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THE METAL-TRANSFORMING INDUSTRY IN VENEZUELA:
AN IMPORT SUBSTITUTION DEVELOPMENT PROGRAMME

Submitted by the secretariat of the Economic
Commission for Latin America

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Introduction

Venezuela's national development plan for 1963-66 establishes targets for the various economic activities, with a view to the attainment of an annual average growth rate of 7.9 per cent for the gross domestic product. This programme assigns the metal-transforming industries an outstanding role in the expansion of the manufacturing sector, within which their projected rate of development is the highest.

The initial object of the present study was to consider the metal-transforming sector's practical possibilities of meeting the targets established under the National Plan (Plan de la Nación), in the light of various earlier studies and of the existing industry's characteristics. During this first phase of the work, serious deficiencies in the structure of the industry were noted, as well as a lack of specific plans for the metal-transforming activities. It was for these reasons that the sector had not fully responded to the incentives provided by the Government and was unlikely to succeed in reaching the targets set up under the Plan.

In the present study, therefore, emphasis is placed on the correction of structural defects rather than on the actual fulfilment of the Plan's objectives. To this end, a development programme is outlined for the metal-transforming sector, designed to fill the technological gaps in the existing industry and thus gradually create a sectoral infrastructure which will enable the metal-transforming activities to improve their competitive position both on the domestic and on the world market, and also to undertake more complex lines of manufacture in the future.

The National Plan lays it down that in the promotion of new industrial activities the policy pursued should be primarily one of import substitution and that "in this connexion the sectors producing intermediate and capital goods hold out the best prospects".

In 1962, imports of the products of the metal-transforming industries amounted to a volume of 309,000 tons and a value of 1,731.4 million bolivars, and included a considerable quantity of goods that could feasibly be manufactured in Venezuela. With 1962 as the base year, a preliminary selection of products was made, taking into consideration not only those cases in which import substitution would be possible almost at once, but also those in which it would be recommendable on account of the technical processes and know-how that would be brought into the country through the manufacture of the articles concerned. The following were the definitions on which the selection was based:

(a) Simple products that could be manufactured in small- and medium-scale industrial establishments by means of relatively labour-intensive procedures;

/(b) Products

(b) Products in whose manufacture processes are used that are not yet familiar in Venezuela or that require perfecting, in so far as such techniques could be introduced through medium- and small-scale enterprises;

(c) Products required for the integration of other activities, as inputs in more complex metal-transforming processes.

From the selection thus made it appeared that about 25 per cent of imports in terms of weight, or 23 per cent in terms of value (77,540 tons and 398.1 million bolivares, respectively) could be replaced by domestic production. At a reasonably conservative estimate, these figures could be reached within the space of four or five years. The programme would be largely implemented through the establishment of new medium- or small-scale enterprises, whose organization and operation would be more in keeping with the country's incipient entrepreneurial capacity. This procedure would make it easier to put the programme into effect, and at the same time would contribute to the more widespread diffusion of metal-transforming technology and the training of a larger number of workers.

A first evaluation of the programme suggests that its implementation would entail investment in fixed assets amounting to approximately 204.9 million bolivares, and a labour force of 7,150 workers, some 3,300 of whom would be skilled operatives, whose availability would constitute a basic requisite for the execution of the programme.

It would be essential to adopt a number of measures and lines of action of various kinds that would provide the appropriate institutional framework, and would include, primarily, organization for the implementation of the programme; mobilization of external technical assistance resources; definition of targets and of industrial policy; establishment of financing and credit systems; and technological research.

Lastly, the metal-transforming industry's prospects under a regional integration plan are analysed with due regard to the objectives envisaged in this development programme and in others prepared in Venezuela for the manufacture of heavy machinery and equipment. The present programme has been adopted by the Venezuelan Development Corporation (Corporación Venezolana de Fomento) for the expansion of the country's metal-transforming industries.^{1/}

^{1/} See Corporación Venezolana de Fomento, Promoción Activa, April 1965.

1. The 1963-66 development plan in relation to the metal-transforming industry

The aim of the National Plan is to raise the average annual growth rate of the gross domestic product to 7.9 per cent in 1963-66, as against the rates of only 3.7 and 2.8 per cent registered in 1957-60 and 1960-62, respectively. Although this rate of increase is lower than that attained in 1950-57 (9.3 per cent), which was attributable to an exceptionally favourable situation on the world market for petroleum, it will necessitate a rapid expansion of the manufacturing sector of the economy. According to the development targets established under the Plan, the industrial product should increase during the period under consideration at an annual rate of 13.5 per cent, as compared with 11.6 per cent in the fifties. Consequently, the volume of additional employment afforded by the manufacturing sector would represent the absorption of 82,100 workers, the annual average being a little over 20,500. The significance of this objective, as is noted in the Plan, will be realized "if it is borne in mind that in the whole of the last decade (1950-60), manufacturing industry created only 84,200 employment opportunities, i.e., absorbed about 7,650 workers a year. Thus the aim is almost to treble the effort made in the past".

The attainment of these production and employment targets will call for a systematic promotion effort on the part of the responsible authorities and on that of private enterprise an energetic determination to use its initiative and to outdo its previous achievements. "Venezuela's manufacturing industry is entering upon a phase which, both economically and technically speaking, is broader and more difficult than the one that ended with the fifties. The stage now reached involves the installation of heavier industries with more complex techniques some of which will have to compete on foreign markets and must therefore operate efficiently and at competitive costs. Furthermore, the industries already established will have to embark upon a rationalization process designed to raise their productivity and to improve the quality and lower the prices of the goods they manufacture - another complex and ambitious task."

"Concurrently with the diversification of production, effort will have to be concentrated on industrial integration with a view to the introduction of the structural changes required for the more efficient operation of the whole industrial complex. In other words, this implies improving inter-industrial relationships."

For the promotion of new industrial activities, according to the Plan, an import substitution policy would be the most appropriate to pursue, and "in this connexion, the sectors producing intermediate and capital goods hold out the best prospects".

An import substitution programme however, does not preclude the promotion of exports; on the contrary, this objective should be regarded as deriving from such a programme, and should be the natural outcome of an

/over-all consolidation

over-all consolidation and diversification of the manufacturing sector for which the dynamic impetus is generated, in the first place, by a selective import substitution policy.

In the outline of general policy for the promotion of the manufacturing sector as a whole (whose share in the gross domestic product should rise from 16.4 per cent in 1962 to 20.0 per cent by 1966), the following are the salient directives:

(a) Import substitution should be the mainspring for the installation of new activities;

(b) The selection of new activities should be directed towards the improvement of inter-industrial relationships, with a view to the gradual establishment of a better-balanced industrial structure characterized by maximum complementarity of enterprises;

(c) In manufacturing activities, products and processes should be introduced which will imply technological progress in industry as a whole, in the sense that their mastery by domestic industry will open up prospects of manufacturing other more complex products for which there will be a gradually expanding domestic market;

(d) Absorption of manpower should be maximized through proper selection of the lines of manufacture to be introduced, as well as of the production processes and equipment to be adopted.

The leading role in the expansion of the manufacturing sector falls to the metal-transforming industries, which should show the most intensive development. Table 1 sums up the production objectives formulated for manufacturing industry in general and for the metal-transforming industries in particular, these latter being broken down by sub-sectors corresponding to four major groups (35 to 38) in the International Standard Industrial Classification (ISIC):

- (a) Manufacture of metal products;
- (b) Manufacture of machinery (except electrical);
- (c) Manufacture of electrical machinery, apparatus, appliances and supplies;
- (d) Manufacture of transport equipment.

From an examination of the targets established for these four groups, certain inference can be drawn which are of interest in relation to the approach adopted in the present report.

Table 1

VENEZUELA: TARGETS FOR MANUFACTURING INDUSTRY AND FOR THE METAL-TRANSFORMING INDUSTRIES ESTABLISHED IN THE NATIONAL DEVELOPMENT PLAN FOR 1963-66

Item	Years				Variation between 1962 and 1966		Annual percentage increase 1962-1966
	1960	1962	1963	1966	Thousands of persons	Percentage	
1. <u>Apparent consumption of manufactured goods</u>	9 898	11 060	12 738	17 001	-	53.7	11.4
<u>Products of the metal-transforming industries</u>	1 225	1 393	1 720	2 530	-	81.6	16.1
G. 35 Metal products	573	604	667	899	-	48.8	10.5
G. 36 Machinery	35	164	181	244	-	48.8	10.4
G. 37 Electrical equipment	88	119	131	177	-	48.7	10.4
G. 38 Transport equipment	529	506	741	1 210	-	139.1	24.4
2. <u>Value of manufacturing output</u>	8 521	10 063	11 476	16 210	-	61.0	12.7
<u>Products of the metal-transforming industries</u>	535	634	903	1 721	-	171.5	28.4
G. 35 Metal products	309	365	429	699	-	91.5	17.6
G. 36 Machinery	6	8	9	75	-	837.5	75.0
G. 37 Electrical equipment	18	21	25	100	-	376.2	47.5
G. 38 Transport equipment	202	240	440	847	-	252.9	37.1
3. <u>Value of gross product in the manufacturing sector</u>	3 914	4 648	5 320	7 720	-	66.1	13.5
<u>Metal-transforming industries</u>	283	337	432	840	-	149.3	25.6
G. 35 Metal products	189	223	263	428	-	91.9	17.7
G. 36 Machinery	3	5	6	55	-	1 000.0	82.1
G. 37 Electrical equipment	11	12	14	80	-	566.7	60.6
G. 38 Transport equipment	80	97	149	297	-	206.2	32.3
4. <u>Value of exports</u>	1 850	2 184	2 367	2 939	-	34.6	7.7
<u>Metal-transforming industries</u>	-	-	-	-	-	-	-
5. <u>Value of imports</u>	3 227	3 181	3 629	3 730	-	17.3	4.1
<u>Metal-transforming industries</u>	690	752	837	809	-	6.6	1.6
G. 35 Metal products	264	239	238	200	-	(-)16.3	(-)4.4
G. 36 Machinery	29	156	172	169	-	8.3	2.0
G. 37 Electrical equipment	70	98	106	77	-	(-)21.4	(-)4.9
G. 38 Transport equipment	327	266	301	363	-	36.5	8.1

Table 1 (concl.)

Item	Year				Variation between 1962 and 1966		Annual per- centage increase 1962-1966
	1960	1962	1963	1966	Thousands of persons	Per- centage	
	(Millions of bolivares at 1960 prices)						
<u>As a percentage of value of apparent consumption</u>							
5A. <u>Imports of manufactured goods</u>	<u>32.6</u>	<u>28.8</u>	<u>28.5</u>	<u>21.9</u>	-	-	-
<u>Metal-transforming industries</u>	<u>56.3</u>	<u>54.5</u>	<u>47.5</u>	<u>32.0</u>	-	-	-
G.35 Metal products	46.0	39.6	35.7	22.2	-	-	-
G.36 Machinery	82.9	95.1	95.0	69.3	-	-	-
G.37 Electrical equipment	79.5	82.4	80.9	43.5	-	-	-
G.38 Transport equipment	61.8	52.6	40.6	30.0	-	-	-
6. <u>Employment (thousands of persons)</u>	<u>309.3</u>	<u>323.1</u>	<u>340.5</u>	<u>405.2</u>	<u>82.1</u>	<u>25.4</u>	<u>5.8</u>
<u>Metal-transforming industries</u>	<u>18.0</u>	<u>17.2</u>	<u>21.0</u>	<u>40.3</u>	<u>23.1</u>	<u>134.3</u>	<u>23.7</u>
G.35 Metal products	5.0	4.8	5.3	7.3	2.5	52.1	11.1
G.36 Machinery	0.3	0.3	0.3	2.6	2.3	766.7	71.6
G.37 Electrical equipment	1.0	1.1	1.2	4.4	3.3	300.0	41.4
G.38 Transport equipment	11.7	11.0	14.2	26.0	15.0	136.4	24.0
7. <u>Product per employed person (thousands of bolivares)</u>	<u>12.7</u>	<u>14.4</u>	<u>15.6</u>	<u>19.1</u>	-	<u>32.6</u>	<u>7.3</u>
<u>Metal-transforming industries</u>	<u>15.7</u>	<u>19.6</u>	<u>20.6</u>	<u>20.8</u>	-	<u>6.1</u>	<u>1.5</u>

Source: National Development Plan (Plan de la Nación) for 1963-66.

The annual growth rate of apparent consumption is almost the same (a little over 10 per cent) in the first three groups and more than twice as high in the fourth (transport equipment). But in the period under consideration the shares corresponding to domestic production and to imports will have to undergo radical changes, which will differ from one group to another. It seems likely that between 1962 and 1966 the proportion of apparent consumption represented by imports will decline more sharply in the industries producing electrical equipment (from 82 to 44 per cent) and machinery (from 95 to 69 per cent) than in those manufacturing metal products (40 to 22 per cent) and transport equipment (53 to 30 per cent). In absolute figures, however, the production increments envisaged are considerably higher in the case of transport equipment and metal products.

To judge from these larger increases in the output of the metal products and transport equipment groups, the volume of additional employment in 1962-66 will range from 15,000 workers in the transport equipment sector to 2,500 in the manufacture of metal products. The expected increase in the number of persons employed in the metal-transforming industries as a whole is slightly over 23,000.

As regards the product (value added) per employed person, the Plan estimates that it will be 28,000 bolivares in 1966, in comparison with 22,800 bolivares in 1962, for manufacturing industry as a whole (excluding artisan industry). The metal-transforming industry should show a value added amounting to 20,800 bolivares in 1966, as against the 19,600 bolivares registered in 1962.

Investment requirements for the expansion of metal-transforming activities are estimated at 640 million bolivares (at 1960 prices), which implies a per capita investment of a little over 33,000 bolivares, or rather more than half the figure for manufacturing industry in the aggregate. This high proportion is of course due to the heavier incidence of the markedly capital-intensive basic and petroleum industries on the over-all figure.

As can be seen from the foregoing data, the hypotheses adopted do not assume any significant increase in labour productivity nor, probably, in rates of return on capital, and therefore seem realistic, given the brevity of the period covered by the analysis.

2. Characteristics of the existing metal-transforming industry

The existing metal-transforming industry constitutes the springboard for the sectoral expansion programme propounded below. Upon its characteristics, in respect of products manufactured, organization, plant size, technological progress, manpower supply conditions at the various levels of skill, capital and value added per worker, etc., will depend the nature of the programme and the intensity of the promotional effort required. Accordingly, the next step will be to give a brief description of the main characteristics of Venezuela's existing metal-transforming industry, based on the findings of CORDIPLAN's industrial survey (1961) and on the data obtained by means of another survey, much more limited in its scope, carried out by ECLA during the first half of 1964.

The presented figures in table 2 give some idea of the magnitude of the sector in question, as well as of its relative significance within manufacturing industry. In general terms, the table shows that in 1961 the metal-transforming industries contributed 9.7 per cent of the value added in the whole of the manufacturing sector and provided employment for 22,215 workers, i.e., 14.2 per cent of the personnel employed in industry as a whole, whence it can be inferred that metal-transforming activities have achieved some degree of importance in Venezuela. To this over-all evaluation, however, must be added a few indications of the real significance of these figures and the true structure of the sector under study. The first striking point is that fixed capital in this industry accounts for only 4.2 per cent of the total amount registered for manufacturing activity, which, by comparison with the level of employment, implies a very low capital density per employed person, while at the same time showing that servicing and maintenance enterprises predominate over what may strictly be classed as productive activities in this sector. Secondly, it must be stressed that a break-down of industrial units by plant size reveals a high proportion of medium- and small-scale establishments, especially the latter, which represent about 90 per cent of the units in question and account for approximately 57 per cent of the personnel employed. No further evidence is needed to show that the sector as a whole, despite its relative importance within Venezuelan industry from the standpoints of value added and employment levels, is, in the first place, seriously under-productive on account of its low per capita investment rate, and, secondly, handicapped by a structural composition almost of the artisan-industry type, which makes it ill-fitted to tackle or develop the production techniques involved in metal-transforming activities.

Table 2

VENEZUELA: THE METAL-TRANSFORMING INDUSTRY IN RELATION TO
MANUFACTURING INDUSTRY, 1961

(Values in millions of bolivares)

	Large- scale industry	Medium- scale industry	Small- scale industry	Total	Manu- facturing industry	Percentage share of the metal- transforming industry
Number of establishments <u>a/</u>	7	195	1 574	1 776	7 531	23.6
Number of persons employed <u>b/</u>	2 799	6 724	12 692	22 215	156 938	14.2
Gross value of production	292.7	294.8	278.5	866.0	9 261.5	9.4
Value added	85.2	141.8	160.9	287.9	3 999.4	9.7
Fixed capital <u>c/</u>	66.3	91.5	106.1	263.9	6 316.0	4.2

Source: Central Co-ordination and Planning Office (Oficina Central de Coordinación y Planificación - CORDIPLAN), Industrial Survey 1961.

a/ Reference is made to "industrial units", i.e., to a plant, group of plants or industrial complex belonging to a single owner and situated in one and the same place.

b/ Including, in addition to operatives and employees, other types of workers such as partners, members of the entrepreneur's family and home workers.

c/ Excluding the value of the site.

/ If the

If the various branches of the metal-transforming sector are analysed individually, their operational characteristics become even more patent. From the figures presented in table 3, showing the composition of production in the metal-transforming industry, it can clearly be seen how large a proportion is represented by transport material - more than 55 per cent in terms both of the gross value of production and of value added. This branch is made up of vehicle assembly plants which can be classified among the large- and medium-scale industrial establishments, and small and medium sized repair and maintenance workshops. The former constitute a primary activity using a very low proportion (not more than 10 per cent) of domestically-manufactured parts, most of which are not products of the metal-transforming industries. Consequently, in terms of value added the contribution made by these plants in the aggregate is very small, and does not amount to as much as 20 per cent of the value of the vehicles assembled. The main activity of the other establishments in this branch is the servicing and maintenance of motor-vehicles. A similar situation, although on a more limited scale, is to be found in the manufacture of electrical equipment, where again the enterprises assembling radio sets and other household appliances, and those providing maintenance services and installing electrical fittings, show a heavy incidence. In this group, however, there are sizable industrial establishments engaged in the manufacture of steel-reinforced electric cables and accumulators. The group producing non-electrical machinery is almost negligible, with an output slightly exceeding 2 per cent of the whole sector's, and here too the great majority of the establishments concerned are not manufacturing enterprises in the proper sense of the term. The oldest and most important metal-transforming industries in Venezuela are those in the metal products group, outstanding among which are the plants manufacturing metal structures, wire products and other goods for the construction sector. Their installation was motivated by the fact that these lines of manufacture do not require very highly skilled labour. Because of this structure of production in the existing industry, the productivity and capital-density indexes and the other production ratios deducible from the figures given are of little significance, and hardly applicable as a means of quantifying installed production potential and its future prospects. Similarly, the machine-tool inventory at the industry's disposal displays the usual characteristics of an activity primarily concerned with metal-transforming services: a high proportion of metal forming machines and only a very few cutting machine-tools, mainly of the simplest all-purpose type. Accordingly, there is a shortage of manpower at the various levels of skill, and this lack may constitute a serious obstacle to the development of the metal-transforming sector.

All this clearly testifies to the structural weakness and underdevelopment of Venezuela's metal-transforming industry, and its growth prospects are therefore closely linked to the establishment of new enterprises whose characteristics and structure fit them for definitely productive activities. In this connexion, the contribution of the existing industry, with its marked predominance of service and maintenance workshops and of primary metal-transforming activities, will be very limited.

