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**INDUSTRIAL COMPETITIVENESS IN BRAZIL:
TRENDS AND PROSPECTS**

This report was prepared by the Regional and Country Studies Branch, Industrial Policy and Perspective Division.

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TABLE OF CONTENTS

	<u>Page</u>
A. Introduction	1
B. The manufacturing sector: Performance and policy issues	3
1. Manufacturing and the economy	3
2. Performance in the 1980s	3
3. Trends in competitiveness	8
4. Policy-induced distortions	11
5. The scope for efficiency gains	12
C. The modernization programme	14
a. The quality and productivity programme (BPOP)	15
b. The industrial Competitiveness program (PCI)	16
c. The technological capability programme (TCP) and the informatics policy	16
i. The TCP	16
ii. The informatics policy	17
d. The privatization programme	19
i. Background	19
ii. The current privatization program	20
D. The road ahead: principal issues and problems	22
i. Macro-economic stability	22
ii. Consensus on unambiguous performance standards	22
iii. Clearing the way for medium/long-term productivity gains	22
iv. Defining a new approach to S&T policy	22
v. Foreign investment and the new industrial policy	24
vi. Industrial organization	24
vii. Intra-industry inefficiency	24
viii. MERCOSUR	24
E. Policy and investment priorities: conclusions and recommendations	26
i. Conclusions	26
ii. Recommendations	27
References	29
Annex	31

A. Introduction

5.01 In this document the medium-term outlook of the Brazilian manufacturing sector is assessed against the backdrop of the current trade liberalization, privatization and deregulation programs. Attention is paid to the impact of the new policy framework on medium-term trends in competitiveness. The conditions for success of the new industrial policy and for regaining the dynamism of the manufacturing sector, increasing its contribution to overall growth during the 1990s, are considered. Finally, inferences on priorities for financial and technical assistance are drawn.

5.02 Having become one of the ten largest industrial economies in the world, actual and potential competitive performance of Brazil's manufacturing sector seem to have parted ways during the 1980s. Undue rewards to low-risk ventures and price distortions caused by subsidized producer goods and services discouraged the flow of resources to activities promising above average productivity growth.

5.03 Sharp declines in growth rates and investment activity, policy-induced and structural disturbances, and factors hindering the domestic diffusion of better manufacturing and management techniques contributed to the faltering of competitive performance.

5.04 Medium-term gains in overall manufacturing productivity ranked lower than attaining self-reliance. Net social gains could not be reaped by aiding industries where the international innovative frontier shifts at a quicker pace than that locally attainable. Brazil's position in the world economy could not be improved by heavily subsidizing high skill, high wage activities at the expense of overall productivity performance. The anti-export bias of the import substitution policy was offset by promoting exports through 30 different types of subsidies but exposure to world competition remained low.

5.05 Insufficient appraisal of the costs and benefits of innovation and technical change resulted in inefficiencies in the management of resources devoted to R&D, learning, training and product development. Moreover, a distorted price system eroded the benefits for society of cost-saving innovations or better ways of using domestic resources which were the result of endogenous skills and ingenuity.

5.06 The new policy framework aims at reverting these trends by discouraging non-competitive growth under conditions of macroeconomic stability. It intends to promote capital and labour mobility and technological progress by reducing policy induced barriers to entry and exit, phasing out non-price incentives, increasing exposure to the world market and mobilizing the domestic innovative potential. Pinpointing and removing the sources of allocative and technical inefficiency thus becomes a crucial policy issue in view of the need to do away with regulatory and structural distortions, upgrade firms' manufacturing and management standards, deal with acute financial constraints and guide the correction of sharp mismatches in the educational system and the labor market.

5.07 During the first half of the 1990s a progressive recovery in the investment cycle can be anticipated to the extent that the substantial potential for productivity improvements unrelated to significant net investment is exhausted, private enterprises carry their restructuring programs forward, an upturn in public investment gets underway and an atmosphere conducive to private investment is established.

5.08 Looking ahead, one of the main risks facing the new policy would be failure to break the combination of high capital costs and cheap labor, discouraging investment in modernization. Another obstacle to modernization is a prolonged macroeconomic instability which would make a transparent trade policy unviable.

5.09 Finally, there is the question of equity. Improving the performance of Brazil's manufacturing industry and its contribution to overall development certainly depends on the economic and policy variables which have been summarized here. But equity in the distribution of adjustment costs will definitely enhance the prospects for success.

B. The manufacturing sector: performance and policy issues

1. Manufacturing and the economy

5.10 Brazil is the world's ninth largest industrial economy, and its MVA at present accounts for two-fifths of Latin America's total. Manufacturing activities accounted for 31% of Brazil's GDP in 1989, up from 26% in 1965. However, while they acted as a growth engine during 1965-1980, their rate of growth lagged behind that of GDP from 1980 onwards: average growth rates of growth in manufacturing and GDP were 9.8% and 9% during 1965/80, and 2.2% and 3.0% in 1980/1989, respectively. The sector also ceased to be a major source of new employment, shedding labor instead during the 1980s. After having suffered a reduction of 8% in 1990, industrial output remained stagnant in 1991.

5.11 The manufacturing sector has become the most important foreign exchange earner of Brazil, its share in total exports increasing from 18% in 1965 to 67% in 1988 (including semi-manufactures). Since the late 1970s, exports of intermediate and capital goods have grown faster than those of traditional labor-intensive goods such as textiles and footwear. In 1988, transport equipment and mechanical instruments were the most important categories of manufactured exports.

2. Performance in the 1980s

5.12 During the 1980s, the Brazilian manufacturing sector witnessed a sharp decline of overall growth rates, as indicated in 5.10, as well as in investment activity. The sector's share of gross fixed investment declined from 22.9% in 1980 to 15.8 per cent in 1990 (see Table 1).

5.13 Overall, the manufacturing sector remained stagnant over the 1980s. In 1990, the deflated gross industrial output index was 10.5% per cent above the level attained 10 years earlier, i.e. the annual growth rate was barely 1%, well below the demographic growth rate of 2.2% (see Table 2 and Graph 1).

5.14 During the same period, total industrial employment shrank by slightly over 10 per cent. In some activities, such as custom-made capital goods, only two out of three workers employed in 1980 still had their jobs in 1990. Output per worker rose, but it did so largely through labour force reductions. This pattern continued in 1991.

5.15 Largely fueled by export growth, the intermediate goods sub-sector increased its relative share in gross MVA during the 1980s, primarily at the expense of capital goods (electrical machinery excepted), and of the consumer goods industries (save for leather and footwear) (see Table 3). However, over the second half of the decade even intermediate goods lost their dynamism.

5.16 With the saturation of the domestic market for locally-made producer goods, the potential of the import-substituting industrialization strategy is now exhausted; this explains the loss of dynamism in manufacturing. The economy had an in-built anti-export bias resulting from distorted factor prices which was only partly offset by export incentives. Additionally, a sheltered domestic environment discouraged managers from keeping up with international trends in best practice, except in selected activities that were exposed to foreign competition. The following two sections will examine the issues of competitiveness and policy distortions.

Table 1. Share of Gross Domestic Fixed Investment in GDP
(in percentage)

Year	Total	Private	Public
1980	22.9	20.5	2.4
1981	21.0	18.6	2.4
1982	9.5	17.2	2.3
1983	16.9	15.2	1.7
1984	16.3	14.4	1.9
1985	16.4	14.3	2.1
1986	18.7	16.1	2.7
1987	17.9	15.5	2.4
1988	17.0	15.2	1.8
1989	16.7	15.4	1.3
1990	15.8	14.5	1.3

Source: FGV.

