TEXTO PARA DISCUSSÃO

Nº 230

TRADE POLICY, MNCs AND THE
EVOLVING PATTERN OF BRAZILIAN
TRADE, 1970-85

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SUMÁRIO

O ensaio discute as mudanças observadas nos padrões de comércio brasileiro no período 1970-1985. Com este propósito observa-se o comportamento de graus de abertura e de índices de competitividade e vantagem comparativa desagregados setorialmente, e avalia-se a influência da política comercial e de fatores exógenos operando através de filiais de empresas multinacionais.

ABSTRACT

The paper discusses the observed changes in Brazilian trade patterns during 1970-1985. In this connection the paper surveys the behavior of sectorially disaggregated tradeability, competitivenes and comparative advantage indices and assesses the influence of commercial policy and of exogenous factors affecting the strategies of foreign affiliate firms operating in Brazil.

Introduction

Over the past twenty years, the Brazilian economy experienced an impressive change in trade patterns brought about by the amazing increase and diversification of her manufacturing exports. Elsewhere we argued that exogenous factors were important in explaining Brazil's outstanding export performance in manufactures[1]. Here we consider the influence of domestic policies -- i.e., the trade regime — up to the mid-1980s and probe further into the analysis of Brazil's changing patterns of trade.

Precise definitions of the trade regime — here defined as including exchange rate management- are difficult to establish[2]. However, most observers agree that post-war trends in the Brazilian trade regime had three main characteristics. The first two relate to the determinants and the structure of import protection. One is the relation of interdependence existing between major changes in the trade regime and those of macroeconomic variables, as import repression and the imposition of exchange controls were frequently determined by external shocks affecting the balance of payments position. The other is the traditional preference for quantitative restrictions (QRs) and other trade impediments over real devaluations in times of foreign exchange stringency. The third is the increasingly important role played by export promotion schemes since the late 1960s.

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[1]   See W. Fritsch & G.B. Franco (forthcoming).
[2]   For an enlightening discussion see G. K. Helleiner (1988).

There was little change in these broad characteristics up to the early eighties. The brutal schock represented by the collapse of international lending in 1982 brought the traditional response of increased degrees of import repression. This time, however, the notion that external adjustment to the debt crisis has to be made through more, and not less, trade involvement, implied that these reactions were accompanied by sharp devaluations and an increased awareness of the negative effect of the current degree and of the structure of protection on export performance. This study investigates whether these changes in the trade regime brought about by the need to adjust to the debt crisis have affected the long run trends in Brazilian patterns of trade established during the previous decade.

It begins, in Section 2, with a description of the changing nature of the Brazilian trade regime through the 1970s up to the mid-1980s, emphasizing its relation with a rapidly changing international environment. In Section 3, the study considers the trends in trade performance and tradeability, highlighting changes in the product composition of trade, and the time and sectoral patterns of changes in competitiveness and comparative advantage during the present decade. Finally some thoughts on the factors behind the rapid diversification and technological upgrading of Brazilian manufactured exports, as well as on its sustainability, are collected in Section 4.

2. Changes in the trade regime

The key instruments of the very active Brazilian trade policy have not changed much during the 1970s through to the mid-1980s. As far as commercial policy is concerned, high tariffs, but with a large number of exemptions allowed by a heavy reliance on ad-hoc quantitative restrictions (QRs), as well as several export promotion schemes have been present over the years. In addition, there has been a strict connection between the strenght of trade restrictions and the state of the balance of payments.

The same is true of exchange rate policy, a crawling peg being consistently adopted since 1968. Indeed, a crucial feature of the Brazilian trade regime during the 1970s and 1980s has been the success in preventing frequent episodes of sharp exchange rate appreciation as was common in the experience of other Latin American countries. The only significant overvaluation episode ocurred in 1981, during a failed attempt to break inflationary expectations through fixing the nominal exchange rate, but was quickly reversed after the payments crisis of the early eighties.

However, there were some changes in the intensity with which commercial policy instruments operated during this period. As regards import protection, after 1975 there was a clear reversal of the steady movement towards liberalization begun in the late 1960s. The balance of payments strains created by the first oil shock brought tariff hikes, a stiffening of administered

import controls and the creation of new "special regimes" for priority imports through which tariff exceptions and rebates were granted on an ad-hoc basis[3]. From 1979, the impact of the second oil shock was compounded by that of the onset of the debt crisis, producing again a marked deterioration of the country's payments position and bringing in a new round of tariff increases and administered trade restrictions.

The most effective restriction enforced after the second oil shock was the granting of powers to CACEX, the agency issuing trade licences, to discretionarily suspend the issuance of licenses for all imports - except those under draw-back arrangements and LAIA agreements, imports for the Manaus Free Zone and government purchases - in order to assure "the equilibrium in the balance of trade"[4]. The stringency with which it was exercised varied markedly with the balance of payments position, although it is very difficult to capture quantitatively the extent of CACEX control, basically because bureaucratic harassment is not usually accounted for in measures of the effectiveness of non-tariff barriers. Nevertheless, it is reasonably accurate to say that, until very recently, all non-oil imports were subject to CACEX scrutiny, on top of more conventional product specific (QRs), which covered 56% of Brazilian tariff items in 1984[5]. Moreover, there are outright prohibitions, which were made extremely severe following the 1982 payments crisis, but have recently been

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[3] For a detailed description of the evolution of the Brazilian trade regime during the 1970s, see M.F.P. Dib (1985, pp 43-60).
[4] H. C. Moreira & A. B. Araujo (1984, p. 38).
[5] E. Guimarães et al. (1988, Table 2, p. 25).

relaxed[6]. Regarding tariffs, the distinguishing features of the Brazilian case are the high "legal" rates of effective protection and the importance of "special regimes" and exemptions. This can be seen in Table 1 showing figures for legal and "true", i.e. de facto, sectoral rates of effective protection for 1976 and 1984.