Table 3

VENEZUELA: BREAK-DOWN OF GROSS VALUE OF PRODUCTION AND OF
 VALUE ADDED, BY MAJOR GROUPS, 1961

	Large- scale industry	Medium- scale industry	Small- scale industry	Total
<u>Millions of bolivares</u>				
A. <u>Gross value of production</u>	<u>292.7</u>	<u>294.8</u>	<u>278.5</u>	<u>866.0</u>
35. Metal products	97.6	56.9	52.6	207.1
36. Machinery	-	11.7	8.2	19.9
37. Electrical equipment	8.4	93.5	46.4	148.3
38. Transport equipment	186.7	132.7	171.3	490.7
B. <u>Value added</u>	<u>85.2</u>	<u>141.8</u>	<u>160.9</u>	<u>387.9</u>
35. Metal products	47.4	28.4	24.0	99.8
36. Machinery	-	6.2	4.4	10.6
37. Electrical equipment	2.8	36.4	24.6	63.8
38. Transport equipment	35.0	70.8	107.9	213.7
<u>Bolivares per annum</u>				
C. <u>Value added per operative</u>	<u>40 242</u>	<u>28 029</u>	<u>17 865</u>	<u>33 978</u>
<u>Thousands of bolivares</u>				
D. <u>Fixed capital per operative</u>	<u>31.3</u>	<u>18.1</u>	<u>11.8</u>	<u>16.3</u>

Source: CORDIPLAN, Industrial Survey 1961.

3. Analysis of imports

Since the domestic metal-transforming industry plays so small a part in the satisfaction of consumer demand, a study of imports (trends, volumes, types of goods imported, etc.) is tantamount to a survey of consumption itself in Venezuela.

The basic data used for the present analysis are those published in the Venezuelan foreign trade bulletins. But in order to evaluate the trends followed over a reasonable length of time (about 10 years), the foreign trade figures had to be retabulated, because in 1959 a new tariff code came into force which introduced, inter alia, certain changes in the nomenclature and classification of products, thus causing a hiatus in the direct comparability of the data published. For that purpose, the International Standard Industrial Classification (ISIC) was adopted, and this procedure, besides facilitating the reconstruction of the desired ten-year series, opened up the possibility of making international comparisons and relating import figures to the data for the existing industry, which had been classified in the same way.

The results of this tabulation are presented in table 4, which also includes, for illustrative purposes, data on the basic metal products corresponding to ISIC Group 34.

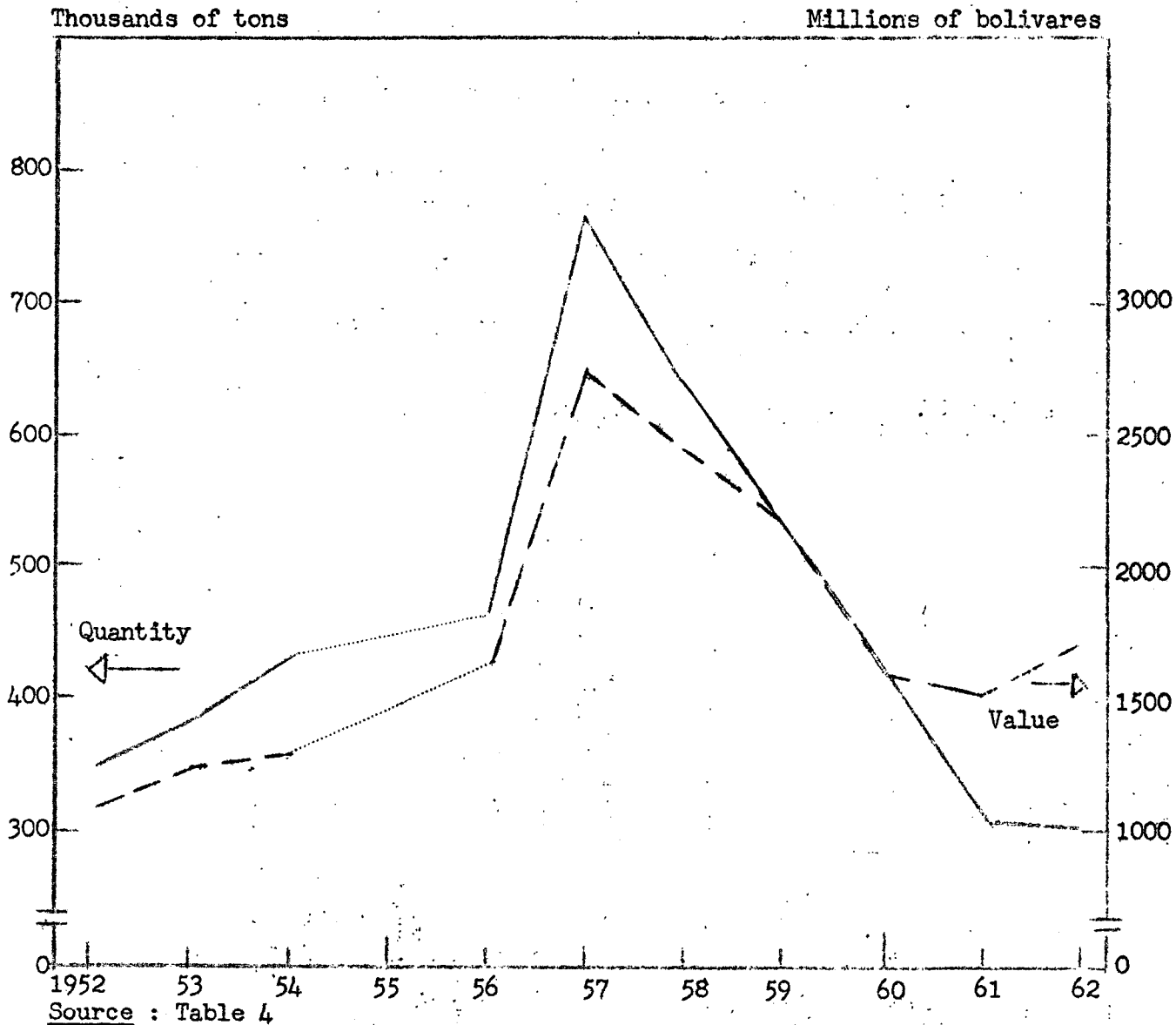
This table, and the supplementary figure, show the evolution of Venezuela's imports of products of the metal-transforming industries, which is characterized by two clearly demarcated phases. In the first, a sharp upward trend in both volume and value was registered, reaching its peak in 1957; and in the second, imports dropped abruptly, to levels which in 1962 were lower than those attained in 1952, in terms of tonnage. In terms of national currency, the increase in value observable from 1960 onwards is largely the result of the devaluation of the bolivar. The trends in these two periods are consonant with the country's capacity to import, to whose evolution they run closely parallel. It was during this decline in Venezuela's external purchasing power that the first industrial promotion measures were adopted: imports were restricted, customs duties on final goods were increased, and intermediate products and production equipment were granted exemption. Little advantage was taken of these incentives by the metal-transforming industry, and the import substitution lines developed, although significant as regards the effort made, were limited in comparison with total imports and with the opportunities created for the establishment of new productive activities.

In consequence of these promotional measures, a structural change can be noted as from 1957 in imports of the products of the metal-transforming industry, stemming not only from the new metal-transforming activities that had been embarked upon, but also - and perhaps in greater proportion - from the lines of manufacture undertaken in the rest of the industrial sector. Up to that year, the composition of the imports in question had been fairly constant with respect to each of the metal-transforming groups relative share in the total (in terms both of weight and of value), whereas it has undergone radical changes in recent years, as can be seen in table 5.

Figure I

VENEZUELA : IMPORTS OF PRODUCTS OF THE METAL-TRANSFORMING
INDUSTRIES:TOTAL FOR GROUPS 35-36-37-38-39

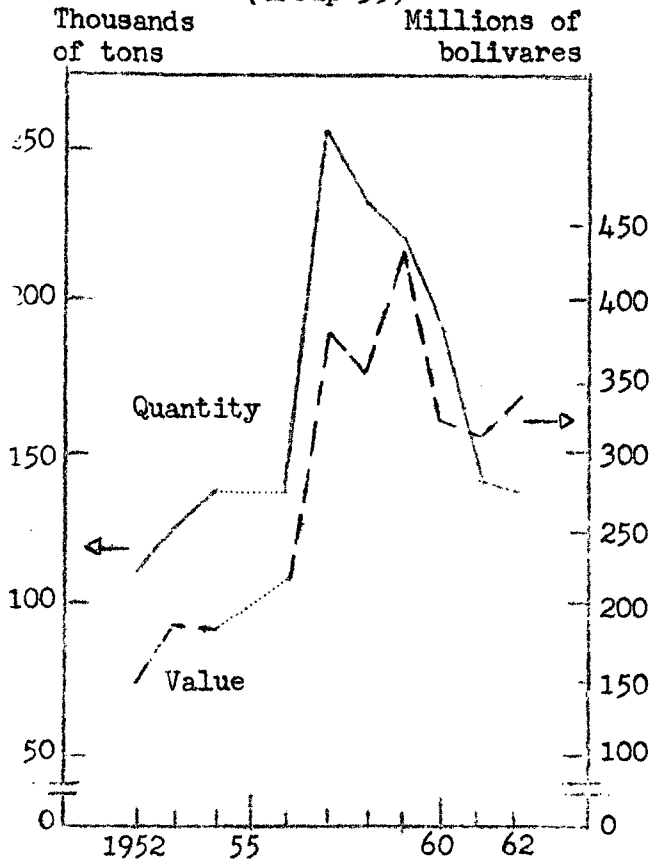
Natural scale



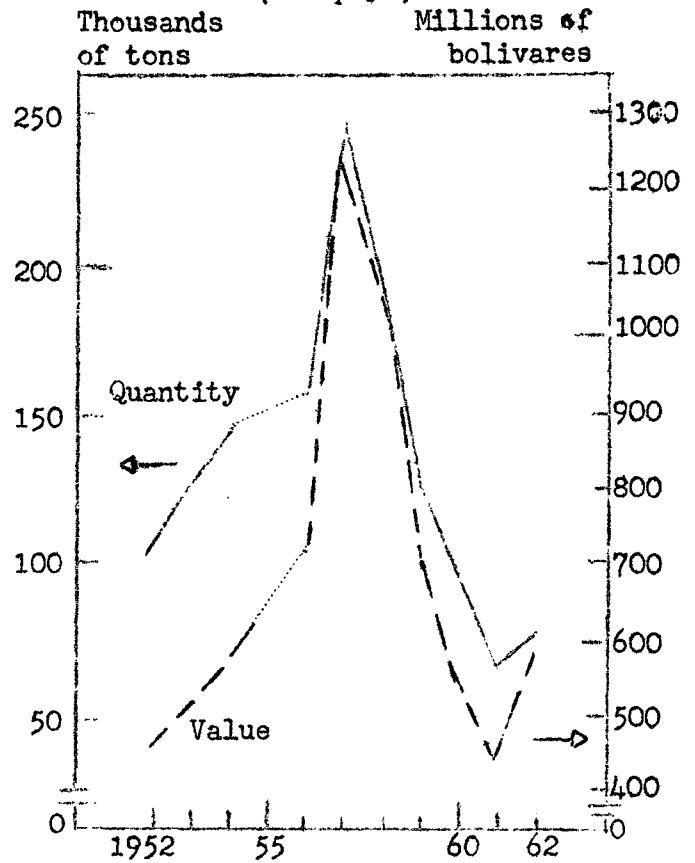
/Figure II

VENEZUELA : IMPORTS OF PRODUCTS OF THE METAL-TRANSFORMING INDUSTRIES

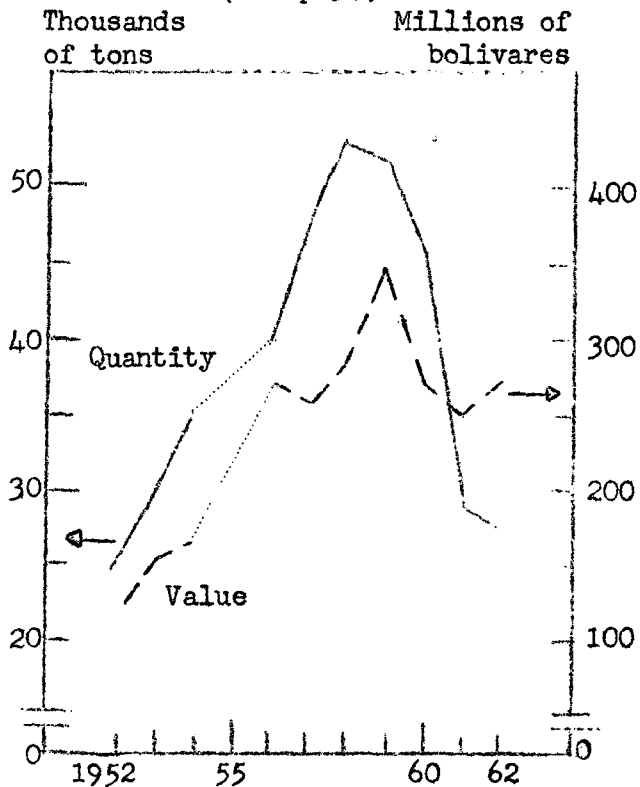
METAL PRODUCTS (Group 35)



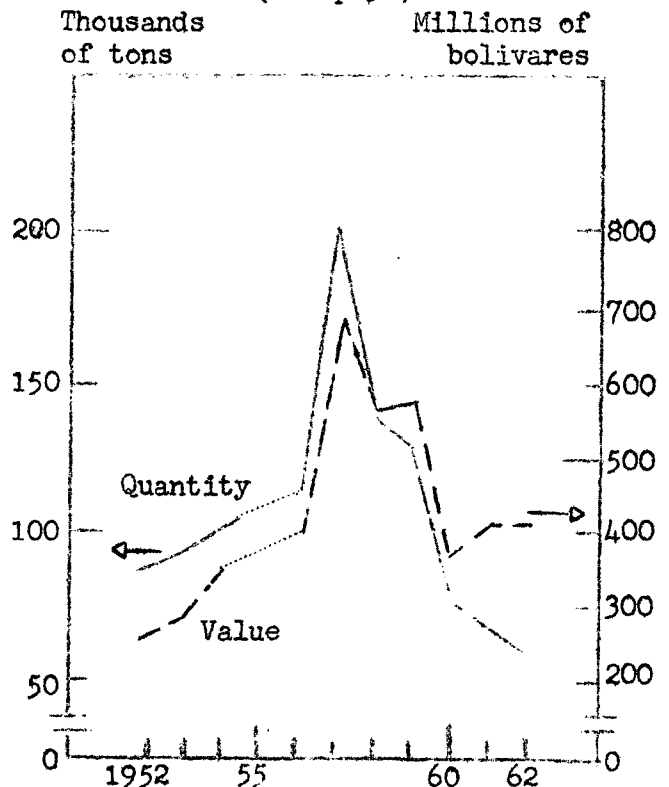
NON-ELECTRICAL MACHINERY (Group 36)



ELECTRICAL MACHINERY AND EQUIPMENT (Group 37)



TRANSPORT MACHINERY AND EQUIPMENT (Group 38)



Source : Table 4

/Table 5

Table 5

VENEZUELA: COMPOSITION OF IMPORTS OF PRODUCTS OF THE METAL-TRANSFORMING INDUSTRY

(Percentages)

	1952		1953		1957		1961		1962	
	In terms of weight	In terms of value	In terms of weight	In terms of value	In terms of weight	In terms of value	In terms of weight	In terms of value	In terms of weight	In terms of value
Metal products (35)	32.6	13.7	32.5	15.0	33.8	19.8	45.5	20.3	45.2	19.5
Non-electrical machinery (36)	31.9	43.2	33.5	41.8	32.2	45.0	21.7	29.1	25.5	34.4
Electrical machinery and equipment (37)	7.2	11.4	7.8	12.7	6.3	9.4	9.3	16.5	9.0	15.9
Transport equipment (38)	26.2	24.7	24.3	23.5	26.0	25.2	22.4	27.0	19.3	24.1
Other manufactures, n.e.s. (39)	2.1	7.0	1.9	7.0	1.7	6.6	1.1	7.1	1.0	6.1
<u>Total</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Thus, for example, ISIC Group 35 (manufacture of metal products) has come to account for a high proportion in terms of volume - despite the substantial import substitution efforts made in respect of metal structures and wire products -, mainly owing to the marked expansion of demand for containers deriving from the development of the food processing industry. Conversely, the slackening of activity in the petroleum and construction sectors has reduced imports of machinery and, consequently, the relative significance of ISIC Group 36, despite the increases observable in imports of tractors and of metal-working and textile machinery. In the other major groups, the restrictions imposed on imports of durable consumer goods did not so much modify their incidence as bring about changes in the internal structure of the groups, final goods being superseded by imports of intermediate products.

In absolute terms, and measured by weight, imports of metal products (group 35) increased by 25 per cent during the period under consideration, and those of electrical equipment (group 37) by 12 per cent; those of machinery and transport material, in contrast, decreased by about 27 and 33 per cent, respectively. The aggregate result of these variations in 1962 was a reduction of about 10 per cent in the tonnage imported, which implies that per capita consumption in that year amounted to practically 39 kilogrammes, i.e., almost 40 per cent less than in 1952. The per capita value of imports stood at approximately 60 dollars, which is not an unduly high figure for a country with Venezuela's characteristics. These statistics to some extent bear witness to the import substitution

/process carried

process carried out in the metal-transforming sector, in which the products whose manufacture was undertaken were naturally the simplest, with low unit prices, since the average unit price of imports rose from 1 dollar per kilogramme to about 1.50 dollars in 1962.

Accordingly, 1962 would seem to have been a year in which import volumes were low on the whole - although not excessively so - and in which structural changes made their appearance as a result of imports of products of the metal-transforming industries deriving from the development of other industrial activities. This circumstance, combined with the fact that a fairly full list of imports was available for the year in question, determined the adoption of 1962 as the base year for the analysis of substitution possibilities. Thus, observations relating to volumes which appear to warrant the installation of specific lines of manufacturing activity may be regarded as on the safe side in respect of the real size of the market.

In a country like Venezuela, with a metal-transforming industry whose characteristics and structure are of a primary type, in which service and maintenance activities predominate, and, therefore, with a limited knowledge of metal-transforming techniques and processes, the choice of an import substitution programme is closely linked to the actual development of the metal-transforming sector. The selection criteria should, in the early stages particularly, attach more importance to the latter than to the effect on the balance of payments itself, and even considerations relating to internal manufacturing costs will have to play a secondary role in the adoption of decisions. Consequently, the primary function of the products chosen for the initial and immediate phase of the import substitution programme must be to act as catalysts in the metal-transforming industry's development process, by promoting the installation of enterprises that will consolidate the existing industry, will raise its technological level and will fill up the lacunae at present observable in manufacturing processes and in the training of manpower, with the aggregate result that a sound basis will be established for the metal-transforming industry to undertake more complex lines of manufacture in the future, and thus broaden its prospects in the domestic and therefore in the world market. Naturally, this function is not confined to the selected products themselves; an important part is also played by proper methods of organizing and executing the manufacturing programme, in the sense of determining the most appropriate plant sizes and geographical locations, establishing the desirability of grouping some enterprises together because their production processes are complementary or their skilled labour requirements similar, and so forth. All these questions will be discussed in later sections of the present study. They have only been glanced at here in order to provide an adequate frame of reference for the procedure followed in studying import substitution possibilities.

/The foreign

The foreign trade data available for 1962 are broken down in sufficient detail to permit a preliminary analysis of substitution possibilities, although not far enough for the situation at the product level to be more specifically defined. To that end a little field work will have to be done later in order to identify the products covered by the various groups singled out as offering attractive substitution prospects.

Import data for 1962, reclassified in conformity with ISIC, and broken down as fully as possible, are presented in annex I.

As was mentioned in earlier paragraphs, the essential aim in the first phase of the substitution process should be to introduce a number of manufacturing processes and techniques which are of basic importance for the development of metal-transforming activities. With this end in view, the imports effected in 1962 were reclassified in accordance with the manufacturing processes involved, as follows:

I. Containers and tinware (including lithography and painting of same). Chiefly products whose manufacture entails sheet-cutting by means of presses, guillotine cutters or shears, and shaping of containers in special flanging and sealing machines; and, in addition, simple items that can be mass-produced by stamping with multiple cutting and shaping dies.

II. Hot-forged and hot-pressed products. Hot forging or stamping is the main process in the manufacture of these products, the finishing of which adds very little to their final value.

