

**Chapter 3 THE METALWORKING INDUSTRY  
AND RELATED INDUSTRIES**

## Chapter 3 THE METALWORKING INDUSTRY AND RELATED INDUSTRIES

### 3.1 The Metalworking Industry and Related Industries

The metalworking industry is classified into manufacturing of metalwork products other than machinery (Industrial Statistics No. CIIU 381), non-electrical machinery (CIIU 382), electrical machinery (CIIU 383), transportation equipment (CIIU 384), and professional machinery (CIIU 385).

#### 3.1.1 General Status of the Metalworking Industry of Colombia

The metalworking industry produces consumer and capital goods. Capital goods are supplied in the form of parts and components to the upstream machinery assembly industry. As a result, the capital goods segment of the metalworking industry is heavily dependent on production trends in the assembly industry.

The machinery assembly industry in Columbia is not well developed due to small domestic markets excepting automobiles and household appliances. Furthermore, there is lack of competition among enterprises supplying metalworking products to the automobile industry which can be grown into the largest market segment, resulting in less technological advancement. This has caused import substitution for capital goods to stagnate, while that for consumer goods has progressed relatively smoothly. With respect to exports of the relatively simple products of the domestic metalwork products, they lack competitiveness in quality and price due to the undeveloped technology and do not last for long even when exported.

At the same time, relatively a low rate of machinery replacement is another factor in keeping the small market for metalworking products. For example, in automobiles, the production is 60,000 units against the total registration of 1,200,000 units, and in farm tractors, the number of imports (there is no domestic production) was no more than 500 units against the total registration of 24,000 units in 1988. This means a low rate of replacement which

limits the market size to a present low level. The small demand for new machinery is one factor which inhibits the development of the assembling industry, as a result, most of the construction equipment, farm machinery and machine tools are imported in the finished form. At the same time, the small demand makes the production of machinery parts and components infeasible and is a reason for the absence of local production.

There are assembling industries in the fields of transportation equipment, electrical household appliance, electric machinery, industrial machinery, etc., but the product variety is limited by the small domestic market and those not produced locally have to depend on imports.

The characteristic of the metalworking industry to mainly serve the domestic market is reflected in the concentration of the production bases in areas of consumption. (In Colombia, they are located in several inland areas instead of along the coast.) Exports of metalwork products are very limited in quantities, as well as geographical areas, the U.S. and Middle and South America.

In connection with the small scale of the market, the small production of new machinery and the dispersal of the markets, the small and medium scale enterprises represent a significant share of the metalworking industry by scale.

As a result, the nationalization rate in the metalworking industry is low, as will be discussed later, and it is approximately 50% for metalwork products other than machinery (CIU 381), 23% or less for machinery (CIU 382/383), and 65% for transportation equipment (CIU 384). Furthermore the nationalization rate in this case, include products made by partial processing of imported semi-finished products. Thus, in terms of the value added, the nationalization rate for automobiles are estimated to be in the range of 15% and even electrical household appliances to be about 20%.

The metalworking industry is characterized by the high degree of intra-industrial linkage and is also closely related to the markets for the raw materials to be processed (mainly iron and steel products) and the markets for the metalwork products (various sectors in the case of the producer goods and the general market for the consumer goods). In this corporate diagnosis survey, complaints were heard on poor quality and high prices of raw materials, as well as a large number of opinions to point out that the small domestic market is obstructing the development of the metalworking industry.

There is a restructuring study under way for the iron and steel industry, and the current situation and the problems will be discussed later. Various related sectors will be taken up in the chapters to deal with major types of machinery.

### 3.1.2 Basic Metals Sector

Trends in production, imports and exports of basic metals including iron steel between 1965 and 1986 are shown in Table 3.1.

As this table shows, production of basic metals grew between 1965 and 1983 but did not fully reflect the growth of GDP, its share in GDP declining from 2.3% to 2.0%. The subsequent growth in production is not large.

In the domestic demand for basic metals, consumption for intermediate goods is as high as 70%, but domestic production is unable to satisfy the demand and about 40% of the domestic demand depends on imports, which accounts for 13 to 15% of the total imports of Colombia. There is very little export, accounting for 0.5% of the total.

Basic metals used in metalworking range from materials in the form of primary materials such as pig iron and rolled steel to materials in the form of partly processed products such as forgings and castings.

In addition to problems in the supply of primary materials, in terms of volume, quality and price, and there is little production of partially processed products, and thus many of raw materials for the metalworking sectors have to depend on imports.

Under this circumstance, the increase in the nationalization rate of metalworking would mean the increase in the processing of imported primary materials and partially processed products and would not lead to significant decrease in value of imports. Moreover, unless these raw materials reach international levels in volume, quality, and price, the metalwork products could not attain international competitiveness.

Thus, supply of these basic metals need to be improved in terms of production base and distribution. This is discussed in the chapter presenting our recommendations.

### 3.1.3 Metalworking Sectors

#### (1) Machinery and equipment

Machinery and equipment belong to class 23 of the Input-Output Model, which are equivalent to class 382 (non-electrical machinery) and to class 383 (electrical machinery) of the Manufacturing Statistics Classification Numbers (CIIU), although it does not include class 384 (transportation equipment) and class 385 (professional machinery). See Table 3.1-2.

A reorganized class 23 of the Input-Output Model is shown in Table 3.2. According to this table, domestic production of machinery and equipment showed a steady growth from 1965 to 1984, but there has not been much growth since then. And the share of domestic production in the total demand is no more than the one-third, indicating the heavy dependence on imports. Exports are also very small and account for less than 1% of the total exports.

Table 3.3 and Figure 3.1 show the volume of material used in the production of machinery and naturally, the basic metals account for about 50% indicating the importance of the rationalization of the basic metal sector to the metalworking industry. Following basic metals, machinery accounts for 15 - 20%.

Table 3.4 and Figure 3.2 show that, among the usages of machinery, fixed assets formation is the largest accounting for 55 - 60% and the intermediate raw materials account for 24 - 29%.

## (2) Non-electrical machinery

As shown in Table 3.5 and Figure 3.3, non-electrical machinery (CIIU 382 includes engines, farm machinery, machine tools, air conditioning/refrigerating/cooking equipment, elevators, but washing machines are classified under CIIU 383) consists of a total of 309 enterprises according to the Manufacturers Statistics of 1986. (The Manufacturers Statistics as a rule do not include the microenterprises, but in the results of the survey, enterprises with no more than 10 employees appear in the stage of conducting the survey. Therefore, the enterprises in the statistics with no more than ten persons will be ignored.)

Of the 309 enterprises, the small scale enterprises with 10 - 49 (average 27) employees are 233 accounting for 80%. The medium scale enterprises with 50 - 199 (average 87) employees are 63 accounting for about 20%, and the enterprises with 200 or more (average 515) employees are no more than 7. In terms of the number of employees, the value of production and the value added, the small scale enterprises account for 40%, 25% and 26%, the medium scale enterprises account for 36%, 37% and 38%, and the large scale enterprises account for 23%, 37% and 35%, respectively.

The value added per employee naturally increases with increase in enterprise size, but there is no substantial difference in terms of investment per employee.

Table 3.6 and Figure 3.4 show geographical distribution of non-electrical machinery production.

In terms of the number of employees and the value of production, Bogota accounts for 46% and 47%, respectively, nearly one-half. The Antioquia region in which Medellin is located follows, accounting for 21% and 20%, respectively. Then the Valle region in which Cali is located accounts for 13% and 10%, respectively. These three regions account for 80% and 77%, respectively. Other areas include Atlantico with 6% and 8%, and Bolivar with 3% and 4%, respectively. The number of employees and the value of production of the non-electrical machinery are in the range of 3 - 5% of that of the respective regions.

### (3) Electrical machinery products

There are 193 enterprises engaged in electrical machinery products (CIU 383 industrial electric equipment, communications equipment such as radios, etc.) as shown in Table 3.7 and Figure 3.5. The small scale enterprises (average 23 employees) are 119 accounting for 60%, the medium scale enterprises (average 94 employees) 53 accounting for 30%, and the large scale enterprises (average 392 employees) account for 10%. In terms of the number of employees, the volume of production, and the value added, however, the small scale enterprises account for 12%, 9%, and 5%; the medium scale enterprises account for 32%, 29%, and 26%; and the large scale enterprises account for 50%, 59%, and 65% respectively, showing a large share by the large scale enterprises. Naturally, the volume of production and the value added per employee increases with the increase enterprise size, so does equipment size.

Looking at geographical distribution, the number of employees and the volume of production for Bogota, Antioquia, and Valle account for 54% and 50%, 13% and 9%, and 17% and 25%, respectively, and their combined total accounting for 84% and 84%, respectively, a

major share, as shown in Table 3.8 and Figure 3.6.

(4) Transportation equipment

With respect to transportation equipment (CIIU 384 ships, rolling stock, automobiles, motorcycles, aircraft and components), the production is not necessarily smooth as shown in Table 3.9 and Figure 3.7, and after reaching a peak in 1980, production could not achieve the 1980 level till 1986. And the production exceeded the 1980 level in 1987. The nationalization rate exceeded 50% since 1975 with the exception of 1983 and reached 65% in 1987. Exports, although small, increased and about 8% of the domestic production was exported in 1987.

The enterprises producing transportation equipment are 213 in total as shown in Table 3.10 and Figure 3.8, consisting of 141 small scale enterprises (average 24 employees) accounting for 70%, 43 medium scale enterprises (average 94 employees) accounting for 20% and 24 large scale enterprises (average 472 employees) accounting for 10%. In terms of the number of employees, the volume of production and the value added, the small scale enterprises account for 18%, 5%, and 8%, respectively, the medium scale enterprises account for 21%, 15%, and 21%, respectively, and the large scale enterprises account for 60%, 80%, and 71%, respectively, indicating dominance of the large scale enterprises.

With respect to the geographical distribution in terms of the number of employees and the value of production, Bogota, Antioquia, and Valle, as shown in Table 3.11 and Figure 3.9, account for 44% and 56%, 18% and 25%, and 7% and 3% respectively, and the three in total account for 69% and 84% respectively. Atlántico, because it includes ships, accounts for 12% in number of employees and 4% in value of production.

(5) Professional machinery (CIIU 385 measuring and controlling instruments, optical machines, chronometers)



As shown in Table 3.12 and Figure 3.10, the production exhibited a steady growth and in 1986 and 1987 there was an increase of 30% or more from the previous years. The nationalization rate was in the range of 50 - 60% in 1987. There is a fair amount of exports which is nearly 20% of the domestic production.

As shown in Table 3.13 and Figure 3.11, the total number of enterprises is 62, of which small scale enterprises (average 24 employees) account for 42%, the medium scale enterprises (average 76 employees) 17 to account for 27%, and the large scale enterprises (average 256 employees) 3 to represent 5%. In terms of the number of employees, the volume of production, and the value added, the small scale enterprises account for 33%, 13%, and 11%, respectively, the medium scale enterprises account for 42%, 38%, and 36%, respectively, and the large scale enterprises account for 25%, 50%, and 53%, respectively.

Looking at geographical distribution in terms of the number of employees and the volume of production, Bogota accounts for 38% and 22%, respectively, Antioquia accounts for 30%, and Valle accounts for 22% and 48%, respectively, the three in total accounting for 70% of the total. (See Table 3.14 and Figure 3.12)

- (6) Metalwork products excluding machinery (CIIU 381 steel furniture, building components, boilers)

According to Table 3.15 and Figure 3.13, the domestic production gradually increased but as the domestic demand increased, at the same time, the nationalization rate declined from the level close to 50% which prevailed in the 1970s to 40% in the 1980s, excluding 1980 in which the domestic production was extremely high but unreliable. In 1987, the nationalization rate recovered to the level of 50% on account of the increased domestic production and the decreased domestic demand.

Table 3.16 and Figure 3.14 show the distribution of

metalwork products by enterprise size. The total number of enterprises is 517, of which the small scale enterprises (average employees 21.4 employees) account for 70% in the number of enterprises but 18% in production and value added, 14% in investment, and 20% in fixed capital. The medium scale enterprises (average 97.2 employees) account for 36% in the number of enterprises and 40% in production and value added.

On a per employee basis, the small scale enterprises is at about one half the medium scale enterprises in production, value added, and mechanization rate. The relative position of the large scale enterprises to the medium scale enterprises is not so high in both production and value added but about 50% higher in the mechanization ratio.

Table 3.17 and Figure 3.15 show geographical distribution of production of metalwork products. Bogota, Boyaca, Antioquia, and Valle have significant shares, accounting for 35%, 15%, 19%, and 16% respectively, in terms of the number of employees, and 33%, 26%, 15%, and 14%, respectively, in terms of the volume of production. In other words, these regions account for more than 80% of the total in both the number of employees and the production of the entire country.