Given that, as mentioned above, protection in Brazil is mostly undertaken through administered quantitative restrictionc, the low levels of true effective protection practiced in 1984 does not, of course, indicate that Brazilian industry is exposed to international competition. It serves only to illustrate the extent of tariff exemptions granted under the special import regimes. Some effort has been made more recently to simplify bureaucratic steps, reduce the number of "special regimes" and the extent of "redundancy" in the tariff structure. Though with little significance as regards the levels of protection effectively practiced, these measures should contribute to increase transparency and reduce the symbiosis of business interests and regulators in the administration of protection - especially as regards the application of the "similarity" law.[7]

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[6]   Substantial cuts in the number of products subject to import prohibition were made in November 1988, reducing the list from 2300 to some 1000 items, and the authorities aim at reducing it to 300 within the next couple of years.
[7] Within the realm of Brazilian law, any imported product should be subject to an exam to assess the extent to which one could find "similar" national products. If this can be proven - for instance by the presentation of a prototype - then the import is forbiden. The exam is carried out by a CACEX expert chosen in conjunction with the businesses associations involved.

7

Table 1
Brazil: Effective rates of protection, 1976-1984

Sector	legal 1976	legal 1984	true 1976	true 1984
All manufacturing	169.5	165.6	64.9	34.5
Light manufacturing	255.5	246.1	43.8	35.2
Food	222.8	212.3	35.7	43.4
Textiles	268.1	268.4	35.7	1.1
Heavy industry	128.8	114.4	77.3	32.4
Paper	237.4	212.9	156.2	110.9
Chemicals	88.3	95.2	81.4	24.6
Non-metallic minerals	194.7	182.1	33.1	41.5
Metallurgy	138.6	91.1	74.3	24.0
High tech	135.7	137.1	60.1	14.1
Machinery	69.6	121.3	24.3	19.1
Transport equipment	206.5	217.7	111.7	- 9.6
Agriculture	70.3	63.3	7.6	26.7

Source: H. C. Braga et al. (1988, p. 47). Aggregated using sectoral shares in total value added.

Finally, a word should be said regarding the export promotion schemes, progressively implemented from the second half of the 1960s. These schemes have taken a variety of forms including exemptions from value added and income taxes and access to subsidized financing, whose relative importance has changed over the years. The usually accepted justification for such incentives is the fact that they should offset the cost pressures derived from the structure of protection. Indeed, it has been shown recently that the sectoral distribution of protection and incentives to exports are significantly correlated[8].

Interestingly, the absolute value of the mix of these

[8]   R. Baumann (1985, pp. 66-67).

incentives have varied little during the 1970s. The value of all exemptions and subsidies conceded in 1970 as a percentage of the value of exports was estimated as being of the order of not less than 53% – of which 7.5% corresponded to credit subsidies, 13.5% to tax credits and 31.7% to tax exemptions – and about 62% by 1979[9]. In this same year, however, following pressures by the US, the Brazilian government agreed to discontinue its export subsidy programme. The value of tax rebates and subsidies fell to under 37% of exports in 1980 but, as balance of payments problems recurred, rose again to 69% in 1982 and only then began to fall significantly[10].

The fall in voluntary bank lending and the possibilities open by the 1983 recovery in world trade made for a great concern with export performance, no doubt reinforced by pressures from the IMF and the World Bank. The real exchange rate was devalued by near 20 per cent in 1983 and maintained roughly stable in the following years[11] and there was an even greater emphasis on export promotion, particularly on "import-to-export" schemes. This was especially true of the BEFIEX programme, through which firms gain access to imported intermediate inputs and capital goods at international prices and can circumvent the otherwise unsurmountable obstacle imposed by "similarity" examinations against the commitment of attaining a negotiated export target. Between 1980 and 1984, 23.2% of the Brazilian manufactured exports

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[9]   R. Baumann & H. C. Moreira (1987, p. 484).
[10]   Idem.
[11]   Cf. S. Laird and J. Nogués (1988, Table 2, p. 9).

were made under the BEFIEX. In 1985 this share rose to 34.5% and in 1986 to around 40%, corresponding to an export value of nearly US$ 7.0 billion[18].

3. The changing pattern of Brazilian trade

The dramatic adjustment effort required by the fall in foreign financial flows in the early 1980s forced a sharp swing in both import and propensities in Brazil. Reflecting the changes in the trade regime during the debt crisis described above and a significant decline in activity levels in 1983 followed by a slow and outward oriented recovery in the manufacturing sector in 1984-85, Brazil experienced a large swing in net exports as a proportion of GDP - from -0.3% in 1980 to 5.0% in 1985 - and a rapid acceleration of the growth of manufactured exports. These recent changes stemming from the severe adjustment effort induced by the debt crisis must be seen, however, as reinforcing longer term changes in tradeability taking place as a response to both structural factors shaping comparative advantage as well as the greater neutrality of incentives to the production of tradeable goods followed since the late 1960s after several decades of strong import substitution policies.

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[18]   R. Baumann & H. C. Moreira (1986).

3.1. Changes in tradeability and the commodity composition of trade

The extent of the growth of export propensities and of import substitution - measured by imports as a proportion of apparent consumption - between 1970 and 1985, both for aggregate trade flows as well as for trade in manufactures at a sectorially disaggregated (ISIC 3-digit) level, are shown in Table 2[19]. The observation of the long term changes in export propensities clearly reveal a marked upward shift in the eighties, led by manufactured exports. The share of imports in total demand exhibits, as expected, a falling trend in the eighties reflecting the conscious import substitution policy concentrated in some intermediate and capital goods, which reduced the import to apparent consumption ratio in manufactures to around 4% in the mid-eighties.

As far as the evolution of tradeability is concerned, during the 1970s, although the aggregate export propensity remained stable, it fell for manufactures as a whole, in spite of a stable or rising share of exports in almost all manufactured groups, as a result of a sharp drop in the export propensity of the food group in the first half of the decade. The unsteady behaviour of the aggregate import to consumption ratio reflects a tension between the opposite effects of the two oil price hikes

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[19] This and other tables to follow consider selected ISIC three digit branches and a three-way grouping: "Light manufacturing" including ISIC groups 31, 32 and 33; "Heavy industry" including groups 34 to 37 plus 381 and "High tech" comprises groups 38 and 39 without 381.

