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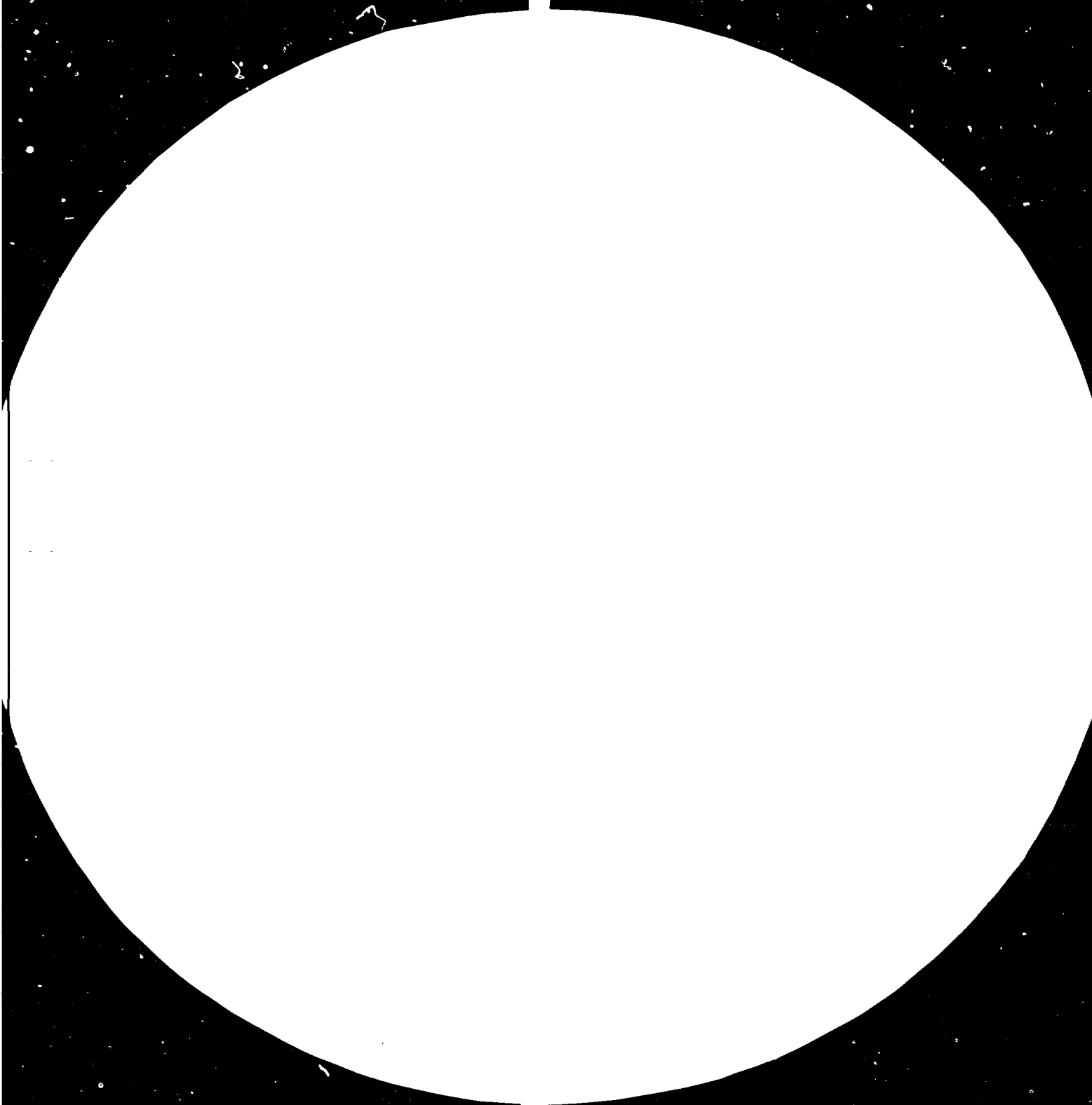

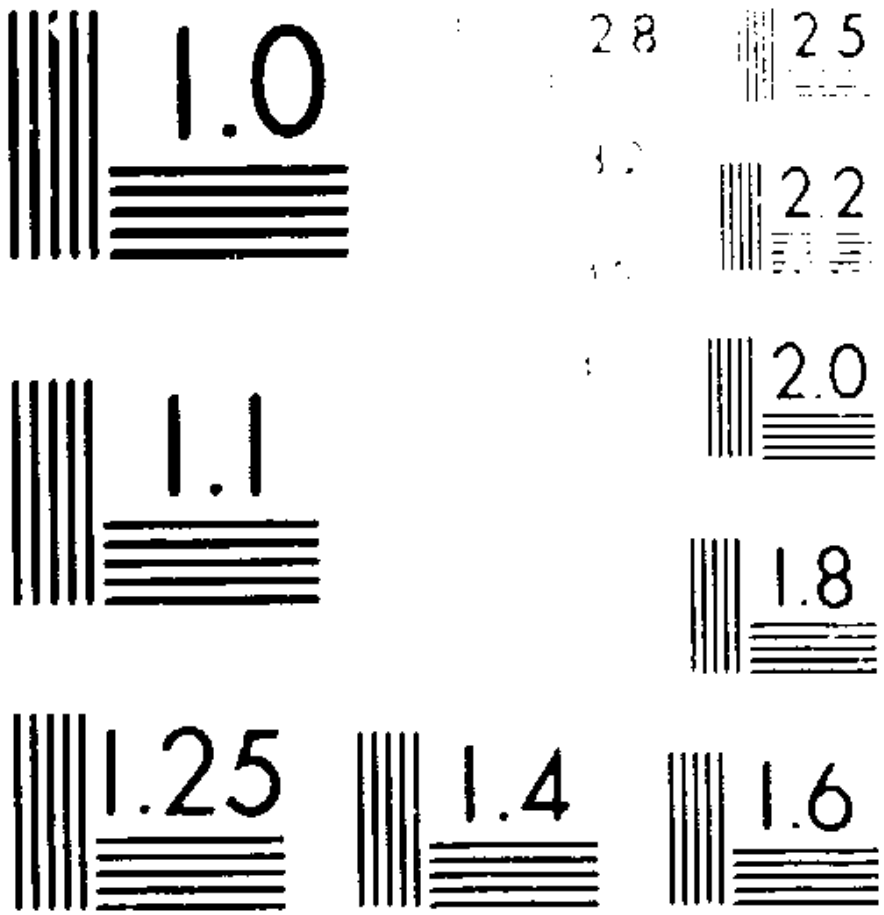
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Distr.
LIMITED

UNIDO/IS.192
5 December 1980

ENGLISH

UNITED NATIONS INDUSTRIAL
DEVELOPMENT ORGANIZATION

COUNTRY INDUSTRIAL DEVELOPMENT PROFILE

OF

BRAZIL*

Prepared by the

Division for Industrial Studies

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PREFACE

The Division for Industrial Studies, Regional and Country Studies Branch, undertakes under its work programme, the preparation of Country Industrial Development Profiles. These profiles are desk studies, providing statistical and economic analyses of the industry sector, its growth, present status and future prospects. It is hoped that the profiles will provide analyses of use in activities relating to technical assistance, industrial redeployment and investment co-operation.

This profile on Brazil is based on documents, reports and studies available at UNIDO Headquarters. No field survey has been undertaken and some of the data on industry are not up to date.

The views or comments contained in this document do not reflect those of the Government of Brazil nor do they officially commit the United Nations Industrial Development Organization to any particular course of action.

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SUMMARY

Even though the boom performance of Brazil's economy during 1969-74 has ended, it has continued to function at a high level. Growth of G.D.P. averaged 6.4 per cent between 1974 and 1978. Since the country is 60 per cent dependent on imports for its oil needs, one of its main problems stems from the steep hikes in world prices for petroleum since 1973. Other problems are the continuing high level of the inflation and considerable balance of payment deficits. Government austerity measures to cure these ills are constraints on the free-wheeling growth of earlier years.

Since 1974 the difficult and ardous task ahead has been to achieve an accelerated but balanced expansion. This includes an expansion of iron and steel, petro-chemicals, other heavy and chemical industries, and the modernization of the traditional sector, strengthening of small and medium industries, accelerated industrial redeployment into North-east Brazil, and expediting technical and economic co-operation among developing countries, especially with West Africa.

In the longer run, Brazil has the potential to sustain the high levels of growth of the last five years. Brazil is well placed to deploy its extensive resources in pursuit of its development objectives. It has relatively large mineral and land resources still untapped, and the basic infrastructure is sufficiently well developed to permit rapid exploitation of these latent assets. Human and management resources have developed significantly in the recent past, and institutions in the public and private sector have demonstrated and ability to tackle development issues effectively.

Chapter I

GENERAL ECONOMIC BACKGROUND

Covering 8,551,965 square kilometers, Brazil has the largest territorial extension of any country in South America. Its population of 116 million is estimated to be growing at about 2.8 per cent per annum. The rate of demographic growth has declined significantly from 3.5 per cent in the early sixties and should continue to decline in the future to about 2.4 per cent by the year 2000. On this basis, population would have reached some 210 million by the turn of the century. Average life expectancy should increase from an estimated 64 years at present to 71 years by the year 2000.

Only a few countries can match the extraordinary growth rates of the Brazilian economy during the late sixties and early seventies. G.D.P. grew at an average annual rate of 10.2 per cent during the boom of 1968-73, the industrial sector by 13.0 per cent, and the agricultural sector by 5.3 per cent and services by 10.3 per cent. G.D.P. was then equivalent to US $132.7 billion or US $1,308 per capita. The economic growth has continued since the end of the boom, but at a moderated pace, the average annual rate of growth being 6.74 per cent between 1973 and 1978. G.D.P. was estimated at US $183.9 billion in 1978 or US $1,580 per capita. These indicators do not reflect, however, a rather wide range of development between geographical areas and sectors: from the highly developed urban-industrial complexes of Sao Paulo and Rio de Janeiro in the Southeast to the lesser developed provinces of the North and Northeast, and from exports of advanced machinery, equipment and vehicles, on the one hand, to traditional agricultural and industrial products, on the other.

Taking account of the length and breadth of the country, social and economic indicators, although uneven, show an upward tendency. The adult literacy rate in the year 1977 was 84 per cent and primary school enrollment 87 per cent. Other figures, actual for 1974 and projected in the Second Plan of Development for 1979 are: urban population served with water supply - 65 per cent and 79 per cent; urban population served with

sewerage services - 29 per cent and 44 per cent; telephones - 2.8 million and 8.1 million; effective rate of school attendance - 84 per cent and 90 per cent; population with access to medical services - 82 per cent and 86 per cent. In the year 1974, gas or electric stoves were found in 63 per cent of the households; radios in 85 per cent; refrigerators in 33 per cent; television sets in 34 per cent; and automobiles in 12 per cent. If only urban areas are considered, the indicators rise to: refrigerators 47 per cent; television sets 50 per cent; and automobiles 17 per cent.