The share of metalworking in the production of the respective regions are in the order of several percent.

#### 3.1.4 Metalworking Industry by Type of Markets

The market for metalwork products is divided into capital goods and consumer goods, the latter being further divided into durable consumer goods and non-durable consumer goods. Of the non-electrical machinery (CIIU 382) and the electrical equipment (CIIU 383), all equipment except electrical household appliances are capital goods, and machine tools are used by the metalworking industry (partly used by the woodworking industry and the basic metals industry), the farm machinery by agriculture, the

construction equipment by the construction industry, and the industrial machinery (generators, textile machinery, paper making machinery, food processing machinery, etc.) by the respective industries. As the parts and components of such machinery, there are generators, pumps, compressors, engines, hydraulic equipment, tanks, etc., and as parts and components of these, there are cylinders, bearings, gears, etc.

In consumer goods, transportation equipment including automobiles, electrical household appliances and metal furniture are classified as durable consumer goods, while cutting tools are classified as non-durable consumer goods. The manufacture of parts and components for the durable consumer goods is also important. As already mentioned above, the nationalization rate has achieved a certain level but the value added remains at a low level.

As already mentioned, there exists an assembly industry for the durable consumer goods such as automobiles and electrical household appliances, but for the capital goods, some machine tools and pumps and compressors of up to certain capacities are domestically produced but many of them depend on imports and there are many industries that have no assembling enterprises.

To promote the domestic production of capital goods, the government has been implementing the Capital Goods Program to select products suitable for domestic production from among capital goods and to conduct studies for possible investment considering international competitiveness, and by utilizing the government procurement and formulating industrial policies (technical improvement, establishment of standards, human resource development, information collection, etc.)

The products qualified under the Capital Goods Program are selected from class 761 of the Customs Tariff Number and from the 360 series of the Industrial Statistics (CIU), which are divided into three groups. The first group is machinery and equipment consisting of machine tools, engines, boilers, fluid machinery, measuring instruments,

industrial furnaces, construction equipment, calenders, rolling mills, centrifuges, filters, equipment for certain industries, transportation equipment except automobiles, and others, the second group consists of motors, transformers, circuits, and other electrical machinery, and the third group consists of communications equipment, consumer electronic equipment, computers and information equipment, measurement and controlling instruments.

Domestic production of these products is shown in Table 3.18, and shares are 65% by the first group, 16% by the second group and 19% by the third group. By product, equipment for specific use account for 17%, boilers 14%, and consumer electric equipment 13%. On the basis of the 1975 prices, the value of capital goods production reached the peak in 1981, declining thereafter to touch bottom in 1985 at 69% of the level of 1981. There has been some recovery since then but the level in 1980 still did not reach 74% of 1981. A major reason for this appears to be attributable to decrease in capital investment by private enterprises. At the same time, this situation suggests a very low rate of progress in nationalization of parts and components.

As mentioned in the section on industrial policies, the Colombian government organized a committee to promote procurement of domestic products by the state enterprises and launched measures to provide financial assistance for delivery of domestic products. In agriculture and various private industries (food, textiles, paper and pulp, etc.) consideration is given to relate these measures to the development of the respective industries, for example, in agricultural machinery, a negative protective tariff is imposed on farm machinery from the viewpoint of development of agriculture. In an international textile enterprise, it is said that some of the parts and components of the textile machinery is produced in Colombia and supplied to her oversea branch factories.

### 3.1.5 Production by subcontracting

In the metalworking industry, most of products, when the metal products (CIIU 381) other than machinery are excluded, are assembled from various parts and components. Also, the various parts and components involve many processes such as casting, forging, cutting, bending, welding, plating, coating, assembling, etc. and at times products other than metals are combined.

Therefore, the manufacture of a product involves many processes. These processes are operated in-house or in other factories in the country or in the form of imports from overseas. When outside manufacturing within the country involves, it is carried out in the form of subcontracting.

Subcontracting is practiced in Colombia but is not used widely. A major reason for this is the low technical level of the subcontractors or unreliability in terms of delivery schedule, etc. In Colombia, lists of enterprises that look for subcontract work are published made available to larger enterprises for promotion of the subcontract system.

In Colombia the number of existing machinery is much larger than the number of machinery purchased, forming a sizable market for repairing and supply of parts and components for the existing equipment. Such parts and components, however are not produced by a subcontract between assembly manufacturers and suppliers. Therefore, no technical improvement at the suppliers is expected.

Table 3.1 POSITION OF BASIC METAL INDUSTRY IN COLOMBIAN ECONOMY

Unit: million pesos in 1975 constant price

	1986	1985	1984	1983	1969	1965	'86/'69	'86/'83
GDP	18,449	16,579	17,677	16,951	10,542	8,216	1.750	1.088
IMP	12,578	14,612	13,767	13,776	5,566	2,683	2.260	0.913
TAX	1,697	2,283	2,224	2,348	7,500	347	0.226	0.723
OTAX	352	294	362	498	147	71	2.395	0.707
MARG	5,784	5,680	5,878	5,690	2,858	1,894	2.024	1.017
TOTL	38,860	39,378	39,908	39,263	19,863	13,211	1.956	0.990
EXP	583	562	476	388	534	226	1.092	1.503
TGDP	937,568	902,031	877,336	845,559	444,634	356,108	2.109	1.109
TIMP	96,032	93,377	99,993	104,115	44,221	28,716	2.172	0.922
TEXP	105,108	91,629	80,129	72,643	48,717	36,836	2.158	1.447
RGDP	0.0197	0.0184	0.0201	0.0200	0.0237	0.0231		
RIMP	0.1310	0.1565	0.1377	0.1323	0.1259	0.0931		
REXP	0.0055	0.0061	0.0059	0.0053	0.0110	0.0061		

Notes: GDP - Gross Domestic Production of CIU 22

IMP - Import of CIU 22

TAX - Import Tax on IMP

OTAX - Other Indirect Taxes on IMP

MARG - Margin on CIU 22

TOTL - Above total

EXP - Export of CIU 22

TGDP - Gross Domestic Product

TIMP - Total Import

TEXP - Total Export

RGDP - GDP/TGDP

RIMP - IMP/TIMP

REXP - EXP/TEXP

Source: I/O model

Table 3.1-2 I/O MODEL CODE

Code	Products
01+02+03	Agriculture
04	Forestry
05	Hunting and Fishing
06+07	Mining
08	Elaborated Coffee
09	Meat and Preparations
10	Cereal Transformations
11	Lacteous Products
12	Sugar and Derivatives
13	Drinks
14	Elaborated Tobacco
15	Other Elaborated Foods
16	Textiles, Confections and Leather
17	Wood and Wooden Furniture
18	Paper and Printing
19	Chemicals and Rubber
20	Petroleum Refinery Products
21	Elaborated Non-Metallic Minerals
22	Elaborated Base Metallics
23	Machinery and Equipment
24	Transportation Material
25	Different Types of Industry
26	Electricity, Gas and Water
27	Construction and Public Works
28	Commerce
29	Transport and Storage
30	Communications
31	Banks, Insurances and Service for Enterprises
32	Dwelling Rental
33	Personal Services
34	Government Services
35	Domestic Services

Table 3.2 POSITION OF MACHINERY AND EQUIPMENT SECTOR IN COLOMBIAN ECONOMY

Unit: million pesos in 1975 constant price

	1986	1985	1984	1983	1969	1965	'86/'69	'86/'83
GDP	12,459	11,392	12,216	10,719	4,631	8,216	2.690	1.162
IMP	19,760	14,646	20,920	22,165	7,965	2,683	2.481	0.891
TAX	3,610	2,582	3,514	3,827	1,040	347	3.471	0.943
OTAX	999	722	825	856	263	71	3.798	1.167
MARG	2,913	1,863	2,417	2,329	880	1,894	3.310	1.251
TOTL	39,741	31,205	39,892	39,896	14,779	13,211	2.689	0.996
EXP	733	645	391	565	131	226	5.595	1.297
TGDP	937,568	902,031	877,336	845,559	444,634	356,108	2.109	1.109
TIMP	96,032	93,377	99,993	104,115	44,221	28,716	2.172	0.922
TEXP	105,108	91,629	80,129	72,643	48,717	36,836	2.158	1.447
RGDP	0.0133	0.0126	0.0139	0.0127	0.0104	0.0231		
RIMP	0.2058	0.1568	0.2092	0.2129	0.1801	0.0934		
REXP	0.0070	0.0070	0.0049	0.0078	0.0027	0.0061		

Notes: GDP - Gross Domestic Production of CIU 23

IMP - Import of CIU 23

TAX - Import Tax on IMP

OTAX - Other Indirect Taxes on IMP  
margin on CIU 23

TOTAL - above total

TGDP - Gross Domestic Product

TIMP - Total Import

TEXP - Total Export

RGDP - GDP/TGDP

RIMP - IMP/TIMP

REXP - EXP/TEXP

Source: I/O model



Table 3.3 INPUT FOR MACHINERY AND EQUIPMENT SECTOR

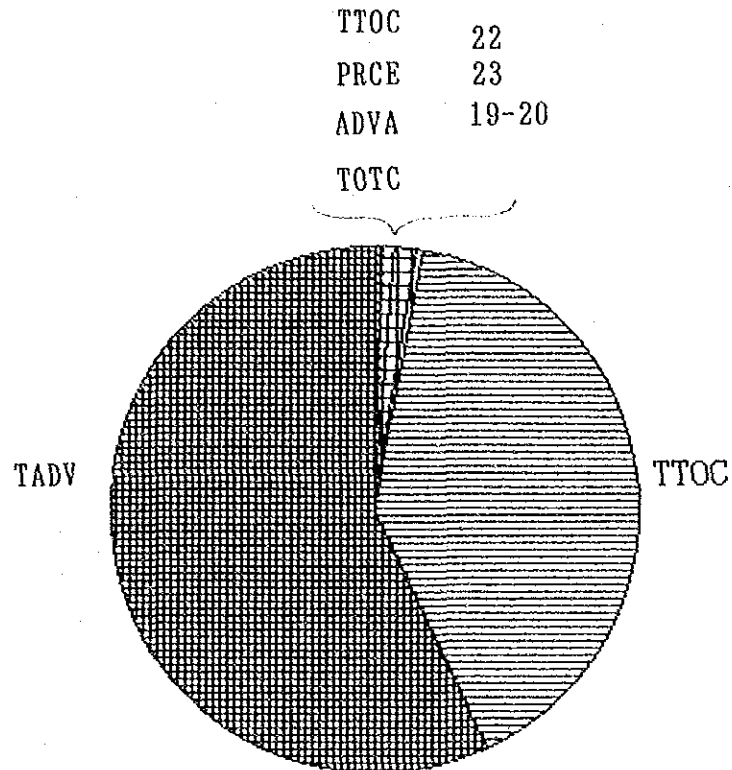
Unit: million pesos in 1975 constant price

Code	1986	1985	1984	1983	1969	1965	'86/'69	'86/'83
01-15	1	1	1	1	1	1	1	1
16-18	302	317	344	296	175	115	1.726	1.020
19-20	858	765	818	697	358	153	2.397	1.231
22	3,798	3,575	3,663	3,150	1,503	1,162	2.527	1.206
23	1,260	1,059	1,312	1,240	620	313	2.032	1.016
21,24,25	189	172	189	170	78	54	2.423	1.112
26-30	367	349	373	333	154	109	2.383	1.102
31-33	748	699	757	682	309	224	2.421	1.097
TOTC	7,523	6,936	7,457	6,569	3,198	2,131	2.352	1.145
PRCE	12,575	11,510	12,281	10,839	4,928	3,357	2.552	1.160
ADVA	5,052	4,574	4,824	4,270	1,730	1,226	2.920	1.183
TTOC	421,387	410,029	402,975	389,848	204,369	157,737	2.062	1.081
TPRC		981,346	956,056	922,488	485,068	386,531	0	0
TADV	598,988	571,317	553,081	532,640	280,699	228,794	2.134	1.125
RTOC	0.0179	0.0169	0.0185	0.0169	0.0156	0.0135		
RPRC		0.0117	0.0128	0.0117	0.0102	0.0087		
RADV	0.0084	0.0080	0.0087	0.0080	0.0062	0.0054		
22WT	0.5049	0.5154	0.4912	0.4795	0.4700	0.5453		
23WT	0.1675	0.1527	0.1759	0.1888	0.1939	0.1469		

Notes: TOTI - Total Intermediate Consumption of I/O Model Code  
 PRCE - Total Production at Producer's price of I/O Model Code  
 ADVA - Added Value of I/O Model Code  
 TTOC - Total Intermediate Consumption of Total Product  
 TPRC - Total Production at Producer's price of Total Product  
 TADV - Added Value of Total Product  
 RTOC - TOTI/TTOC  
 RPRC - PRCE/TPRC  
 RADV - ADVA/TADV  
 22WT - Input of 22/Input of Total  
 23WT - Input of 23/Input of Total

