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Recent trade policy in Brazil

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RECENT TRADE POLICY IN BRAZIL

by
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ABBREVIATIONS

BEFIEEX	Benefícios Fiscais a Programas Especiais de Exportação (Fiscal Benefits to Special Export Programs)
BNDES	Banco Nacional de Desenvolvimento Económico e Social (National Bank for Economic and Social Development)
CACEX	Carteira de Comércio Exterior, Banco do Brasil (Foreign Trade Office, Bank of Brazil)
CDI	Conselho de Desenvolvimento Industrial (Industrial Development Council)
FIBGE	Fundação Instituto Brasileiro de Geografia e Estatística (Brazilian Institute of Geography and Statistics)
ICM	Imposto sobre a Comercialização de Mercadorias (Commodities Circulation Tax)
II	Imposto de Importação (Import Duty)
IOF	Imposto sobre Operações Financeiras (Financial Operations Tax)
IPEA/INPES	Instituto de Planejamento Económico e Social/Instituto de Pesquisas (Institute of Economic and Social Planning/Research Institute)
IPI	Imposto sobre Produtos Industrializados (Manufactured Products Tax)
NBM	Nomenclatura Brasileira de Mercadorias (Brazilian Commodity Classification)
NTB	Non-Tariff Barrier
SUDAM	Superintendencia de Desenvolvimento do Amazon (Superintendency for the Development of the Amazon)
SUDENE	Superintendencia de Desenvolvimento do Noreste (Superintendency for the Development of the North-east)
TAB	Tarifa Aduaneira do Brazil (Brazilian Customs Duty)

1. INTRODUCTION

There is a reasonable consensus that trade policy has played an important role in Brazilian industrial development (cf. Tyler, 1976; Tavares, 1982, among others). In the 1950s it was used to stimulate the substitution of imported consumer goods. Subsequently - during the 1960s - policy shifted to promoting manufactured exports, though without reducing the levels of protection afforded to import-substituting industries established previously (basically the automotive and industrial-infrastructure sectors; Skidmore, 1975). In 1957 an ad-valorem tariff system was established to provide a margin of protection against outside competition consistent with the import-substitution process then underway. By the late 1960s, a number of measures ensured the competitiveness of Brazilian manufactured goods abroad (IPI and ICM tax credits, income tax exemption on export earnings, preferential interest rates, foreign-exchange administration favourable to exports, etc.).¹ Owing to this strategy production in some industries became highly concentrated. Domestic price controls were established jointly with production subsidies (subsidized credit from BNDES, preferential interest rates and tax exemptions awarded by the CDI for Brazilian-ownership programs and others) in order to guarantee the expansion of domestic sales and allow economies of scale to be realized. Despite some arguments about inconsistencies in the use of trade policy during this period, the economic development strategy was undeniably successful: An extensive and rather diversified industrial structure was created, and manufactured products currently make up more than 50 per cent of Brazilian exports.

The approach taken in this study is primarily to evaluate the protection given to industry during the first half of the 1980s. It therefore expands upon Tyler (1983) who evaluated the protection of Brazilian industry by comparing international prices for 1980-81. He demonstrated the inappropriateness of using legal tariff rates for measuring levels of protection in Brazil,

¹ Carvalho and Haddad (1980) summarize studies that estimate the effects of trade policy on Brazilian export performance during the 1960s and the mid-1970s.

and concluded that substantial allocational benefits could be obtained if effective protection rates were made uniform. Moreover, a reduction of the anti-export bias would lead to an increase in exports with favourable distributive implications (greater use of unskilled labour and alleviation of poverty).

In this paper we have applied a methodology similar to Tyler's, based on 1985 prices. Our results reinforce Tyler's arguments about excessive protection given to certain sectors of Brazilian industry, though to a lesser degree than in 1980-81. Similarly, the gradual phasing out of certain export promotion schemes during the first half of the 1980s has led to a pronounced anti-export bias in some industries.

Today the need to modernize industry in order to ensure Brazil's integration into the world economy is being emphasized. The New Industrial Policy and the tariff reform are intended to spur productive efficiency through foreign competition and technological progress. Trade policy needs to be reformulated along these lines.

This study is structured as follows: The second chapter evaluates legal tariffs and average tariff collections for the years 1975, 1980 and 1985. For 1985, the differential between domestic and foreign prices is used to quantify the nominal and effective protection of Brazilian industry as well as tariff redundancy. Export incentives in 1980-85 are described and incentive rates calculated in Chapter 3. The final chapter presents conclusions and policy recommendations.

2. IMPORT POLICY

2.1. Introduction

In this chapter we analyze the protection of manufacturing industry against foreign competition through tariffs and non-tariff barriers in 1975, 1980 and 1985. This involves empirical problems since it is not clear whether legal or actual tariffs (the ratio between import duty paid and import value) are the

most appropriate measure of protection.¹ Furthermore, non-tariff barriers (NTB) in Brazil have been a protection tool at least as effective as tariffs. However, it is difficult to assess their importance because their impact on trade flows depends on the supply situation in each industry (Deardorf and Stern, 1985). The estimates for 1985 are particularly useful because they are based on a comparison between domestic and international prices and therefore provide an accurate estimate of the combined effect of tariffs and NTBs.

2.2. Price Comparisons

International price comparisons have been used in several empirical studies on foreign trade and industrial organization. From the standpoint of international trade theories, studies traditionally start from the assumption that for similar products domestic prices are the same as international ones (Law of One Price). The validity of this principle is generally based on the prior acceptance of perfect competition in the international market, and is therefore consistent with the restrictive assumption of a small country. Recent open economy macroeconomics requires compatibility with the purchasing power parity theorem for the Law of One Price to hold, suggesting that price changes in a country be offset by shifts in the exchange rate.

Although no consensus has yet been established on the validity of the purchasing power parity theorem, and recent studies in other countries point to the possibility of imperfect competition in international markets (Hazlediner, 1980), the use of price comparisons has relied upon the notion that the Law of One Price is valid.² This methodology has also been used in other studies as a measure of the international competitiveness of individual industries.³

¹ This occurs due to tariff exemptions and reductions.

² See in particular Nambiar (1983), Greenhill and Herbolzheimer (1980), and Richardson (1978).

³ De Vries (1972), Kravis and Lipsey (1971), Weinblatt and Zilberfarb (1981).

The main reason for the widespread use of price comparisons is that knowledge about the relationship between national and international prices can be extremely important in the formulation of economic policies, whether or not the law of one price prevails. The reason is that prices reflect institutional influences for every country involved in trade, in addition to the usual impact of the balance between commodity supply and demand. Particularly with regard to industrial policy the estimated ratios between internal and external prices are useful for determining the advantages obtained by individual industries through protection against foreign competition.

In Brazil price differentials have only been used as of late.¹ Due to the lack of price data, earlier studies only dealt with protection through tariffs.² The first studies on the protection of Brazilian industry based on price comparisons are those by Tyler (1983) and Braga et al. (1987). In the case of Brazil, this approach is important due to the difference between legal tariffs and actual tariff collections.

This situation results from the wide variety of tariff exemptions and rebates given to imported products used in priority projects involving bilateral cooperation and regional development (SUDAM, SUDENE and others), as well as capital good imports according to fixed political guidelines (increasing the degree of national ownership, CDI, BEFIEX, drawback and others). As an illustration, in 1985 the average actual tariff collection rate for all manufacturing was 6 per cent, while the legal rate was 22 per cent. The usefulness of tariffs (legal or actual) in studies on protectionism is therefore limited; for this reason, results are somewhat neglected by policy makers.³

¹ Tyler (1983); Braga et al. (1987) compare the estimates of effective protection in previous studies with those based on price differentials.

² Bergsman and Malan (1971), Neuhaus and Lobato (1971), Kume and Rosa (1981), Braga and Guimaraes (1982).

³ Several studies treat this aspect of Brazilian trade policy and summarize the difficulties in estimating the real degree of protection for the domestic economy resulting from tariffs. Of particular interest is Guimaraes (1986).

There are three other no less important characteristics that favour the use of international price comparisons. The first is that part of the tariff may be redundant, meaning that the international price plus legal tariff exceeds the domestic price. Since the tariff structure is designed largely in response to pressures from groups demanding protection, it is reasonable to assume that in some cases tariffs lose their allocational function with time. The second characteristic is that control of imports has recently also consisted of non-tariff instruments: prohibited imports, protected markets (the 'market reserve', for example in data-processing), the Law of the National Similar, Financial Operations Tax (IOF), and other instruments that are difficult to quantify (Guimarães, 1987, Moreira and Araujo, 1984). The third characteristic is that an industry can benefit from favourable domestic prices while at the same time having its profitability affected by other policies. Although there are no empirical calculations of the degree of functional imbalance between industrial and foreign trade policy in Brazil, there is a certain consensus in business and academic circles in this regard.¹

With this line of reasoning, the basic idea contained in studies by Tyler (1983) and Braga et al. (1987) is that the differences between internal and external prices for similar products quoted during the same period indicate the implicit nominal protection of Brazilian products. The ad-valorem rate obtained from the price differentials can be interpreted as an implicit tariff, which is entirely different from the one provided by law or from the actual tariff applied, because it incorporates the whole gamut of policies that are reflected in prices.

Tyler's formula is as follows:

$$T_{impj} = \frac{PD_j}{PM_j} - 1 \quad (1)$$

¹ Carvalho (1985) gives examples in partial support of this argument.

where

$$\begin{aligned} T_{impj} &= \text{implicit tariff} \\ PM_j &= (PW_j + CF_j) r \end{aligned} \quad (2)$$

where

$$\begin{aligned} PD_j &= \text{domestic price for manufacturer, FOB plant,} \\ &\quad \text{of product } j, \text{ excluding IPI and ICM;} \\ PM_j &= \text{import price (CIF) of product } j, \text{ in Cruzados;} \\ PW_j &= \text{"international price" of tradeable product } j, \\ &\quad \text{FOB at some reference point of origin, in} \\ &\quad \text{foreign currency;} \\ CF_j &= \text{freight and insurance, from reference point of} \\ &\quad \text{origin to Brazilian entry port, in foreign} \\ &\quad \text{currency; and} \\ r &= \text{official exchange rate, defined as Cruzados} \\ &\quad \text{per unit of foreign currency.} \end{aligned}$$

This approach is completely in accordance with the law of one price. In addition, Tyler extends the basic formula for the implicit tariff formula to incorporate direct subsidies to production (s), obtaining a more generalized measure of implicit nominal protection (P_{impj}) for sales in the internal market:

$$P_{impj} = \frac{PD (1 + S) - 1}{PM_j} \quad (3)$$

Braga et al. (1987) follow the same development as Tyler with one fundamental conceptual distinction: the FOB price of Brazilian exports is used as the international price (PW_j^*), excluding transportation costs and reinforcing the notion that export incentives and subsidies are incorporated into the domestic price. They therefore dispense with the calculation of implicit nominal protection (P_{impj}) since they assume that the effects of export promotion and the subsidization of domestic activity are reflected in price formation.

In addition, the findings by Tyler (1983) and Braga et al. (1987) should be compared with caution because the latter use the

sophisticated method to calculate effective protection, unlike Tyler.¹ Moreover, Braga's results have to be adjusted to the CIF price base for a comparison with tariff rates, because this is the basis on which customs duties are calculated. The adjustment of the price vector should therefore be as follows:

$$T_{impj} = \frac{PD_j}{PW_j r (1 + N_j)} - 1 \quad (4)$$

N_j is the ad-valorem rate of international shipment costs that will result in the formation of domestic prices (cf. Braga & Guimarães, 1982), once PW is defined as the border price (fob).

On the basis of these arguments the rates of nominal and effective implicit protection have been (re)calculated using the prices available for 1985 from IPEA/INPES. Unfortunately our figures are not strictly comparable to those of Braga et al. (1987) for at least two reasons. We have used the traditional rather than the sophisticated method of effective protection estimation, and the aggregation of price differentials was based on the study made by FUNCEX and IPEA in 1987 to harmonize industrial and trade classification systems.

2.3. Construction of Variables

a) Implicit Nominal Protection

The main problem in obtaining estimates of implicit nominal protection lies in the homogeneity requirement for the products to be included in the international price comparison. This is confirmed by UN (1961) which established substantial differences between the prices of (groups of) commodities at the 4 and 5 digit-level of the Standard International Trade Classification (SITC) when exported by different countries. One reason for this result is (as stated) the need to classify essentially different products, though with similar physical characteristics, under the same SITC heading.

