	48	323
Costa Rica	94	28	17	49
Dominican Republic	90	27	16	47
Ecuador	124	38	22	64
El Salvador	114	35	20	59
Guatemala	121	36	22	63
Honduras	61	18	11	32
Mexico	1 344	373	196	775
Nicaragua	57	17	10	30
Panama	75	23	13	39
Peru	328	88	76	164
Uruguay	151	85	18	48
Venezuela	1 348	263	468	617
Total	7 142	2 133	1 287	3 722

/Table 24

Table 24

LATIN AMERICA: COMPOSITION OF IMPORTS OF MANUFACTURED GOODS, BY SOURCES AND USES, 1960

(Millions of dollars)

Industry of origin	Total	Intermediate products	Final goods	
			Consumer goods	Capital goods
Food, beverages and tobacco	377	109	268	-
Textiles	190	121	68	1
Footwear and clothing	23	11	12	-
Wood and cork, including furniture	64	58	3	3
Paper and paper products	278	277	1	...
Printing, publishing and allied industries	26	-	25	1
Leather and leather products, other than footwear	14	12	1	1
Rubber and rubber products	51	30	4	17
Chemical products and petroleum derivatives	1 322	867	410	45
Non-metallic mineral products	73	46	10	17
Metallurgical and metal-transforming industries a/	4 545	575	422	3 548
Other industries	179	27	63	89
Total	7 142	2 133	1 287	3 722

a/ Including basic metal industries, manufacture of metal products, construction of machinery, fixtures and electrical appliances, and construction of transport equipment.

/derivatives and

derivatives and metal-transforming industries and a little over one-fifth from the activities producing food, beverages and tobacco. Intermediate manufactures account for about 30 per cent of total imports of industrial goods and are more widely distributed by activities of origin, since although here again the share of the two groups mentioned is substantial (about 70 per cent), others, such as textiles and pulp and paper, attain significant proportions. Lastly, capital goods, which are almost exclusively products of the metal-transforming industries, have come to constitute more than half of total imports of manufactures, even in the more highly industrialized countries. In the aggregate, the products of the metal-transforming and metallurgical industries thus make up almost two-thirds of the total, while chemical and petroleum products account for about 20 per cent. This is yet another indication of the role that will be incumbent on these branches of industry in the continuance of import substitution efforts, although it would be a mistake to disregard the opportunities still afforded by other branches of the manufacturing sector, especially in those countries whose industrialization process is at a relatively less advanced stage.

So much for the basic over-all data on the amount and composition of the available supply of manufactured goods, with reference mainly to its sources. Later, when Latin America's industrialization prospects are discussed, and, in particular, when future industrial development requirements are foreshadowed, the differing degrees of dynamic impetus that may be assigned to demand for the various categories of manufactures and to its effect on the future levels and structure of supply will be duly taken into account. The foregoing observations must therefore be enlarged upon, since there are other background data that would seem to be indispensable for this purpose.

Excluding intermediate manufactures, demand for which is contingent, by definition, upon the composition of final demand and on structural economic relationships, the first of the distinctions referred to may be drawn between consumer manufactures and capital goods. According to the estimates previously formulated, the total available supply of capital

/goods amounted

goods amounted to about 6,850 million dollars in 1960, a figure which represents 7 per cent of the total product (at market prices) and 39 per cent of gross investment in the region as a whole.

These ratios between the available supply of capital goods and over-all product and investment may seem abnormally low, and may therefore be interpreted as clearly symptomatic of the inadequacy of the supply of industrial goods for capital formation purposes. Such a view must be modified, however, in the light of several factors, including some that are mere matters of definition or methods of valuation.

As has been seen, estimates of the available supply are based on the sum of gross ex-factory production values plus import values (c.i.f.); consequently, they make no allowance for marketing surcharges in the first case or for tariff duties and distribution costs in the second, and therefore represent a valuation at much lower prices than those paid by the consumer. Furthermore, the concept covers only production machinery and equipment and similar final goods, while such products as most building materials, which are often included in the capital goods category, are classified in this instance with intermediate manufactures. Herein lies at least part of the reason why the available supply of capital goods seems so small in relation to the aggregate product. But even so, the distortions thus introduced cannot obscure the basic fact that the gross investment coefficients of many Latin American countries are very modest in comparison with those of other economies, and that this is one of the determinants of Latin America's slow rate of over-all economic growth.[57/] In other words, the composition of current available supplies of manufactures, defined in the broadest terms, would have to undergo considerable modification within a framework of accelerated economic development, in the direction of increasing the share of capital

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57/ As in the case of other generalizations, a differentiation must be made between the situations existing in the various countries of the region. For more detailed background data on national investment coefficients and the corresponding growth rates, see, for example, The economic development of Latin America in the post-war period, op.cit.

goods. The implications are particularly significant if it is borne in mind that for 60 per cent of its total supply of capital goods the region still depends on imports.

Demand for capital goods is influenced not only by the low aggregate investment coefficients but also by the composition of investment. The large proportion of resources allocated to infrastructure and housing projects, as well as the high percentage of industrial capital itself that is represented by buildings and other installed facilities, help to explain how it is that the new machinery and equipment annually incorporated into the existing stock of capital account for only 39 per cent of gross investment. Probably this is another of the factors whose operation, given a more rapid over-all growth rate, would increase the share of capital goods in the available supply of manufactures.

It would be difficult to carry general considerations of this kind any further, except in relation to individual Latin American economies, in view of the sometimes substantial differences observable from one country to another. Much the same is true of the available supply of consumer manufactures, its ratio to total consumption and its internal composition by types of products, although in this case certain features emerge which might more legitimately be taken to represent characteristics common to the region.

As previously stated, the annual supply of consumer manufactures currently available for Latin America as a whole may be estimated at approximately 27,000 million dollars, which is equivalent to about 140 dollars per capita and roughly 34 per cent of the region's consumption of goods and services of all kinds. The significance of these figures might be seen more clearly in the light of a few comparisons with more advanced economies in other regions, from which it would be inferred that the position of manufactures in Latin America is disadvantageous, both in absolute terms and in relation to total consumption. Once again, however, several reservations, different in kind and sometimes opposite in their implications, would have to be taken into account. For example, the ratio mentioned above involves a considerable

measure of under-estimation, in so far as it excludes distributing and marketing expenses in respect of manufactured goods, whereas they are included in measurements of total consumption; conversely, the relative prices of industrial products which are usually higher in Latin America, tend to make their share appear larger than it would be if the comparisons were formulated in real terms or with reference to measurements based on a common system of prices, as weighting factors.

In any event, while these reservations are fully applicable as regards the exact magnitude of the ratios, in a qualitative sense they make no difference to the fact that, broadly speaking, consumption of manufactured goods is relatively low in Latin America, not only in absolute terms - largely as a result of equally low levels of average per capita income - but also in proportion to total consumption. This conclusion is corroborated by a comparison of the background data available on the composition of private consumption in most of the Latin American countries with the corresponding break-down for economies outside the region (see table 25).

The share of total private consumption in the Latin American countries absorbed by expenditure on foodstuffs (which, strictly speaking, also include a percentage of manufactured goods), is so large that in several instances it exceeds one-half and in no case falls below one-third. Since relatively high percentages also correspond to expenditure on services, despite the fact that they fall far short of the quality and diversification standards attained in more highly developed economies, manufactured goods other than food account only for rather small proportions of total consumption, ranging from about 25 per cent to a little over 35 per cent in those countries of the region where per capita income is highest.

These characteristics of demand for consumer manufactures are determined not only by each country's average per capita income, but also by its income distribution patterns. Nor is this observation applicable only to the position of manufactured goods other than food in relation to other types of expenditure; it is equally valid as regards the internal composition of consumption of industrial products.

/Table 25

Table 25

ESTIMATES OF COMPOSITION OF PRIVATE CONSUMPTION

(Percentages of total consumption)

Country	Food	Manufactured products other than food	Miscellaneous services
Latin American countries			
Argentina	36.6	36.7	26.7
Bolivia	43.9	29.6	26.5
Brazil	47.8	25.5	26.7
Chile	38.5	34.7	26.8
Colombia	48.6	27.8	23.6
Costa Rica	46.6	32.1	21.3
Ecuador	43.9	29.6	26.5
El Salvador	52.3	25.1	22.6
Guatemala	44.8	23.6	31.6
Honduras	45.1	28.2	26.7
Mexico	51.2	21.6	27.2
Nicaragua	43.9	31.8	24.3
Panama	34.1	31.9	34.0
Paraguay	57.9	18.4	23.7
Peru	39.7	24.1	36.2
Uruguay	34.9	35.6	29.5
Venezuela	34.7	26.3	39.0
Non-Latin American countries			
Australia	26.9	32.1	41.0
Belgium	27.2	31.7	41.1
Canada	22.0	29.4	48.6
Denmark	24.4	31.2	44.4
France	31.0	36.9	32.1
Italy	41.5	26.6	31.9
Norway	29.6	35.1	35.3
Spain	43.2	21.1	35.7
Sweden	27.5	32.9	39.6
United Kingdom	28.3	32.9	38.8
United States	21.1	29.5	49.4

Sources: For Latin American countries: ECLA, basic data compiled for study entitled "A measurement of price levels and the purchasing power of currencies in Latin America, 1960-62" (E/CN.12/653), subsequently published in Economic Bulletin for Latin America, vol. VIII, No 2, October 1963, pp. 195 et seq.; for non-Latin American countries: basic data from Yearbook of National Accounts Statistics, 1963, United Nations publications, Sales No: 64.XVII.4.

/The disparities

The disparities between national averages for the broad categories of expenditure under discussion are much more marked when different population strata in one and the same country are considered, in terms of income brackets.

This last aspect of the question is clearly reflected in the surveys of income and consumer expenditure carried out in several Latin American countries, even where they are confined to specific social sectors and to households domiciled in urban centres. For example, according to the findings of research on consumption distribution by family income steps in Argentina,[58/] undertaken early in 1963, in the lower income groups the proportion of expenditure allocated to food was about 60 per cent, whereas at the highest income step it was barely 23 per cent. In Chile, a similar survey, confined to the households of workers living in Santiago,[59/] showed extremes of 59 and 32 per cent for the year 1956, and a very slow decline from one step to another except in the higher income brackets. An earlier survey carried out in Colombia gave results for Bogotá[60/] ranging from 45 to 36 per cent in the case of employees' households and from 60 to 40 per cent in that of workers' families.

58/ See Joint Organization of American States and Inter-American Development Bank (OAS/IDB) Tax Program, Estudio sobre Política Fiscal en la Argentina, 1963, chapter VI.

59/ See Eliana Vicencio, "Distribución del presupuesto familiar de 452 familias obreras", Economía y Finanzas, year XXV, No. 296, Santiago, Chile, June 1961, p. 8.

60/ See "Memoria de las encuestas sobre ingresos y gastos de las familias de empleados y obreros de Bogotá, Barranquilla, Cali, Medellín, Bucaramanga, Maizales y Pasto: metodología aplicada para actualizar las bases de los índices del costo de la vida", Economía y Estadística, year XIV, No. 85, Bogotá, November 1958. The survey relates to the year 1953.

/If the

If the high proportions of private income used to satisfy food requirements are considered in conjunction with the uneven sizes of income groups (by numbers of households), some idea will be formed of the great extent to which demand for consumer manufactures is conditioned by income levels and distribution in Latin America. Their influence is still stronger in relation to specific categories of manufactured products other than food. For example, in the Argentine survey, the estimated share of durable consumer goods is negligible in the lower income groups, rises to about 6-9 per cent in the middle brackets and exceeds 20 per cent at the highest level. Even the behaviour pattern of expenditure on clothing, where the manufactures concerned are essential goods in general use, illustrates how largely specific population strata are cut off from access to the market for industrial products, since in some cases the corresponding proportion of total consumption tends to expand rapidly in the lower strata, diminishing only in the higher income groups.[61/]

These fragmentary pointers to the composition of consumption of manufactured goods can be supplemented by the estimates of the available supply of industrial products (see table 26). This facilitates a more systematic evaluation of the break-down of such consumption by industries of origin, as well as of the differences occurring from one Latin American country to another.

The lack of sufficiently detailed research on income distribution in most of the Latin American countries precludes further discussion of its influence on the level and composition of demand for manufactured goods. But it is a factor that will probably have significant repercussions on the future patterns of the region's industrialization process, and therefore merits more thorough study on the basis of new and more extensive research. This topic will be reverted to later, in the context of industrial development prospects, although the data in hand permit

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61/ In Argentina, the footwear and clothing groups absorb little more than 7 per cent of total expenditure in the lower income strata, a proportion which rises to nearly 11 per cent and then falls to under 9 per cent in the highest income bracket. According to another survey, relating to Curitiba (Brazil), the shares of expenditure on clothing increase from 6 to 15 per cent, and do not reach 10 per cent in the higher income groups (see Conselho de Desenvolvimento do Extremo Sul (CODESUL), Paraná, Ingressos e gastos familiares em Curitiba, Curitiba October 1964).

Table 26

SELECTED LATIN AMERICAN COUNTRIES: ESTIMATES OF AVAILABLE SUPPLY OF CONSUMER MANUFACTURES, BY TYPES OF PRODUCT, 1960

(Millions of dollars)

Country or group of countries	Industry of origin													
	Food, beverages and tobacco 20-22	Textiles 23	Footwear and clothing 24	Wood and wooden furniture 25-26	Paper and paper products 27	Printing, publishing and allied industries 28	Leather and leather products other than footwear 29	Rubber and rubber products 30	Chemical products and petroleum derivatives 31-32	Non-metallic mineral products 33	Metallurgical and metal-transforming industries 34-38	Other industries 39	Artisan industries not elsewhere classified a/	Total
Argentina	2 913	669	699	168	27	148	233	125	850	36	1 173	162	510	7 713
Brazil	2 739	1 244	450	242	42	181	8	153	935	96	729	248	-	7 067
Chile	543	116	614	96	14	51	8	15	159	10	124	129	-	1 879
Colombia	723	294	156	19	20	61	12	31	234	17	121	36	-	1 724
Mexico	1 622	555	190	38	32	131	12	44	687	33	494	105	-	3 943
Peru	460	139	94	24	3	24	2	16	115	9	52	40	-	978
Uruguay	259	68	42	9	6	20	3	7	53	4	39	10	-	520
Venezuela	732	117	71	18	13	60	4	20	237	11	177	38	110	1 608
Other b/	725	81	168	40	1	22	-	6	91	10	63	30	-	1 237
Total	10 716	3 283	2 484	654	158	698	282	417	3 361	226	2 972	798	620	26 669

a/ In Argentina and Venezuela, data on the value of production in artisan industries are shown separately instead of being incorporated in the various groups of industries.

b/ Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua and Panama.

only a superficial approach; in the meanwhile, to facilitate its subsequent analysis, at least one hypothesis on the structure of consumption of manufactures and its ratio to expenditure on other types of goods and services, with reference to different incomes groups, may usefully be established as an illustration of the approximate magnitudes probably registered in Latin America as a whole at the present time.

The relevant estimates are shown in table 27, although they will be analysed only in later chapters. There is no need to stress the extremely hypothetical character of the figures in question, which are based, moreover, on different and often very heterogeneous sources.[62] Their sole purpose is to provide a rough illustration of the influence of income levels and distribution on the Latin American market for consumer manufactures, with a view to evaluating the possible effects of the income expansion and redistribution objectives referred to in chapter IV on future supply requirements in respect of industrial products. In so far as these hypotheses are realistic, the implication is that one-half of the Latin American population - mainly the inhabitants of rural areas - absorbs less than 10 per cent of the total available supply of manufactured products other than food, and spends on them about 13 per cent of its total outlay on consumption. A middle income group, comprising 45 per cent of the population, absorbs rather less than one-half of the total supply referred to, but barely one-fourth of the available supply of durable consumer manufactures, allocating about 25 per cent of its total expenditure to the purchase of industrial goods of all types, excluding processed foodstuffs. Lastly, the highest income bracket, which includes only 5 per cent of the population and absorbs more than one-third of total income, purchases nearly 44 per cent of the available manufactured products

62/ The point of departure adopted was the conjectural distribution of Latin American income presented in The economic development of Latin America in the post-war period, op. cit. The following computations were based on the estimates of the structure of private consumption, the national surveys on income and consumer expenditure and the calculations of available supplies of manufactured products to which reference is made in the present section.