Table 2

BRAZIL

Indicators of Tradeability

	1970	1975	1980	1981	1982	1983	1984	1985
Exports to Output Ratio (%)								
Total Trade	6.34	7.01	8.40	8.46	7.13	10.69	12.96	11.31
Manufactures	14.42	7.43	8.68	9.90	8.09	12.73	15.12	14.57
Light Manufactures	30.17	15.81	15.52	17.71	13.80	22.14	25.40	26.75
Food Group	47.21	22.82	22.42	25.70	20.50	30.05	34.55	28.40
Textiles	3.92	7.55	6.53	7.80	6.21	11.32	13.97	19.24
Heavy Industry	3.59	2.24	3.71	4.83	4.42	7.52	9.79	8.93
Paper	1.31	2.15	6.64	7.59	4.67	8.91	11.71	11.96
Chemicals	2.67	2.38	3.12	4.54	4.66	6.54	8.82	7.88
Non Metallic Mins.	1.83	1.39	2.05	2.27	1.51	2.32	3.49	3.52
Metallurgy	6.41	2.31	4.23	5.40	4.81	10.87	12.92	11.90
High Tech	3.99	5.31	8.62	10.55	8.44	11.41	13.00	14.38
Machinery	5.60	4.17	6.21	6.68	5.11	6.69	8.35	8.43
Transport Equip.	1.29	5.31	10.89	15.99	13.13	16.52	17.29	19.46
Imports to Apparent Consumption Ratio (%)								
Total Trade	6.58	10.57	10.21	8.72	7.42	8.41	7.68	6.65
Manufactures	15.54	11.19	6.28	5.33	4.17	4.79	4.20	4.86
Light Manufactures	3.69	1.77	1.39	1.19	0.89	1.52	1.48	1.99
Food Group	5.91	2.37	2.07	1.71	1.11	1.93	1.70	1.93
Textiles	2.27	1.34	0.57	0.64	0.72	1.12	1.37	1.67
Heavy Industry	15.04	11.06	6.41	4.81	3.70	3.89	3.49	3.65
Paper	10.22	6.31	3.58	3.22	2.28	3.43	2.62	3.06
Chemicals	19.51	11.70	9.54	5.65	4.95	5.07	4.61	4.84
Non Metallic Mins.	5.45	3.36	1.95	2.56	1.46	1.65	1.44	1.33
Metallurgy	12.92	13.65	3.30	4.23	2.40	1.67	1.44	1.45
High Tech	29.07	20.87	12.02	11.15	9.16	10.80	9.52	10.73
Machinery	35.54	26.59	13.64	12.70	10.80	11.95	10.15	10.52
Transport Equip.	18.54	9.27	7.44	6.75	4.94	8.35	7.66	7.87

SOURCES: United Nations, 'International Trade Statistics Yearbook', vol I.
United Nations, 'National Accounts Statistics: Analysis of Main Aggregates', vol II.
International Monetary Fund, 'International Financial Statistics', Yearbook of 1988.
World Bank.

and the strong import substitution effort in intermediate and
capital goods made by Brazil as part of a strategy of structural
adjustment to these shocks. As can be seen in Table 2, structural
adjustment in some sectors, such as paper, chemicals, metallurgy,
and most capital goods' industries was impressive indeed and
ocurred in paralell to a rise in export propensity in these very
sectors.

This picture of the growth of trade and rising outwardness
should be complemented by an analysis of Brazil's changing
commodity pattern of exports. A glance at Table 3 showing the time
pattern of the commodity composition of exports, reveals a strong
aand steady rise in the share of manufacturing exports throughout
the whole 1970-85 period.

Table 3
Brazil: commodity composition of trade, 1970 - 85.
(in % of total trade)

	Exports			Imports		
	1970	1980	1985	1970	1980	1985
Manufactures	14.4	38.6	46.2	69.2	40.9	39.0
Non-manufactures	85.6	61.4	53.8	30.8	59.1	61.0
Mineral fuels	0.6	1.8	6.4	12.3	43.1	47.4
Other	85.0	59.6	47.4	18.5	16.0	13.8
Total trade	100.0	100.0	100.0	100.0	100.0	100.0

Note: Manufactures defined as SITC groups 5 to 8 minus 68. Mineral
fuels are SITC group 3.
Source: International Trade Statistics Yearbook.

The evolution of the commodity composition of imports,
also shown in Table 3, reveals a trend of import substitution in
the 1970s, if account is taken of the distortion introduced by the
impact of the second oil price shock, reinforced in the 1980s by

the strong fall in the share of oil imports following changes in relative oil prices and a rapid rise in domestic off-shore production.

A look at the evolution of the commodity composition of manufactured exports seen in Table 4 provides a more detailed picture of the direction of the structural changes in the commodity patterns of trade. In this connection it is interesting to note that a significant reduction in the importance of traditional light manufacturing, especially food products, can be observed throughout the 1970-85 period. The leading sectors vary: during the 1970s, advances are concentrated in machinery and transport material; after 1980, gains are observed especially in chemicals and iron and steel.

Table 4
Brazil: composition of manufactured trade, 1970 - 85.
(in % of total manufactured trade)

	Exports			Imports		
	1970	1980	1985	1970	1980	1985
Light manufactures	84.6	58.8	46.4	8.3	6.4	9.7
Food group	75.4	48.2	35.6	4.8	5.0	6.1
Textiles	3.6	8.2	9.3	2.8	1.0	3.2
Heavy industries	9.8	19.3	33.1	32.4	48.7	42.1
Paper	0.4	3.3	2.8	4.6	2.5	3.1
Chemicals	3.3	8.0	17.7	19.3	37.3	32.9
Non-metallic mins.	0.5	1.0	0.8	1.2	1.4	1.2
Metallurgy	5.5	6.9	11.8	7.4	7.6	4.8
High-tech industries	5.6	21.9	20.4	59.2	44.9	48.2
Machinery	3.8	9.2	7.4	37.8	31.3	31.3
Transport equipment	0.7	10.0	10.5	20.5	9.3	12.8
Total manufactures	100.0	100.0	100.0	100.0	100.0	100.0

Source: International Trade Statistics Yearbook.

On the other hand, very little change can be observed as regards the evolution of the commodity composition of manufactured imports, also shown in Table 4. In spite of large volume fluctuations, imports remained highly concentrated on intermediate inputs and machinery, as is typical of resource rich, semi-industrialised, countries which followed strong import substitution strategies in the past.

3.2. Changes in competitiveness

The analysis of the magnitude and product composition of trade flows provides little guidance as to the causes of the observed changing trade patterns and performance. To probe further into the determinants of the observed changes in trade performance at a sectorially disaggregated level in each country one has to gauge the shifts in competitiveness resulting from structural as well as short term macroeconomic influences, such as domestic demand and real exchange rate fluctuations.