¹ Lee (1982) and Braga et al. (1987) summarize the methodology of this sophisticated calculation method for effective protection.

In this study the nominal protection vector is based on 1710 pairs of prices reported by manufacturers, who are the most reliable source for the prices of their products sold in different markets, ensuring product homogeneity.¹ We have therefore constructed 1710 implicit nominal protection rates and have grouped them according to the NBM product classification into 790 8-digit items, which is the finest product breakdown for this classification. It was therefore possible to make these (groups of) products consistent with the 105 sectors of the FIBGE Intersectoral Relations Matrix (1975), and to express nominal implicit protection for these sectors (j) through simple averages.²

In formal terms, the implicit nominal tariff vector has been constructed at product level (i) as follows:

$$T_{\text{impi}} = \frac{PDj_i}{PW_i^* r(1+N_i)} - 1 \quad (4a)$$

where

PDj_i = price, FOB plant, received by producer net of IPI and ICM, quoted in Cruzeiros on June 1, 1985, for product i of sector j;

r = official Cruzeiro/dollar exchange rate on June 1, 1985;

PW_i^* = international price of product i approximated by FOB export price in US dollars, quoted on June 1, 1985, for sector j;

N_i = base rate of shipping cost for product i, sector j.

The 1710 pairs of prices that form implicit nominal protection rates for the 105 industrial sectors have been obtained for internationally tradeable products, to ensure their usefulness in calculating effective protection.

¹ The set of price differentials used by Tyler (1983) has a different price appropriation system.

² Domestic prices of tradeable products, cattle and farm goods have been considered as highly sensitive to international prices quoted on the main commodities exchanges abroad. This consideration is backed up by evidence that these prices vary considerably in view of the inelastic offer of these products.

b) Tariff Protection

The actual tariff vector for the years 1975, 1980 and 1985 is calculated as the ad-valorem rate for the import duty actually paid, for contracting the imported commodity. In addition, we provide a legal tariff vector taken from rates as given in Brazilian Customs Duties (TAB) for almost 11000 items and for the same years. The construction of this vector started with the calculation of the simple average for each industrial sector, which were then weighted on the basis of 1975 output for estimates by industry.

c) Shipping Costs

The ad valorem rate for shipping costs (N) has been computed as the proportional increase of the domestic price:

$$N = \frac{\text{CIF cost} - \text{FOB cost}}{\text{FOB cost}} \quad (5)$$

Estimates of shipping costs have been obtained for tradeables (8-digit level of NBM) from two different sources. Special consideration was initially given to shipping cost estimates furnished by companies reporting on prices that were part of the IPEA/INPES study. For those products with no such data available, an estimate has been made by means of the difference between the CIF and FOB costs as given in the Brazilian Foreign Trade Yearbook (CACEX, 1985).¹

2.4 Changes in Protection 1975-1985

Import policy as part of the global economic development strategy has undergone significant modifications. Foremost among

¹ This measurement was originally suggested by Beckerman (1956) and has been used in a number of empirical studies on shipping cost. By construction the two sources of data include freight and insurance for internationally tradeable commodities. For Brazil, this yardstick was used by Braga & Guimarães (1982) to compute overall effective protection.

them has been the ad-valorem tariff structure created in 1957 and constantly changed over the years. Brazilian government activities have contributed to these changes. Since the mid-1960s it has expanded its role in the economy and now is responsible for some 70 per cent of gross capital formation. In the 1970s the government began an ambitious investment program for the domestic production of basic raw materials and capital goods.

As part of this strategy tariffs for a number of inputs were raised by as much as 100 per cent during 1974-75. Subsequently, an advance deposit for a 360-day period equal to the value of imports was created, and lasted until 1979. During this time import controls were tightened by means of non-tariff barriers. Expectations were that in view of the economic vulnerability caused by the oil crisis the economy would come to depend less on a group of goods produced abroad for which international prices were rising.

Along this line of reasoning, Table 1 contains evidence on tariff policy for 1975, 1980 and 1985. The averages for each industry have been weighted by actual imports to show the relevance of special regimes that provide for tariff exemptions or reductions. The ratio between the legal and actual tariffs was reasonably constant in manufacturing (actual tariffs at 65 to 70 per cent of legal tariffs). Such figures suggest a certain rigidity of access to the special arrangements and show that legal tariff reductions during the period have led to similar reductions in the actual tariff. The greatest differences between legal and actual tariffs normally occurred in the area of metallurgy, mechanical equipment, transport equipment, wood products, furniture, leather goods, clothing and footwear and food. It is interesting to observe that in regard to such goods with a high social rate of return, the difference between the legal and actual tariff is generally high, favoring the actual tariff in detriment to the legal one.¹

¹ Moldau (1986) estimates the cost of domestic resources for export by industrial sector.

Table 1 - Legal and Actual Tariffs by Industry^a, 1975-1980-1985 (per cent)

Item - FIBGE	1975			1980			1985		
	Legal	Actual	Diff.	Legal	Actual	Diff.	Legal	Actual	Diff.
Non-metallic Minerals	36.46	14.95	21.51	46.38	28.57	17.81	35.00	23.07	11.93
Metallurgy	31.48	3.73	27.75	35.45	3.97	31.48	23.82	3.49	25.33
Mechanical Equipment	37.14	19.87	17.27	51.64	29.74	21.90	50.26	15.65	34.61
Electrical Equipment	42.89	26.06	16.83	60.15	23.93	36.22	52.27	23.42	28.85
Transport Equipment	44.25	11.40	32.85	66.13	7.13	59.00	59.24	3.29	55.95
Wood Products	58.26	11.16	47.10	31.02	10.68	80.34	48.00	5.65	42.35
Furniture	45.23	16.73	28.50	54.15	37.09	17.06	50.72	26.28	24.44
Paper	31.22	10.52	20.70	41.91	22.14	19.77	41.19	26.70	14.49
Rubber Products	29.86	18.75	11.11	29.50	21.07	8.43	29.20	9.04	20.16
Leather Product	47.77	11.89	35.88	53.22	14.97	38.25	46.94	10.90	36.04
Chemicals	7.66	2.21	5.45	6.21	2.04	4.17	4.49	2.48	2.01
Pharmaceuticals	22.24	16.04	6.20	29.01	20.82	8.19	28.77	22.85	5.92
Perfumes, Soaps	36.13	20.26	15.87	49.87	17.83	32.04	42.20	22.83	19.37
Plastics	42.78	20.29	22.49	44.67	23.14	21.53	43.71	23.88	19.83
Textiles	34.79	12.28	22.51	44.13	21.93	22.20	44.84	16.61	28.23
Clothing, Footwear	75.58	12.29	63.29	91.64	15.62	76.02	75.33	3.10	72.23
Food	52.07	11.65	40.42	44.67	7.66	37.01	35.88	6.50	29.38
Beverages	38.64	30.47	8.17	29.11	16.32	12.79	22.59	13.82	8.77
Tobacco Products	47.72	39.25	8.47	52.60	48.20	4.40	34.75	33.63	1.12
Printing	30.33	12.03	18.30	19.78	4.84	14.94	22.37	5.54	16.83
Other Industry	36.24	21.93	14.31	39.71	25.64	14.07	34.99	12.89	22.10
Manufacturing	24.32	8.46	15.86	21.08	6.59	14.49	18.39	5.68	12.717
Other	42.88	9.17	33.71	39.43	7.05	32.38	39.07	6.17	32.90
Total	28.32	8.62	19.69	24.65	6.68	17.97	22.15	5.77	16.38

^a Averages weighted by Import Value.

Source: Brazilian Foreign Trade Yearbook: CACEX Imports, 1975-1980-1985

It is also important to note that tariff exemptions and reductions require bureaucratic procedures that involve costs payable to public agencies while requiring companies to have specialized personnel for such work. Although it is difficult to calculate these costs in order to add them to the actual tariff as would be desired, it is reasonable to assume that actual tariffs are underestimated.

Table 2 shows the frequency and coverage of NTBs, specifying commodities by NBM item and the value of controlled imports for 1975-1984. The methodology adopted does not include restrictive acts that indiscriminately affect every product, such as the import quota for the Manaus Free Trade Area, the Law of the National Similar, Data-processing Law, etc.

It is clear that the political intent to restrain imports in Brazil through NTBs grew considerably during the period under study. In 1975, the NTBs affected some 3.6 per cent of NBM products, while by 1984 this percentage climbed to 55.6 per cent. On the other hand, the value of imports with NTBs increased only 5 per cent between 1975 and 1980, and in 1984 returned to the 1975 level. These results suggest that the effectiveness of controls through NTBs does not depend on the scope of legislation.

In 1980 the intention to control imports through NTBs was particularly pronounced for tobacco products (89 per cent of NBM items), plastics (69 per cent), textiles (65 per cent), food and beverages (70 per cent). In 1984, items involving farming and livestock, transport equipment, wood products and pharmaceuticals were added to this group. No decline in the government's intention to control imports with NTBs could be seen for any industry. However, evidence shows that imports might have been rechanneled into categories free of NTBs, or perhaps importable products under NTBs already had sufficient internal supply and required this control mechanism to a lesser extent.

It is interesting to observe that the rank correlation between the frequency indexes (NBM items with NTBs) for 1980 and 1984 is not statistically significant, suggesting an extremely diversified use of this instrument. However, the correlation between coverage indexes for the same period is 83.4 per cent.

Table 2 - Share of Total Imports (Value) and No. of Products
(NBM) with Non-Tariff Barriers (NTB) - 1975-1980-1984
(*) (per cent)

Item-FIBGE	1975		1980		1984	
	NBM with NTBs (1)	Imports with NTBs (2)	NBM with NTBs (3)	Imports with NTBs (4)	NBM with NTBs (5)	Imports with NTBs (6)
Vegetable Extract	5.67	53.23	0.52	-	92.20	30.66
Farm Products	3.12	68.47	15.62	95.15	88.54	100.00
Farming and Cattle Raising	8.62	53.67	12.00	2.11	95.50	47.09
Non-metallic Mineral Mining	1.44	0.57	6.90	0.54	13.51	0.07
Non-metallic Mineral Prods.	-	-	33.33	11.14	77.45	49.07
Metallurgy	23.33	100.00	51.49	98.42	53.95	23.04
Mechanical Equipment	0.30	0.74	13.02	21.96	33.70	19.92
Electrical Equipment	1.96	2.10	19.52	36.35	90.46	58.02
Transport Equipment	0.35	0.55	28.91	2.59	60.62	26.76
Wood Products	-	-	-	-	98.00	87.83
Furniture	-	-	9.38	2.49	100.00	100.00
Paper	1.10	1.37	19.78	1.15	1.15	20.27
Rubber Products	6.20	39.69	3.45	0.04	81.63	26.46
Leather Products	-	-	17.64	16.49	17.12	0.21
Chemicals	1.75	17.82	4.32	25.47	18.17	41.38
Pharmaceuticals	0.56	1.31	3.37	4.16	22.47	21.64
Perfumes, Soaps	-	-	9.09	1.62	92.77	24.29
Plastics	-	-	69.15	2.67	92.55	83.88
Textiles	0.48	0.00	64.61	66.75	99.28	92.27
Clothing, Footwear	-	-	65.25	50.84	90.50	18.58
Food	0.95	5.70	52.45	42.71	94.30	19.71
Beverages	7.32	12.50	70.74	17.35	65.86	0.02
Tobacco Products	-	-	88.89	6.65	16.67	0.01
Printing	-	-	10.91	0.21	74.55	2.20
Other Industry	1.64	1.02	20.81	12.58	70.65	20.88
Manufacturing	3.66	18.33	21.49	23.43	55.66	17.88

* NTBs considered are only those that specify the product classified by the NBM: Quota System, contingencies, reference price, minimum value, suspended imports, prior authorization from a trade organization, technical barrier, etc.

Source: Guimaraes et al. (1987).

These results can be explained by the need to restrain imports due to the foreign-exchange crisis. This was achieved by applying NTBs to different degrees in each industry because this mechanism was less transparent and did not hamper negotiations with the IMF that were underway at the time (Silva and Horta, 1984).

2.5. Implicit Tariffs in 1985

Table 3 shows calculations of the nominal implicit tariffs by industry as explained in Section 2.3. The figures for the sectors within each industry are weighted by national output values in order to express the nominal protection intended for the domestic industrial structure. Results suggest that some sectors are extremely competitive from the standpoint of supply, since profitability in the international market is higher than in the domestic market: wood products (implicit protection -18.0), paper and board (-1.42), food (-30.84), beverage (-42.63), tobacco (-66.33) and printing (-14.24).