Economic activity is strongly concentrated in the Greater Sao Paulo and Greater Rio de Janeiro metropolitan areas. Between them, they have 29 per cent of the nation's urban population and almost half of the labour force employed in industry. In contrast, the three metropolitan areas of the Northeast (Recife, Salvador, and Fortaleza) account for 7 per cent of the total urban population and less than 3 per cent of industrial employment. Two decades of effort on behalf of regional development have established the basis, in terms of physical and social infrastructure, to lead to the belief that the predominance of the Sao Paolo and Rio metropolitan areas will be moderated in the years to come. (Table 1)

Table 1. Expenditure on GDP, 1965-77

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976 2/	1977 2/
GDP (market prices)	144.1	150.2	157.6	175.7	192.7	208.3	237.1	264.0	298.7	332.3	351.2	382.7	400.5
Gross Fixed Investment	26.6	30.8	31.5	38.1	42.7	46.4	55.0	63.5	72.8	86.2	94.3	100.3	103.1
Imports of Goods & NFS 2/	6.2	7.9	8.6	10.7	11.4	14.5	17.3	20.9	23.5	30.6	29.2	28.8	25.3
Exports of Goods & NFS 2/	9.1	9.6	9.5	11.3	12.8	13.7	14.6	17.4	19.6	19.9	21.7	22.3	22.3
Consumption and Stocks	114.6	117.7	125.2	137.0	147.9	162.7	184.8	204.0	229.8	256.8	264.4	289.0	298.2
Terms of Trade adjustment	-0.4	-0.8	-1.0	-1.6	-1.3	0.0	-1.0	-0.2	0.9	-5.4	-2.7	-1.0	1.1
Exports adjusted	8.7	8.9	8.5	9.7	11.5	13.7	13.6	17.2	20.5	14.5	19.0	21.2	21.1
GDY	143.7	149.4	156.6	174.1	191.2	208.3	236.1	263.8	299.6	326.9	348.5	381.7	401.6
Gross Domestic Savings 3/	29.1	31.7	31.4	37.1	43.3	45.6	51.3	59.8	69.8	70.1	84.1	92.7	103.4
Memo: Terms of Trade 4/ (1970=100)	95.2	92.0	89.5	86.0	90.1	100.0	93.0	98.4	104.2	73.1	87.7	96.6	104.8

Source: Vargas Foundation (FGV); World Bank estimates.

1/ Assumes GDP at market prices grew at same rate as GDP at Factor Cost.
2/ Mission estimates.
3/ Net of Inventories.
4/ National Accounts; differs from merchandise terms of trade by the inclusion of non-factor services.

General Note: The source for these accounts is CONTAS NACIONAIS. Revisao e Atualizacao 1949, 1959, 1965-1975. FGV, July 1977, in particular Table XV which presents constant cruzeiro accounts for expenditure on Gross Domestic Income (GDY). These accounts only go to 1975; 1976 and 1977 were published in current prices in CONJUNTURA ECONOMICA, February 1978 pp.18-19, with constant price estimates for GDP at factor cost and updated in CONJUNTURA ECONOMICA, October 1978, pp.81-90. Real Investment for 1976 and 1977 was taken from the latter source. The appropriate trade indices are Conjuntura #117 and 166 with the import index adjusted so as to impute the non-petroleum price to non-factor services. These series however are not entirely consistent with the accounts as published, therefore, in order to maintain consistency, the import and export series above are slight modifications of the FGV published numbers. The key problem in using the accounts as published is that the figures for Real Gross Domestic Income (Depesa Interna Real Bruta) and Real Gross Domestic Product (Producto Real) are identical. As this can only hold when the terms of trade adjustment is zero, modifications need to be made; however, the published tables do not present the terms of trade adjustment.

Chapter II

MANUFACTURING SECTOR

Historical Background[1/]

Economic developments in Brazil after World War II can be divided into three periods for convenient analysis, based on the criterion of the prevailing development orientation.[2/] The first period runs from the end of World War II to 1963; the second period from 1964 to 1973 (it also includes the perspectives and targets of the First Development Plan, 1971-74); and the third from 1975 to the present (embodying of the Second Development Plan, 1975-79).[3/]

The period from the end of World War II to the early sixties was one of significant protection with strong elements of autarky and increasing intervention in the economy. These were strongly supported (or motivated) by a sense of nationalism and of the importance of planning. In following through on the concept of substituting domestic production for imports, so the thinking went, the mix of domestic production and imports would change as incomes rose. Responding to the shifting income elasticities of demand, industrial production would rise to higher levels, and as with the so-called "ratchet-effect", further rising incomes would bring into play other demand elasticities, still higher levels of production, etc. Actual growth, however, followed a typical and perhaps natural sequence, not necessarily in accordance

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1/ See "Industrial Priorities in Brazil" in UNIDO's Developing Priorities in Developing Countries, 1979; Joel Bergman's Brazil: Industrialization and Trade Policies, London, 1970; Edmar L. Bacha's Issues and Evidence on Recent Brazilian Economic Growth" in World Development, Vol. 5, 1977; and Helga Hoffmann's "The Export Oriented Development Strategy in Brazil" in Intereconomics, No. 3/4, 1978.

2/ No attempt at summarizing these periods is adequate in reflecting the complex politico-economic interrelationships and the overlapping effects of policies aimed at structural and short-term changes.

3/ Another approach would be to deal with the postwar period in terms of the upswings and downswings of the cycles of economic activity. Thus, the periods of more rapid growth were 1947-52, 1956-61, and 1968-73 and those of less rapid growth were 1952-56, 1961-67, and from 1974 on. The inception of the military regime in 1964 occurred approximately midway in the 1961-67 slowdown. But it is deemed more helpful, in this summary, to deal with the broad approaches rather than the specifics of cyclical movements.

with the setting of priorities, nor were the priorities necessarily co-ordinated. It proceeded first in import substitution from consumer non-durables to consumer durables and intermediate goods to capital goods. It was only after import substitution of consumer goods was virtually complete that exports of manufactures began to grow. The pattern was consistent with "backward linkages".

The protectionist policies were designed to promote rapid industrialization, and they were effective. An analysis of the effects of protection during the period 1949-62 showed that, of a 20-sector breakdwown of manufacturing, 10 sectors had significant imports at the start of the period. Three of the sectors receiving highest protection experienced the most import substitution (electrical equipment, transport equipment, and plastics), while the other seven received less protection and had lower import substitution (non-metallic mineral products, metals, machinery, paper, chemicals, pharmaceuticals and miscellaneous). For the last 10 years, imports have not been a significant part of total supply of any manufactured goods in Brazil except for heavy equipment and some chemicals.

The early nationalism and enthusiasm for planning were also associated with increasing State intervention in the economy. Public sector expenditures rose from 20 per cent of GDP in 1955 to 27 per cent in 1962. On the side of capital expenditures, it resulted in the planning and execution of many works of infrastructure. Gross investment of the public sector (including State enterprises) represented 39 per cent of total capital formation in 1962, up from 25 per cent in 1955. But this, together with enforced price controls (which undermined many public agencies' programmes) contributed to increasingly larger budget deficits which rose from less than 1 per cent in 1955 to nearly 5 per cent in 1962 as a proportion of G.D.P. This was also accompanied by a rising inflation which exceeded 100 per cent in 1963-64 and increasingly acute political tensions.

A military regime came to power (April 1964) to resolve the politico-economic impasse. It attempted to do so in clearly defined ways. It reduced the Government's high deficit, established a virtual wage

freeze which endured through 1967, enacted a substantial tax reform, streamlined the fiscal machinery, initiated a realistic price policy for public services and Government firms, and laid out the welcome mat to the multinational corporations to participate in those sectors of the economy not reserved to the State itself. The years of 1964 and 1967 were essentially years of stabilization and of reform. Inflation was reduced from 87 per cent in 1964 to 24 per cent in 1967.

The orientation of the new Government was clearly distinct from the previous one. The concept of the guiding and interventionist State remained, but the participation of the State in industrial activities was essentially confined to "basic" infrastructure and resource sectors. The element of nationalism remained but within a new context of increasing self-sufficiency consonant with the evident and credible availability of resources and the autarchical elements were thrown aside. The private sector, national and foreign, was encouraged to participate fully in the development process. Many incentives were offered to the private sector to produce and to export. Foreign capital was made welcome in law and in fact. In other ways, the differences were a matter of emphasis. As a shorthand expression, it can be said that the new regime was more "outward looking" than the previous ones; this is so, provided that it is kept in mind that in playing the "export card", for example, the Government always aimed at internal development through the full participation of all sectors.

The next phase, the boom of 1967-73, was one of fast economic growth. This was facilitated by the existence of substantial unused domestic capacity, rapid industrial growth among the developed countries, an increase of world trade of around 20 per cent per year, a large influx of international capital, and numerous incentives. Consumer durables with automobiles at their head were at the center of the stage in this period. Still another factor was the improved terms of trade (26 per cent) which enhanced Brazil's balance of payments position in the light of the rising level of imports. By December 1973, Brazilian reserves had reached 6.4 billion dollars.

The economy grew at an average rate of 10.1 per cent for the seven years between 1967 and 1974. This compares favourably with the preceding cyclical rises of 8.3 per cent from 1956-61, 3.7 per cent for 1961-67, and 5.6 per cent for 1952-56. Industrial exports registerd an impressive growth in this period growing at an average annual rate of 27 per cent. They rose from 1.9 billion dollars to almost 8 billion dollars, or from 1 per cent of total exports in 1959 (through a still insignificant 6.2 per cent in 1964) to 25 per cent in 1973. It was up to 28 per cent in the mid-1970s. Output of the consumer durables sector grew at an average annual rate of 23.8 per cent from 1967 to 1973, the comparable rate for non-durables being 11.9 per cent. And most industrial exports came from the non-durables sector.

In this change-over to an outward-looking strategy, imports continued to rise at average rates of 20 per cent during the period 1967-70 and at 35 per cent in the period 1970-73. This speeding up wa due basically to the performance of industrial imports which reached more than 80 per cent of the total imports. And among the industrial imports, capital goods had the lion's share.

The entrance of foreign capital was important in this period. The evidence now seems to suggest that it was due, in greater measure, to dramatic changes in the international availability of capital (especially in the Euro-currency market) and to the existence of the requisite institutional structure to receive it in Brazil, as well as by the attractions of a booming economy.

Inflation was controlled through a rigid incomes policy between 1964-67 and later relaxed. Inflation staved at 1/ per cent in 1972 and 1973. By the end of the boom, it went to 30 per cent in 1974. Despite deflationary measures it staved at 30 per cent in 1975 and rose to 45 per cent in 1976. Monetary policy provided flexibly for the needs of trade. Other instruments used to "live with" the inflation were: the mini-devaluations begun in 1968; [1] credit and tax incentives; simplification

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1/ An exchange rate policy consisting of frequent and unpredictable mini-devaluations of the cruzeiro, taking into account internal and external inflation.

of administration procedures; exoneration of income taxes on exports profits (after 1965); exemption of duties on imported materials used for exports ("drawbacks"); exemption of exports from indirect taxes (as of October 1967); and interest-subsidized credit lines for exports. "Export corridors" were also developed to facilitate the commercialization of goods abroad. The role of exports in overall development is still being debated. While there is no doubt that it contributed to the magnitude of the boom, there is increasing doubt about its impact as the generator factor. Manufacturing exports reached a high point of 14 per cent of manufacturing value added and 5 per cent of G.D.P. 1/

Several converging factors contributed to bringing an end to the boom. Indications were evident in 1973 of escalating inflation associated with many industrial sub-sectors operating at or near full capacity and shortages of consumer goods and raw materials.