Table 2. Key indicators of performance in the manufacturing sector, (1980-1990)

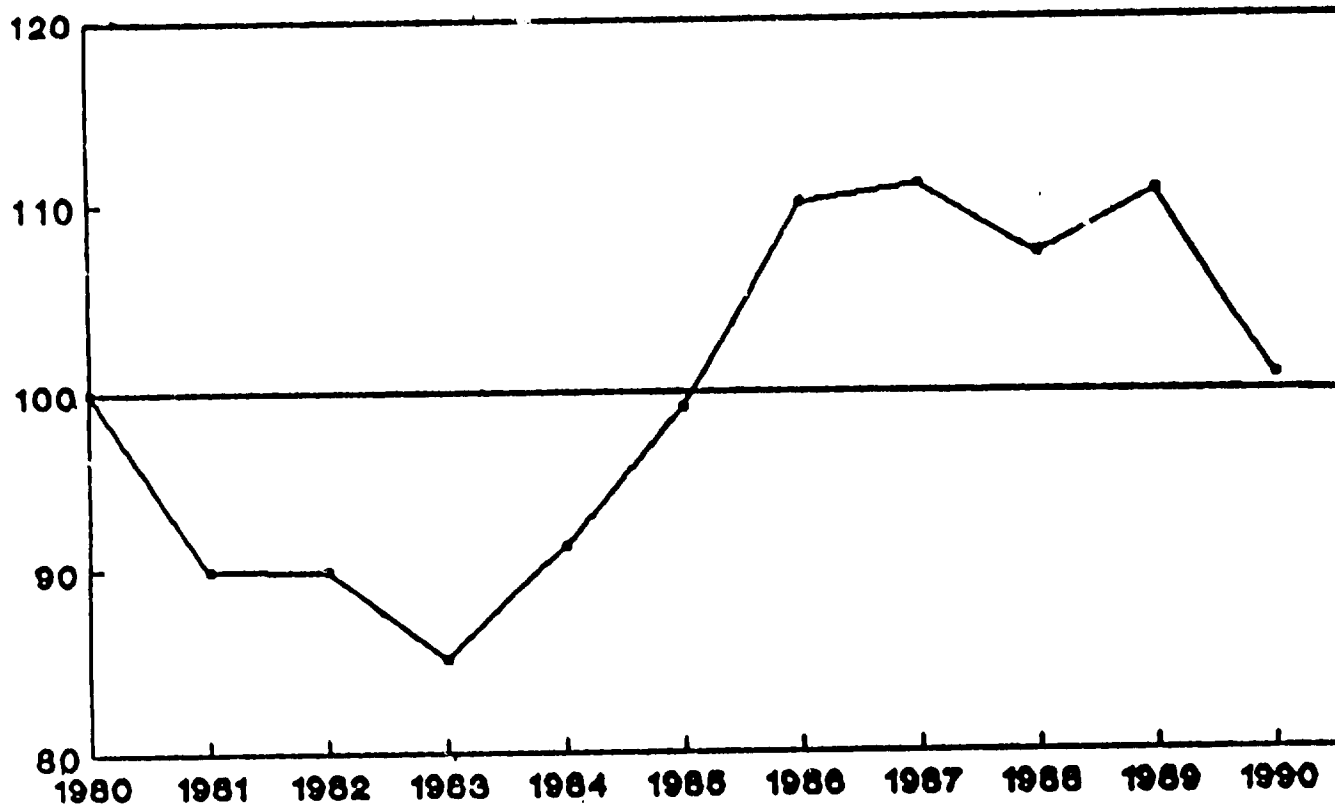
	Gross output deflated		Value added deflated			Wages and salaries deflated			Number of employees		
	Cruzados new million	Growth rate %	Cruzados new million	Growth rate %	Share %	Cruzados new million	Growth rate %	Share %	Persons million	Growth rate %	Gross output per worker
1980	887	13.99	361	11.10	40.69	62	-7.71	7.00	4.4490	4.81	199
1981	802	-9.53	339	-6.12	42.23	62	-0.24	7.72	4.1260	-7.26	194
1982	809	0.90	346	2.29	42.81	69	11.87	8.56	4.1000	-0.63	197
1983	779	-3.71	329	-5.19	42.15	56	-19.05	7.20	3.9240	-4.29	199
1984	899	15.30	377	14.83	41.98	55	-1.94	6.12	4.0290	2.68	223
1985	1,048	16.60	462	22.55	44.12	94	70.47	8.95	4.0666	0.93	258
1986	1,057	0.83	475	2.82	44.99	108	15.47	10.25	4.5220	11.20	234
1987	1,068	1.11	478	0.58	44.75	99	-8.60	9.27	4.2580	-5.84	251
1988	1,040	-2.69	462	-3.44	44.41	94	-5.14	9.03	4.1700	-2.07	249
1989	1,069	2.86	481	4.18	44.98	94	0.42	8.82	4.1651	-0.12	257
1990	980	-8.33	461	-4.19	47.02	88	-6.25	9.02	3.9933	-0.12	245

Source: UNIDO.

GRAPH 1

BRAZIL EVOLUTION OF INDUSTRIAL OUTPUT

(Index 1980:100)



Source: IBGE/DPE/DEIND.

Table 3. Structure of gross value added in manufacturing
(1989-1990)
 (% distribution)

	1980	1985	1990
Food	11.2	12.4	10.3
Beverages	1.9	1.3	0.9
Tobacco	0.7	0.8	0.7
Textiles	6.3	6.4	6.5
Clothing	3.2	2.7	2.7
Leather	0.4	0.6	0.8
Footwear	1.4	2.2	2.5
Wood	2.7	1.6	1.0
Furniture	1.5	1.3	0.8
Paper	3.1	3.0	3.2
Printing	2.7	2.0	2.1
Industrial Chemicals	4.7	5.9	7.5
Other chemicals	4.5	6.0	6.3
Petroleum Refining	4.3	5.8	6.9
Misc. Petrol & Coal	1.7	0.8	1.0
Rubber	1.3	1.9	2.1
Plastics	2.8	2.3	2.5
Pottery	0.3	0.7	0.2
Glass	0.8	0.7	0.7
Other Non-metallic Minerals	4.8	3.5	3.2
Iron and Steel	5.8	6.6	7.0
Non-ferrous Metals	1.6	2.1	2.3
Metal Prod. excl. Machinery	5.0	4.3	3.8
Non-electrical Machinery	10.0	9.3	9.1
Electrical Machinery	6.3	7.5	7.7
Transport Equipment	7.9	6.6	6.2
Professional & Scientific Equipment	0.6	0.9	1.0
Other Manufactures	1.7	1.3	1.1
	-----	-----	-----
	100.0	100.0	100.0

Source: UNIDO

3. Trends in competitiveness

5.17 Various types of evidence suggest a faltering overall competitiveness of the Brazilian manufacturing industry as well as sharp intra-industry differentials in manufacturing and management practice.

5.18 By 1983/85, approximately half of the 67 representative manufacturing branches had an implicit tariff (i.e. ratio of domestic to international prices) equal to or lower than 1.1 (Tavares et al., 1990). The situation seems to have become even worse in later years, with the number of branches exhibiting this tariff ratio dropping to around one fourth (Kume, 1988). Semi-manufactures, followed by consumer goods, enjoyed the best competitive position, with domestic prices below or very close to international prices (see Table 4).

5.19 Close to two-thirds of 550 leading Brazilian industrial managers interviewed in 1989 shared the view that, although efficiency had increased during the decade, their enterprises had not kept pace with international best practice (CNI, 1990). In another survey of 18 industries carried out in 1991, the opinion of 699 managers was asked about the speed of the trade liberalization schedule introduced in 1990, the ability to compete internationally and firm adjustments. Contrary to expectations, firms' competitive ability or the swiftness of their adjustments to attain competitiveness was negatively or very poorly associated with their willingness to accept trade liberalization (CNI, 1991).

5.20 These results confirm those of earlier studies (see, e.g., Tyler 1979), indicating strong interfirm and even intra-firm heterogeneity and a high variance in relative intra-industry efficiency. Resistance to trade liberalization is observed even among firms in industries with higher than average competitive potential, which suggests that as a consequence of management slack and other inefficiencies caused by low competitive pressure, exposure to competition is perceived as major risk.

5.21 The gap between actual and potential competitive performance is widened by factors such as weak price competition stemming at least partly from the web of regulatory, promotional and trade regimes. The waste of resources resulting from income-generating but unproductive rent-seeking activities (such as securing subsidies and import licenses, lobbying and smuggling) is another. According to an estimate, such activities account for almost 2% of GNP (El Cronista, 1992, 7). An even more important one is the impact of quality defects, waste and other deficiencies in manufacturing, estimated to account for up to 40% of the national industrial product (equivalent to 12% of GNP) (PBQP, 1990, 2).

5.22 Labor productivity growth slowed down considerably over the second half of the 1980s. Comparing 1980-85 with 1975-80, productivity improved in 23 out of 28 three-digit ISIC activities (accounting for 81.5% of total MVA). However, a reversal occurred in 1985-90: productivity in 26 out of 28 activities, accounting for 94.1% of MVA, went down (see Table 5).