As the implicit nominal tariff incorporates the influence of trade and industrial policies reflected in prices, it does not, in itself, provide a basis for an analysis of the determinants of international competitiveness. Nevertheless, industrial sectors for which implicit tariffs are negative clearly need no conventional protection against foreign competition, since their domestic prices, converted by the exchange rate, are lower than those in the international market. This is true even though many domestic prices are maintained beneath the prevailing international prices by government agencies.

The highest implicit nominal tariffs are for electrical and communications equipment (41.4 per cent), pharmaceuticals (30.9 per cent), rubber products (48.3 per cent), plastics (108.7 per cent), textiles (34.9 per cent) clothing and footwear (62.0 per cent), chemicals (38.0 per cent), and other industry (48.2 per cent).

We can also see that the protection of Brazilian industry intended originally, as reflected by nominal legal tariffs (TAB)

Table 3 - Nominal Protection and Tariff Redundancy by Industry, 1985 (per cent)

Item - FIBGE	Implicit Tariff	Legal Tariff	Redun- dancy	Transport Cost
Non-metallic Minerals	16.68	58.58	41.84	24.21
Metallurgy	19.46	48.35	28.89	15.40
Mechanical Equipment	13.89	53.58	39.69	17.10
Electrical Equipment	41.42	71.11	29.69	15.67
Transport Equipment	7.94	76.84	68.90	9.83
Wood Products	-17.80	74.40	92.20	32.00
Furniture	17.96	103.36	85.40	34.37
Paper	-1.42	58.23	59.65	10.14
Rubber Products	48.27	75.22	26.95	11.57
Leather Products	16.70	93.50	75.80	9.00
Chemicals	38.03	40.55	2.52	22.03
Pharmaceuticals	30.90	53.00	22.10	11.10
Perfumes, Soaps	1.10	87.00	85.90	47.90
Plastics	108.73	94.50	-14.23	14.98
Textiles	34.94	98.59	63.65	14.43
Clothing, Footwear	62.02	79.85	17.83	9.72
Food	-30.84	55.46	86.30	42.31
Beverages	-42.63	97.72	140.35	60.29
Tobacco Products	-66.33	99.00	165.33	58.00
Printing	-14.24	35.17	49.41	17.43
Other Industry	48.20	95.00	46.90	24.00
Manufacturing	9.99	60.69	50.70	25.19

Note: Averages are weighted by 1975 production values for the industrial sectors belonging to each industry, from Braga et al. (1987).

Source: Table A1.

was higher than actual protection as measured by implicit tariffs. Tariff redundancy, measured by the difference between the legal and implicit tariff rates, is found for every good except plastics.¹ The greatest redundancies occur in traditional sectors such as tobacco products (165.3 per cent), beverages (140.0 per cent), food (86.3 per cent), furniture (85.0 per cent), perfumes and soap (85.9 per cent), and leather products (76.0 per cent). These data illustrate the distorted nature of the tariff structure for this year and suggest the need to establish a proper balance between policies affecting the domestic market and trade policy.

In Table 4 sectors have been grouped by category of use. When tariff redundancy rates are ranked in order, we have consumer goods (96.8 per cent), followed by capital goods (45.9 per cent) and intermediate goods (38.9 per cent). Tariff redundancy is the highest for the non-durable consumer goods category because the tariff structure was created in 1957 with the idea of substituting imports of such goods. Although it has been constantly changed, generally by adding surtaxes, tariff reductions throughout the years have been sparse, and affected only few products.

There is a slight correlation between the sectoral rankings in terms of legal and implicit tariffs (Spearman coefficient of 0.19). Although no conclusion can be drawn regarding to the adequacy of implicit nominal tariffs for the current Brazilian industrial structure, from the standpoint of political rationality the results indicate the need for greater integration between domestic pricing and trade policies. Furthermore, it is recommended that tariffs should be lowered without affecting implicit protection, in order to bring the tariff structure into line with current protection levels. This argument is reinforced by the fact that transport cost rates are very high for certain industrial goods. Although this variable that cannot easily controlled by policy, awareness of it will nevertheless allow tariff rates to be more accurately calibrated.

¹ The method for calculating tariff redundancy is found in Wogart and Marques (1984), and Kume and Patricio (1988). It consists in the difference between implicit and legal tariffs.

Table 4 - Nominal Protection and Tariff Redundancy by Category of Use, 1985^a (per cent)

Use Category	Implicit tariff	Legal tariff	Redundancy
Capital Goods	13.02	58.93	45.91
Intermediate Goods	16.4	55.3	38.9
Semi-manufactured goods	-15.3	51.83	67.13
Basic Inputs	30.84	45.63	14.79
Other	11.43	64.53	53.1
Consumer goods	-19.01	77.80	96.81
Durables	2.4	102.89	100.49
Non-durables	-23.7	72.4	96.1
Manufacturing	9.99	60.69	50.7

^aAverages weighted by the 1975 output value for sectors pertaining to each item.

Source: Table A1.

2.6 Effective Protection in Brazil - 1985

Effective protection is usually defined as the percentage deviation of value added in a productive process under protection from value added under free trade. Implicit effective protection (G_{impj}) can thus be expressed as follows:

$$G_{impj} = \frac{T_{impj} - \sum_i a_{ij} T_{impi}}{1 - \sum_i a_{ij}} \quad (6)$$

where a_{ij} represents the technical coefficient of inputs under free trade.

Estimates of effective protection by industry for 1985 are shown in Table 5 (results at industrial core-sector level - 5-digit FIBGE classification - are reported in Table A2). Effective implicit protection was 8.12 per cent for manufacturing and -14.81 per cent for agriculture and extractive industries. From the viewpoint of foreign trade policy, strictly defined to cover non-tariff barriers and tariffs, the results indicate a marked gap between actual effective protection as calculated from implicit tariffs and effective protection calculated from legal tariffs. This reinforces the arguments by Tyler (1983) and Braga et al. (1987) concerning the inappropriateness of using legal tariff vectors to calculate effective protection.

Implicit effective protection is negative for nine industries. The most highly protected industries were plastics (490.5 per cent), clothing, footwear and woven goods (47.6 per cent), rubber products (102.0 per cent) and electrical/communication equipment (81.4 per cent).

The Spearman correlation coefficient between implicit and legal effective protection is .153. This means that protectionist measures together with domestic policies offer a profile of effective protection that differs from the underlying intentions of tariff policy. On the other hand, Spearman rank correlation coefficients between nominal and effective rates of protection are 80.0 per cent and 82.2 per cent, respectively, for implicit and legal tariffs. Hence nominal protection is a good indicator for the prevailing incentives for resource allocation.

Table 5 - Implicit and Legal Effective Protection by
Industry - 1985 (*) (per cent)

Item- FIBGE	Effective Protection	
	Implicit	Legal
Non-metallic minerals	-13.23	77.35
Metallurgy	16.81	95.89
Mechanical Equipment	-0.83	52.23
Electrical Equipment	81.38	110.84
Transport Equipment	13.07	104.83
Wood Products	-14.40	57.80
Furniture	-9.57	228.51
Paper	-15.35	86.06
Rubber Products	101.96	142.57
Leather Products	17.96	120.35
Chemicals	37.92	101.55
Pharmaceuticals	39.61	57.45
Perfumes, Soap	5.65	156.55
Plastics	490.45	360.13
Textiles	17.28	105.06
Clothing, Footwear	47.60	72.53
Food	-53.78	141.97
Beverages	-76.87	122.96
Tobacco Products	-112.05	154.17
Printing	-20.37	39.54
Other Industry	82.29	153.29
Manufacturing	8.12	78.44
Agricultural and Extraction Industries	-14.81	2.85

(*) Does not include sectors with negative value added under free trade.

Source: Table A2.

3. EXPORT POLICY

3.1 Introduction

The policy of promoting manufactured exports was first implemented in Brazil in the late 1960s and has resulted in some rather diversified instruments and mechanisms. This is due to the constant changes in foreign-trade policy, reflecting its adaptation to current economic development strategy. Nowadays there are some 25 promotional instruments and mechanisms for export promotion, consisting essentially of duty and tax exemptions. Generally speaking, they can be grouped into tax breaks, financial incentives, the drawback regime, and the BEFIEEX system. The following sections give a summary of the workings of these incentives and use the available data to quantify the incentive rates. Lastly, the combined effect of protection and export promotion is assessed as the basis of the anti-export bias for each industry.

3.2 The BEFIEEX Program

Among the programs intended to spur Brazilian exports that sprang up early in the 1970s BEFIEEX has turned out to be one of the most important - not only because of its concept and the export incentives regulated by Decree Law 1219 (1972), but also due to the irrevocable nature of the incentives granted. Under the BEFIEEX program companies commit themselves to achieving fixed export targets (for a maximum term of 10 years) so as to obtain import duty relief on imported inputs and machinery. The incentive rules in effect for the entire export sector at the time of the conclusion of the contract between the company and BEFIEEX are then applied throughout the life of the contract.

In this regard the lack of data affects the evaluation of incentives granted under the BEFIEEX program. From the quantitative standpoint, one has to add duty and tax exemptions on imports to the export-incentive legislation in effect at the time the agreement was made (IPI and ICM credit-premium, reduction of the basis for calculating taxable profit obtained from exports, etc.).

Table 6 shows estimated incentive rates solely for imports under the BEFIEX program. These figures must be regarded with caution not only because they do not include direct incentives to the formation of export prices, but also because tax and duty-exempt imports require export commitments of up to 10 years, which limits the annual comparability of data. Table 6 shows that the incentive rate (gross or net) dropped considerably during the first half of the 1980s (a 55 per cent decline for the net rate and 31.2 per cent for the gross rate). Although this fact is important from the standpoint of quantifying export incentives, it does not invalidate the notion that the incentives in the BEFIEX system benefit essentially imports of capital goods and raw materials.

Table 7 demonstrates that exports linked to the BEFIEX program accounted for an increasing share of total manufactured exports while the share of transport equipment in BEFIEX export declined. The growing number of BEFIEX contracts initiated (Table 8) further reinforces the idea that duty exemptions for machinery and raw material imports linked to BEFIEX are an additional stimulus to the competitiveness Brazilian industry. At the sectoral level, when a company joins the BEFIEX program or expands its activities within the program, it typically carries others along in a chain reaction. Thus, of the 316 contracts signed by manufacturing industry, 16 per cent (51 contracts) pertained to transport equipment, mainly in the 1980s (37 contracts). An outstanding position of the transport equipment industry is also apparent from its consolidated balance sheet within BEFIEX (Table 9). It accounted for 60 per cent of cumulative exports under BEFIEX in 1972-85, and 62 per cent of the program's trade balance.

Although this evidence is descriptive, it reinforces the belief that BEFIEX has spurred the expansion of Brazilian exports. The success enjoyed by the transport equipment industry has been echoed by other industries, resulting in efficiency gains for the companies involved. The advantage of this instrument lies in the differentiated access to foreign machinery and raw materials that can make Brazilian products more competitive.

Table 6 - BEFIEX Program: Fee and Tax Exemptions & Export Incentive Rate, 1980-1985 (US\$ Million)

Year	Imports BEFIEX (1)	Manufactured exports		Exemptions		Incentive rate (per cent)	
		Total (2)	Linked to BEFIEX (3)	Duty (4)	Taxes (5)	Net (6) ((4)+(5))	Gross (7) ((4)+(5))
						/ (2)	/ (3)
1980	549.39	9 027.60	1 793.30	384.57	40.83	4.71	23.72
1981	1 247.20	11 883.80	2 581.10	803.87	100.27	7.61	35.03
1982	683.18	10 242.90	2 342.60	459.99	57.23	5.04	22.08
1983	412.06	11 275.70	2 934.40	293.30	33.77	2.90	11.15
1984	549.00	15 131.50	3 972.30	352.67	44.90	2.63	10.27
1985	566.71	14 062.80	4 851.40	313.85	47.19	2.57	7.44

Source: BEFIEX Executive Secretary and Secretariat of Federal Revenue (Table A3).