Source: I/O Model

Figure 3.1 MACHINERY AND EQUIPMENT'S  
INPUT (1986)



- Notes: TOTI - Total Intermediate Consumption of I/O Model Code  
 PRCE - Total Production at Producer's price of I/O Model Code  
 ADVA - Added Value of I/O Model Code  
 TTOC - Total Intermediate Consumption of Total Product  
 TPRC - Total Production at Producer's price of Total Product  
 TADV - Added Value of Total Product  
 RTOC - TOTI/TTOC  
 RPRC - PRCE/TPRC  
 RADV - ADVA/TADV  
 22WT - Input of 22/Input of Total  
 23WT - Input of 23/Input of Total

Source: I/O Model

Table 3.4 OUTPUT FOR MACHINERY AND EQUIPMENT SECTOR

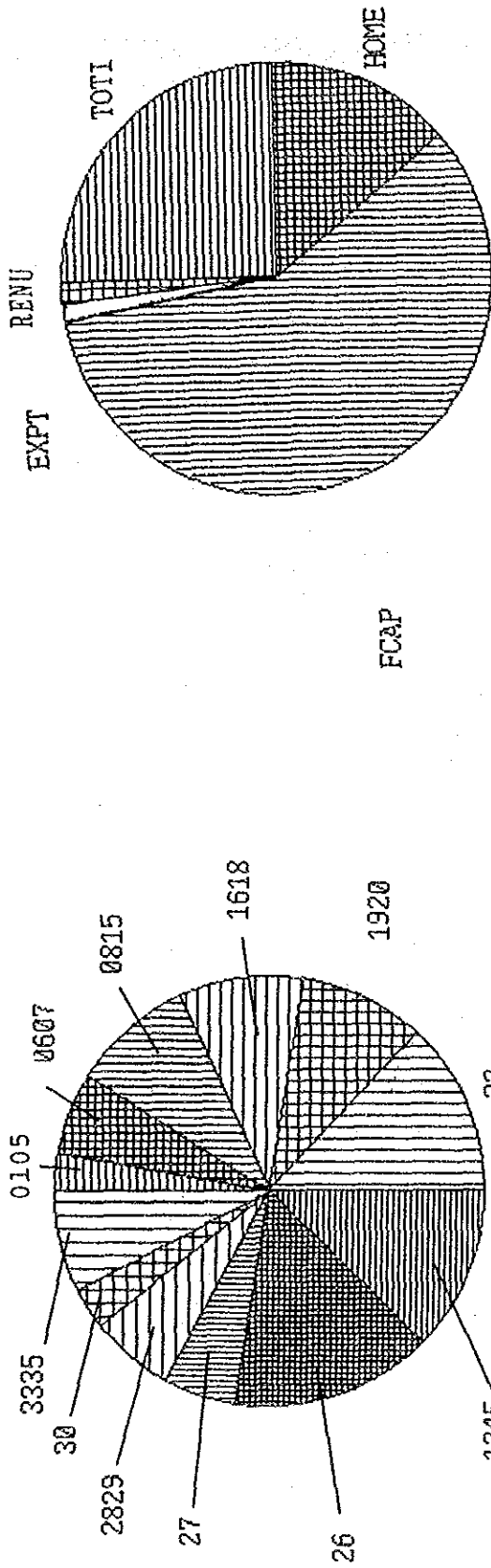
Unit: million pesos in 1975 constant price

Code	1986	1985	1984	1983	1969	1965	'86/'69	'86/'83
01-05	288	258	293	301	126	74	2.286	0.957
06+07	567	470	314	272	85	61	6.671	2.085
08-15	880	233	877	916	545	293	1.615	0.961
16-18	916	816	930	923	566	314	1.618	0.992
19+20	893	760	830	820	302	165	2.957	1.089
23	1,260	1,059	1,312	1,240	620	313	2.032	1.016
21+22+24+25	1,202	1,008	1,273	1,212	618	336	1.945	0.992
26	1,435	1,296	1,249	1,011	397	159	3.615	1.419
27	530	480	521	516	246	117	2.154	1.027
28+29	609	556	644	672	272	159	2.239	0.906
30	305	272	308	291	58	30	5.259	1.048
33-35	724	654	840	931	334	207	2.168	0.778
TOTI	9725	8,532	9,507	9,240	4,218	2,256	2.306	1.052
HOME	5288	4,376	5,922	5,429	1,983	1,229	2.667	0.974
FCAP	22572	17,443	22,454	23,070	8,378	5,531	2.694	0.978
RENU	423	209	1,618	1,592	69	97	6.130	0.266
EXPT	733	645	391	565	131	69	5.595	1.297

Notes: TOTI - Total Intermediate Consumption of I/O Model Code  
 HOME - Final Consumption at Home  
 FCAP - Gross Formation of Fixed Capital  
 RENU - Stock Increase  
 EXPT - Export

Source: I/O Model

Figure 3.2 MACHINERY AND EQUIPMENT'S OUTPUT (1986)



- Notes :
- 0105 Agriculture
  - 0607 Mining
  - 0815 Agro based Industry
  - 1618 Other manufacturing Industry
  - 1920 Petroleum refinery
  - 23 Base metal
  - 27 Construction
  - 2829 Commerce & transportation
  - 30 Communication
  - 3335 Service

- TOTI - Total Intermediate Consumption of I/O Model Code
- HOME - Final Consumption at Home
- FCAP - Gross Formation of Fixed Capital
- RENU - Stock Increase
- EXPT - Export

Source: I/O model

Table 3.5 CLASSIFICATION OF NON-ELECTRIC MACHINERY (CIU 382) BY SCALE OF ENTERPRISE

	(a)	(b)	(c)	(d)	(e)	(f)	(b)/(a)	(c)/(b)	(d)/(b)	(e)/(b)	(f)/(b)
0	6	19	409	163	6	53	3.17	21.53	8.58	0.32	2.79
1	233	6,307	13,392	5,784	483	2,215	27.07	2.12	0.92	0.08	0.35
2	44	2,918	9,071	3,913	408	1,493	66.32	3.11	1.34	0.14	0.51
3	14	1,714	8,700	3,525	259	839	122.43	5.08	2.06	0.15	0.49
4	5	851	1,815	932	43	209	170.20	2.13	1.10	0.05	0.25
5	3	917	6,116	1,993	195	431	305.67	6.67	2.17	0.21	0.47
6	1	408	813	521	-7	146	408.00	1.99	1.28	-0.02	0.36
7	0	0	0	0	0	0	***	***	***	***	***
8	2	1,375	7,825	2,476	26	442	687.50	5.69	1.80	0.02	0.32
9	1	907	5,146	2,617	188	775	907.00	5.67	2.89	0.21	0.85
t	309	15,416	53,287	21,924	1,601	6,603	49.89	3.46	1.42	0.10	0.43
2-4	63	5,483	19,586	8,370	710	2,541	87.03	3.57	1.53	0.13	0.46
5-9	7	3,607	19,900	7,607	402	1,794	515.29	5.52	2.11	0.11	0.50
0/t	0.0	0.001	0.008	0.007	0.004	0.01					
s/t	0.8	0.409	0.251	0.264	0.302	0.34					
m/t	0.2	0.356	0.368	0.382	0.443	0.38					
l/t	0.0	0.234	0.373	0.347	0.251	0.27					

Notes:

0	1	2	3	4	5	6	7	8	9	(Nos. of employees)
<10	10-49	50-99	100-149	150-199	200-349	350-499	500-649	650-799	>800	
(micro) (small)										

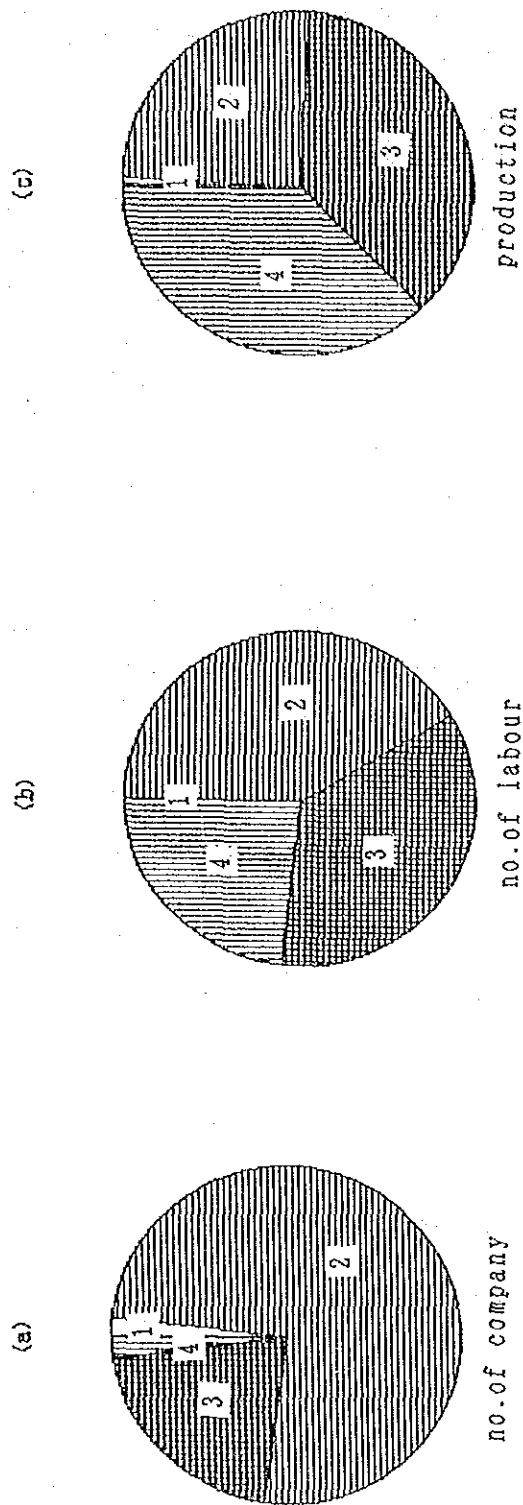
2-4	5-9	0/t	S/t	m/t	l/t
50-199	<200	ratio of micro	ratio of small	ratio of medium	ratio of large
(medium)(large)					

(a)	(b)	(c)	(d)	(e)	(f)
nos. of company	nos. of labour	production	value added	investment	fixed asset
		(million pesos)	(million pesos)	(thousand pesos)	(thousand pesos)

The manufacturing statistics, as a rule, do not include the Microenterprises. Therefore, the enterprises with no more than 10 persons should be ignored.

Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Figure 3.3 CLASSIFICATION OF NON-ELECTRIC MACHINERY (CIU381) BY SCALE OF ENTERPRISE



Note : 1 micro  
 2 small  
 3 medium  
 4 large

Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Table 3.6 NON-ELECTRIC MACHINERY SECTOR (CIU 382) BY DISTRICT

	(A)	(B)	(C)	(D)	(E)	(B)/(A)	(A)/(D)	(C)/(E)	(F)	(G)
ANTIOQUIA	2,931	1,060	10,888	104,203	623,977	0.36	0.03	0.02	0.21	0.20
ATLANTICO	814	337	4,105	29,574	232,373	0.41	0.03	0.02	0.06	0.08
BOGOTA D.E.	6,539	2,583	25,202	143,803	851,295	0.40	0.05	0.03	0.46	0.47
BOLIVAR	401	141	1,979	7,595	121,576	0.35	0.05	0.02	0.03	0.04
BOYACA	31	11	59	7,427	57,284	0.35	0.00	0.00	0.00	0.00
CALDAS	438	246	3,212	9,924	56,556	0.56	0.04	0.06	0.03	0.06
CAUCA	0	0	0	3,480	21,641	***	0.00	0.00	0.00	0.00
CESAR	0	0	0	1,308	11,348	***	0.00	0.00	0.00	0.00
CARDOBA	49	14	77	1,646	17,015	0.00	0.03	0.00	0.00	0.00
CUNDINAMARCA	206	77	733	23,617	165,950	0.37	0.01	0.00	0.01	0.01
CHCCO	0	0	0	302	548	***	0.00	0.00	0.00	0.00
HUITA	19	6	23	1,375	15,238	0.32	0.01	0.00	0.00	0.00
LA GUAJIRA	0	0	0	24	57	***	0.00	0.00	0.00	0.00
MAGDARENA	19	4	20	1,231	6,037	0.21	0.02	0.00	0.00	0.00
META	0	0	0	1,157	11,696	***	0.00	0.00	0.00	0.00
SANTANDER	21	9	45	4,635	21,437	0.43	0.00	0.00	0.00	0.00
QUINCIO	0	0	0	939	28,903	***	0.00	0.00	0.00	0.00
RISARALDA	112	26	152	13,744	79,590	0.23	0.01	0.00	0.01	0.00
NTE. SANTANDER	556	178	1,187	17,184	186,125	0.32	0.03	0.01	0.04	0.02
SUCRE	0	0	0	544	3,348	***	0.00	0.00	0.00	0.00
TOLIMA	101	27	242	4,873	41,894	0.27	0.02	0.01	0.01	0.00
VALLE	1,829	647	5,342	69,341	661,040	0.35	0.03	0.01	0.13	0.10
COMISARIAS	0	0	0	424	2,289	***	0.00	0.00	0.00	0.00
Total	14,066	5,366	53,266	448,350	3,217,217	0.38	0.03	0.02	1.00	1.00