5.23 The relative weight in total output of product lines that meet international standards is another important factor in the present context. In a 1988 survey, the shares of these product lines were assessed by industrialists as follows: tobacco (0%), textiles (28%), printing (35%), pharmaceuticals (37%), pulp and paper (79%), metallurgy (87%) and cosmetics (88%) (Conjuntura Economica 1988, 111). In most branches, the figure was in the 60%-80% range, with an overall mean of 57%. Sharp intra-industry differences were found: the cement, cotton weaving and electronic materials

Table 4. Implicit tariff by type of goods

(in percentage)

Category of goods	
1. Capital goods	21.3
2. Intermediate goods	21.4
2.1 Semi-manufactures	-4.5
2.2 Basic inputs	23.6
2.3 Others	28.1
3. Consumer goods	2.8
3.1 Durables	4.1
3.2 Non-durables	2.5

Source: Kume (1990, p.60).

Note: The implicit tariff measures the rate of domestic to international prices. It has been calculated for a representative sample of 715 products (8-digit BTN classification) in 88 subsectors. Although these price comparisons are effected by the choice of the exchange rate and differences in product attributes, they have the advantage of accounting for the impact of not just import tariffs but also other factors such as price controls and non-tariff barriers.

Table 5. Value added per worker 1975-1990

	<u>1980-85</u> 1975-80		<u>1985-90</u> 1980-85	
	Number of sectors	% of Industrial value added	Number of sectors	% of Industrial value added
Rate of growth of labour productivity increased	23	81.5	2	4.9
Rate of growth of labour productivity decreased	5	18.5	26	94.1
	28	100.0	28	100.0

Source: UNIDO

industries, for example, were placed well below their respective sub-sector averages (non-metallic minerals, textiles, electrical and communications equipment), while the opposite was the case for the shoe, iron and steel, and aircraft industries (in the clothing and shoes, metallurgical products and transportation equipment sub-sectors).

5.24 It was emphasized that one of the main factors accounting for lags in respect of international best practice was the impact of regulatory hurdles in the procurement of imported inputs, machinery and equipment. We will now turn to a brief exposé of various policy-induced distortions.

4. Policy-induced distortions

5.25 The industrial policy pursued during most of the 1980s erected high barriers to competition through a wide array of regulatory, promotional and trade regimes. These included capacity licensing, fiscal and financial incentives, requirements for high domestic content levels, discretionary feedstock allocation and prices, assistance to firms in financial distress, widespread use of non-tariff barriers, no less than 42 special import regimes, and foreign exchange rationing and extensive "market reserves" (whereby domestic producers are favoured over foreign suppliers through a combination of procurement, credit and tariff measures).

5.26 Targeted financing, public procurement, industrial incentives and a restrictive import regime supported each other in generating substantial margins of redundant protection (Kume 1990). This protection was granted irrespective of the beneficiaries' relative efficiency. The firms in key subsectors to which such support and protection was extended together accounted for almost 55% of MVA (WB, 1990, 23-25).

5.27 Over 1980-87, 90% of the investment projects promoted by the CDI (Industrial Development Council) were in the chemicals, metals and non-metallic minerals sub-sectors. Chemicals also benefitted heavily from tariffs set by the CPA (Council for Tariff Policy). In 1981-87, the transport equipment and metal parts industries were the main beneficiaries of incentives provided by BEFIEX (the agency managing long-term export contracts). Additionally, substantial financial support was granted by BNDES (the National Bank for Economic and Social Development) to the steel, chemicals and petrochemicals, and capital goods industries. As a result of the various kinds of assistance, Brazilian industry - with some remarkable exceptions - became a resource-based, capital-intensive industrial commodity supplier over the 1980s¹.

¹ Although Brazil has a wage-cost advantage, wages, no matter how low, cannot be the basis for sustained competitive advantage, because: (i) on the whole, wages account for a low proportion of total production costs (see Table 2); (ii) low labor productivity may offset wage advantages; labor-intensive industries like textiles and clothing are increasingly resorting to automation; and (iv) increasing non-price competition. More solid competitive advantages have been acquired in Brazil in capital-intensive industries based on natural resources and technological learning. However, capital costs are no longer subsidized, as they were in the context of the former import-substitution strategy.

Labor costs do affect technology choice and therefore the intra-industry spread of certain technologies. Even in an industry like textiles which has over the last decades gradually moved towards increasing capital intensity, labor costs are still a more important factor in technology choice than in traditionally capital-intensive industries. In addition, skilled labor costs may be relevant in other activities, like engineering and software development.

5.28 Additional distortions resulted from the strong role which the heavily privileged state-owned enterprises (SOEs) continued to play in the 1980s, in spite of moves towards a reduction of public sector manufacturing. The SOEs were a major target of various support measures and, although meant to be catalysts of and to lead the way towards industrial development as partners of private sector firms, came to control a wide range of highly profitable activities to the exclusion of the private sector; sound economic management was sometimes substituted by priority to growth and import substitution regardless of the cost. Their dominant position also delayed the development of management and technical know-how in the private sector and its capability to face foreign competition.

5. The scope for efficiency gains

5.29 Various indicators reviewed above suggest that there is plenty of scope for enhancing manufacturing competitiveness by spurring the entrepreneurial drive in a more competitive atmosphere. An assessment is sketched below of the areas where particular gains in productivity look more promising.

5.30 A good deal of the sources of inefficiency are beyond the control of management. Assuming a deregulated environment and access to competitive conditions of financing, industrial managers can act upon inefficiency factors mainly when it comes to choices affecting embodied and disembodied technology and labor productivity. Raw material and component costs are only partly related to such factors (recall, for instance, the low grade of Brazilian coal). According to a source factors under the direct control of management may account for around half of the variance in competitiveness. The other half relates to a host of market, infrastructure and policy-related factors (IBRE, 1990).

5.31 In steel, for instance, high quality ores, good productive performance and technological learning enable several leading plants to be well positioned in terms of price competitiveness. However, this cost advantage is largely offset by port handling related costs that are a multiple of those in leading European harbors (IBS, 1990, 20 - see also the chapter on infrastructure).

5.32 Further, if the assumption that industrialists have access to competitive terms of financing is lifted, factors under the control of management are constrained even further. As a matter of fact, the cost of financial input places Brazilian enterprises at a sharp disadvantage vis-à-vis foreign competitors. This is due not to exceedingly high real interest rates and an associated decline in the supply of financial resources by the banking system (See chapter on the private sector).

5.33 No policy assessment can ignore these facts. The cost effectiveness of investment in productivity enhancement depends on correctly identifying the sources of increased efficiency. But allocating resources to this end does not necessarily make economic sense for private entrepreneurs. No matter how much effort management may make or intend to make towards technological updatedness and cost reduction, overall economic conditions, external diseconomies and regulatory distortions may nullify it. There is, for example, plenty of evidence that, in Brazil, high capital costs coupled with high exit barriers, for example, lead to continued use of outdated equipment, and are an obstacle to the diffusion of advanced manufacturing and management techniques across industry (see, for instance, Erber, 1990; Tauille and Oliveira, 1987; and Meyer-Stamer et al., 1991).

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5.34 Nevertheless, spurred by their exposure to competition in foreign markets, a number of important Brazilian firms, including foreign-owned ones, have achieved substantial gains in competitiveness over the last few years through crash programmes aimed at reducing inefficiency. This was not only done through labor shedding, but also through streamlining product lines, scrapping outmoded equipment, reducing management layers, improving plant layout and stimulating the commitment of the workforce to quality and productivity. Managerial and production restructuring, leading to substantial gains in productivity, have enabled these enterprises to face the current crisis.

5.35 However, this approach is still to be widely spread across the whole industrial spectrum. Very high internal rate of returns of small-sized investment projects in traditional sectors (such as textiles and metal-mechanic) suggest how important is the extent of intra-industry productivity gaps and the potential gains to be reaped by reducing them.

5.36 The government is attempting to address the problems of stagnation and low competitiveness through a number of modernization programs. We will turn to these now.

C. The Modernization Programs

5.37 As a consequence of the exhaustion of the import substitution phase and allocative and technical inefficiencies brought about by regulatory distortions, Brazil's industry has come under heavy adjustment pressure. In June 1990, the government sanctioned a fundamental shift from a growth-centred industrial policy to one that stresses international competitiveness, focused on efficiency gains and technological upgrading.