Where the external sector was concerned, the slowing down of exports growth, the adverse turn in the terms of trade, and the continuing rise in imports all contributed to a marked deterioration of the balance of payments. The deficit on current account jumped from 1.7 billion dollars in 1973 to 7.1 billion in 1974, basically due to the doubling of imports. Undoubtedly, oil played an important part, since costs quadrupled to over 2 billion dollars in 1974, but still, capital goods were higher: 3.2 billion dollars in 1974. It has been observed that these high imports corresponded to the last stage of the growth cycle in an economy which had not yet developed sufficiently its capital goods industry. During the first stages, the expansion could proceed gradually using up existing productive capacity, but as soon as productive capacity had to be expanded, higher imports accompanied the higher investment levels. Net foreign debt grew from 6.2 billion dollars in December 1973 to 17.8 billion dollars in December 1975. Whereas G.D.P. grew by 14.0 per cent and industry by

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1/ As a point of comparison, South Korean manufactured exports were 37 per cent of G.D.P. and Taiwanese manufactured exports were 48 per cent of G.D.P. in 1973. Of course, in these smaller economies, given absolute increases of external trade will translate into greater percentage increases.

15.8 per cent in 1973, these fell to 9.8 per cent and 9.8 per cent, respectively, in 1974. Growth was tempered further in 1975: G.D.P. rose by 5.6 per cent and industry by 6.2 per cent. The growth rate of capital formation in industry declined from 20.4 per cent in 1973 to 14.2 per cent in 1974, and still further to 4.7 per cent in 1975 and 4.4 per cent in 1976.

In the years 1974 and 1975, a shift in emphasis took place, within the same strategy to take into account the constraints that had since developed, most especially by the balance of payments deficits and the high rate of inflation. (Since this period also corresponds to the Second Development Plan (1975-79), the economy's performance in this period will be discussed together with the objectives and targets of the Second Plan in Chapter IV).

Relation of manufacturing sector in the Gross Domestic Product, 1960-77

The role of manufacturing in the Gross Domestic Product is notable for its steadily rising share over the past two decades. This increased from 18 per cent of G.D.P. in 1960 to a high of 25 per cent in 1974 and 1975, from which it slipped to 24 per cent in 1976 and 23 per cent in 1977. As a result of the faster rate of growth of industry as compared to G.D.P. in 1978 - 8.1 per cent versus 6.0 per cent - manufacturing probably renewed its upward trend. The prospects for the manufacturing sector and the G.D.P. in 1979 were similar to those of 1978, so that it is likely that a further improvement took place in the share of manufacturing (Table 2).

Table 2. Relation of manufacturing sector to gross domestic product, 1960-77

COUNTRY OR AREA AND CURRENCY UNIT	YEAR	GROSS DOMESTIC PRODUCT	AGRICULTURE[1]	INDUSTRIAL ACTIVITY		CONSTRUCTION	WHOLESALE AND RETAIL TRADE	TRANSPORT AND COMMUNICATION	OTHER[1]
				TOTAL[2]	MANUFACTURING INDUSTRIES				
	ISIC(REV.)	1-9	1	2-4	3	5	6	7	8-9
		PERCENTAGE DISTRIBUTION							
BRAZIL	1960	2.8	18	19	18	1	12	5	25
(1000 MILLION BRAZILIAN CRUZEIROS)	1961	4.1	13	20	18	1	12	6	27
	1962	6.6	13	20	18	1	12	6	28
	1963	11.9	17	21	20	1	13	6	27
	1964	23.1	18	20	18	1	11	5	27
	1965[3]	44.1	13	23	21	4	13	5	27
	1966	63.7	11	23	21	4	12	4	26
	1967	86.2	10	22	20	5	12	5	28
	1968	122.4	9	23	21	5	12	4	26
	1969	161.9	9	24	21	5	12	4	26
	1970	208.5	8	24	22	5	13	4	26
	1971	276.8	9	25	22	5	13	4	26
	1972	363.2	8	26	23	5	13	4	25
	1973	498.3	9	26	24	5	13	4	24
	1974	719.5	9	28	25	5	13	4	23
	1975	1009.4	9	28	25	5	13	4	24
	1976	1560.3	9	27	24	5	13	4	25
	1977	2352.8	10	26	23	5	13	4	25

Source: United Nations Yearbook of National Accounts Statistics, 1978, vol. II

Traditional and non-traditional industries

A distinction between traditional and non-traditional industries is common in manufacturing. In the first group are food products, beverages, textiles, wearing apparel, leather and products, footwear, wood products, furniture and fixtures, and printing and publishing. These grew more prominently in the earliest stages of industrialization in Brazil, beyond the first stages, the non-traditional industries show a more dynamic growth. These include basic metals, metallurgical products, machinery, transport equipment, chemical products and others.

Between the years 1965 and 1974 (which roughly covers the period from the inception of the Military Government to the end of the boom), manufacturing showed an overall growth rate of 11.2 per cent annually. The more traditional industries showed rates of growth that were lower than the average: food products - beverages - tobacco 8.1 per cent, textiles 4.0 per cent, and paper and products 8.7 per cent. On the other hand, industrial chemicals grew at 12.9 per cent, glass products and other non-metallic products 12.3 per cent, metallic products 10.7 per cent, machinery 16.5 per cent, and transport equipment 21.2 per cent. The production of electric energy grew at a rate close to that of manufacturing as a whole, 10.4 per cent. (Table 3)

In the period since the end of the boom (and coinciding with the Second Plan of Development 1975-79), the tendency observed for the earlier period has remained in force.

Table 3. Manufacturing sector: growth rates, 1965-74 by branches

9. INDEX NUMBERS OF INDUSTRIAL PRODUCTION (1970 = 100)

ISIC	INDUSTRY	1965	1966	1967	1968	1969	1971	1972	1973	1974	a/ RATE	ISIC
210	COAL MINING	61	71	84	93	99	110	113	108	111	6.9	210
220	PETROLEUM AND GAS ..... b/	56	70	88	98	105	102	100	102	109	7.7	220
230	METAL ORE MINING	...	...	...	...	...	...	...	...	...	...	230
290	OTHER MINING	...	...	...	...	...	...	...	...	...	...	290
2	MINING & QUARRYING. c/	58	70	87	97	103	104	104	104	109	7.3	2
311/2	FOOD PRODUCTS											311/2
313	BEVERAGES	68	73	76	81	93	102	116	129	137	8.1	313
314	TOBACCO											314
321	TEXTILES ..... d/	87	86	84	100	96	112	117	127	124	4.0	321
3211	SPINNING,WEAVING,ETC .	...	...	...	...	...	...	...	...	...	...	3211
322	WEARING APPAREL ..... d/	...	...	...	...	...	...	...	...	...	...	322
323	LEATHER AND PRODUCTS ...	...	...	...	...	...	...	...	...	...	...	323
324	FOOTWEAR ..... d/	...	...	...	...	...	...	...	...	...	...	324
331	WOOD PRODUCTS	...	...	...	...	...	...	...	...	...	...	331
332	FURNITURE & FIXTURES ...	...	...	...	...	...	...	...	...	...	...	332
341	PAPER AND PRODUCTS	62	68	79	82	85	107	115	126	131	8.7	341
3411	PULP,PAPER,ETC	...	...	...	...	...	...	...	...	...	...	3411
342	PRINTING,PUBLISHING	...	...	...	...	...	...	...	...	...	...	342
351	INDUSTRIAL CHEMICALS ... e/	56	66	68	77	84	110	127	158	167	12.9	351
3511	BASIC EXCL FERTILIZERS	...	...	...	...	...	...	...	...	...	...	3511
3513	SYNTHETIC RESINS,ETC .	...	...	...	...	...	...	...	...	...	...	3513
352	OTHER CHEMICAL PRODUCTS. e/	...	...	...	...	...	...	...	...	...	...	352
3522	DRUGS AND MEDICINES ..	...	...	...	...	...	...	...	...	...	...	3522
353	PETROLEUM REFINERIES ... e/	...	...	...	...	...	...	...	...	...	...	353
354	PETROLEUM,COAL PRODUCTS. e/	...	...	...	...	...	...	...	...	...	...	354
355	RUBBER PRODUCTS ..... e/	...	...	...	...	...	...	...	...	...	...	355
356	PLASTIC PRODUCTS NEC ... e/	...	...	...	...	...	...	...	...	...	...	356
361	POTTERY,CHINA,ETC											361
362	GLASS AND PRODUCTS	56	61	66	75	80	104	119	138	159	12.3	362
369	NON-METAL PRODUCTS,NEC .											369
371	IRON AND STEEL											371
372	NON-FERROUS METALS	58	72	70	83	94	112	126	138	145	10.7	372
381	METAL PRODUCTS											381
382	MACHINERY NEC ..... f/	52	65	71	88	93	120	145	186	206	16.5	382
3825	OFFICE,COMPUTING,ETC .	...	...	...	...	...	...	...	...	...	...	3825
383	ELECTRICAL MACHINERY ... f/	...	...	...	...	...	...	...	...	...	...	383
3832	RADIO,TELEVISION,ETC .	...	...	...	...	...	...	...	...	...	...	3832
384	TRANSPORT EQUIPMENT	41	50	51	64	86	125	153	195	232	21.2	384
3841	SHIPBUILDING & REPAIR.	...	...	...	...	...	...	...	...	...	...	3841
3843	MOTOR VEHICLES	...	...	...	...	...	...	...	...	...	...	3843
385	PROFESSIONAL GOODS	...	...	...	...	...	...	...	...	...	...	385
390	OTHER INDUSTRIES	...	...	...	...	...	...	...	...	...	...	390
3	MANUFACTURING	61	68	70	81	90	111	127	148	159	11.2	3
410	ELECTRICITY,GAS,STEAM ..	...	...	...	...	...	...	...	...	...	...	410
4101	ELECTRICITY	64	70	73	82	91	111	124	139	156	10.4	4101
420	WATER WORKS AND SUPPLY .	.	.	.	.	.	.	.	.	.	.	420
4	ELECTRICITY,GAS,ETC	...	...	...	...	...	...	...	...	...	...	4
2-4	ALL INDUSTRY c/g/	61	69	71	82	90	111	126	145	156	11.0	2-4

Source: United Nations Yearbook of Industrial Statistics, 1975, vol. I.

a/ Annual growth rate 1965-1974.
b/ Crude petroleum only.
c/ Excluding major groups 230 and 290.
d/ Major groups 322 and 324 are included in 321.
e/ Major groups 352 to 356 are included in 351.
f/ Major group 383 is included in 382.
g/ Excluding gas and steam.

Consumer-intermediate-capital goods production

The composition of manufacturing production as between consumer goods, intermediate goods and capital goods has changed over the past two decades. Between 1959 and 1975, durable consumer goods showed an average annual growth rate of 14.4 per cent with capital goods production right behind with 13.1 per cent. Further behind were intermediate goods with an annual rate of 9.7 per cent and non-durable consumer goods at 7.0 per cent. The manufacturing sector as a whole grew at an annual rate of 9.3 per cent. During the boom years 1967-73, manufacturing production rose at 14.7 per cent annually with durable consumer goods and capital goods growing at rates of 23.8 per cent and 20.5 per cent, respectively. In this period, the production of intermediate and non-durable consumer goods were not far behind, the rates being 15.3 per cent and 11.8 per cent, respectively (Table 4).

The relative place of each of these groupings in the year 1975 has changed compared with a decade and a half earlier. Whereas non-durable goods represented 52.0 per cent of manufacturing value added in 1959, it had fallen to 37.0 per cent in 1975. Between those same two years, durable consumer goods doubled from 5.1 per cent to 10.5 per cent, intermediate goods rose from 32.3 per cent to 34.1 per cent, and capital goods rose from 10.6 per cent to 18.4 per cent (Table 5).