The construction of indices of competitiveness is frought with many methodological problems. The competitiveness indicator to be used in this study is the "rate of self-supply", defined for a given industry in a given country as the ratio of the industry's output to total domestic demand for its product. This indicator avoids the systematic bias presented by pure trade-based indicators of competitiveness - such as the popular "coverage ratio", that is the ratio of exports to imports in given industry,

or the ratio of the trade balance to total trade in the industry,
which is positively related to the coverage ratio - as the latter
do not correct for the differences in trade volumes stemming from
differences in the size of domestic markets[14].

Interpretation of this index is quite straightforward: it
can take any positive value, higher values meaning greater
competitiveness. It is also interesting to note that the rate of
self-supply can be written as a function of the share of exports
and imports in total domestic demand. In fact, ignoring relative
price variations and changes in the level of stocks, equilibrium
in the market of product i of a given country can be written as:

$$Pi + Mi = Di + Xi \qquad (1)$$

where Pi stands for total output, Mi for imports, Di for apparent
domestic demand, and Xi for the exports of the industry. Dividing
equation (1) by Di and rearranging terms, one gets:

$$C(i) = 1 + x(i) - m(i) \qquad (2)$$

where x(i) and m(i) are, respectively, the shares of exports and
imports in total domestic demand, and C(i) the rate of self-
supply, the competitiveness indicator for industry i. Thus, as
equation (2) shows, the index allows a clear decomposition of the
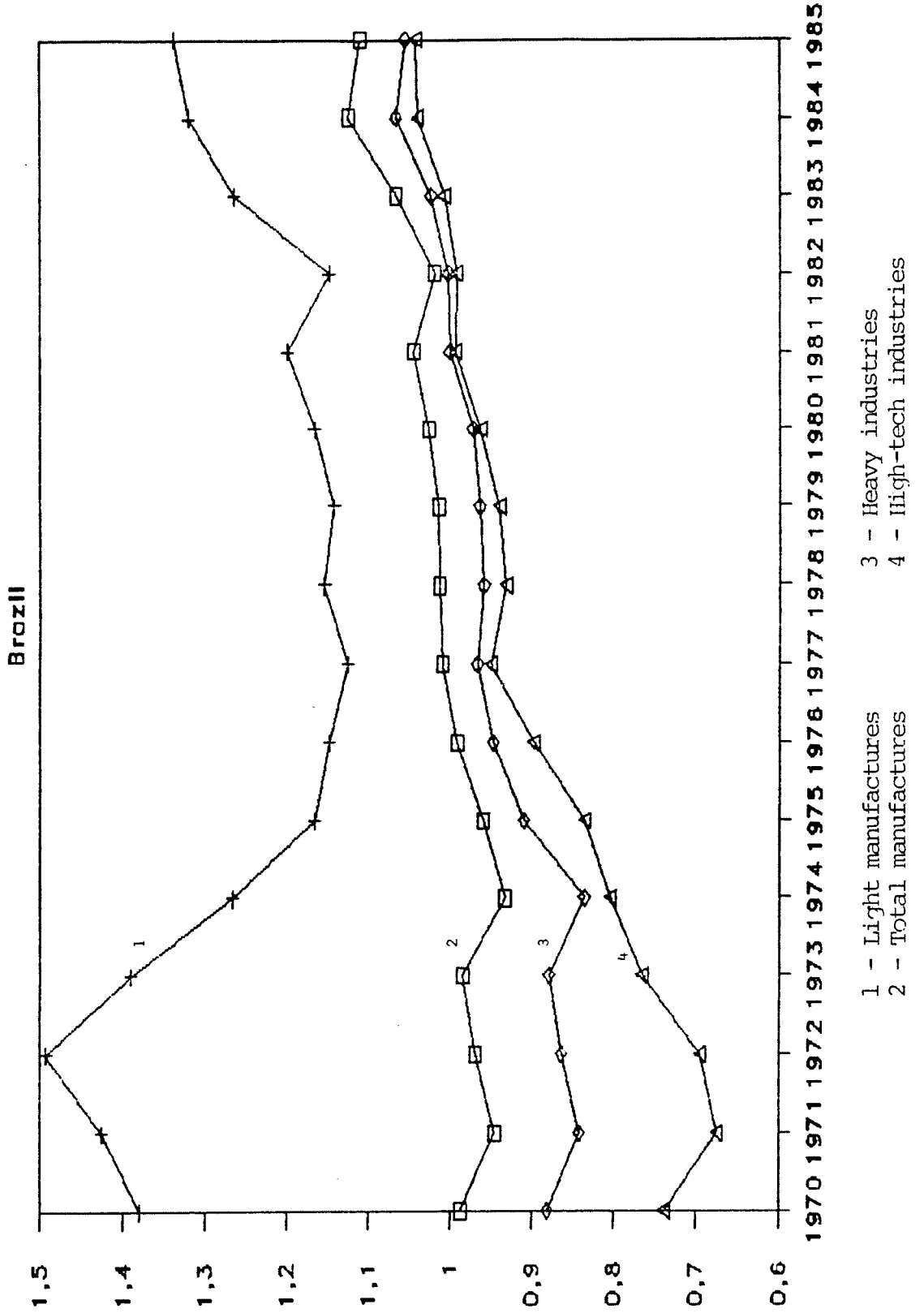effects of export expansion and of import substitution in the

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[14] For an extended discussion of this point, see G. Lafay (1988,
pp. 4-8).

analysis of the causes of increasing "revealed" competitiveness, and $C_i>1$ means that there is a surplus in the two way trade in industry i.

Yearly values of the competitiveness indicator $C(i)$ from 1970 to 1985 for total and manufatured trade are shown in Table A.1 in the Appendix. Since the total trade indicator is to a large extent distorted by commodity price movements and given the strategic importance of manufactured trade, the analysis will concentrate on the evolution of the competitiveness of industrial goods.

The indices of competitiveness in manufacturing as well as in each of the three component sectors according to the classification used in this study are plotted in Graph 1 in the following page. They show that since the first oil shock Brazil shows a steady rise in competitiveness in total trade in manufactures which is reinforced in the 1980s.

GRAPH 1

Indicators of Competitiveness

Brazil

1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985

1 – Light manufactures   3 – Heavy industries
2 – Total manufactures   4 – High-tech industries

This enhanced competitiveness, as can be seen in Table 5, was based on both export expansion and import compression as a proportion of domestic demand.