/Table 27

Table 27

LATIN AMERICA: A HYPOTHESIS FOR THE LEVEL AND COMPOSITION OF PRIVATE CONSUMPTION, BY INCOME BRACKET, 1960

(Millions of dollars)

	Income bracket			
	Lower	Middle	Upper	Total
Percentage corresponding to each bracket				
Of total population	50.0	45.0	5.0	100.0
Of total income	16.0	50.0	34.0	100.0
Of total consumption	19.0	52.0	29.0	100.0
Level and composition of consumption				
Total consumption	13 000	35 000	20 000	68 000
Consumption of foodstuffs	9 700	17 000	2 800	29 500
Non-processed				21 300
Processed				8 200
Manufactures other than food	1 700	8 600	8 200	18 500
Textiles, footwear and clothing	700	3 400	2 000	6 100
Other current consumer manufactures a/	1 000	4 200	3 350	8 550
Durable consumer manufactures	-	1 000	2 850	3 850
Services b/	1 600	9 400	9 000	20 000
(Total manufactures)				(26 700)
(Food)				(8 200)
(Other than food)				(18 500)

a/ Including beverages and tobacco, chemical and pharmaceutical products, paper products and printed matter, and other manufactured goods.

b/ Including housing, domestic services, transport and other services.

/other than

other than food, devoting to this purpose a little over 40 per cent of its total consumer expenditure, of which proportion, in turn, more than one-third corresponds to durable consumer goods. In other words, in the higher income brackets per capita consumption of manufactures other than food would seem to be 8 times that of the middle income group and 48 times that of the lowest stratum. Despite these disparities, the hypothesis under discussion would suggest that in the two major categories of manufactures other than food (excluding durable consumer goods) the greatest dynamic effect on demand is noted at the stage of transition from the lower to the middle income groups, between which the share of expenditure allocated to textiles, footwear and clothing increases from a little over 5 per cent to nearly 10 per cent of total consumption, a ratio which remains virtually the same in the higher income brackets; as regards other current consumer manufactures, the proportion rises from the 7.7 per cent in the lower to 12 per cent in the middle income brackets, and then to 16.8 per cent in the highest income group. In contrast, demand for durable consumer goods is almost non-existent in the lower income brackets, does not amount to 3 per cent of total consumption in the middle stratum and exceeds 14 per cent in the higher income groups.

Lastly, the over-all picture of the available supply of industrial products needs completing with a few additional data. Apart from the statistical reservations expressly mentioned, it must be pointed out that the indicators of level and composition which have been discussed are indubitably affected by other factors - including differences in relative prices and the element of arbitrariness usually involved in conversion to a common monetary unit - which may also introduce significant distortions. These data on values, therefore, should be supplemented by some indicators of volume, relating to consumption of a group of staple industrial products, expressed in terms of physical units.

The relevant data can be seen in table 28, which covers specific products, differing in kind but fairly limited in number, with due regard for the need to deal with relatively homogeneous manufactures. These statistics afford more precise substantiation of the general observations formulated in connexion with the low levels of consumption of industrial goods registered in most of the Latin American countries. For example,

/Table 28

Table 28

LATIN AMERICA: APPARENT PER CAPITA CONSUMPTION OF A GROUP OF STAPLE MANUFACTURED PRODUCTS, 1962

(Kilogrammes)

Products	Apparent per capita consumption
1. Textiles	
All types of fibre	4.1
Cotton	3.1
Wool	0.3
Cellulose and man-made	0.7
2. Chemical products	
Detergents (1959)	5.0
Paints	1.5
Plastic materials	0.8
Sulphuric acid	4.3
Caustic soda	2.2
3. Steel products	
Bars and light shapes	11.8
Plate and sheet	10.4
Tinplate	2.3
4. Other manufactures	
Newsprint	3.2
Other types of paper and board	8.6
Cement	83.7

/annual per

annual per capita consumption of textile fibres (4.1 kilogrammes) is less than half the average registered for the countries of Western Europe (9.6 kilogrammes) and Eastern Europe (9.3 kilogrammes), with particularly marked disparities in the case of cellulose and man-made fibres, where in the European countries annual per capita consumption stands at about 3 to 4 kilogrammes, while the Latin American average is not as much as 1 kilogramme. The same applies to chemical products. Where those for final consumption are concerned, the Latin American average for detergents is much lower than that of Italy (8 kilogrammes per capita per annum) and less than half that of countries like Belgium, Denmark and Sweden (about 12 kilogrammes); the disparities are still more marked in respect of paint (an annual average of 1.5 kilogrammes per capita for Latin America as a whole as against 4.4 for Ireland, 8 for France and 10.6 for Sweden), and plastic materials (under 1 kilogramme per capita per annum in Latin America, in comparison with 2.1 for Ireland, 4.5 for Austria and 12.5 for the Federal Republic of Germany). As regards rolled steel products, in terms of ingots, per capita consumption, as has been shown, differs greatly from one Latin American country to another, but the maximum figures do not reach 90 kilogrammes yearly, as against about 500 kilogrammes in countries such as Czechoslovakia, the Federal Republic of Germany, Sweden and the United States, over 300 in Australia, and some 240 in Japan. The differences noted are due in part to the fact that apparent consumption does not include imports and exports of rolled steel products which are part of other items at a more advanced stage of processing. In the group headed "Other manufactures", average per capita consumption of newsprint in Latin America represents hardly more than half the world average, and this proportion drops to nearly one-third in the case of other types of paper and board.

It is beyond a doubt that the disparities in average per capita income levels largely account for such marked differences in per capita consumption of manufactured products. But it still remains to evaluate how far, over and above this basic factor, the comparatively low levels registered in Latin America are also influenced by income distribution patterns, the inadequacy of supply or the high relative prices of industrial products on the region's markets.

/7. Prices

7. Prices and costs of Latin American manufactures

An over-all description of the picture presented by Latin American industry could not omit some reference to the high cost and price levels, which are usually considered as being one of the fundamental problems involved. The consensus is that, on the whole, Latin America's prices of manufactured products are, relatively speaking, very high. This general impression, however, is not often borne out by quantitative evaluations which would permit an assessment of at least some orders of magnitude regarding the seriousness of the problem. Nor are there enough systematic studies on the factors determining those price levels, that is, how far they may be influenced by relatively high production costs or gross rates or return, distribution and marketing margins, indirect taxes on transactions or consumption, customs duties and other equivalent charges on imports of manufacturers, etc.

In fact, it is a highly complex problem which demands that consideration be given simultaneously to the effect of a great many factors. The very term "relative prices" presupposes a comparison with the situation prevailing in other countries or regions, which in turn entails - implicitly or explicitly - the use of exchange rates in order to compare figures for different countries in terms of some common currency unit. The mere over-pricing or under-pricing of the various currencies would therefore do much to vitiate such comparisons, while frequently leading to conclusions, in the study of a single country, which appear radically different in the course of a few years.

It is not proposed to analyse below the full complexity of the problem. The aim is merely to add a few quantitative data to the generally accepted qualitative impression, which will help to define it in its broadest sense, and bring to light the diversified nature of the existing situations, both by groups or types of manufactures, and by countries or country groupings. The price study will be based almost entirely on the background data gathered for a previous ECLA study.[63/] Therefore, it is subject to the same limitations and reservations as specified in that study.

63/ See A measurement of price levels and the purchasing power of currencies in Latin America, 1960-1962, loc. cit.

/In essence,

In essence, the research was based on the definition of a sample of goods and services whose components were considered to be representative of average consumption throughout Latin America, and a group of investment goods which were valued at the prevailing market prices in one city of each of the Latin American countries and in two United States cities. Thus, the study is limited to final manufactured products - consumer goods and capital goods -, without extending to raw materials and intermediate products. Moreover, since the information gathered on prices relates to those paid by the users, the results cannot be taken indiscriminately as the basis for conclusions on factory prices (or on the c.i.f. unit prices of imports), inasmuch as there might be appreciable differences in marketing costs, and in additional taxes or other charges.[64/] For purposes of the present study, the data relating mainly to manufactured products have been taken from the research, those bearing on other goods and on different types of services being omitted; likewise, only a few countries have been selected and an average was taken of the figures for the two United States cities.

A preliminary evaluation, not subject to the distortions that might be attributable to the use of specific exchange rates, is shown in figure X. The exact meaning of the magnitudes illustrated therein is as follows: for each of the countries chosen, the expenditure on the group of food products forming part of the sample of goods and services taken as a common basis of comparison for all the countries concerned, has been considered equal to 100, following which the respective indexes have been calculated for each of the remaining groups of expenditure, as determined also by the content of the sample. Consequently, these comparisons do not require

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64/ These charges are usually quite high in the case of imports, particularly of durable consumer goods. They also affect other specific products, such as beverages, tobacco, etc.

the separate national figures to be expressed in terms of a common currency unit, since they are confined to illustrating the structure of relative prices in each country. Neither do they reflect the real composition of expenditure therein, but rather the hypothetical expenditure which would have to be incurred in each country in order to purchase the same group of goods and services.

Despite its shortcomings, this analysis helps in some measure to define the relative position of the prices of manufactured products in Latin America with respect to the United States, if expenditure on that group of food products is taken as a reference. As can be seen, the ratios for all the non-food manufactures are higher in the eight Latin American countries considered, but the differences are slight in the case of Colombia and Guatemala. However, this situation is not common to different groups of manufactures, as can be seen in the supplementary illustration included in figure X. There are instances, particularly among non-durable consumer goods such as alcoholic beverages and certain pharmaceutical products, in which the expenditure indexes with respect to food are lower in Latin America. This does not occur, however, in such important groups as textiles and textile products. As regards investment goods, the situation is comparable, and even relatively favourable, only as regards the construction of buildings, but very unfavourable in all other groups of capital expenditure covered by these comparisons.

Thus, from the standpoint of price structure, there is no question of the validity of the assertion that on the whole Latin America's relative prices of manufactured products, particularly capital goods, are high compared with those paid in markets like the United States. This might be just another way of saying that in general relative food prices in the Latin American countries are very low, since that is the component of expenditure on which the indexes have been based. This would explain why Argentina - where foodstuffs were particularly cheap when the survey was carried out - should appear in most of these comparisons as having very high relative price indexes for industrial products. Even with this reservation, however, the conclusions reached are significant and cannot but affect the structure of consumption and, in the last analysis, the size of the domestic markets for manufactured products.

/Figure X

Figure X

COMPARISON BETWEEN RELATIVE PRICES OF MANUFACTURED PRODUCTS IN LATIN AMERICA AND THE UNITED STATES, 1962

(Relationship between hypothetical expenditure on selected groups of manufactures and hypothetical expenditure on a group of food products)

Base for food products=100

A. GENERAL GROUPS

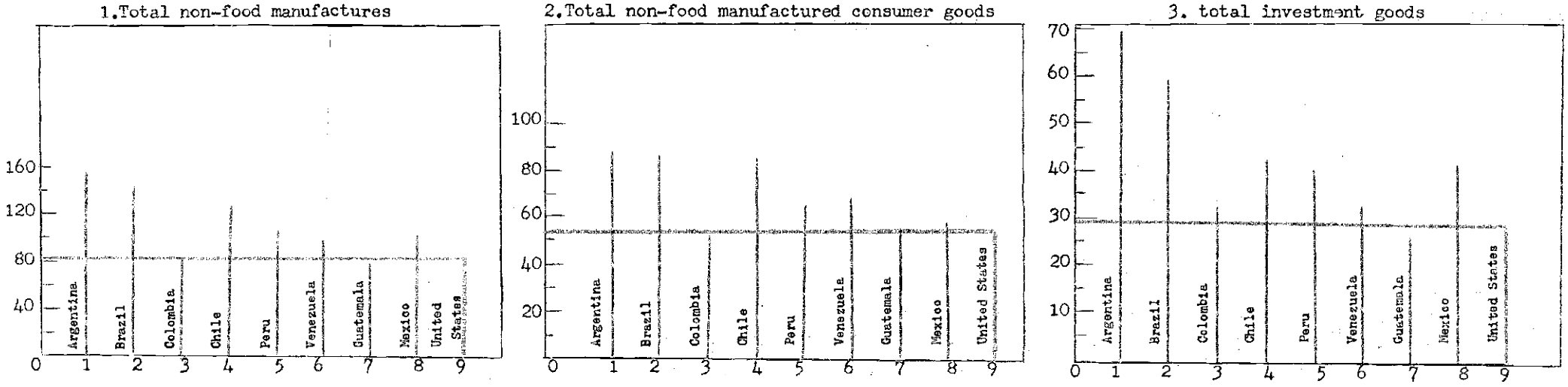


Figure X (Add. 1)

B. CONSUMER GOODS

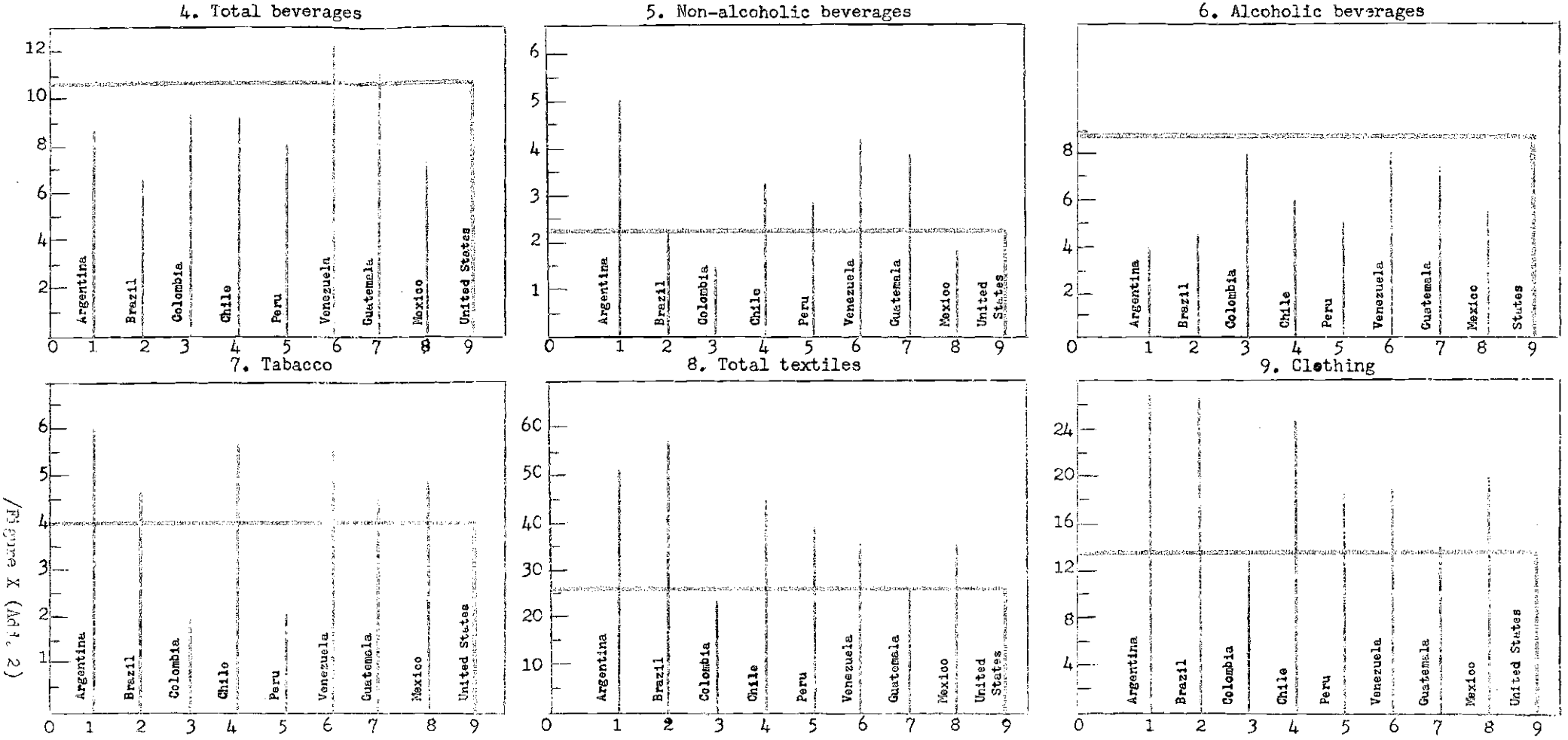
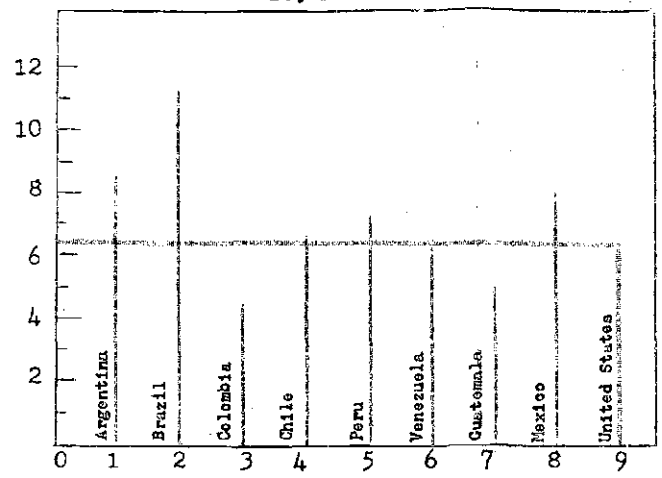