5.38 Subsidies are being phased out. The state withdraws as an entrepreneur and more room is being left to private initiative. Government action is to be addressed purely at overcoming limitations in the working of the market. Market reserve policies are being eliminated. A schedule for trade liberalization is being strictly enforced. The main idea is to set the foundations for a more neutral incentive framework and a more liberal foreign trade regime. This entails minimizing discrimination between exportables and importables, between sales to domestic and export markets, or between tradables and non-tradables. At the same time, policies are aimed at reducing government controls and replace direct interventions with the price system.

5.39 The new industrial policy attempts to blend a neutral policy with a policy of transparent selectivity regarding some generic technology activities that serve a host of industries and enterprises on non-discriminatory basis. This is in line with approaches pursued by many OECD and southeast Asian industrializing countries.

5.40 The medium and long-term underpinnings of gains in competitiveness are also addressed. Skill formation, productivity growth, quality enhancement, and development of technological capability are emphasized, particularly at the level of the firm. Major corporate restructurings aimed at increased specialization and the overcoming of technical and economic threshold barriers are facilitated.

5.41 To achieve these aims a new type of business-government relationship is called for and being worked out, focused on consensually agreed schedules for attaining international competitive performance standards rather than on subsidized capacity creation and guaranteed market access.

5.42 The new policy framework intends to give a key role to markets and prices in determining future industrial development, and focuses on improving competitiveness through industrial modernization, better technological standards and the development of capabilities for technological innovation. These goals are to be attained through: (i) elimination of all non-transparent subsidies, promotion of domestic competition and reductions in tariff protection (the latter is to become the sole import policy instrument);¹ (ii) privatization of state-owned enterprises, the state becoming mainly concerned with the achievement of macro-economic stability and a conducive investment environment; (iii) increasing specialization through, among others, "de-verticalization", that is, reducing the excessive vertical integration of large enterprises, which tend to rely too much on internal sources of supplies; (iv) exposing the sector to international competition; (v) promoting

¹ At the time when the guidelines were issued, tariffs ranged between 0% and 105%, with a mean of 35.9%. By 1994, the maximum tariff will be 35%, with a mean and modal tariff of 20%. The 35% tariff is to be applied only on a temporary basis. It is however anticipated that higher protection will exceptionally be granted to new high-tech industries.

the creation of technological capabilities at enterprise level through selective tariff protection and support to technology diffusion; and (vi) linking the financing of modernization and the strengthening of the technological infrastructure.

5.43 Official credits are henceforth only to be granted to projects relating to: (i) industrial restructuring; (ii) development of technological capability; and (iii) expansion of foreign trade. Credit support is to be granted to technologically dynamic, small and medium-scale producers of spare parts and components to stimulate specialization.

5.44 Several other measures should be mentioned in the present context. In the capital goods industries, lower domestic content coefficients are allowed than in the past. Government procurement policies are to be used to set and diffuse international standards, generate demand for high-tech industries and sponsor joint government-private sector R&D projects. Domestic competition is to be stimulated through deregulation and legislation against restrictive business practices.

5.45 It is worth summarizing the characteristics of the present policy which indicate a sharp break with the past. First, support is now only to be granted on a quid pro quo basis. Second, policy-induced entry and exit barriers that deter capital mobility and technological progress are to be removed. Third, by emphasizing human resource development rather than market interference, a shift away from capital-intensive and towards skill-intensive industries is to be brought about. Fourth, there will be a new approach to industrial financing and R&D efforts.

5.46 To help achieve the policy goals, four programs have been designed:

- (i) the Brazilian Quality and Productivity Program (PBQP);
- (ii) the Industrial Competitiveness Program (PCI);
- (iii) the Technological Capability Program (TCP); and
- (iv) the Privatization Program.

These are now reviewed briefly.

a. The Quality and Productivity Program (BPOP)

5.47 The PBQP was launched on 7 November 1990. Its aim is to reduce the very high percentage of GNP that is lost because of process and product quality deficiencies and to help enhance industrial competitiveness. This program is designed to address enterprises directly, removing infrastructural and institutional bottlenecks. It comes under the direct jurisdiction of the Presidency of the Republic and provides strategic outlook and co-ordination to the host of de-centralized specific subsectoral and project activities carried out under the general guidance of the National Committee for Quality and Productivity.

5.48 The PBQP comprises five kinds of promotional actions relating to:

- (i) awareness and motivation building;
- (ii) development and diffusion of modern quality and productivity-related management methods;
- (iii) human resource development;
- (iv) provision of technical services; and
- (v) institutional support.

5.49 The program is not designed to allocate resources directly. It relies basically on the resources of the firms themselves. But it does supply guidelines to financial and promotional agencies which support the different

sub-programs. Quality upgrading and productivity enhancement is stimulated by tax exemptions on the purchase of 950 equipment items, and changes in the accelerated depreciation regime adopted in 1991. By June 1991, 16 PBQP sub-programs had been initiated with ample industry participation (see Annex Table 1).

b. The Industrial Competitiveness Program (PCI)

5.50 The PCI stresses the need for a favourable general environment for increasing competitiveness. Macro-economic stability is singled out as the main factor in this context. The need to reduce investment costs is heavily emphasized. This is to be achieved through tax exemptions, accelerated depreciation schemes, low energy costs, import liberalization, reduction to 60% of the domestic resource content requirement for government procurement of capital goods, easier access to domestic financing by foreign investors, creation of investment funds complement BNDES resources and a better planning of the government's multi-year investment programmes.

5.51 The program also calls for mergers and consolidations in industries that are too fragmented; reduction of the vertical integration of large enterprises, with the corresponding development of specialized supplier networks; the incorporation of private enterprises; and privatization.

5.52 To unlock and enhance the competitive (and, particularly, export) potential of many industries, the PCI states that within the new policy framework the concept of sub-sectoral priority is replaced by non-exclusive selectivity, i.e. any kind of industry that is a potential strong contributor to future growth is to be encouraged. Industries supplying products and services which help to upgrade technological standards (such as micro-electronics, biotechnology, new materials and fine chemicals) and a wide variety of user industries are to co-operate more intensively. However, direct intervention, incentives and subsidies which shift risks from investors to the tax payer are excluded outright.

5.53 The PCI introduces two important consensus-building institutional mechanisms. One is the Enterprise Productivity Commission (CEC), responsible for drafting guidelines based on the outlook for the various industrial activities and for monitoring overall competitiveness performance. The CEC consists of representatives of some 140 enterprises, in sub-sectoral groups of 10. Specific problems at the sub-sector level are handled by the second consensus-building institutional mechanism, the Sectoral Policy Groups (GEPS).

c. The Technological Capability Programme (TCP) and the Informatics Policy

(i) The TCP

5.54 The TCP, passed on 10 August 1990, intends to remove three anachronisms:

- (i) low overall expenditure on science and technology (S&T) (0.5% of GDP, against 2.3%-2.9% in the industrial countries) and the low share of S&T spending on industry;
- (ii) the predominance of science, as opposed to applied technology;
and

- (iii) the meagre contribution of the private sector to S&T spending (11% of total expenditure as opposed to, e.g., 70% in Japan and 30% in Italy).

By 1994, the situation is to have improved as follows:

	1990	1994
R&D expenditures/GDP (%)	0.5	1.3
% of ind. technology in total R&D expenditure	30.0	47.0
Private sector R&D % of:		
total R&D expenditure	11.0	13.0
GDP	0.06	0.17
Financing of R&D by specialized agencies:		
% of total expenditure	39.0	28.0
% of GDP	0.01	0.38

These projections assume that, from zero growth in 1990, annual growth of R&D expenditure by private industrial enterprises will be 35% from 1991 onwards. If this actually occurs, it may not be so much the result of expanding R&D expenditure throughout the private sector as of the fact that some of the large R&D spenders in the state sector are now being privatized.

5.55 Through the TCP the government aims at creating a Fund to foster the "externalities" needed for the development of industry's technological capability. Other government activities under the TCP include the promotion of co-operation among large private, state-owned and small and medium-scale enterprises, to supporting co-operative technological research through domestic and international consortia, stimulating the involvement of Brazil's technological institutes and universities, and the implementation of R&D programmes in Brazil by foreign enterprises.