Table 5
Brazil: changing competitiveness in trade in manufactures and its components, 1970-85

Country	1970	1975	1980	1985	Changes (% points)		
					1970-75	1975-80	1980-85
Brazil							
C(i)	98.7	95.9	102.6	111.1	- 2.8	6.7	8.5
x(i)	14.2	7.1	8.9	15.8	- 7.1	1.8	6.9
m(i)	15.5	11.2	6.3	4.7	4.3	4.9	1.6

Source: Table A.1.

Sectoral patterns of adjustment as between export expansion and import substitution, can be glanced in Table 6 below. The data shows that recent adjustment relied more on the faster growth of exports relative to domestic demand especially in the more sophisticated branches of manufacturing, thus accentuating the long term trend of impressive technological upgrading, which illustrates the importance of import substitution as a prelude to export promotion[15].

A more detailed analysis of the sectoral patterns of the evolution of competitiveness and its determinants also provides interesting information on peculiar features of the Brazilian trade adjustment. Table 6 shows a sharp erosion of competitiveness of light manufactures - mainly in the food group - in the early

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[15] For recent empirical work on this issue, see S. Teitel & F. Thoumi (1986) and H. Chenery et al (1987).

1970s reversed in the 1980s by a strong recovery of exports relative to domestic demand growth. More impressive is the extent of import substitution in the heavy and capital goods in the 1970s, which is accompanied, however, by a rising export propensity within these very groups. In more recent years, the severe trade adjustment to the oil and debt shocks resulted in an impressive change in competitiveness, fundamentally based on growing export propensity in all the three groups,

Table 6
Brazil: changing competitiveness by manufacturing sector and its components, 1970-1985

Industry Group	1970	1975	1980	1985	Changes (% points)		
					1970-75	1975-80	1980-85
Light manufacture							
C(i)	137.9	116.7	116.7	133.8	- 21.2	0.0	17.1
x(i)	41.6	18.5	18.1	35.8	- 23.1	- 0.4	17.7
m(i)	3.7	1.8	1.4	2.0	1.9	0.4	- 0.6
Heavy manufacture							
C(i)	88.2	91.0	97.2	105.6	2.7	6.3	8.4
x(i)	3.2	2.0	3.6	9.1	- 1.2	1.6	5.5
m(i)	15.0	11.1	6.4	3.5	3.9	4.7	2.9
High-tech sectors							
C(i)	73.9	83.6	96.3	104.3	9.7	12.8	8.0
x(i)	2.9	4.4	8.3	15.0	1.5	3.9	6.7
m(i)	29.1	20.9	12.0	10.7	8.2	8.9	1.3

Source: Table A.1.

3.3 Changes in comparative advantage

Although the competitiveness index presented above is useful for the analysis of trade performance of a given country over time or for cross-country comparisons of performance in the market of a given product, it is (i) strongly influenced by shorter term macro disturbances such as exchange rate and domestic

demand fluctuations and (ii) not fit for analysis of the evolution
of the relative competitiveness of the different component
tradeable sectors in a given country, i e. for the analysis of
how the country's specialization pattern evolves over time. For
that, an index reflecting the structural changes shaping the
evolution of Brazil's comparative advantage has to be constructed.

Proper empirical indices of revealed comparative advantage
are subject to a number of difficulties. Essentially, such an
index should involve the comparison of non-observable prices in
the absence of trade with non-distorted prices in the presence of
trade neither of which, of course, can be straightforwardly
measured. Empirical measures of "revealed" comparative advantage
have, therefore, to cope with complications stemming, for example,
from lack of compatible trade and production data, and the due
consideration of two-way trade, differences in country size,
domestic production and price distortions and so on[16].

The classical revealed comparative advantage (RCA)
indicator proposed by Balassa (1965) simply measures the extent to
which the structure of exports of a country differs from that of a
region of reference (e.g., the world), a larger country share in a
given industry indicating comparative advantage in that industry.
It is quite clear, however, that empirical measures should take
into account the net trade balance and not only exports. In fact,
indices which do not incorporate imports implicitly assumes "that

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[16] For a discussion of alternative measures and the problems
involved, see R. H. Ballance (1987) and UNIDO (1985, Chapter V).

government policies do not 'create' comparative advantage"[17], a
fact which limits the analysis of the factors behind the rapidly
changing specialization patterns in trade in manufactures in newly
industrializing economies[18].

The comparative advantage indicator to be used in this
study considers two way trade and is based on the notion that the
net trade balance in a given industry (Xi-Mi) should contribute to
the country's total net trade (X-M) as much as total trade in this
industry (Xi+Mi) contribute to the total trade (X+M) of the
country. Formally, for a given country, the comparative advantage
indicator for industry i is defined as:

$$RCA(i) = b(i) - w(i).b$$

where,

$$b(i) = 1000.(Xi-Mi)/Y$$

$$w(i) = (Xi+Mi)/(X+M)$$

$$b = 1000.(X-M)/Y$$

and Y stands for the country's GDP.

Some properties of this index are worth noticing[19]. First,

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[17]   UNIDO (1985, p.79).
[18]   Cf. J. Donges & J. Riedel (1977, pp. 58 ff).
[19]   For a fuller dicussion of the properties of this index, see
G. Lafay (1988, pp. 8 ff.).

note that, if net trade of a given industry is positive, for

instance, this might not necessarily indicate the presence of

comparative advantage because the net result might be small given

the total volume of trade. If the net result is less as a

percentage of GDP than what one would expect given the weight of

the industry's trade in total trade as a percentage of GDP then

Brazil would have a comparative disadvantage even though she has a

trade surplus in this industry. Second, the indicator corrects for

the influence of factors generally affecting the competitiveness

of all industries, such as an overvalued exchange rate. It can

easily be seen that, although a particular industry may show a

trade deficit (Mi-Xi), it may still have a comparative advantage -

thus showing a positive value for the comparative advantage

indicator of the industry - if its actual deficit is less than the

share of the total trade deficit (M-X) calculated om a pro-rata

basis according to the weight of the industry's trade in total

Brazilian trade, that is, if (Mi-Xi)((M-X).(Xi+Mi)/(X+M).

Finally, direct comparisons of the extent of comparative advantage

among sectors, as well as for a given sector over time, are made

possible by the cardinality of the index.

