DEPARTAMENTO DE ECONOMIA
PUC-Rio

TRADE POLICY, TRADE PERFORMANCE AND ESTRUCTURAL CHANGE IN FOUR LATIN AMERICAN COUNTRIES, 1970-1985*

Winston Fritsch
Gustavo H.B. Franco

DEPARTAMENTO DE ECONOMIA
PUC-Rio
FEVEREIRO DE 1991

TRADE POLICY, TRADE PERFORMANCE AND ESTRUCTURAL CHANGE IN FOUR LATIN AMERICAN COUNTRIES, 1970-1985*

Winston Fritsch
Gustavo H.B. Franco

Revised Draft

* A Report Prepared for UNCTAD.

CONTENTS

Acknowledgements

The authors would like to thank Manuel Agosín for comments made on an ealier draft of this study and Sam Laird for providing the compatible trade and production data used to construct the indices presented in Section 3 from the World Bank database. They are also grateful to Roberto Chica, Ricardo Ffrench-Davis, Astrid Martinez Ortiz, Oscar Munoz, José Antonio Ocampo and Austreberto Sanchez Lopez who helped with information relating to some of the countries studied. Eliane Lustosa and Eduardo Pimentel Serra are also to be especially thanked for their extremely dedicated research assistance.

1. Introductory

The use of trade policy as a tool for development strategies and, more frequently, as a defensive and discretionary wedge between developments in the international economy and domestic economic growth has been traditional in Latin America since the 1930s. However, since the late 1960s, and more so during the 1970s, an increasing awareness of the importance of exploring the possibilities open by a fast expanding volume of world trade in manufactures made for important changes in the trade regimes of the semi-industrialized economies in the region[1]. National experiences, of course varied, ranging from a few orthodox experiments of fully fledged "tariffication" cum liberalization to more controlled policies based on direct export incentives and a selective elimination of the more glaring distortions of the structure of protection on domestic producers' static efficiency.

The notion that adjustment has to be made through more, not less, trade involvement and a greater integration of the region into the world industrial economy survived the sudden external shocks of the early 1980s. Although the initial response to the world trade recession and the debt crisis of the early 1980s was naturally defensive, the sustained recovery of world

---

[1] For an enlightening review of the political economy of such changes, see C. Díaz-Alejandro (1975).

trade in manufactures after 1982 and the need to avoid a potentially binding foreign exchange constraint gave a renewed impetus to more outward oriented policies. Thus, the design of trade and exchange rate policies from the 1970s to the mid-1980s has witnessed a number of interesting experiences. This study reviews these experiences in a sample of semi-industrialized economies of Latin America - Brazil, Chile, Colombia and Mexico - and, as far as it may be, relates them to recent trade performance as well as to structural changes taking place in those countries.

The study begins, in Section 2, with a description of the evolution of the trade regimes in the four sample countries through the 1970s and 1980s and their relation with the rapidly changing international environment. In Section 3, the study discusses the trends in trade performance and tradeability in these four national economies, highlighting changes in competitiveness, the direction and product composition of trade, and in comparative advantage among different groups of products. In the light of this empirical evidence, Section 4 addresses the issues concerning the relation between trade policy, trade performance and structural change. Finally, the main findings are summarized in Section 5.

The evidence presented in the study tends to underline two facts. First, that trade regimes certainly do influence trade patterns and that exchange rate policy has an overwhelming importance in shaping trade performance in these countries.

However, the impact of other policies - especially industrial promotion - as well as of exogenous developments cannot be minimised. Second, that structural change as usually measured by changes in the sectoral composition of industrial value added is extremely influenced by macroeconomic shocks usually bearing no relation to trade policy and also by long run trends shaping the process of integration of domestic manufacturing activities into an increasingly internationalized world industrial economy.

2. Changes in the trade regimes during the 1980s

Although precise definitions of the trade regime - here defined as including the exchange rate regime - are difficult to establish[2], most observers agree that its post-war trends in the semi-industrialized economies of Latin America reveal at least three distinctive features. 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.

The Chilean case apart - where a drastic liberalization experiment was carried out during the second half of the 1970s - 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

---

[2] For an enlightening discussion see G. K. Helleiner (1988).