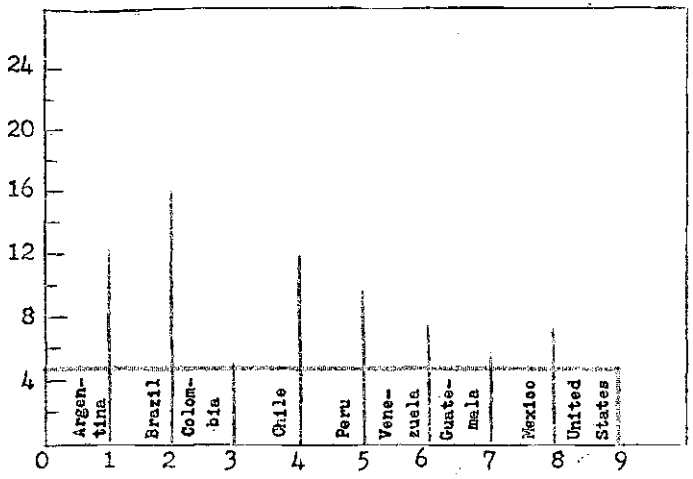
Figure X (Add. 2)

B. CONSUMER GOODS (continued)

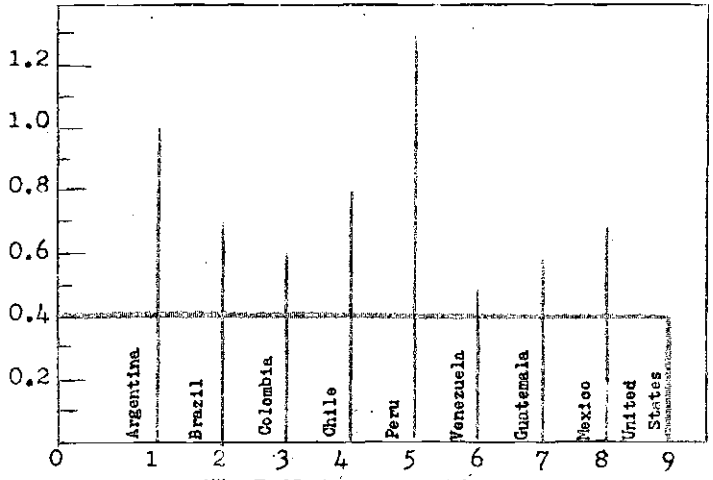
10. Footwear



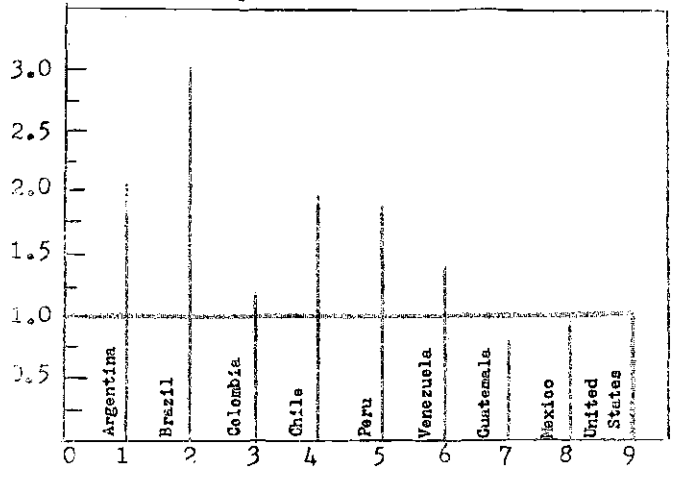
11. Fabrics



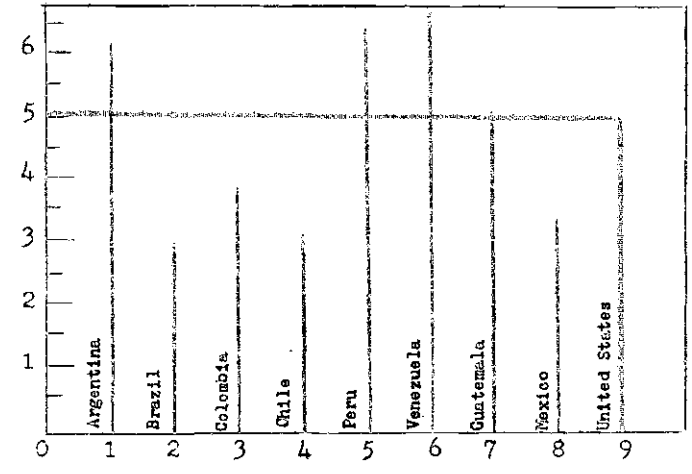
12. Fabrics for use in the home



13. Textile products for use in the home



14. Pharmaceutical products



15. Toilet preparations

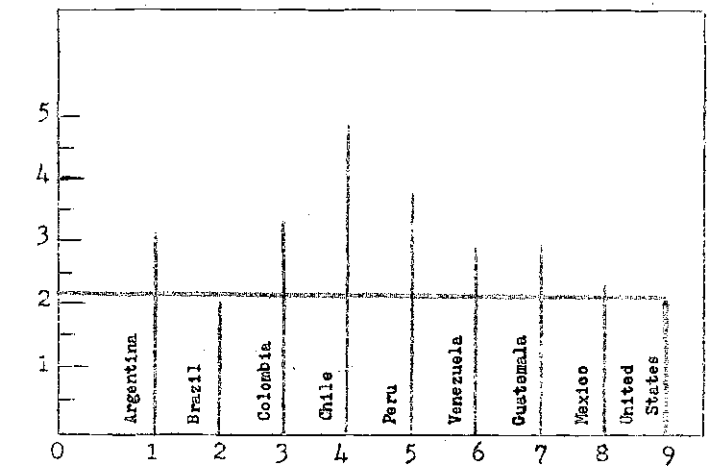
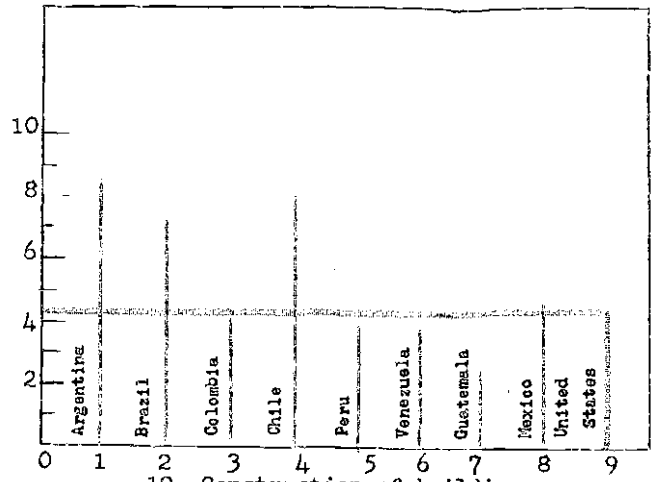


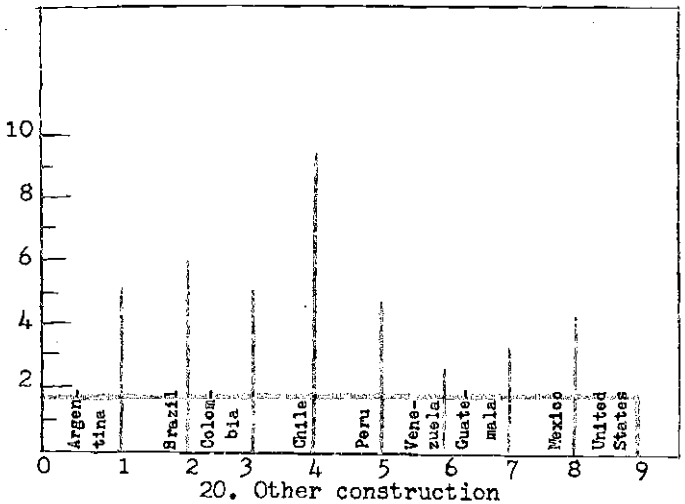
Figure X (Add. 3)

C. INVESTMENT GOODS

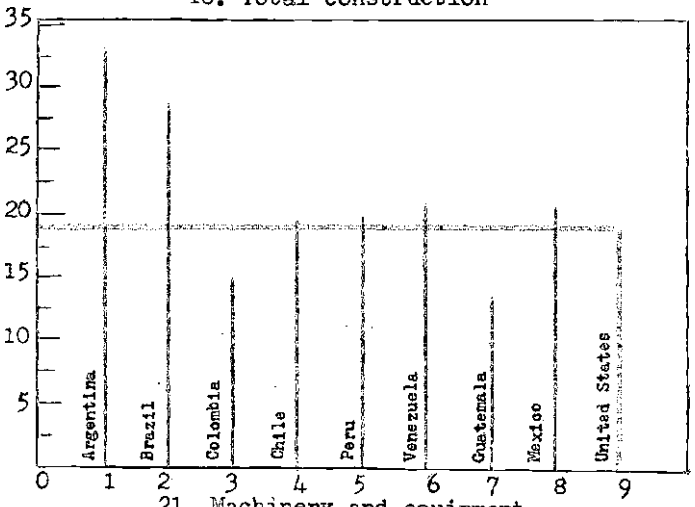
16. Furniture



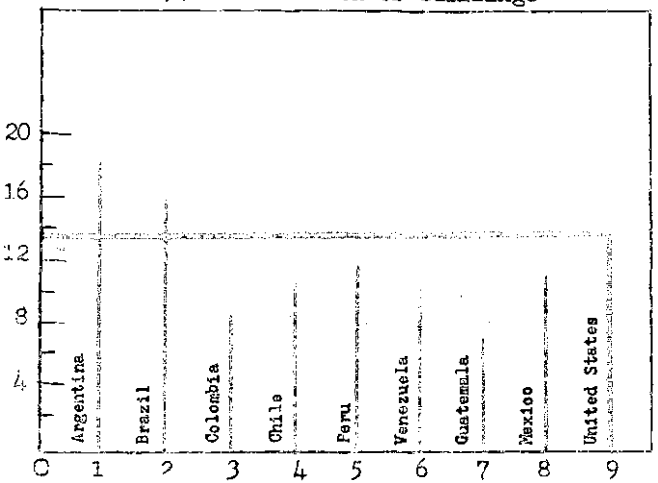
17. Household electrical appliances



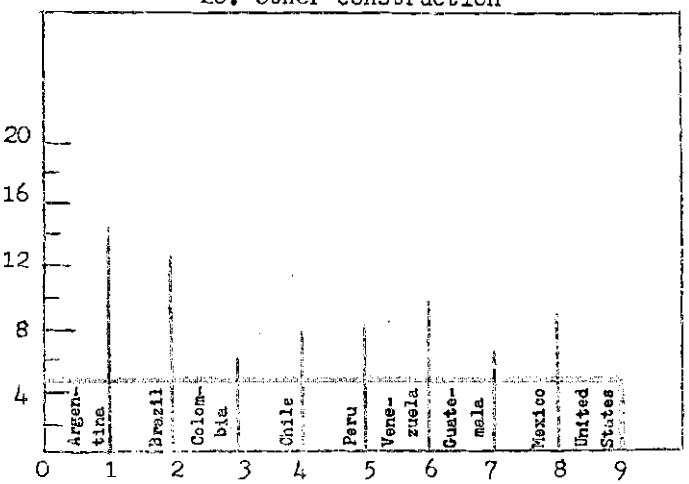
18. Total construction



19. Construction of buildings



20. Other construction



21. Machinery and equipment

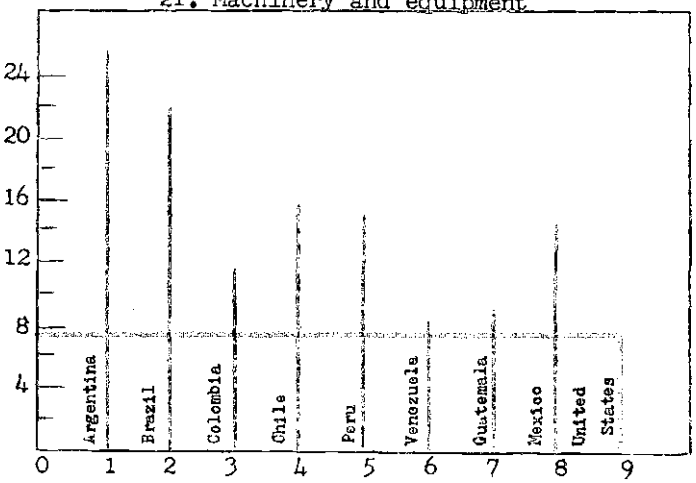
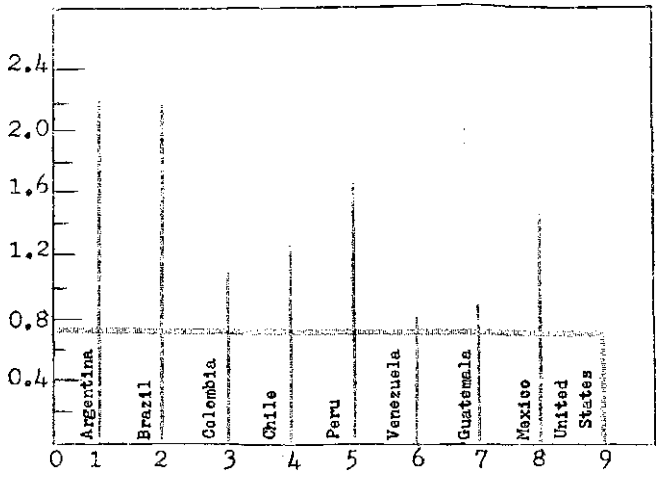


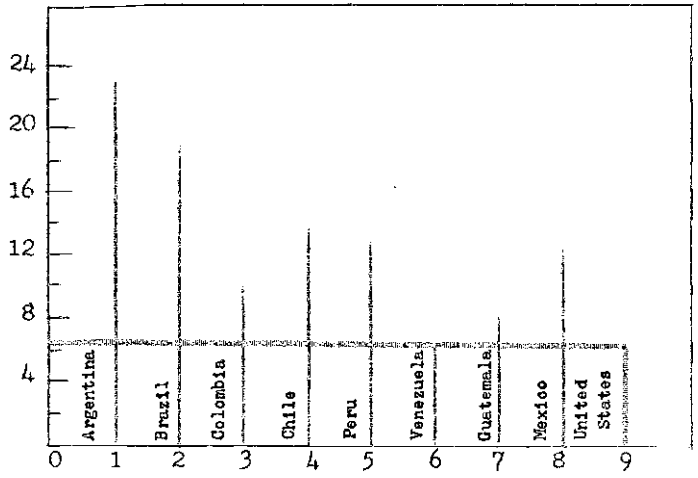
Figure X (Add. 4)