The overall picture of the evolution of Brazil's pattern

of comparative advantage in non-manufactured as well as in

manufactured goods between 1970 and 1985 is shown in Graph 2,

drawn from data presented in Tables A.2, in the Appendix. As a

resource rich country, it is not surprising that, up to beginning

of the 1970s, Brazil showed a strong comparative advantage in both

primary products and labour and natural resource intensive light

GRAPH 2

Indicators of Comparative Advantage

Brasil
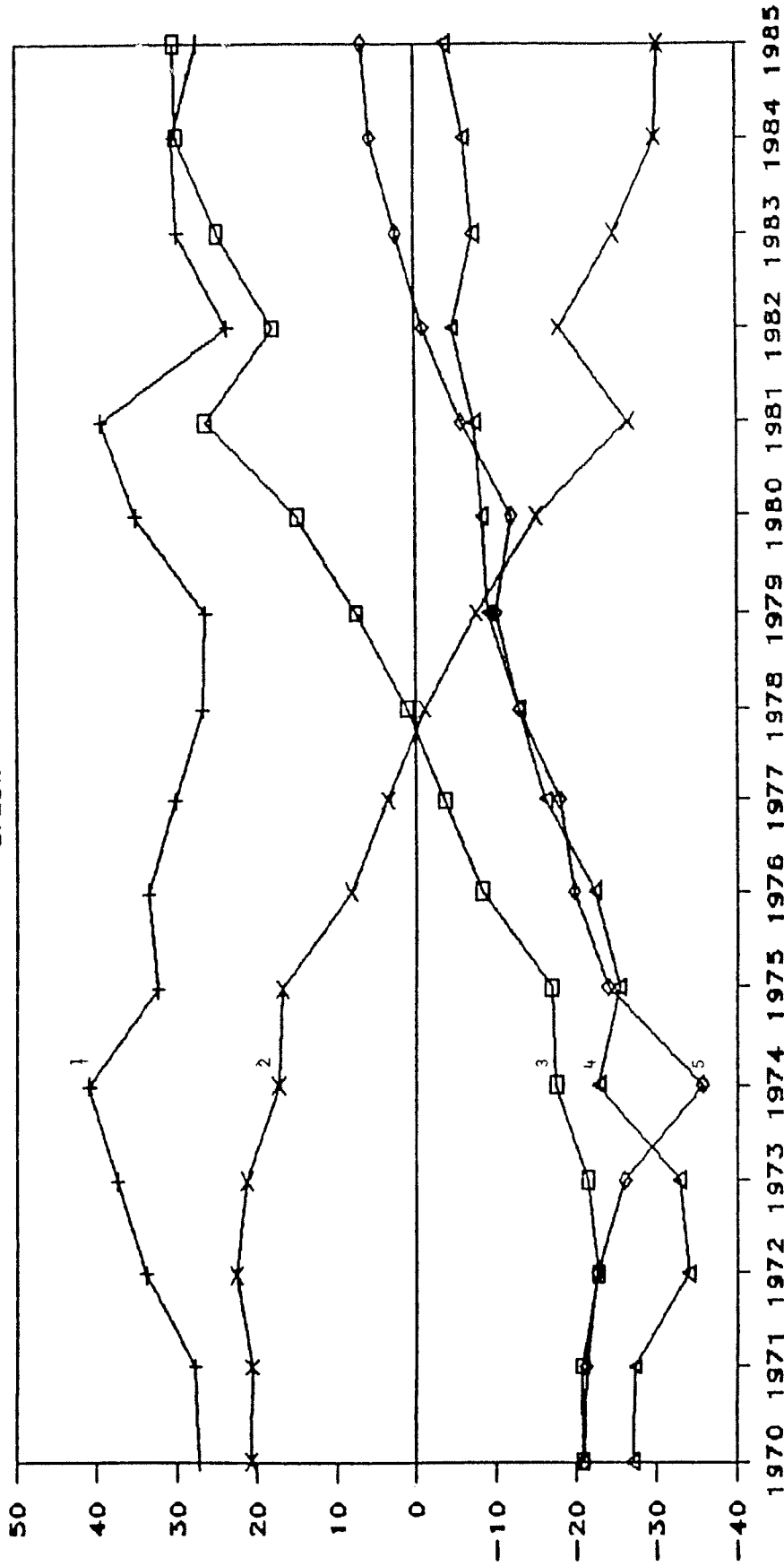
1 – Light manufactures
2 – Non-manufactures
3 – Total manufactures

4 – High-tech industries
5 – Heavy industries

manufactures. However, over the years major swings in prices of major primary primary products - notably oil and coffee - together with a multitude of factors affecting manufactured export performance, played a crucial role in changing comparative advantage.

The main changes, visible from the mid-1970s, stem from the rise in oil prices and the debt crisis. The former strongly affected Brazil's specialization patterns, in view of the country's profound dependence on oil imports in the early 1970s. The latter triggered expenditure switching policies with a dramatic impact on the competitiveness of manufacturing exports, thus reinforcing Brazil's "natural" specialization patterns towards manufactures, as reflected in the narrowing band between the value of the comparative advantage index for manufactures and non-manufactures. Combined with ongoing structural transformations and previous changes in the trade regime these two factors combined to provoke a striking reversal of the traditional specialization patterns as between technology or capital intensive industrial products on the one hand, and light manufactures and non-industrial goods on the other, prevailing until the early 1970s.

4. An emerging new pattern of integration?

Perhaps the most interesting aspect of Brazil's rapidly changing trade patterns is the creation of comparative advantage in sectors one should not expect her to become an exporter according to conventional trade theories. This phenomenon has been the focus of recent works in the North emphasizing the importance of factors such as learning effects, economies of scale and other features of industrial organization to the determination of patterns of trade in manufactures, as well as in shaping the impact of trade policies[20].

However, these new trade theories, by being built upon stylised facts from the OECD experience where endownments determining technological capability of national firms do not vary greatly among trade partners, did not explicitly acknowledged the importance of the extent of foreign ownership in the manufacturing sector of a given country as an important feature shaping her specialization pattern. This assumption is clearly inappropriate for discussing the changing pattern of manufactured exports in a country like Brazil, where one has to take into account that, besides the prevalence of highly concentrated market structures, a crucial feature of industrial organization is the heavy presence of foreign capital, especially in the technologically most dynamic

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[20] For a representative sample of such studies, see G.K.Helleiner (forthcoming).

branches of manufacturing[1]. In fact, as shown in Table 7, there

is a substantial concentration of foreign firms among exporters in

the more technologically sophisticated branches of manufacturing.