## Notes:

(A): Remuneration: thousand pesos

(B): Salary: million pesos

(C): Production: million pesos

(D): Total remuneration at each district: thousand pesos

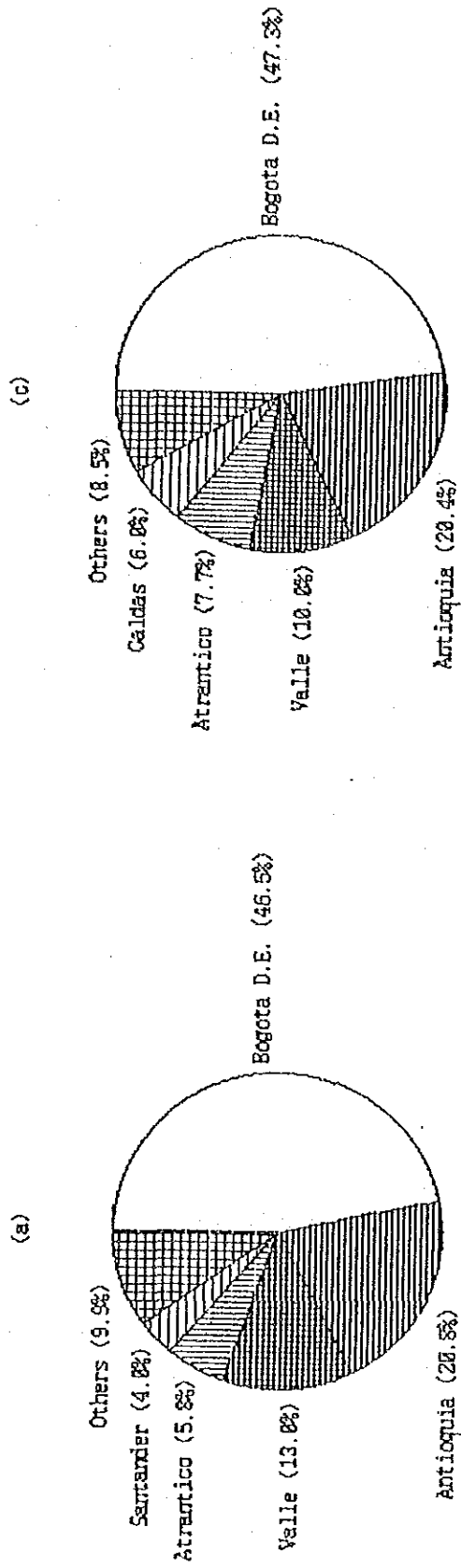
(E): Total production at each district: million pesos

(F): Ratio of remuneration to total remuneration of product: percentage

(G): Ratio of production to total product: percentage

Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Figure 3.4 NON-ELECTRIC MACHINERY SECTOR (CIU 382) BY DISTRICT



Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986



Table 3.7 CLASSIFICATION OF 383 BY SCALE OF ENTERPRISE

	(a)	(b)	(c)	(d)	(e)	(f)	(b)/(a)	(c)/(b)	(d)/(b)	(e)/(b)	(f)/(b)
0	1	7	64	15	5	8	7.00	9.14	2.14	0.71	1.14
1	119	2,709	10,592	3,644	242	1,383	22.76	3.91	1.35	0.09	0.51
2	36	2,497	11,875	4,509	327	1,311	69.36	4.76	1.81	0.13	0.53
3	10	1,283	7,325	3,268	166	1,085	128.30	5.71	2.55	0.13	0.85
4	7	1,227	7,432	2,906	39	408	175.29	6.06	2.37	0.03	0.33
5	10	2,832	21,327	10,022	260	1,479	283.20	7.53	3.54	0.09	0.52
6	6	2,489	17,108	8,184	3,183	4,292	414.83	6.87	3.29	1.28	1.72
7	3	1,597	7,762	3,685	457	986	532.33	4.86	2.31	0.29	0.62
8	0	0	0	0	0	0	***	***	***	***	***
9	1	918	7,749	4,915	231	738	918.00	8.44	5.35	0.25	0.80
t	193	15,559	91,234	41,148	4,910	11,690	80.62	5.86	2.64	0.32	0.75
2-4	53	5,007	26,632	10,683	532	2,804	94.47	5.32	2.13	0.11	0.56
5-9	20	7,836	53,946	26,806	4,131	7,495	391.80	6.88	3.42	0.53	0.96
0/t	0.0	0.0004	0.001	0.0004	0.001	0.001					
s/t	0.6	0.1741	0.116	0.0886	0.049	0.118					
m/t	0.3	0.3218	0.292	0.2596	0.108	0.240					
l/t	0.1	0.5036	0.591	0.6515	0.841	0.641					

Notes:

0	1	2	3	4	5	6	7	8	9	(Nos. of employees)
<10	10-49	50-99	100-149	150-199	200-349	350-499	500-649	650-799	>800	
(micro)	(small)									

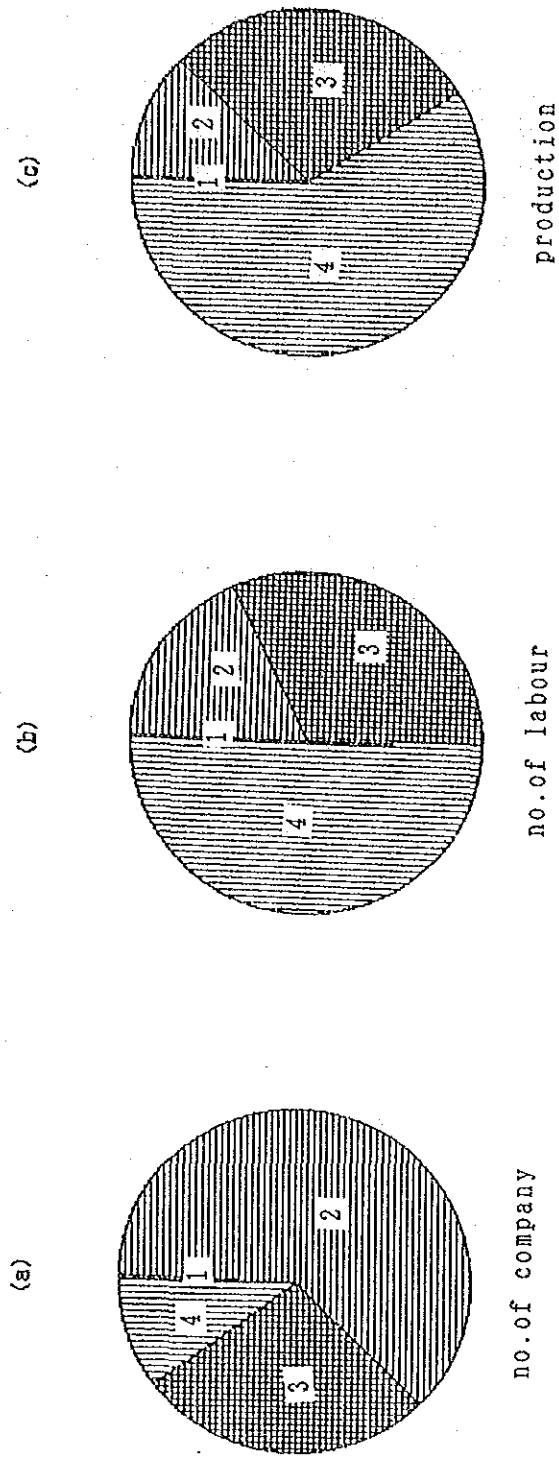
2-4	5-9	0/t	l/t	m/t	l/t
50-199	<200	ratio of micro	ratio of small	ratio of medium	ratio of large
(medium)	(large)				

(a)	(b)	(c)	(d)	(e)	(f)
nos. of company	nos. of labour	production	value added	investment	fixed asset
		(million pesos)	(million pesos)	(thousand pesos)	(thousand pesos)

The manufacturing statistics, as a rule, do not include the microenterprises. Therefore, the enterprises with no more than 10 persons should be ignored.

Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Figure 3.5 CLASSIFICATION OF ELECTRIC MACHINERY SECTOR (CIU 383) BY SCALE OF ENTERPRISE



Note : 1 micro  
 2 small  
 3 medium  
 4 large

Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Table 3.8 ELECTRIC MACHINERY SECTOR (CIU 383) BY DISTRICT

	(A)	(B)	(C)	(D)	(E)	(B)/(A)	(A)/(D)	(C)/(E)	(F)	(G)
ANTIOQUIA	2,061	886	8,184	104,203	623,977	0.43	0.02	0.01	0.13	0.09
ATLANTICO	476	286	4,480	29,574	232,373	0.60	0.02	0.02	0.03	0.05
BOGOTA D.E.	8,333	4,117	45,458	143,803	851,295	0.49	0.06	0.05	0.54	0.50
BOLIVAR	0	0	0	7,595	121,576	***	0.00	0.00	0.00	0.00
BOYACA	0	0	0	7,427	57,284	***	0.00	0.00	0.00	0.00
CALDAS	554	229	3,972	9,924	56,556	0.41	0.06	0.07	0.04	0.04
CAUCA	0	0	0	3,480	21,641	***	0.00	0.00	0.00	0.00
CESAR	0	0	0	1,308	11,348	***	0.00	0.00	0.00	0.00
CORDOBA	0	0	0	1,646	17,015	0.00	0.00	0.00	0.00	0.00
CUNDINAMARCA	518	232	3,643	23,617	165,950	0.45	0.02	0.02	0.03	0.04
CHICO	0	0	0	302	548	***	0.00	0.00	0.00	0.00
HUITA	0	0	0	1,375	15,238	***	0.00	0.00	0.00	0.00
LA GUAJIRA	0	0	0	24	57	***	0.00	0.00	0.00	0.00
MEGDARENA	0	0	0	1,231	6,037	***	0.00	0.00	0.00	0.00
META	0	0	0	1,157	11,696	***	0.00	0.00	0.00	0.00
SANTANDER	0	0	0	4,634	21,437	***	0.00	0.00	0.00	0.00
QUINCIO	0	0	0	939	28,903	***	0.00	0.00	0.00	0.00
RISARALDA	730	234	2,110	13,744	79,590	0.32	0.05	0.03	0.05	0.02
NTE.SANTANDER	138	64	813	17,184	186,125	0.46	0.01	0.00	0.01	0.01
SUCRE	0	0	0	544	3,348	***	0.00	0.00	0.00	0.00
TOLIMA	0	0	0	4,873	41,894	***	0.00	0.00	0.00	0.00
VALLE	2,609	1,497	22,574	69,341	661,040	0.57	0.04	0.03	0.17	0.25
COMISARIAS	0	0	0	424	2,289	***	0.00	0.00	0.00	0.00
Total	15,419	7,545	91,234	448,349	3,217,217	0.49	0.03	0.03	1.00	1.00

## Notes:

(A): Remuneration: thousand pesos

(B): Salary: million pesos

(C): Production: million pesos

(D): Total remuneration at each district: thousand pesos

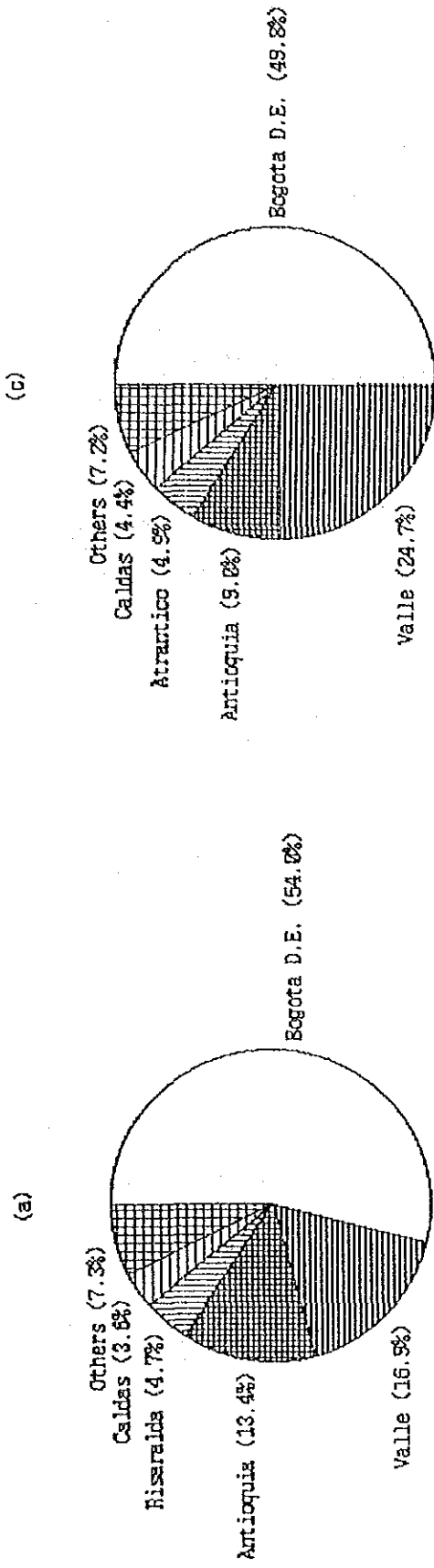
(E): Total production at each district: million pesos