Table 7 - Manufactured Exports and Exports Linked to BEFIEX Program, 1974-1985 (US\$ Million)

Year	Manufactured exports (1)	BEFIEX exports		% BEFIEX in manu- factured exports (4)	% Transport equipment in BEFIEX exports (5)
		Total (2)	Transport equipment (3)		
1974	2262.70	212.50	212.50	9.36	100.00
1975	2584.50	335.10	332.90	12.97	99.34
1976	2776.20	456.30	431.00	16.44	94.46
1977	3839.60	655.30	568.30	17.07	86.71
1978	5082.80	865.10	736.20	17.02	85.10
1979	6645.00	1118.90	884.20	16.83	79.02
1980	9027.60	1793.30	1290.70	19.86	71.97
1981	11883.80	2581.10	1885.80	21.72	73.06
1982	10252.80	2342.60	1492.80	22.80	63.72
1983	11275.70	2934.40	1486.60	26.02	50.64
1984	15131.50	3872.30	1802.60	25.60	46.55
1985	14062.70	4851.40	2162.20	34.50	44.57

Source: BEFIEX Executive Secretary; Table A7.

Table 8 - Number of BEFIE X Contracts by Industry, 1972-1985

Industrial Good Classification	Year														Total
	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	
Non-metallic Minerals															
Metallurgy							1	3	2	4	7	1	3	9	30
Mechanical Equipment					1		1	1	3	3	16	3	3	3	34
Electrical Equipment			1			1		1	3	3	2	2	5	1	19
Transport Equipment	2	2		2	4	1	1	2	6	4	15	5	4	3	51
Wood Products															
Furniture															
Paper															
Rubber Products															
Leather Products															
Chemicals									1		5			1	7
Pharmaceuticals									1				3		4
Perfume, Soaps															
Plastics															
Textiles		1	2	1	1	2	1	3	7	9	3	3	4	9	46
Clothing, Footwear							1	1	2	1	9	5	13	8	40
Food				1	3		1	1			1		2	1	10
Beverages															
Tobacco Products															
Printing															
Other Industry					2	1	4	4	10	11	21	6	7	9	75
Manufacturing	2	3	3	4	11	5	10	16	35	35	79	25	44	44	316

Source: BEFIE X Executive Secretary and Baumann/Braga (1986).

Table 9 - BEFIEX: Indicators of Performance (*) 1972-1985

Year	Export value (US\$ millions)		Trade balance (US\$ millions)		Global balance/ export value %		Capital goods imports/ export value %		Raw material imports/ export value %	
	Total (1)	Transport equipment ^a (2)	Total (3)	Transport equipment ^a (4)	Total (5)	Transport equipment ^a (6)	Total (7)	Transport equipment ^a (8)	Total (9)	Transport equipment ^a (10)
1972	2.3	2.3	(9.6)	(9.6)	(378.8)	(378.8)	74.4	74.4	-	-
1973	69.7	69.7	(100.3)	(99.1)	(97.1)	(106.1)	51.6	50.6	5.8	5.8
1974	212.5	212.5	(71.7)	(70.1)	(31.7)	(33.1)	4.8	4.5	9.9	9.9
1975	335.1	332.1	63.0	65.4	7.6	3.2	3.1	1.8	4.4	4.4
1976	456.3	431.0	174.3	157.4	64.3	53.3	4.4	1.6	20.6	21.7
1977	655.3	568.3	348.2	272.3	76.2	58.7	3.2	1.0	25.8	29.4
1978	865.1	736.2	222.0	386.9	76.2	55.2	36.7	2.2	21.0	24.3
1979	1 118.9	884.2	646.0	578.8	73.7	67.2	15.6	3.3	17.3	21.1
1980	1 793.3	1 290.7	1 068.2	709.7	83.4	75.5	12.7	12.9	14.7	19.4
1981	2 581.1	1 885.8	1 188.2	1 301.0	92.2	88.3	34.2	6.1	11.5	13.6
1982	2 342.6	1 492.8	1 030.9	1 014.1	76.4	74.7	31.3	4.9	9.7	12.6
1983	2 395.4	1 486.6	2 109.9	1 027.1	72.9	77.4	6.5	5.2	9.3	12.0
1984	3 872.3	1 802.6	2 864.8	1 249.9	73.4	65.6	4.1	4.6	8.2	12.1
1985	4 851.4	2 162.2	3 603.0	1 513.2	63.1	60.3	2.3	2.4	8.0	12.3
Total	22 091.6	13 357.8	13 137.0	8 096.9	71.8	65.9	13.1	5.1	11.1	15.2

(*) Values in parenthesis are negative. - ^aLinked to BEFIEX.

Source: BEFIEX Executive Secretary; Table A6.

When the technological gap between Brazil and the rest of the world is reduced (or widened), it is reasonable to assume that the BEFIEX program will contribute less (or more) to Brazilian exports. Import duty exemptions for goods committed to export under BEFIEX management are a good example of a powerful stimulus to modernizing the national productive structure while at the same time improving the Brazilian trade balance.

3.3 Drawback Arrangement

The so-called 'drawback' arrangement offers the same competitive conditions to Brazilian exporters as to their foreign competitors. It is utilized by firms that require imported components or raw materials for their exported products. Exports stemming from drawback arrangements result in net earnings of foreign currency, since the share of imported components in the value of an exported product is limited to 30 per cent.

The drawback mechanism was in fact one of the first export incentives available to the Brazilian export sector. It was established through Law 3244 (Aug. 14, 1957), though it did not go into effect until June 16, 1964, with Decree Law 57,964. Subsequent changes in the law were significant, especially in regard to commodity coverage.¹

Table 10 quantifies tax and duty exemptions and has been prepared on the basis of two data sources. The first is the Federal Revenue Service, whose records show the waiver of import duty, excise tax (IPI) and the sales tax (ICM). The second is Baumann and Moreira (1987) who, in addition to these incentives, include in their global incentive rates the relief from the Harbor Improvement Tax, the Surcharge Tax on Freight for the Renovation of the Merchant Marine, handling fees, and the Financial Operations Tax.

The incentive rate granted by the drawback program during the 1980s remained reasonably stable at around 9.0 per cent, emphasizing the import role played by this program in export promo-

¹ Operational and legislative aspects of the drawback arrangement are described in Castro (1985).

Table 10 - Drawback Regime: Tax and Duty Exemptions and Export Incentive Rate, 1980-85 (US\$ millions)

Year	Regime 06 Drawback (Exemption)			Regime 07 Drawback (Suspension)			Other Exemp- tions(*)	Total Exemp- tions	Incentive Rate (per cent of all manu- factured exports)
	Imports	Import Duty	IPI-ICM	Imports	Import Duty	IPI-ICM			
1980	134.76	51.47	4.29	765.25	399.75	67.17	289.83	812.50	9.0
1981	172.58	56.75	5.87	1 049.72	529.25	83.06	441.67	1 117.10	9.4
1982	140.67	52.08	5.13	1 133.83	613.78	97.07	287.94	1 056.00	10.3
1983	103.40	33.20	2.65	850.33	562.94	103.03	267.88	969.70	8.6
1984	231.22	66.68	3.56	979.78	601.71	104.76	560.29	1 337.00	8.4
1985	218.81	53.30	3.90	1 223.11	451.48	78.72	491.44	1 078.36	7.7

(*) Calculations based on Baumann and Moreira (1987).

Source: Baumann and Moreira (1987); Foreign Trade Yearbook and Secretariat of Federal Revenue (Table A3).

tion. Statistics on exports carried out under the drawback arrangement are available only for 1983 onwards.¹ In 1984, drawback exports were approximately \$ 5.538 billion, and \$ 6.198 billion for 1985. A net gain of \$ 4.327 billion in 1984 and \$ 4.756 in 1985 was achieved through this arrangement.

To acquire these net foreign exchange earnings required a waiver of import duty (II), IPI, ICM and others. For 1984 and 1985, the figures in Table 10 show that incentives totaled \$ 1.337 billion and \$ 1.078 billion, respectively, or 30 per cent of net foreign exchange earnings. We may assume that these export incentives were necessary in order to promote external adjustment, to the detriment of public revenues.

3.4 Duty Exemption Based on Export Increases

Another type of export incentive consists of exemptions on import duties and taxes based on a company's increase in exports. Therefore, if in period $t + 1$ company exports are higher than in period t , the firm may claim duty and tax exemptions for imports that have been previously listed by the government. Judging by the figures shown in Table 11, this method was not a significant export stimulus.

Table 11 - Import Incentives Based on Export Increase, 1980-1985
(US\$ million)

Year	Imports	Exemptions		Incentive Rate (per cent of manufactured exports)
		Import Duty	IPI - ICM	
1980	94.82	57.20	6.55	0.10
1981	59.46	36.60	4.15	0.30
1982	38.78	22.43	2.69	0.20
1983	14.66	8.70	1.42	0.09
1984	8.44	4.81	0.60	0.04
1985	16.90	7.96	1.15	0.06

Source: Federal Revenue Service, Ministry of Finance.

¹ CACEX began keeping a record of exports carried out under the drawback arrangement only in mid-1983; for previous years, exports figures refer to export licenses only.

3.5 Financial Incentives

Incentives in the form of preferential credit to exporters are currently very limited in the opinion of CACEX directors, who are receiving few requests for this incentive. The first regulation regarding this type of incentive was Central Bank Resolution 71 (1967), whereby any commercial bank could obtain funds from monetary authorities at real interest rates of 4 per cent per annum for loans to the export sector while charging 8 per cent annually. During the mid-1970s, the need to increase exports to adjust the balance of payments led the government to increase financial incentives. Later on, export subsidies had to be lowered because of the stabilization plan adopted by agreement with the IMF. Early in 1984, the subsidy implicit in the preferential credit given to exporters was reduced through Resolution 882/883, which replaced Resolutions 674/643. The real interest rate charged to exporters on this credit line returned to a positive value (interest rate of 3 per cent p.a. plus monetary correction).

In August 1984 Resolution 950 substantially altered the financing system for exporters. Ever since 1967 financing had come from monetary authorities at pre-set rates. With this Resolution, financing began to involve commercial bank funds, with monetary authorities passing on the amount needed to equalize any differential between interest rates, which was initially estimated to be as much as 15 per cent of debt adjusted for monetary correction. In addition to these instruments there was the so-called Cic-Crege 11. Under an arrangement similar to 882, it envisioned variable interest rates on loans ranging from 3-7 per cent, depending on the size of the company, and indexation of the debt.

This instrument was subsequently changed by Resolution 622, and in 1986 became part of regional development strategy. Exporting firms located outside the regions covered by the Superintendencias for the Development of the Northeast and the Amazon (SUDENE and SUDAM) could obtain a rebate of up to 12 per cent on bank loans, while for these regions an 18 per cent rebate was provided, similar to Cic-Crege 11.

From the standpoint of quantifying incentives based on preferential credit lines for exports during the first half of the 1980s, the results by Baumann and Moreira (1987) are quite comprehensive. They have the additional advantage of including a breakdown of post- and pre-shipment credit for exported goods. It is reasonable to assume that the effects of pre-shipment financing weigh more heavily on export performance because financing for production of exportable goods exercises a greater influence on the composition of exports than resources intended for marketing goods already produced.

Table 12 is self-explanatory; however, note should be taken of the sharp reduction in incentive rates for export financing beginning in 1982, caused by the scarcity of public funds. Pre-shipment financial incentives after December 1976 (Res. 398) ranged from 5-30 per cent of the value of products exported the year before, as previously listed. This system is still in force, and the list of products covered has remained essentially the same. By way of example, in 1984 the number of products dropped from 9,672 to 9,660 items as classified by NBM because Resolution 674 was replaced by No. 882.