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 has led to novel developments in the debate on trade liberalization and export promotion in Latin America, to be discussed in more detail in the context of the relation between trade policy and performance and structural change in manufacturing in section 3 below.

The strenght of the drive towards import liberalization as well as the emphasis on export promotion as part of the response to the crisis in the four countries under study in this report revealed a number of common features but also some interesting contrasts related to different policy choices and the timing of these choices. What follows is a brief summary of the evolution of the trade regime in each country during the 1970s and its main changes in the 1980s.

2.1. Brazil

The key instruments of the very active Brazilian trade policy have not changed much during the 1970s and 1980s. High tariffs, but with a large number of exemptions allowed by a heavy reliance on ad-hoc QRs, as well as export promotion schemes have been present over the years. In addition, there has been a strict connection between the height of trade barriers 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 exchange rate appreciation as usually observed in other countries' experiences. The only significant overvaluation episode ocurred in 1981, during a failed attempt to break inflationary expectations through fixing the nominal exchange rate, and was quickly reversed as the payments crisis of the early eighties prompted a series of devaluations.

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 suspend discretionarily the issuance of imports licenses for all imports - except those under draw-back arrangements and LAIA agreements, imports for the Manaus Free Zone and government purchases[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 coverage of non-tariff barriers. 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 quantitative restrictions, 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

---

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 H.C. Moreira & A.B. Araújo (1984, p. 38).

recently been relaxed. 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.

Regarding tariffs, the distinguishing features of the Brazilian system are the high "legal" rates of effective protection and the importance of "special regimes" and exemptions. According to this system, although imports are subject to very high tariffs,importers invariably apply for tariff exemptions or reductions and most of the applications are effectively granted. As a result, a large difference appears between the legal tariff rates and the ones effectively practiced, i.e., the "true" or de facto levels. This can be seen in Table 1 showing figures for legal and true sectoral rates of effective protection for 1976 and 1984. Indeed, the very low levels of true effective protection practiced in 1984 by no means 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, and that protection in Brazil is mostly undertaken through administered quantitative restrictions. 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.[6]

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

Sector	legal		true	
	1976	1984	1976	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 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

---

[6] 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.

incentives is the fact that they should offset the cost pressures derived from the structure of protection, and the structures of protection. Indeed, it has been shown recently that the structures of protection and incentives to exports are significantly correlated[7].

Interestingly, the absolute value of the mix of these 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[8]. 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[9].

Since then, in Brazil as in some of the other countries studied in this report, the programmes of import-to-export have become increasingly important. This is especially true of the BEFIEX programme, through which firms sign multi-year agreements

---

7 R. Baumann (1985, pp. 66-67).

8 R. Baumann & H. C. Moreira (1987, p. 484).

9 Idem.

establishing commitments as regards export performance in exchange for gaining access to imported intermediate inputs and capital goods at international prices, thus circumventing otherwise insurmountable obstacles imposed by "similarity" examinations and prohibitive tariffs. Between 1980 and 1984, 23.2% of the Brazilian manufactured exports were made by firms in the BEFIEX programme. 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[10].

2.2. Chile

In the mid-1960s, Chile was one of the first semi-industrialised economies of Latin America to embark on active promotion of non-traditional exports and to adopt measures aimed at eliminating the most glaring distortions created by previous import substitution policies. However, the hallmark of the Chilean recent experience in trade policy is undoubtedly the radical import liberalization strategy followed between the end of 1973 and mid-1979, which has only been temporarily reversed since 1982. Although initially set as a moderate reform, aimed at eliminating discretionary quantitative restrictions and other non-tariff impediments, and reducing maximum tariff rates from over 200% to 60% over a period of three years, it ended up in 1979 as a drastic overhaul of the structure of protection which has been correctly classified as an "effective liberalization of imports to a degree

---

10 R. Baumann & H. C. Moreira (1986).

unprecedented in modern economic history, either in Chile or in any other semi-industrialized economy"[11].