C. INVESTMENT GOODS (continued)

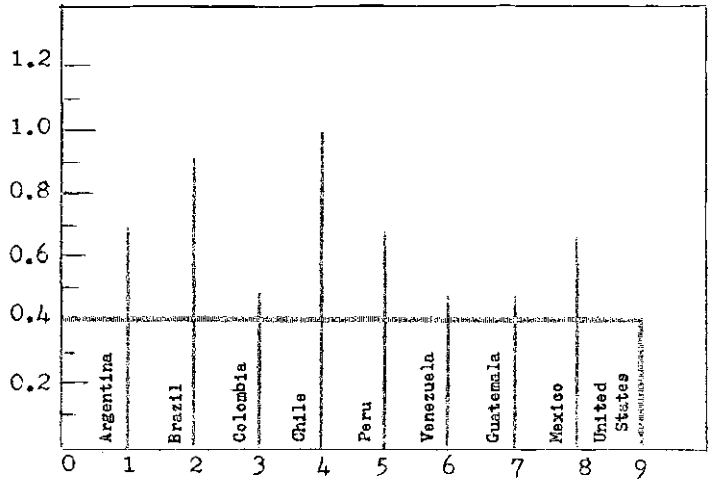
22. Agricultural machinery



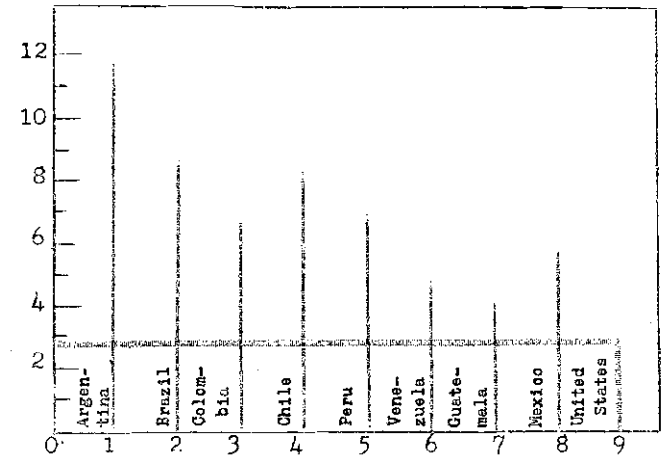
23. Industrial machinery



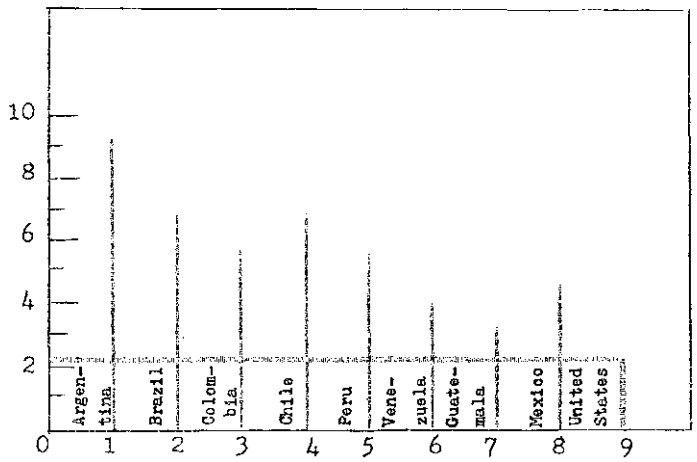
24. Office equipment



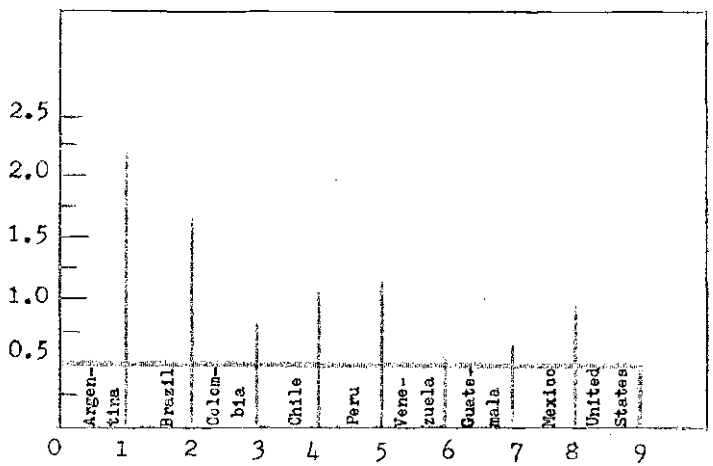
25. Total transport equipment



26. Motor vehicles



27. Other equipment



However illustrative the foregoing considerations may be, they fail to convey a more accurate idea of the absolute differences in the price levels of manufactured products among the Latin American countries themselves, and between the region as a whole and the United States. The reason for this is that the comparison is between relative prices, which, moreover, are defined by large groups or categories instead of by separate products. Accordingly, at the risk of entering into the controversial topic of proper exchange rates an attempt is made in figure XI to overcome those shortcomings by presenting a set of estimates of unit prices for a number of major manufactured products.65/

The general impression gained from a study of this figure is that the question of Latin America's relatively high prices for manufactures - the qualitative side of which is well known - is a very far-reaching one. If the exchange distortions are corrected - to the extent that they are properly considered in the computation of parity exchange rates - Latin America emerges all the more as a region of prevailing high prices for manufactured products.

The exchange rates chosen for the conversion of Latin American prices, as expressed in the respective national currencies, to a common currency unit weigh heavily in the results of these new comparisons. In all the Latin American countries except Venezuela the results are more favourable if the prices are converted at the exchange rates in force than if the operation is done through factors more accurately reflecting the respective parities of purchasing power. Moreover, the resulting picture presents widely differing situations from which it is hardly possible to draw general conclusions, even though basically it should be interpreted as confirmation of the fact that the high relative prices of Latin American manufactures correspond also to high prices in absolute terms.

65/ The pertinent figures relate to unit prices recorded on the respective country markets, converted into dollars at two different exchange rates: those in force at the time for foreign trade purposes, and others corresponding to arbitrary conversion factors, so calculated as to be a more accurate reflection of what might be considered parity exchange rates in respect of purchasing power. For further information on the subject see the statistical annex.

/Figure XI

Figure XI

COMPARISON BETWEEN UNIT PRICES OF SELECTED MANUFACTURES

Dollars per unit, at estimated parity rates of exchange

1. Non-durable consumer goods

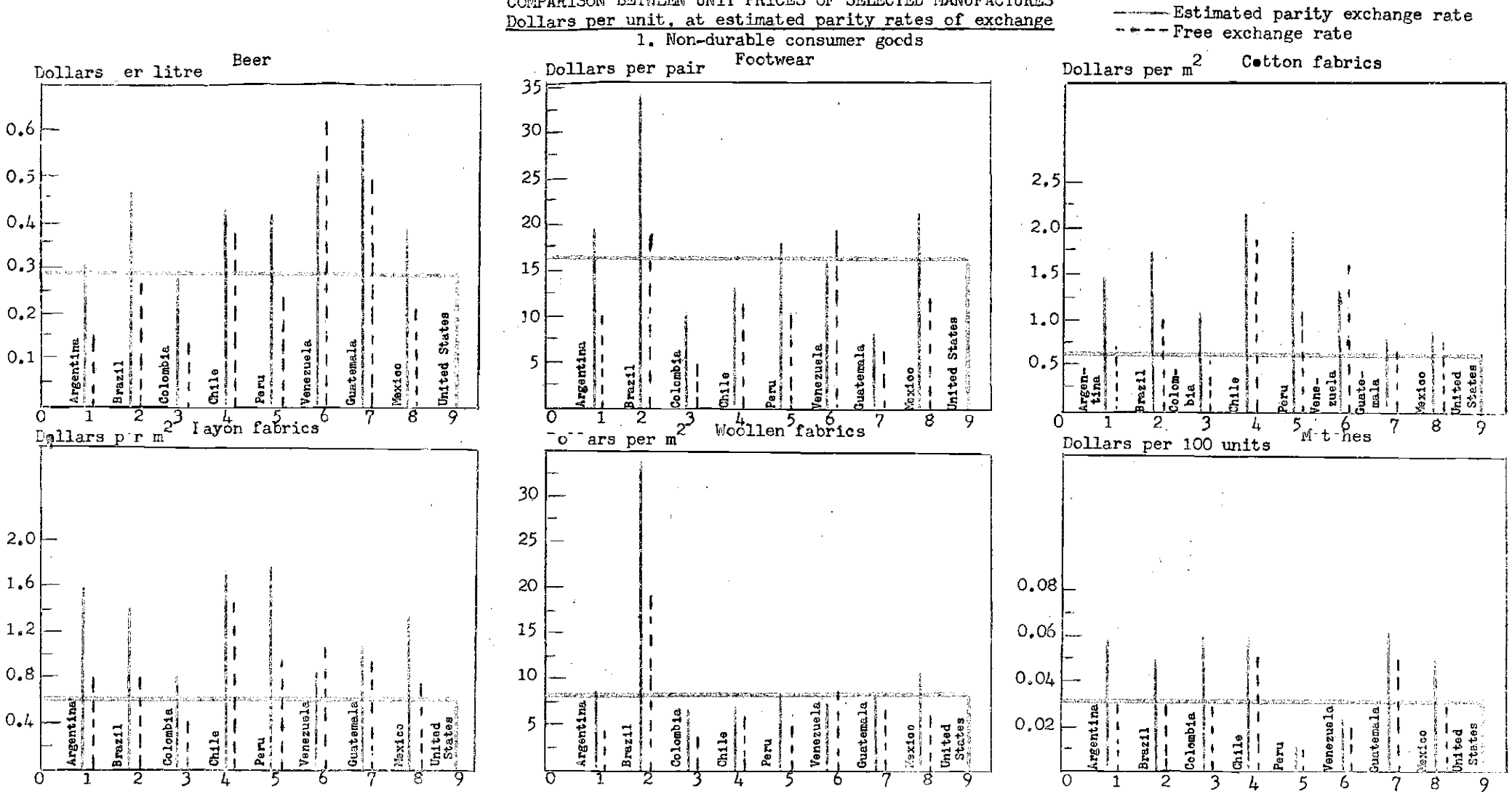


Figure XI (Add. 1)

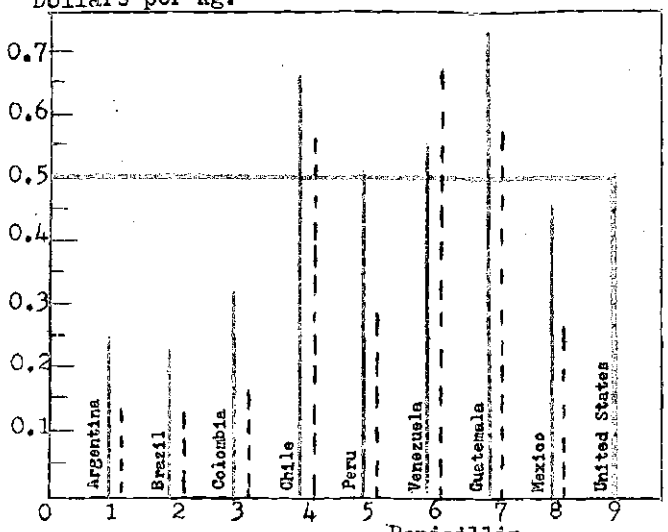
1. Non-durable consumer goods (continued)

Estimated parity exchange rate

Free exchange rate

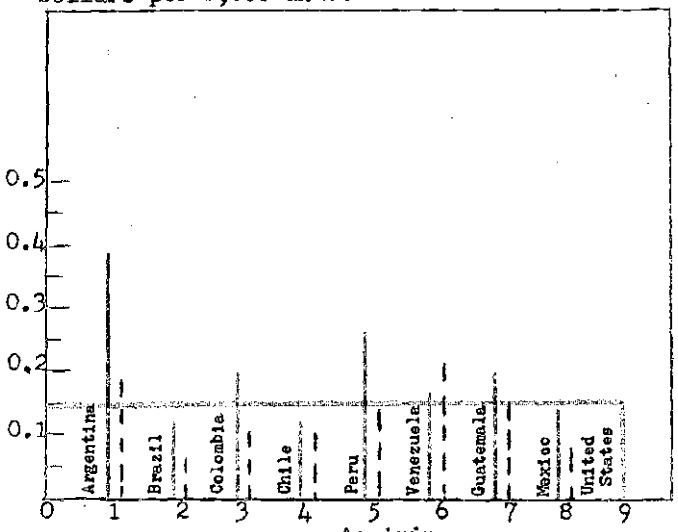
Household soap

Dollars per kg.



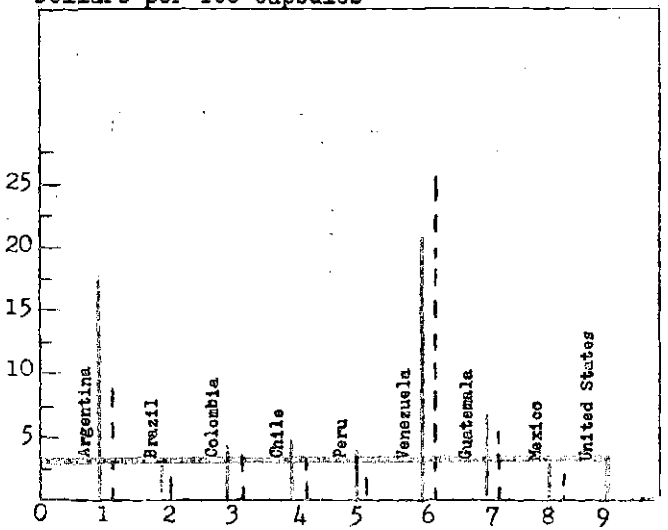
Toilet paper

Dollars per 1,000 units



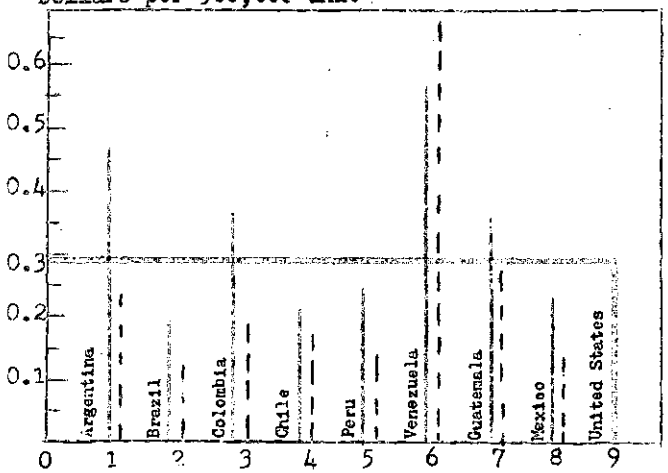
Vitamin C

Dollars per 100 capsules



Penicillin

Dollars per 500,000 unit



Aspirin

dollars per 20 units

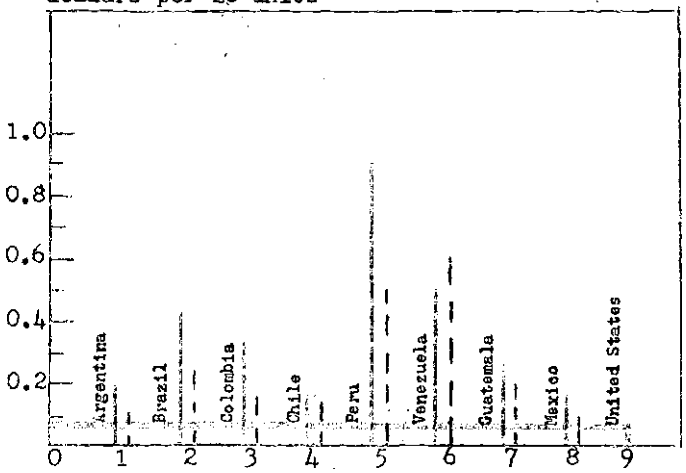


Figure XI (Add. 2)

2. Durable consumer goods for household use

Dollars per unit

——— Estimated parity exchange rate

- - - - - Free exchange rate

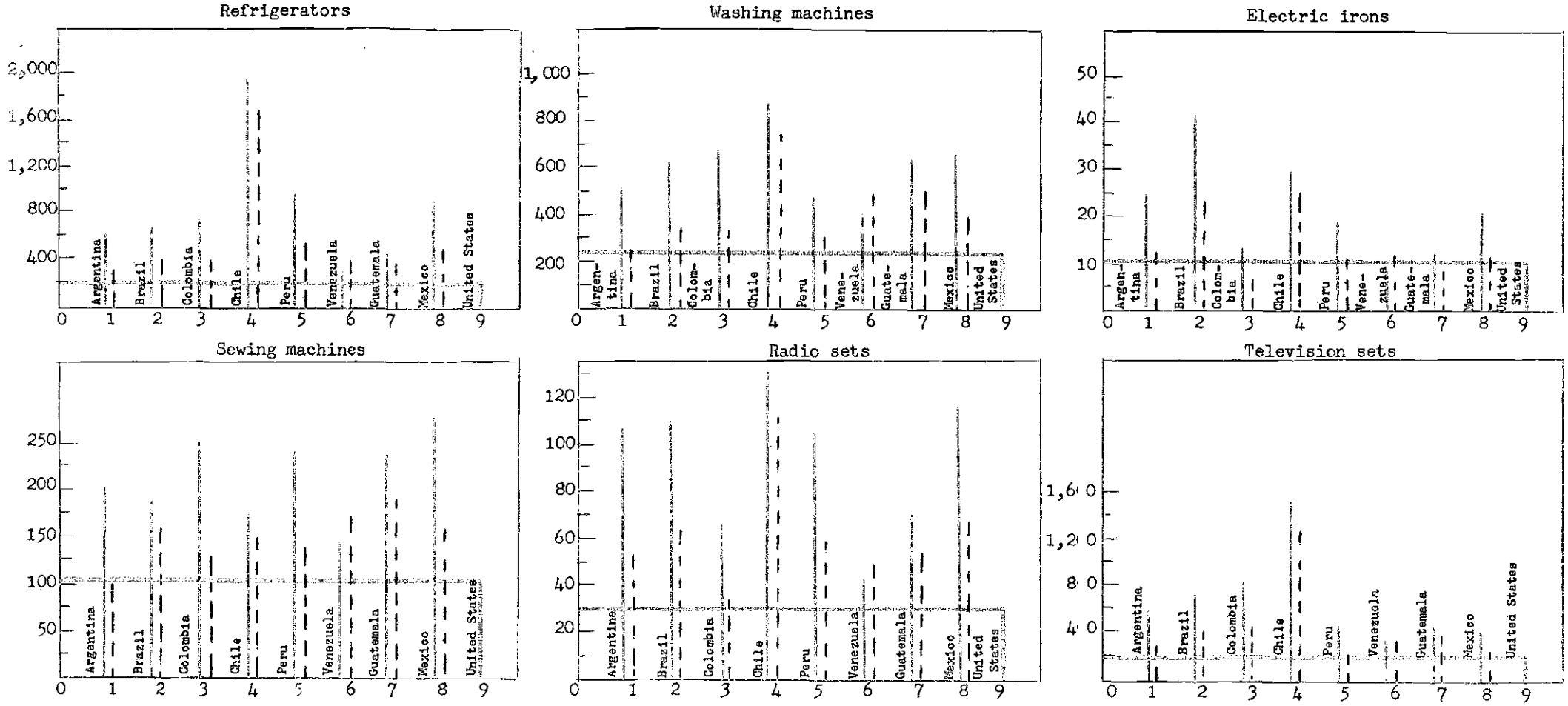


Figure XI (Add. 3)