The study by Baumann and Braga (1986) deals with financing amounts per NBM section under Resolution 674/882, 1983. The findings of Baumann and Moreira (1987) show that the main financial incentive in 1985 was provided by Resolution 950, whose commodity coverage is similar to Resolution 882. Based on these studies, we have adjusted these results for 1985 in order to calculate the financial incentive rate by industry, after making the NBM product classification compatible with the FIBGE classification of industrial goods. 1983 financing figures are used for calculating the incentive rate in 1985 because until 1984 financing control data were filed in the Central Bank of Brazil, while as of that date control management was shifted to CACEX at the Banco do Brasil which does not have computerized data available to the public. Table A5 shows estimated financial incentive rates by industry. The basic assumption is that for total exports during the two years in question there has been no change in the share of financing, which is feasible in light of the relative

Table 12 - Financial Incentives, 1980-1985

Year	Manufactured exports	Post-shipment financing ^a		Preshipment financing ^b		Total incentives	
	US\$ millions (1)	US\$ millions (2)	% (3)	US\$ millions (4)	% (5)	US\$ millions (6)	Incentive rate (%) (7)=(6)/(1)
1980	9 027.60	-		497.40	5.50	497.40	5.50
1981	11 883.80	576.40	4.85	1 649.50	13.88	2 225.90	18.73
1982	10 252.90	440.90	4.30	1 783.00	17.39	2 223.90	21.69
1983	11 275.70	90.20	0.80	959.60	8.51	1 049.80	9.31
1984	15 131.50	154.30	1.02	249.70	1.65	404.00	2.67
1985	14 062.80	233.40	1.66	277.00	1.97	510.40	3.63

^a Financing for warehousing, exports on trade consignment abroad for project sales, marketing, direct financing to exporter, and equalization of external interest rates. - ^b Financing of working capital (Res. no. 674/882 Cic-Crege 14-11, Concex Res. 68, CMN Res. 950), financing of trading companies (Res. no. 643/883), financing of foreign investments, and financing for project preparation.

Source: Baumann & Moreira (1987); Foreign Trade Yearbook - CACEX, Exports; Secretariat of Federal Revenue.

stability of commodity coverage. Goods for which incentive rates were high in 1983/85 are furniture (3.87 per cent), pharmaceuticals (4.87 per cent), perfumes and soap (5.5 per cent), plastics (15.14 per cent), clothing, footwear and textiles (4.67 per cent).

3.6 Fiscal Incentives

Initially tax breaks consisted of reductions in the excise tax (IPI) as stipulated by Decree Law 61,514 (1967), and in the sales tax (ICM) for exported goods, Decree Law 496 (1968).¹ In

¹ Under the system prior to the tax reform, these taxes actually produced a snowball effect because they were applicable to the sales price, with a tax exemption only for exported goods. With the reform, taxes were applied to value added, a more rational approach to export promotion.

addition, the tax rates on profits resulting from export operations were lower than those applied to normal company profits (Decree Law 56,965; 1965). Nevertheless, judging from the results of Braga (1980) and Baumann and Moreira (1987) none of these incentives had a substantial impact.

One of the most important tax breaks for exports in Brazil was the IPI and ICM tax credit (crédito prêmio) instituted in January 1970. Its maximum value was the IPI tax rate, up to a maximum of 15 per cent of FOB export value. In 1979 the rates for the IPI and ICM tax credits were unified. In December 1979 the IPI tax credit was eliminated, following the maxi-devaluation of the Cruzeiro (30 per cent against the dollar). In April 1981 the tax credit was reinstated with uniform benefits for almost all products. Reductions in the applicability of the tax credit were implemented until it was finally eliminated in May 1985.¹

Table 13 shows the values of IPI and ICM tax credits as well as those specified in Decree Law 59,965 concerning the reduction of the income tax on export profit. The latter equals the value of the tax on real profits, multiplied by the tax-exempt portion of export profits. Alternatively the tax rate on taxable profit may be considered in order to quantify the tax incentive rate for exports (Tyler, 1983). Econometric estimates, however, show that real profit is preferable to taxable profit in view of the importance of the former to export performance (Guimarães, 1985). These data were taken from the Corporate Income Tax Yearbook of the Ministry of Finance. Unfortunately, the latest available edition of this yearbook pertains to 1983; we have therefore not shown fiscal incentives for 1984 and 1985.

¹ At present, the IPI and ICM tax credit for exports is in force only for companies with export commitments made under the BEFIEEX system before May 1985. Decree Law 59,965 has recently been reformulated (end of 1987). The reduction of the non-taxable portion of export profits currently represents only 3 per cent. Exports linked to BEFIEEX programs are also excluded, and the lower tax rates on export profit that were in force at the beginning of the program prevail.

Table 13 - Export Incentive Rates: IPI/ICM Tax Credit and Reduction of Income Tax (US\$ millions)

Year	Manufactured Exports (1)	IPI-ICM Tax credit ^a (2)	Exemption from income tax (3)	Incentive rate % (2)+(3)/(1)
1980	19 025.118	1 124.871	250.64	7.23
1981	22 065.344	648.004	248.72	4.06
1982	19 357.422	2 271.08	212.5	12.83
1983	20 777.67	1 611.27	248.77	8.95
1984	25 769.264	539.552	b	2.10 ^c
1985	24 639.01	180.69	b	0.74 ^c

^aValues sampled. - ^bData unavailable. - ^cIncludes 'crédito prêmio' incentive only.

Source: Foreign Trade Yearbook - CACEX; IPI Purchasing and Sales, Secretariat of Federal Revenue, Ministry of Finance; Table A4.

The IPI and ICM tax credit also comes from this publication for 1980 and 1981. For subsequent years, the Federal Revenue Service has regularly included this information in its publication IPI Purchasing and Sales, which we have used to compile (Table 13). Data available in these publications refer to manufactured exports, and the incentive rates therefore relate to these overall values.

Annual estimates of tax incentive rates for 1980-1985 show the political intent to gradually phase out the IPI credit-premium beginning in 1982, with this incentive ending in May 1985. Income tax reduction as a means of spurring Brazilian exports never accounted for more than 2 per cent of the value of manufactured exports in any of these years.

3.7 Government Incentives and the Anti- (Pro-) Export Bias of Trade Policy

A policy for controlling imports work against an export strategy if it makes importable raw materials protected by duties and non-tariff barriers more expensive than freely traded goods. In spite of a negative effect on export performance individual firms, of course, may still successfully compete in the domestic market with a cost structure higher than that in the external market. To offset this negative effect on exports caused by protection exporting companies may be granted access to raw materials at international prices. In Brazil, various export incentive schemes are intended to maintain the protection necessary for import substitution without harming the profitability of exports. Other export incentives may help to lessen the anti-export bias caused by protection, such as financial and tax incentives. Only when the rate of incentives offered to exporters exceeds the level of protection given to domestic industry through import control does trade policy become biased in favour of exports.

Table 14 reports the anti-export bias by industry for the year 1985. For all manufacturing tax and financial incentives as a percentage of export value amounted to 8.32 per cent in 1985. Particularly low rates are found for non-metallic minerals (2.22 per cent), tobacco products (2.11 per cent), food (3.40 per cent) printing (3.40 per cent), and chemicals (2.26 per cent). In order to evaluate trade policy, column 4 in Table 14 repeats the estimates of implicit nominal protection previously made, while column 5 calculates the anti-export bias. For nine industries (20 per cent of total exports in 1985) trade policy was favorable to exports (negative anti-export bias or pro-export bias). For the remaining industries trade policy favored internal sales (positive anti-export bias). Although these results do not compare exactly with those for 1980-1981 reported by Tyler (1983) and Fasano Filho et al. (1987), who utilized a different methodology for gathering international prices, they show a similar level of implicit protection (implicit tariff of 11.9 per cent for all manufacturing in 1980/81 and 11.4 per cent in 1985) as well as a pronounced decline in nominal export incentives (manufacturing

Table 14 - Anti-Export Bias by Industry - 1985

Industries FIBGE-Classification	Export Incentives ^a					Total	Implicit nominal tariff ^b	Anti/Pro- export bias
	BEFIEEX	Fiscal Draw- back	Credit- Premium Tax	Income Tax Reduc- tion	Financial			
	(1)	(2)	(3)= (1)+(2)	(4)	(5)= (4)-(3)			
Non-metallic Minerals	0.07	0.11	0.11	1.00	0.93	2.22	7.16	4.94
Metallurgy	0.55	2.01	0.41	1.30	3.73	7.97	19.89	11.92
Mechanical Equipment	2.61	2.95	1.25	1.50	3.51	11.82	5.07	-6.75
Electrical Equipment	4.11	6.68	3.40	1.60	3.23	19.02	59.58	40.56
Transport Equipment	12.38	11.21	4.46	1.50	1.00	30.55	13.10	-17.45
Wood Products	0.22	1.57	0.01	1.70	3.05	6.55	-17.80	-24.35
Furniture	0.33	0.18	0.22	1.10	3.87	5.70	14.90	9.20
Paper	0.65	0.42	0.12	3.80	2.97	7.96	-10.19	-18.15
Rubber Products	5.79	4.65	3.49	2.20	0.78	16.91	52.10	35.19
Leather Products	0.00	2.53	0.07	0.90	3.26	6.79	16.69	9.90
Chemicals	0.09	1.10	0.02	0.40	0.65	2.26	24.73	22.47
Pharmaceuticals	2.25	15.21	0.07	2.00	4.87	24.40	30.90	6.50
Perfumes, Soaps	0.00	0.77	0.09	0.90	5.50	7.26	1.08	-6.18
Plastics	8.00	3.29	0.40	1.40	15.14	28.23	103.20	74.97
Textiles	0.93	2.97	0.00	1.70	3.85	9.45	20.00	10.55
Clothing, Footwear	0.47	6.45	0.00	2.10	4.67	13.69	53.73	40.04
Food	0.00	0.56	0.00	1.00	1.84	3.40	-10.25	-13.65
Beverages	0.00	0.09	0.03	1.70	1.57	3.39	-48.65	-52.04
Tobacco Products	0.00	0.00	0.00	2.10	0.01	2.11	-66.33	-68.44
Printing	0.46	0.02	0.01	0.60	2.31	3.40	-10.00	-13.40
Other Industry	0.56	11.07	0.15	11.00	2.17	24.95	48.14	23.19
Manufacturing	1.55	2.65	0.65	1.31	2.16	8.32	11.35	3.03

^aExport incentive rates have been calculated by the conventional method of the ratio of incentives to export value. The credit-premium value has been obtained from "Purchase and Sales Movement" (Min. of Finance, Sec. of Fed. Rev.). The incentive rate resulting from income-tax reduction has been calculated by the average from previous years (1981-1982-1983). For financial incentives, the percentages of exports financed are those that prevailed in 1983 (Baumann, 1986), multiplied by the interest reduction rate applied to exports in 1985. - ^bData weighted by 1985 exports.

average of 20.8 per cent in 1980, 19.3 per cent in 1981, and 8.3 per cent in 1985). Accordingly, the nominal anti-export bias rose from -8.9 per cent in 1980 to 3.0 per cent in 1985, mainly due to reduced export incentives. These results reinforce the notion that during the first half of the 1980s economic policy for the manufacturing sector as a whole pursued a more or less neutral course regarding the internal vs. the export market, which is desirable from a regulatory standpoint.

In the analysis of trade policy, export promotion and domestic market protection are often adjusted for the difference between the official and the social rate of exchange. On the other hand, to estimate the social rate of exchange requires extremely strong assumptions that are difficult to verify empirically. Recent studies generally assume a given reference period during which the social rate of exchange is equal to the nominal rate. In Brazil, the period used has been December 1979, after the maxidevaluation of the Cruzeiro (for example, cf. Moldau and Pelin, 1986). To update the social exchange rate, these methods usually require that a) there are no alterations in the terms of trade during the period under study, and b) the real income differential between the country under consideration and the rest of the world remains constant. Given these very strong assumptions, and considering that in 1985 the balance of payments current account balance was almost zero, we assume that the social rate of exchange was quite close to the official rate, in which case our estimates do not require adjustment.¹

4. CONCLUSIONS

The evaluation of nominal and effective protection of manufacturing industry in Brazil has focused on implicit protection,

¹ This argument is also backed up by the technical-political rationale of the Cruzado Plan implemented in Brazil in February 1986, which gave priority to a price freeze so as to bring the inflationary process to a halt with no prior altering of the exchange rate, reinforcing the idea that it was probably in equilibrium.

i.e. has been based on a comparison of domestic and international prices. This was necessary in view of the great diversity of trade policy instruments and industrial policy measures utilized to favour specific sectors. This focus has made it possible to obtain extremely useful results from the point of view of policy recommendations.

The data show the existence of widespread tariff redundancy. Legal tariff redundancy in 1985 for all manufacturing was 50.7 per cent, while nominal implicit tariff (the increase in domestic relative to international prices) amounted to 10.0 per cent. These results also show that great care must be taken when considering the effects of protectionism solely on the basis of legal tariff, as is traditionally done not only because rates of non-tariff barriers but mainly because of extensive tariff redundancy. Knowledge of implicit protection, and hence of the impact of industrial policy on the level of protection therefore permits a more rational appraisal of the structure of protection.