The reform was carried out in two steps. During its initial period, starting at the onset of the military government, and lasting until August 1977, non-tariff restrictions were eliminated and practically all tariffs reached the 10% to 35% range with a 20% average. However, three months later the government announced a further policy change, targeting an uniform rate of 10% for all imports, which was effectively implemented by mid-1979. It is also important to note that, although the reform was announced as compatible with continued membership of the Andean Pact integration scheme, Chile abandoned it in 1976.

The time pattern of the tariff reductions, which cut the rates of effective protection from 151.4% (with a standard deviation of 60.4%) to 13.6% (with a standard deviation of 1.7%), are shown in Table 2[12]. It can be seen that, in a span of a little more than five years, the Chilean liberalization strategy replaced a structure of protection showing maximum tariff rates of 220%, import deposits with a rate of 10,000% charged on over half ot the country's actual imports and outright import prohibitions, by a flat tariff rate of 10%, which is unusually low even in relation to tariff peaks in developed countries.

---

11 R. Ffrench-Davis (1984, p 51).

12 S. Edwards & A. C. Edwards (1987, pp. 112-114).

Table 2
Tariff liberalization in Chile: 1973-1979 (% rates on CIF values)

Date	Maximum tariff	Modal tariff	Average tariff
12 Dec. 1973	220	90	94
03 Mar. 1974	200	80	90
27 Mar. 1974	160	70	80
05 May 1974	140	60	67
16 Jan. 1975	120	55	52
13 Aug. 1975	90	40	44
09 Fev. 1976	80	35	38
07 Jun. 1976	65	30	33
23 Dec. 1976	65	20	27
08 Jan. 1977	55	20	24
02 May 1977	45	20	22
29 Aug. 1977	35	20	20
03 Dec. 1977	25	15	16
Jun. 1978	20	10	14
Jun. 1979	10	10	10

Note: Dates are those in which legislation altering custom tariif rates was passed between December 1973 and December 1977, when the authorities issued a decree establishing monthly adjustments until June 1979. Tariff rates do not include tariff exemptions applying to free zones and imported inputs for export activities.
Source: R. Ffrench-Davis (1984, Table 2.1, p. 54)

However, to assess the strains experienced during these years by producers of import substitutes, changes in trade policy tell only part of the story, as real exchange rates underwent major appreciations during crucial phases of the trade liberalization experiment[13]. Up to April 1975, little pressure was felt as there was excess protection to be eliminated and the exchange rate depreciated markedly, more than compensating for the

13 For an enlightening analysis of this aspect of the Chilean liberalization experiment, see R. Ffrench-Davis (1984).

tariff cuts as shown in Table 3. From mid-1975 to mid-1977, however, the situation changed since not only the fall in nominal tariffs was accelerated but also as the exchange rate was progressively revalued. Thus, a reduction of 30 percentage points in the average tariff rate meant a 50% fall in the average cost of dollar imports during this period. The pressure on domestic producers was relieved since mid-1977 when a real dollar depreciation roughly compensated the effect of the final round of tariff cuts over the whole period, although with non negligible fluctuations in the cost of dollar imports within it. The end of the tariff cuts by 1979 would not mean the end of adjustment pressures, as the fixing of the nominal exchange rate as part of a new macroeconomic policy package failed to bring domestic inflation rates in line with world rates, leading again to a sharp real appreciation during the three years in which the monetarist experiment lasted.

Table 3
Cost of dollar imports in Chile: 1973-1982 (1977 pesos per 1977 dollars)

Phase	Date	Percentage exchange rate* change	Average nominal tariff	Average total exchange rate**
	October 73		94%	39.50
I		67.5%		
	April 75		52%	51.85
II		-39.2		
	July 77		22%	25.30
III		12.7		
	June 79		10%	25.71
IV		-39.9		
	June 82		10%	17.25

* Nominal exchange rate deflated by the CPI.
** Obtained by multiplying the exchange rate in each date (not shown in the table) by one plus the average nominal tariff in that date.
Source: R. Ffrench-Davis (1984, Table 2.2, p 56).