Table 4. *Indices and real growth rates of manufacturing output: major user groups, 1959 and 1965-75*
(1970=100 and %)

	Capital goods		Intermediate goods		Consumer goods				Total	
					Durable		Non-Durable			
Year	Index	%	Index	%	Index	%	Index	%	Index	%
1959	32.7	–	39.2	–	25.3	–	52.3	–	42.7	–
1965	56.1	–	53.5	–	41.1	–	70.7	–	60.1	–
1966	66.5	18.5	65.3	22.0	46.2	12.4	71.8	1.6	67.5	12.3
1967	63.8	-4.0	66.0	1.1	50.3	8.9	73.7	12.7	68.6	1.7
1968	81.4	27.5	79.8	20.8	60.9	21.1	82.7	12.1	80.2	16.9
1969	87.5	7.6	87.5	9.6	81.4	33.8	90.4	9.4	88.6	10.4
1970	100.0	14.3	100.0	14.3	100.0	22.8	100.0	11.1	100.0	12.9
1971	115.5	15.5	117.0	17.0	125.4	25.4	110.7	10.7	114.2	14.2
1972	149.5	29.4	136.1	16.3	149.2	19.0	129.0	16.5	135.0	18.2
1973	195.8	31.0	155.4	14.2	180.6	21.0	144.2	11.8	156.3	15.8
1974	222.1	13.4	165.8	6.7	211.7	17.3	151.7	5.2	168.2	7.6
1975	235.2	5.9	172.6	4.1	218.2	3.1	155.4	2.4	174.5	3.7
Annual Averages										
1959-65		9.4%		5.4%		8.4%		5.1%		5.9%
1967-73		20.5%		15.3%		23.8%		11.8%		14.7%
1959-75		13.1%		9.7%		14.4%		7.0%		9.3%

Source: "The Brazilian Economy in the Seventies: Old and New Developments" by P.S. Malan and R. Bonelly, in "World Development, 1977, Vol. 5, Nos. 1/2, pp. 19-45.

Table 5. *Structure of value added major user groups (1959 and 1965/75)*
(In % based on constant values of 1970)

	Consumer goods		Intermediate goods (%)	Capital goods (%)
	Non-durable (%)	Durable (%)		
1959	52.0	5.1	32.3	10.6
1965	49.8	5.9	31.3	13.0
1966	45.7	6.0	34.4	13.9
1967	46.2	6.4	34.3	13.1
1968	44.0	6.6	35.2	14.2
1969	43.4	7.9	34.9	13.8
1970	42.4	8.6	35.1	13.9
1971	40.8	9.4	35.8	14.0
1972	40.2	9.4	35.1	15.3
1973	38.6	9.8	34.4	17.2
1974	37.5	10.6	33.9	18.0
1975	37.0	10.5	34.1	18.4

Source: "The Brazilian Economy in the Seventies: Old and New Developments" by P.S. Malan and R. Bonelli, in World Development, 1977, Vol. 5, Nos. 1/2, pp 19-45.

State role in industry

General

Brazil has a long tradition of supporting private enterprise. Recent government have been committed to long-range development planning and vast public spending, but habe strongly supported the private sector's role in attaining overall objectives.

Public enterprises are found mainly in natural resources and public services. A study covering assets ownership in the year 1974 shows that public enterprises accounted for 62 per cent in the mining sector and 88 per cent in public utilities (of which 78 per cent corresponded to transport and 90 per cent to the rest). For manufacturing, the share of public enterprises averaged 20 per cent. The figure varies, however, in accordance with the branch of manufacturing, being relatively high in metal-mechanics (34 per cent) and chemicals (55 per cent), and low in others - 6 per cent in rubber, 2 per cent in non-metallics, 1 per cent in mechanical, and 1 per cent in food processing. In commerce it was only 1 per cent and in services 27 per cent. All together, the share of public enterprises averaged 37 per cent. (Table 6)

The Government has expanded its role in productive enterprises in recent years, chiefly in the basic sectors of mining, steel and petrochemicals, principally to ensure sufficient resources to promote development. State-owned industries have also recently entered the computer and airlines fields.

The Government's general policy is to engage in activities that private interests are either unwilling to tackle or unable to finance, and to preserve Brazilian control of basic and politically sensitive sectors, such as mining and petroleum. Even in the latter areas, the state will often invite private (including foreign) participation. In petrochemicals, the preferred investment formula has been one-third government, one-third local capital and one-third foreign investors. In several cases, however, the inability of local private partners to meet expansion needs or to keep up with cost overruns has led to the emergence of the Government in a majority role.

State-owned industry

No manufacturing fields are reserved exclusively to the state, but the Government has a virtual monopoly in oil refining and a predominant role in steel, iron-ore mining, petro-chemicals, power and other utilities.

The state oil company, Brazilian Petroleum Enterprise (PETROBRAS) operates the largest tanker fleet in Latin America.

The petro-chemical sector, formerly a PETROBRAS monopoly, was opened to private investors, and numerous foreign concerns have set up plants. Production of basic petro-chemicals is generally reserved for joint ventures between private companies and Brazilian Petro-chemicals Enterprise (PETROQUISA), another PETROBRAS subsidiary in which the latter holds a minority position. In 1973, however, PETROQUISA became the majority (62 per cent) partner in the largest of these companies, Petroquimica Uniao, when it had to take up a new stock issue to keep the $170 million venture from floundering because the local private partners were unprepared to make further investments. For similar reasons, PETROBRAS later bought out Refinaria Uniao, which produces feedstocks for the petrochemical core plant, and PETROQUISA took over the share held by a local partner in Salgema, a $ 90 million-plus venture with Du Pont of the US to make chlorine and caustic soda in the Northeast.

Although partnerships with PETROQUISA are not mandatory for foreign companies entering the petrochemical field, in practice such associations tend to be the rule. PETROQUISA's holding include partnerships with such international companies as International Finance Corporation; Monsanto, National Distiller, Halcon International (USA); and a few Japanese manufacturers. Next to the Sao Paulo area, the Government is following the same PETROQUISA private capital formula in developing a second petrochemical complex in Bahia, and a third petro-chemical complex to be built in the state of Rio Grande do Sul.

The state-owned steel mills - CSN, USIMINAS [1], and COSIPA - produce more than half of iron and steel production of the country. The state

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1/ USIMINAS is owned 18 per cent by a consortium of Japanese companies headed by Nippon Steel Corp., and the rest by the Brazilian federal government.

Table 6. *Brazil: patterns of asset ownership of the largest 5,113 non-financial enterprises, 1974*

Sector	Total net assets (million CR$)	Share of public enterprises	Share of foreign enterprises	Share of national private enterprises
Mining	9,637	0.62	0.12	0.26
Manufacturing	161,571	0.20	0.29	0.51
Non-metallic	7,551	0.02	0.35	0.64
Metallic	27,711	0.34	0.12	0.54
Mechanical	8,293	0.01	0.46	0.53
Electrical	6,476	–	0.61	0.39
Transport equip.	15,155	0.04	0.63	0.33
Wood	8,782	–	0.09	0.91
Furniture	577	–	–	1.00
Rubber	1,834	0.06	0.61	0.33
Leather	685	–	0.11	0.89
Chemicals	40,162	0.55	0.23	0.22
Textile	12,411	–	0.13	0.87
Food	16,910	0.01	0.31	0.68
Beverages	3,571	–	0.14	0.86
Tobacco	2,095	–	0.99	0.01
Printing	2,143	–	0.02	0.98
Miscellaneous	8,211	–	0.47	0.53
Agriculture, forestry	4,825	0.01	0.03	0.96
Construction	18,317	0.15	0.03	0.82
Public utilities	97,836	0.88	0.07	0.06
Transport	19,052	0.78	0.01	0.21
Others	78,784	0.90	0.08	0.02
Commerce	30,735	0.01	0.05	0.95
Services	84,656	0.27	0.04	0.69
Total	407,557	0.37	0.15	0.48

Source: "Issues and Evidence on Recent Brazilian Economic Growth", by E.L. Bacha, in World Development, 1977, Vol. 5, Nos. 1/2, pp. 47-67.

participates in USIBA and ACESITA steel mills while its holding company SIDERBRAS controls production and sales plan or iron and steel. The state-owned Cia Vale do Rio Doce (CVRD) has formed a partnership with Japanese aluminium makers and Norwegian capital in a $ 200 million undertaking called Albras to produce alumina - aluminium near the city of Belem. CVRD has a joint venture with Japan Pulp Resources Development, and is among the companies selected to develop the Minas Gerais phosphate find.

An example of how, in Northeast, SUDENE projects are financed is provided by Cimento Aratu, a second-tier subsidiary of Lone Star Cement of the US. For the US$ 10 million expansion of its plant in Salvador, Bahia, about 25 per cent of the funds came from Cimento Aratu's retained earnings, some 25 per cent from suppliers' credits and the remaining 50 per cent from SUDENE. Another example is Microlite do Nordeste in Recife, a dry-cell battery venture of ESB, FRG's Varta and the established São Paulo-based firm of Microlite. Of the total Cr 25 million investment, 75 per cent is SUDENE's. The remainder of financing came from Bank of Northeast of Brazil (BNB) in the form of long-term, low-interest loans.

Xerox also used tax credits granted its subsidiary, Xerox do Brasil, to help finance Metalquimica do Bahia, a venture in the Northeast to make toner powder for copying machines.

Small and medium industries (SMI's)

The Government's national development plan states as one of its objectives to assist and strengthen SMI's as part of its effort of decentralizing industrial production and increasing employment. In this regard, steps have been taken to strengthen the Brazilian Center for Managerial Assistance to Small and Medium Industries (CBRAE), and to identify industries which would particularly deserve support because of their comparative advantage or greater efficiency.

Although the latest available data on the size structure of firms comes from the 1970 industrial census (see attached table) and total industrial output has grown approximately 60 per cent in real terms since then till 1975, the data suggest that small and medium firms play an important role in the manufacturing sector. Firms with less than 250 employees accounted for 62 per cent of manufacturing employment in 1970, compared to 54 per cent in 1959, they also accounted for 55 per cent of manufacturing value added in 1970, compared to 46 per cent in 1959. Smaller enterprises have thus managed to increase their share of both employment and value added. The role of SMI's is particularly prominent in the more traditional labour-intensive industries, producing items of mass consumption (wood furniture, leather products, apparel and food).

With SMI's requiring less capital investment per job than larger industries, their expansion would have significant employment generation effects. Investigations of horsepower consumed per unit of labour generally suggest that firms in the 20 to 250 workers range tend to be more labour-intensive, at least as measured by the ratio of capital to labour, then either larger or smaller firms.

Table 7. Size of manufacturing firm and value added

Size of firms (Number of workers)	Number of workers (thousands)		Gross value added (millions of 1973 Cr$)	
	1959	1970	1959	1970
5-249(A)	727.4	1,387.8	17,241.6	41,426.1
250-499	196.4	348.9	5,694.1	13,574.5
500 and over	420.4	485.5	13,907.2	20,630.2
Total(B)	1,344.2	2,222.2	36,842.9	75,630.8
(A)/(B)	54%	62%	46%	55%

Source: Brazilian Institute of Geography and Statistics, 1975

Regional dispersion of industrial activity

Industries located in the southern part of the country (Sao Paolo, Rio de Janeiro, Belo Horizonte) account for 90 per cent of Brazil's manufacturing value added and 86 per cent of employment. in 1976.

In spite of the Northeast industrialization programme implemented by SUDENE and BNDE's financial incentives to industrialize the least developed regions, the pattern of geographic distribution has not changed, though these measures probably prevented a widening of the gap between the least developed regions and the rest of the country.

Companies investing in the Northeast and other regions rely heavily on southern Brazil for sales and funding. Finding management personnel, engineers and skilled workers, most of whom have to be imported from the southern part of the country, is difficult and costly.