2. Durable consumer goods for household use (continued)

Dollars per unit

——— Estimated parity exchange rate
– – – – Free exchange rate

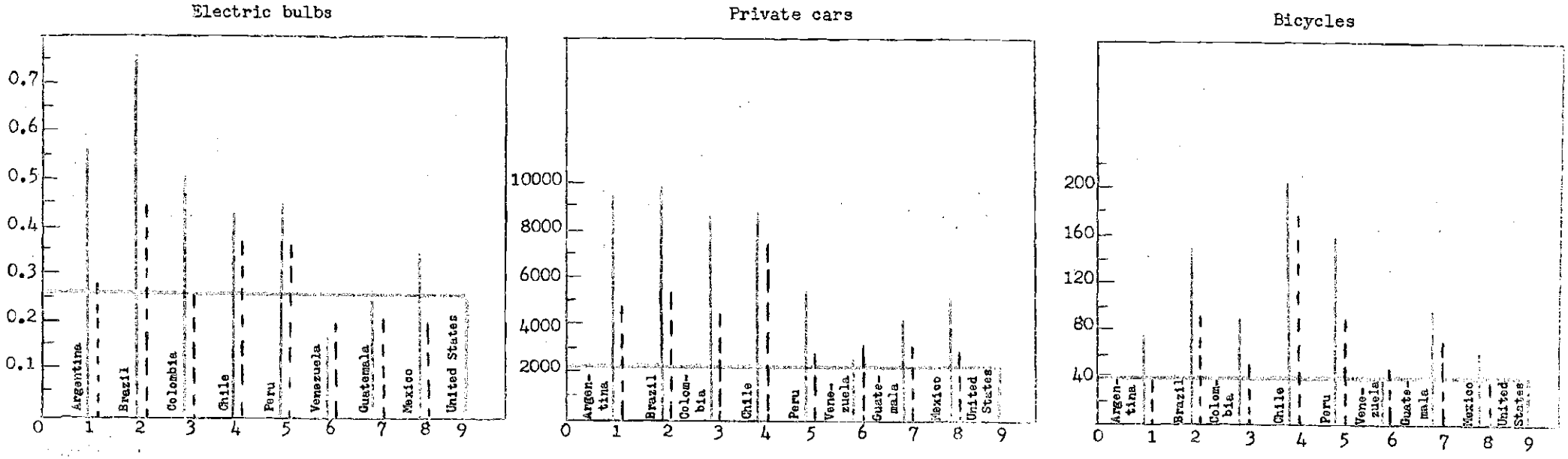


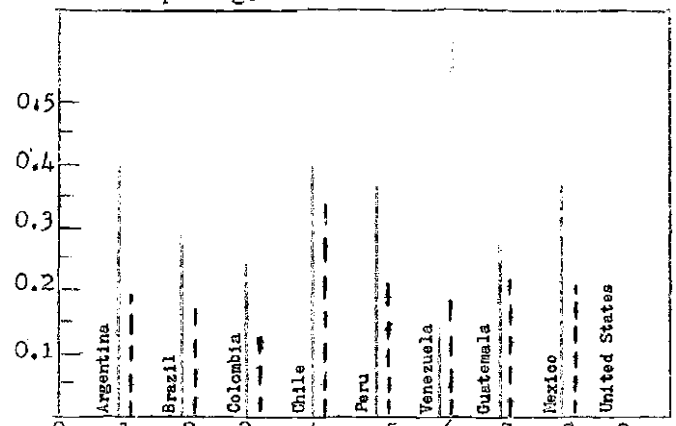
Figure XI (Add.4)

3. Construction materials

——— Estimated parity exchange rate
– – – –Free exchange rate

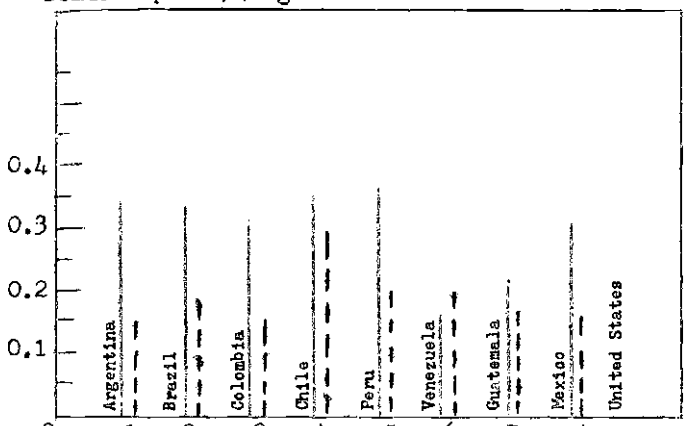
Metal structures for buildings

Dollars per kg.



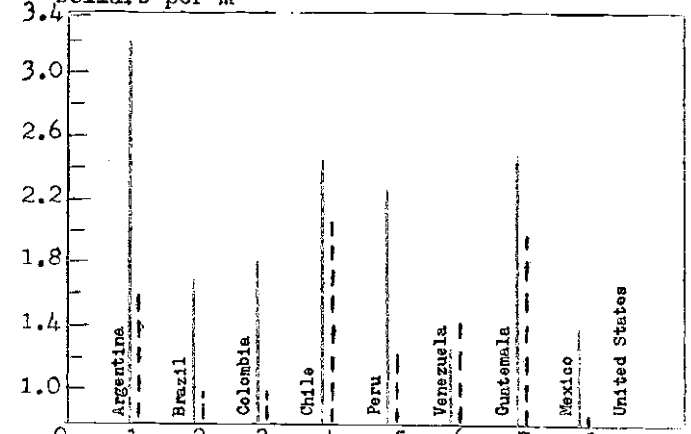
Construction steel

Dollars per 1/4 kg



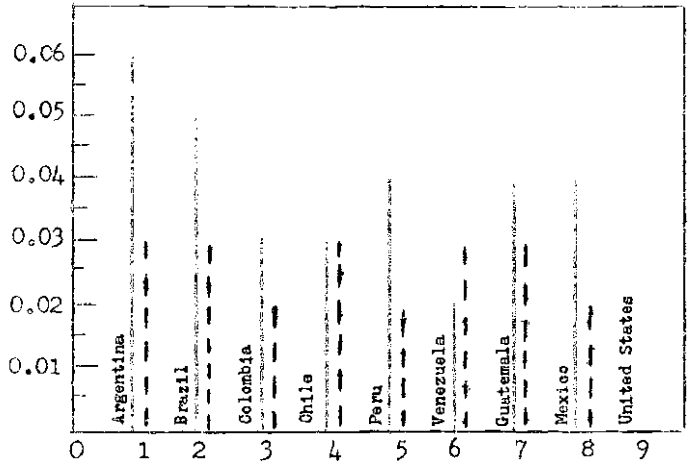
Corrugated galvanized sheets

Dollars per m^2



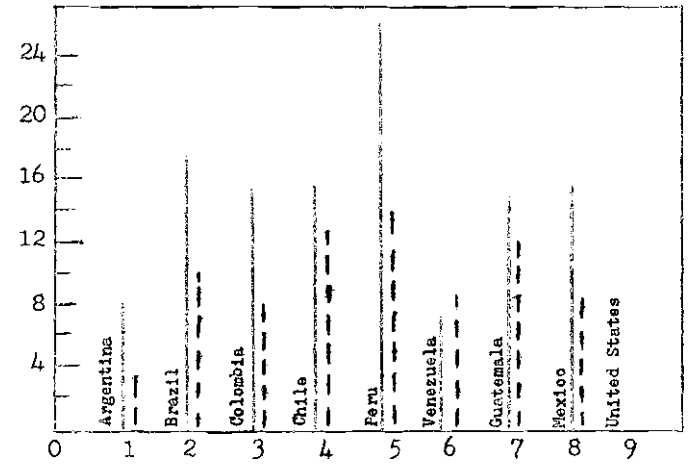
Cement

Dollars per kg.



Flat glass

Dollars per m^2



Paints

Dollars per gallon

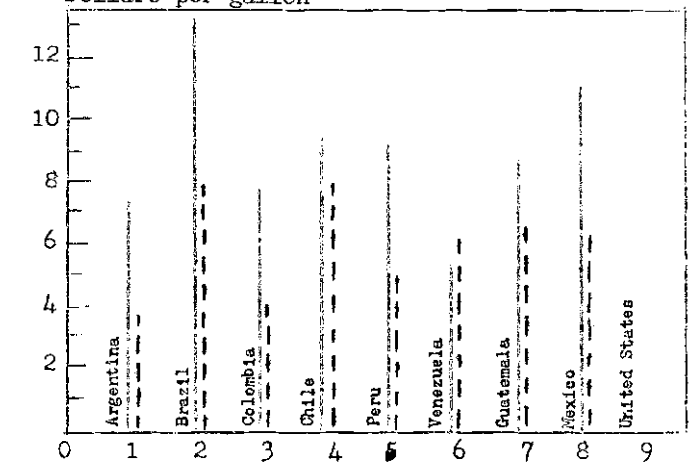


Figure XI (Add. 5)

4. Capital goods (Continued)

Thousands of dollars per unit

——— Estimated parity exchange rate

- - - - Free exchange rate

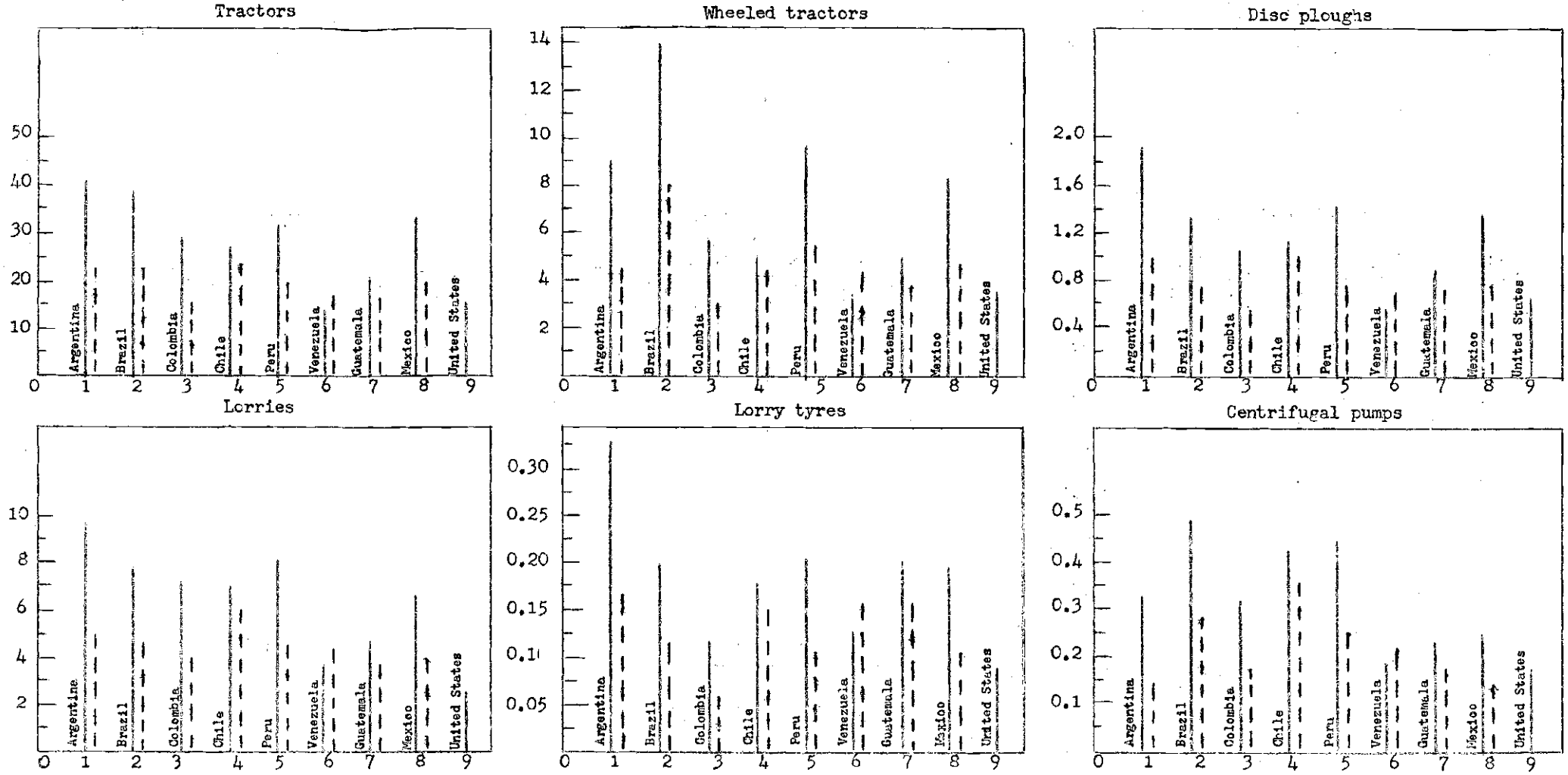


Figure XI (Add. 8)
4. Capital goods (Continued)