III. Wire products. Goods whose manufacturing processes are characteristic of the activity in question and are usually carried out by special machinery.

IV. Small products, primarily stamped. Products shaped by pressing, cutting, drilling and bending. Most of them are simple parts, which do not require high tolerances, and finishing of which is usually confined to polishing, painting or galvanizing.

V. Small products and parts, primarily machined. Products which are manufactured mainly by machining with metal-cutting machine-tools (lathes, milling-machines, planers and shapers, etc.), which require certain working tolerances, and which can be made in short series.

VI. Boiler shop products and metal structures. All those products for which plate, tubes and profiles are used as raw materials, and which are manufactured essentially by means of bending in presses and rollers, cutting, and joined either by welding or riveting.

VII. Sheet-metal work, with or without metal spinning. Products manufactured from fine sheet-metal by stamping and bending processes.

VIII. Light machinery and machine parts. Products obtained primarily by machining, but calling for stricter quality controls and greater precision.

IX. Medium-weight and heavy machinery and machine parts. Heavier machined products, usually made individually.

X. Other products. All those in whose manufacture no specific process predominates.

Alongside the processes listed above, others should also be developed which are equally essential for metal-transforming activities in respect of the manufacture of intermediate products, such as castings, for example. They will be identified and their relative importance for the substitution programme will be shown when the balance of the requisite raw materials is drawn up.

Table 6 presents the results of this classification by processes, and clearly reveals that for each process Venezuela's current imports include a number of items for which the domestic production possibilities would be worth investigating in the initial phase under discussion. Of course, this classification merely serves as a pointer to the main process in the manufacture of the product concerned, which may also entail other metal-transforming processes, not of paramount importance, but nevertheless liable to affect the decision as to whether domestic production of specific goods is or is not recommendable. The adoption of a final decision in this respect will require additional research at the level of the products which the tariff classification includes in each tariff group. From the standpoint of manufacture, these products may present or require different conditions of production. Nevertheless, for this first analysis a few hypotheses have been tentatively adopted which permit a quantification, albeit approximate, of the substitution programme and an evaluation of the inherent problems, as well as an indication of the areas in which future research might profitably be continued.

4. The import substitution programme

As has been shown in the preceding chapters, the existing metal-transforming industry is not in a position, either from the technical standpoint or from that of the supply of skilled labour, to embark forthwith upon a far-reaching programme, and consequently will find it hard to meet the targets set up for the sector in the National Development Plan. These assertions are borne out by foreign trade statistics, from which it is clear that the products imported include a fairly large number of articles whose manufacture is characteristic of the early stages of development of a country's metal-transforming activities - since it does not call for complex techniques, or highly skilled labour, or long production series -, but which, nevertheless, constitute the basic nucleus for the gradual development of the sector.

Table 6
 VENEZUELA: IMPORTS, BY MAIN MANUFACTURING TECHNIQUES
 AND PROCESSES, 1962

Tariff schedule number	Description	Imports 1962	
		Tons	Thousands of bolivares
	I. Containers and tinware	69 359	68 008
681-0701-1/2	Printed tinplate, lithographed or in sheets	7 235	9 120
699-2106-2	Tin cans, n.e.s., whether or not painted	2 470	7 162
699-2906-1	Miscellaneous metal covers	1 348	5 735
681-0701-9	Tinplate, n.e.s.	57 726	43 017
699-2906-2/10	Capsules or caps, tinned, galvanized, etc.	724	2 401
	Other products	126	573
	II. Hot-forged and hot-presses products	25 285	173 382
699-1201-1/2	Machetes and agricultural tools, n.e.s.	1 423	4 128
699-1202	Hand tools for artisan industry	2 100	17 625
699-1203-3/5	Axes, hatchets and other hand tools, n.e.s.	238	1 912
699-2902-1/9	Metal chains, and parts and accessories therefor (except for ships)	595	2 823
699-2901-2/4	Springs for railway coaches and vehicles, n.e.s., and springs, n.e.s.	1 369	3 087
681-1304	Iron or steel fittings for tubes and pipes	3 925	12 420
732-0619	Chassis, without engines, chassis-frames and other accessories, n.e.s.	10 672	109 940
712-0101	Ploughs	996	2 427
	Other products	3 967	19 620
	III. Wire products	15 849	24 942
699-0701-1/3	Nails, staples for fencing, wire nails and insulated staples	3 960	3 320
699-0301-2	Miscellaneous steel wire products, whether or not covered	3 493	6 406
699-0802-1/4	Pins, safety-pins, hairpins, etc.	314	2 090
699-0401/4	Wire products of non-ferrous metals	528	4 625
699-0502/3	Metal screening and mesh	1 467	2 777
	Other products	6 087	5 724
	IV. Primarily stamped products	7 286	55 382
699-1801-1/7	(In part) Hardware, locks and padlocks, castors for furniture and doors	1 200	6 000
699-1802/3-1/5	(In part) Locks, etc., of copper and copper alloy, aluminium and aluminium alloy	205	2 450
699-2916-1/7	Miscellaneous fastenings for leather goods	345	4 859
721-1907	Plugs, switches, sockets and other electrical accessories	996	8 894
699-1602	Knives, forks and spoons of iron or steel	314	2 812
721-0401-3/4	Radiotelegraphic and radiotelephonic receivers (in part)	255	5 583
732-	Vehicles, manufactured or assembled (in part)	3 000	15 000
	Other products	971	9 784

Table 6 (cont.)

Tariff schedule number	Description	Imports 1962	
		Tons	Thousands of bolivares
	V. <u>Small products and parts, primarily machined</u>	11 381	57 414
716-1501-2/9) 812-0305-1/4) 699-1801-1/7	Taps, cocks and valves of base metal	2 151	20 245
	(In part) Hardware, locks, padlocks and castors for furniture	850	4 651
699-2201-1/9	(In part) Cookers, ovens, stoves and water heaters	391	2 551
699-0701-1 D/E	Screws, nuts, washers and other similar products, n.e.s.	2 819	6 741
716-1324-9 A/B	(In part) Machines and mechanical utensils, non-electric	705	4 874
	Other products	4 465	18 352
	VI. <u>Boiler shop products and metal structures</u>	10 156	31 252
699-0102	Columns, pillars, towers and posts of iron or steel	362	1 149
699-0104-3	Girders, beams and structural shapes whether or not assembled	4 692	9 542
699-2101/02	Metal silos, steel tanks and receptacles	714	1 380
711-0101/4	Boilers for farm use, n.e.s., and parts and accessories therefor	1 168	7 177
716-1324-2/4	Retorts, stills, filters, etc.	2 170	7 076
711-0109	Economizers, reheaters, condensers, etc.	105	1 022
	Other products	945	3 906
	VII. <u>Sheet-metal work, with or without metal spinning</u>	19 502	100 843
699-2102-1/9	Small tanks and receptacles, nickel-plated, enamelled, etc.	241	677
699-2103-1/19	Metal drums and tanks, with a capacity of up to 500 litres	1 218	2 505
699-2106-1/9	Boxes, casks and other containers of metal other than tinplate	177	784
699-2201-1/9	(In part) Cookers, ovens, stoves and water heaters	4 000	17 000
699-1301/2	Cast iron kitchenware, enamelled, n.e.s.	429	1 370
699-1302	Ferrous metal ware	607	1 521
699-1401/1501	Aluminium kitchenware; tableware and household utensils of other metals	761	4 744
721-0104-1/9	Electric transformers	2 447	13 902
	Other products	9 622	58 340
	VIII. <u>Light machinery and machine parts</u>	40 874	249 637
715-0101	Machine-tools for working metals <u>a/</u>	2 470	9 515
716-0101	Special pumps for the sale of liquid fuels	341	3 904
716-0803	Looms of all types and spare parts therefor	1 175	7 815
716-1101-2-9	Sewing-machines and spare parts therefor	2 337	18 908
714	Typewriters and other office machines	832	25 644
721-0102	Electric motors <u>a/</u>	1 064	8 237
	Other machinery and machine parts	32 655	175 614

Table 6 (concl.)

Tariff schedule number	Description	Imports 1962	
		Tons	Thousands of bolivares
	<u>IX. Medium-weight and heavy machinery and machine parts</u>	<u>33 324</u>	<u>330 377</u>
716-1318	Moulds, n.e.s., for miscellaneous materials	322	2 969
713-0101-1	Complete agricultural tractors, weighing less than 4 tons net	5 095	18 121
715-0202	Machinery for working metals, n.e.s.	1 572	15 384
716-0304-1	Well-drilling machinery	1 492	15 844
716-1501-1	Pressure regulating valves for the petroleum industry	672	6 371
716-0303	Miscellaneous lifting machinery	1 973	11 681
716-0304-9	Earth-excavating, levelling or boring machinery, fixed or mobile	558	3 541
716-0401/09	Machine-tools for working wood, bone, etc., and spare parts therefor	552	4 610
	Other products	21 098	251 856
	<u>X. Other products</u>	<u>75 974</u>	<u>640 163</u>
	Other manufactures, n.e.s., of base metal		
	Other agricultural and poultry-keeping appliances, n.e.s.; television receivers, weighing up to 50 kg; sparking-plugs; gramophones and record-players; wheel-barrows and wheel-chairs; other household utensils, n.e.s., weighing up to 15 kg; industrial electric ovens; heating devices for riveting, glueing, welding and vulcanizing; neon signs of all types; spare parts and accessories, n.e.s., for industrial trucks; pianos and musical instruments, etc.		
	<u>Total</u>	<u>309 000</u>	<u>1 731 400</u>

a/ Although the figures include machinery and motors of all sizes, only light machinery and motors will be considered for substitution purposes.

/Thus the

Thus, the main objective of the import substitution programme outlined is not exactly at this stage, to solve a balance-of-payments problem, but to establish the basic stratum that will promote the use of new manufacturing techniques and will encourage the training of manpower at the various levels of skill. Such a programme is perfectly consistent with the objectives indicated in the National Plan, but it can hardly be expected to serve as a means of attaining in so short a space of time, the targets established for 1966.

Given the characteristics of the existing industry and the objectives described, this phase of development should be carried out mainly through the installation of medium- and small-scale enterprises, since their organization and operation is not beyond the country's incipient entrepreneurial capacity, while in addition this procedure would facilitate the implementation of the programme and would make for the more widespread diffusion of metal-transforming technology and the training of a larger number of skilled workers.

As regards the actual choice of the products to be included in this initial substitution programme, it was considered expedient to make a preliminary selection on the following lines:

(a) Comparatively simple metal-transforming products that can be manufactured by means of relatively labour-intensive procedures;

(b) Products in whose manufacture processes are used that are not yet familiar in Venezuela or that require perfecting, and that are considered indispensable for raising the technological level of the industry, in so far as such techniques can be introduced through medium- and small-scale enterprises;

(c) Products that are rather more difficult to manufacture, but are essential for the integration of other activities, i.e., as inputs in more complex branches of the metal-transforming industry, already existing or to be installed in the near future.

By applying the foregoing criteria to each of the 1962 import groups, the whole programme was established; it is presented in table 7, sub-divided into the ten groups of manufacturing processes under which imports were classified. As can be seen the volume of the substitution possibilities considered to be attractive amounts to 77,540 tons, and their value to 398.1 million bolivares, which implies a unit value of about 1.30 dollars per kilogramme. This potential output would correspond to about 25.1 per cent of total imports of products of the metal-transforming industries in terms of weight, and 23 per cent, about 100 million dollars, in terms of value.

Table 7

VENEZUELA: IMPORT SUBSTITUTION PROGRAMME

Tariff schedule number	Description	Volume		Value	
		Tons	Percent- age <u>a/</u>	Thousands of bolli- vares	Percent- age <u>a/</u>
	I. Containers and tinware	9 550	13.8	19 560	28.7
681-0701-1/2	Printed tinsplate lithographed or painted	4 328	60	5 472	60
699-2106-2	Tin cans, n.e.s., whether or not painted	1 944	80	5 730	80
699-2906-1	Miscellaneous metal covers	918	80	4 588	80
681-0701-9	Tinsplate, n.e.s.	1 731	3	1 720	4
699-2906-2/10	Capsules or caps, tinned, galvanized, etc.	579	80	1 921	80
	Other products	50	40	129	22
	II. Hot-forged and hot-pressed products	8 221	32.5	34 982	20.1
699-1201-1/2	Machetes and agricultural tools, n.e.s.	213	15	619	15
699-1202	Hand tools for artisan industry	315	15	2 644	15
699-1203-3/5	Axes, hatchets and other hand tools, n.e.s.	36	15	287	15
699-2902-1/9	Metal chains, and parts and accessories therefor (except for ships)	288	50	1 412	50
699-2901-2/4	Springs for railway coaches and vehicles n.e.s., and springs, n.e.s.	1 232	90	2 778	90
681-1304	Iron or steel fittings for tubes and pipes	3 240	80	9 836	80
732-0619	Chassis, without engines, chassis-frames and other accessories n.e.s.	1 067	10	10 934	10
712-0101	Ploughs	298	30	728	30
	Other products	1 532	38	5 744	29
	III. Wire products	3 800	23.9	6 500	26.2
699-0701-1/3	Nails, staples for fencing, wire nails and insulated staples	2 376	60	1 992	60
699-0301-2	Miscellaneous steel wire products, whether or not covered	349	10	641	10
699-0802-1/4	Pins, safety-pins, hairpins, etc.	157	50	1 045	50
699-0401/4	Wire products of non-ferrous metals	158	30	1 387	30
699-0502/3	Metal screening and mesh	760	50	1 435	51
	IV. Primarily stamped products	3 250	44.6	16 160	28.7
699-1801-1/7	(In part) Hardware, locks and padlocks, castors for furniture and doors	300	25	1 500	25
699-1802/3-1/5	(In part) Locks, etc., of copper and copper alloy, aluminium and aluminium alloy	50	25	610	25
699-2916-1/7	Miscellaneous fastenings for leather goods	276	80	3 887	80
721-1907	Plugs, switches, sockets and other electrical accessories	498	50	4 447	50
699-1602	Knives, forks and spoons of iron or steel	88	25	703	25

/Table 7 (cont.)

Table 7 (cont.)

Tariff schedule number	Description	Volume		Value	
		Tons	Percent- age a/	Thousands of bolli- vares	Percent- age a/
721-0401-3/4	Radiotelegraphic and radiotelephonic receivers (in part)	51	20	1 116	20
732-	Vehicles, manufactured or assembled (in part)	1 500	50	3 000	20
	Other products	487	50	897	9.1
	<u>V. Small products and parts, primarily machined</u>	<u>5 460</u>	<u>47.9</u>	<u>25 059</u>	<u>43.6</u>
716-1501-2/9) 812-0305-1/4) 699-1801-1/7	Taps, cocks and valves of base metal (In part) Hardware, locks, padlocks and castors for furniture	1 921	80	16 196	80
699-2201-1/9	(In part) Cookers, ovens, stoves and water heaters	255	30	1 395	30
699-0701-1D/E	Screws, nuts, washers and other similar products, n.e.s.	274	70	1 786	70
716-1324-9A/B	(In part) Machines and mechanical utensils, non-electric	1 610	50	3 371	50
	Other products	141	20	975	20
		1 259	28	1 336	7
	<u>VI. Boiler shop products and metal structures</u>	<u>5 900</u>	<u>58.1</u>	<u>15 948</u>	<u>50.8</u>
699-0102	Columns, pillars, towers and posts of iron or steel	254	70	805	70
699-0104-3	Girders, beams and structural shapes whether or not assembled	3 474	80	7 534	80
699-2101-02	Metal silos, steel tanks and receptacles	714	100	1 380	100
711-0101/4	Boilers for farm use, n.e.s., and parts and accessories therefor	350	30	2 153	30
716-1324-2/4	Retorts, stills, filters, etc.	651	30	2 123	30
711-0109	Economizers, reheaters, condensers, etc.	53	50	511	50
	Other products	404	42	1 442	37
	<u>VII. Sheet-metal work, with or without metal spinning</u>	<u>11 550</u>	<u>59.2</u>	<u>57 522</u>	<u>53.2</u>
699-2102-1/9	Small tanks and receptacles, nickel-plated, enamelled, etc.	193	80	542	80
699-2103-1/19	Metal drums and tanks, with a capacity of up to 500 litres	609	50	1 252	50
699-2106-1/9	Boxes, casks and other containers of metal other than tinplate	106	60	470	60
699-2201-1/9	(In part) Cookers, ovens, stoves and water heaters	2 800	70	11 900	70
699-1301/2	Cast iron kitchenware, enamelled n.e.s.	304	70	959	70
699-1302	Ferrous metal ware	420	70	1 065	70
699-1401/1501	Aluminium kitchenware; tableware and household utensils of other metals	532	70	3 321	70
721-0104-1/9	Electric transformers	1 468	60	8 340	60
	Other products	5 118	54	29 673	50.9

/Table 7 (concl.)

Table 7 (concl.)

Tariff schedule number	Description	Value			
		Tons	Percent- age ^{a/}	Thousands of bol- varas	Percent- age ^{a/}
VIII. <u>Light machinery and machine parts</u>		13 367	32.7	108 054	43.6
715-0101	Machine-tools for working metals ^{b/}	123	5	475	5
716-0101	Special pumps for the sale of liquid fuels	170	50	1 952	50
716-0803	Looms of all types and spare parts therefor	352	30	2 344	30
716-1101-2/9	Sewing-machines and spare parts therefor	985	42	8 026	42
714	Typewriters and other office machines	166	20	5 129	20
721-0102	Electric motors ^{b/}	212	20	1 647	20
	Other machinery and machine parts	11 359	35	88 481	50
IX. <u>Medium-weight and heavy machinery and machine parts</u>		2 532	28.5	75 478	22.8
716-1318	Moulds, n. e. s., for miscellaneous materials	129	40	1 188	40
713-0101-1	Complete agricultural tractors, weighing less than 4 tons net	254	5	906	5
715-0202	Machinery for working metals, n. e. s.	78	5	769	5
716-0304-1	Well-drilling machinery	298	20	3 168	20
716-1501-1	Pressure regulating valves for the petroleum industry	201	30	1 911	30
716-0303	Miscellaneous lifting machinery	394	20	2 336	20
716-0304-9	Earth-exoavating, levelling or boring machinery, fixed or mobile	111	20	708	20
716-0401/09	Machine-tools for working wood, bone etc., and spare parts therefor	109	20	922	20
	Other products	7 958	38	63 570	25
X. <u>Other products</u>		6 910	9.1	38 838	6.1
Other manufactures, n. e. s., of base metal; other agricultural and poultry-keeping appliances, n. e. s.; television receivers, weighing up to 50 kg; sparking-plugs; gramophones and record-players; wheelbarrows and wheel-chairs; other household utensils, n. e. s. weighing up to 15 kg; industrial electric ovens; heating devices for riveting, glueing, welding and vulcanizing; neon signs of all types; spare parts and accessories, n. e. s., for industrial trucks; pianos and musical instruments, etc.					
Total		77 540	25.1	398 101	23.0

^{a/} Relates to figures for 1962.
^{b/} Light machinery and motors only.

The attainment of these production targets will call for a substantial effort both on the part of the agencies responsible for the implementation of the programme and on that of the industrialists who will take part in it; but no very great difficulties should be encountered if a period of about four or five years is allowed for the purpose, and the programme is properly graduated and co-ordinated.

Unquestionably, one of the factors determining the length of time required and the scheduling of the programme is the training of the labour force, from both the qualitative and the quantitative standpoint. In this connexion, the list of imports that could be replaced by domestic production affords ample room for the initiation of operations, consistent with the training of skilled workers. For example, it includes products whose manufacture could be started at once (containers and tinware, wire products, screws and nuts, etc.), since in their case neither technological questions nor the uses to which they will be put involve any major complications or dependence on other undertakings; while the other extreme is probably represented by the construction of certain machines and parts thereof, which, although not requiring complex techniques, do entail the previous development of other activities and the training of more highly skilled labour.