(F): Ratio of remuneration to total remuneration of product: percentage

(G): Ratio of production to total product: percentage

Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Figure 3.6 ELECTRIC MACHINERY SECTOR (CIU 383) BY DISTRICT



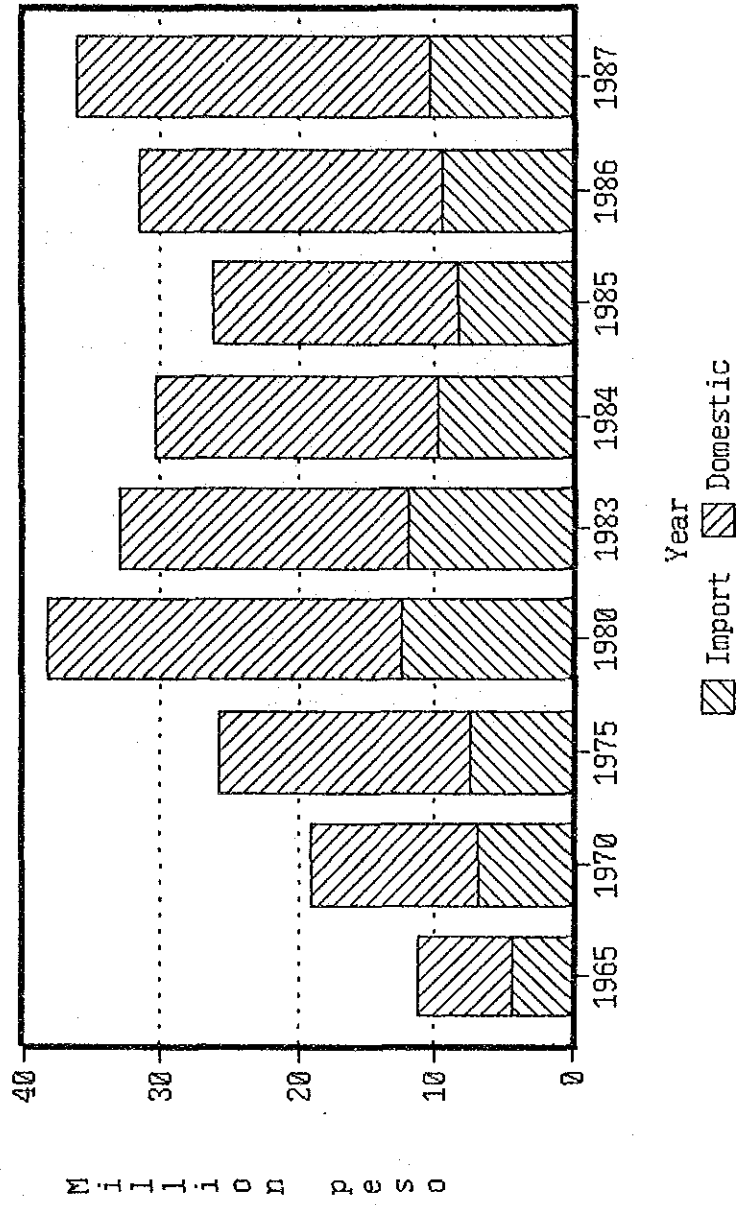
Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Table 3.9 DEMAND OF TRANSPORTATION EQUIPMENT SECTOR (CIU 384)

Unit: Million pesos

Year	Domestic Production	Import	Export	Domestic Demand	Domestic Production Rate	Ratio of	
						Domestic Production to the Previous Year	Domestic Production to the Previous Year
1965	2,665	4,297	3	6,959	0.383	-	-
1970	5,449	6,824	30	12,243	0.445	2.045	2.045
1975	11,197	7,327	221	18,303	0.612	2.055	2.055
1980	13,808	12,351	398	25,761	0.536	1.233	1.233
1983	9,166	11,959	151	20,974	0.437	0.664	0.664
1984	10,969	9,715	136	20,548	0.534	1.197	1.197
1985	9,655	8,334	110	17,879	0.540	0.880	0.880
1986	12,909	9,393	357	21,945	0.588	1.337	1.337
1987	16,733	10,304	1,289	25,748	0.650	1.296	1.296

Figure 3.7 DEMAND OF 384



Source: I/O model

Table 3.10 CLASSIFICATION OF TRANSPORTATION EQUIPMENT SECTOR (CIU 384)  
BY SCALE OF ENTERPRISE

	(a)	(b)	(c)	(d)	(e)	(f)	(b)/(a)	(c)/(b)	(d)/(b)	(e)/(b)	(f)/(b)
0	5	28	81	36	9	31	5.60	2.89	1.29	0.32	1.11
1	141	3,332	8,182	3,190	73	1,640	23.63	2.46	0.96	0.02	0.49
2	26	1,791	7,147	2,857	227	1,149	68.88	3.99	1.60	0.13	0.64
3	13	1,615	8,428	3,684	162	1,155	124.23	5.22	2.28	0.10	0.72
4	4	657	7,724	1,944	13	440	164.25	11.76	2.96	0.02	0.67
5	13	3,365	13,218	5,485	141	2,113	258.85	3.93	1.63	0.04	0.63
6	3	1,386	8,288	1,637	-131	1,379	462.00	5.98	1.18	-0.09	0.99
7	2	1,173	4,015	2,480	-51	1,829	586.50	3.42	2.11	-0.04	1.56
8	3	2,185	9,034	3,233	637	1,851	728.33	4.13	1.48	0.29	0.85
9	3	3,216	94,249	16,125	302	5,623	1,072.00	29.31	5.01	0.09	1.75
t	213	18,748	160,366	40,671	1,382	17,210	88.02	8.55	2.17	0.07	0.92
2-4	43	4,063	23,299	8,485	402	2,744	94.49	5.73	2.09	0.10	0.68
5-9	24	11,325	128,804	28,960	898	12,795	471.88	11.37	2.56	0.08	1.13
0/t	0.0	0.001	0.001	0.001	0.01	0.002					
s/t	0.7	0.178	0.051	0.078	0.05	0.095					
m/t	0.2	0.217	0.145	0.209	0.29	0.159					
l/t	0.1	0.604	0.803	0.712	0.65	0.743					

Notes:

0	1	2	3	4	5	6	7	8	9
<10	10-49	50-99	100-149	150-199	200-349	350-499	500-649	650-799	>800
(micro)	(small)								(Nos. of employees)

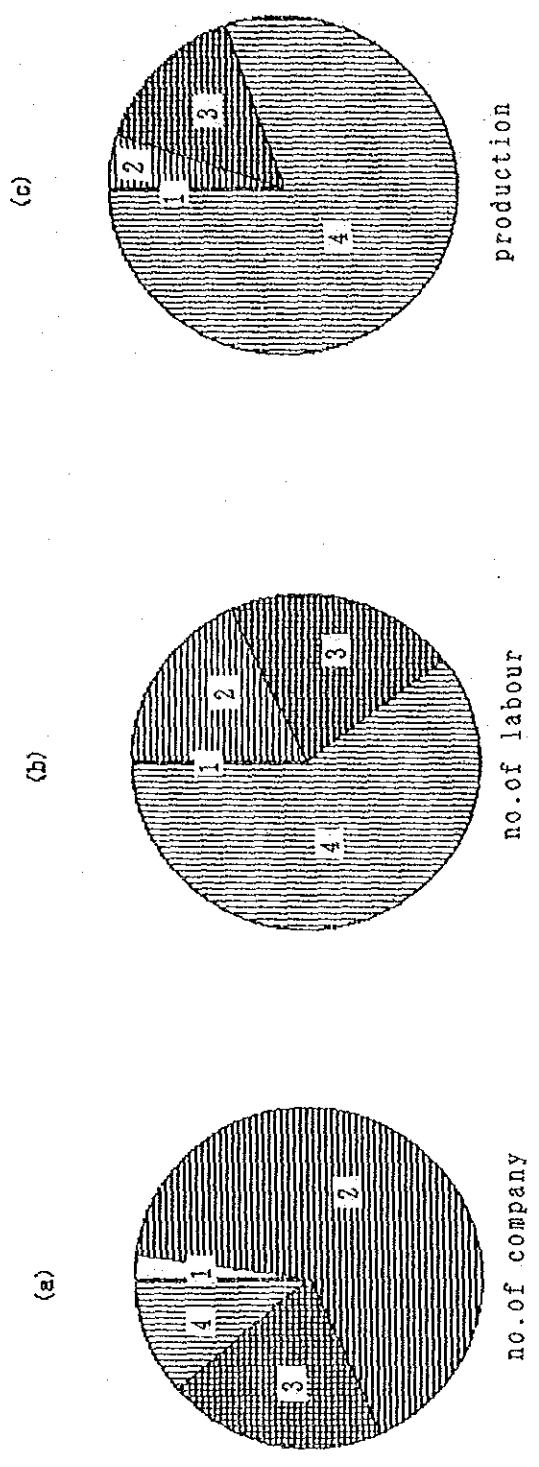
2-4	5-9	0/t	s/t	m/t	l/t
50-199	<200	ratio of micro	ratio of small	ratio of medium	ratio of large
(medium)	(large)				

(a)	(b)	(c)	(d)	(e)	(f)
nos. of company	nos. of labour	production	value added	investment	fixed asset
		(million pesos)	(million pesos)	(thousand pesos)	(thousand pesos)

The Manufacturing statistics, as a rule, do not include the microenterprises.  
Therefore, the enterprises with no more than 10 persons should be ignored.

Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Figure 3.8 CLASSIFICATION OF TRANSPORTATION EQUIPMENT SECTOR (CIU 384) BY SCALE OF ENTERPRISE



Note : 1 micro  
 2 small  
 3 medium  
 4 large

Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986



Table 3.11 TRANSPORTATION EQUIPMENT SECTOR (CIU 384) BY DISTRICT

	(A)	(B)	(C)	(D)	(E)	(B)/(A)	(A)/(D)	(C)/(E)	(F)	(G)
ANTIOQUIA	3,269	1,559	40,422	104,203	623,977	0.48	0.03	0.06	0.18	0.25
ATLANTICO	2,167	930	6,705	29,574	232,373	0.43	0.07	0.03	0.12	0.04
BOGOTA D.E.	8,159	4,787	90,112	143,803	851,295	0.59	0.06	0.11	0.44	0.56
BOLIVAR	714	343	2,633	7,595	121,576	0.48	0.09	0.02	0.04	0.02
BOYACA	576	358	6,975	7,427	57,284	0.62	0.08	0.12	0.03	0.04
CALDAS	368	134	1,255	9,924	56,556	0.36	0.04	0.02	0.02	0.01
CAUCA	289	108	615	3,480	21,641	0.37	0.08	0.03	0.02	0.00
CESAR	0	0	0	1,308	11,348	***	0.00	0.00	0.00	0.00
CORDOBA	0	0	0	1,646	17,015	0.00	0.00	0.00	0.00	0.00
CUNDINAMARCA	883	346	1,603	23,617	165,950	0.39	0.04	0.01	0.05	0.01
CHCCO	0	0	0	302	548	***	0.00	0.00	0.00	0.00
HUITA	0	0	0	1,375	15,238	***	0.00	0.00	0.00	0.00
LA GUAJIRA	0	0	0	24	57	***	0.00	0.00	0.00	0.00
MAGDARENA	138	45	80	1,231	6,037	0.33	0.11	0.01	0.01	0.00
META	0	0	0	1,157	11,696	***	0.00	0.00	0.00	0.00
SANTANDER	25	7	21	4,634	21,437	0.28	0.01	0.00	0.00	0.00
QUINCIO	0	0	0	939	28,903	***	0.00	0.00	0.00	0.00
RISARALDA	332	137	1,892	13,744	79,590	0.41	0.02	0.02	0.02	0.01
NTE.SANTANDER	253	125	3,243	17,184	186,125	0.49	0.01	0.02	0.01	0.02
SUCRE	0	0	0	544	3,348	***	0.00	0.00	0.00	0.00
TOLIMA	27	5	23	4,873	41,894	0.19	0.01	0.00	0.00	0.00
VALLE	1,330	485	4,744	69,341	661,040	0.36	0.02	0.01	0.07	0.03
COMISARIAS	0	0	0	424	2,289	***	0.00	0.00	0.00	0.00
Total	18,530	9,369	160,323	448,349	3,217,217	0.51	0.04	0.05	1.00	1.00