Dollars per unit

——— Estimated parity exchange rate
— * — Free exchange rate

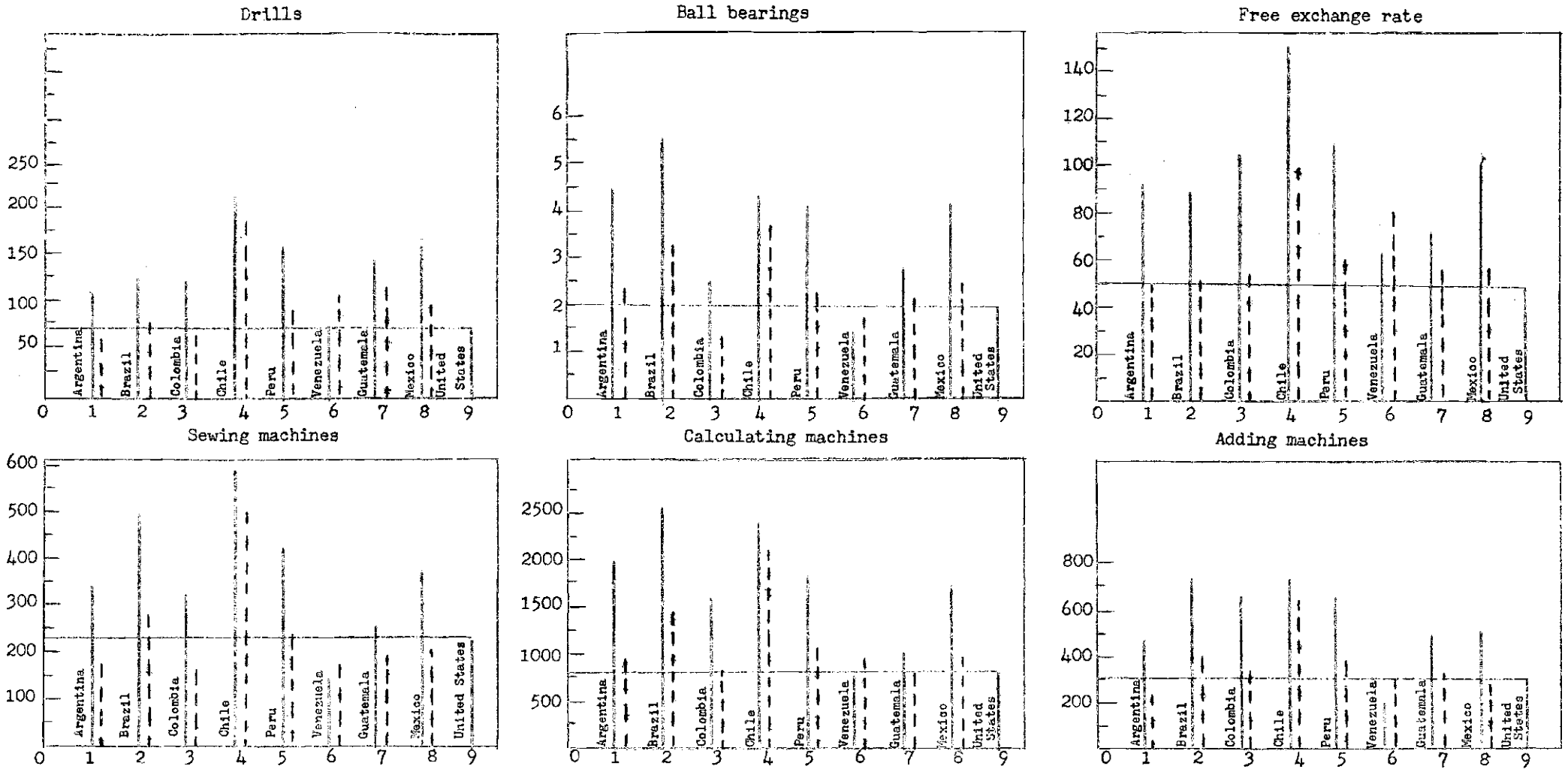


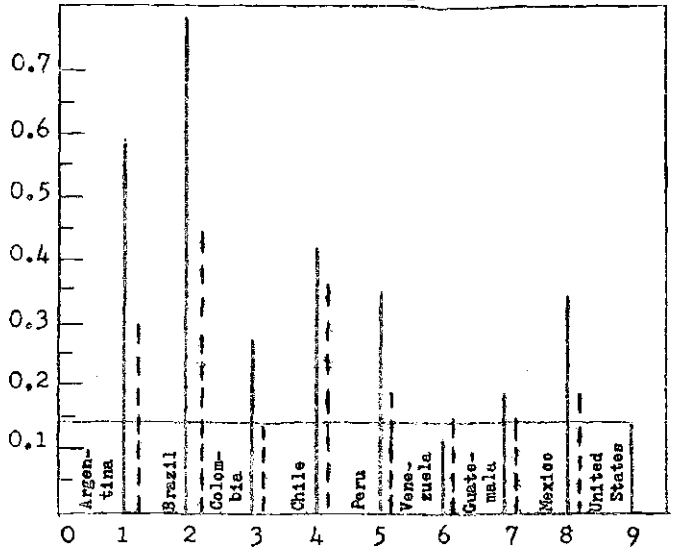
Figure XI (Add.7)

4. Capital goods (continued) - Thousands of dollars per unit

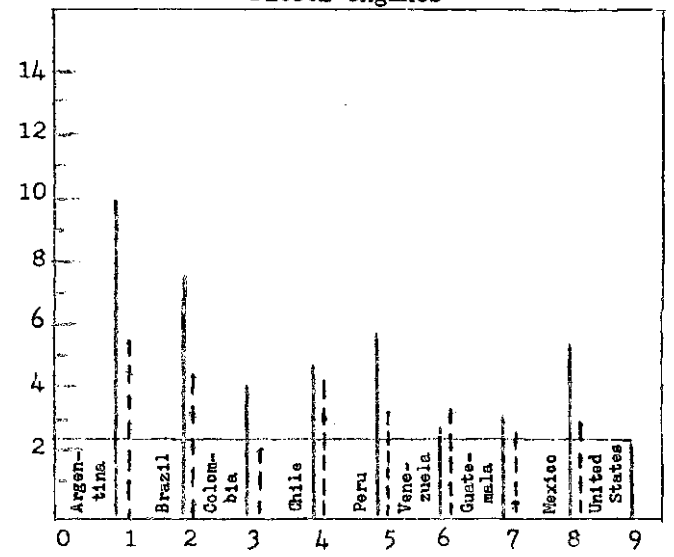
——— Estimated parity exchange rate

– – – – Free exchange rate

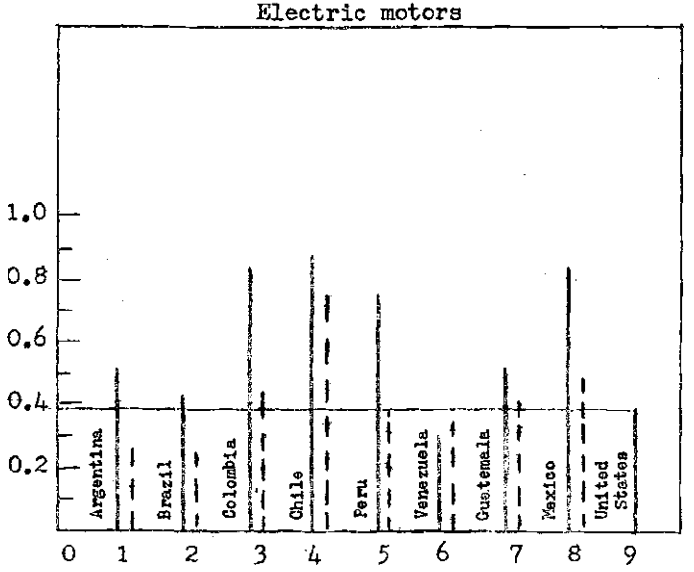
Gasoline engines



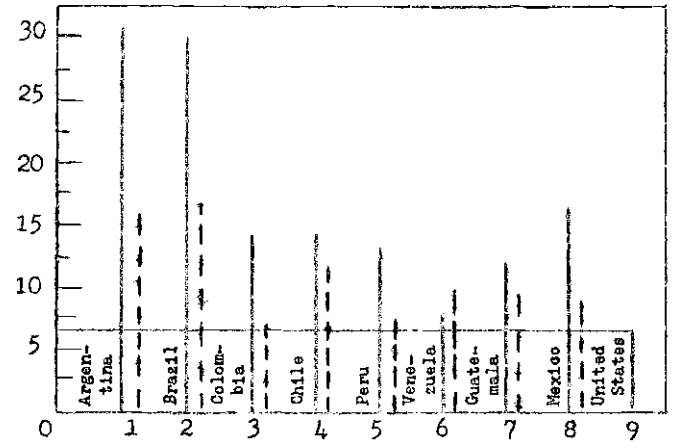
Diesel engines



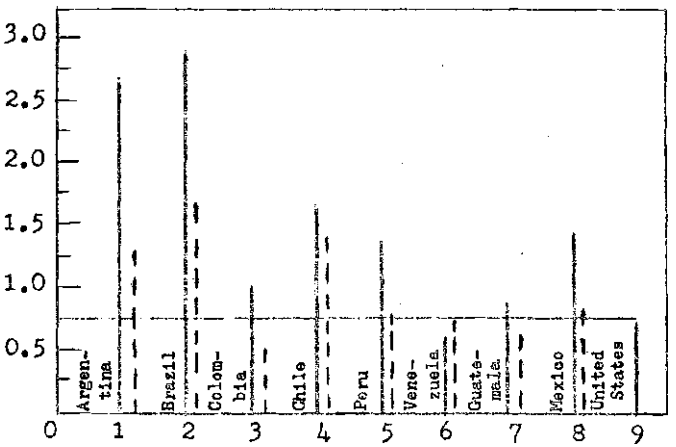
Electric motors



Generating sets



Hand-operated welding machines



Lathes

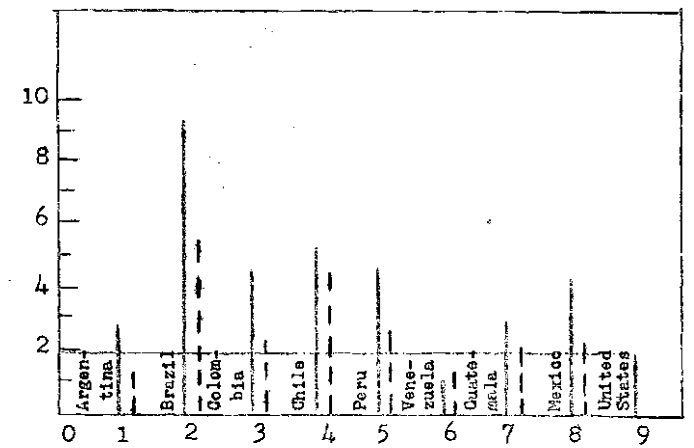


Figure XI

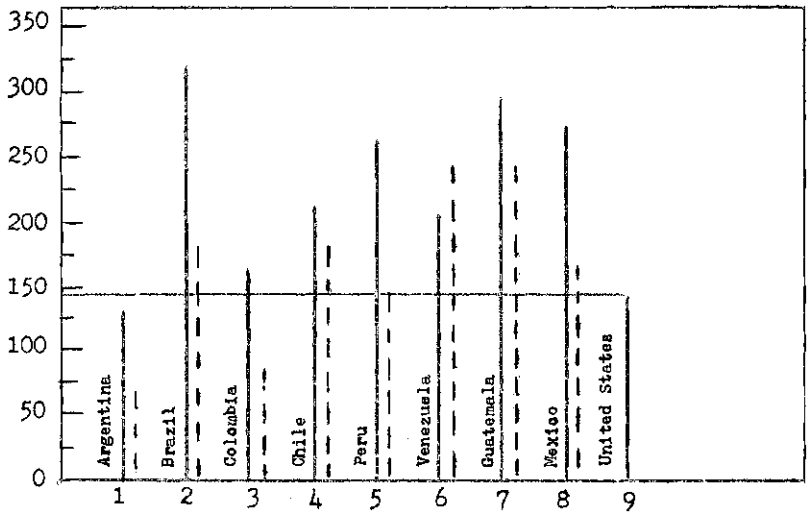
(Add.8)

4. Capital goods (concluded)

Dollars per unit

——— Estimated parity exchange rate
– – – Free exchange rate

Metal desks



/It would

It would be as well to qualify that conclusion in some measure by examining more fully the information on which it is based.

In the first place, the position is seen to be far less serious in the case of non-durable consumer goods, where the conclusions depend, in the last analysis, on the conversion factors that are deemed most suitable. If parity factors are used only for footwear - and on a lesser scale for woollen fabrics -, the prices in most of the eight Latin American countries are lower than in the United States; on the other hand, they all register far higher prices for cotton fabrics, including two such opposite cases as Chile and Peru, the former relying completely on imports of raw cotton, and the latter being a major exporter of that raw material. The position with regard to rayon fabrics is not too dissimilar. Only two of the eight countries concerned record prices equal to, or lower than, those of the two United States cities for beer and matches - Argentina and Colombia for beer, and Peru and Venezuela for matches. As a rule, Latin America's prices of pharmaceutical products are also relatively higher - with a few exceptions such as penicillin (in Brazil, Chile, Peru and Mexico) - and the differences are very marked in so far as aspirin is concerned, whatever the factor of conversion used. In this group of non-durable consumer goods notable disparities are also observed in the structure of relative prices of manufactures between the Latin American countries themselves, often exceeding a ratio of 1 to 3 between those registering the lowest and the highest price for the same product.

Of the nine durable consumer goods for household use considered, there is practically no exception to the general rule that Latin America's market prices are higher than United States prices, and in general the discrepancies are much greater than those noted in non-durable consumer manufactures. Furthermore, the differences are so large as to enable this conclusion to be maintained even if the more favourable ratios determined by conversion at official exchange rates are used. In several cases, they are goods supplied mainly by imports, and consumer prices are therefore severely affected by tariff rates and other equivalent charges. This does not happen in countries which have already made considerable progress in import substitution in respect of this type of goods, nor in the case of certain of the items included (such as bicyles), which are produced on a fairly wide scale in all countries of the region.

/As to

As to the construction materials group, the conclusions depend entirely on the factors of conversion, although the position is relatively favourable to Latin America in connexion with two of the most important products: round iron bars for construction purposes and cement, both of which are usually produced locally. At parity exchange rates, in at least half of the eight Latin American countries (and not always the same ones) prices for metal structures and galvanized sheets are comparable with or lower than, those paid on the United States market. As regards paints, however, all the regional prices are higher, the differences sometimes being very pronounced. While this product is produced locally on a very extensive scale, a high proportion of imported inputs are used.

Capital goods present widely varying situations, characterized as a rule - with the frequent exception of Venezuela - by far higher prices on the Latin American markets than in the United States. Since these goods are chiefly imported, such diversity is largely determined by the differences in tariff treatment. It is not superfluous to emphasize, however, that the domestic supply of these products has also been intensified, especially in those countries which have made most headway in the metal-transforming industries and in import substitution.

It might be as well to stress the nature and limitations of these data, in order to qualify the conclusions outlined and to draw attention to their inadequacy as a basis for broader interpretations. Their principal aim is merely to illustrate by means of certain orders of magnitude the well-known phenomenon of relatively high prices in Latin America for manufactured products taken as a whole. They cannot on their own indicate the causes, nor can the comparisons suggested be taken in too strict a sense. Thus, for example, the illustrations in figure X which reflect the internal structure of relative prices in each individual country are subject, as has been stated, to the reservation that they may be the result of particularly low prices for foodstuffs. The comparison shown in figure XI, for their part, are influenced not only by the unreliable estimate of parity exchange rates or the equally unreliable applicability of official rates of exchange, but also by possible discrepancies in the specifications of the individual products included, although in the basic survey pains were taken to make as homogeneous a classification as possible.

/Even supposing

Even supposing that such factors failed to introduce any serious elements of distortion, it would not be right to infer from those comparisons any general conclusion concerning the efficiency or productivity of Latin American industry. As cautioned above, present research deals with prices at the consumer level, applying indiscriminately to imported and locally produced goods, and are therefore affected by many different factors in the way of factory production costs or the c.i.f. value of imports.

These remarks do not detract from the value of a systematic presentation of such data, from which at least some important findings may be derived. Whatever may be the determining factors, there is no denying that the prevailing situation in the region is characterized by high relative prices of manufactured products - in varying, but usually major proportions - and that this phenomenon cannot but affect the size of Latin America's market for this type of goods. With another price structure, or through a gradual change in this situation during the final stages of industrialization, the same proportion of income that is now earmarked for the purchase of manufactures would represent a far greater real demand than that assessed in the light of the existing price structure.

It is regrettable that in the past there seems to have been no such long-term trend, to judge from the variations in the different components of wholesale price indexes available for some of the Latin American countries. As can be seen in figure XII, though marked changes have taken place, they have been of a transitory character without seriously altering the relative price structure prevailing in the region.