As table 7 shows, the manufacturing lines that could be tackled almost immediately and would yield the outputs postulated in a relatively short space of time, are those classified in the first seven groups, which account for approximately 62 per cent and 44 per cent of the programme outlined, in terms of weight and value, respectively. Another inference which is consistent with all that has been previously said is that the first manufacturing activities to be undertaken will produce goods to replace import items whose unit value averages about one dollar per kilogramme, i.e., simple products whose manufacture makes few technical demands. On the other hand, those that will be consolidated more towards the end of the period will be substituted. For rather more highly processed goods whose price per kilogramme will probably be in the neighbourhood of two dollars. Of course, these differences in degrees of manufacturing complexity and consequently in unit prices are also found within each of the ten groups, but they are less marked, and the price per kilogramme is linked more closely to the value of the raw material than to the manufacturing process itself.

The outline under consideration was drawn up after each of the 1962 import groups had been carefully analysed and the situation in the existing industry had been studied. Annex I contains a detailed break-down of each tariff group, states the percentage of imports which it was thought could reasonably be replaced by domestic production in each instance, and allocates the items concerned to the appropriate groups in the classification by processes set forth in section 3 of the present report. Owing to the heterogeneity displayed by many tariff groups with respect to products, processes, quality standards, etc., the percentages adopted will have to be checked at a later stage, when the actual composition of the groups has

/been ascertained

been ascertained in fuller detail, and manufacturing projects can be established at the level of specific products. The criteria followed in determining the percentages for each process group were, roughly speaking those described below.

I. Containers and tinware. Consideration of the item "Printed tinplate, lithographed or painted" (681-0701/1/2) shows that the volume imported is large enough to justify the installation of the lithographic equipment, ovens, etc., required for this line of manufacture. A reasonable proportion for replacement by domestic production is thought to be 60 per cent, so that initially operations can be started on the basis of the simpler printing processes. In the case of "tinplate containers" (699-2106/2), a higher figure of 80 per cent was adopted, since their manufacture presents no major difficulties and mass production is possible. The composition of this group of imports, must be ascertained, however, since in the case of certain types of container domestic production may not be an attractive proposition. The item described as "tinplate, unspecified" (681-0701-9) is known to include parts which can be made in Venezuela, such as tinfoil ready-cut to measure for the manufacture of a specific container. Here a very low percentage was adopted, merely in order to prevent the exclusion of this item on which research is recommended. The proportions of import substitution fixed for this group averaged 13.8 per cent in terms of weight and 28.7 per cent in terms of value.

II. Hot-forged and hot-pressed products. In the case of this group, it is recommended that 32.5 per cent of the total weight of imports and 20.1 per cent of their value should be replaced by domestic production. This implies substitution in respect of the simpler types of product. Where "hand-tools for artisan industries" (699-1202) are concerned, import substitution is envisaged for only 15 per cent, because of the wide variety of products included under this head, and it is suggested that domestic production should be confined to the simpler articles imported in the largest quantities, such as hoes, spades, and similar items. But for "iron and steel accessories for tubes and pipes" (681-1304) a proportion as high as 80 per cent was adopted, in view of the simplicity of the manufacturing process, the feasibility of fairly long production series, and the stability of the consumer market, which is constituted mainly by the petroleum industry. Conversely, a figure as low as 10 per cent was assigned to "chassis without engines, chassis-frames and other accessories n.e.s." (732-0619), because in the case of these items production series would be short, as so many different types of vehicle are involved and therefore their manufacture would be inadvisable on account of the heavy investment in tooling required.

III. Wire products. For this group, whose manufacturing processes and techniques are already being introduced in Venezuela, percentages were adopted which will be easy to attain or even to surpass, especially as regards "nails, staples, wire nails etc." (699-0701-1/3) and "pins, hairpins, etc." (699-0802-1/4). "Metal meshes" (699-0502/3) were put down for 50 per cent, on account of possible competition, for some uses, from plastic fabrics, woven or non-woven.

/IV. Small

IV. Small products, primarily stamped. In this group, import substitution possibilities relate for the most part to simple products, as is suggested by the average percentages worked out in terms of weight and value. The articles classified under this head are generally manufactured in long series, with costly tools, and consequently the production of a wide range of types would not be feasible, for which reason the percentages adopted are low. Exceptions to this rule are "miscellaneous fastenings for leather goods" (699-2916-1/7) and "plugs, switches, sockets and other electrical accessories" (721-1907), where attractive scales of production might be possible if such parts and spares were standardized.

V. Small products and parts, primarily machined. For "taps, cocks, valves, of base metal" (716-1501-2/9) the level of import substitution adopted was 80 per cent, inasmuch as the standardization of specific types of product will undoubtedly mean that they can be manufactured on a worth-while scale. Moreover, this is the sort of manufacturing line that will make for the diffusion of technical know-how and the training of manpower, since the articles concerned are usually current consumer goods, small in size with low unit values, and made chiefly of material which is almost entirely recoverable by melting down, so that learners, mistakes are not irremediable. In the case of the item "ironware, locks, padlocks, castors for furniture, etc." (699-1801-1/7) a proportion of only 30 per cent was suggested, in view of the same limiting factors as were mentioned in connexion with stamped parts. The figure postulated for "screws, nuts, washers, and similar articles" (699-0701-ID/E) - 50 per cent - is considered to be easily attainable. If high-precision or technically exacting threaded products are excluded.

VI. Boiler shop products and metal structures. In this group, significant import substitution efforts have already been made by the existing industry, which possesses the requisite techniques for the expansion of its field of action. Thus, the high percentages proposed for structures and sheet products such as silos, tanks or other receptacles will not be difficult to attain. To pave the way for more exacting operations, it is recommended that a start should be made on substitution in respect of other items such as "boilers for farm use" (711-0101/4), "retorts, stills, filters, etc." (716-1324-2/4), and "economizers, superheaters, condensers, etc." (711-0109). For the latter, a higher percentage of import substitution is contemplated, in view of the fact that their tubular structure entails a simpler manufacturing process. Nevertheless, these products call for more advanced knowledge of design engineering.

VII. Sheet-metal work, with or without metal spinning. The present achievements of the existing industry fully warrant the adoption of a high import substitution percentage, besides which, sheet-metal work is as a rule fairly simple to execute.

/VIII. Light

VIII. Light machinery and machine parts. This group is formed by a number of items whose individual share in it is not very large, and it is probably here that the greatest importance attaches to technical, skilled-labour and complementarity problems, both within the metal-transforming sector, with respect to production, and outside it, in relation to demand, which will be largely conditioned by the development of other branches of manufacturing industry. Moreover, the success of these lines of manufacture is closely linked to the possibility of obtaining know-how from abroad, either by offering foreign firms inducements to establish branches in Venezuela, or through manufacturing and technical assistance agreements with the enterprises concerned. Thus, the possible percentages of domestic production indicated are highly provisional and tentative, apart from the fact that the items are broadly generic and cover a wide variety of products with very different manufacturing and demand characteristics. Minimal import substitution percentages were adopted with the idea that they would represent the simplest products within each group, a premise which will of course have to be more carefully checked. In the case of some items, however, such as "special pumps for the sale of liquid fuels" (716-0101) and "sewing-machines and parts thereof" (716-1101-2/9), because of the actual size of the market it was thought that a higher substitution percentage could be reached, despite the complexity and delicacy of the manufacturing processes involved, and this could lead to adequate production series and thereby permit a certain degree of specialization to be achieved in certain manufacturing operations.

IX. Medium-weight and heavy machinery and machine parts. The same observations as for the preceding group apply to this category, and all that need be added is that the articles it comprises are not as a rule mass-produced, and that many of them are even made to order in accordance with highly individual characteristics and specifications, so that extremely advanced technical experience and know-how is indispensable, both for the designing and for the manufacture of the equipment. Consequently, the import substitution percentages are still lower than in the case of the previous group, and represent certain simple machine components and parts rather than the entire manufacture of any one piece of machinery. In this group, attention should be drawn to the item "moulds, n.e.s., for various materials" (716-13-18), which includes dies for stamping and forging workshops, and for which the proportion of domestic proportion envisaged is 40 per cent. This might be considered an unduly high percentage, given the present stage of development of Venezuela's metal-transforming industries; but in view of the importance of this line of manufacture, the feeling was that its installation in Venezuela should be encouraged, even if the die-sinkers have to be brought in from abroad, this being a special skill which is acquired only after many years' practice.

X. Other products. Owing to the wide variety of products which are grouped under this head, and which in many cases are difficult to identify separately, as well as to the highly diversified manufacturing

/techniques that

techniques that their production entails, it is impossible to make a very detailed study of import substitution prospects for each item. The aggregate percentages indicated - 9.1 per cent in terms of weight, and 6.1 per cent in terms of value - represent a first approximation which will have to be corrected after careful research on the composition of the products included under the items classified here, and on their respective markets.

This analysis of import substitution possibilities has enabled the gross figures for the manufacturing programme to be established, and consequently does not reveal the real effect of the programme on the volume of imports or as regards the saving of foreign exchange that will be achieved. Many of the articles which it is proposed to manufacture in Venezuela will be based, in widely varying proportions, on imported raw materials or intermediate products, so that in this preliminary study, which had to be carried out at the group instead of at the product level, it is difficult to give a very accurate net import substitution figure. An aggregate estimate would seem to suggest, however, that this figure should be established at somewhere around 330 million bolivares, a sum which represents 80 per cent of the gross production value and is equivalent to about 80 million dollars.

5. Evaluation of the programme and determination of the corresponding inputs

In order to evaluate the programme, even if only on an over-all basis, and to determine labour inputs and investment, a number of coefficients were established whereby the production targets could be expressed in terms of the inputs required. The figures adopted, which are shown in annex II, correspond to average manufacturing conditions for the product structure indicated in each case, and are based on the findings of various surveys undertaken in Venezuela, as well as on data collected by ECLA in several studies carried out in other Latin American countries.

For the purposes of a preliminary estimate of the suggested programme, the average figures established were considered to be reasonably representative of the approximate scale of operations. Once manufacturing projects have been determined at the product level, of course, these coefficients will have to be revised in the light of the scales of production adopted, the plant sizes selected and the manufacturing techniques chosen. But in the case of the great majority of the imported products whose replacement by domestic production is recommended, considerations of technology or scale of operations will not exert much influence in this connexion.

As regards the value of production per operative the average figure for the manufactures proposed was estimated at some 69,000 bolivares, which compares satisfactorily with the findings of the above-mentioned surveys. According to the industrial survey carried out by CORDIPLAN in 1961, the average for the metal-transforming industry was 53,522 bolivares;

/while the

while the result obtained in the survey made by the Metallurgists' Association (Asociación de Metalúrgicos) was about 56,000 bolívares. In view of the fact that at the date in question the metal-transforming industry was operating at low performance levels, it may be concluded that the coefficient adopted is reasonably realistic.

Similarly, these surveys establish densities of fixed capital per operative in the neighbourhood of 16,300 bolívares and 22,500 bolívares, respectively, which are regarded as too low for new activities. In the case of the Guayana Project,^{2/} average investment works out at 63,000 bolívares per operative, a ratio which, on account of the type of equipment that will be manufactured, corresponds to a high-category metal-transforming activity. It was thought that for the type of products under consideration in the present study, investment coefficients ranging from 25,000 to 50,000 bolívares per operative would be representative, the over-all average thus being 36,000 bolívares.

By application of these coefficients to the figures presented in table 7 it can be shown that manpower requirements will amount to 5,722 operatives, and that 204.9 million bolívares will have to be invested in fixed capital (see table 8 and, for fuller details, annex III).

Consistently with this number of operatives, it may be estimated that the total personnel required will comprise about 7,150 employees, of whom approximately 70 will be mechanical engineers and metallurgists, and some 210 will be technicians and draughtsmen. It may be reasonably supposed that the skilled operatives will number about 3,300, and that they can be tentatively classified in the following categories:

Metal-cutting machine operatives	1.540
Adjustors	820
Toolmen	200
Foremen	240
Others	500

Since the proposed programme is meant to be carried out within the space of four or five years, it can be seen how great a manpower training effort will be required; no fewer than 800 workers will have to be trained every year. The annual investment figure will not be less than 10 or 12 million dollars, to cover production equipment, construction and other ancillary services.

^{2/} Corporación Venezolana de Guayana (Joint Centre - Guayana Project), Preliminary Programme for the Heavy Machinery Building Complex, Guayana Region, 1962.

Table 8

VENEZUELA: MANPOWER AND INVESTMENT NEEDS FOR THE
 IMPORT SUBSTITUTION PROGRAMME

	Output		Number of operatives	Fixed capital (Thousands of bolivi- vares)	Probable number of enter- prises
	Tons	Thousands of bolivi- vares			
I. Containers and tinware	9 550	19 560	257	12 850	5-7
II. Hot-forged and hot-pressed products	8 221	34 982	603	24 120	4-8
III. Wire products	3 800	6 500	75	2 625	1-3
IV. Primarily stamped products	3 250	16 160	207	7 245	8-13
V. Small products and parts, primarily machined	5 460	25 059	501	15 030	6-12
VI. Boiler shop products and metal structures	5 900	15 948	182	4 350	3-6
VII. Sheet-metal work, with or without metal spinning	11 550	57 522	770	26 950	10-20
VIII. Light machinery and machine parts	13 367	108 054	1 544	54 040	20-30
IX. Medium-weight and heavy machinery and machine parts	9 532	75 478	1 161	40 632	20-30
X. Other products	6 910	38 838	422	16 880	5-10
<u>Total</u>	<u>77 540</u>	<u>398 101</u>	<u>5 722</u>	<u>204 925</u>	<u>82-139</u>

/Raw material

Raw material inputs were determined by direct reference to the volumes of production established, and the amounts given in table 9 represent net requirements in respect of each. A point that emerges clearly from this evaluation is the importance of castings for the implementation of the programme, since the volume needed will slightly exceed 20,000 tons, which means that it will account for 30 per cent of the total weight of the products to be manufactured. In order to meet these requirements the existing foundries will have to be expanded and new ones installed, equipped with plant and techniques that will enable them to satisfy the demands of the new metal-transforming activities. Table 10 lists manpower and investment requirements for the new foundries, as well as for the drawing of steel bars, production of which is likewise inadequate at present.

In table 8, an indication will also be found of the number of enterprises that might be installed to cover the manufacturing requirements shown for each group of products. It is intended merely as a rough guide, and the figures in question cannot be accurately established until the products have been specifically determined and manufacturing costs have been fixed at the product level. As will be noted, many of these enterprises may be integrated in a single unit, but the advantages or disadvantages of this procedure can only be assessed once the possible geographical location of the plants and of the markets they will supply has been settled. Transport costs are a factor that will weigh heavily in decisions as to whether some of the proposed lines of production should be integrated or whether certain units should be more widely scattered throughout the country - a matter which will call for careful study.

If this manufacturing programme is evaluated in relation to the existing industry, the progress it will imply is obvious and is evidenced in table 11, which presents some of the most characteristic ratios whereby the two situations are differentiated. The following points are worthy of emphasis:

- (a) Personnel requirements for the manufacturing programme represent 30 per cent of current employment in the metal-transforming industry;
- (b) The new investment will increase the existing industry's fixed capital by about 80 per cent;
- (c) The value of production will rise by approximately 50 per cent in relation to its present level.

Furthermore, the new manufacturing activities will indirectly exert a favourable influence - which is, however, difficult to quantify - on the existing industry, since it will benefit both by the manpower to be trained and by the products to be manufactured, and will thus undoubtedly be an incentive to improve current operational conditions as well as to expand and diversify its lines of manufacture.

Table 9
VENEZUELA: APPROXIMATE CONSUMPTION OF RAW MATERIALS IN IMPORT-SUBSTITUTION METAL-TRANSFORMING ACTIVITIES
(Net weight in tons)

Activity	Tinplate	Forged products	Plate and Thin sheet		Castings			Miscellaneous raw materials	Total
			other rolled products	(miscellaneous materials)	Drawn products	Iron	Steel		
I. Containers and tinware	8 000		1 000	200				350	9 550
II. Hot-forged and hot-pressed products		4 000	4 000					221	8 221
III. Wire products				3 800					3 800
IV. Primarily stamped products			3 000					250	3 250
V. Small products and parts, primarily machined			200	2 000	1 000	2 000	260		5 460
VI. Boiler shop products and metal structures			4 000	600	500	500	100		5 900
VII. Sheet-metal work, with or without metal spinning				10 500	200	200	150		11 550
VIII. Light machinery and machine parts		500	1 000	500	4 500	3 000	367		13 367
IX. Medium-weight and heavy machinery and machine parts		800	2 000	500	4 000	200	32		9 532
X. Other products		200	1 000	1 200	2 000	1 500	210		6 910
Total	8 000	5 500	12 200	16 800	11 000	6 600	1 940		77 540

Table 10

VENEZUELA: MANPOWER AND INVESTMENT NEEDS FOR THE INSTALLATION
 OF NEW FOUNDRIES AND DRAWING WORKSHOPS

	Output		Number of operatives	Fixed capital (Thousands of bolli- vares)	Probable number of establish- ments
	Tons	Thousands of bolivares			
Iron casting, meeting all the requirements of up-to-date foundry techniques, primarily in electric furnaces	8 000	24 000	360	20 000	4-6
Casting of non-ferrous metals, mainly bronze and brass	3 000	20 000	400	12 000	5-7
Casting of steel machine parts, etc.	2 000	10 000	90	8 000	1-2
Drawing of round, hexagonal and square steel bars, using scourers and grinders for the round bars. Mainly light bars are made for use in automatic machines	6 000	15 000	300	12 000	2-3

Table 11

VENEZUELA: COMPARISON BETWEEN THE IMPORT SUBSTITUTION PROGRAMME
 AND THE EXISTING METAL-TRANSFORMING INDUSTRY

	Number of employees	Fixed capital (millions of bolli- vares)	Production value (millions of bolli- vares)	Fixed capital per employee (bolivares)	Production value per employee (bolivares)	Ratio of Production value to fixed capital
Existing metal-transforming industries	22 215	263.9	866.0	11 800	38 982	3.28
New Industries	7 150	204.9	398.1	28 700	55 680	1.94
<u>Total</u>	<u>29 365</u>	<u>468.8</u>	<u>1 264.1</u>	<u>15 965</u>	<u>43 050</u>	<u>2.70</u>

/Furthermore, the

Furthermore, the new manufacturing activities will indirectly exert a favourable influence - which is, however, difficult to quantify - on the existing industry, since it will benefit both by the manpower to be trained and by the products to be manufactured, and will thus undoubtedly be an incentive to improve current operational conditions as well as to expand and diversify its lines of manufacture.

Lastly, the production ratios given in table 11 bring to light the differences between the two industrial groups as regards the structure of production; the new enterprises call for more capital per employee and also show a higher level of productivity. The low ratio between the value of production and fixed capital indicates pre-eminently productive operational conditions, in contrast with the figure registered for the existing industry, greatly distorted as it is by the heavy incidence of service and maintenance activities.

6. Measures and action to implement the programme

The import substitution programme to promote the development of Venezuela's metal-transforming industries, as outlined in the foregoing chapters, will necessitate the adoption of a number of measures and lines of action of widely differing kinds, designed to ensure that in the phase of implementation of the programme its objectives and targets are in fact attained. It is not the purpose of the present chapter to analyse these measures in detail, or to establish the criteria that should be followed and the scope of the action to be taken in each individual case. In many instances, decisions in this connexion and recommendations as to the changes that should be introduced will frequently have to be taken on a basis of co-ordination, to ensure their compatibility with the situation in other sectors and with Venezuela's over-all economic policy. Consequently, before any decision relating to the metal-transforming sector is adopted or recommended, it will be necessary to carry out a series of specific studies whereby the problem can be evaluated as a whole. Such studies are of course beyond the scope and aims of the present report, and accordingly the only points touched upon here will be those that relate more specifically to the metal-transforming sector, and can be dealt with independently of other activities. This should not be interpreted as indicating an order of priority in the adoption of measures and lines of action; on the contrary, the specific studies in question should be undertaken at the earliest possible date, so as to permit the definition of the policy and measures that should be adopted in the tax, tariff and credit fields, as well as in others of basic importance for the implementation of the programme drawn up.