The Brazilian Government earmarks a given portion of its budget, between 4 per cent and 5 per cent, for regional development. Funds assigned to the regions have risen steadily with the continuing rise in the national budget. The expenditure of these funds is at the discretion of the individual States and they do not include those items within the Sectoral budgets (public works, education, welfare, energy, etc.).

The trade balance and the balance of payments

The trade balance (between merchandise exports and imports) was positive between 1967 and 1970 (the first three years of the boom), and then it reversed itself becoming moderately negative between the years 1971 and 1973. Starting in 1974 and 1975, however, the trade balance became highly negative, on the order of US$4.7 billion in 1974 and US$3.5 billion in 1975. This was due less to the slower rise in the value of exports than to the sharp increase in merchandise imports. These jumped from US$6.2 billion in 1973 to US$12.6 billion in 1974 and remained at that level (US$12.2 billion) in 1975.

Adding to this the cost of services, the current account remained in deficit throughout this whole period: only moderately so between 1968 and 1971, tripling between 1971 and 1973, and rising again in 1974 and 1975. These deficits were offset in the main by continuous increases in the capital account. While direct foreign investment continued to rise, the main offset was due to the large increases in loans and other financing. This was reflected in the rise of the foreign debt which rose from US$9.5 billion in 1972 to US$22.2 billion in 1975.

The trade balance which was strongly negative in 1974 and 1975 was moderated in 1976 and even became positive(US$97 million) in 1977. However, it became negative again in 1978 (US$986 million).

The balance on current account has not ceased from being negative during the past 10 years, but it has been redressed by continuing net capital inflows. (Tables 8 and 9)

Table 8. Balance of payments: 1968-75 - summary accounts
(US $ million)

	1968	1969	1970	1971	1972	1973	1974	1975
Trade balance	+ 26	+ 318	+ 232	- 341	- 244	+ 7	- 4,684	- 3,514
Exports (FOB)	+ 1,881	+ 2,311	+ 2,739	+ 2,904	+ 3,991	+ 6,199	+ 7,951	+ 8,655
Imports (FOB)	- 1,855	- 1,993	- 2,507	- 3,245	- 4,235	- 6,192	-12,635	-12,169
Balance of Services	- 556	- 630	- 815	- 980	- 1,250	- 1,722	- 2,463	- 3,450
Non-factor services	- 256	- 299	- 397	- 490	- 649	- 965	- 1,490	- 1,637
Factor services	- 300	- 331	- 418	- 490	- 601	- 757	- 973	- 1,813
- (interest costs)	(- 156)	(- 204)	(- 284)	(- 344)	(- 489)	(- 839)	(- 1,355)	(- 1,776)
Current account deficit	- 530	- 312	- 583	- 1,321	- 1,494	- 1,715	- 7,147	- 6,964
Capital account	+ 541	+ 871	+ 1,015	+ 1,846	+ 3,492	+ 3,512	+ 6,235	+ 5,912
Direct investment	+ 61	+ 177	+ 132	+ 168	+ 318	+ 940	+ 887	+ 877
Loans and financing	+ 583	+ 1,023	+ 1,433	+ 2,037	+ 4,299	+ 4,495	+ 6,886	+ 5,177
Amortizations	- 424	- 493	- 672	- 850	- 1,202	- 1,672	- 1,940	- 2,088
Short-term capital	+ 381	+ 164	+ 122	+ 491	+ 77	- 251	+ 402	+ 1,946
Overall balance[a] (III + IV)	+ 32	+ 549	+ 545	+ 530	+ 2,439	+ 2,179	- 938	- 1,052

Source: Banco Central do Brazil, for 1975, preliminary estimates

a/ Is not exactly the algebraic sum of III and IV due to the 'Error and Omissions' item.

Table 9. Brazilian balance of payments

(US$ million)

Item	1976	1977	1978
Trade balance — FOB (A)	−2 255	97	−988
Exports	10 128	12 120	12 651
Imports	12 383	12 023	13 639
Services (B)	−3 763	−4 134	−4 975
Receipts	1 322	1 586	2 016
Payments	5 085	5 720	6 991
Interest	2 091	2 462	3 342
Profits and dividends	383	458	564
Other	2 611	2 800	3 085
Unrequited transfers (C)	1	0	72
Receipts	108	127	252
Payments	107	127	180
Current transactions (A + B + C)	−6 017	−4 037	−5 891
Net capital flow	6 806	5 269	9 439
Investments (net)	959	810	906
Foreign investment (net)	1 142	956	1 031
Brazilian investment abroad (net)	−183	−146	−125
Financing and loans	1 523	1 587	1 382
International organizations and governmental agencies	776	804	952
Suppliers' credit (over 360 days)	1 017	1 125	904
Brazilian loans and financing abroad	−270	−342	−474
Currency loans	5 930	6 118	11 312
Bonds	269	718	938
Other	1 062	96	71
Amortizations	−2 987	−4 060	−5 170
Net errors and omissions	403	−602	332
Surplus or deficit	1 192	630	3 880

Source: Central Bank of Brazil, 1978 Report

Merchandise exports

Merchandise exports grew by over six times between 1968 and 1978, rising from US$1,881 million to an estimated US$12,650 million. Manufactured and semi-processed goods rose from a total of US$350 million to almost US$6,000 million. This increase of 17 times that of the earlier year raised its share of total merchandise exports from 18.8 per cent in 1968 to 47.4 per cent in 1978. (Table 10). Products showing increases run across the board from traditional to the non-traditional. Footwear rose from a mere US$500,000 in 1968 to US$175 million in 1976, processed beef from US$12.6 million to US$113.6 million, and vegetables and fruit juices from US$11.8 million to US$104.4 million. On the non-traditional side: boilers, machines and mechanical instruments rose from US$13,0 million to US$266.2 million, electrical machinery from US$5.9 million to US$189.4 million, rolling stock and vehicles from US$3.9 million to US$373.1 million, and other manufactures from US$112,0 million to US$1,209,8 million.

Table 10. Brazil: merchandise exports, 1964-1977

(US$ million)

Year	Merchandise Exports	Semi-processed	Manufactured	Manufactures and semi-processed as a % of Merchandise Exports
1964	-	115	89	14.3
1965	-	154	129	17.7
1966	-	141	142	16.3
1967	-	147	164	18.8
1968	1,881	178	175	18.8
1969	2,311	211	245	19.7
1970	2,739	249	366	22.5
1971	2,904	241	523	26.3
1972	3,991	310	830	28.6
1973	6,199	476	1,328	29.1
1974	7,951	634	2,086	34.2
1975	8,670	645	2,379	34.9
1976	10,128	790	2,449	32.0
1977	12,139	988	3,388	36.0 1/
1978	12,650	1,384	4,614	47.4

Source: Central Bank of Brazil

1/ Not including refined sugar and soluble coffee.

Note: Merchandise exports also include agricultural, mineral and other exports.

Merchandise imports

While exports were rising at unprecedented rates in the last decade and a half, imports were increasing even faster. Thus, while exports rose from US1,654 million in 1967 to USdollar 8,655 million in 1975 or by 118.9 per cent, imports rose from USdollar 1,441 million to USdollar 12,169 million or by 233.2 per cent - twice as fast. (Table 14). Two groups of products accounted for this behavior on the part of imports - capital goods and oil products. During the boom years, capital goods accounted for as much as 41.3 per cent of total imports (1971). While this has fallen off, it still remains high. The value of oil products quadrupled following the rise in oil prices by OPEC. These rose from USdollar 727 million in 1973 to USdollar 2,908 million in 1975, the proportion of total imports rising from 11.7 per cent to 23.9 per cent. The value of imported consumer goods, although they have continued to rise in absolute terms, represent approximately half of their share a decade ago. (Tables 11 and 12)

Table 11. Imports by major groups, 1965-75

(In US$ millions and %)

	Capital goods		Raw materials		Consumer goods		Oil products	
	Value US$ million	% of total imports	Value US$ million	% of total imports	Value US$ million	% of total imports	Value US$ million	% of total imports
1965	237	25.2	429	45.6	107	11.4	168	17.8
1966	366	28.1	594	45.6	157	12.0	186	14.3
1967	459	31.9	594	41.2	216	15.0	172	11.9
1968	625	33.7	771	41.6	253	13.8	206	10.9
1969	738	37.0	766	38.4	259	13.0	230	11.6
1970	946	37.7	927	37.0	360	14.4	274	10.9
1971	1,339	41.3	1,314	40.5	256	7.9	336	10.3
1972	1,734	41.0	1,614	38.1	463	10.9	420	10.0
1973	2,143	34.6	2,606	42.1	716	11.6	727	11.7
1974	3,108	24.8	5,661	45.2	949	7.6	2,812	22.4
1975	3,932	32.3	4,501	37.0	828	6.8	2,908	23.9

Source: "The Brazilian Economy in the Seventies: Old and New Developments", by P.S. Malan and R. Bonelli, IPEA/INPES, in World Development, 1977, Vol. 5, Nos. 1/2.

Table 12. Exports and imports: price and quantum indices: terms of trade and import capacity, 1967-75

(1967 = 100)

	Exports			Imports				
Year	Value US$ Million	Quantum	Prices	Value US$ Million	Quantum	Prices	Terms of trade	Import capacity
1967	1,654	100.0	100.0	1,441	100.0	100.0	100.0	100.0
1968	1,881	114.9	98.7	1,855	123.5	102.9	95.9	110.2
1969	2,311	130.7	101.5	1,993	128.7	101.0	100.5	131.4
1970	2,739	134.7	114.7	2,507	154.8	102.9	111.5	150.2
1971	2,904	142.6	110.7	3,247	188.7	106.9	103.6	147.7
1972	3,991	181.2	124.9	4,235	226.7	114.7	108.9	197.3
1973	6,199	208.9	171.6	6,192	276.5	143.1	119.9	250.5
1974	7,951	205.2	223.1	12,635	370.2	216.4	103.1	211.6
1975	8,655	218.9	227.6	12,169	333.2	236.5	96.2	210.7

Source: Ibid.

Foreign direct investments and reinvestments

Total foreign direct investments and reinvestments in Brazil were registered at US$13.7 billion by the Central Bank at the end of 1978. This was about US$2.5 billion higher than the year before.

The manufacturing sector had the lion's share, US$10.6 billion, or 77.4 per cent of the total. The branches with the highest foreign investment were transport equipment (mainly automotive vehicles but including automotive vehicle parts, shipbuilding, railway equipment), chemicals, metallurgy, mechanics, and electrical and communication material. But the range is considerable to include foodstuffs, construction materials, textiles, cellulose, paper and cardboard, rubber, etc. Investment in services amounted to US$2.3 billion which included banks and other financial institutions and consulting, advertising, and representational firms.

Although the United States was the country with the largest investment, US$3.8 billion in 1978, the investments of the European Economic Community as a group totalled US$4.5 billion. Within the E.E.C., the Federal Republic of Germany had US$2.1 billion and France a little over half a billion dollars. The European Free Trade Association (EFTA) had over US$2.0 billion as a group, with Switzerland having US$1.6 billion and Sweden over US$300 million. (Tables 13 and 14)

A general consensus exists that foreign investment is necessary, particularly for the transfer of capital and technology in capital goods production, but still reservations are expressed with respect to the rising return flow of interest and profits. During "good" years, these are offset by re-investment in the host country and, indeed, by further increases in direct investment, but in "bad" years (if exports should fall or if the economy passes into the downward phase of the economic cycle), then the repatriation of profits and interest become a burden on the balance of payments. In practice, these "worst" cases have been handled with assistance from the International Monetary Fund and/or re-scheduling of maturities with foreign creditors.