5.56 The TCP encourages financial agencies to give preferential treatment with regard to financial assistance or fiscal incentives to enterprises which:

- (i) progressively increase the share of their own financial resources devoted to R&D;
- (ii) co-operate on technological and industrial issues with dynamic small and medium-sized enterprises;
- (iii) increase their reliance on domestic technological institutes and universities with regard to applied research, experimental development and other technical services;
- (iv) consolidate in-house R&D, engineering, production and commercialization activities which are needed to create technological capability within the enterprise; and
- (v) are involved "as far as possible" in initiatives such as co-operative research through consortia.

Up to 70% of the investments involved may be made available from public resources in the form of credits, or the equivalent in fiscal incentives.

(ii) The Informatics Policy

5.57 Although the lagging competitiveness of Brazilian industry is by no means due only or mainly to the "market reserve" policy in informatics, its role has not been negligible. Not all sources of inefficiency in the Brazilian manufacturing industry can be traced to the delayed diffusion of

microelectronic-based technologies-MBTs that ensued. However, a more rapid diffusion of MBTs would have helped to enhance precision, reduced waste, increased flexibility, upgraded input and output quality improve manufacturing control, lengthen production runs and shorten development times. Such technologies help in making these efforts converge and bear fruit competitively and profitably.

5.58 In Brazil, even the activities closest to the international technological frontier lag behind best practice in informatics and automatization and other advanced production and management methods. The estimated level of automation and informatization in the manufacturing sector is, at best, some 20% of the level prevailing in industrialized countries (see, e.g., GM, 1992, 3). By the mid-1980s, 90% of the numerically-controlled manufacturing technology (NCMT) and almost all personal computers (PCs) were expensive, low-performance locally manufactured products. In 1988, only 8% of total domestic non-consumer electronics supply went to manufacturing activities. Most of this consisted of expensive data processing equipment for the public sector (SCT, 1991).

5.59 That a learning process occurred is undeniable. Success was the reward in certain market segments such as banking automation (Frischtack, 1991). Also, significant cost reductions took place (Tauile, 1990, 31). Much was also done to improve the quality of human resources. But for the most part the gains came neither at the pace nor to the extent necessary to be of value in the market place. In addition, informatics firms working in isolation, and lacking experience as well as the credibility and ability to overcome financial, technical and marketing thresholds were not in a position to take advantage of these developments. There was too little specialization (Frischtak, 1989). Isolation from the world market closed the way to achieving the necessary scale economies. Brazilian society ended up paying more than it got in return, making the whole approach unsustainable in the long run.

5.60 The new law passed on 23 October 1991 eases protectionist curbs on information processing. The law does not fully open the \$7 billion annual market though. As of October 1992, imports of all digital technologies, both for computers and telecommunications, will be allowed. However, tariffs and taxes will still add at least 100% to import prices. Tariffs, currently 60% on imported computers and 40% on components will go down to 40% and 20% respectively, in 1994.

5.61 Survival strategies by local informatics firms include:

- (i) going into distribution, technical assistance and marketing, possibly using local software;
- (ii) local assembly of imported components and peripherals using own trademarks;
- (iii) supplying custom-made software.

While software development is one of the main potentially competitive activities, it is inhibited by an undeveloped market for hardware which hinders the setting of technical standards. Abolishing market reserves would lead to a four-fold increase in the size of the software market, and custom-made programs would have a natural protection.

5.62 Incentives are being provided to set up joint manufacturing ventures. IBM established one with SI Informática for micro-computers. In addition to establishing a large mini-computer plant, Digital bought a 30% interest in Elebra (with an option of up to 49%). Digital is also negotiating with another local firm to produce PCs jointly. NEC has signed a joint-venture agreement with Scopus Tecnologia for the production of laptops and notebooks. Within five years from now, potential annual sales are estimated to increase from 160,000 (of which 65% are smuggled) to 600,000 PCs.

d. The Privatization Program

(i) Background

5.63 Brazil has historically handled business-government relationships in a pragmatic way. Petrobras has been open to private (minority) shareholding since its very inception (1953). The decree-law 200 passed in 1967 ruled that state-owned enterprises-SOEs were to enjoy the same conditions as private enterprises. CVRD is a model of a quasi-private, profit maximizing firm by world standards. The creation of the made-to-order capital goods industry association-ABDIB, back in 1955, was inspired by non-other than Petrobras itself. Several of the key people that today manage the market-oriented modernization program were trained in Petrobras and the BNDES.

5.64 In the past, the relationship between the private and state sectors in Brazil was one between a provider - the state - and a recipient - the private sector -, a partnership geared to promote growth in spite of, rather than in conformity with, market forces. SOEs have been vested with great market power as customers and suppliers and easy access to decision-makers at all levels, and a direct influence on the market structure and performance of the industrial sector, the setting of manufacturing and technical standards and in the allocation of investment resources.

5.65 The SOE-network grew largely through the setting up of subsidiaries upstream and downstream of the state monopolies, often in association with domestic and foreign capital. Among other privileges, SOEs granted most of the financing and guaranteed the supply of material and intangible inputs. SOEs' market power and independent management was to be used to strengthen domestic private capital, for example, by making it easier for domestic firms to get better deals with their foreign partners and technology suppliers. But this involved unforeseen costs. One of them consisted of the reduced inflow of foreign management skills and technical know-how that accrued when high margins in rapidly growing markets no longer accrued. Another hidden cost: domestic private capital was relieved from developing antibodies against competitive rivalry. These unaccounted costs were made explicit and largely paid during the 1980s.

5.66 As indicated in 5.28, the SOEs were intended to be catalysts for the private sector, instead, they often monopolized high profit activities, preventing the growth of a competitive private sector. Faltering rates of growth over the 1980s meant the rise of growing adversarial frictions with actual and potential private competitors. Some firms in the private sector continued their symbiotic relationship with the SOEs. Others became increasingly impatient with what they perceived as a zero-sum-game at their expense. Even members of the former group became uncomfortable with the diminishing ability of their sponsors to go on assisting them and began to realize that the stage of state-fueled industrial growth was painfully coming to an end. The central government itself began to find harder to control the expansion of a SOE network which was vested with too much decision making

power on the allocation of resources. Faltering growth rates over the 1980s led to growing friction between private enterprises and SOEs, and even the government began to find it hard to control the expanding SOE network with its excessive grip on resources.

5.67 The Special Commission for Destatization set up in 1981 was the first step towards privatization. It did not, however, achieve much. Over the 1980s only 38 SOEs, worth some US\$ 723 million, were transferred to the private sector (see Table S.A.V.3). By November 1991, when the current programme had already been initiated, only two further firms had been privatized. In most cases, the firms in question had been unable to cope with chronic liquidity crises, ending up in the BNES "hospital" for "intensive care", which often implied that BNDES had to capitalize their debt and take care of their restructuring on behalf of the private managers. This approach was therefore a failure.

(ii) The current privatization program

5.68 The current privatization program (see Table 6) attempts to break the mold of the old relationship between the state and private sectors. It targets some 27 enterprises worth an estimated US\$ 17 billion (US\$ 40 billion including utilities and infrastructure). The sub-sectors most strongly affected are steel, petrochemicals and fertilizer. SOEs account for all flat steel production and two-thirds of domestic petrochemical supply. By the end of 1991, five SOEs had already been privatized, raising close to US\$ 1.6 billion (Usiminas/Usimec, Celma, Mafersa and Cosinor).

5.69 For the first time, foreign capital is allowed to become a player. Although it is allowed up to 40% shareholding, shares no longer have to be held for two years, and transfers abroad are no longer restricted for 12 years. However, foreign capital has played a negligible role so far, largely due to uncertainties about the fate of the current economic stabilization program. Instead, pension funds have become important partners (they hold 26.1% of Usiminas and control Mafersa), followed by CVRD and domestic private financial and industrial concerns (see Table V.6 on the approach of the current privatization program).

5.70 In 1992, BNES expects to sell 21 SOEs worth some US\$ 15 billion. It also plans to expand the list so as to include a key enterprise like Embraer (where the issue of golden shares to be held by the government is likely to arise), in addition to other steel SOEs - Acominas, Cosipa and CSN (see Table 7 on the privatization schedule for the first half of 1992 and the additional SOEs to be included in the program).

5.71 After a hard first round, prospects look better with the auctioning of the petrochemical SOEs, which will probably force Petroquisa to sell all but 15% of its stake in these enterprises. The private sector, including foreign capital, is most likely to take a more active interest than it has done so far. (Further details on SOEs being privatized are given in Table Annex Table 3). The impact of the privatization program on industrial competitiveness will become clear as the privatized enterprises accommodate to the new competitive environment.