/(a) Agencies

(a) Agencies responsible for the co-ordination and implementation of the programme

The potential success of the programme is largely dependent upon the care devoted to organizational arrangements for putting it into effect, and to supervision of its implementation. This aspect of the development process has already been duly taken into account in Venezuela whose Manufacturing Industry Programme assigns responsibilities for the various functions and phases covered by that programme.

In the special case of the metal-transforming industries, a pre-requisite for the implementation of the programme will be a series of studies whose object is, in the first place, to define the institutional measures required, and, secondly, to evaluate and select specific manufacturing projects. During the phase of putting the programme into execution, it will be indispensable to keep constant check on the status and intensity of the process, which, in view of the complexity of the sector and the close manufacturing inter-relationships between the enterprises concerned, will have to adhere to a fairly rigid investment schedule. Lack of co-ordination, or delay in initiating specific lines of production contemplated in the programme, may make it impossible for other manufactures to be started, and in consequence may seriously militate against the attainment of the targets established.

The Central Co-ordination and Planning Office (Oficina Central de Coordinación y Planificación - CORDIPLAN) should act in this instance as the responsible agency, and as the top-level co-ordinator of the implementation of the programme. In its turn, the Venezuelan Development Corporation (Corporación Venezolana de Fomento), through its Project and Promotion Division, should play an important part in the preparation and formulation of specific manufacturing projects, as well as in all matters connected with putting the programme into effect. These functions may be summed up under the following heads: (a) identification, within the tariff items selected, of the products whose domestic manufacture offers most inducements in the light of the criteria established in section 5; (b) determination of the consumer market for these products; (c) production feasibility studies and consideration of alternative techniques and possible location of enterprises; (d) conclusion of contracts, where appropriate for the requisite technical assistance and manufacturing licences from abroad; (e) preparation of final production projects and evaluation of these and of manufacturing costs, tariff protection needed etc.; (f) financing of investment; (g) processing of basic statistics whereby the progress of the programme and market trends for new products can be kept under regular observation, and any necessary corrective measures can be indicated.

/(b) Definition

(b) Definition of targets and of industrial policy

The evolution of the metal-transforming industry is closely linked to the development of other manufacturing activities, as regards both the raw materials it needs and the products it makes. Moreover, the decision as to whether certain lines of metal-transforming production should or should not be promoted must be based on an evaluation formulated at the national level, within the framework of Venezuela's over-all economic policy criteria.

Thus, a definition of the economic and industrial policy that will be pursued and the establishment of production targets for activities allied to the metal-transforming sector will be indispensable pre-requisites for an assessment of the feasibility or the desirability of embarking upon the manufacture of several of the products included in the proposed import substitution programme.

More specifically, two aspects of the question that deserve priority must be stressed in this connexion: one relating to the processing of raw materials and semi-manufactured products, and the other to the manufacture of motor-vehicles in Venezuela.

In the case of raw materials and intermediate products, which are regarded as belonging to the basic industries sector, it will be necessary to demarcate the fields of action and the development responsibilities corresponding, respectively, to the public sector and to private enterprises. At the present time, there are differences of opinion in Venezuela in this regard, a circumstance which will unquestionably have an adverse effect on supplies of these inputs in the metal-transforming sector, particularly in relation to such new activities as the rolling and drawing of light profiles and thin steel and other metal bars; to the manufacture of pig iron for iron foundries; and to the iron foundries themselves.

With respect to the motor-vehicle problem, too, a clearly-defined manufacturing programme will have to be established, specifying targets and phases for the progressive expansion of the domestic content of vehicles. The manufacture of a certain number of parts and spares for motor-vehicles is included in the import substitution programme proposed here, but probably will not be practicable in default of a specific promotion programme for this sector. Apart from the considerations of national significance that will have to be taken into account in mapping out the future evolution of this activity, the possibilities of complementarity with neighbouring countries at similar levels of industrialization should also be explored.

/(c) Mobilization

(c) Mobilization of technical assistance resources

Basically, there are four fields in which the need for technical assistance will be most marked and pressing: for operational methods and processing; for the training of manpower; for the establishment of technical standards; and for the organization of enterprises and of productivity.

In each of these fields, Venezuela possesses various institutes which will be called upon to play a significant role in the process of tapping and channelling external technical assistance resources. Thus, for example, where the training of manpower is concerned, the National Institute of Educational Co-operation (Instituto Nacional de Cooperación Educativa - INCE) should be given technical advice on vocational education curricula and methods which would enable it to modernize and expand its present educational programme, and to incorporate new specialities. To this end, a survey of the specialities and numbers of personnel that will be needed will have to be carried out beforehand. The provisional estimates formulated in the present section (6) bear eloquent witness to the magnitude of the task that lies ahead, and may serve as a basis for the initiation of a preliminary reform programme.

With respect to technical standards and quality controls, the Venezuelan Commission on Industrial Standards (Comisión Venezolana de Normas Industriales - COVENIN) will have to shoulder the responsibility for the preparation of manufacturing and quality specifications and standards, as and when the development process creates the need for them.

Where the organization of enterprises and of productivity is concerned, it will fall to the Institute of Productivity (Instituto de Productividad - INPRO) to give entrepreneurs guidance and advisory assistance in these respects, particularly as regards the introduction, both in the existing industrial establishments and in the new ones to be installed, of accounting methods which will keep them informed of their real production costs. Cost accounting as a regular practice in industrial management will be beneficial not only from the standpoint of the book-keeping itself, but also - and this is perhaps more important - because it is a necessary instrument for the actual control of costs and for steering the production process through its various stages, and thus facilitates the application of appropriate measures to ensure maximum efficiency in the utilization of the productive resources available.

These institutes will have to define their programme of action and state what they need in the way of technical assistance, most of which could be provided by the various international agencies through their specialized organs. A preliminary evaluation of the most immediate requirements in respect of co-operation from abroad suggests that experts will be wanted in the following special fields: industrial programming and industrial projects; iron foundries; metal-transforming methods and processes; manufacture of motor-vehicle parts; metallurgy and smelting of

/non-ferrous metals;

non-ferrous metals; manufacture of equipment for the petroleum industry; manufacture of electrical engines and appliances; machinery projects and design; die-sinking and cutting tools. These specialists will be needed both for advisory assistance at the entrepreneurial level and for manpower training in the appropriate centres, functions which would of course have to be supplemented by the collaboration of local personnel.

(d) Financing and credit systems

The plans for the financing of investment drawn up by the Venezuelan Development Corporation would square with the requirements of the present programme, particularly the scheme for the hire of fixed assets, which may well become one of the most effective instruments for promoting industrialization, especially through small- and medium-scale industry. It would be expedient, however, to study a credit system that would meet working capital requirements, which, in the case of the metal-transforming industries, may come to represent an amount equalling or exceeding that of fixed assets.

(e) Technological research

There is no need to emphasize the fundamental importance of technological research in relation to the development of the metal-transforming industries. The existence of an institute of technological testing and research which could give the various branches of industry advisory assistance in connexion with the reception and selection of materials, and which would act as a consulting agency for specific production problems and as a supervisor of the products manufactured, whose quality it would guarantee, would represent an invaluable contribution to the development of Venezuela's metal-transforming sector, as well as to that of other manufacturing activities.

Apart from the immediate and obvious advantages that would attach to an institute of this kind, outstanding among others no less important would be its contribution to high-level vocational training and to the dissemination of knowledge and experience in respect of manufacturing methods and techniques.

Thus, it would be advisable to consider the possibility of remodelling and strengthening the Institute of Technological Testing and Research (Instituto de Ensayos e Investigaciones Tecnológicas) which Venezuela already possesses, so that it could act as the rod and staff of the industrial development process, while at the same time providing an indispensable supplement to the activities of other institutes in the fields of vocational training, technical standards and productivity.

7. The metal-transforming industry and regional integration prospects

In the main, the immediate object of the present study was to formulate a relatively short-term development plan for the metal-transforming sector, with the sole intention of offering a few pointers to possible new lines of domestic production that would help to raise the technological level of the existing industry and to form a metal-transforming infrastructure such as is indispensable for the consolidation of the sector's future development. Thus, the selection of products was essentially based on two considerations that were deemed fundamental for this preliminary approach: the prevailing techniques used in their manufacture, and the volume of the domestic market, evaluated through imports. The study of the existing industry - structurally weak, and under-productive - alone sufficed to suggest that it would be advisable to adopt a development plan directed towards the attainment of certain levels of technological progress and training of skilled workers, rather than towards quantitative achievements that would call for a substantial manufacturing effort or would have a powerful impact on the expansion of the gross domestic product. Consequently, in the programme presented here economic considerations have played a secondary role, in the sense that recommendations for the manufacture of new products are not backed by comparative cost studies.

Broadly speaking, this procedure is justified by the conviction, firstly, that the development of the metal-transforming sector must be a gradual process, and that it is impossible to move on to more complex manufactures until certain basic production methods have been introduced, and, secondly, that the vast range of products of the metal-transforming industry - especially durable consumer goods and building materials - includes a large number of articles which entail relatively simple manufacturing processes, which the developing countries should start to produce as they reach more advanced stages of industrialization, and which are the very means of introducing new techniques and manufacturing processes. In Venezuela's case, it could be seen that the metal-transforming sector is lagging far behind, since its manufacturing lines are not in keeping with the country's level of industrialization, the size of its market and the per capita income available.

The fact that the volume of the domestic market was the principal determinant of the production targets established for the initial phase of the development of the metal-transforming industry does not mean that no thought was given to the possibilities that would be opened for this activity under a regional integration programme. On the contrary, it was considered that the ultimate objective must be to equip the domestic industry with such production media as will enable it not only to provide the home market with adequate supplies of the products to be manufactured in Venezuela, but also to concert with other countries complementarity of integration agreements in connexion with the manufacture of the more complex products of the metal-transforming industry, which will no doubt

/be those

be those accounting for a major share of future intra-regional trade. Moreover, manufacture for export will be vitally necessary for Venezuela if substantial and uninterrupted rates of industrial growth, which the domestic market alone will be incapable of sustaining, are to be kept up over the long term. It must be borne in mind, however, that in the metal-transforming sector production for export cannot be undertaken on a makeshift basis or over the short term, since, apart from cost considerations, it entails a lengthy process of manpower training and adaptation of techniques before products can be manufactured in conformity with the specifications and quality standards required for this type of trade, especially if they are to be exported for the purpose of complementing metal-transforming activities in other countries.

In this context, short-term export prospects may be described as non-existent, except perhaps in the case of a few products which may be saleable on occasion to neighbouring countries where they are not yet manufactured or where domestic production is insufficient to meet requirements. In any event, in the present state of affairs such a situation could not be other than purely temporary. From the standpoint of the development of the metal-transforming sector, this would not represent an immediate obstacle, inasmuch as the domestic market affords opportunities favourable enough for high growth rates to be attained, at any rate during the next five years.

The solution of the longer-term problem is a question that has been engaging attention in Venezuela for years, and one of the studies that has been put forward in this connexion is the project for the formation in the Guayana area, of a complex for the manufacture of heavy machinery and equipment. The manufacturing lines envisaged in the preliminary project ^{3/} comprise the construction, in horizontally-integrated plants, of large-scale machinery and equipment for mining and building, for the petroleum industry, for the transport of materials, for the wood and machine-tools industries, etc. By 1975, according to estimates, the output quantum might be about 476.4 million dollars (at 1957 prices), of which 150 million dollars' worth would be exported to other Latin American markets, and might cover about 21 per cent of domestic demand, which by that year would amount to 1,535.1 million dollars. At the same time, it is estimated that the medium- and light-weight machinery constructed in the rest of the country might represent about 347.6 million dollars, i.e., nearly 23 per cent of the domestic market. The investment required for the building of this complex would be approximately 370 million dollars, and for its operation about 26,500 workers would be needed.

The decision to locate this complex in the Guayana area is justified in the preliminary project referred to by the existence of an integrated steel mill in this part of Venezuela, which, in addition, possesses an up-to-date machining-shop and a big iron foundry; by the fact that there

^{3/} See Preliminary Programme for the Heavy Machinery Building Complex, Guayana Region, op.cit.

is a project for an aluminium plant in the same locality; and by the availability of good transport communications with internal and external markets. The economic justification of the project, in its turn, and the expectation of low manufacturing costs, would derive from the reduction of investment which the location itself would facilitate; from the organization and structure of the complex in terms of horizontal integration, with many services in common and maximum utilization of capacity; and from the considerable economies of scale that would be achieved.

Irrespective of the volumes of demand and investment and the levels of productivity it is hoped to attain - figures which in any event will require careful revision, particularly as regards the market for such large-scale machinery, and the matter of investment - the execution of this project, which calls for such highly-developed technical know-how, seems a trifle premature in view of the entrepreneurial and technological conditions at present prevailing in Venezuela. Probably, when the project was devised, it was thought that the rest of the metal-transforming industry, which from every point of view undoubtedly has a key role to play in the establishment of this complex, would develop on the lines contemplated in the National Plan. But, as previously pointed out, this has not happened, for want of appropriate programming in this sector, and in all likelihood, therefore, the Guayana project will have to be postponed or the time schedules and manufacturing programmes will have to be thoroughly overhauled.

In the latter case, the Guayana programme ought not to be carried out in isolation, regardless of the development of the other metal-transforming activities. The mere observation of the evolution of this sector indicates that it is impossible to embark upon complex undertakings in the metal-transforming industry without a certain amount of ballast in the shape of basic know-how and metal-transforming tradition. The building of heavy machinery and equipment of the type which it is intended to manufacture in Guayana constitutes one of the most advanced states in the development of the metal-transforming sector, besides which, because of the constructional complexities and responsibilities it involves, it is not a suitable activity for the training of manpower, especially in the case of Guayana, where such training would have to be given almost in its entirety and from the very start. Lastly, another aspect of this project which should be subjected to a more careful check-up is that relating to the economies of scale which would be achieved, inasmuch as the equipment concerned is of the large and heavy type which is usually made on a unit basis, each piece virtually representing a new project, on account of the modifications that are generally requested by the consumers to suit their working requirements and procedures and also because of the technical innovations which are constantly being introduced in such machinery.

The foregoing considerations give some idea of the tremendous gap between the existing industry and the demands implicit in the Guayana programme - a gap that will have to be narrowed if the project in question is to materialize. In this connexion, the import substitution programme

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suggested in the present study plays an important role, and constitutes a basis for technical improvements and for the initial phases of manpower training. Nevertheless, other stages will have to be traversed before the final objectives embodied in the Guayana industrial complex can be reached. To prevent the execution of this project from being held up - if in the course of its revision no situations emerge that might cast doubt on the practicability of the targets originally established -, the manufacture of some of the products included in the prospective manufacturing lines of the Guayana complex should be started during the stages in question, as an integral part of the national programme for the development of the metal-transforming sector. Special consideration should be given to the production of equipment and accessories for the petroleum industry. Owing to the exceptional conditions and dimensions of this industry in Venezuela, the metal-transforming sector would do well to undertake the manufacture of products to meet its needs, particularly as many of them are common to other industrial activities, such as the petrochemical industry. The wide variety of products used in this activity, ranging from the simplest - such as flanges and connexions - to the most complex - such as pumps, compressors, etc. -, makes it possible to graduate the programming of production in accordance with the progress made in technology and in the training of skilled workers. Lastly, this is an activity for whose products, even in the case of those entailing the simplest manufacturing processes, intra-regional export prospects might be very promising, so that steps could be taken to negotiate integration agreements with other Latin American countries. The most attractive feature of the manufacture of equipment for the petroleum industry undoubtedly consists in the fact that the internal market is in itself large enough to sustain an efficient domestic industry, and therefore, reliance upon external markets would not be necessary.

Another activity which would be worth careful study in the light of this criterion, with a view to its incorporation in Venezuela's plans for the metal-transforming industries, is the motor-vehicle industry, especially as regards the manufacture of parts for vehicles. According to estimates, in 1964, Venezuela's motor-vehicle inventory consisted of about 430,000 units, and the number comprised in assembly programmes probably exceeded 40,000 units. Although these figures - especially those relating to assembly work - are not high enough to be described as optimum in countries where the manufacture of motor-vehicles is traditional, they may be regarded as satisfactory starting-points for the manufacture of specific parts and spare parts, at reasonable price levels. Apart from the fact that domestic manufacture of spare parts for the maintenance of the inventory might come to constitute a significant import substitution item, and might at the same time open up new opportunities for employment and for obtaining technical know-how, it would facilitate the establishment of a programme for the manufacture of motor-vehicles, with the corresponding targets for the progressive increase of their domestically-manufactured components. Once this activity had been developed for the home market, it might secure a footing in adjacent countries'

/markets and

markets and in those of other Latin American countries where the size of the motor-vehicle inventories would not be equally favourable for the establishment of similar industries, or even where domestic manufacture already exists, in view of the wide variety of models composing each country's motor-vehicle inventory.

To sum up, Venezuela's integration prospects in respect of the metal-transforming industry are closely linked to the formulation of a national development plan for the sector, envisaging, in an initial phase, the rapid improvement of the industry's present technological status and the intensive training of skilled labour at all levels. During this stage, the manufacture of simpler products of the metal-transforming activities should be included and initiated. These products would be those which, as pointed out above, not only enjoy significant export prospects but can also rely upon an internal market broad enough to sustain an efficient domestic industry. Over the longer term, when this stage of development had been left behind, consideration should be given to the manufacture of the heavy equipment contemplated in the case of the Guayana complex, if this seems advisable in the light of the revision and verification of the data and the practical conditions for the execution of the project.