The quantification of the two main export incentives in Brazil has established the predominance of the drawback regime in absolute figures (with tax and duty exemption equivalent to 30 per cent of the net foreign-exchange balance). BEFIEEX, in turn, showed a net foreign-exchange gain of more than 80 per cent of export value for 1985, with incentives equivalent to only 12 per cent of the net foreign-exchange balance. Export incentives were considerably curtailed during the first half of the 1980s. However, this fact created no major problems for the Brazilian export sector, given that exports grew considerably during the period. This study therefore points to the need to efficiently widen the base of exportable products to improve export performance.

The anti-export bias of the incentive structure for all manufacturing in 1985 was rather modest (3 per cent). However, the figures for individual industries varied widely. Hence trade policy in 1985 discriminated significantly between industries but maintained a more or less neutral stance at the aggregate level with respect to incentives for domestic vs. export sales.

Table A1 - Nominal Protection Vectors - 1985

Classification	Implicit Tariff (1)	Legal Tariff (2)	Tariff Redundancy (3)=(2)-(1)	Transport Cost (4)
Veg. & Silv. Extracts	-22.2	34.0	56.2	22.1
Wild Game	0.0	0.0	0.0	0.0
Coffee Growing	0.0	0.0	0.0	0.0
Sugarcane Growing	0.0	0.0	0.0	0.0
Rice Growing	0.0	0.0	0.0	0.0
Wheat & Soybean Growing	0.0	0.0	0.0	0.0
Other Farming	0.0	0.0	0.0	0.0
Cattle	0.0	0.0	0.0	0.0
Poultry & Eggs	0.0	0.0	0.0	0.0
Agriculture & Livestock	0.0	0.0	0.0	0.0
Metallic Mineral Mining	-35.5	19.0	54.5	17.9
Non-metallic Mineral Mining	-42.4	49.0	91.4	89.1
Petr. Natural Gas Extraction	0.0	0.0	0.0	0.0
Coal Mining	-48.9	20.0	68.9	41.3
Mfg. Cement	9.3	53.8	44.5	52.2
Glassmaking	1.1	82.4	81.3	25.4
Benef. Non-metallic Minerals	0.0	0.0	0.0	0.0
Mfg. Cement Concrete Items	33.0	69.9	102.9	37.1
Ceramic Manufacture	20.4	79.0	99.4	3.0
Other Non-metallic Min. Prods.	24.1	54.8	30.7	6.2
Mfg. Pig Iron	24.0	45.0	69.4	23.1
Mfg. Iron, Primary Steel	36.9	36.8	0.1	7.1
Mfg. Rolled Steel	7.0	32.3	25.3	16.3
Mfg. Cast Steel	34.3	55.0	20.7	5.1
Mfg. Forged Steel	24.0	72.2	48.2	9.0
Nonferrous Metallurgy	21.0	50.0	29.0	8.2
Mfg. of Drawn Shapes	66.1	66.0	0.1	13.8
Mfg. of Fitted Steel Struc.	21.0	58.0	37.0	14.1
Mfg. Stamped Metal	-29.5	70.0	99.5	52.4
Mfg. Metal Packing	-11.5	66.8	78.3	12.8
Mfg. Other Metal Prods.	35.3	58.0	22.7	15.8
Mfg. Pumps & Motors	5.8	53.0	47.2	70.0
Mfg. Machinery Acc. Parts	-1.0	62.8	63.8	16.8
Mfg. Turbines & Boilers	-23.1	45.8	68.9	12.1
Mfg. Industrial Machinery	14.9	58.9	44.0	12.2
Mfg. Farm Machinery	-12.3	45.9	48.2	24.8
Mfg. Tract. & Highway Mach.	0.4	38.3	37.9	11.8
Mfg. Office Equipment	22.0	67.2	45.2	22.2
Inst. & Mach. Repair	0.0	0.0	0.0	0.0
Mfg. Elec. Power Equip.	25.9	55.0	29.1	21.0
Mfg. Elec. Conductors	20.9	58.2	37.3	7.1
Mfg. Elec. Equipment	57.7	72.9	15.2	6.9
Mfg. Vehicle Elec. Equip.	43.4	78.1	34.7	7.0
Mfg. Elec. Equip. Motors	-13.6	82.0	5.6	54.0
Mfg. Electronic Equip.	114.8	52.0	-62.8	4.0
Mfg. Communication Equip.	35.1	61.1	26.0	10.0
Mfg. Radio-TV Sound Equip.	83.4	96.0	12.6	10.0

contin. Table A1 -

Classification	Implicit Tariff (1)	Legal Tariff (2)	Tariff Redundancy (3)=(2)-(1)	Transport Cost (4)
Mfg. Automobile	-18.1	104.1	122.2	11.0
Mfg. Bus & Truck	19.0	78.1	59.1	19.0
Mfg. Engine & Auto Parts	24.0	64.9	40.8	4.1
Naval Industry	0.0	7.0	7.0	11.9
Mfg. Railway Vehicles	80.9	46.9	-34.0	18.0
Mfg. Other Vehicles	9.9	86.9	96.8	15.8
Sawmills & Plywood	0.0	0.0	0.0	0.0
Mfg. Wooden Arts.	-17.8	74.4	92.2	32.0
Mfg. Wooden Furniture	18.9	105.0	86.1	27.0
Mfg. Metal Furniture	10.9	91.0	101.9	90.0
Mfg. Cellulose	-37.5	20.0	57.5	16.9
Papermaking	9.5	62.0	52.5	2.0
Paper Arts.	7.6	80.0	72.4	18.0
Mfg. Tires & Inner Tubes	34.7	85.3	50.6	10.0
Rubber Arts. Mfg. & Process.	69.5	60.3	-9.2	14.0
Leather Industry	16.7	92.5	75.8	9.0
Chemicals	-11.4	43.0	54.4	32.0
Sugarcane Alcohol Distill.	-15.2	85.0	100.2	43.0
Oil Refining	79.6	37.0	-42.6	18.0
Petrochemicals	0.3	36.0	35.7	24.0
Mfg. Coal Byproducts	-21.3	20.0	41.3	28.3
Mfg. Elastic Fiber Resin	45.3	49.0	3.7	15.7
Mfg. Raw Vegetable Oil	-26.1	32.0	58.1	53.0
Mfg. Paint & Pigments	47.6	50.0	2.4	15.3
Mfg. Fertilizers	-6.0	49.0	55.0	5.7
Mfg. Misc. Chemicals	27.4	58.0	30.6	15.0
Pharmaceuticals	30.9	53.0	22.1	11.1
Perfumes & Soaps	1.1	87.0	85.9	47.9
Mfg. Laminated Plastics	56.3	85.0	28.7	10.0
Mfg. Plastic Arts.	150.1	102.0	-48.1	18.9
Natural Textile Fib. Process.	57.9	49.0	-8.9	9.1
Natural Textile Spin/Weav.	35.1	88.0	52.9	9.0
Art. Textile Spin/Weav.	1.3	81.0	78.7	15.0
Knit Goods	25.1	105.0	73.9	16.0
Other Textile Inds.	34.7	100.0	65.3	22.2
Mfg. Apparel	94.7	94.0	-0.7	8.2
Mfg. Footwear	48.8	53.0	4.2	12.6
Coffee Processing	-52.7	60.0	112.7	4.0
Coffee Roasting/Grinding	-69.6	73.0	3.4	74.2
Rice Processing	0.0	0.0	0.0	0.0
Wheat Milling	36.8	70.0	33.2	41.2
Mfg. Canned Goods	46.8	100.0	53.2	12.8
Process. Other Veg. Prods.	-16.6	66.0	82.6	16.7
Slaughtering/Meat Prep.	-66.0	74.0	140.0	108.9
Slaughtering/Poultry Prep.	42.9	39.0	-3.9	14.0
Dairy Products	-4.7	37.0	41.7	4.9
Sugar Mill	-16.1	55.0	71.1	40.0

contin. Table A1 -

Classification	Implicit Tariff (1)	Legal Tariff (2)	Tariff Redundancy (3)=(2)-(1)	Transport Cost (4)
Sugar Refining	-35.2	85.0	120.2	26.0
Breadmaking	-15.0	9.0	24.0	27.8
Veg. Oil/Fat Refining	-7.8	65.0	72.8	18.0
Animal Feed	-36.8	34.0	70.8	34.9
Other Foodstuffs	33.6	81.0	47.4	17.0
Mfg. Alcoholic Beverages	-26.5	105.0	131.5	41.0
Soft Drinks/Mineral Water	-70.8	85.0	155.8	94.0
Tobacco	-66.3	99.0	165.3	58.0
Book Publishing	-30.4	13.0	43.4	21.0
Other Graphic Ind.	10.4	69.0	58.6	12.0
Mfg. Misc. Prods.	48.1	95.0	46.9	24.0

Source: International Prices: IPEA/FUNCEX Data Bank, 1987; Brazilian Customs Duties, 1985, Import Yearbook, 1985; NBM-FIBGE Compatibility, IPEA-FUNCEX, 1986.

Table A2 - Effective Protection Vectors - 1985 (per cent)

Classification	Implicit Tariff (1)	Legal Tariff (2)	Free-trade Value Added (3)
Veg. & Silv. Extracts	-26.08	36.80	87.73
Wild Game	-4.71	-4.72	86.98
Coffee Growing	-0.40	-5.76	81.94
Sugarcane Growing	-1.49	-13.76	69.76
Rice Growing	-2.87	-8.72	73.68
Wheat and Soybean Growing	-3.94	-31.30	47.62
Other Farming	-0.63	-6.09	83.45
Cattle	-0.09	-4.92	81.03
Poultry and Eggs	62.07	-69.34	24.39
Agriculture & Livestock	0.10	-6.36	71.19
Metallic Mineral Mining	-52.65	21.66	61.87
Non-metallic Mineral Mining	-59.38	56.92	78.49
Petr.Natural Gas Extraction	-1.12	-0.97	81.56
Coal Mining	-65.05	19.63	79.12
Mfg. Cement	1.12	97.73	31.02
Glassmaking	-5.80	132.01	52.22
Benef. Non-metallic Minerals	0.00	-7.29	69.51
Mfg. Cement-concrete Items	-52.52	98.45	63.98
Ceramic Manufacture	-32.72	105.36	69.78
Other Non-metallic Min. Prods.	43.71	82.18	45.68
Mfg. Pig Iron	52.09	132.29	24.56
Mfg. Iron, Primary Steel	988.75	74.52	4.79
Mfg. Rolled Steel	-17.65	39.51	37.29
Mfg. Cast Steel	-52.66	70.84	60.60
Mfg. Forged Steel	35.50	133.27	43.99
Nonferrous Metallurgy	43.97	88.08	28.95
Mfg. of Drawn Shapes	552.47	466.82	7.66
Mfg. of Fitted Steel Struc.	33.33	87.71	48.42
Mfg. Stamped Metal	-71.55	-14.54	47.64
Mfg. Metal Packing	-38.50	120.79	40.27
Mfg. Other Metal Prods.	83.70	110.16	36.73
Mfg. Pumps and Motors	6.75	56.55	49.94
Mfg. Machinery Acc. Parts	-0.45	88.43	53.20
Mfg. Turbines & Boilers	-37.89	54.87	62.87
Mfg. Industrial Mach.	28.74	80.74	46.64
Mfg. Farm Machinery	-25.80	57.76	48.50
Mfg. Tract. & Highway Mach.	0.78	43.53	34.91
Mfg. Office Equipment	54.29	119.44	34.93
Inst. & Mach. Repair	-3.89	-14.83	70.68
Mfg. Elec. Power Equip.	40.76	79.86	42.53
Mfg. Elec. Conductors	24.48	88.66	34.58
Mfg. Elec. Equipment	121.72	126.08	34.81
Mfg. Vehicle Elec. Equip.	75.10	126.71	42.57
Mfg. Elec. Equip. Motors	-38.93	124.98	46.93
Mfg. Electronic Equip.	403.85	94.66	23.19
Mfg. Communication Equip.	39.10	77.70	49.25