Since the debt crisis, there was a marked reversal in exchange rate policies as part of the external adjustment effort. Following a sharp devaluation in 1982 which brought the real rate to levels of the beginning of the liberalization programme, the exchange rate has been steadily devalued. The external shock also caused import protection to rise for the first time since 1973. Tariff surcharges were imposed, bringing the average rate to 35% and "excessive" import penetration was increasingly fought with ample use of countervailing duty actions, mostly aimed at other Latin American suppliers. This protectionist movement peaked in 1984 and since then the uniform tariff rate has again declined to 15%[14].

---

14 J. Nogues & S. Laird (1988, p 4).

2.3. Colombia

In Colombia, it has been observed that up to shortly before the 1982 crisis the country enjoyed its most liberal trade regime of the post-war period[15]. This was the climax of a liberalization trend initiated in the late sixties which suffered no major set-backs throughout these years. Indeed, as shown in Table 4, there was an impressive liberalization trend during 1971-82, when tariff rates were cut by half and QRs have had their coverage sharply reduced.

Table 4
Colombia: indicators of import repression, 1971-1987

Year	Average nominal tariff (%)	Imports under free licensing*	Imports forbiden*	Licenses denied**
1971	51.9	3.4	16.2	-
1978	30.5	52.8	-	1.9
1982	25.9	70.8	-	7.5
1984	41.7	0.5	16.5	30.1
1987	52.0***	37.8	1.1	34.8
1989	30.0	38.7	1.1	3.8

* Percentage of items of the tariff schedule.
** Licenses approved as a percentage of requests.
*** Data refer to 1985.
Sources: J. A. Ocampo (1986, tables 1-6); R. C. López & L. A. T. Castro (1987, p. 49) and L. Villar (1989, tables II.4, II.5 and II.6).

It is interesting to observe, however, that import liberalization was not in fact an explicit policy objective of the

---

15 J. A. Ocampo (1988, p. 2) and A. Martinez Ortiz (1986, pp. 112-114).

three successive administrations that pursued it[16]. That reinforces the impression that the liberalization was mostly a consequence of the comfortable balance of payments position enjoyed by Colombia during these years, as indeed hinted by many authors[17]. It is suggestive that a major feature of this liberalization episode was that the ranking of sectors according to the levels of effective protection was not significantly altered up to 1981[18].

An equally impressive reversal of the liberalization trend is observed in 1982-84, when levels of trade repression comparable with those of the late 1960s were enforced. Tariffs were rapidly increased and the free licensing system practically disappeared, as seen in Table 4. Simultaneously the government recreated an import rationing mechanism through which a given quota of foreign exchange was placed at the disposition of INCOMEX, the trade regulation authority, which would examine importers' requests. Aproximately a third of all requests, mostly from the private sector - as government imports were granted preference - was blocked, as shown in Table 4.

An interesting feature of this recent period of acute import repression was the growing importance of "special regimes"

---

16 J. A. Ocampo (1986, p. 6).

17 See for example J. A. Ocampo (1986); A. Martinez Ortiz (1986) and R. C. López & L. A. T. Castro (1987).

18 A. Martinez Ortiz (1986, p. 112).

for imports. As in the case of Brazil discussed above, the existence of such special regimes introduce significant differences between the levels of effective protection as measured from existing tariffs and those effectively practiced. While the differences between the two were insignificant in 1979 (an average level of 43%), in 1984 "legal" effective protection was 71.4% or nearly twice as much as the effectively practiced level of 36.2%. In 1985 this difference would be reduced to 52% and 37% respectively, and stayed at around this level. These exceptions were mostly connected to government imports, food imports, and to those under the Plan Vallejo, i. e. imports to be used as inputs for exports whose importance has been substantially increased in recent years. In 1988, no less than 62% of Colombian non-traditional exports have been made under the Plan Vallejo[19]. As in other countries, the need of access to imported inputs at competitive prices for manufacturing for export represents a powerful inducement to lower existing protection rates. Tariff rebates were also granted to imports from LAIA countries and more generally to imports to "infant industries"[20].