Annex 1
VENEZUELA: IMPORTS AND ESTIMATED SUBSTITUTION POSSIBILITIES

(Values in thousands of bolívares)

Group	Venezuelan tariff schedule number	Description	Imports recorded in 1962		Probable substitution		Classification by activity
			Tons	Value	Percentage in terms of weight	Tons Value	
35	-	<u>Group 35 (ISIC)</u>	<u>139 660</u>	<u>338 001</u>	<u>29.4</u>	<u>41 104</u>	<u>140 289</u>
35.A	-	<u>Manufacture of metal containers</u>	<u>68 545</u>	<u>65 176</u>	<u>13.0</u>	<u>8 250</u>	<u>17 194</u>
	681-0701-1/2	Printed tinplate, lithographed or painted	7 215	9 120	60	4 328	5 472
	699-2106-2	Tin cans, n.e.s., whether or not painted	2 430	7 162	80	1 344	5 730
	699-2906-1	Miscellaneous metal covers	1 148	5 735	80	916	4 588
	681-0701-9	Tinplate, n.e.s.	57 716	49 017	3	1 731	1 290
	699-2912-3A	Lithographed tinplate	36	142	80	29	114
35.B	-	<u>Manufacture of hand tools, hammers, etc.</u>	<u>12 088</u>	<u>101 755</u>	<u>22.4</u>	<u>4 764</u>	<u>38 148</u>
	699-1201-1/2	Machetes and agricultural tools, n.e.s.	1 423	4 128	15	213	619
	699-1202	Hand tools for artisan industry	2 100	17 625	15	315	2 644
	699-1203-3 y 5	Axes, hatchets and other hand tools, n.e.s.	238	1 912	15	36	287
	699-1203-1/21	Tin-openers, corkscrews, ice-picks, curling-irons, nutcrackers, etc.	203	925	30	61	277
	699-1704-4	Paper-knives and pencil sharpeners	22	298	30	7	89
	699-1801-1/7	Hardware locks, padlocks, castors for furniture and doors	2 050	10 651	30	615	3 195
	699-1802-1/5	Copper and copper alloy locks, castors for furniture, etc.	260	3 798	40	104	1 519
	699-1803-1/5	Aluminium and aluminium alloy locks, castors, etc.	110	1 311	40	44	524
	699-1804-1/5E	White metal and base metal products, n.e.s.	33	370	40	13	148
	699-2906-2/10	Capasules or caps, tinned, galvanized of lead, etc.	724	2 401	80	579	1 921
	699-2908-1/7	Statues and other ornaments of base metal, copper, etc.	19	212	100	19	212
	699-2912-1/8	Plates with copper, nickel, tin and other metals	90	431	100	90	431
	699-2916-1/7	Miscellaneous fastenings for leather goods	345	4 859	80	276	3 887
	699-2929-10A	Copper crucifixes and medals, trophies	16	332	-	-	-

Annex I (cont. 1)

Group	Venezuelan tariff schedule number	Description	Imports recorded in 1962		Probable substitution		Classification by activity	
			Tons	Value	Percentage in terms of weight	Tons		Value
	721-1907	Plugs, switches, sockets, and other electrical accessories, n.e.s.	996	8 894	50	498	4 447	IV
	721-1909	Parts and accessories, n.e.s.	159	2 309	10	16	231	IV
	812-0306-1A/5	Other sanitary articles, n.e.s., and accessories therefor	186	1 550	10	19	155	IV, V
	812-0307	Appliances and instruments for unstopping sanitary fixtures	19	69	-	-	-	-
	691-0202	Side-arms for military use	86	4 698	-	-	-	-
	699-1203-4	Knives with cutting blades	7	213	20	1	43	-
	699-1601-A/B	Knives, forks and spoons, silver-plated or gilt	20	604	-	-	-	-
	699-1602	Knives, forks and spoons of iron or steel	314	2 812	25	88	703	IV
	699-1701-1/3	Cutlery of all kinds, penknives, razors, etc.	173	2 281	-	-	-	-
	699-1702-2/3	Razors and razor-blades	147	5 952	-	-	-	-
	699-1703-1/3	Scissors of all kinds	93	1 416	20	19	283	II
	699-1704-1/7C	Other cutlery and accessories, with case	56	1 240	20	11	248	IV
	716-1501-2/9	Cocks and valves of base metal	1 804	17 109	80	1 443	13 687	V
	812-0305-1/4	Taps and cocks of base metal	347	3 136	80	278	2 509	V
	699-1603-4/5	Table-knives of alloy, pewter, etc.	48	219	40	19	88	IV
35.0	-	Manufacture of metal structures, welded	10 836	30 912	54.7	5 923	16 146	-
3531	699-0102	Columns, pillars, towers and posts of iron or steel	362	1 149	70	254	805	VI
	699-0103	Iron bridges or bridge-sections	129	243	50	65	122	VI
	699-0104-3	Girders, beams and structural shapes whether or not assembled	4 692	9 542	80	3 474	7 534	VI
	699-2101	Metal silos	110	291	100	110	291	VI
	699-2102-1B/c	Spherical steel tanks and receptacles, weighing over 100 kg	604	1 089	100	604	1 089	VI
	711-0101/4	Boilers for agricultural use, n.e.s., and spare parts and accessories therefor	1 168	7 177	90	350	2 153	VI
	711-0109	Economizers, reheaters, condensers, etc.	105	1 022	50	53	511	VI
	716-1324-2/4	Retorts, stills, industrial ovens and filters	2 170	7 076	90	651	2 123	VI
	811-0102-2	Prefabricated steel buildings	43	102	80	34	82	VI
	699-0101-1/3	Metal doors and windows	79	352	80	63	282	VI
	699-0202/3	Columns, pillars and towers of aluminium and other metals except steel	27	108	60	16	65	VI

Annex I (Cont. 2)

Group	Venezuelan tariff schedule number	Description	Imports recorded in 1962				Probable substitution		Classification by activity
			Tons	Value	Percentage in terms of weight	Tons	Value		
								Value	
35.D	699-2102-1/9	Small tanks and receptacles, nickel-plated, enamelled, etc.	241	677	80	1/3	542	VII	
	699-2920-5	Posts	923	616	-	-	-	-	
	716-1302	Gas and acetylene gas generators and purifiers	52	607	20	10	121	VI	
	716-1303	Autoclaves or sterilizers	47	317	30	14	95	VII	
	811-0103-1/2	Prefabricated buildings, doors and windows of aluminium	15	175	80	12	140	VI	
	812-0101	Water heaters	63	318	60	20	191	VII, V	
	812-0103/4	Central heating radiators and apparatus	6	51	-	-	-	-	
		Electro-plating, engraving, <u>bi-quel-plating</u> , etc.	2 207	4 091	-	-	-	-	
		Wire and rods for galvanizing	1 842	1 597	-	-	-	-	
		Gutters, coated, silver plated or gilt	1 230	2 133	-	-	-	-	
35.E	682-0201	Copper bars, rods and strip, silver-plated, etc.	42	125	-	-	-	-	
	684-0201	Aluminium foil, silver-plated or gilt	93	296	-	-	-	-	
		Manufacture of wire products	15 849	24 942	24.4	3 860	7 043	-	
	699-0701-1/3	Steel nails, staples for fencing, wire nails and insulated staples	3 960	3 320	60	2 376	1 992	III	
	699-0702-1/4	Nails, staples, etc. of other base metals	118	963	50	59	482	III	
	699-0802-1/4	Pins, safety-pins, hairpins, etc.	314	2 090	50	157	1 045	III	
	699-0301/2	Miscellaneous steel wire articles, whether or not covered	3 493	6 406	10	349	641	III	
	699-0401/4	Wire articles of non-ferrous metals	528	4 625	30	158	1 387	III	
	699-0501	Barbed wire	5 680	3 607	-	-	-	III	
	35.F	699-0502/3	Wire screening and mesh	1 467	2 777	50	734	1 388	III
699-0601/2		Wire-netting of non-ferrous metals	269	1 076	10	27	108	III	
699-2901-1		Bed-springs, upholstery springs, and others, n.e.s.	20	78	-	-	-	-	
		Manufacture metal products, n.e.s.	30 135	111 125	58.4	17 607	61 758	-	
699-1001/4		Strong boxes, strong-room doors and accessories therefor	127	700	-	-	-	VII, V	
699-2103-1/9		Metal drums and tanks, with a capacity of up to 500 litres	1 218	2 505	50	609	1 252	VII	
699-2104-1/9		Pressure vessels	173	564	-	-	-	-	
699-2105-1/9		Tubes of lead, tin, aluminium, etc.	97	858	-	-	-	-	
699-2106-1/9		Boxes, casks and other containers of metal except tinplate	177	784	60	106	470	VII	
699-2201-1/9		Cookers, ovens, stoves and water heaters	4 391	19 551	70	3 274	13 486	VII, V	
699-2202/9	Cooking rings and plates, small ovens, toasters, spares and accessories thereof, n.e.s.	601	2 874	60	341	1 724	VII, V		

Annex I (Cont. 3)

Venezuelan tariff Group schedule number	Description	Imports recorded in 1962		Probable substitution in terms of weight		Classification by activity	
		Tons	Value	Tons	Value		
716-1312-1	Industrial bread and pastry-making ovens	775	2 099	50	398	1 050	IX, VI
812-0301	Iron sinks wash-stands, bathtubs, etc., enamelled, or vitreous-enamelled	1 057	3 106	70	740	2 174	
812-0302/4	Sinks, wash-stands, bathtubs, etc., not enamelled, and accessories therefor, n.e.s.	282	1 786	70	197	1 250	
699-1301/2	Cast iron kitchenware, enamelled, n.e.s.	429	1 370				
699-1302-2A/G	Ferrous metal tableware	607	1 521				
699-1401-1	Aluminium kitchenware	687	3 777	70	1 480	5 312	VII, V
699-1401-2A/D	Aluminium tableware	33	282				
699-1501/4	Tableware and household utensils of other metals	43	685				
841-1103-1	Casks of base metal	17	190				
699-2920-17/18	Metal wall furniture and base metal coffins	63	462				
821-0202-1	Upholstered metal furniture	87	546	90	185	1 233	VII, V
821-0203-1/2	Ice-boxes, barbers' chairs	35	159				
821-0203-3/4	Bedsteads, steel or aluminium	21	203				
821-0203-5	Ironing boards and tables	158	499	90	142	449	VII, V
821-0203-9	Other metal furniture, n.e.s.	275	1 731	90	247	1 558	VII, V
699-0701-1D/E	Screws, nuts, washers and other similar articles, n.e.s.	2 819	6 741	50	1 410	3 371	V
699-1804-6	Swivel screws for revolving chairs	19	112	100	19	112	V
691-0201-1/3	Air guns, rifles, etc., other than for war	37	1 812	-	-	-	-
699-2901-2/4	Steel springs for railway coaches and vehicles, n.e.s. and springs n.e.s.	1 369	3 087	90	1 232	2 778	II
681-1301	Conduits or gutters of galvanized sheets	636	1 345	100	636	1 345	VII
681-1304	Iron or steel fittings for tubes and pipes	3 925	12 420	80	3 240	9 896	V, II
682-0205-2	Copper and copper alloy articles, n.e.s.	38	332	-	-	-	-
684-0205-2	Accessories for tubes and pipes, n.e.s.	647	2 009	60	388	1 205	V
685-0203	Wrought metal tubes and pipes, n.e.s.	105	173	20	21	35	V
686-0203-2	Zinc and zinc alloy articles, n.e.s.	170	325	-	-	-	-
689-0202-2	Wrought non-ferrous base metals, n.e.s.	17	115	-	-	-	-
699-0104-4	Ornaments, n.e.s.	21	80	-	-	-	-
699-0202-2	Aluminium ornaments, n.e.s.	14	105	-	-	-	-
699-0801	Hand sewing needles and other similar articles, n.e.s.	58	383	-	-	-	-
699-1302/3	Tableware and miscellaneous household utensils, n.e.s.	2 225	4 846	-	-	-	-

Annex I (Cont. 4)

Venezuelan tariff schedule number	Description	Imports recorded in 1962		Probable substitution		Classification by activity	
		Tons	Value	Percentage in terms of weight	Tons		Value
699-2902-1/9	Metal chains, and parts and accessories therefor (except for ships)	595	2 823	50	288	1 412	II
699-2903-1/6	Floating metal structures other than vessels	73	235	-	-	-	-
699-2907-1/3	Flexible tubes and pipes	95	776	-	-	-	-
699-2909/11	Beads, photograph frames, bells, etc.	55	335	20	11	67	IV
699-2913-1/3	Electrodes, welding of miscellaneous metals	2 789	5 183	50	1 394	2 592	III
699-2914	Animal traps	58	89	-	-	-	-
699-2915	Steel wool	7	105	-	-	-	-
699-2920-1/19	Other base metal manufactures, n.e.s.	1 108	7 572	30	332	2 272	X
716-1305-1/9	Spraying appliances (sprayers, fire-extinguishers, etc.)	810	5 755	80	648	4 604	VII, V
716-1313	Machinery for manufacturing honeycomb grating	443	2 110	10	44	211	VIII
716-1318	Moulds, n.e.s., for miscellaneous materials	322	2 969	40	129	1 188	IX
716-1324-5/6	Fans, weighing over 25 kg	83	682	30	25	205	X
812-0401-11/15	Screens of iron, steel or other metals	82	811	30	25	243	X
812-0403	Electric hand lamps	135	1 383	20	27	276	IV
831-0102-12D/F	Metal cases	30	160	30	9	48	X
36.		72 077	526 039	24.7	19 544	140 832	
36.A	<u>Treators and spare parts therefor</u>	2 880	49 358	7.1	700	3 882	
713-0101-1	Complete agricultural tractors, weighing less than 4 tons net	5 095	18 121	5	254	906	VII, IX
713-0101-2	Tractors, n.e.s.	644	2 943	5	32	147	II, VII
713-0109	Spare parts and accessories, n.e.s.	4 141	28 294	10	434	2 829	II, VIII
36.B	<u>Agricultural machinery</u>	6 322	26 370	33.0	2 114	8 070	
711-0104	Spare parts, n.e.s., for boilers used on farms	354	2 118	10	35	211	VI
712-0101	Ploughs	996	2 427	30	298	728	II
712-0102	Cultivators	129	538	20	26	107	II, VI, IX
712-0103	Harrows	1 492	3 562	50	736	1 781	II, VI, IX
712-0104	Seed distributors	214	968	30	64	290	II, VI, IX
712-0105	Other machines and mechanical implements, n.e.s.	303	986	40	121	394	II, VI, IX
712-0109	Spare parts and accessories, n.e.s.	380	2 117	40	152	847	VI, IX
712-0201-1	Hay chopping machines	150	677	70	105	474	VI, IX

Annex I (Cont. 5)

Venezuelan tariff Group schedule number	Description	Imports recorded in 1962				Probable substitution		Classification by activity
		Tons	Value in terms of weight	Percentage	Tons	Value		
							Tons	
712-0201-9	Other machines and implements	316	1 637	40	126	655	VI, XI	
712-0202	Threshing and shelling machines	204	963	30	61	289	II, IV, IX	
712-0301	Milking machines	325	1 198	10	32	119	VIII	
712-0302	Green separators for dairy farms	15	160	10	1	16	VIII	
712-0303	Other machines, n.e.s., for dairy farms	141	1 794	20	28	359	VIII, VII	
712-0309	Spare parts and accessories, n.e.s.	30	485	30	9	145	X	
712-0901	Poultry incubators and breeding cages	88	602	40	35	241	X	
712-0902	Bee-keeping appliances	36	116	-	-	-	-	
712-0203	Machinery and appliances for sorting or grading cereals, fruit, eggs and other agricultural commodities	36	354	-	-	-	-	
712-0209	Spare parts and accessories, n.e.s.	150	1 056	30	45	316	X	
712-09-03-9	Other machinery and appliances, n.e.s., for agriculture, poultry-keeping, etc.	821	2 884	20	164	577	X	
712-0909	Parts, spare parts and accessories, n.e.s.	219	1 736	30	66	521	X	
36.C	<u>Machinery for working metals</u>	2 261	50 171	51.0	461	2 505		
715-0101	Machine-tools for working metals	2 470	9 515	5	123	475	VIII	
715-0109	Spare parts and accessories	243	1 957	5	12	97	VIII	
715-0201	Foundry machines	860	2 797	5	43	139	IX	
716-1313	Machines for manufacturing honey comb grating	443	2 110	5	22	105	IX	
715-0202	Metal working machinery, n.e.s.	1 572	15 384	5	78	769	IX	
715-0209	Spare parts and accessories	3 673	18 408	5	183	920	VII, IX	
36.D	<u>Machinery for mining, civil construction and basic industries, non-electrical</u>	10 222	95 611	12.8	1 308	11 309		
716-0301	Mechanically propelled road rollers	17	135	5	1	6	IX	
716-0302-1	Lifts and hoists for mining	10	725	5	-	36	IX	
716-0302-9	Lifts and hoists for other uses	805	3 531	5	40	176	IX	
716-0305	Other road construction and mining machinery, n.e.s.	233	1 989	5	11	99	IX	
716-0309	Spare parts and accessories, n.e.s.	2 339	31 112	5	117	1 555	IX	
716-0602	Filters	8	103	-	-	-	-	
716-0603	Machinery for the paper industry	564	5 382	10	56	538	IX	

Annex I (Cont. 6)

Annex I (Cont. 6)

Venezuelan tariff Group schedule number	Description	Imports recorded in 1962			Probable substitution			Classifica- tion by activity
		Tons	Value	Percentage in terms of weight	Tons	Value	Value	
716-0609	Spare parts and accessories, n.e.s.	152	2 616	10	15	261	IX	
716-0304-1	Well-drilling machinery	1 492	15 844	20	298	3 168	IX	
716-1501-1	Pressure regulating valves for the petroleum industry	672	6 371	30	201	1 911	IX	
711-0501	Diesel and semi-diesel engines	1 090	9 080	5	54	454	VIII	
711-0504	Other internal combustion engines, other than for vehicles	199	1 235	5	10	61	VIII	
711-0303	Steam turbines	50	914	-	-	-	-	
711-0304	Parts and spare parts, n.e.s.	60	1 352	-	-	-	-	
716-0303	Miscellaneous lifting machinery	1 973	11 681	20	394	2 336	IX	
716-0304-9	Earth excavating, levelling or boring machinery, fixed or mobile	558	3 541	20	111	708	IX	
36.E	<u>Pumps for liquids and gases</u>	6 537	53 005	51.6	3 382	24 852		
716-0101	Special pumps for the sale of liquid fuels	341	3 904	50	170	1 952	VIII	
716-0102	Water pumps and pumps for other liquids, n.e.s.	3 320	16 831	60	2 090	10 000	VIII, IX	
716-0109	Spare parts and accessories, n.e.s.	1 403	16 135	70	982	11 294	VIII, IX	
716-1304-1	Air or gas pumps and compressors, weighing up to 15 kg	93	591	10	9	59	VIII	
716-1304-2	Air or gas pumps and compressors, weighing over 15 kg	1 380	15 544	10	138	1 554	IX	
36.F	<u>Wood-working machinery</u>	552	4 610	20.0	109	222		
716-0401	Machine-tools for working wood, bone, etc.	514	4 140	20	102	828	IX	
716-0409	Spare parts and accessories, n.e.s.	38	470	20	7	94	IX	
36.G	<u>Textile machinery</u>	6 444	54 387	43.6	2 807	23 450		
716-0801	Shuttles, spindles, bobbins, etc.	166	2 272	40	66	909	VIII	
716-0802	Machines, etc. for combing, carding and spinning textile fibres	1 676	12 639	60	1 096	7 583	VIII, IX	
716-0803	Looms of all types	1 175	7 815	30	352	2 344	VIII	
716-0804-1	Machines for washing, bleaching, dyeing, cleaning, etc.	312	2 933	40	125	1 173	IX, VII	
716-0804-2	Other machines, n.e.s.	338	3 096	30	101	929	X	
716-0804-3	Spare parts and accessories, n.e.s.	430	6 215	40	172	2 486	X	
716-1101-1	Needles	10	509	-	-	-	-	
716-1101-2	Spare parts and accessories for sewing-machines of all types, n.e.s.	178	2 772	30	53	831	VIII	
716-1101-9	Sewing-machines	779	4 928	50	389	2 464	VIII	
716-1101-9A	Sewing-machines without specially designed furniture	653	6 979	50	326	3 454	VIII	

Annex I (Cont. 7)

Group	Venezuelan tariff schedule number	Description	Imports recorded in 1962				Probable substitution		Classification by activity
			Tons	Value	Percentage in terms of weight	Tons	Value		
								Tons	
	716-1101-9B	Sewing-machines with specially designed furniture	726	4 259	30	217	1 277	VIII	
	716-1101-9C	Sewing-machines for materials other than fabrics	1	40	-	-	-	-	
36.H		<u>Office machines</u>	<u>832</u>	<u>25 644</u>	<u>20</u>	<u>166</u>	<u>5 129</u>		
	714-0101	Typewriters, printing or stamping machines	233	5 013)					
	714-0109	Spare parts and accessories, n.e.s.	52	669)					
	714-0203	Calculating or adding machines	104	5 157)					
	714-0202	Accounting or statistical machines, etc.	108	6 775)	20	166	5 129	VIII	
	714-0204	Cash registers and sales registering machines	36	842)					
	714-0205	Mimeographs, hectographs and similar duplicating machines	76	1 326)					
	714-0206-1/2	Stapling machines, coin-counting machines, numbering and dating machines, etc.	106	2 161)					
	714-0209	Spare parts and accessories, n.e.s.	117	3 701)					
36.I		<u>Other machinery, appliances and instruments</u>	<u>28 950</u>	<u>236 883</u>	<u>29.3</u>	<u>8 490</u>	<u>60 707</u>		
	716-1310-1/5	Weighing machines or machines for measuring capacity	495	2 336)				VIII	
	716-1310-6/7	Automatic coin-operated weighing machines, etc.	2	13)	40	177	980		
	716-1310-8/19	Weights for balances, of iron and other metals	4	99)					
	716-1202-3	Refrigerating equipment, weighing up to 500 kg	181	1 393	30	54	417	VIII	
	716-1202-4	Electrical milk cooling machines	62	792	-	-	-		
	716-1202-9	Refrigerating equipment, weighing over 500 kg	174	1 221	-	-	-	VIII	
	716-1203	Machinery for making ice or ice-cream	412	2 313	20	82	462	IX	
	716-1204	Tubes for refrigeration	84	422	40	33	169	IV	
	716-1209	Spare parts and accessories, n.e.s.	871	7 591	20	174	1 518	X	
	716-1202-1	Refrigerating equipment, weighing up to 100 kg	86	1 056	20	17	211	VIII	
	716-1202-2	Refrigerating equipment, weighing up to 50 kg	371	2 917	20	74	583	IX	
	716-1201-1	Air-conditioning equipment for milking sheds	81	606	40	32	242	VIII	
	716-1201-2	Air-conditioning equipment for granaries	17	122	-	-	-		
	716-1201-3	Air-conditioning equipment weighing up to 15 kg	156	1 462	50	78	731	VIII	
	716-1201-4	Air-conditioning equipment, weighing over 15 kg	1 653	14 995	50	826	7 497	VIII	
	721-1202	Washing-machines, driers or pressing-machines	2 451	13 727	30	735	4 118	VIII, VII	
	699-1302-2H	Hand mills and mechanical beaters, non-electric	52	278	60	31	166	VIII	