Table 7
Foreign firm shares in exports of selected commodity groups in
Brazil: 1974-1985
(in percentage of total exports of each group)

	1974	1977	1980	1983	1984	1985
Basic products						
Manufactures						
Equip. & instruments	67	64	62	62	67	63
Other						
Total	17	22	25	22	23	23

Note: Groups defined according to the Brazilian Commodity
Nomenclature: Basic Products (Sections I to V), Manufactures
(Sections VI to XXI), Equipment and Instruments (Sections XVI,
XVII and XVIII).
Source: CACEX, processed by the authors. Foreign firm defined as
those with at least 25% foreign ownership.

Although empirical findings are still inconclusive as to

the relation between market structure and innovation[2], heavy MNC

presence can surely raise the technological intensity of

----

[1]   On this, see W. Fritsch and G.B. Franco (1988).

[2] Traditionally, the pressumption is that high entry barriers
prevailing in concentrated market structures stiffles the stimulus
to innovation and learning and, thus, preclude the attainment of
dynamic economies which should accompany the "maturation" of newly
established industries. However, the neo-Schumpeterian notion that
R & D investments are part of the strategic behavior of firms in
concentrated market structures aimed at generating technical
progress and innovation, leads to altogether different
conclusions. For a recent survey see F.M. Scherer (1984,chs.9-13).
For references to the Latin American experience, see S. Teitel
(1984), J.M. Katz (1984) and C. Dahlman et al(1987).

manufactured exports of a developing country - given appropriate
trade policies - for at least two reasons. First, because local
affiliates can be an important source of technological upgrading
of the industrial sector in developing countries[29]. Second,
because MNCs are an important vehicle through which the action of
worldwide trends regarding trade and industrial redeployment are
transmitted. In fact, the rise of global competition has been
accompanied by important changes in the world's division of labor
in manufacturing and one of the most visible signs of this process
is the significant increase in MNCs trade propensities. This can
be illustrated by the extraordinary rise in export orientation of
majority-owned branches of US MNCs since the end of their great
post-war expansion geared at the recipient countries' domestic
markets, shown in Table 8, a trend which is especially noticeable
in affiliates located in Latin America

Table 8
US majority-owned affiliates: propensities to export in
manufacturing (in %)

Country	1966	1977	1982	1986
All Countries	18.6	30.8	33.9	38.3
Developed	20.4	33.1	36.6	39.3
Canada	16.1	29.9	34.5	n.a.
Europe	25.8	37.7	41.2	n.a.
Developing	8.4	18.1	22.0	32.6
Latin America	6.2	9.7	11.9	20.1
Brazil	3.0	8.7	12.4	17.4
Mexico	3.2	10.4	10.8	34.8

Source: Adapted from M.Blomstrom. (1987, p. 20 and 1988, tables
A1, B1 and C1).

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[29]   For an extended discussion of this point with reference to
the Brazilian experience, see W. Fritsch and G.B. Franco
(forthcoming).

What seems to have ocurred in Brazil is therefore that, as the import substitution process crystallized a stable ownership structure in which foreign firms became leaders in several technologically sophisticated domestic oligopolies, Brazil's changing comparative advantage in these sectors to a large extent came to reflect the changing outwardness of the Brazilian parties of these firms. Thus, the roots of the growing comparative advantage which accompanied the "maturation" of these now dynamic foreign-owned exporters in Brazil seem to lie in a conjunction of (i) the global developments affecting the trade orientation of multinational firms as a worldwide phenomenon with (ii) some specific characteristics of Brazilian industrialization affecting the dynamic efficiency gains of established subsidiaries.

Among the latter, the influence of changing trade policy should not be dismissed. The greater neutrality of incentives in Brazilian trade and exchange rate policies from the late sixties, following a wave of low technological search import-substituting projects undertaken by foreign firms, should have contributed to spur these firms to move faster down their learning curves. Moreover, given their inherent competitive advantages in international markets (e.g. marketing channels) and superior managerial flexibility they tended to react strongly to opportunities open by the changes in the trade policy environment

If the above considerations are accepted, the continuation of these trends are likely to be reinforced by the emphasis now associated to export performance in Brazil which implies adopting

new attitudes regarding efficiency and competitiveness and in
rethinking several aspects of the trade regime, especially import
policies. Indeed, it is increasingly acknowledged that sustaining
the switch towards non-resource based manufacturing and upgrading
manufactured exports requires the reduction of the traditionally
stringent "national content" requirements. As mentioned in Section
2, in a context of potential balance of payments difficulties this
has caused an increasing reliance on special import-to-export
schemes, which are extensively used by MNCs.

Thus, there is a possibility that foreign owned firms may
come to play a leading role in the emerging Brazilian pattern of
integration, based on increasingly sophisticated manufactured
exports. However, high export performance by their Brazilian
subsidiaries will not necessarily always be the aim of MNCs in
planning their global operations, a fact which raises justified
concerns regarding national control over the long term
sustainability of recent manufactured export performance. Given
the crucial importance of export growth for macroeconomic
equilibrium as long as external finance remains scarce, this fact
has non-negligible strategic implications for Brazil and is likely
to increase the leverage of foreign business in their relations
with the Brazilian government in the coming years.