As in the case of Brazil, Colombia has a successful record in terms of exchange rate management, having avoided large and protracted real rate swings during the 1970s and 1980s. Late in 1984 new measures on the macroeconomic front signalled a major

---

19 L. Villar (1989, table II-10).

20 See R. C. López & L. A. T. Castro (1987, passim).

change in the orientation of Colombian external adjustment towards a heavier emphasis on demand management and on a real devaluation of the currency. Indeed, the peso was significantly further devalued in real terms - from levels of 115 in 1982 (1980=100) and 104 in 1984, to 91 in 1985 and 63 in 1986[21] - and the domestic activity level experienced a slow down. On the other hand, following pressures from the World Bank, the government accepted to undertake a gradual liberalization effort, mostly through draw-back mechanisms and on inputs for non-traditional exports, but also affecting more generally QRs and tariffs[22]. The net effect of these measures in import penetration ratios, however, is as yet hardly perceived[23].

---

21 S. Laird & J. Nogues (1988, p. 9).

22 Idem, p.12.

23 J. A. Ocampo (1988, p. 13)

2.4. Mexico

The connection between the state of the balance of payments, the value of exchange rate and the evolution of trade policies during the 1970s and 1980s is crucial in the Mexican case. As a result of the oil discoveries at the time of the price boom and the sharp increase in foreign bank lending, the Mexican economy experienced prolongued periods of exchange rate overvaluation from the mid-1970s. In fact, except for 1976-77, when a number of devaluations were enforced, the whole period up to 1982 witnessed an overvalued exchange rate which had effects similar to what is commonly referred to as a "Dutch Disease" phenomena, as it will be discussed in detail in Section 4.

Overvaluation was the major cause of the failure of liberalization attempts in manufacturing before the debt shock. This was especially true of the attempts made in 1976-77, when the combination of devaluations and oil discoveries improved the prospects of the external sector very significantly, and some liberalizing measures could indeed be entertained[24]. However, overvaluation would develop and the liberalization tendency would fail to be established. As shown in Table 5, although the coverage of QRs (mostly administered prior permits) was reduced to a significant extent in terms of tariff items, the opposite result obtained when the percentage is computed in relation to import

---

[24] B. Balassa (1983, p. 804).

values. As a result, effective rates of protection remained high over the 1970s: for capital goods and consumer durables it was 77% in 1970 and 128% in 1980 and for intermediates it was 17% and 43% respectively.[25]

Table 5
Mexico: Indicators of import repression, 1970-1986 (in %)

year	Average nominal tariff	Trade weighted nominal tariff	Controlled tariff items as % of total	Controlled imports as % of import value
1970	n.a.	n.a.	65	59
1978	n.a.	n.a.	43	63
1981	26.8	18.3	26	73
1983	23.8	8.2	100	100
1984	23.3	8.6	65	61
1986	22.6	13.1	8	35
1987	9.0	6.7	6	16

Sources: N. Bucay & E. Perez Mota (1986, table 13); F. de Mateo (1986, p. 17) and N. Lustig (1989, table 7).

With the deterioration of the country's payments position after 1981, Mexican trade policy passed through two distinct phases. During the first, which correspond to the reaction to the abrupt external shock lasting up to 1983, trade controls were reinforced and the real exchange rate depreciated sharply from a level of 114 in 1981 (1980=100) to 72 in 1983 as can be seen in tables 6 and 7 below. Since then, to the policy of undervalued exchange rates was added a clear compromise with import

---

25 N. Bucay & E. Perez Mota (1986, table 11).

liberalization and very active export promotion policies. As regards import protection, QRs coverage was sharply reduced in 1985, as shown in Table 6, and underlying the new commitment to a more outward oriented trade regime following her accession to the GATT, effected in August 1986, Mexico signed protocols to reduce the use non-tariff barriers of various sorts, to impose ceilings of import duties in many products (no higher than 50%) and, by end-1987, had cut the maximum de facto tariff rate to 20%[26].