## Notes:

(A): Remuneration: thousand pesos

(B): Salary: million pesos

(C): Production: million pesos

(D): Total remuneration at each district: thousand pesos

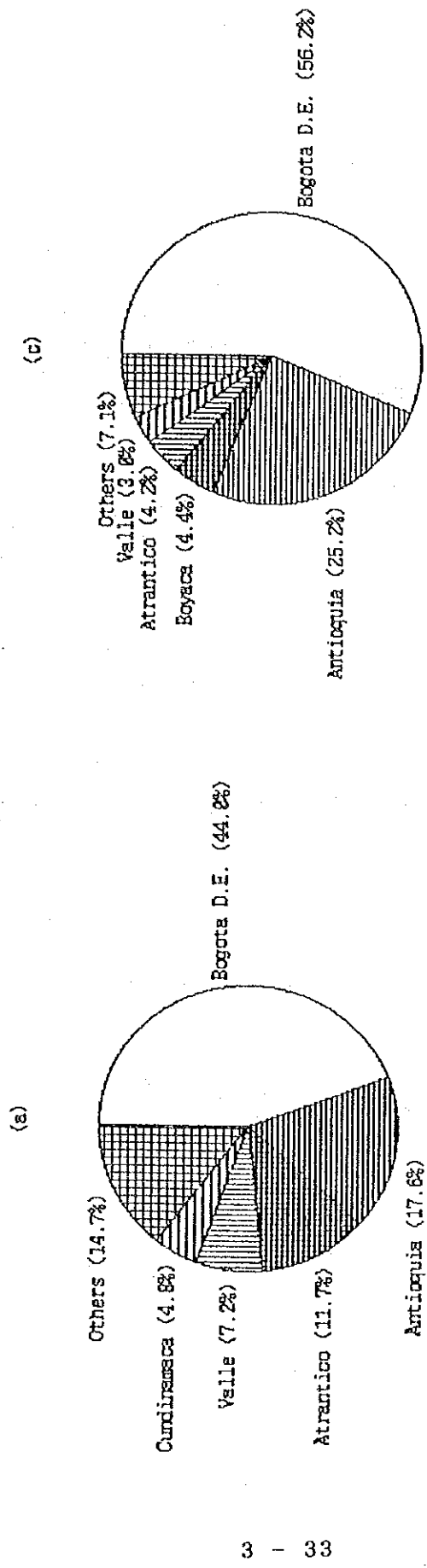
(E): Total production at each district: million pesos

(F): Ratio of remuneration to total remuneration of product: percentage

(G): Ratio of production to total product: percentage

Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Figure 3.9 TRANSPORTATION EQUIPMENT SECTOR (CIU 384) BY DISTRICT



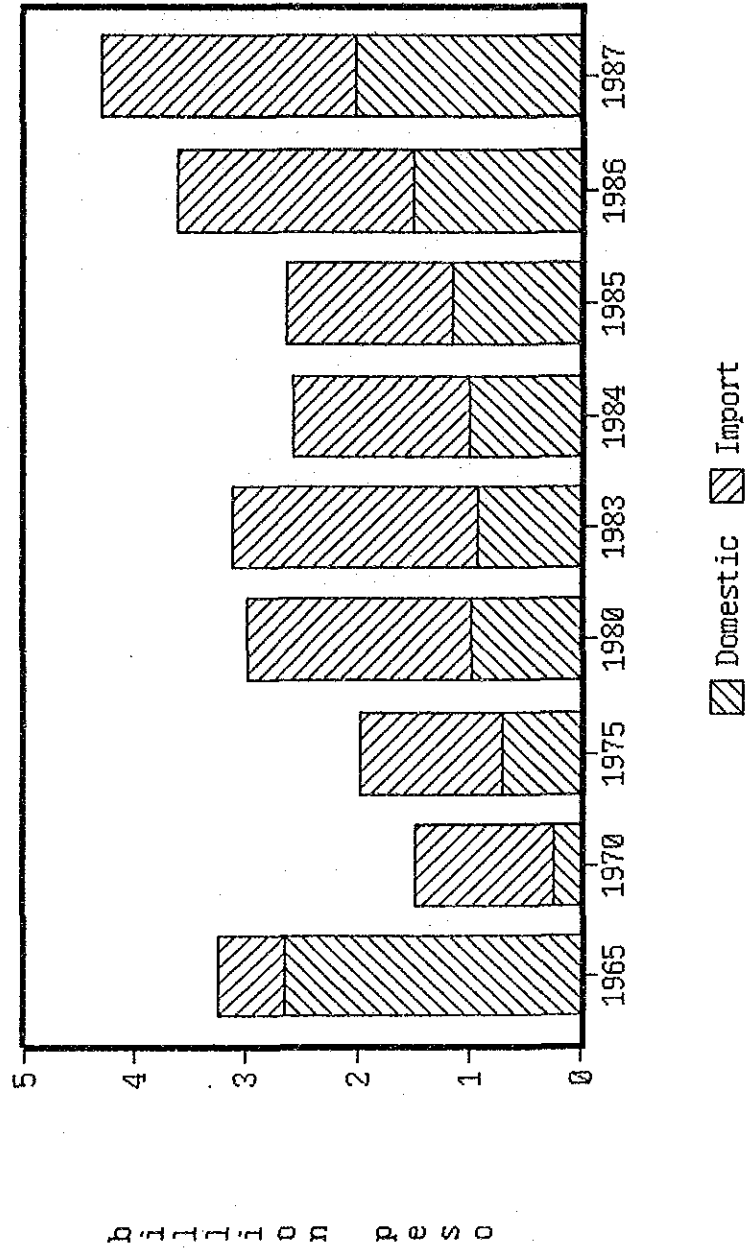
Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Table 3.12 DEMAND OF SPECIAL EQUIPMENT SECTOR (CIU 385)

Unit: Million pesos

Year	Domestic Production	Import	Export	Domestic Demand	Domestic Production Rate	Ratio of	
						Domestic Production to the Previous Year	Domestic Production to the Previous Year
1965	2,665	588	34	2,819	0.803	-	-
1970	245	1,243	65	1,423	0.172	0.108	0.108
1975	694	1,264	254	1,704	0.407	2.833	2.833
1980	981	2,015	547	2,449	0.401	1.414	1.414
1983	919	2,200	240	2,879	0.319	0.937	0.937
1984	997	1,580	203	2,374	0.420	1.085	1.085
1985	1,148	1,498	270	2,377	0.483	1.151	1.151
1986	1,499	2,121	297	3,323	0.451	1.306	1.306
1987	2,014	2,294	386	3,922	0.514	1.344	1.344

Figure 3.10 DEMAND OF 385



Source: I/O model

Table 3.13 CLASSIFICATION OF SPECIAL EQUIPMENT SECTOR (CIU 385)  
BY SCALE OF ENTERPRISE

Unit: Million pesos

	(a)	(b)	(c)	(d)	(e)	(f)	(b)/(a)	(c)/(b)	(d)/(b)	(e)/(b)	(f)/(b)
0	0	0	0	0	0	0	***	***	***	***	***
1	42	993	1,920	863	94	324	23.64	1.93	0.87	0.09	0.33
2	15	991	4,064	1,990	1,124	1,284	66.07	4.10	2.01	1.13	1.30
3	1	102	581	330	35	187	102.00	5.70	3.24	0.34	1.83
4	1	197	922	429	23	64	197.00	4.68	2.18	0.12	0.32
5	2	415	2,027	1,308	39	256	207.50	4.88	3.15	0.09	0.62
6	1	354	5,316	2,734	210	784	354.00	15.02	7.72	0.59	2.21
7	0	0	0	0	0	0	***	***	***	***	***
8	0	0	0	0	0	0	***	***	***	***	***
9	0	0	0	0	0	0	***	***	***	***	***
t	62	3,052	14,830	7,654	1,525	2,899	49.23	4.86	2.51	0.50	0.95
2-4	17	1,290	5,567	2,749	1,182	1,535	75.88	4.32	2.13	0.92	1.19
5-9	3	769	7,343	4,042	249	1,040	256.33	9.55	5.26	0.32	1.35
0/t	0.00	0.00	0.00	0.00	0.00	0.00					
s/t	0.68	0.33	0.13	0.11	0.06	0.11					
m/t	0.27	0.42	0.38	0.36	0.78	0.53					
l/t	0.05	0.25	0.50	0.53	0.16	0.36					

Notes:

0	1	2	3	4	5	6	7	8	9
<10	10-49	50-99	100-149	150-199	200-349	350-499	500-649	650-799	>800
(micro)	(small)								(Nos. of employees)

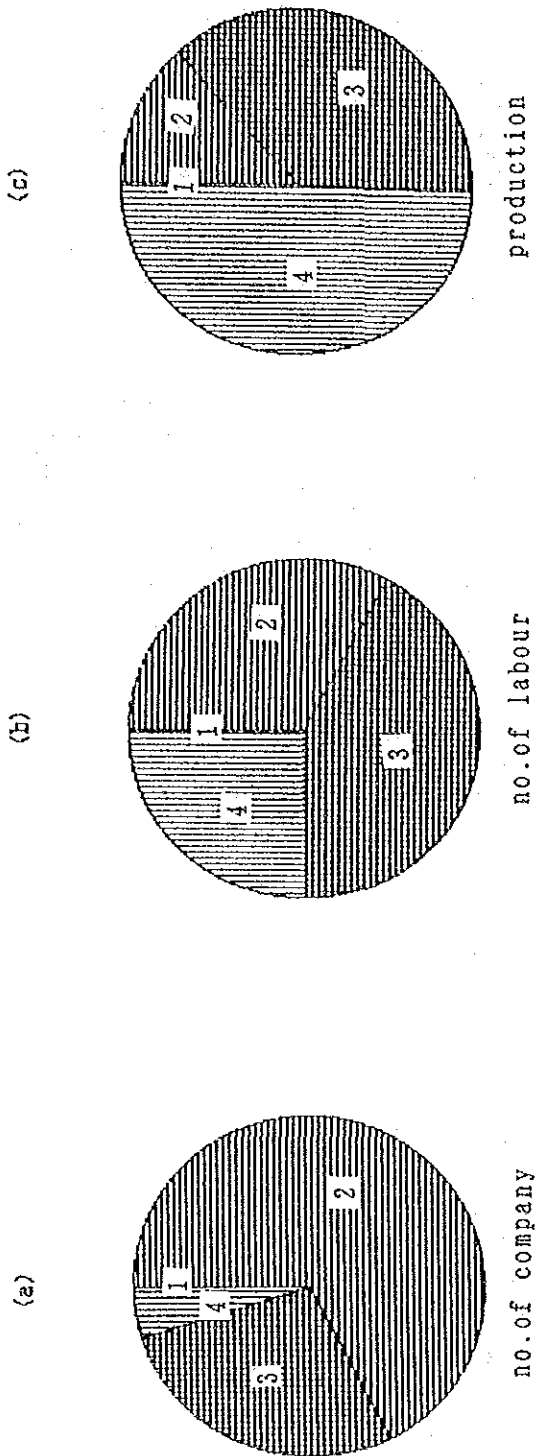
2-4	5-9	0/t	s/t	m/t	l/t
50-199	<200	ratio of micro	ratio of small	ratio of medium	ratio of large
(medium)	(large)				

(a)	(b)	(c)	(d)	(e)	(f)
nos. of company	nos. of labour	production	value added	investment	fixed asset
		(million pesos)	(million pesos)	(thousand pesos)	(thousand pesos)

The Manufacturing statistics, as a rule, do not include the microenterprises.  
Therefore, the enterprises with no more than 10 persons should be ignored.

Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Figure 3.11 CLASSIFICATION OF SPECIAL EQUIPMENT SECTOR (CIU 385) BY SCALE OF ENTERPRISE



Note : 1 micro  
 2 small  
 3 medium  
 4 large

Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Table 3.14 SPECIAL EQUIPMENT SECTOR(CIIU 385) BY DISTRICT

	(A)	(B)	(C)	(D)	(E)	(B)/(A)	(A)/(D)	(C)/(E)	(F)	(G)
ANTIOQUIA	895	292	3,722	104,203	623,977	0.33	0.01	0.01	0.30	0.25
ATLANTICO	258	87	738	29,574	232,373	0.34	0.01	0.00	0.09	0.05
BOGOTA D.E.	1,146	400	3,218	143,803	851,295	0.35	0.01	0.00	0.38	0.22
BOLIVAR	0	0	0	7,595	121,576	***	0.00	0.00	0.00	0.00
BOYACA	0	0	0	7,427	57,284	***	0.00	0.00	0.00	0.00
CALDAS	0	0	0	9,924	56,556	***	0.00	0.00	0.00	0.00
CAUCA	0	0	0	3,480	21,641	***	0.00	0.00	0.00	0.00
CASAR	0	0	0	1,308	11,348	***	0.00	0.00	0.00	0.00
CORDOBA	0	0	0	1,646	17,015	0.00	0.00	0.00	0.00	0.00
CUNDINAMARCA	0	0	0	23,617	165,950	***	0.00	0.00	0.00	0.00
CHCCO	0	0	0	302	548	***	0.00	0.00	0.00	0.00
HUITA	0	0	0	1,375	15,238	***	0.00	0.00	0.00	0.00
LA GUAJIRA	0	0	0	24	57	***	0.00	0.00	0.00	0.00
MAGDARENA	0	0	0	1,231	6,037	***	0.00	0.00	0.00	0.00
META	0	0	0	1,157	11,696	***	0.00	0.00	0.00	0.00
SANTANDER	9	2	6	4,634	21,437	0.22	0.00	0.00	0.00	0.00
QUINCIO	0	0	0	939	28,903	***	0.00	0.00	0.00	0.00
RISARALDA	14	3	9	13,744	79,590	0.21	0.00	0.00	0.00	0.00
NTE.SANTANDER	9	2	5	17,184	186,125	0.22	0.00	0.00	0.00	0.00
SUCRE	0	0	0	544	3,348	***	0.00	0.00	0.00	0.00
TOLIMA	0	0	0	4,873	41,894	***	0.00	0.00	0.00	0.00
VALLE	666	403	7,133	69,341	661,040	0.61	0.01	0.01	0.22	0.48
COMISARIAS	0	0	0	424	2,289	***	0.00	0.00	0.00	0.00
Total	2,997	1,189	14,831	448,349	3,217,217	0.40	0.01	0.00	1.00	1.00

## Notes:

(A): Remuneration: thousand pesos

(B): Salary: million pesos

(C): Production: million pesos

(D): Total remuneration at each district: thousand pesos

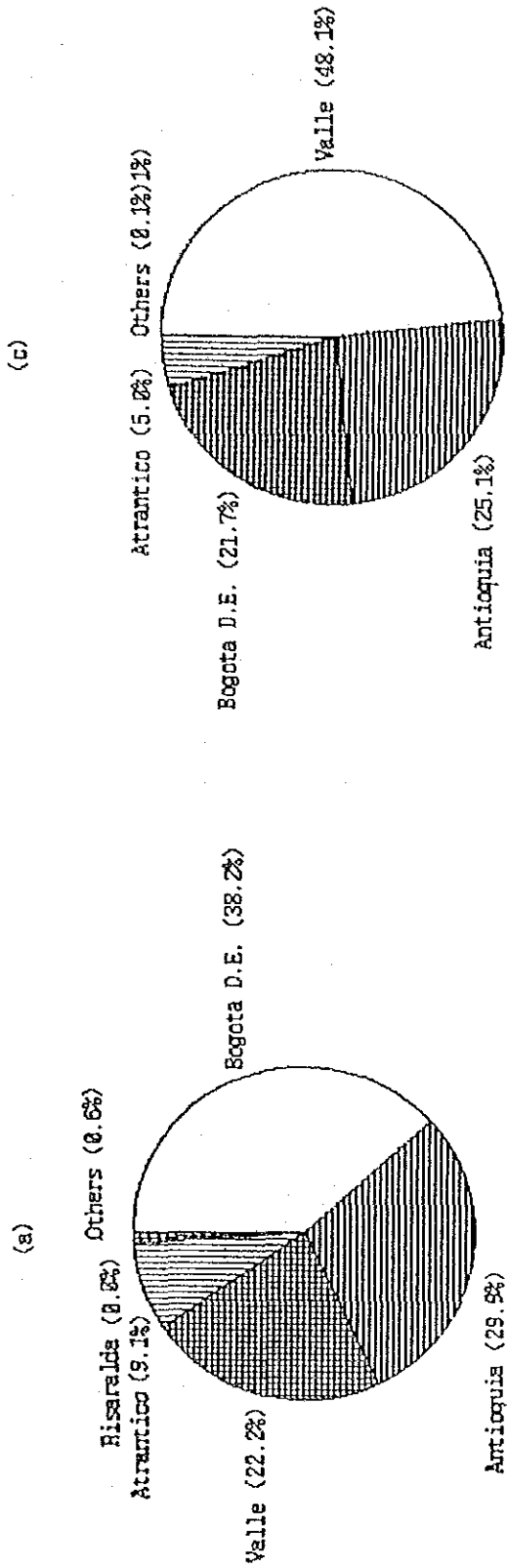
(E): Total production at each district: million pesos

(F): Ratio of remuneration to total remuneration of product: percentage

(G): Ratio of production to total product: percentage

Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Figure 3.12 SPECIAL EQUIPMENT SECTOR (CIU 385) BY DISTRICT



Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

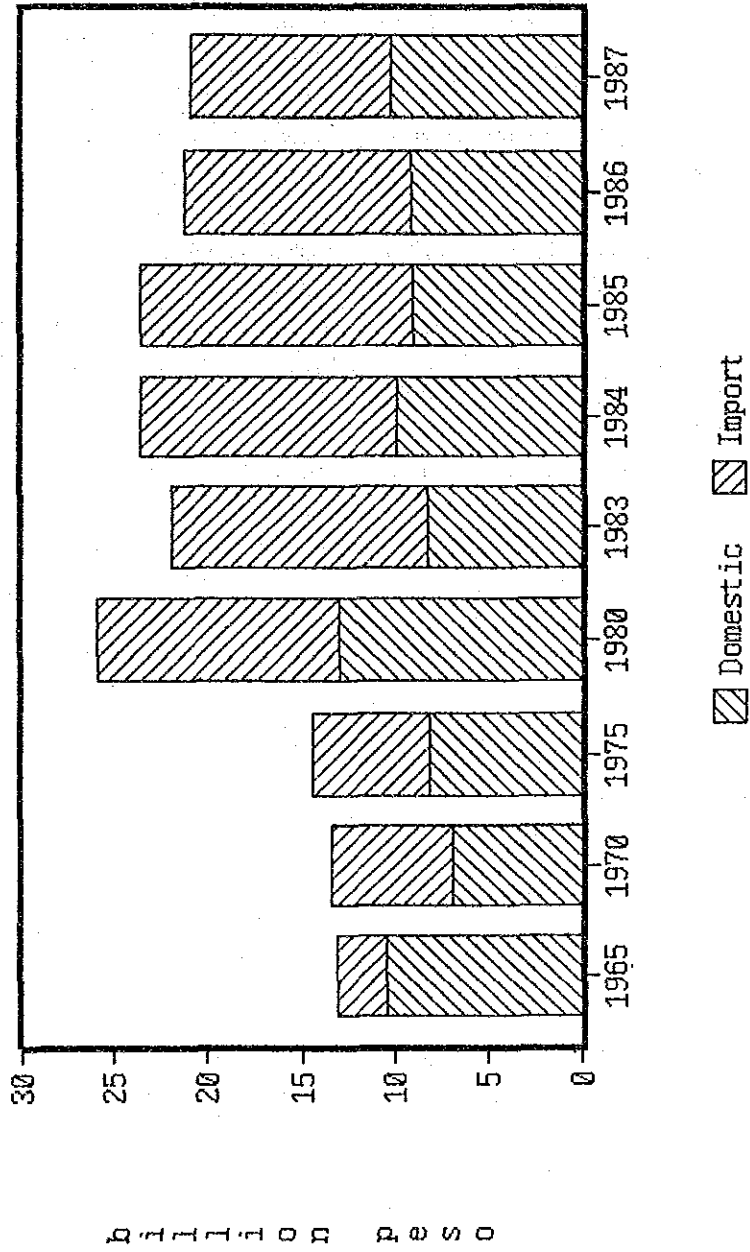


Table 3.15 DEMAND FOR NON-MACHINERY METALWORKING PRODUCTS (CIU 381)

Unit: Million pesos

Year	Domestic Production	Import	Export	Domestic Demand	Domestic Production Rate	Ratio of	
						Domestic Production to the Previous Year	Domestic Production
1965	10,418	2,683	226	12,875	0.809	-	-
1970	6,890	6,518	505	12,903	0.534	0.661	0.661
1975	8,035	6,361	701	13,695	0.587	1.166	1.166
1980	12,977	12,941	670	25,248	0.514	1.615	1.615
1983	8,192	13,776	389	21,579	0.380	0.631	0.631
1984	9,855	13,767	476	23,146	0.426	1.203	1.203
1985	8,985	14,612	562	23,035	0.390	0.912	0.912
1986	9,061	12,146	583	20,624	0.439	1.008	1.008
1987	10,204	10,781	534	20,451	0.499	1.126	1.126

Figure 3.13 DEMAND OF 381



Source: I/O model

Table 3.16 CLASSIFICATION OF NON-MACHINERY METALWORKING PRODUCTS (CIIU381)  
BY SCALE OF ENTERPRISE

	(a)	(b)	(c)	(d)	(e)	(f)	(b)/(a)	(c)/(b)	(d)/(b)	(e)/(b)	(f)/(b)
0	5	26	538	227	47.6	143	5.20	20.69	8.73	1.83	5.50
1	385	8,234	18,166	6,922	560.2	3,286	21.39	2.21	0.84	0.07	0.40
2	63	4,290	15,725	6,665	322.9	2,335	68.10	3.67	1.55	0.08	0.54
3	20	2,471	11,865	4,060	62.4	1,178	123.55	4.80	1.64	0.03	0.48
4	17	2,957	11,659	4,833	647.6	1,805	173.94	3.94	1.63	0.22	0.61
5	21	5,405	26,111	9,880	651.6	3,502	257.38	4.83	1.83	0.12	0.65
6	4	1,587	7,341	3,668	86.8	786	396.75	4.63	2.31	0.05	0.50
7	1	526	1,401	578	0.6	70	526.00	2.66	1.10	0.00	0.13
8	0	0	0	0	0	0	***	***	***	***	***
9	1	1,305	3,514	1,119	1,118.9	1,923	1,305.00	2.69	0.86	0.86	1.47
t	517	26,801	96,320	3,499	3,498.6	15,028	51.84	3.59	0.13	0.13	0.56
2-4	100	9,718	39,249	1,033	1,032.9	5,318	97.18	4.04	0.11	0.11	0.55
5-9	27	8,823	38,367	1,858	1,857.9	6,281	326.78	4.35	0.21	0.21	0.71
0/t	0.0	0.001	0.006	0.065	0.01	0.01					
s/t	0.7	0.307	0.189	1.979	0.16	0.22					
m/t	0.2	0.363	0.407	0.295	0.30	0.35					
l/t	0.1	0.329	0.398	0.531	0.53	0.42					

Notes:

0	1	2	3	4	5	6	7	8	9
<10	10-49	50-99	100-149	150-199	200-349	350-499	500-649	650-799	>800
(micro)	(small)								(Nos. of employees)

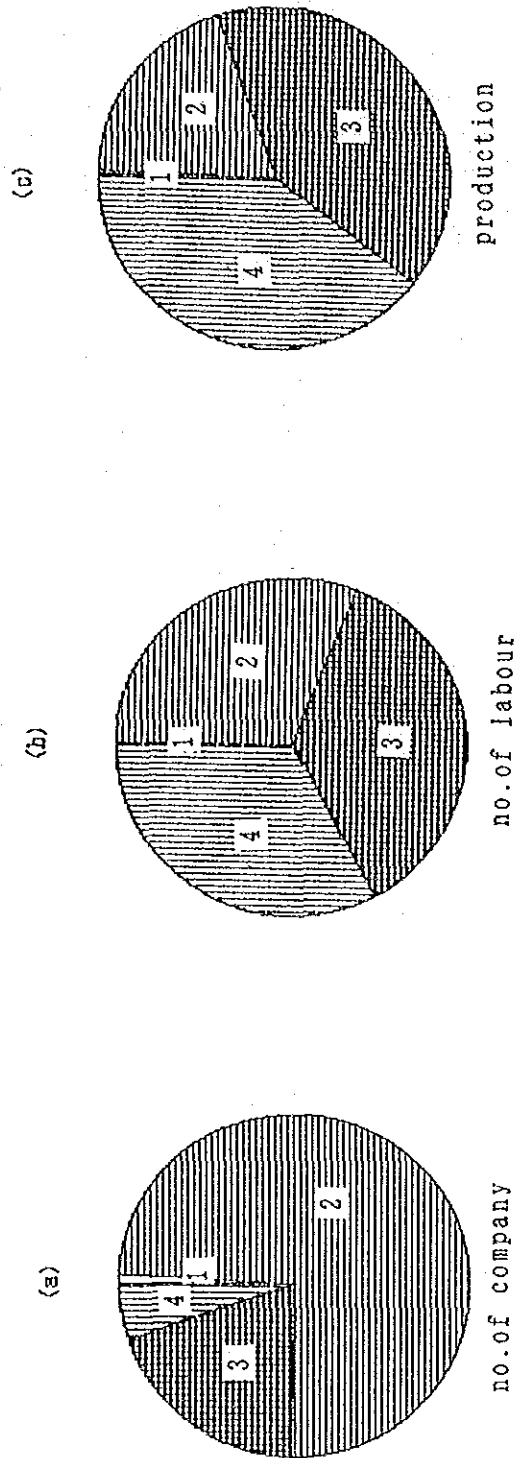
2-4	5-9	0/t	s/t	m/t	l/t
50-199	<200	ratio of micro	ratio of small	ratio of medium	ratio of large
(medium)	(large)				

(a)	(b)	(c)	(d)	(e)	(f)
nos. of company	nos. of labour	production	value added	investment	fixed asset
		(million pesos)	(million pesos)	(thousand pesos)	(thousand pesos)

The Manufacturing statistics, as a rule, do not include the microenterprises.  
Therefore, the enterprises with no more than 10 persons should be ignored.

Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Figure 3.14 CLASSIFICATION OF NON-MACHINERY METALWORKING PRODUCTS (CIU 381)  
BY SCALE OF ENTERPRISE



Note : 1 micro  
2 small  
3 medium  
4 large

Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Table 3.17 NON-MACHINERY METALWORKING PRODUCTS (CIIU 381) DISTRICT

	(A)	(B)	(C)	(D)	(E)	(B)/(A)	(A)/(D)	(C)/(E)	(F)	(G)
ANTIOQUIA	5,474	2,172	19,306	104,203	623,977	0.40	0.05	0.03	0.21	0.20
ATRANTICO	2,091	1,298	7,480	29,574	232,373	0.62	0.07	0.03	0.08	0.08
BOGOTA D.E.	10,540	4,044	42,202	143,803	851,295	0.38	0.07	0.05	0.41	0.44
BOLIVAR	169	62	752	7,595	121,576	0.37	0.02	0.01	0.01	0.01
BOYACA	128	33	649	7,427	57,284	0.26	0.02	0.01	0.00	0.01
CALDAS	839	296	3,429	9,924	56,556	0.35	0.08	0.06	0.03	0.04
CAUCA	12	2	18	3,480	21,641	0.17	0.00	0.00	0.00	0.00
CESAR	18	5	42	1,308	11,348	0.28	0.01	0.00	0.00	0.00
CARDOBA	0	0	0	1,646	17,015	0.00	0.00	0.00	0.00	0.00
CUNDINAMARCA	573	194	1,251	23,617	165,950	0.34	0.02	0.01	0.02	0.01
CHCCO	0	0	0	302	548	***	0.00	0.00	0.00	0.00
HUITA	19	5	18	1,375	15,238	0.26	0.01	0.00	0.00	0.00
LA GUAJIRA	0	0	0	24	57	***	0.00	0.00	0.00	0.00
MAGDARENA	0	0	0	1,231	6,037	***	0.00	0.00	0.00	0.00
META	0	0	0	1,157	11,696	***	0.00	0.00	0.00	0.00
SANTANDER	102	30	351	4,635	21,437	0.29	0.02	0.02	0.00	0.00
QUINCIO	145	54	541	939	28,903	0.37	0.15	0.02	0.01	0.01
RISARALDA	298	61	445	13,744	79,590	0.20	0.02	0.01	0.01	0.00
NTE.SANTANDER	554	157	2,336	17,184	186,125	0.28	0.03	0.01	0.02	0.02
SUCRE	18	4	22	544	3,348	0.22	0.03	0.01	0.00	0.00
TOLIMA	40	11	104	4,873	41,894	0.28	0.01	0.00	0.00	0.00
VALLE	4,821	1,753	17,240	69,341	661,040	0.36	0.07	0.03	0.19	0.18
COMISARIAS	0	0	0	424	2,289	***	0.00	0.00	0.00	0.00
Total	25,841	10,181	96,186	448,350	3,217,217	0.39	0.06	0.03	1.00	1.00

## Notes:

(A): Remuneration: thousand pesos

(B): Salary: million pesos

(C): Production: million pesos

(D): Total remuneration at each district: thousand pesos

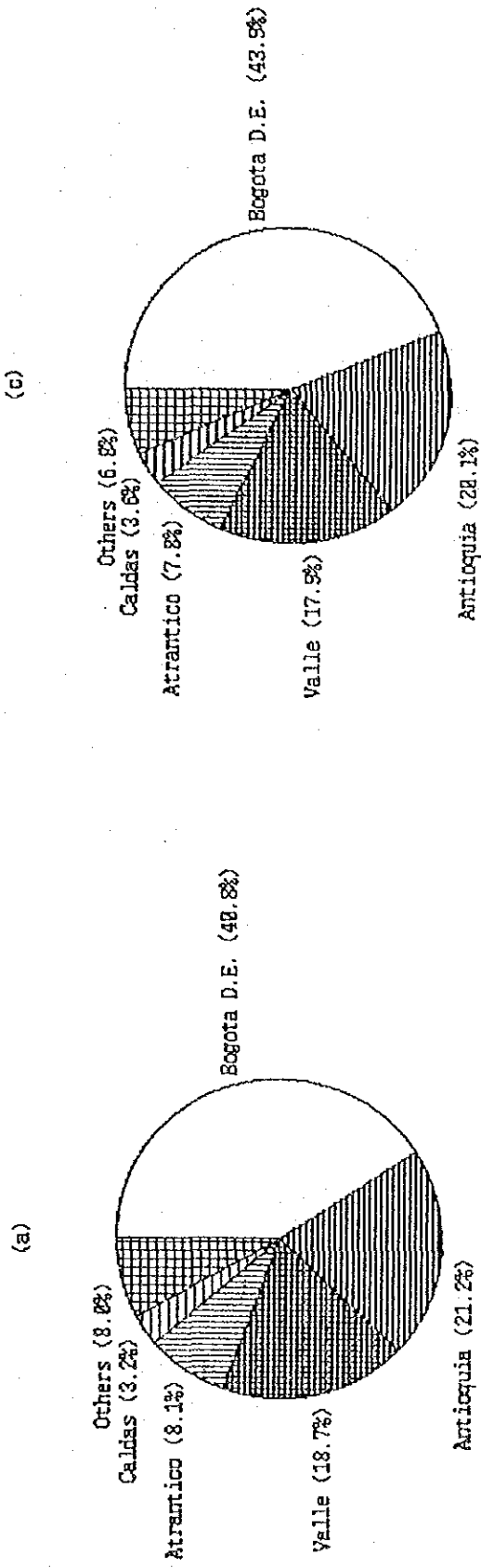
(E): Total production at each district: million pesos

(F): Ratio of remuneration to total remuneration of product: percentage

(G): Ratio of production to total product: percentage

Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Figure 3.15 NON-MACHINERY METALWORKING PRODUCTS (CIU 381) BY DISTRICT



Source: ANUARIO DE INDUSTRIA MANUFACTURERA 1986

Table 3.18 NATIONAL GROSS PRODUCTION OF CAPITAL GOODS 1974 - 1986

Unit: Million Pesos in 1975 Constant price

Code	Mean											Structure (%)				
	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1974-86	Group Gross Total	
101	145.7	137.9	168.5	166.9	206.8	264.1	242.9	243.6	140.3	143.4	162.8	148.2	161.6	179.4	4.95	3.24
102	195.4	170.2	317.4	299.4	338.7	440.0	369.3	408.6	272.8	238.1	158.7	111.3	142.5	286.3	7.35	4.81
103	508.8	577.5	539.5	834.9	770.4	996.7	978.1	1,047.1	927.3	866.0	731.4	596.3	547.9	763.2	21.08	13.80
104	306.8	305.1	297.3	375.3	365.5	420.5	465.7	387.4	382.4	389.1	346.4	336.2	417.5	368.9	10.19	6.67
105	151.2	169.4	163.7	165.7	209.7	242.3	288.7	315.9	375.6	248.1	253.2	248.4	209.8	234.0	6.46	4.23
106	17.2	18.9	21.7	64.0	40.9	55.5	63.1	60.1	65.4	58.0	54.2	49.9	44.7	47.2	1.30	0.85
107	221.0	103.8	149.6	87.7	210.0	206.5	226.4	281.6	226.7	213.9	210.1	244.3	362.9	211.1	5.83	3.82
108	24.2	25.8	35.1	35.8	49.5	53.4	52.0	48.1	53.0	63.0	53.3	57.6	63.0	47.2	1.30	0.85
109	1,010.1	953.2	1,019.6	1,171.0	1,105.4	1,185.1	1,130.7	1,000.6	786.5	803.1	725.8	591.7	616.8	930.7	25.70	16.82
110	193.9	171.7	210.6	290.0	468.9	392.8	485.1	723.6	620.2	424.0	104.7	389.4	489.1	380.3	10.50	6.87
111	100.7	122.0	108.7	151.1	197.4	155.2	190.3	244.8	300.2	266.9	222.9	176.6	271.7	193.0	5.33	3.49
Total 100	2,875.0	2,755.5	3,031.9	3,641.8	3,963.2	4,412.2	4,492.4	4,761.3	4,150.4	3,713.6	3,023.4	2,929.9	3,327.5	3,621.4	100.00	65.46
201	183.9	128.4	182.0	303.2	298.6	346.1	223.4	366.4	217.2	136.2	152.0	184.4	241.6	226.4	25.46	4.09
202	363.4	278.9	302.6	308.8	453.1	475.9	438.2	521.3	528.0	501.5	489.1	478.7	409.1	426.8	48.00	7.71
203	100.2	135.6	146.6	171.1	170.1	208.5	218.1	269.8	219.4	272.7	280.1	276.9	259.2	209.9	23.60	3.79
204	7.9	24.5	14.2	23.3	25.7	48.3	36.7	23.4	28.2	20.1	29.8	13.1	44.9	26.2	2.94	0.47
Total 200	635.4	567.5	645.4	806.4	947.3	1,078.9	916.4	1,181.0	992.8	930.5	950.9	983.1	954.8	889.3	100.00	16.07
301	182.1	41.8	184.7	222.5	65.4	60.1	115.1	98.5	138.4	122.0	123.1	146.6	135.0	125.8	12.31	2.27
302	147.7	214.4	206.2	211.1	204.8	172.0	103.1	115.9	78.2	41.3	26.2	32.7	15.5	120.7	11.81	2.18
303	563.9	588.2	663.5	747.3	921.9	631.9	626.0	897.0	774.1	692.9	892.6	778.2	757.5	733.5	71.78	13.26
304	7.6	3.8	8.2	8.3	8.6	7.6	11.9	10.9	16.3	10.0	16.8	3.0	15.5	10.0	0.98	0.18
305	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
306	45.5	41.1	35.9	57.8	26.9	22.4	23.6	34.9	22.6	17.6	21.5	39.0	25.8	31.9	3.12	0.58
Total 300	846.9	889.2	1,098.6	1,248.0	1,227.6	894.0	879.8	1,157.2	1,029.7	883.7	1,080.2	989.5	949.3	1,021.6	100.00	18.47
Gross Total	4,457.3	4,212.2	4,775.9	5,696.2	6,138.2	6,385.1	6,288.6	7,099.5	6,172.9	5,527.8	5,054.6	4,882.5	5,231.7	5,532.5	100.00	100.00

Notes : 101 Machine tools.  
 102 Motive machines and mechanisms for transmission  
 103 Plate work and structures  
 104 Machinery and equipment for fluids  
 105 Machinery and equipment for weight and goods handling  
 106 Industrial and laboratory furnices and burners  
 107 Machinery and equipment for land and solid materials work  
 108 Manglers, rolling-mills, centrifugal machines and apparatus for filtering  
 109 Machinery and equipment for sectorial specific use  
 110 Equipment and material of transport  
 111 Other machines and mechanical apparatus and parts and pieces NIG

201 Electric motors, generators and other rotating machines  
 202 Transformers and static converters  
 203 Apparatus for sectioning, cutting and coupling of electric circuits  
 204 Other machines, equipment and electric material  
 301 Equipment for telecommunication  
 302 Electronic components and materials  
 303 Electronics of consumption  
 304 Electromedical equipment  
 305 Equipment for calculation and information treatment  
 306 Equipment for instrumentation, measurement and control

Source: Information from Capital Good Program