Table 6. Brazilian Privatization Programmes1980s vs 1990s

Issues	1980s	1990s
1. Type of firms involved	High proportion formerly private	Includes large original SOEs.
2. Role of foreign capital	Nil	Encouraged to be an important player*
3. Political commitment	Weak	Maximum
4. Macroeconomic environment	from unfavourable to unstable	Unfavourable
5. Role of the state	Reduce growth of the state controlled sector	Change qualitatively by withdrawing as an entrepreneur
6. Role of local equity holders	Key	Key, albeit probably on transitory basis
7. Price policy	Bias towards repressing inflation	Commitment to price liberalization
8. Public opinion	Unfavourable	Favourable
9. Experience in, and skills for, handling the programme	Incipient	Developed
10. Market value of the SOEs under privatization	Low	Uncertain

* It is argued that the Brazilian programme is more liberal in the treatment of foreign capital than its homologues in Spain, Italy, France and Portugal. In Brazil up to 40 % of the voting stock and 100 per cent of the non-voting stock can be acquired by foreign residents. These restrictions are lifted after three years.

D. The Road Ahead: Principal Issues and Problems

5.72 The success of the new industrial policy described above will to a large extent depend on the overall environment in which it is implemented, and on a number of specific problems that are connected with industrial performance. Some of the issues have been touched upon in the preceding paragraphs; the present Section intends to examine them more systematically.

(i) Macro-economic stability

5.73 Long-term macro-economic stability is a sine-qua-non for the success of the industrial program. In the past, policies had the character of ad-hoc measures: during the 1980s, the country went through eight stabilization plans, 15 wage policies, 54 attempts at imposing price controls, 18 exchange rate policies and 11 changes in inflation measuring methods. The fiscal question is yet to be tackled, and steps are underway to eliminate repressed inflation through workable exchange and interest rates and realistic servicecosts is indispensable. High capital costs coupled by low labor costs and a high real exchange rate may discourage investment in technology and modernization.

(ii) Consensus on unambiguous performance standards

5.74 Defining unambiguous criteria for performance to be attained by economic agents (private or public) within specified periods is a major challenge. These are essential to guarantee the effective working of the new incentive system. Enterprises and technology financing agents have a major role to play in establishing the standards, but they must first acquire the necessary skills, capabilities and methodologies. They also need clear guidelines for monitoring progress towards international best business practice. This must be the eligibility criterion for finance and other forms of non-selective support.

(iii) Clearing the way for medium/long-term productivity gains

5.75 Currently, the best managerial resources available in both the government and private sector are to a large extent tied up in the resolution of short-term problems. The phasing-out of the cumbersome price-control policy by the government is one example. There are also uncertainties, leading to a "wait-and-see" attitude among economic agents, with regard to such issues as the changes in the legal framework, fiscal and social security policies, and the pace of the privatization policy (although the latter is becoming clear). Finally, there is the weak performance of the economy. All these lead to a postponement of decisions on investment and technological renewal. Progress is noticeable in the informatics and pharmaceuticals/fine chemicals industries, where major adjustments are following the changes in the informatics and industrial property rights areas, and these are provoking chain reactions across industry.

(iv) Defining a new approach to S&T policy

5.76 Much is still to be done to complete the new S&T policy which is to replace the approach of the past, with its focus on individual programs for, e.g., alcohol, nuclear power and informatics. First, ways will have to be found to compensate for the widely acknowledged fact that market signals alone will not suffice to properly allocate resources to R&D activities from the public to the private sector rest solely on the privatization program. Second, the issue of promoting and diffusing enabling technologies and their impact on competitiveness standards has not yet been properly addressed.

Table 7. Privatization schedule for 1992
(first semester)

Company	Sector	Date
Indag	Fertilizer	January 23
Piratini	Steel	February 12
Golasfertil	Fertilizer	February 19
Franave	Navigation	March 12
Petroflex	Petrochemical	March 18
Enasa	Navigation	April
Arafertil	Fertilizer	April
Copeaul	Petrochemical	May
Tubarao	Steel	June
Caralba	Copper mining	June

Additional Privatizations

Company	Sector
Embraer	Aerospace
Cosipa	Steel
CSN	Steel
Acominas	Steel
Lloyd Braslieiro	Navigation
RFFSA	Airways

Source: BNDES.

Third, the whole S&T infrastructure badly needs a major restructuring on the basis of new criteria (witness the serious crisis of BIO-RIO, the biotechnology park, and the fact that IPT-Technological Research Institute's rate of self-financing went from 79% in 1981 down to 21% in 1989). Finally, although much hope can be lied BPQP, unless complemented by more fundamental changes in process, product and managerial standards, resources allocated to this end are likely to have rapidly diminishing returns.

(v) Foreign investment and the new industrial policy

5.77 Brazil is the Latin American country where in the past direct foreign investment had by far the strongest developmental impact in terms of human resource development, upgrading of technical standards, adaptation of technologies and exports. But over the 1980s this changed, with many foreign firms that had agreed to long-term technology transfers turning towards much more cautious and case-by-case decision making. Others began to withdraw product lines and investment plans. The new laws and measures regarding industrial property, informatics, foreign investment and privatization can help to revert this trend and ensure foreign investment in high-tech industries. In sectors such as petrochemicals and steel a number of foreign direct investment decisions are directly dependent on the privatization program.

(vi) Industrial organization

5.78 The industrial policy envisages a future industrial sector with large industrial groups at the heart of a wide network of technologically dynamic small and medium-sized enterprises, and various forms of competition and co-operation with foreign enterprises. There are already some development along these lines in the private sector, for instance in the capital goods industry were major consolidations are taking place. These changes are having an impact on market structure and behaviour as well as on domestic competition patterns. The consequences of these developments have not been given much consideration yet.

(vii) Intra-industry inefficiency

5.79 A country's international competitive standing cannot be explained only by the performance of the best firms alone. Absolute delays in the initial introduction of best practices is not all what matters. The rate at which such practices, once introduced by pioneer firms, are spread domestically is as--or even more--important matter. The variance in intra-industry inefficiency has to be accounted for and acted upon as a priority industrial policy issue.

(viii) MERCOSUR

5.80 Sub-regional co-operation in the context of Mercosur has to tackle a number of obstacles. One of the major stumbling blocks is the question of "asymmetries", that is, differences in off-battery manufacturing factor costs. The Brazilian government, for example, attaches much more emphasis than other Mercosur member countries to reducing investment costs. This includes provisions for tax exemptions and various other benefits, easier access to domestic financing for foreign investors and strengthening of the domestic venture capital market. At the same time, chronic disparities in real exchange rates disturb reciprocal trade flows, and Brazil lags behind in terms of overall trade liberalization. While, e.g. in Argentina the maximum, mean and modal tariffs are today 22%, 9.6% and 0%, respectively, in the case of

Brazil the respective tariffs are today 35%, 20% and 20%, respectively in 1994. This raises obvious questions with regard to the creation of a free trade area, although apparently irreversible steps towards industrial specialization are already being taken in industries such as automobiles, petrochemicals and machinery and equipment.

E. Policy and Investment Priorities: Conclusions and Recommendations

(i) Conclusions

5.81 Influenced by the relative success of industries such as steel, pulp and paper and petrochemicals, infant industry policies have been applied in Brazil across the board apparently envisaging a slowly moving best manufacturing practice international frontier. In this context, the sheer size of the Brazilian market was to allow reaping the necessary scale economies and thus reaching the frontier for good. Then the time would eventually come to do without state sponsorship.

5.82 The reality was different. In particular, Brazilian industry was not prepared to cope with developments in the world market for knowledge-intensive industries, such as falling costs and study improvements in product quality over time; imperfect competition to be associated to increasing returns; and non-tariff barriers. Strong dynamic learning effects requiring active presence in world markets are a key to competitiveness and no amount of government intervention can do instead, even in large economies.

5.83 Although debugging efforts and run-of-the-mill learning are a necessary condition, they are not at all sufficient for attaining competitiveness. Like elsewhere in the region, there has probably been too much emphasis on the engineering, and too little on the economics of dynamic efficiency. Likewise, too much attention has been paid to the introduction and too little to the domestic dissemination of international technological and managerial practices.