The persistence of the problem, as deduced from those past series, underlines the need for further research on the matter, since so far there are not enough data available to carry the analysis to the stage of a thorough examination of its basic causes. There are many factors which help to explain the existence of high relative prices for industrial products on the Latin American markets, including those directly influencing production costs and those determining the magnitude of the differences between factory costs and sales prices, and between the latter and the prices ultimately paid by the users. But none of these questions have been studied methodically. Therefore, by way of supplementing the previous considerations, one or two

Figure XII

PRICE TRENDS FOLLOWED BY MANUFACTURED PRODUCTS AND OTHER TIPES OF GOODS AND SERVICES IN SELECTED LATIN AMERICAN COUNTRIES

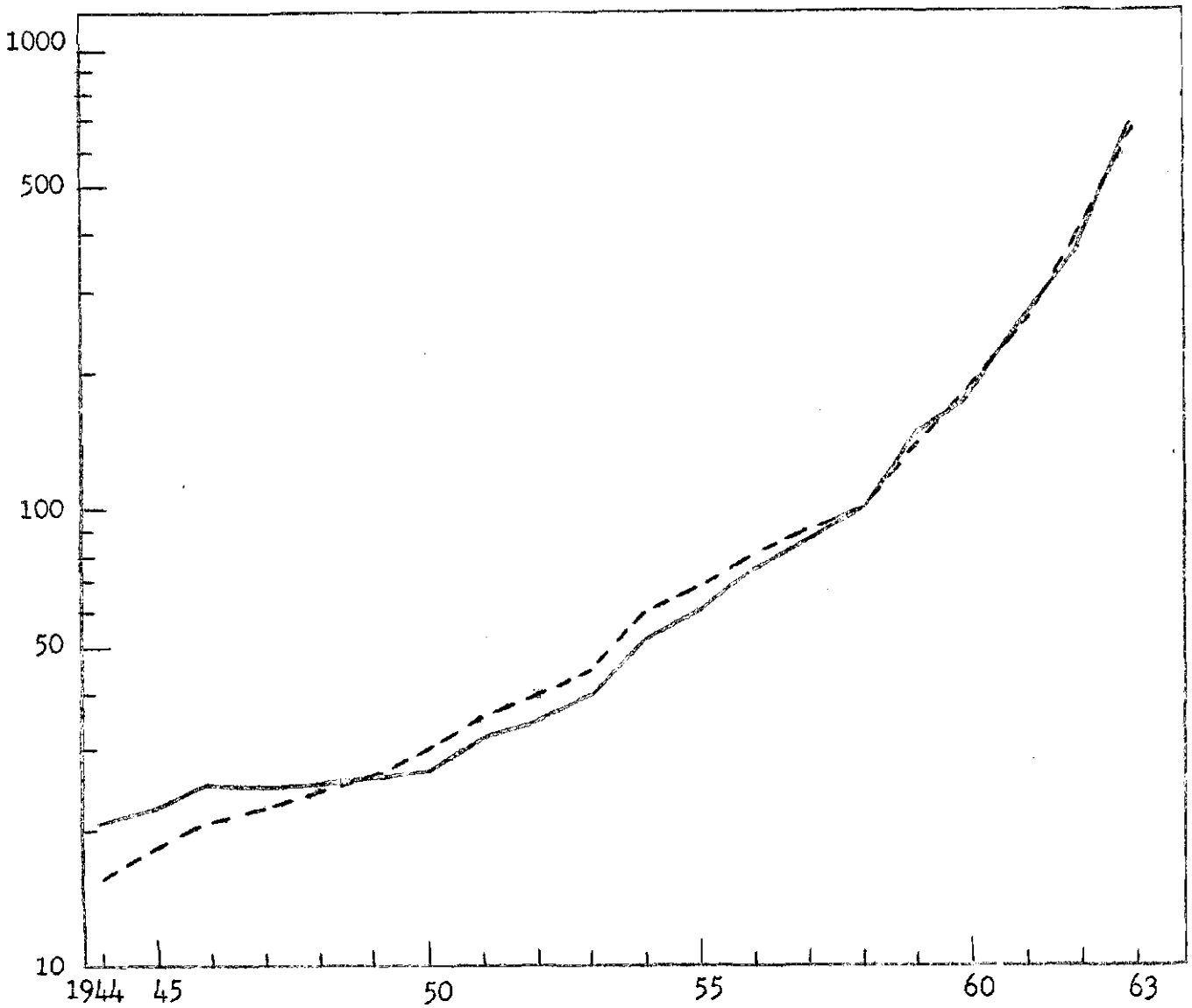
BRAZIL : WHOLESALE PRICE INDEXES (DOMESTIC)

(Index: 1958 = 100)

Semi-logarithmic scale

— — — — General index of wholesale prices

———— Price index for industrial products



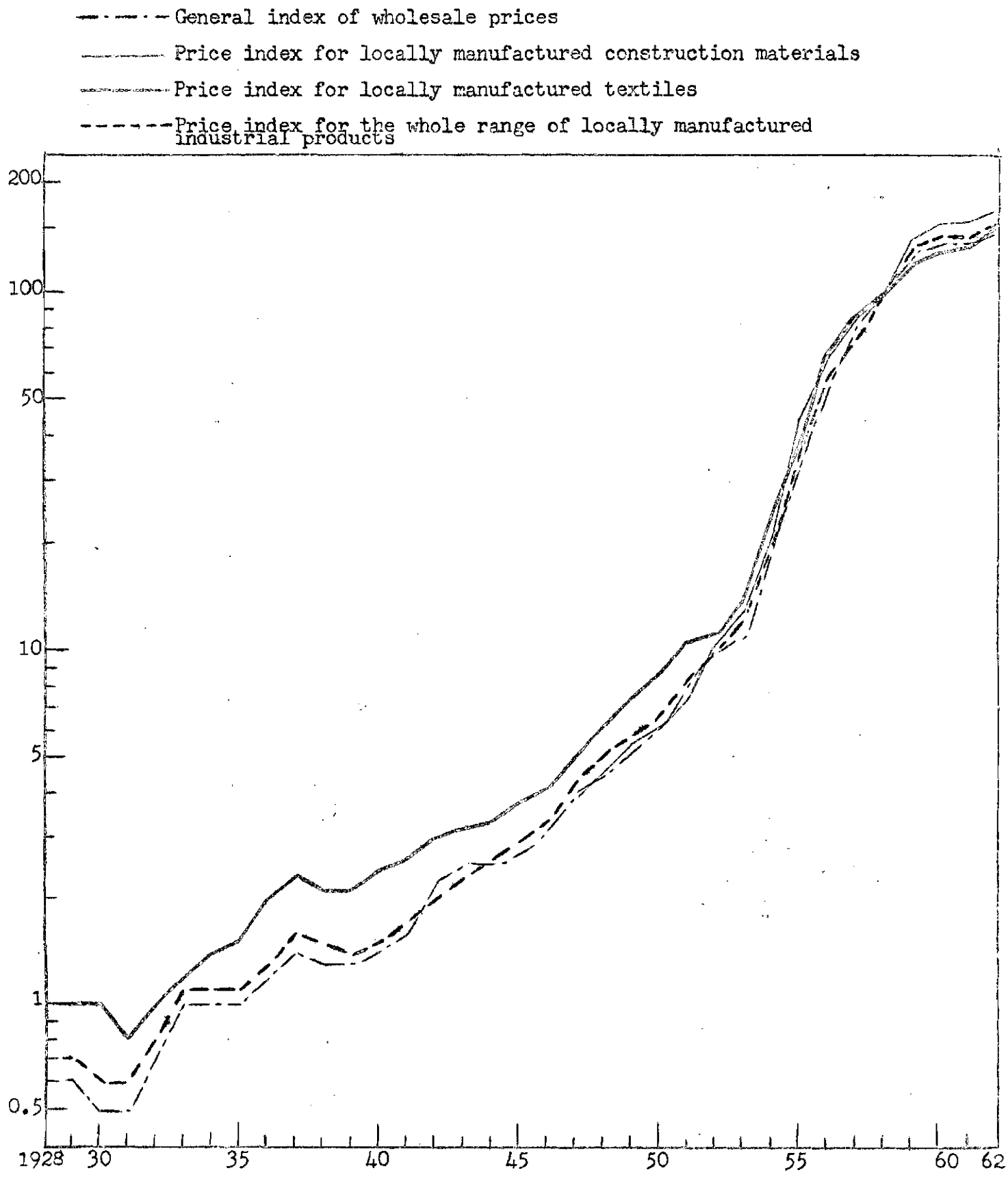
Source : See statistical annex

/Figure XII (Add. 1)

Figure XII

(Add. 1)

CHILE : WHOLESALE PRICE INDEXES

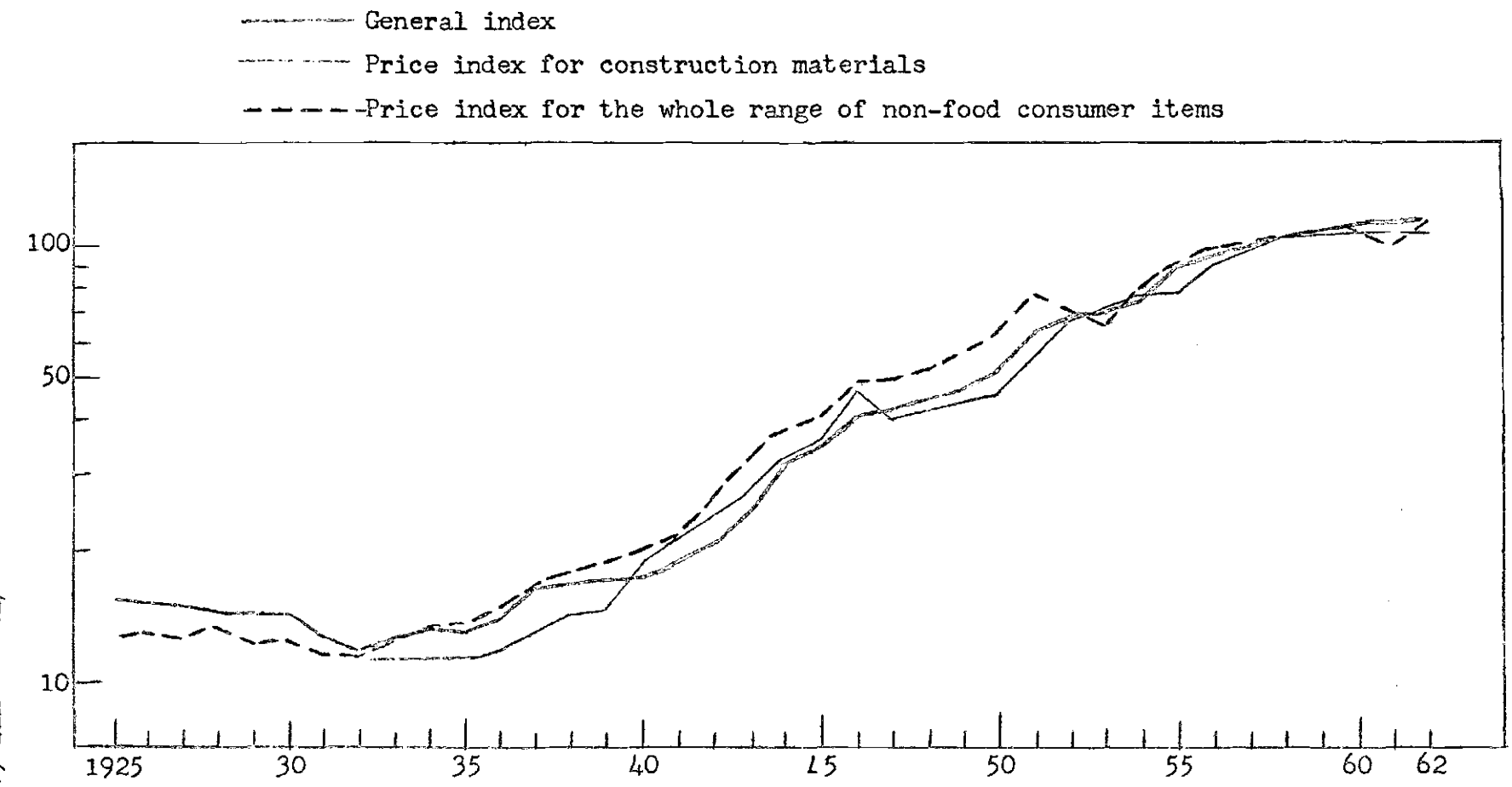


/Figure XII (Add. 2)

Figure XII

(Add. 2)

MEXICO : WHOLESALE PRICE INDEXES IN MEXICO CITY

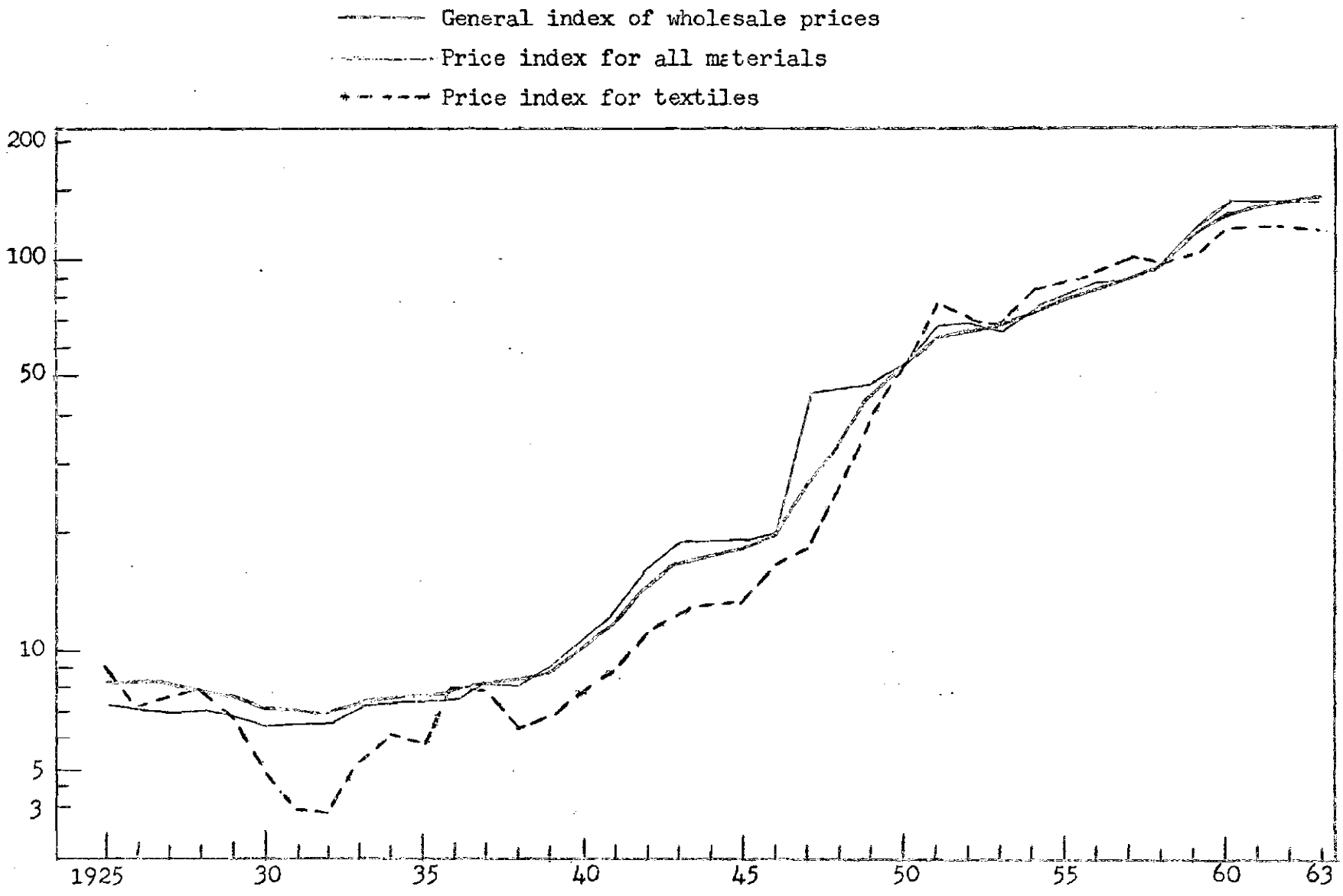


/Figure XII (Add. 3)

Figure XII

(Add. 3)

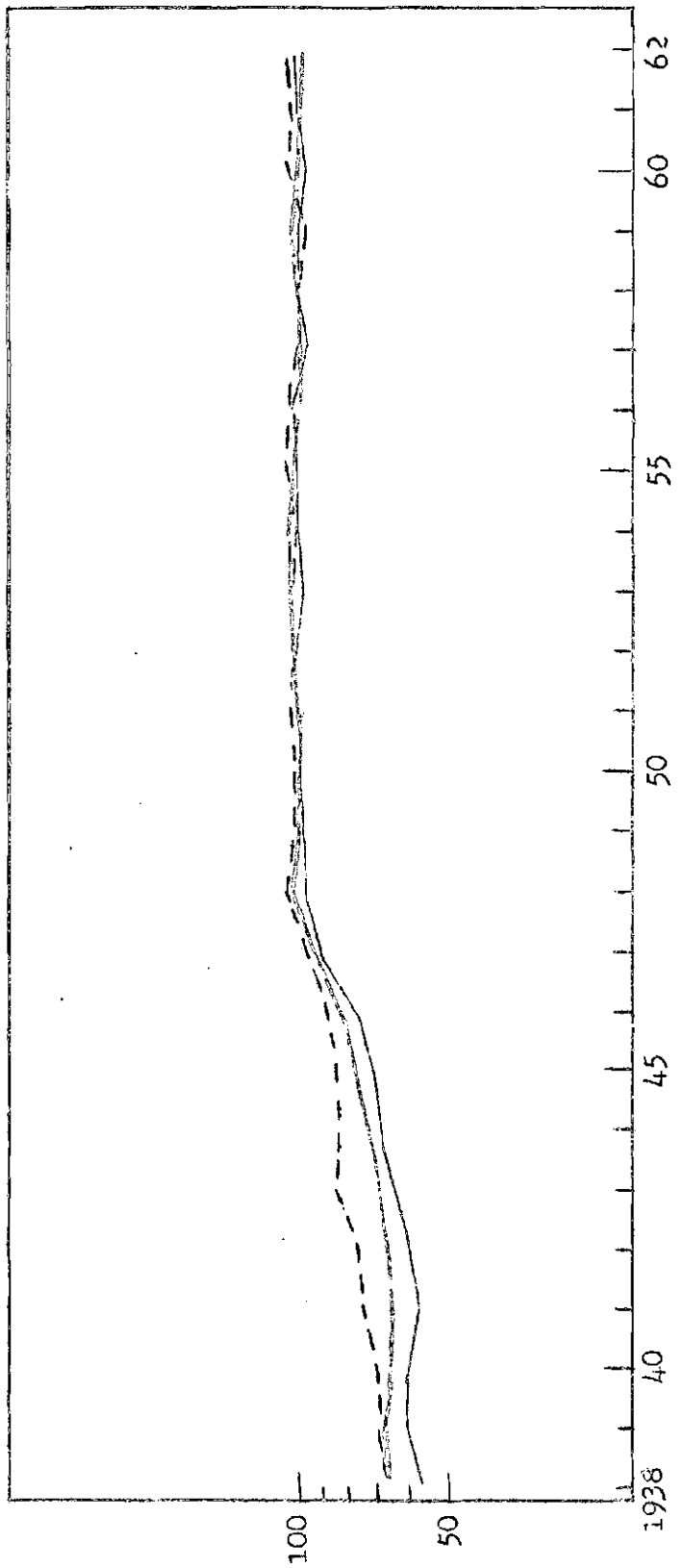
PERU : WHOLESALE PRICE INDEXES IN LIMA, CALLAO AND SEA-SIDE RESORTS



/Figure XII (Add. 4)

Figure XII
(Add. 4)

VENEZUELA : WHCLESALE PRICE INDEX



/generalizations will

generalizations will be useful on this fundamental aspect of regional industrialization, nearly all formulated in purely qualitative terms and backed by few accurate quantitative data.