contin. Table A2 -

Classification	Implicit Tariff	Legal Tariff	Free-trade Value Added
	(1)	(2)	(3)
Mfg. Radio-TV, Sound Equip.	181.74	221.90	27.99
Mfg. Automobile	-87.63	203.00	34.97
Mfg. Bus & Truck	-33.67	127.80	33.24
Mfg. Engine & Auto Parts	68.75	124.72	24.99
Naval Industry	1.38	-24.89	43.19
Mfg. Railway Vehicles	403.97	118.00	15.06
Mfg. Other Vehicle	-22.64	121.36	47.58
Sawmills & Plywood	6.27	-14.94	56.09
Mfg. Wooden Arts.	-42.40	162.44	41.41
Mfg. Wood Furniture	33.65	243.94	36.73
Mfg. Metal Furniture	-54.70	199.67	35.16
Mfg. Cellulose	-74.24	21.73	49.68
Papermaking	43.96	114.85	42.62
Paper Arts.	1.57	186.38	23.54
Mfg. Tires & Inner Tubes	33.20	125.79	45.22
Rubber Arts. Mfg. & Process.	291.42	188.91	16.41
Leather Industry	17.96	120.35	58.39
Chemicals	-26.47	74.24	35.60
Sugarcane Alcohol Distill.	-25.88	136.00	48.57
Oil Refining	285.49	119.68	25.99
Petrochemicals	-54.17	50.18	31.97
Mfg. Coal Byproducts	60.82	70.89	10.10
Mfg. Elastic Fiber Resin	196.30	130.32	19.15
Mfg. Raw Vegetable Oil	135.07	150.32	19.36
Mfg. Paint & Pigments	202.52	-106.34	19.29
Mfg. Fertilizers	-12.10	80.39	33.03
Mfg. Misc. Chemicals	60.96	97.10	36.74
Pharmaceuticals	39.61	57.44	65.02
Perfumes & Soaps	5.65	156.55	36.85
Mfg. Laminated Plastics	120.88	174.58	31.16
Mfg. Plastic Arts.	11,563.41	6,119.71	1.04
Nat. Textile Fib. Process.	-444.32	-364.38	-12.48
Nat. Textile Spin./Weav.	37.83	169.45	27.36
Art. Textile Spin./Weav.	-34.89	112.71	43.57
Knit Goods	31.29	158.59	36.48
Other Textile Inds.	54.98	174.71	31.83
Mfg. Apparel	100.41	192.09	14.74
Mfg. Footwear	25.75	26.07	35.61
Coffee Processing	-301.00	339.77	17.15
Coffee Roasting/Grinding	-137.44	127.88	31.14
Rice Processing	-2.24	-5.24	24.04
Wheat Milling	-23.85	-42.99	-141.28
Mfg. Canned Goods	1,326.84	2,087.35	3.49
Process. Other Veg. Prods.	-45.37	173.20	34.08
Slaughtering/Meat Prep.	-244.59	266.76	22.68
Slaughtering/Poultry Prep.	-138.81	-126.18	-29.85

contin. Table A2 -

Classification	Implicit Tariff	Legal Tariff	Free-trade Value Added
	(1)	(2)	(3)
Dairy Products	95.81	-554.46	-4.79
Sugar Mill	38.73	-100.89	-48.79
Sugar Refining	-128.49	243.04	22.25
Breadmaking	-35.75	-19.78	58.96
Veg. Oil/Fat Refining	37.29	160.43	21.99
Animal Feed	-96.45	60.33	31.24
Other Foodstuffs	139.41	206.18	24.63
Mfg. Alcohol Beverages	-44.01	157.51	52.21
Soft Drinks/Mineral Water	-101.89	103.58	68.59
Tobacco	-112.05	154.17	53.43
Book Publishing	-41.85	3.84	75.06
Other Graphic Ind.	10.85	93.41	51.63
Mfg. Misc. Prods.	82.29	153.29	47.01

Table A3 - Import Duty and Tariff Exemptions as Export Incentives, by Industry (US\$ Million)

Importing Sector	Regime 04 Exemption Proportionate to Export Increase			Regime 05 BEFIEEX			Regime 06 Duty Drawback (Exemption)			Regime 07 Duty Drawback (Suspension)			Total Export Incentives		
	Duty		Tax	Duty		Tax	Duty		Tax	Duty		Tax	Duty		Tax
	Imports	Exempt.	Exempt.	Imports	Exempt.	Exempt.	Imports	Exempt.	Exempt.	Imports	Susp.	Susp.	Imports	Exempt.	Exempt.
- 1 9 8 5 -															
All Sectors	16.57	7.72	1.13	562.30	300.84	44.63	216.06	55.07	4.28	967.04	468.18	81.29	1770.94	902.42	131.32
Non-metallic Minerals	1.19	0.06	0.01	1.09	0.29	0.05	0.29	0.07	0.003	1.02	0.60	0.10	2.52	1.03	0.17
Metallurgy	1.75	0.78	0.15	30.80	12.26	2.19	98.22	19.45	0.48	132.81	30.50	2.45	263.58	62.99	5.27
Mechanical Equipment	1.67	0.81	0.16	61.46	33.52	5.41	2.22	0.98	0.19	62.05	34.49	8.45	127.40	69.81	14.20
Electrical Equipment	0.10	0.05	0.003	52.77	20.18	4.18	9.83	4.14	0.67	50.71	27.81	7.02	113.41	52.18	11.87
Transport Equipment	0.49	0.32	0.05	302.27	195.87	27.42	3.00	0.78	0.15	258.78	161.75	39.60	564.54	358.71	67.29
Wood Products	0.19	0.10	0.02	1.35	0.62	0.05	0.02	0.01	0.00	9.89	4.61	0.06	11.44	5.34	0.13
Furniture	0.03	0.01	0.001	0.25	0.10	0.01	-	-	-	0.08	0.05	0.006	0.36	0.16	0.02
Paper	0.26	0.18	0.02	7.17	2.92	0.56	1.97	0.43	0.03	3.94	1.75	0.10	13.35	5.28	0.71
Rubber Products	0.01	0.01	0.00	53.82	15.12	1.73	11.29	2.77	0.15	31.90	9.78	0.85	97.03	27.67	2.73
Leather Products	0.55	0.26	0.03	0.02	0.003	0.001	0.88	0.17	0.02	6.22	3.92	0.12	7.67	4.35	0.10
Chemicals	1.16	0.54	0.04	8.32	3.56	0.74	34.54	11.15	0.94	61.87	30.56	11.06	105.90	115.81	12.78
Pharmaceuticals	0.003	0.001	0.00	1.12	0.49	0.08	10.40	3.05	0.01	23.97	7.67	0.07	35.50	11.18	0.26
Perfumes, Soaps	-	-	-	-	-	-	0.003	0.001	0.00	0.22	0.19	0.04	0.22	0.19	0.04
Plastics	0.03	0.02	0.01	8.12	1.96	0.47	1.15	0.52	0.07	5.95	2.79	0.77	15.26	5.28	1.32
Textiles	1.66	0.81	0.10	15.24	6.09	0.67	4.26	1.16	0.06	44.84	21.95	0.21	66.01	29.96	1.03
Clothing, Footwear	1.00	0.49	0.05	10.24	4.26	0.47	0.12	0.004	-	7.85	65.32	0.25	89.27	70.07	0.77
Food	6.32	2.68	0.41	0.09	0.03	0.01	8.37	4.04	0.02	112.65	28.44	1.47	127.43	35.18	1.91
Beverages	0.02	0.01	0.001	-	-	-	0.10	0.04	-	0.16	0.04	0.01	0.28	0.08	0.01
Tobacco Products	-	-	-	-	-	-	-	-	-	0.02	0.003	-	0.02	0.003	-
Printing	-	-	-	0.34	0.12	0.01	0.03	0.005	0.002	-	-	-	0.37	0.13	0.02
Other Industry	0.16	0.07	0.02	3.20	1.31	0.22	23.11	4.53	1.10	52.52	19.27	5.55	78.98	25.18	6.89
Total Industry	15.52	7.18	1.07	557.67	298.64	44.26	209.81	53.30	3.91	937.51	451.48	78.24	1720.51	881.2	127.5
Non-Industry	1.05	0.54	0.06	4.60	2.21	0.37	6.25	1.77	0.37	38.53	16.71	3.05	50.43	21.22	3.86
- 1 9 8 6 -															
All Sectors	1.16	0.61	0.10	821.96	435.90	65.21	233.98	58.26	4.75	1669.54	777.69	109.46	2726.63	1272.46	179.53
Non-metallic Minerals	-	-	-	3.45	1.16	0.17	0.80	0.31	0.04	2.02	1.01	0.14	6.27	2.48	0.34
Metallurgy	0.04	0.02	0.01	17.05	6.94	0.84	134.31	26.47	0.48	12.52	7.50	3.01	163.92	40.93	4.33
Mechanical Equipment	0.05	0.03	0.01	96.04	51.73	8.53	1.77	0.81	0.16	82.55	46.44	11.13	181.11	99.01	19.83
Electrical Equipment	0.02	0.01	-	89.91	32.20	6.66	3.84	1.25	0.20	98.02	57.20	14.45	191.79	90.66	21.32
Transport Equipment	0.14	0.13	0.02	445.56	286.57	41.91	3.81	1.20	0.22	362.16	237.43	55.81	811.67	525.32	97.96
Wood Products	0.05	0.03	-	1.89	0.78	0.07	0.11	0.05	0.01	10.01	4.73	0.10	12.06	5.59	0.17
Furniture	-	-	-	-	-	-	-	-	-	0.06	0.04	0.01	0.06	0.04	0.01
Paper	0.01	0.01	-	6.96	2.97	0.43	2.08	0.64	0.05	11.82	4.86	0.05	20.87	8.49	0.52
Rubber Products	-	-	-	67.55	18.98	1.93	12.55	3.27	0.19	42.05	13.25	1.15	122.15	35.50	3.27
Leather Products	0.11	0.05	0.01	0.07	0.01	-	0.84	0.21	0.04	19.04	11.65	0.17	20.50	11.91	0.21
Chemicals	0.05	0.25	-	4.81	1.46	0.20	35.65	11.56	1.19	89.01	32.40	1.20	129.52	45.65	2.60
Pharmaceuticals	0.02	0.01	-	4.88	1.97	0.23	4.25	1.21	-	46.01	14.10	0.79	55.17	17.40	1.02
Perfumes, Soaps	-	-	-	0.04	-	-	0.02	0.01	-	0.37	0.29	0.06	0.42	0.30	0.07
Plastics	-	-	-	5.07	1.55	0.25	1.17	0.57	0.08	5.29	2.46	0.65	11.53	4.58	0.98
Textiles	0.08	0.04	0.01	39.71	16.01	1.84	5.79	1.87	0.15	84.52	45.50	-	130.11	63.43	2.01
Clothing, Footwear	0.02	0.01	-	14.09	5.84	0.71	0.03	0.02	-	136.24	110.39	0.81	150.38	116.26	1.53
Food	0.07	0.03	0.01	2.14	0.73	0.14	0.48	0.17	0.02	43.52	44.42	0.45	46.21	45.35	0.61
Beverages	-	-	-	1.66	0.71	0.08	-	-	-	0.27	0.09	0.01	1.93	0.80	0.09
Tobacco Products	-	-	-	6.75	2.83	0.47	-	-	-	0.20	0.16	-	6.95	2.98	0.47
Printing	-	-	-	0.05	0.01	-	-	-	-	-	-	-	0.05	0.01	0.00
Other Industry	-	-	-	0.20	0.09	0.01	21.86	5.74	1.74	75.47	34.30	8.20	97.53	40.14	9.96
Total Industry	0.67	0.61	0.06	808.59	432.55	64.47	229.35	55.35	4.56	1121.15	668.31	98.20	2159.76	1156.82	167.29
Non-Industry	0.48	-	0.05	1.34	3.35	0.74	4.63	2.90	0.20	548.39	109.38	11.26	566.87	115.64	12.24

Note: Average buy-sell exchange rate used.

Source: Ministry of Finance, Secretariat of Federal Revenue.