Equally impressive has been the extension of export promotion policies. Like most other Latin American countries Mexico established a variety of export promotion schemes from the early 1970s[27], whose operational characteristics were not significantly altered up to the early eighties. Their effectiveness, on the other hand, was substantially reduced by the very high rates of effective protection and by the consistently present overvaluation of the currency. An important indication of the extent to which effective protection acted upon exports is provided by exports performance of the maquiladora industry which, created in the late 1960s, claimed 17% of Mexican manufactured exports and 11% of industrial employment in 1985[28]. In recent years, however, Mexico implemented a series of powerful export promotion incentives related basically to imports used in

---

26 S. Laird & J. Nogues (1988, p 7).

27 For a review see B. Balassa (1983).

28 N. Bucay & E. Perez Mota (1986, p. 7).

exports. The main instrument among these incentives was the DIMEX plan which stipulated that a fraction of the value of a given firm's exports could be freely imported. A variety of draw-back and import-to-export benefits were implemented within specific sectoral programs with far-reaching effects on the economy's export propensity. An interesting innovation was the introduction of the "Domestic Letter of Credit" in 1985, through which domestic suppliers of exporters - the so-called "indirect exporters" - could have access to subsidised credit and, more importantly, imports of inputs at international prices through a newly created programme (PITEX)[29]. It was estimated, for instance, that the anti-export bias - the percentage difference between value added at domestic prices and at prices faced by exporters - has been reduced from an average of 41% in 1980-81 to minus 30% in 1985[30].

---

29 According to a survey of exporters' opinion, the PITEX was considered the single most important export promotion instrument in place. V. Urquidi et al. (1987).

30 F. de Mateo (1986, p. 19).

3. Changes in trade patterns and performance in the 1980s.

This section describes the trade performance of the four sample countries from 1970 to 1985 - the latest year for which compatible trade and production data were available for all countries - with the aim of identifying long term changes in tradeability, geographical and commodity patterns of trade, competitiveness and comparative advantage ocurring during this period, and the changes provoked by the recent adjustments to the debt crisis.

Sub-section 3.1 describes the evolution of tradeability as measured by export and import propensities at different levels of aggregation. In sub-section 3.2, the patterns of regional and product diversification of exports and imports of the four countries are discussed, with a closer look at the behaviour of trade in manufactures. In sub-sections 3.3 and 3.4, two different measures are used to highlight different aspects of the evolution of trade performance in each of the four sample countries, also with special emphasis on manufactured trade. First, a "competitiveness" indicator is used. This is a trade cum production index assessing a given industry's outward orientation in both exports and imports, controlling for the size of the domestic market in each industry. Second, a comparative advantage indicator is presented, showing the extent to which different industries within a country performed with respect to each other - thus shaping the pattern of international specialization in each

country - also controlling for country size[31]. Finally, the conclusions of this section are summarized.

3.1. Changes in tradeability

The progressive but substantial changes affecting the trade regimes of the four countries during the 1970s, together with exogenous influences to be considered in Section 4.3, had an important effect on their patterns of trade. However, the pace of change accelerated in more recent years, especially in the heavily indebted countries (Brazil, Chile and Mexico), when the dramatic adjustment effort required by the sudden drop in foreign financial flows to Latin America since 1982 forced sharp swings in their export and import propensities. A striking illustration of this recent change is provided by Table 6, which shows the increase in net exports as a proportion of GDP, reflecting recent changes in trade regime, as decribed above, and a generalized fall in activity levels since the early 1980s. The figures also illustrate the difference in the adjustment effort - and, thus, in changing tradeability - between relatively debt-free Colombia and the other three large debtors.

---

31 Both indicators follow the methodology developed in G. Lafay (1988) and G. Lafay & C. Herzog (1989), and presented in some detail below.

Table 6
Trade balance as proportion of GDP: 1970, 1980 and 1985 (in %)

	1970	1980	1985	Memo items (1980, US$ mill.) GDP	Trade Balance
Brazil	- 0.2	- 0.3	5.0	239766	- 797
Chile	3.8	- 1.6	6.7	27571	- 453
Colombia	- 1.5	- 2.1	- 1.7	33395	- 717
Mexico	- 3.5	- 2.2	5.3	186331	- 4123
Four countries	- 1.2	- 1.2	5.1	--	--

Sources: See tables 10-13.