This applies to production costs. It is a generally accepted fact that they are relatively high owing to a number of factors such as: insufficient scale of production, as determined by the narrow domestic markets which prevent full advantage from being taken of the economies of scale afforded by modern technology with a view to higher production levels in each individual establishment; under-utilization of available production capacity, for the same reasons, which is reflected in an excessive incidence of capital charges, further intensified by the shortage and high cost of financial resources; the limited number of vertically integrated industries, which is the cause of successive additional charges in the distribution and marketing of raw materials and intermediate products; the high prices of basic raw materials, either because they are imported or because, they are locally produced items of poor quality or are the object of price incentives; low manpower productivity, influenced by the unsatisfactory equipment available and by inadequate training facilities, which reduce or cancel out the benefits which might otherwise have stemmed from the low nominal wage levels; the shortage of technical personnel and unsatisfactory methods for the supervision and organization of production; limited specialization, linked also to the size of the market, which culminates in the simultaneous production of too wide a range of certain manufactures. A number of institutional factors also have an adverse effect, including, for instance, the provisions relating to the taxes levied on the purchase or transfer of industrial inputs, social security financing, regulations concerning the number of workers to be employed in certain operations or work in additional shifts, other similar regulations, etc.

It is also accepted as an established fact that there is not always a close enough relationship between factory production costs and sales prices. The uncompetitive structure of industry - protected from foreign competition by high tariffs - and its frequent development under a monopoly or quasi-monopoly system, create the conditions for a policy entailing high

profit margins, the rates of return being largely independent of production costs. Wherever a large number of enterprises exists, often with widely differing productivity levels, open competition tends to give way to a form of co-existence through various ways of tacitly distributing the market at prices compatible with the position of the least productive concerns.

To the foregoing considerations are added the deficiencies and shortcomings of the existing distribution and marketing mechanisms, a process which is sometimes highly concentrated at the wholesale stage and is later characterized by too many intermediaries. The ultimate result is high prices for manufactured products at the consumer level, which is only partly reflected in higher earnings for industry and, over the long term, becomes a stumbling block to the solution of one of the basic problems which, in the final analysis, is a determining factor in this cumulative process of rising costs, i.e. the substantial broadening of the market for manufactures.

This completes the qualitative generalizations concerning a problem which no doubt is even more complex than this, and is governed by still more disparate causes. As with all generalizations, they are not equally applicable to all countries of the region, nor to all sectors of manufacturing industry. There are many sectors in which economies of scale are not a significant factor, not even with domestic markets their prsent size; others have access to local supplies of basic raw materials which are also exported, and here they enjoy an obvious advantage over world markets.

It is not only necessary, therefore, to qualify those considerations for each specific situation, but also to establish some order of importance within the series of factors indicated, and the degree to which they actually influence the high prices of Latin America's industrial output. It is precisely in this connexion that the aforementioned lack of sufficiently detailed quantitative research is most felt.

/A previous

A previous ECLA study[66] contained some comments which might usefully be repeated here. They were based on a publication in which a comparison was made between the production costs of a number of United States enterprises operating simultaneously in the United States and, through affiliated companies, in the Latin American countries.[67] Such a comparison is most useful in studying certain basic aspects of cost structure, inasmuch as it assumes at least some degree of uniformity as regards absorption of technology, organization and management methods, etc., which constitute additional adverse factors in Latin American concerns as such.

Table 29 shows the results of this research as regards total unit costs and their components for somewhere between 54 and 66 products. As can be seen, Latin America's total unit costs are higher than those in the United States for 58 per cent of the products considered, equal for 11 per cent and lower for 31 per cent. But within those general levels the differences are even more significant: in only 3 per cent of the cases reviewed are Latin America's costs more than 45 per cent lower than United States costs, whereas they are 45 per cent higher in 24 per cent of the cases considered.

Manufacturing costs, as defined in narrower terms, are higher in Latin America than in the United States in 67 per cent of the instances considered and lower in only 26 per cent. These discrepancies are the result of very disparate ratios in their three main components: raw materials, labour and manufacturing overhead. As regards raw materials, Latin America appears at a distinct disadvantage, with higher costs than in the United States for 81 per cent of the products concerned, over half registering differences of more than 45 per cent. Labour costs, on the other hand, show an inverse ratio, since they are lower in Latin America in 68 per cent of the cases considered, and more than 45 per cent lower for over half the total number of products.

66/ See Problemas y perspectivas del desarrollo industrial latinoamericano (E/CN.12/664).

67/ The National Industrial Conference Board, New York, Costs and Competition: American Experience Abroad, 1961.

/Table 29

Table 29

LATIN AMERICA AND THE UNITED STATES: COMPARISON BETWEEN TOTAL UNIT COSTS AND THEIR COMPONENTS

(Percentages of the total number of cases considered)

	Total unit cost	Manufacturing costs				Sales and distribution costs	Administrative overhead
		Raw materials	Labour	Manufacturing overhead	Subtotal		
I. Lower costs than in the United States	31	14	68	35	26	56	30
a) Lower than 55 per cent	3	...	51	17	3	33	11
b) Between 55 and 84 per cent	18	8	14	14	12	19	11
c) Between 85 and 94 per cent	10	6	3	3	11	4	7
II. The same costs as in the United States	11	5	5	6	8	9	6
III. Higher costs than in the United States	58	81	27	59	67	35	65
a) Between 106 and 115 per cent	8	8	2	10	11	4	4
b) Between 116 and 145 per cent	26	29	11	14	26	15	6
c) Over 145 per cent	24	44	14	35	30	17	56
Total	100	100	100	100	100	100	100
Number of products	62	63	63	63	66	54	54

Source: National Industrial Conference Board, New York, Costs and Competition: American Experience Abroad, Appendix, table 2, p. 210.

/The components

The components of manufacturing costs grouped under the head of "manufacturing overhead", which includes depreciation, are also lower in the United States, perhaps because of the importance attaching to raw materials and "indirect" intermediate products in that grouping. Since this component is of a somewhat heterogeneous nature - it includes raw materials, labour, depreciation, etc. -, it is understandable that its behaviour pattern does not differ much from that of total unit cost. To sum up, the sub-total of manufacturing costs is frankly favourable to the United States and the position barely alters in favour of Latin American costs if the remaining components - sales and distribution costs, and administrative overheads - are added, owing to fairly sizable advantages in sales and distribution costs.

These differences in costs for the various components also entail appreciable differences in Latin America's cost structure as compared with that of the United States (see table 30). At least two interesting conclusions may be drawn from it. On the one hand, the major disadvantage for Latin America - the cost of raw materials - affects the principal component of manufacturing costs. Thus, raw materials represent practically half the total cost in the region, whereas their incidence in United States concerns is lower than 40 per cent; on the other hand, the regional advantages deriving from the lower nominal wage levels affect - at least in the type of industries covered by this research - less important cost components. Secondly, it is interesting to note that, despite the many disparities among the Latin American countries, the conclusions drawn seem to be applicable in general to both the region as a whole and to each individual country.

The results of the comparisons under analysis may be influenced by the nature of the industries to which they relate, which, as pointed out, are confined to subsidiaries of United States firms. Hence the desirability of citing, in addition, others of a broader character, based on census data, even if they are not entirely homogeneous as regards coverage and period of reference.[68/] The results of such a comparison are presented in table 31,

68/ To this end, use will be made of the industrial surveys or censuses relating to the following years: 1954 for Argentina, 1957 for Bolivia, 1958 for Brazil, 1957 for Chile, 1961 for Colombia, 1955 for Ecuador, 1956 for Mexico, 1959 for Peru and 1954 for the United States.

/Table 30

Table 30

LATIN AMERICA AND THE UNITED STATES: COMPARATIVE STRUCTURE OF PRODUCTION COSTS IN MANUFACTURING INDUSTRY a/

(Percentages)

Country or region	Manufacturing costs				Sales distribution costs	Administrative overhead	Grand total	Number of products considered
	Raw materials	Labour	Manufacturing overhead	Subtotal				
Brazil	50	11	15	76	12	12	100	20
United States	42	15	19	75	16	9	100	
Argentina	49	9	18	76	12	12	100	10
United States	35	14	20	69	21	10	100	
Mexico	55	8	13	76	17	7	100	14
United States	40	12	16	68	25	6	100	
Other Latin American countries	38	11	25	74	18	8	100	11
United States	32	16	21	69	25	6	100	
Total for Latin America	49	10	17	76	15	10	100	55
Total for United States	39	14	18	71	21	8	100	

Source: Costs and Competition: American Experience Abroad, op. cit., Appendix, table 3, p. 213.

a/ Non-weighted averages of data by products.

/Table 31

Table 31

BREAK-DOWN OF PART COST OF PRODUCTION IN SELECTED LATIN AMERICAN COUNTRIES AND IN THE UNITED STATES

(Percentages)

Country	Remunerations		Raw materials	Electric power and fuels	Part cost of production
	Wages	Salaries a/			
Argentina	20.6	5.4	70.6	3.4	100
Bolivia	16.7	6.0	70.9	6.4	100
Brazil	14.7	5.6	75.7	4.0	100
Chile	12.5	5.7	76.8	5.0	100
Colombia	10.5	4.4	82.7	2.4	100
Ecuador	16.5	6.4	72.8	4.3	100
Mexico	12.8	8.8	75.2	3.2	100
Peru	14.3	8.0	72.9	4.8	100
United States	24.4	10.1	62.8	2.7	100

Source: Industrial surveys and censuses taken in the countries concerned.

a/ Salaries of senior and administrative staff and of all personnel in general, except manual workers.

/and show

and show the differences in the structure of what may be described as the "part cost" of production, excluding depreciation charges, manufacturing overheads (other than fuel), administrative overheads (not including wages and salaries) and sales and distribution costs.

Although a correlation between the two types of comparison is difficult to establish, in a qualitative sense their results seem to coincide fully. The fact that the comparison in table 31 is extended to the manufacturing sector as a whole tends to enhance, in the case of Latin American industry, the relative importance of raw materials, as a result of the inclusion of a number of activities where the value added per unit of production is lower. Hence the differences between the two regions in respect of cost structures are accentuated, the bigger disparities being unfavourable to Latin America as regards the incidence of raw material costs, and favourable with respect to the incidence of remunerations. In other words, this time the comparison is influenced not only by the direct cost ratios of the components referred to, but also by the manufacturing sector's own structure, a circumstance which is likewise reflected in a higher degree of differentiation among the Latin American countries themselves.

Latin America's disadvantages are aggravated if other important components of the ex-factory sales price are taken into account, particularly capital charges and gross profit levels. Although the present type of analysis does not afford specific indications of the incidence of these other factors, it may at least shed some indirect light on their relative weight in the prices of manufactured goods in Latin America as compared with the United States. If the ratios between the part cost and the ex-factory sales price are calculated on the basis of the same data already seen in table 31, the following results are obtained:

	Percentages
United States	81
Argentina	68
Bolivia	75
Brazil	66
Chile	70
Colombia	70
Ecuador	72
Peru	66

/In other

In other words, whereas in United States industry capital charges, gross profits and other similar factors - including in some cases the indirect taxes payable by the producer - represent a surcharge on the ex-factory sales price of under 25 per cent in relation to the part cost of production, in manufacturing industry in Latin America the corresponding surcharge is at least about 40 per cent.

In all likelihood, a similar comparison would also show wider margins of difference in Latin America between ex-factory sales prices and prices paid by the final consumer, owing to the shortcomings already noted in the marketing process. No quantitative data are available, however, with which to substantiate such a conclusion more precisely.

Furthermore, the cumulative effect of these and similar unfavourable factors largely cancels out, in the event, the cost and price advantages that Latin American industry might derive from the nominal wage levels prevailing in the region, which are lower than those current in the United States. A somewhat rough evaluation of this factor can be seen in table 32, which presents a comparison of annual wages and value added per worker employed, and the ratio between these two concepts, in the United States and in selected Latin American countries.

The disparities, in absolute terms, between nominal wages per worker shown in table 32 (for example, levels less than one-tenth and a little under one-fifth of the United States average are recorded for Mexico and Argentina, respectively) are mainly attributable to the element of arbitrariness involved in the adoption of foreign trade exchange rates for conversion operations of this kind, but at all events the wages in question are indubitably far lower in Latin America. On the other hand, the ratios between value added and wages, which are not affected by currency conversions, are a great deal closer (varying from 1 to 1.5, and in only one case more than double). In other words, the advantages deriving from much lower nominal wages are considerably undermined when the amount of value added per unit of wages, in existing operational conditions, is taken into account.

Studies on specific industrial sectors offer concrete examples which give a more precise idea of how far inferior labour productivity may be reflected, even at very much lower nominal wage levels, in higher labour costs per unit of final product.

/Table 32

Table 32

VALUE ADDED PER UNIT OF WAGES (WAGE PRODUCTIVITY) IN SELECTED LATIN AMERICAN COUNTRES AND IN THE UNITED STATES

(Dollars)

Country	Annual wage per worker	Annual value added per worker	Value added per unit wages
Argentina (1954)	734	2 743	3.74
Chile (1957)	436	2 384	5.47
Colombia (1961) a/	645	2 471	3.83
Mexico (1956)	339	1 382	4.08
Peru (1959)	421	2 144	5.09
United States (1954)	3 604	9 449	2.62

Source: Basic data from industrial censuses and surveys.

Note: National currencies were converted into dollars on the basis of the following exchange rates (number of national currency units to the dollars), obtained from Financial Statistics: Argentina, 13.98; Chile, 690; Colombia, 8.62; Mexico, 12.49; Peru, 27.70.

a/ Wages and salaries, and value added per employed person.

/It has

It has been estimated,[69/] for example, that in the textile industry the wages paid in Brazil and Chile (in terms of dollars per hour) are slightly lower than in Japan's manufacturing sector and barely one-fifth as high as in United States industry (0.31, 0.35, 0.36 and 1.68 dollars, respectively). On the other hand, it takes between 6 and 8 times longer (in terms of man/hours) to produce 100 yards of cotton fabric (weighing 106 grammes per yard, and from 98 to 100 centimetres wide) in Brazil and Chile than in the United States, and between 3 and 4 times longer than in Japan. As a result of these differences in productivity, the cost of the labour input for this unit of fabric works out at 5.16 dollars in Brazil and 4.80 dollars in Chile, as against 1.72 dollars in Japan and 3.92 dollars in the United States. In evaluating the implications of this statement it should be borne in mind that in the same research the following conclusion was reached: although 80 per cent of the equipment used in Brazil's cotton textile industry could be regarded as out-of-date, only one-third of what was defined as the over-all operational deficiency could be imputed to the high degree of obsolescence of the machinery, while the other two-thirds were attributable to factors connected with internal organization, including the lack of skilled labour.

Despite the general character of the foregoing comments on the high costs of manufacturing production in Latin America and some of the factors that determine them, they at least serve to underline the complexity of the problem and the innumerable aspects that would have to be covered by a comprehensive and systematic policy aimed at progressively influencing the factors in question. Specific piecemeal policies - for example, the modernization of equipment in certain sectors, the promotion of more rational management or the training of manpower - may undoubtedly prove fruitful. But the problem is deeper and broader, since it also depends upon the transfers of inefficiency that take place through the structural relations between the various branches of industry and between the whole manufacturing sector and other economic activities (such as those supplying it with basic raw materials and those affecting the distribution and marketing of manufactured goods and of the inputs required for making them), as well as upon institutional factors and the competitive conditions in which industry develops.

69/ See The textile industry in Latin America: I. Chile and II. Brazil, op. cit.