Table A4 - Income Tax Rates on Actual Profits and Export Profits, 1979-1983

Industrial Good Classification	Income tax base rate (%)					Export profit (US\$ millions)				
	1979	1980	1981	1982	1983	1979	1980	1981	1982	1983
Non-metallic Minerals	37.77	38.42	38.62	38.30	35.57	8.44	9.77	18.29	14.37	8.75
Metallurgy	37.55	37.71	37.97	35.93	35.30	120.22	57.43	60.78	70.76	85.84
Mechanical Equipment	37.10	37.38	37.50	36.00	39.77	25.21	53.06	51.78	69.27	28.12
Electrical Equipment	38.31	38.44	38.24	37.47	42.85	21.75	28.69	33.09	40.66	33.28
Transport Equipment	38.98	38.86	39.00	37.64	43.05	102.61	92.09	97.40	100.95	73.43
Wood Products	36.54	37.13	37.25	33.35	37.89	19.91	15.80	39.84	32.09	32.27
Furniture	35.29	35.85	35.41	31.13	35.74	0.51	0.69	1.48	1.27	1.53
Paper	37.69	38.24	37.77	37.29	37.93	83.32	74.97	42.35	75.45	24.60
Rubber Products	38.49	38.37	38.62	38.31	43.54	11.09	9.80	6.85	9.35	6.28
Leather Products	35.76	35.86	35.35	33.00	39.36	9.50	3.08	5.07	4.52	10.54
Chemicals	38.51	38.84	39.01	37.51	42.66	87.71	72.30	43.71	57.25	28.64
Pharmaceuticals	39.15	38.22	38.30	37.22	41.92	3.35	6.67	4.48	3.37	2.28
Soaps, Perfumes	38.28	37.96	38.18	30.41	32.39	0.51	2.24	0.51	1.47	0.90
Plastics	36.78	37.59	36.99	34.40	36.16	4.35	3.87	4.25	3.93	2.21
Textiles	31.39	37.97	37.95	35.23	38.48	67.00	43.09	89.01	44.62	80.01
Clothing, Footwear	36.32	36.57	37.40	31.29	40.02	65.26	46.86	40.51	57.75	37.24
Food	37.19	37.81	38.08	43.36	42.10	260.31	129.81	195.80	179.41	209.71
Beverages	37.83	37.66	38.32	34.37	43.34	2.92	5.12	2.77	9.42	1.23
Tobacco Products	39.66	39.58	39.75	39.60	44.68	53.98	49.32	16.18	0.09	0.26
Printing	36.18	36.88	36.54	32.09	38.47	0.34	0.90	0.70	0.07	0.34
Other Industry	36.95	38.02	38.33	36.20	40.85	97.57	86.53	63.10	116.30	18.47
Processing Industry	37.07	39.48	38.02	37.60	38.00	1045.86	792.01	817.96	893.01	685.92
Non-industry	36.07	37.02	37.02	35.00	37.50	694.65	398.70	209.32	254.83	204.77

Source: Corporation Yearbooks, Ministry of Finance.

Table A5 - 1985 Estimated Incentive Rate, Resolution 882-95

Item - FIBGE	Value financed (millions)		% of value financed by industry	Subsidy Rate**
	Cr\$	US\$*		
Agricultural, Veg. & Mineral Ext.	185,444	273.085	32.44	5.57
Non-metallic Minerals	22,246	38.342	5.40	0.93
Metallurgy	246,237	424.401	21.74	3.73
Mechanical Equipment	126,750	218.460	20.47	3.51
Electrical Equipment	53,100	91.520	18.81	3.23
Transport Equipment	50,330	86.747	5.78	1.00
Wood Products	32,677	56.320	17.77	3.05
Furniture	2,000	3.447	22.55	3.87
Paper	51,690	89.090	17.30	2.97
Rubber Products	3,668	6.322	4.53	0.78
Leather Products	19,676	33.913	18.98	3.26
Chemicals	95,015	163.763	3.70	0.64
Pharmaceuticals	9,211	15.876	28.39	4.87
Perfumes, Soaps	5,410	9.324	32.06	5.50
Plastics	38,859	66.975	88.25	15.14
Textiles	114,713	197.713	22.46	3.85
Clothing, Footwear	118,190	203.705	27.24	4.67
Food	343,037	591.240	10.73	1.84
Beverages	4,604	7.935	9.20	1.57
Tobacco Products	126	0.217	0.05	0.01
Printing	1,153	1.987	13.46	2.31
Other Industry	14,961	25.786	12.69	2.17
Manufacturing	1,539,097	2,514.708	11.48	1.97

* Estimated exchange rate: Buy-sell average, Dec. 1983 = 580.199

** Subsidy rate corresponds to formula by Baumann & Camargo (1987), assuming that the value financed in 1983 is same for 1985.

$$SV = \frac{im - i}{1 + im} * \frac{\text{Value of financing}}{\text{Manuf. exports}} \quad \begin{array}{l} im = \text{market interest rate} \\ i = \text{subsidized int. rates} \end{array}$$

Source: Baumann & Moreira (1987); Baumann & Braga (1986); Trade Balance and Other Current Indicators (1986), Expanded Edition, FUNCEX.

Table A6 - IPI and ICM Tax Credit for Exports by Industry (US\$ millions)

Industrial Good Classification	Year					
	1980	1981	1982	1983	1984	1985
Non-metallic Minerals	8.79	3.11	24.67	17.60	5.22	0.486
Metallurgy	117.52	45.84	453.47	0.364	117.14	10.715
Mechanical Equipment	82.33	46.79	187.70	117.22	38.16	18.568
Electrical Equipment	45.27	47.44	195.42	163.48	49.008	20.171
Transport Equipment	341.25	361.54	522.83	395.61	110.054	80.377
Wood Products	12.55	8.29	21.23	14.739	4.68	0.295
Furniture	2.93	0.49	5.00	3.472	0.967	0.075
Paper	14.13	4.19	58.63	41.521	12.685	0.606
Rubber Products	11.50	4.14	32.49	32.656	19.396	10.167
Leather Products	7.89	2.35	13.37	7.585	2.413	0.118
Chemicals	52.83	6.07	54.47	37.471	16.58	0.922
Pharmaceuticals	8.34	1.20	3.52	2.063	0.616	0.05
Perfumes, Soaps	1.55	0.28	2.56	0.864	0.483	0.026
Plastics	7.54	1.76	21.00	153.86	12.031	0.502
Textiles	69.03	32.92	8.22	0.683	0.077	0.014
Clothing, Footwear	49.92	6.03	158.40	8.238	1.331	0.067
Food	79.88	40.51	10.46	5.862	2.102	0.147
Beverages	1.71	1.16	2.63	1.546	0.558	0.03
Tobacco Products	0.23	0.09	0.04	-	0.06	-
Printing	1.61	0.70	0.83	0.72	0.214	0.139
Other Industry	43.54	5.65	14.39	12.61	5.40	0.415
Industry	960.27	620.55	1,791.33	1,234.7	399.98	143.80
Non-industry	74.21	27.45	479.72	376.62	139.57	36.90
Total	1,124.90	648.00	2,271.08	1,611.27	539.55	180.70

Source: Secretariat of Federal Revenue and Purchase and Sales Movement, IPI, Secretariat of Federal Revenue, 1982-85.

Table A7 - Consolidated Foreign-Exchange Balance for Companies Linked to BEFIEX Programs for Transport Equipment Industry, 1972-1985

Transport Equip.	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
A. Exports (A1-A2)	5,807,620	77,474,081	226,041,355	342,006,214	449,514,755	600,293,353	779,574,815	327,226,036	1,348,042,061	1,935,458,835	1,520,121,005	1,508,844,772	1,825,464,968	2,198,471,148
A1 - Linked	2,383,357	69,712,289	212,446,232	332,880,317	431,043,786	568,295,859	736,185,154	884,220,754	1,290,666,256	1,885,817,882	1,492,765,506	1,486,627,866	1,802,567,079	2,162,105,571
A2 - Non-linked	3,424,263	7,761,792	13,595,123	19,125,827	18,470,969	31,997,494	43,389,661	43,005,282	57,375,805	49,640,953	27,355,499	22,216,906	22,897,889	36,275,577
B. Imports (B1,B2,B3,B4,B5)	15,467,109	176,438,847	296,106,974	286,593,414	292,130,609	328,016,511	392,669,866	348,407,285	638,377,911	634,501,441	506,000,707	481,734,297	575,604,694	685,307,681
B1 - Drawback	1,309,365	23,943,595	59,272,853	54,263,642	62,214,104	86,307,233	97,276,949	71,768,290	136,036,637	199,894,456	180,224,558	185,924,557	237,552,010	292,114,217
B2 - Mach. & Equip.	1,773,036	35,290,197	9,491,640	5,869,326	7,019,650	5,454,378	16,165,815	28,954,781	166,654,453	115,184,698	72,505,333	77,771,188	82,199,413	52,204,150
B3 - Quota	-	4,076,229	20,940,901	14,642,468	93,450,575	166,939,633	179,148,273	198,987,097	250,018,346	255,926,537	188,680,302	178,228,693	218,174,249	766,603,697
B4 - Other Imp. Incents.	-	-	-	-	836,796	1,460,556	2,507,027	271,926	781,591	1,391,037	3,010,792	5,592,002	(17,114)	74,360
B5 - Other	12,384,708	113,228,826	206,401,580	211,817,548	128,610,484	67,854,708	97,620,802	52,425,191	84,886,884	62,104,713	61,579,722	34,207,857	37,696,136	74,321,257
C. Trade Balance (A-B)	(9,659,489)	(99,064,766)	(70,065,619)	65,412,730	157,384,146	272,276,892	386,904,949	578,818,751	709,664,150	1,300,957,394	1,014,120,298	1,027,110,495	1,249,860,274	1,513,163,467
D. Services (D1,D2,D3,D4,D5,D6)	(12,465,111)	(45,956,371)	(66,424,492)	(65,214,926)	(45,829,097)	(66,716,089)	(83,910,108)	(199,617,170)	(98,001,726)	(135,384,540)	(133,204,331)	(51,885,018)	(229,924,976)	(267,254,363)
D1 - Tech. Assist.	9,126,682	15,033,733	17,755,341	20,812,350	1,232,878	221,237	9,441,191	435,012	6,708,788	1,923,724	2,068,309	1,326,769	3,402,616	2,104,161
D2 - Comm. & Connect.	42,794	805,975	381,327	7,207,420	8,562,306	11,244,151	15,406,032	37,160,818	39,490,839	65,560,926	49,889,800	29,694,759	47,874,476	42,228,677
D3 - Profits & Dividends	-	15,278,577	10,740,569	14,234,455	19,960,968	43,052,154	50,228,610	156,888,621	43,274,630	42,898,399	17,175,541	19,521,057	164,850,137	176,074,716
D4 - Interest	1,206,143	4,106,040	25,135,491	22,328,124	17,351,610	22,143,455	29,851,808	38,447,763	68,283,055	121,010,354	124,944,816	86,287,095	88,735,794	80,190,538
D5 - Insurance & Freight	92,074	875,315	4,751,272	14,321,425	15,874,746	21,453,798	25,745,893	41,280,858	73,479,336	104,145,039	77,546,683	78,846,708	84,647,087	99,920,476
D6 - Other Remittances	2,131,566	11,607,351	17,163,036	14,954,002	14,195,981	11,508,890	4,678,360	7,966,814	13,723,750	8,136,176	16,672,548	(6,097,954)	9,709,130	66,576,347
E. Current Transactions (C+D)	(22,124,600)	(145,021,137)	(136,490,114)	197,804	111,555,049	205,560,753	302,994,841	379,201,581	611,662,424	1,165,572,854	880,915,967	975,225,457	1,019,935,298	1,245,909,704
F. Capital Movement (F1,F2,F3,F4)	13,096,849	71,034,240	64,465,285	10,548,329	118,068,893	128,161,424	100,224,357	215,298,080	363,261,795	499,059,821	233,998,017	175,034,514	163,109,707	58,408,651
F1 - Direct Investment	2,903,732	43,353,794	18,236,145	936,166	24,668,495	37,635,416	58,208,717	320,879,475	332,559,644	429,991,636	307,320,718	270,157,436	150,187,849	49,583,562
F2 - Loans	49,200,000	29,170,000	42,800,000	25,470,000	92,862,080	87,150,000	107,920,547	61,105,233	47,500,000	129,065,333	75,734,709	58,617,343	20,963,338	24,905,300
F3 - Financing	216,995	33,416,413	8,884,276	6,097,425	72,268,581	102,079,629	100,228,755	44,555,275	161,523,137	290,834,147	205,442,632	177,329,995	312,230,786	354,323,118
F4 - Amortizing	39,223,878	34,905,967	5,455,136	21,955,262	71,730,263	98,703,621	166,183,662	211,241,093	178,320,986	350,705,207	355,000,032	331,070,260	320,272,246	370,403,729
G. Global Balance (E+F)	(9,027,751)	(73,986,897)	(72,024,826)	10,746,133	229,623,942	333,722,177	403,219,198	594,499,661	974,924,219	1,664,758,753	1,114,913,994	1,150,259,971	1,183,045,005	1,304,317,755

Source: Executive Secretariat of BEFIEX.

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