5.84 The diffusion of new technologies normally places a premium on the skills of the work force. However, in Brazil, according to one estimate, 30% of the labour force is illiterate; over 50% has just 3-4 years of school; and below 10% has upper education (Evans, Frischtak and Tigre, 1991, 31). This is associated to the fact that 6.4% of children die before their first birthday, 30% suffer from malnutrition and 85% abandon school before they are 11 (New Scientist, 1991, 14, see chapter on human resources). With proper education and skill enhancing policies duly in place, an increased national savings rate and a lower domestic cost of capital may render a substantially greater impact on national innovative performance and productivity growth than many explicit scientific and technological policies.

5.85 S&T policies, increased national savings rates and lower domestic capital costs are all essential for the improvement of Brazil's innovative performance and productivity growth; but their impact will to a large extent on an additional factor: proper educational and skill-enhancing policies.

5.86 While Brazil does have highly qualified labour in some areas, the basis for the creation of a skilled labour force is too narrow. According to one source, 30% of the labour force is illiterate; over 50% has only 3-4 years of education (85% of the children leave school before the age of 11); and less than 10% has a higher-level education. Malnutrition (of which 30% of the population suffers) causes widespread learning problems (Evans, Frischtak and Tigre, 1991, 31; New Scientist 1991, 4; see also the chapter on human resources).

(ii) Recommendations

5.87 We will now discuss the implications of the above for resource allocation and identify priority areas where efforts should be focused. This is intended to help guiding the supply of financial and technical assistance by multilateral agencies.

Lifting barriers to domestic technology diffusion

5.88 Reducing intra-industry and intra-firm relative inefficiency is another important priority. This involves removing obstacles to the domestic diffusion of better manufacturing practices. Important among such obstacles are inert managerial slack, lack of information, deficiencies in the basic education and training of the workforce and resources yet tied-up to uncompetitive activities. More analysis is needed on the role of market imperfections (as opposed to policy-induced distortions) as a cause of inter-industry inefficiency and on the costs and benefits of allotting resources to reducing it.

Improving resource mobility

5.89 Barriers to resource mobility should be removed. This is to be achieved through deregulation, privatization and a much wider reliance on prices and competition. Resources will be released by reducing entry and exit barriers. This would, among other things, allow greater specialization and help to reverse the trend towards deteriorating competitiveness. The frictional costs of increased resource mobility should however be minimized by, among others, adequate social safety nets and effective labour reallocation schemes.

Mobilizing industry's own capacity for restructuring

5.90 Brazilian industry is at the crossroads between obsolescence and restructuring. Macroeconomic stability is a necessary but not a sufficient condition for the second option to be taken at the scale needed. Market imperfections, inert forces towards non-competitive behaviour and the crucial role played by externalities such as those stemming from the technological infrastructure and the formal educational and vocational systems entail the need for some stewardship of the restructuring process in order to reap the necessary dynamic economies. This applies particularly to those agents that will necessarily play a key role, such as the BNDES. For this purpose, support should be given to endow these agents with the necessary methodological, technical and operational skills. The most obvious rationalization move, labour shedding, is but one, and not necessarily the best answer. Other actions would include: (i) attaining economic size through greater specialization, mergers, and reduction or scrapping of capacity; (ii) changing product/market strategies by shifting basic product lines, and establishing product design and marketing centers; (iii) reducing lead times through better integration/reorganization of manufacturing functions, and reorganization of supplies and marketing; (iv) reducing product costs and increasing quality by changing technology, equipment and plant lay-out, adjusting operating standards, improving raw material flows, and lowering input costs - this requires, among others the adoption of quality control systems, better operator and supervisor training, increasing the number of shifts and providing support services for product development; and (v) redeploying employees within or between activities.

Restructuring the S&T system

5.91 The issue of allocative and technical inefficiency in the S&T system ought to be explicitly addressed. Because of clear criteria in this respect, a special effort should be made to define the basic tenets of the S&T policy more precisely, pinpointing the objectives and assessing the effectiveness of the means to be used. This is all the more urgent because new approaches and practices are needed following the privatization of several major R&D institutions.

Developing human resources

5.92 While this issue is discussed extensively in a separate chapter in this volume, the essential role of a skilled labor force should be underlined here. In Brazil, the acquisition of basic skills needs at least as much attention as specialized expertise. Policies to improve the educational background of entrants in the labor force, to remedy basic skill deficiencies and to improve job-related training, as well as training in advanced manufacturing methods and retraining to facilitate labour mobility may well yield a far greater benefit (albeit over a longer time) than master plans aiming at gaining the competitive edge in high-tech industries.

Trade policy and industrial competitiveness:

5.93 To provide decision-makers with a basis for policy guidelines for policy implementation, an effort should be made to link the static basis of trade policy (single period cost and price analysis) and the dynamic underpinnings of competitiveness (economies of learning) at the sector and sub-sector level. An understanding of the relationships between these is needed to: (i) properly time trade liberalization and technical assistance for industrial adjustment; (ii) identify and address (sector and sub-sector specific) trade-offs involved in the allocation of resources among projects that create new capacity and others aimed at improving the efficiency of existing capacity; and (iii) increase the transparency of trading policies, to remove frictions and misunderstandings with regard to Brazil's efforts at fostering dynamic efficiency. Brazil has in the past been a target of anti-dumping policies. Within the new policy framework there should be a much wider scope for transparency and mutual understanding with trading partners of these issues.

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Annex Table 1

Brazilian Privatization Program

Basic data on the core enterprises being privatized (I)

	% of foreign share holders		Pre-tax turnover (in US\$m)	Employment (000)	Productive performance	Exports (as % of output)	Financial performance		Comments
	Already privatized	Before privat.					After privat.	Profit/Year net sale	
Steel									
1. USIMINAS									
(coke integrated)					Physical productivity increased at 9% p.a. during 1985/89. It is 20% above the Brazilian average (similar to that of France or 3rd world highest after Italy and the US).	1985 0.23 1986 0.20 1987 0.23 1988 0.35 1989 0.32	1985 -5.72 1986 2.57 1987 -41.57 1988 3.89 1989 14.33	0.52 0.45 0.52 0.46 0.29	Before being privatized, BNDES reached an agreement with Nippon Steel whereby the latter agreed to cancel their previous shareholder agreement and among other things, resign their right to appoint the Director for industrial management.
Capacity (in mt/y)	/	4.64%	5.96% ¹	2.031	1985 14.8 1986 14.7 1987 14.6 1988 13.9 1989 13.8	Main destinations: USA : 20% Iran : 14% Japan : 13% Other South East Asia: 36.8 Other : 16.2			Cost of steel companies* (per ton/year of finished product)
- Liquid steel: 3.5									Capacity Price
- Plates : 1.2		(Nippon steel)							(000) (\$/t/y)
- Hot rolled : 2.5									US Lorain 2,100 335
- Cold rolled : 1.2									ARMCO 2,500 360
									USIMINAS 3,800 487
									National (US) 4,000 227/391
									Inland (US) 4,200 319/426
									Bethlehem (US) 8,200 238/357
									US Steel 10,300 221/310
									Source: Booz, Allen & Hamilton
									* Based on minimum price set by the auctioneer.

	% of foreign share holders		Pre-tax turnover (in US\$m)	Employment (000)	Productive performance	Exports (as % of output)	Financial performance		Comments	
	Already privatized	Before privat.					After privat.	Profit/Year net sale		Debt/equity
2. TUBARAO-CST										
(coke integrated)		11.0%	..	790	1985 6.3 Tons/man/year 473.96	CST exports	1986	-82.3	0.83	
Capacity (in mm t/y)		(Kawa-			1986 11.3 Man/hour/ton 6.50	over 95% of	1987	-14.5	0.25	
Coke : 1.7		saki &			1987 13.1 Its unit slab production costs	its output	1988	6.3	0.20	
Sinter : 4.9		Finsider)			1988 12.3 are estimated as less than 2/3	mainly to	1989	19.5	0.15	
Hot metal : 3.4					1989 12.3 those of Asian and less than	North				
Liquid steel: 3.4					1990 8.9 half those of American steel	America (32%)				
Slabs : 1.0						Asia (26%) &				
						Europe (22%)				
3. CONSINOR										
(coke integrated)		0.0%	..	25	1,356	1987 0.44	1987	-1.84	0.94	The company fell into ENDES' control after successive bail outs.
Capacity (in t/y)						1988 0.19	1988	-0.47	0.29	
Steel works : 84,000						1989 0.19	1989	-0.26	0.25	
Cast products: 6,000										
Boiler products: 6,000										
4. PIRATINI										
(Non-flat special steel rolled and forged)		0.0%	..	133	2,531	1987 0.36	1987	-0.41	1.24	Piratini requires at least US \$ 5 mn investment on plant and equipment to become commercially viable.
Total						1988 0.47	1988	-0.19	0.14	
Capacity (in t/y): 240,000						1989 0.35	1989	-0.08	0.15	
						Exports by destination:				
						(in %)				
						Asia: 0.37				
						Europe: 0.30				
						North				
						America: 0.22				

	% of foreign share holders			Pre-tax turnover (in US\$m)	Employment (000)	Productive performance	Exports (as % of output)	Financial performance		Comments
	Already privatised	Before privat.	After privat.					Profit/Year net sale	Debt/equity	
5. ACSITA							1989			
Silicon Alloy and stainless steel		<9.0%	..	725	8,693		Stainless 0.9			
							Silicon alloy 0.12			
							Other alloy 0.47			
							Special 0.17			

Note: Among the 20 largest steel firms in Brazil, those owned by the state accounted in 1989 for 70% of turnover. The 5 under privatization account for 50% of that share, 33% of total crude steel supply and 45% of coke-integrated steel work capacity.