While the Government believes that foreign investment can make a major contribution to industrial development, it has become more selective about the kind of investment it will encourage. It partly reflects a desire to protect locally owned industries. The Industrial Development Council (CDI) has become more discriminating in parcelling out incentives, as have other agencies handling imports and official credit.

Foreign investment is especially welcome in agricultural and livestock production, large-scale agribusiness projects in the Amazon region, petrochemicals and industry in general if a venture is geared to exports or import substitutes or to introduce sophisticated technology.

The government has introduced mechanism for shoring up hard-pressed local firmsin danger of takeover by foreign companies, and in 1977, the Economic Development Council (CDE) established guidelines tending to favour local firms for the capital goods,industrial raw materials, technical services and mining industries. Under these rules, the government is required to give preference for investment opportunities in these fields to local capital and to consider foreign investment only if Brazilian-owned business cannot do the job adequately. Local enterprises are also favoured in regard to credit, technology and other incentives to sharpen their competitive edge vis-a-vis foreign-owned subsidiaries. For example, the National Economic Development Bank (BNDE) has created subsidiaries, Brazilian Mechanics Enterprise (EMBRAMEC) and Brazilian Investments Co. (IMBRASA) to extend credit or to take equity in hard-pressed local industries, or to join them in joint ventures with foreign companies to ensure majority-Brazilian control. The traditional Brazilian desire for majority ownership in natural resources development and in basic sectors such as mining and steel continues. In case cooperation with foreign enterprise is necessary, its joint venture with local enterprise is preferred to its subsidiary's local operation.

Brazil's foreign investment rules are likely to be altered drastically in the next few years, but the government will continue to strengthen local firms through administrative measures. In a few manufacturing areas, such as communications equipment, foreign firms are under increasing pressure to establish joint ventures with local capital. The trend was underlined by the government in late 1977. The administration had invited proposals to produce minicomputers for a reserved market, then unprecedently rejected the bids of several foreign firms in favour of four new local companies with no previous experience in the field. The technology will be contracted abroad. This pattern marks a high point in government preference for local enterprise, which could very well be repeated in other sectors in which the state is a major customer.

Table 13. Position of foreign direct investments and reinvestments registered in Brazil according to types of activity 1/

(US$ million)

Sectors	[illegible]			[illegible]		
	Invest.	Reinvest	Total	Invest.	Reinvest	Total
Total	7 540	3 688	11 228	8 898	4 842	13 740
Mineral extractive industry	220	36	256	199	52	251
Manufacturing industry	5 521	3 066	8 587	6 604	3 989	10 593
Non-metallic minerals	114	124	238	136	148	284
Construction material, ceramics and cement goods	32	56	88	36	67	103
Cement	55	46	101	70	52	122
Glass and crystal	27	22	49	30	29	59
Metallurgy	695	256	951	809	356	1 165
Steel	208	96	304	247	65	312
Other	487	160	647	562	291	853
Mechanics	662	260	922	836	345	1 181
Electric and communications material	642	326	968	801	394	1 195
Transport material	1 010	535	1 545	1 158	747	1 905
Shipbuilding	52	16	68	62	22	84
Railway equipment	9	2	11	9	2	11
Automotive vehicles	712	418	1 130	791	560	1 351
Automotive vehicle parts	236	99	335	295	163	458
Aircraft building	1	0	1	1	0	1
Wood	81	19	100	88	22	110
Cellulose, paper and cardboard	172	96	268	215	109	324
Rubber	98	223	321	112	259	371
Chemicals	1 018	564	1 582	1 203	786	1 989
Basic chemical products	788	327	1 115	940	464	1 404
Petroleum by-products	72	196	268	92	264	356
Safety matches, paints, varnishes and lacquers	39	29	68	42	43	85
Manure and fertilizers	119	12	131	129	15	144
Medicinal, pharmaceutical and veterinary products	301	156	457	371	203	574
Textiles	180	97	277	233	113	346
Cloting, footwear and cloth goods	51	10	61	52	17	69
Foodstuffs	236	341	577	269	422	691
Processing, roasting and grinding	8	50	58	8	58	66
Cold storage	11	0	11	13	1	14
Other food products	217	291	508	248	363	611
Beverages	34	19	53	41	20	61
Tobacco	92	10	102	118	11	129
Publishing and printing	13	7	20	14	8	22
Other	122	23	145	148	29	177
Public utility services	116	108	224	124	114	238
Production and distribution of electrical energy	102	103	205	102	108	210
Production and distribution of gas	4	1	5	4	3	7
Maritime and river transport	4	3	7	5	2	7
Highway transport	5	1	6	11	1	12
Air transport	0	—	0	1	0	1
Sanitation services	1	—	1	1	0	1
Water supply	0	0	0	0	0	0
Agriculture	40	12	52	49	17	66
Services	1 497	394	1 891	745	563	2 308
Real estate	44	4	48	58	4	62
Commercial, investment and development banks and other financial institutions	355	47	402	394	102	496
Insurance companies	21	13	34	28	23	51
Tourism	18	0	18	18	1	19
Consulting, representation, participation, administration and advertising	709	242	951	822	330	1 152
Technical services and auditing	107	32	139	111	36	147
Trade in general — export and import	243	56	299	314	67	381
Other	146	72	218	177	107	284

Source: Report of the Central Bank of Brazil, 1978.

1/ The above data refer to the direct foreign investments registered by the Banco Central and, thus, do not correspond to the figures included in the balances of payments which specify the outflow and inflow effected during the period. Loans and financing are not included.

Table 14. Position of foreign direct investments and reinvestments registered in Brazil by countries and economic blocs 1/

(US$ million)

Item	31.12.77			31.12.78		
	Invest.	Reinvest.	Total	Invest.	Reinvest.	Total
Total	7 540	3 688	11 228	8 898	4 842	13 740
LAFTA	45	8	53	71	11	82
Argentina	14	6	20	15	6	21
Mexico	8	0	8	7	1	8
Uruguay	12	0	12	38	1	39
Venezuela	11	2	13	11	3	14
Costa Rica	0	—	0	0	—	0
Panama	169	185	354	177	199	376
Canada	374	146	520	414	284	698
United States	2 117	1 301	3 418	2 281	1 541	3 822
Other American countries	170	188	358	188	213	401
Netherlands Antilles	82	146	228	86	159	245
Bahamas	47	28	75	51	33	84
Bermudas	41	14	55	51	21	72
Czechoslovakia	0	—	0	0	—	0
EEC	2 207	1 225	3 432	2 823	1 642	4 465
Federal Republic of Germany	1 078	456	1 534	1 452	645	2 097
Belgium	71	60	131	88	93	181
Denmark	23	2	25	26	2	28
Luxembourg	223	79	302	233	95	328
France	214	216	430	299	280	579
Italy	102	55	157	135	73	208
Netherlands	150	156	306	177	123	300
United Kingdom	346	201	547	413	331	744
EFTA	977	529	1 506	1 251	786	2 037
Austria	8	3	11	8	4	12
Norway	22	1	23	24	0	24
Portugal	36	1	37	29	2	31
Sweden	144	89	233	217	124	341
Switzerland	767	435	1 202	973	656	1 629
Other European countries	31	3	34	37	4	41
Spain	28	0	28	32	1	33
Finland	3	3	6	5	3	8
Yugoslávia	0	0	0	0	0	0
Asia, excluded Middle East	1 176	69	1 245	1 345	110	1 455
Japan	1 134	69	1 203	1 293	110	1 403
Hong-Kong	42	—	42	52	0	52
Lebanon	1	0	1	1	0	*
Liberia	45	—	45	46	—	46
Australia	5	0	5	5	0	5
South Africa	45	—	45	49	—	49
Kuwait	4	—	4	7	—	7
Cayman	39	3	42	42	5	47
Iran	64	3	67	73	4	77
Liechtenstein	69	28	97	86	43	129
Other	2	0	2	2	0	2

Source: Report of the Central Bank of Brazil, 1978.

1/ The above data refer to the direct foreign investments registered by the Banco Central and, thus, do not correspond to the figures included in the balance of payments which specify the outflow and inflow effected during the period. Loans and financing are not included.

Inflation

When the military Government took over in 1964, inflation was running at close to 100 per cent for the year. Since that time, there has been a definite subsidence to lower levels. In 1973, inflation fell to 15.1 per cent. It is noteworthy that this occurred at the peak of the 1968 -73 boom. Since that time, the rate has climbed, reaching 46.3 per cent in 1976 before subsiding to 38.8 per cent in 1977 and 40.8 per cent in 1978. The Wholesale Price Index has moved in conformity with the General Price Index, with the exception of construction materials which run somewhat higher. (Table 15)

Table 15. General price index - wholesale price index

	General Price index (domestic)	Wholesale price index (domestic) Total	Construction materials	Foodstuff	Rio de Janeiro cost-of-living	Percent change over previous period: General Price index (domestic)	Wholesale price index Total	Construction materials	Foodstuff	Rio de Janeiro cost-of-living
1965	72	72	71	68	70	56.8	53.6	62.5	47.1	65.9
1966	100	101	98	103	100	37.9	41.1	38.5	50.6	41.3
1967	128	128	131	129	130	28.4	26.7	33.8	25.2	30.5
1968	159	157	177	150	159	24.2	22.7	35.1	16.3	22.3
1969	192	187	210	185	194	20.8	19.1	18.6	23.3	22.0
1970	230	223	247	228	238	19.8	19.2	17.6	23.2	22.7
1971	277	271	283	293	286	20.4	21.5	14.6	28.5	20.2
1972	324	319	340	352	333	17.0	17.7	20.1	20.1	16.4
1973	373	368	413	406	375	15.1	15.4	21.5	15.3	12.6
1974	480	475	554	520	479	28.7	29.1	34.1	28.1	27.7
1975	613	607	687	668	618	27.7	27.8	24.0	28.5	29.0
1976	866	852	956	986	877	41.3	40.4	39.2	47.6	41.9
1975 January	546	541	632	593	545	2.4	2.1	2.8	2.1	2.8
February	558	554	644	605	558	2.2	2.4	1.9	2.0	2.0
March	567	560	652	611	561	1.4	1.1	1.2	1.0	1.8
April	577	569	656	616	580	1.7	1.6	0.6	0.8	2.1
May	589	580	676	624	592	2.0	1.9	3.0	1.3	2.1
June	602	595	684	641	605	2.3	2.6	1.2	2.7	2.2
July	615	607	691	658	620	2.1	2.0	1.0	2.6	2.5
August	632	624	696	698	641	3.7	2.8	0.7	6.1	3.4
September	647	640	714	723	655	2.2	2.6	2.6	3.6	2.2
October	661	657	719	733	668	2.3	2.7	0.7	1.4	2.0
November	676	671	736	745	683	2.1	2.1	2.4	1.6	2.2
December	690	686	745	772	698	2.3	2.2	1.2	3.6	2.2
1976 January	712	704	780	784	727	3.2	2.6	4.7	1.6	4.2
February	741	730	794	822	765	4.1	3.7	1.8	4.9	5.2
March	769	757	824	867	789	3.7	3.7	3.8	5.5	3.1
April	797	784	856	905	817	3.7	3.6	3.9	4.3	3.6
May	825	807	901	936	846	3.5	2.9	5.3	3.4	3.4
June	847	825	928	952	869	2.7	2.2	3.0	1.7	2.7
July	879	861	957	993	890	3.8	4.3	3.1	4.3	2.4
August	915	902	1,041	1,049	914	4.1	4.8	8.8	5.6	2.7
September	946	934	1,076	1,093	942	3.4	3.5	3.3	4.2	3.1
October	969	955	1,091	1,123	966	2.4	2.2	1.4	2.8	2.6
November	987	971	1,101	1,145	984	1.9	1.7	0.9	2.0	1.9
December	1,010	994	1,120	1,159	1,011	2.3	2.4	1.7	1.2	2.7
1977 January	1,047	1,024	1,161	1,193	1,062	3.7	3.0	3.7	2.9	5.0
February	1,081	1,053	1,189	1,217	1,096	3.2	2.8	2.4	2.0	3.2
March	1,125	1,098	1,211	1,308	1,142	4.1	4.3	1.9	7.5	4.2
April	1,171	1,146	1,243	1,382	1,180	4.1	4.4	2.6	5.7	3.3
May	1,213	1,184	1,287	1,415	1,221	3.6	3.3	3.5	2.4	3.5
June	1,237	1,203	1,317	1,414	1,253	2.0	1.6	2.3	1.3	2.6

Source: Report of Central Bank, 1978.