Annex I (Cont. 8)

Annex 1 (Cont. 8)

Venezuelan tariff Group schedule number	Description	Imports recorded in 1962		Probable substitution		Classification by activity	
		Tons	Value	Percentage in terms of weight	Tons		Value
699-1402-1/2A	Household utensils, silver-plated or gilt	2	22				
699-1402-3	Household utensils, n.e.s.	67	503				
699-1501-1/2	Hand beaters and other appliances, n.e.s.	20	373				
699-1503-5	Hand beaters	16	56	20	59	VIII	
699-1702-1/9	Razors, spare parts and accessories therefor, n.e.s.	21	505				
699-1704-5/9	Hair clippers, spare parts and accessories therefor, n.e.s.	8	261				
716-1301-2	Coffee mills, juice extractors, etc., weighing up to 15 kg	82	621				
716-1301-3	Coffee mills and juice extractors, weighing over 15 kg	79	760				
716-0701	Lanotypes, printing presses, guillotine cutters, and other printing machinery	445	4 393	5	22	VIII	
716-0702	Book-binding machinery	49	738	5	2	VIII	
716-0703	Accessories for printing and engraving	353	3 463	5	17	VIII	
716-0709	Spare parts, n.e.s.	41	817	5	2	VIII	
861-0905-1	Calipers, tapes, measures, compasses, etc.	106	2 240				
711-0901	Windmills	119	432	100	119	VIII	
711-0902	Water turbines, water wheels, and other hydraulic engines	6	55	100	6	IX	
711-0903-1/9	Gas turbines, hot air engines and other non-electric power generating machinery, n.e.s.	132	953				
711-0904	Spare parts and accessories, n.e.s.	153	12 210	10	15	X	
712-0903-1	Hand crushing and grinding mills for grain, fruit, etc.	9	44	100	9	VIII	
716-0501	Hand tools	43	920	40	17	V, IV	
716-1301-1	Meat or maize grinders	1 106	2 526	80	884	VIII	
716-1303	Liquid elevators of bucket, screw and similar kinds	36	181	100	36	VIII	
716-1306-1	Burners for agricultural uses	16	78	100	16	V	
716-1306-9	Burners for other uses	66	443	50	33	V	
716-1307-1/3	Centrifuges for sugar refining and others, n.e.s.	18	293				
716-1308	Machinery for cleaning, drying, filling, labelling, closing, etc.	534	11 413	20	106	VIII	
716-1309	Dishwashing and drying machines	16	308				
716-1311-1	Maize grinders	234	2 652	80	187	IX	
716-1311-9	Machinery for milling and working cereals	636	5 155	60	381	IX	
716-1312-9	Bread and pastry-making machinery	918	8 664	40	367	IX	
716-1314	Tanning machinery	223	1 182	30	70	IX	

Annex I (Cont. 9)

Group	Venezuelan tariff schedule number	Description	Imports records in 1962			Probable substitution			Classification by activity
			Tons	Value	Percentage in terms of weight	Tons	Value	Classification by activity	
	716-1315	Machinery for saddlery, shoe-making and other leather work	421	3 225	30	126	987	VIII	
	716-1316	Machinery for sorting, screening, washing, crushing, etc.	378	3 020	30	113	906	VIII	
	716-1317	Automatic vending machines, not being games of skill or chance	25	280	-	-	-	-	
	716-1320	Machines for making cigarettes	84	1 279	20	16	256	VIII	
	716-1321-1	Presses for extracting oil	34	276	80	27	221	IX	
	716-1321-9	Machines, n.e.s., for extracting oil and manufacturing candles, soaps, etc.	176	1 538	80	141	1 231	IX	
	716-1322	Machinery for making pills, wafer capsules and suppositories for pharmaceutical and laboratory use	88	2 021	90	26	606	VIII	
	716-1324-9A	Machinery and mechanical utensils (non-electric), weighing up to 15 kg	487	4 821	20	97	964	VIII,V	
	716-1324-9B	Machinery and mechanical utensils (non-electric), weighing over 15 kg	6 458	44 453	20	1 441	8 839	VIII,IX,V	
	716-1325	Spare parts and accessories, n.e.s.	5 191	33 923	20	1 188	6 733	X	
	716-1401	Dice and balls	77	399	-	-	-	-	
	716-1402	Bearings and spare parts, n.e.s.	793	12 195	10	79	1 219	VIII	
	716-1502-1	Axles for machinery	796	929	20	159	185	IX	
	716-1502-2	Shafts, gears and other transmission parts, n.e.s.	428	2 515	40	171	1 006	IX,VIII	
	716-1503	Gearsets, made of two or more materials	288	2 856	20	57	571	X	
	716-1504-1	Carbonado (black diamond) set in parts, spare parts or accessories	1	535	-	-	-	-	
	716-1504-2	Other spare parts, n.e.s., for non-electric machinery	558	8 756	30	167	2 627	X	
	721-0101-1	Windmills for electric generators	21	258	100	21	258	VIII,VI	
37		Group 37 (ISIC)	27 572	275 794	21.4	5 912	52 378		
37.A		Electric generators and transformers	5 318	40 374	20.9	1 109	7 413		
	721-0101-2	Generators or dynamos, weighing up to 10 kg	4	26	60	2	15	VIII	
	721-0101-3	Generators or dynamos, weighing up to 100 kg	3	82	30	1	24	IX	
	721-0103-1	Apparatus for converting electric current, weighing up to 10 kg	47	442	80	38	353	VII	
	721-0103-2	Apparatus for converting electric current, weighing up to 100 kg	36	506	60	21	303	VII	
	721-0101-4	Generators or dynamos, weighing up to 1 000 kg	19	201	10	2	20	IX	
	721-0101-5	Generators or dynamos, weighing over 1 000 kg	1 269	8 632	-	-	-	-	
	721-0103-3	Apparatus for converting electric current, weighing up to 1 000 kg	98	713	60	58	428	VII	
	721-0103-9	Apparatus for converting electric current, weighing over 1 000 kg	130	670	20	26	134	VII	
	721-0803-3	Transformers for electric balls	-	1	100	-	-	-	

Annex I (Cont. 10)

Venezuelan tariff Group schedule number	Description	Imports records in 1962		Probable substitution		Classifica- tion by activity	
		Tons	Value	Percentage in terms of weight	Tons		Value
721-0104-1	Electric transformers, weighing up to 10 kg	686	3 722	70	480	2 605	VII
721-0104-2	Electric transformers, weighing up to 100 kg	135	938	50	68	469	VII
721-0104-3	Electric transformers, weighing up to 1 000 kg	624	3 087	30	187	926	VII
721-0104-9	Electric transformers, weighing over 1 000 kg	1 002	6 155	10	100	615	VII
721-0101-9	Electric generating plants	1 265	15 199	10	126	1 520	IX
37.B -	<u>Electric energy transmission and distribution apparatus and equipment</u>	3 895	28 537	46.3	1 804	10 379	
721-0105-1	Switchboards and distributors	563	6 261	20	112	1 252	VII, V, IV
721-0105-9	Apparatus for operating switches	649	8 367	20	129	1 673	V, IV
721-0106	Parts, spare parts and accessories, n.e.s.	180	3 216	40	72	1 286	X
721-0805	Rheostats and other apparatus for controlling electric power, n.e.s.	6	216	20	1	43	X
721-0806	Spare parts and accessories, n.e.s.	18	402	20	3	80	X
721-13	Cable and wire for conducting electricity	2 479	10 075	60	1 487	6 045	III
37.C -	<u>Electric motors</u>	1 064	8 237	20.0	212	1 647	
721-0102	Electric motors	1 064	8 237	20	212	1 647	VIII
37.D -	<u>Apparatus for radio, television and communications, and parts therefor</u>	4 588	20 461	10.7	493	2 763	
721-0401-1	Radio-telegraphic and radiotelephonic transmitters	100	4 438	-	-	-	-
721-0401-2	Television transmitters	9	300	-	-	-	-
721-0401-3	Radiotelegraphic and radiotelephonic receivers, weighing up to 10 kg	951	26 286	20	190	5 257	IV, V
721-0401-4	Radiotelegraphic and radiotelephonic receivers, weighing up to 25 kg	328	1 633	20	65	326	IV, V
721-0401-5/6	Radiotelegraphic and radiotelephonic receivers, weighing over 25 kg	8	163	-	-	-	-
721-0401-7	Television receivers weighing up to 50 kg	1 221	20 539	15	183	3 080	X
721-0401-8/9	Television receivers, weighing over 50 kg	122	439	-	-	-	-

Annex I (Cont. 11)

Venezuelan tariff group schedule number	Description	Imports records in 1962		Probable substitution		Classification by activity
		Tons	Value	Percentage in terms of weight	Tons	
721-0402-1	Tubes and valves for transmitting apparatus	7	1 025)			
721-0402-2	Tubes and valves for radiotelegraphy and radiotelephony	150	4 070)			
721-0402-9	Tubes and valves for television apparatus	261	2 300)			
721-0403-1	Microphones	9	373)			
721-0403-9	Loudspeakers and amplifiers	127	2 419)			
721-0404-1	Headphones	1	46)	3	55	1 100 X
721-0404-2	Condensers, filters and other accessories and spare parts for radio apparatus	435	10 154)			
721-0404-9	Condensers, filters and other accessories and spare parts for television apparatus	697	8 705)			
721-0405-1	Transmitters	31	1 687)			
721-0405-2/5	Receivers	49	2 024)			
721-0409	Spare parts and accessories, n.e.s., for radio, television, etc.	82	3 860)			
37.E -	<u>Electrical equipment for vehicles</u>	<u>1 610</u>	<u>20 480</u>	<u>28.5</u>	<u>632</u>	<u>8 097</u>
721-0701	Sparkling plugs	209	3 739	70	146	2 617 X
721-0702	Electric horns	82	768	100	82	768 IV,V
721-0703	Electrical equipment, n.e.s., for aircraft	2	265	-	-	- IV,V
721-0709	Electrical apparatus and accessories for vehicles and internal combustion engines	1 347	15 708	30	404	4 712 IV,V
37.F -	<u>Electric primary cells, batteries, accumulators (storage-batteries) and lamps</u>	<u>6 166</u>	<u>30 631</u>	<u>-</u>	<u>-</u>	<u>-</u>
721-0200	Electric primary cells and batteries, dry	1 824	4 799			
721-0201	Primary cells and batteries, weighing up to 200 grammes	345	1 459		a/	
721-0202	Primary cells and batteries, weighing over 200 grammes	42	246			
721-1902-1	Electric accumulators and spare plates therefor	190	972			
721-1902-9	Electric accumulators and spare parts therefor	1 367	3 637			
721-0301-1	Sealed beam lamps for vehicles	212	1 079			
721-0301-9	Electric lighting lamps and tubes, incandescent, n.e.s.	1 012	8 738			
721-0302	Fluorescent tubes	396	2 157			
721-0303	Photo flash bulbs	47	595			

Annex I (Cont. 12)

a/ Although a high proportion of imports of these items can be replaced, it has not been taken into account in the plan envisaging new enterprises, as there are plants already installed.

Venezuelan Group tariff schedule number	Description	Imports recorded in 1962		Probable substitution Classification by		
		Tons	Value	Percentage in terms of weight	Tons	Value activity
721-0304	Bulbs and tubes for ultra-violet or infra-red rays	5	83			
721-0305	Arc lamps	104	449			
812-0404-1	Electric lamps, etc.	425	4 399			
812-0404-3	Electric Christmas tree decorations	62	935			
812-0403	Electric hand lamps, primary cell or magneto	135	1 383			
37.G	<u>Gramophones and tape-recorders</u>	713	11 726	6.0	43	671
891-0101-1/4	Gramophones and record-players	431	6 311	10	43	671 X
714-0201-1	Diotaphones and other sound-recorders for office use	2	88	-	-	-
891-0103-1/4	Sound-recording apparatus	100	2 885	-	-	-
714-0201-9	Recording cylinders, belts, tape, wire, records, etc.	1	67	-	-	-
891-0201-3	Records, tape and wire, prepared or recorded	179	2 375	-	-	-
37.H	<u>Electric apparatus for household use</u>	1 593	18 187	62.1	290	2 769
721-0601	Electric iron	525	3 576	90	472	3 218 V, VIII
721-0602	Electric cooking stoves, cooking rings and plates, and heaters	182	1 093	70	127	765 V, VIII
721-0603-1	Kitchen utensils, etc., n.e.s., of base metal	63	1 026	70	44	718 IV
721-0603-9	Kitchen utensils, etc., n.e.s., of other materials	11	116	-	-	-
721-1201-1/2	Electric shavers and hair clippers	22	834	-	-	-
721-1203-1	Other domestic utensils, n.e.s., weighing up to 15 kg	553	8 028	50	276	4 014 X
721-1203-9	Other domestic utensils, n.e.s., weighing over 15 kg	237	3 514	30	71	1 054 X
37.I	<u>Machinery and apparatus for industrial use</u>	2 595	27 161	24.2	629	4 699
721-0604-1	Electric furnaces for industrial use	152	1 323	10	15	132 X
721-0604-2	Electric crucibles for industrial use	261	191	10	26	19 X
721-1204	Portable electric tools	113	2 306	10	11	239 VIII
721-1209	Parts, spare parts and accessories, n.e.s.	304	4 221	40	121	1 688 VIII
721-0604-3	Electric roasters for industrial use	8	98	-	-	-
721-0605-1	Electric autoclaves or sterilizers	49	737	60	29	442 VII, VIII
721-0605-2	Heating devices for riveting, glueing, welding and vulcanizing	78	714	50	39	357 X
721-0605-3/4	Electrothermic appliances, n.e.s., and spare parts therefor	195	2 160	20	38	432 X

Annex I (Cont. 13)

Group number	Venezuelan tariff schedule number	Description	Imports recorded in 1962		Probable substitution		Classification by activity	
			Tons	Value	Percentage in terms of weight	Tons Value		
38	721-0605	Spare parts and accessories, n.e.s.	117	1 523	20	23	304	X
	721-0607	Electrothermic accessories, n.e.s.	4	98	-	-	-	-
	721-0804-2/9	Traffic lights, beacons, alarm signals, electric railway signals and other equipment accessories, n.e.s.	50	1 496	-	-	-	-
	721-1901	Lightning-conductors of all kinds	259	391	100	259	391	IV
	721-1904	Neon signs of all kinds	25	129	100	25	129	X
	721-1905-1	Electro-magnets and permanent magnets	84	173	-	-	-	-
	721-1905-9	Electro-magnets, weighing over 15 kg	12	146	-	-	-	-
	721-1906-1	Projectors, other than for ships	35	474	5	1	23	-
	721-1906-2/3	Electrical machinery and apparatus, n.e.s.	849	11 041	5	42	552	X
38		<u>Group 38 (ISIC)</u>	<u>59 702</u>	<u>417 155</u>	<u>18.4</u>	<u>10 900</u>	<u>63 381</u>	
38.1		<u>Ship-building and repairing</u>	<u>121</u>	<u>302</u>	<u>59.4</u>	<u>61</u>	<u>152</u>	
	735-01	Combat vessels of all sizes	-	-	-	-	-	-
	699-2902-3A	Metal chains for ships	60	150	-	-	-	-
	699-2903-1A	Anchors, grapnels, etc.	61	152	100	61	152	II
38.2		<u>Manufacture and repair of railroad equipment</u>	<u>1 032</u>	<u>2 710</u>	<u>12.2</u>	<u>133</u>	<u>432</u>	
3821	731-01	Steam railway locomotives	158	723	-	-	-	-
3822	731-02	Electric railway locomotives	149	278	-	-	-	-
3823	731-03	Internal combustion railway locomotives, etc.	19	78	-	-	-	-
3824	731-04	Motorized railway and tramway cars	98	467	-	-	-	-
3825	731-0700	Parts for railway rolling stock	668	2 164	20	133	432	IX

Annex 1 (Cont. 14)

Group	Venezuelan tariff schedule number	Description	Imports recorded in 1962		Probable substitution		Classification by activity	
			Tons	Value	Percentage in terms of weight	Tons		Value
38.3		<u>Manufacture and assembly of motor vehicles</u>	52 838	360 776	14.8	7 850	51 536	
732-0101-3		Complete motor vehicles, weighing up to 1 400 kg	870	5 832				
732-0101-4		Complete motor vehicles, weighing up to 1 600 kg	470	2 756				
732-0101-5		Complete motor vehicles, weighing up to 1 700 kg	21	154				
732-0101-6		Complete motor vehicles, weighing over 1 700 kg	125	674				
732-0102-3		Complete station wagons and other similar vehicles, weighing up to 1 400 kg	1 246	8 083	20	999	7 041	V,VI
732-0102-4		Complete station wagons and other similar vehicles, weighing up to 1 600 kg	221	1 525				
732-0102-5		Complete station wagons and other similar vehicles, weighing up to 1 700 kg	18	123				
732-0102-6		Complete station wagons and other similar vehicles, weighing over 1 700 kg	501	2 800				
732-0102-10		Complete passenger cars, weighing up to 800 kg	1 519	13 255				
732-0102-11		Complete passenger cars, weighing up to 1 400 kg	4 786	32 045	20	1 450	9 701	V, VIII, IV, VII
732-0102-12		Complete passenger cars, weighing up to 1 600 kg	277	1 803				
732-0102-13		Complete passenger cars, weighing up to 1 700 kg	1 135	7 076				
732-0102-14		Complete passenger cars, weighing up to 2 000 kg	789	5 330	20	1 450	9 701	V, VIII, IV, VII
732-0102-15		Complete passenger cars, weighing over 2 000 kg	264	2 250				
732-0101-1/2		Motor vehicles for farm use, unassembled or partly assembled	24	124				
732-0102-1/2		Station wagons and other similar vehicles, unassembled or partly assembled	1 980	9 205				
732-0102-7/9		Passenger cars, racing cars and three-wheeled cars, unpainted	9 389	44 444	15	2 097	10 696	V, VIII, IV, VII
732-0401/2		Chassis of lorries, trucks and vans with engine mounted, partly or fully assembled		7				
732-0501/2		Chassis of road tractors, with engine mounted, partly or fully assembled	2 588	17 524				
732-0301-1		Complete motor buses, coaches, etc.	676	3 646				
732-0302-2		Complete lorries, light trucks, etc.	4 909	27 232	20	1 215	6 927	V, VIII, IV, VII
732-0303-1		Fire-engines and pumps	83	532				

Annex I (Cont. 15)