Source: UNDES.

Annex Table 2

Privatization in Brazil, 1981-1989
(Sale of equity control or assets, values in US \$ 1000)

Enterprise	Controlled by	Total assets	Employment	Sale value	Sale
1. Cia. Quim. do Recôncavo (CQR)	Federal Government	52,401	238	5,061	11.81
2. Cia. América Fabril	BACEN	27,923	NA	28,756	11.81
3. Riocell Administ. S/A - Rasa (holding)	BNDSPAR	47,044	NA	77,542	03.82
4. Riocell Trade GMBH					
5. Rio Grande Cia. de Celulose do Sul					
6. Florestal Riocell					
7. Fabr. de Tecidos Dona Izabel	BACEN	18,592	NA	16,880	06.82
8. METODO-Org. Plan. e Adm. de Sist. Empresariais Ltda	DATAMEC	220	361	12	06.82
9. Ind. Brasileiras de Papel-IMBRAPEL	Federal Government	1,275	401	3,245	08.82
10. Cia. Pernambucana de Borracha Sintética - COPERBO	PETROQUISA	62,876	1,033	24,772	12.82
11. Oleos de Palma S/A-Agro Ind. OPALMA	C.S.N.	6,929	550	3,055	03.83
12. Federal de Seguros S.A.	IAPAS	17,666	831	7,107	04.83
13. Nitriplex S/A - Indústria e Comercio	PETROQUISA	27,557	283	5,372	04.83
14. Cia. Bras. de Cimento Portland Perus	Federal Government	4,058	633	15,879	05.80
15. Estr. Ferro Perus Pirapora		3,300	4		
16. Força e Luz Criciúma S.A.	Carb. Prosp	2,535	89	2,076	05.82
17. Livr. José Olympio Editora	BNDDES	445	396	281	04.84
18. Encine Audiovisual S.A.					
19. Sidacta Sist. Educacionais					
20. Fiação e Tecelagem LUTFALA	BNDDES	736	45	2	84
21. Cia. Melhoramentos Blumenau Grande Hotel Blumenau	Federal Government	286	53	420	08.86
22. Cia. Nacional de Tecidos Nova América	BNDDES	49,635	3,712	15,855	06.87
23. Máquinas Piratininga do Nordeste	BNDDES	2,361	333	1,428	07.87
24. Máquinas Piratins S.A.	BNDDES	24,056	1,085	107	09.87
25. Eng. Hidráulica e Instrumentação S.A. ENGENATIC	EMBRAER	2,275	126	3,827	01.87
26. Ferritas Magnéticas S.A. FERMAG	CVDR	1,375	40	853	12.87
27. Eletrosiderúrgica Bras. S.A.- SIBRA	BNDDES	13,254	1,200	29,024	04.88
28. Aracruz Celulose	BNDDES	131,953	1,273	133,799	05.88
				21,000	06.88
				1,400	03.89
29. Cia. Guatapara de Celul/Papel CELPAG	BNDDES	101,398	296	72,736	05.88
30. CARAIBA Metais S.S.	BNDDES	1,491,659	3,958	87,110	08.88
31. Cia. Sider. de Moji das Cruzes-COSIM	SIDERBRAS	43,418	772	4,123	09.88
32. CINEPAL - Siderúrgica S.A.	BNDDES	63,725	4,682	59,000	09.88
33. Cia. Brasileira de Cobre	BNDSPAR	32,809	964	7,217	04.89
34. Cia. Brasileira de Zinco					
35. Mineração CARNEC					
36. Cia. de Celulose da Bahia CCB	BNDSPAR	99,655	190	14,409	07.89
37. Cia. Ferro e Aço Vitoria - COFAVI	SIDERBRAS	102,176	2,550	8,215	07.89
38. Usina Siderúrgica da Bahia - USIBA	SIDERBRAS	131,659	1,473	54,240	10.89
TOTAL (1981-89)		2,535,250	27,571	743,402	

NA: Not available.

SOURCE: Secretaria Executiva do Conselho Federal de Desestatização/M.F.

Annex Table 3
The Quality and Productivity Program
Subprograms under way

Sector	Institutions involved	Status of Work (June 1991)
1. Capital goods	ABIMAQ, ABINEE, ABDIB, SIM FRE, SINAVAL, SCT/PR, INMETRO, MINFRA, DIG/SNE	Terms of reference for sectoral diagnosis, domestic and international trends, strategies and action under completion.
2. Informatics and industrial automation	ABICOMP, Fundação Sanzolino, ABCPA, ABINEE, DIC, SCT AND CPqD.	Idem.
3. Steel	IBS, IPT (PROSID), BNDES/FINEP, IBAMA, ABDIB, MINFRA, DECEX, ABRAFAR, ABRAFE, DIC	One meeting took place (the institutions are still to ratify their participation).
4. Textiles	CETIQT, ABIMAQ, ABIT, ABRAFAS, ABRAVEST, Camara Técnica Sectorial de Algodão-DIC/SNE/MEFP, INMETRO, SCT, SEBRAE	A total quality programme has been developed through SENAI/CETIQ. List of projects and sectoral quality & productivity indicators under completion.
5. Agro-industry	ABIA, ABRAS, ITAL, EMBRADA, OCB, CNA, SCT/PR, CNA/DAP, INMETRO, DIC/SNE.	15 working groups have been constituted.
6. Toys	ABRINO, 7 private enterprises, SCT, DIC, INMETRO.	8 working groups have been constituted.
7. Musical Instruments	AFIMBRA, 14 private enterprises, DIC, DECEX, SRF	
8. Leather and Shoes	ABICALÇADOS, ABIMAQ, ASSINTECAL, CICB, ANIACAU, CTCCA, SENAI, DIC, INMETRO, SCT.	Terms of reference under completion.
9. Furniture	AFAM, MOVESP, SINDIMOV, DIC	Proceedings were started.
10. Basic Chemicals	ABIQUIM, PETROQUIS, ABIPLAST, ABRAFAS, ABICLOR, ANIP, ABRAFATI, ABRIARB, DNC/MINFRA	Proceedings were started.
11. Fertilizers	ANDA, OCB, IBRAFOS, AMA, SINDICATO NACIONAL DA INDUSTRIA DE MATERIAS PRIMAS PARA FERTILIZANTES	Proceedings were started.

The Quality and Productivity Programme (cont'd)

Sector	Institutions involved	Status of Work (June 1991)
12. Fine Chemical	ABIFINA, ABIQUIP, SINDAG, SINDAN, ANDEF, ABIQUIF	Proceedings were started.
13. Pulp and Paper	ANFPC, ABECEL, ABTCP, ANAP, ESALQ/IPEF, ABIGRAF	Proceedings were started.
14. Lubricants	PETROBRAS, SINDICOMB, ANFAVEA, CETESB, DNC, BUREAU VERITAS, DIC, IBD	Proceedings were started.
15. Civil Construction	SNIC, ATIBIAV, SINDILOUÇAS, ANFACER, ABRAFATI, CBIC	Proceedings were started.
16. Baby goods	10 private enterprises, SRF, DECEX, DIC	Being started.

Source: Ministry of Economics, Finance and Planning, Programa Brasileiro da Qualidade e Productividade - PBQP. Relatório geral: Balanço: 1 ano de PBQP.