Chapter III

PHYSICAL AND INSTITUTIONAL INFRASTRUCTURE

Vocational Training

The National Confederation of Industries maintains the National Industrial Apprentice Service (SENAI). It has become increasingly important for persons seeking employment in industries to acquire a SENAI diploma. This is issued to those who complete vocational training for six months at a SENAI school or obtain on-the-job training.

In 1976, the Government put into effect a system of incentives for personnel training, under which firms may deduct from taxable income twice the cost of establishing and running programmes approved by the Labour Ministry, up to a limit of 10 per cent of tax liability. A Federal Labour Council (Conselho Federal do Mao de Obra) was created to consider projects and issue certificates, which are needed for obtaining the deductions.

General education has steadily been expanded as shown by the following information taken from Second National Development Plan:

Table 16. Projected expansion of general education

	1970(A)	(Projection) 1980(B)	(B)/(A) Increase
School enrolment (age 15 and above)	67%	90%	
Elementary school enrolment	67%	92%	
Elementary school enrolment (million persons)	15.9	24.3	53%
Secondary school enrolment (million persons)	1.1	2.7	143%
Higher school enrolment (million persons)	423.0	1,870.0	340%

Industrial Parks

Brazil has an extensive system of industrial parks. Many of these have become part of the "Industrial Corridors" for increasing exports (see attached map). These industrial parks are run by the municipal governments of the state in which they are located.

The following are the main industrial parks in the country:

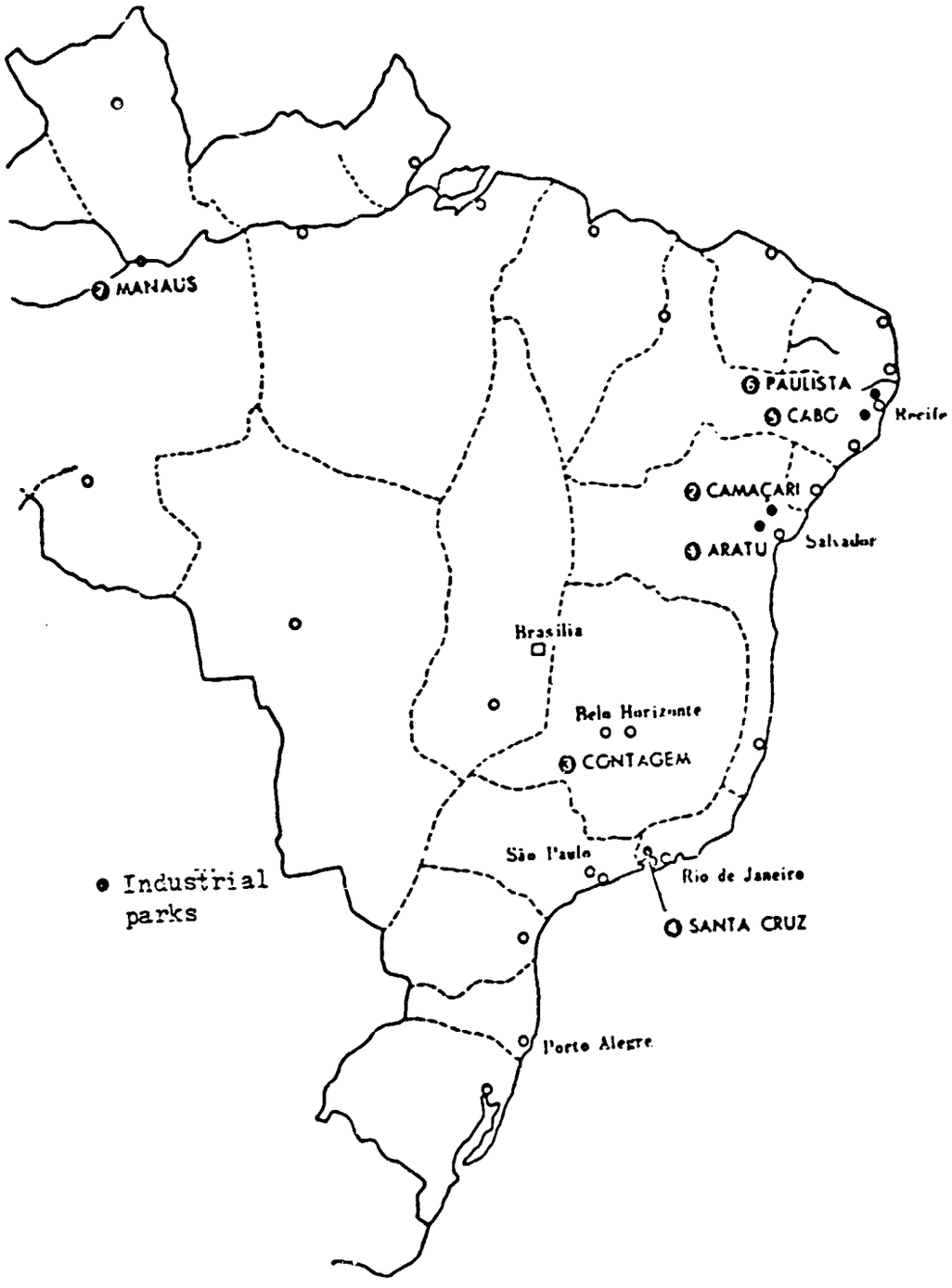
Main industrial parks

	Name	Adjacent seaport	Main industries
1.	ARATU	Salvador	USIBA (Steel products) Robert, Bosh M.E. (Ignition plugs) Cummins M.E. (bus, truck body) Cimento Aratu (Cement) Safron Teijin (Polyester fibre) Nordisa (Cotton yarn and woven fabrics) Paskin (Methyl methacrylate, urea, sulfuric acid) Whitem Rtin (Graphite electrode) SIBRA (Ferro-manganese metal, ferro-silicate metal) Aluminio do Brasil (Aluminium cable) Matraripe Oil Refinery (PETROBRAS)
2.	CAMAÇARI	Salvador	CIQUINE (Octanol, butanol) FISIBA (Acrylic fibre) COPEB (Ammonia, urea) COPENOR (Polycarbonate)
3.	CONTAGEM, BETIM	Belo Horizonte[a/]	Magnesita (Fire brique) Mannesman (Steel mill) Fiat (Cars) Krupp (Machinery) Gabriel Passo Oil Refinery (PETROBRAS)
4.	SANTA CRUZ	Rio de Janeiro	COSIGUA (Steel mill) INDUCO (Elevators) ISHIBRAS (Machinery)
5.	CABO	Recife	Rhodia Nordeste (Polyester fibre) Cia Pernanbuco de Borracha Sintetica (Synthetic rubber) Quimica Industrial Pernanbucana (Chemicals)
6.	PAULISTA	Recife	Santista (Cotton-polyester fabrics) Cia de Tecido Paulista (Cotton thread) Formiplac (Plastic decorative sheets) General Electric (Electric lamps, professional and scientific equipment)
7.	MANAUS	Manaus[b/]	Sharp (Desk-top calculators, colour televisions) Pereira-Lopez (Colour televisions)

a/ Railway depot connecting Rio de Janeiro.

b/ Manaus Free Trade Zone, in inland Amazon.

Industrial Parks



Research and Development

a. Organization

The National Council for Scientific and Technological Development, attached to the Planning Secretariat of the Office of the President, is the principal instrument of Government for co-ordinating scientific and technological policies.

The Second National Development Plan recommends implementing the Second Basic Plan for Scientific and Technological Development (PBDCT, 1975-79) to include priority programmes and projects of the national system in the areas of different ministries. PBDCT has, at its disposal, apart from the normal resources of the ministries, the National Fund for Scientific and Technological Development (FUNTEC) which has earmarked Cr$ 22 billion for research and development for industrial technologies. These are supplemented by (BNDE).

b. Industrial technology development policies

Technical research and development is given a high priority in the country's industrial development programme. The main policies are:

(i) Technology adaptation: The Government encourages and regulates the inflow of foreign technology by selecting, assimilating and adapting through various measures imposed on the import of technology.

(ii) Costs of technology transfer: Brazil is increasingly concerned with improving, expanding and modernizing its industrial sector through the adoption of the best available technology at a minimum cost which also meets the requirements and conditions of its general pattern of development.

(iii) Foreign collaboration in the transfer of industrial capacities and actual redeployment projects: The inflow and absorption of foreign capital is encouraged in order to supplement domestic resources on the basis of various established principles of co-operation and broadly defined areas of investment.

(iv) Strengthening Institutional Infrastructure

(a) Expansion and intensification of the activities of industrial property, metrology, quality control, standardization and certification;

(b) Establishment of programmes for the transfer of modern technology to small and medium-size companies;

(c) Strengthening of national consultancy firms in the areas of processing, production and detail engineering.

Chapter IV

THE SECOND PLAN OF DEVELOPMENT (1975-79)

Objectives and Industrial Strategy

Recent studies have shown that the Brazilian boom of 1968-73 was nearing its end for internal reasons, and that the external factors - the sharp rise in oil prices in October of 1973 and the slowdown of the economies of the world's leading market economies in 1974 - simply gave the coup de grace to a situation that was in the making. The reasons adduced for the termination of the boom are: most branches of industry were already operating at full capacity or at rates nearing capacity; the supply of skilled labour was becoming short; the terms of trade which had favoured Brazil during the late sixties and early seventies were now turning against her; this, and the continuing rise in the value of imports, and particularly of capital goods which were needed to extend the boom, turned the balance of payments highly negative; and finally the continuing inflow of foreign funds and the overflow of the expansive monetary and credit policy through early 1974 contributed to setting in motion a new spiral of inflation.

In the light of these conditions, the successor (military) Government of General Geisel set itself a new set of objectives which were: (a) maintain the accelerated rate of growth of the past few years and increase the number of job opportunities; (b) contain inflation in a gradual manner; (c) keep the balance of payments in relative equilibrium; (d) improve the distribution of personal and regional incomes; (e) preserve social and political stability encouraging the participation of the average man and woman in the decision-making process and (f) achieve development while conserving the country's patrimony of natural resources and without deterioration in the quality of life.

It is evident that reconciling these objectives is not easy even under normal circumstances, and that to some degree they are bound to conflict with each other. Thus, a high rate of growth

can upset the balance of payments and accelerate inflation by increasing overall demand, in particular, for imports. A substantial improvement in the balance of payments creates internal financial problems since the funds deriving from the excess of exports over imports is added to the supply of money and complicates the control of inflation. A policy of control over imports or containment of inflation could have negative effects over the rate of growth.