Group	Venezuelan tariff schedule number	Description	Imports recorded in 1962		Probable substitution		Classification by activity	
			Tons	Value	Percentage in terms of weight	Tons Value		
	732-0303-9	Road spraying lorries, refuse collectors, etc.	406	3 224)				
	732-0301-2	Motor buses, coaches, etc., unassembled and unpainted	118	613)	10	624	2 416	V, VIII, IV, VII
	732-0302-1	Partly assembled lorries, light trucks, etc.	7	48(
	732-0302-3	Lorries and light trucks, unassembled and unpainted	6 117	23 506(
	711-0509	Spare parts and accessories, n.e.s., for internal combustion engines	1 506	27 682	10	150	2 768	V, VIII
	732-0601	Motor vehicle seats	3	46	100	3	46	X
	732-0602	Motor vehicle cabs	18	110	60	11	66	VII
	732-0603	Motor vehicle bodies	15	41)				
	732-0604	Motor vehicle axles	155	894)				
	732-0605	Metal wheels for motor vehicles	439	1 340)	20	201	762	VII, II
	732-0606	Motor vehicle mudguards	200	616(
	732-0609	Supports for motor vehicles	51	390(
	732-0610	Motor vehicle bodies	142	527(
	732-0619	Chassis, without engines, chassis-frames, and other accessories, n.e.s.	10 672	109 340	10	1 067	10 934	II
	711-0502	Motors, n.e.s., for motor vehicles, n.e.s.	1 098	5 979	3	33	179	V, VIII
38.5		<u>Manufacture and repair of motorcycles and bicycles</u>	<u>2 218</u>	<u>9 887</u>	<u>52.9</u>	<u>1 154</u>	<u>4 837</u>	<u>VIII, VII</u>
	732-0201	Motor bicycles	40	185	20	8	37	VIII, VII
	732-0202	Motor tricycles and other similar vehicles	40	251	10	4	25	VIII, VII
	732-0203	Complete motorcycles	166	1 040	5	8	52	VIII, VII
	733-0101	Bicycles	1 142	4 911	60	685	2 946	VIII, VII
	733-0102	Delivery tricycles	6	29	60	3	17	VIII, VII
	733-0103	Other velocipedes and tricycles, not motorized, n.e.s.	61	210	60	36	126	VIII, VII
	733-0200	Spare parts, n.e.s., for bicycles and other non-motorized velocipedes	617	2 196	60	370	1 318	VIII, VII
	732-0204	Complete motorcycles side-cars and trailers	32	27	20	6	5	VIII, VII
	732-0209	Spare parts and accessories, n.e.s.	114	1 038	30	34	311	VIII, VII

/Annex I (Cont. 16)

Venezuelan tariff Group schedule number	Description	Imports recorded in 1962		Probable substitution		Classification by activity
		Tons	Value	Percentage in terms of weight	Tons	
38.6	<u>Assembly and repair of aircraft</u>	212	21 467	-	-	-
734-0100	Complete aeroplanes	216	11 403	-	-	-
734-0200	Dirigibles, balloons, and spare parts therefor		7	-	-	-
711-0401	Aircraft engines	162	4 270	-	-	-
711-0409	Spare parts and accessories for aircraft, n.e.s.s.	8	218	-	-	-
734-03	Spare parts for aircraft, n.e.s.s.	326	15 569	-	-	-
38.9	<u>Manufacture of transport equipment, n.e.s.s.</u>	2 781	11 013	61.2	1 702	6 424
716-0201	Industrial trucks	1 705	6 317	60	1 023	3 790 II, IX
716-0202	Axles for industrial trucks	61	223	60	36	194 IX
716-0203	Mudguards for industrial trucks	2	90	60	1	18 VII
716-0204	Wheels for industrial trucks	43	219	60	26	191 II
716-0209	Spare parts and accessories for industrial trucks	111	970	60	67	582 X
733-0901	Wheelbarrows, wheelchairs, motorized or not	29	283	20	6	56 X
716-0902-1	Freight trailers with bodies	110	542	50	55	271 II, IX
716-0902-2	Trailers, without bodies, with or without platform	34	133	50	17	66 "
716-0902-3	Trailers, fitted as living quarters	23	150	"	"	" "
716-0903-1	Hand-barrows and hand trucks	368	689	80	294	551 V
716-0903-2	Hand-barrows to spread coffee for drying and sugar trucks	13	47	80	11	37 V
716-0903-9	Carts, wagons, wagonettes and other similar non-motorized freight vehicles	108	464	90	97	447 VII, IX

Annex I (Cont. 17)

Venezuelan tariff Group schedule number	Description	Imports recorded in 1962				Probable substitution		Clasificación by activity
		Tons	Value	Percentage in terms of weight	Tons	Value		
716-0904	Carriages, calashes, sulkies and other similar non-motorized passenger carriages	"	1	"	"	"	"	
716-0905	Other non-motorized road vehicles, n.e.s.	"	17	"	"	"	"	
716-0906	Spare parts and accessories, n.e.s.	174	928	43	69	371	X	
39	<u>Group 39 (ISIC)</u>	<u>3 003</u>	<u>1 04 220</u>	<u>257</u>	<u>80</u>	<u>1 200</u>		
864-0202-5	Alarm clocks and similar mechanism	202	2 525				(IV	
861-0303	Surgical instruments, etc.	254	8 633				(IV	
891-03/09	Planes and musical instrument	173	1 574	7	80	1 200) X	
861-0905	Other apparatus for measuring, weighing, counting, etc.	499	11 714) VIII	
	Miscellaneous articles b/	1 875	79 774	"	"	"	"	
	<u>Total (groups 35, 36, 37, 38 and 39)</u>	<u>209 014</u>	<u>1 731 209</u>	<u>25.1 77</u>	<u>540</u>	<u>298 101</u>		

b/ Grouped under this head are several tariff items included in group 39, which offer no significant substitution prospects in the near future.

Annex II (Cont. 1)

Description	Annual productivity per worker	Investment per worker
V. <u>Small products and parts, primarily machined</u>	<u>50</u>	<u>30</u>
Taps, cocks and valves of base metal	55	30
Hardware, locks, padlocks, and castors for furniture	55	35
Cookers, ovens stoves and water heaters	55	30
Screws, nuts, washers and other similar products, n.e.s.	45	35
Machines and mechanical utensils, non-electric	45	30
Other products	40	25
VI. <u>Boiler shop products and metal structures</u>	<u>88</u>	<u>25</u>
Columns, pillars, towers and posts of iron or steel	90	20
Girders, beams and structural shapes whether or not assembled	85	20
Metal silos, steel tanks and receptacles	85	30
Boilers for use on farms, n.e.s., and parts and accessories therefor	80	30
Retorts, stills, filters, etc.	80	30
Economizers, reheaters, condensers, etc.	75	30
Other products	75	25
VII. <u>Sheet-metal work, with or without metal spinning</u>	<u>75</u>	<u>35</u>
Small tanks and receptacles, nickel-plated, enamelled, etc.	75	45
Metal drums and tanks, with a capacity of up to 500 litres	75	40
Boxes, casks and other containers of metal other than tinfoil	70	30
(Part) Cookers, ovens, stoves and water heaters	80	38
Cast iron kitchenware, enamelled, n.e.s.	70	30
Ferrous metal ware	70	25
Aluminium kitchenware; tableware and household utensils of other metals	80	30
Electric transformers	70	40
Other products	70	33
VIII. <u>Light machinery and machine parts</u>	<u>70</u>	<u>35</u>
Machine-tools for working metals ^{a/}	60	45
Special pumps for the sale of liquid fuels	60	40
Locoms of all types	60	45
Sewing-machines and spare parts therefor	65	45
Typewriters and other office machines	80	30
Electric motors ^{a/}	70	35
Other machinery and machine parts	70	33

^{a/} Only light machines and motors

Annex II

COEFFICIENTS OF PRODUCTIVITY AND INVESTMENT PER WORKER

(Thousands of bolivares)

Description	Annual productivity per worker	Investment per worker
I. <u>Containers and tinware</u>	76	50
Printed tinplate, lithographed or painted	88	58
Tin cans n. e. s. whether or not painted	80	45
Miscellaneous metal covers	75	60
Tinplate, n. e. s.	50	35
Capsules or caps, tinned, galvanized, etc.	70	40
Other products	65	31
II. <u>Hot-forged and hot-pressed products</u>	58	40
Machetes and agricultural tools, n. e. s.	65	50
Hand tools for artisan industry	65	50
Axes, hatchets and other hand tools, n. e. s.	65	40
Metal chains, and parts and accessories therefor (except for ships)	60	40
Springs for railway coaches and vehicles, n. e. s., and springs, n. e. s.	70	40
Iron or steel accessories for tubes and pipes	55	44
Chassis, without engines, chassis-frames and other accessories, n. e. s.	65	40
Ploughs	60	30
Other products	45	30
III. <u>Wire products</u>	80	35
Nails, staples for fencing, wire nails, and insulated staples	70	35
Miscellaneous steel wire products, whether or not covered	75	40
Pins, safety-pins, hairpins, etc.	80	30
Wire products of non-ferrous metals	85	30
Wire netting and mesh	85	35
Other wire products	80	-
IV. <u>Primarily stamped products</u>	78	35
Hardware locks and padlocks, castors for furniture and doors	80	30
Locks, etc., of copper alloy, aluminium and aluminium alloy	85	30
Miscellaneous fastenings for leather goods	82	35
Plugs, switches, sockets and other electrical accessories	70	35
Knives, forks and spoons of iron or steel	78	35
Radiotelegraphic and radiotelephonic receivers	85	35
Vehicles, manufactured or assembled	70	40
Other products	70	30

Annex II (Concl.)

Description	Annual productivity per worker	Investment per worker
<u>IX. Medium weight and heavy machinery and machine parts</u>	<u>65</u>	<u>35</u>
Moulds, n.e.s., for miscellaneous materials	64	45
Complete agricultural tractors, weighing less than 4 tons net	60	30
Machinery for working metals, n.e.s.	55	35
Well-drilling machinery	65	45
Pressure regulating valves for the petroleum industry	60	45
Miscellaneous lifting machinery	70	30
Earth-excavating, levelling or boring machinery, fixed or mobile	64	35
Machine-tools for working wood, bone, etc.	62	30
Other products	65	34
<u>X. Other products</u>	<u>85</u>	<u>40</u>

Annex III

PRINCIPAL METAL-TRANSFORMING ACTIVITIES UNDER THE
IMPORT SUBSTITUTION PROGRAMME

Classi- fication by process	Description of activities	Annual output		Number of employees	Fixed capital Thousands of bolivi- vares	Estimated number of enter- prises
		Tons	Thousands of bolivi- vares			
I	Tinplate lithography and painting, including all lithographic, drying, sheet-cutting and other operations	6 500	7 500	130	5 200	1
I	Manufacture of containers, mainly tinplate - located primarily near consumer centres - from lithographed or painted metal-sheets produced by the above-mentioned industry	1 950	5 760	90	3 500	1-3
I	Manufacture of container covers, such as, crown corks, bottle caps, etc.	1 600	6 300	105	5 000	1-3
II	Manufacture of hand-tools, such as, hoes, spades, axes, hatchets, hammers, sledge hammers, etc. The forge used for this process will also produce parts for ploughs as mentioned below	800	6 200	120	4 000	1-2
IV-V	Manufacture of hardware, such as, locks, padlocks, hinges, and other primarily stamped products, combined with small primarily machined parts	680	4 000	60	1 700	1-2
IV	Manufacture of small stamped products, such as, tubular rivets, miscellaneous fastenings for leather goods, etc.	340	4 900	72	2 100	2-4
IV	Manufacture of more complex stamped products such as, electric plugs, sockets, washers, metal capsules, household electric switches, etc., possibly using other non-metallic materials in their assembly	500	4 500	76	2 600	2-4
IV	Manufacture of steel cutlery, stamped and tin-plated, and other cutlery of cast aluminium	80	1 710	27	900	1
V	Manufacture of taps, cocks, valves, small hydrometers and other similar articles, primarily of brass, combined with electroplating services	1 920	16 170	244	7 300	2-4
VI	Manufacture of steam boilers, steam economizers, retorts, heat exchangers, dryers and other similar apparatus	2 300	7 030	94	2 300	1-2

Annex III (Cont.1)

Classi- fication by process	Description of Activities	Annual output		Number of employees	Fixed capital Thousands of bolli- vares	Estimated number of enter- prises
		Tons	Thousands of bolli- vares			
VI	Manufacture of metal structures, including doors and windows, with an eye to the improvement and expansion of existing plants	5 025	9 408	131	3 200	1-2
III	Manufacture of wire products, such as, staples for fencing, clips, hairpins, fine wire fabric to keep out insects, etc.	4 200	7 350	126	4 200	1-2
VII	Manufacture of metal containers, such as, drums, barrels, casks, boxes, etc.	530	1 500	24	500	1
VII	Manufacture of household boilers, cooking stoves, bathtubs, cooking rings and gas heaters, primarily sheet-metal work, assembled with parts made by other manufacturers	5 250	20 475	300	9 000	1-3
VII	Manufacture of kitchenware, tableware and other similar articles, from iron or aluminium sheets by stamping and metal spinning	1 430	4 976	78	1 900	1-2
V-VII	Manufacture of metal furniture, from metal sheets and moulded cast metal parts, including barbers' chairs, dentists' cabinets, etc.	560	3 304	47	1 400	1
V	Manufacture of bolts, screws and nuts, primarily with cutting machines	1 460	3 500	84	2 400	1
II	Manufacture of spiral springs for coaches and passenger cars, hot-coiled, with forged ends	1 230	2 780	40	1 400	1
VII	Manufacture of conduits and gutters, tubes and other similar material from thin metal sheets	636	1 348	32	840	1-2
II	Manufacture of flanges, elbows, couplings and other accessories for oil pipelines and other similar products, hot-forged and hot-pressed	3 140	9 920	200	6 200	1-2
II	Manufacture of heavy hardware, such as, chains, rivets, etc., hot-forged and hot-stamped	316	1 450	30	800	1
VII	Manufacture of fire-extinguishers, atomizers, insecticide sprayers and other similar appliances including deep metal spinning	650	4 614	80	2 300	1-2
VII	Manufacture of moulds, pans and other similar articles	180	1 650	24	700	1

Annex III (Cont. 2)

Classi- fication by process	Description of activities	Annual output		Number of employees	Fixed capital Thousands of bolli- vares	Estimated number of enter- prises
		Tons	Thousands of bolli- vares			
II-VII- VIII	Manufacture of tractor seats, seat supports, running-boards and other parts and spare parts with no important mechanical function	700	3 900	80	1 900	1
II-VI- IX	Manufacture of simple agricultural machinery, equipment and other articles, such as, ploughs, harrows, seed distributors poultry feed mixers, and fertilizer distributors and mixers	1 700	5 580	100	2 800	1-2
V-VIII- VII	Manufacture of dairy farm machinery and appliances, such as, milking machines, milk beaters, centrifuges, etc.	380	2 300	42	1 200	1-2
VIII	Manufacture of simple machine-tools, such as, hand-operated drills, sheet-metal benders, cylinders for coiling thin sheet-metal, hand shears, etc.	465	2 500	48	1 800	1
IX	Manufacture of parts for heavy machinery or simple machines, such as, small crushers and ball mills	250	2 650	52	1 500	1
IX	Manufacture of well-drilling machinery or parts therefor	300	3 180	64	2 300	1
IX	Manufacture of reduction valves, control valves, etc. for the chemical and petroleum industry, in addition to those used in the supply of water	200	1 910	38	1 400	1
IX	Manufacture of hoists, bridge cranes and other lifting machinery	395	2 340	47	1 150	1
VIII	Manufacture of liquid fuel pumps, etc., primarily from pressure-cast metals	150	1 710	33	1 100	1
VIII-IX	Manufacture of pumps for liquids or gasses, and compressors of different types and capacities	3 120	22 591	450	13 000	3-6
IX	Manufacture of simple wood-working machinery, such as, lathes, moulders, circular saws, etc.	110	920	18	450	1
VIII-IX	Manufacture of textile machinery and equipment, such as, small looms, spindles, carders, dryers, etc.	2 800	23 320	460	14 265	4-10

Annex III (Cont. 3)

Classi- fication by process	Description activities	Annual output		Number of employees	Fixed capital Thousands of bolli- vares	Estimated number of enter- prises
		Tons	Thousands of bolli- vares			
VIII	Manufacture of sewing-machines, primarily household	990	8 020	145	5 000	1
VIII	Assembly of typewriters and other office machines, and manufacture of parts therefor	170	5 240	78	1 980	1-2
VIII	Manufacture of weighing-machines, slicing machines, mixers and other similar appliances	180	990	19	600	1
VI-IX	Manufacture of parts and spare parts for refrigerating equipment, such as, condensers, evaporators and other mechanical parts	442	3 400	63	1 800	1
VIII-VII	Manufacture of air-conditioning equipment or parts therefor, and its assembly	940	8 507	140	4 200	1-2
VIII-VII	Manufacture of domestic washing-machines	740	4 107	72	2 100	1
VIII	Manufacture of juice extractors, hand mills, mixers and other household appliances	150	1 500	30	900	1
IX	Manufacture of windmills, water-wheels, turbines and other similar products	140	1 680	28	1 100	1
VIII	Manufacture of meat and cereal grinders and other similar articles	1 450	7 250	150	4 200	1-2
VIII-IX	Manufacture of parts and spare parts for machinery, dies, special tools, devices for aiding production and all devices used in the metal-transforming industry, regardless of length of production series	3 577	27 290	518	16 000	6-20
VIII-IV	Manufacture of small electric motors and generators, weighing up to 10 kg	365	2 920	50	1 400	1
VII	Manufacture of electric transformers	965	6 224	120	4 000	1-2
VII-V	Manufacture of electric switchboards	320	4 320	72	1 800	1-2
III-X	Manufacture of cable for the transmission of electric energy for household and office use	1 490	5 960	48	3 200	1-2
X-IV-V	Manufacture of radio and television sets or parts therefor, and their assembly	495	9 765	140	4 500	1-2
X-V	Manufacture of sparking-plugs for internal combustion engines	500	8 950	120	4 500	1
VIII	Manufacture of gramophones or parts therefor and their assembly	60	1 200	20	500	1

Annex III (Cont. 4)

Classi- fication by process	Description of activities	Annual output		Number of employees	Fixed Capital Thousands of bolivi- vares	Estimated number of enter- prises
		Tons	Thousands of bolivi- vares			
VII-V	Manufacture of electrical articles, such as, electric irons, small ovens, small cooking stoves, sterilizers, etc.	1 020	10 000	162	4 700	1-3
IX-VI	Manufacture of electric dryers, industrial electric ovens, industrial heaters, and the like	640	4 800	72	2 400	1-2
IX	Manufacture of parts for railway equipment and maintenance	119	432	10	280	1
II	Manufacture of passenger car wheels hot-forged and hot-stamped	2 300	9 200	140	4 600	1
VIII	Manufacture of parts for the motor vehicle industry, primarily of cast iron, such as, water pumps, cylinder heads, cylinder liners, brake drums, etc.	1 200	7 200	130	4 500	1
IX	Manufacture of shaft drives, wheel drive shafts, simple gears, etc., primarily of forged steel	600	6 000	130	4 000	1
V	Manufacture of tie-rods, king-pins, ball-joints and the like	600	4 800	100	3 200	1
V-VIII	Manufacture of pistons, piston-rings, valves, valve guides, and other similar parts, also made of special casting of iron and aluminium	300	6 000	130	4 000	1
V	Manufacture of carburettors and other similar parts, of pressure-cast metal	250	2 000	30	1 000	1
IV	Manufacture of hub caps, mouldings, bumpers and other chrome or nickel-plated motor vehicle parts	600	4 200	75	2 400	1
VII-III	Manufacture of motor vehicle petrol tanks, air filters, spring seats, etc.	720	3 600	70	2 000	1
VIII	Manufacture of starter motors and generators for motor vehicles (link to the manufacture of electric motors)	150	1 500	25	800	1
V-X	Manufacture of oil seals, grease fittings, gaskets and other similar parts	50	2 500	60	1 700	1

Annex III (Concl.)

Classi- fication by process	Description of activities	Annual output		Number of employees	Fixed capital Thousands of bolt- vares	Estimated number of enter- prises
		Tons	Thousands of bolt- vares			
II	Manufacture of chassis or parts thereof primarily hot-stamped	1 000	5 000	85	2 800	1
VIII	Manufacture of bicycles, tricycles and motoreycles (CKD), and parts therefor	1 200	6 000	130	3 800	1
IX	Manufacture of carriages, carts, trailers and wagonettes	1 800	7 200	130	3 800	1
V-IV	Manufacture of tachometers, speedometers, simple alarm clocks and similar articles	80	1 200	26	700	1
	<u>Total</u>	<u>77 540</u>	<u>398 101</u>	<u>7 150</u>	<u>204 925</u>	<u>82-139</u>