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APPENDIX

TABLE A.1

Competitiveness Indicators: Brazil, 1970-85 (in %)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
TOTAL TRADE																
Competitiveness (C(i))	0.997	0.985	0.987	0.990	0.944	0.962	0.976	0.994	0.989	0.981	0.980	0.997	0.997	1.026	1.060	1.052
Export\Demand ratio (x(i))	0.063	0.056	0.065	0.079	0.071	0.067	0.068	0.068	0.061	0.065	0.082	0.084	0.071	0.110	0.136	0.119
Import\Demand ratio (m(i))	0.066	0.072	0.078	0.089	0.127	0.106	0.092	0.074	0.072	0.084	0.102	0.087	0.074	0.084	0.077	0.067
MANUFACTURES																
Competitiveness (C(i))	0.987	0.945	0.969	0.985	0.933	0.959	0.991	1.009	1.013	1.014	1.026	1.045	1.019	1.067	1.126	1.111
Export\Demand ratio (x(i))	0.142	0.147	0.159	0.140	0.099	0.071	0.060	0.053	0.079	0.087	0.089	0.093	0.038	0.102	0.167	0.158
Import\Demand ratio (m(i))	0.155	0.202	0.191	0.155	0.166	0.112	0.069	0.044	0.066	0.073	0.063	0.048	0.019	0.035	0.041	0.047
Light Manufactures																
Competitiveness (C(i))	1.379	1.426	1.492	1.390	1.267	1.167	1.150	1.127	1.156	1.143	1.167	1.201	1.150	1.265	1.321	1.338
Export\Demand ratio (x(i))	0.416	0.473	0.531	0.426	0.304	0.185	0.160	0.134	0.169	0.169	0.181	0.213	0.159	0.280	0.335	0.358
Import\Demand ratio (m(i))	0.037	0.047	0.039	0.036	0.037	0.018	0.010	0.007	0.013	0.026	0.014	0.012	0.009	0.015	0.015	0.020
Heavy Industry																
Competitiveness (C(i))	0.881	0.842	0.864	0.879	0.836	0.910	0.947	0.967	0.959	0.964	0.972	1.000	1.002	1.023	1.067	1.054
Export\Demand ratio (x(i))	0.032	0.029	0.032	0.030	0.025	0.020	0.014	0.012	0.025	0.035	0.036	0.039	0.013	0.046	0.101	0.091
Import\Demand ratio (m(i))	0.150	0.187	0.168	0.151	0.189	0.111	0.067	0.045	0.066	0.072	0.064	0.039	0.011	0.023	0.034	0.035
High Tech																
Competitiveness (C(i))	0.739	0.675	0.695	0.766	0.804	0.836	0.898	0.950	0.932	0.940	0.963	0.993	0.992	1.007	1.040	1.043
Export\Demand ratio (x(i))	0.029	0.039	0.042	0.038	0.048	0.044	0.033	0.033	0.064	0.076	0.083	0.105	0.084	0.115	0.135	0.151
Import\Demand ratio (m(i))	0.291	0.364	0.347	0.272	0.244	0.209	0.135	0.083	0.132	0.136	0.120	0.112	0.092	0.108	0.095	0.101

SOURCES: United Nations, "International Trade Statistics Yearbook", vol I
United Nations, "National Accounts Statistics: Analysis of Main Aggregates", vol II.
International Monetary Fund, "International Financial Statistics", Yearbook of 1988.
World Bank.

TABLE A.2

Comparative Advantage: Brazil, 1970-85

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
MANUFACTURES	-20.776	-20.656	-22.642	-21.343	-17.374	-16.867	-8.266	-3.576	1.106	7.519	14.971	26.429	17.929	24.809	29.916	30.297
LIGHT MANUFACTURES	27.245	27.792	33.907	37.508	41.002	32.405	33.588	30.328	26.848	26.508	35.174	39.479	23.595	29.779	30.391	27.325
Food Group	25.032	24.865	29.756	31.558	33.558	26.492	28.745	26.282	22.252	20.361	28.947	32.176	19.475	23.842	24.145	21.186
Textiles	0.246	0.896	2.481	3.990	5.554	4.717	4.003	3.386	3.869	5.055	4.874	5.810	3.374	4.921	5.389	5.297
HEAVY INDUSTRY	-20.988	-21.169	-22.540	-26.039	-35.686	-23.936	-19.605	-17.830	-12.896	-10.008	-11.886	-5.721	-1.025	2.353	5.621	6.706
Paper	-1.877	-1.676	-1.806	-1.541	-1.893	-1.070	-1.108	-1.041	-0.533	0.156	0.940	1.226	0.564	0.694	1.237	1.056
Chemicals	-14.144	-12.984	-14.982	-16.138	-19.133	-12.577	-14.562	-13.037	-11.013	-10.816	-13.506	-6.504	-2.890	-3.188	-1.342	-0.736
Non Metallic Mins.	-0.668	-0.400	-0.661	-0.688	-0.565	-0.419	-0.354	-0.442	-0.313	-0.231	-0.026	-0.375	-0.100	-0.095	0.045	0.183
Metalurgy	-4.299	-6.110	-5.091	-7.673	-14.095	-9.870	-3.582	-3.310	-1.037	0.883	0.706	-0.069	1.403	4.943	5.681	6.203
HIGH TECH	-27.034	-27.279	-34.008	-32.811	-22.690	-25.336	-22.249	-16.074	-12.846	-8.981	-8.317	-7.328	-4.642	-7.324	-6.096	-3.734
Machinery	-18.347	-20.746	-27.625	-25.830	-19.653	-22.475	-19.670	-14.162	-12.455	-10.909	-9.711	-11.901	-7.607	-8.381	-6.916	-6.218
Transport Equip.	-6.477	-4.661	-3.962	-4.834	-2.663	-1.796	-1.720	-1.229	0.288	2.668	1.837	4.667	3.258	1.209	0.565	2.566
NON-MANUFACTURES	20.776	20.656	22.642	21.343	17.374	16.867	8.266	3.576	1.106	7.519	14.971	26.429	17.929	24.809	29.916	-30.297
Non-Ferrous Metals	-3.811	-2.977	-3.338	-4.216	-4.781	-2.680	-3.026	-3.168	-2.108	-2.592	-3.486	-2.425	-1.485	-0.014	0.166	N.A.
Food and Live Animals	22.601	23.116	26.291	24.430	31.216	25.275	24.618	24.235	17.838	16.629	22.148	23.736	15.397	18.096	13.101	N.A.
Beverages and Tobacco	0.656	0.741	0.768	0.744	1.154	1.334	1.178	0.978	1.138	1.315	1.230	1.631	1.497	1.694	1.565	N.A.
Crude Materials, except Fuels	9.927	9.274	9.012	13.080	14.581	15.537	11.628	7.059	4.919	6.109	8.259	9.473	5.702	7.816	4.655	N.A.
Mineral Fuels	-9.263	-10.448	-11.292	-14.244	-26.704	-24.643	-28.351	-27.523	-24.882	-30.889	-45.412	-62.320	-40.533	-54.186	-49.460	N.A.
Animal, vegetable oils and Fats	0.686	0.949	1.202	1.550	1.908	0.000	2.219	1.995	1.989	1.908	2.291	3.475	1.493	1.785	0.625	N.A.

SOURCES: United Nations, "International Trade Statistics Yearbook", vol I
United Nations, "National Accounts Statistics: Analysis of Main Aggregates", vol II.
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