The essential elements of the industrial strategy in the Second Development Plan were:

1. Initiate a new phase of import substitution particularly in regard to the basic sectors in order to correct imbalances in the industrial structure and save foreign exchange.

2. Facilitate the development of industries through the private sector, and ensure an important role for national enterprises in the more dynamic subsectors as well as in the traditional ones.[1/]

3. Utilization of the concept of a partnership between domestic and foreign private capital for development, as was done earlier for the shipbuilding, capital goods, and petrochemical industries.

4. Continue the efforts of integrating Brazil with the world economy, opening up of new markets and taking advantage of the detente among the world's blocks.

1/ "In Industry .... the guiding principle has been to leave the function of investment and production to private initiative, with an adequate degree of profitability. Projects will only come under the control of governmental institutions if in practice private initiative demonstrates clearly that it either cannot or does not want to undertake them (for reasons connected with the volume of investment, low profitability or technology). An example is that of the steel plate industry. Furthermore, although they have to assume the command of certain projects, government enterprises will normally try to associate themselves with the private sector which uses the product and, whenever possible, at some date in the furture, pass the initiative into the hands of businessmen." (II National Development Plan, 1975-79, p.38)

being considered were: iron and steel, non-ferrous metals in particular aluminium, petrochemical products, fertilizers, pesticides, paper and cellulose, pharmaceuticals, and certain non-metallic minerals (cement, sulphur and some others). It also included opening new fields for the exportation of manufactured goods of greater technological complexity to complement the exports of the traditional industries. These newer fields include: large-scale computers, mini-computers, ships, motor cars, buses and trucks, engines and other components of the automobile industry, agricultural equipment, roadmaking and hydroelectric equipment, machine tools and instruments, steel products and factories for the production of semi-finished goods for exports, capital goods equipment and components, watches and precision instruments. Greater impulse would be given to technological development: an extensive programme of industrial standardization, modernization of the patent control system, establishment of a system of technological information, and the strengthening of the project engineering and technical consulting firms.

Progress achieved under the Second Plan of Development

(a) Summary

Planned economic and social indicators published by the Government in September of 1974 were optimistic. They suggested a rate of growth for G.D.P. of 10 per cent annually for the period 1974-79, and other indicators such as personal consumption, industrial production, industrial employment, and value of exports were similarly in the spirit of the period that was left behind and not that which lay ahead. The Minister of the Planning Office had occasion to point to the tentative character of the indicators and to the fact that they were to be revised annually. In a susequent publication, he summed up the progress achieved in the period between 1973 and 1978. (Table 17)

Despite the more sober world scene from 1974 on, continue progress across a number of fronts was achieved. The gains

between 1973-78, such as a rate of growth of 6.74 per cent in G.D.P. and a 7.35 per cent in the value of exports, are little better than half of the rates of growth of the boom years; nevertheless, they rank near the top among the developing countries.

Brazil also came through this period with its foreign exchange reserves at a very high level, and its deficit on current acoount in a proper relation to exports and to overall output. Foreign exchange reserves were over $ 12 billion at the end of 1978. The relation of the current account deficit to G.D.P. was .02 in 1972 and 1973, rose to .07 in 1974, and then declined over the next three years to .025. In 1978, it rose slightly to .03.

Inflation remains intractable, though some progress was made, having registered 46.3 per cent in 1976, 38.8 per cent in 1977, and 40.8 per cent in 1978.

Table 17. Brazil: Comparison of 1975-79 1973-78 achievement

Indicators	II Plan 1975-79 % of Growth	1973-78 % of Growth Total	Average Annual % growth
1. GDP	61	39	6.74
2. Population	15	15	2.80
3. GDP per Capita	40	21	3.85
4. Gross Fixed Investm.	61	34	6.10
5. Personal Cons.	55	35	6.22
6. Industrial Product	76	42	7.35
7. Product of Manuf. Ind.	78	39	6.76
8. Agricultural Pdt.	40	26	4.74
9. Employment in MFG	27	16	3.04
10. Exports	150	102	15.1

Sources: Second Plan of Development (1975-79) and Preliminary Balance of the Second Plan of Devleopment by Joao Paulo dos Reis Velloso, Dec. 1978, Secretariat of Planning of the Office of the Presidency

(b) Evolution of Manufacturing Production, 1972-78

In the period since the end of the boom, the growth of manufacturing has proceeded at an average rate of 6.4 per cent or half of what it was in the earlier period. Even so, this was achieved with considerable variations from year to year. The slowdown in the years 1974 and 1975 of course, was associated with the world recession following the rise in oil prices. The recovery in 1976 was, again, associated with the upward movement of world trade and the recovery of the industrialized markets important to Brazil. But the rising inflation and the impelling constraints of rising imports and the current account deficit took its toll in the manufacturing sector in 1977, before resuming its climb in 1978. A similar performance is estimated for the year 1979 as in 1978, with G.D.P. growing at about 6 per cent and industry (manufacturing included) at 8 per cent. (Table 18)

Worth mentioning are the relative weights of the subsectors in the computations of manufacturing production. Adding the weights of the more recently developed industries - metal-mechanics, machinery and tools, transport materials, chemicals and plastics - one accounts for roughly half of total production. (Table 19)

Table 18. Growth of manufacturing industry, 1972-78

(per cent)

	1972	1973	1974	1975	1976	1977	1978
Nonmetallic Mineral	13.8	16.3	14.8	9.0	10.8	5.3	5.6
Metallurgy	12.3	9.4	5.2	9.2	9.2	3.7	5.5
Machinery	19.9	28.5	11.6	15.1	6.1	- 3.3	-1.1
Electrical and Communications Equipment	22.1	27.9	10.4	0.5	16.2	1.3	3.1
Transport Equipment	22.5	27.6	18.8	0.5	7.2	- 2.7	14.3
Paper	7.5	9.4	4.3	-14.8	21.8	1.3	11.6
Rubber	13.0	12.4	10.8	4.7	13.4	- 2.0	6.7
Chemicals	17.0	23.4	5.4	2.5	11.2	6.1	9.0
Plastics	18.3	28.3	23.2	5.1	14.0	- 0.7	25.3
Textiles	3.8	6.9	-3.5	2.3	6.9	0.8	5.2
Clothing and Footwear	5.0	14.1	2.1	7.2	8.5	- 5.1	8.0
Food	16.2	9.6	5.4	-0.1	11.8	6.5	3.3
Beverages	4.8	17.8	8.3	5.5	14.2	12.6	7.1
Tobacco	6.0	6.4	12.8	7.9	10.2	5.5	5.7
Other	9.1	6.6	11.5	3.7	8.8	-	-
Total *	14.0	16.3	7.6	3.8	10.5	2.7	7.6

Source: Brazilian Institute of Geography and Statistics (IBGE), 1972-76; Report of Central Bank, 1977—1978.

* Other industries reported in 1977 and 1978 were:

	1977	1978
Pharmaceutical	- 14.3	17.2
Perfumery, Soap and Candles	9.3	12.6

Table 19. Manufacturing and extrative industries

(Real growth rates - %)

Item	Share in industry total (1974)	1977/76 %	1978/77 %
Total[1]	100.0	2.5	7.5
Extractive industries	2.6	—4.9	6.2
Manufacturing industries	97.4	2.7	7.6
Nonmetallic minerals	5.2	8.3	5.6
Metallurgy	14.0	9.7	5.5
Machinery and tools	8.9	—6.6	4.8
Electric and communications equipment	5.6	1.8	9.4
Transport equipment	6.9	—2.7	14.2
Paper and cardboard	3.6	1.8	11.6
Rubber	1.8	—2.0	6.7
Chemicals	10.9	6.1	9.0
Pharmaceutical	2.4	—14.0	10.2
Perfumery, soap and candles	1.2	9.3	12.6
Plastic materials	2.5	—0.7	25.3
Textiles	7.1	0.5	5.2
Clothes, shoes and other cloth goods	3.4	—5.1	8.0
Foodstuffs	10.3	6.5	3.3
Beverages	1.7	12.6	7.1
Tobacco	1.0	5.5	5.7

Source: Report of the Central Bank of Brazil, 1978.

1/ No specification has been made for timber (3.1% of the value added industry), furniture (1,8%), hides, furs and leather and similar products (0,5%), editorial and printing industry (3,1%), sundry (2,4%), which only have been itemized in the statistics up to 1974.

(c) Major Targets

Targets for the production of specific products were, like the macro-economic variables mentioned above, also optimistic. But, likewise, the achievements, although often below the planned indicators, were highly respectable. Indeed, in many cases, the optimistic targets were actually achieved.

The new strategy put heavy emphasis on a "new" phase of import substitution (always retaining the importance given to exports) which included the "basic" industries of steel, aluminium, other non-ferrous metals and the chemical industry. Also included were capital goods and electronics products. It is possible to make a comparison of the percentage of growth proposed for given products over the five-year period 1974-79 with that achieved over the period 1973-78. For a number of basic products the achieved percentage growth exceeded that of the planned indicators. This applies to: aluminium, zinc, caustic soda and soda ash, synthetic fibers, synthetic elastomers, cement and paper. In other cases, the achievement, although high, fell below the planned indicator: steel ingots, sulphuric acid, thermo-plastics, cellulose, This also applied to tractors in the field of capital goods. The data does not contain information for comparing planned and actual output of the mechanical and electrical machinery industries and of shipbuilding. In general, it can be said that the achievement of particular targets were noteworthy, but the sectoral targets like the macro-economic variables were subject to the lower horizons of the world scene of the late seventies. (Table 20)

Table 20. Comparison of selected indicators of the second plan of development (1974-79) and actual achievements (1973-78)

Production	Indicator 1974-79 (per cent increase)	Achieved 1973-78 (per cent increase)
Iron ore	130	83
Exports of iron ore	123	56
Steel ingots	159	83
Aluminium	58	75
Zinc	76	169
Sulphuric Acid	244	77
Caustic Soda	156	174
Thermoplastics	118	90
Synthetic Fibers	43	116
Synthetic Elastomers	66	68
Cement	53	72
Cellulose	85	59
Paper	28	56
Tractors	91	43
Electrical Energy Installed Capacity	59	65
Consumption	75	78
Petroleum Refining Capacity	62	51
Investment in Prospecting and Development	264	285
Basic Telecommunication		
Telephone Commutation	208	483
Channels	251	173

Sources: Second Plan of Development (1975-79) and Preliminary Balance of the Second Plan of Development.

Chapter V

Annex 1: The Third National Development Plan (1980-84)

The Plan aims at an annual growth rate of 6 per cent for G.D.P. Priorities in the Plan are as follows:

(i) Curbing inflation and improving the balance of payment and the foreign debt figures. (Austerity measures regarding Government finances, and control in the concessionary credit system will be taken).

(ii) Increasing production and productivity of agriculture and food supply, hopefully to reduce their import and increase their export.

(iii) Strengthening the industrial sector so as to increase its international competitiveness, saving energy and developing substitute energy, developing science and technology, developing mass transport system, etc.

Particular emphasis is placed on social development - better distribution of wealth, better standards of living of the poorer population, etc.

1/ Based on newspaper reports. The "Plan" had not yet been received at UNIDO when preparing the profile.

Annex 2: Approved and Operational UNIDO Technical Assistance Projects as at end October 1980

Project number	Project title
DP/BRA/71/560	National Institute of Weights and Measures (INPM)
DP/BRA/76/008	Standardization and industrial quality control in agro-industries
SL/BRA/77/803	Nickel extraction from the São João do Piani deposits
DP/BRA/75/003 DC	Standardization and industrial quality in iron and steel.