These recent changes must be seen, however, as reinforcing longer term changes in tradeability taking place with varying intensity in all the four countries under study 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. Moreover, it is important to note that these longer term changes in tradeability reflect adjustments in both export and import propensities. Regarding exports, one may safely speak of a longer term trend towards a more pronounced outward orientation in all the four countries covering. In all the four countries, for the whole 1970-85 period, exports in constant (1986) dollar prices grew faster than GDP. However, export performance varied over time, with volumes growing faster during the 1970s for all the sample countries. Nevertheless, with the marked slowdown in output growth in the 1980s, the group's export propensity went on rising in the present decade: the aggregate export to GDP ratio for the four countries rose from 8.6% in 1970, to 10.1% in 1980 to 13.1 in 1985.

There were also marked variations in export performance across countries, and over time for a given country. As shown in Table 7, Colombia has a less impressive performance than the other three throughout the 1970-85 period, while Chile experiences a sharp slowdown in the 1980s. Only Brazil and Mexico show a consistent high growth rate of exports over the whole period.

Table 7
Quantum indices of trade and output for the four sample countries at 1986 prices: 1980 and 1985 (1970=100)

	Brazil		Chile		Colombia		Mexico	
	1980	1985	1980	1985	1980	1985	1980	1985
Exports	258	389	265	290	183	197	223	323
Imports	225	126	162	105	189	175	280	164
GDP	230	250	128	126	171	190	189	205

Source: IDB (1987, pp. 440, 442).

Table 7 also suggests that there was a substantial adjustment in import propensities over the whole 1970-85 period. Differences between the 1970s and 1980s are, however, extremely marked as regards the behaviour of imports. After growing at relatively high rates during the 1970s, the volume of imports experienced sharp decreases in all the sample countries during the present decade, as the larger part of the initial adjustment to the post 1982 payments strain was bore by imports.

A richer picture of the extent of the growth of export propensities and of import substitution - measured by imports as a

proportion of apparent consumption - in each of the four countries between 1970 and 1985, both for aggregate trade flows as well as for trade in manufactures at a sectorially disaggregated (ISIC 3-digit) level, is presented in Tables 8 to 11. Note that these 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.

In spite of the fact that these ratios are computed from data in current prices and can thus be distorted by variations in the terms of trade, the observation of the long term changes in export propensities of the four countries clearly reveal a marked upward shift for the heavily indebted countries (Brazil, Mexico and Chile) in the eighties, led by manufactured exports, which is not replicated in the Colombian case. Although the share of imports in total demand exhibits, as expected, a falling trend in the eighties for the four countries, there is still a wide gap between its level for individual countries, reflecting the differences in trade regimes during the 1970s. While Brazil, which followed a conscious import substitution policy concentrated in some intermediate and capital goods, reduced its import to apparent consumption ratio in manufactures to around 4% in the mid-eighties, import liberalization in Chile brought the same

TABLE 8

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	12.86	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.

TABLE 9

COLOMBIA

Indicators of Tradeability

	1970	1975	1980	1981	1982	1983	1984	1985
Exports to Output Ratio (%)								
Total Trade	10.17	11.19	11.81	8.12	8.07	7.95	9.12	10.39
Manufactures	4.28	9.03	7.10	6.34	5.86	6.39	6.32	7.08
Light Manufactures	3.18	8.89	7.35	6.50	4.26	3.62	3.26	4.07
Food Group	2.74	7.84	5.84	4.37	3.02	3.08	2.67	3.13
Textiles	3.49	11.11	10.56	11.51	7.15	5.12	4.83	6.33
Heavy Industry	6.59	9.91	6.42	5.35	7.46	10.02	10.50	11.19
Paper	1.93	3.93	7.52	8.61	6.43	5.05	5.74	6.45
Chemicals	10.49	13.73	5.78	3.65	8.08	13.52	14.05	14.55
Non Metallic Mins.	5.95	9.87	9.99	9.29	7.31	3.89	3.93	5.04
Metallurgy	1.61	4.58	5.19	5.64	6.41	7.18	7.52	7.77
High Tech	2.50	6.82	6.50	9.34	7.20	5.13	3.38	4.59
Machinery	2.35	7.62	1.78	7.19	6.78	3.30	2.51	4.09
Transport Equip.	0.57	2.23	3.28	3.95	2.21	1.71	0.93	1.21
Imports to Apparent Consumption Ratio (%)								
Total Trade	11.48	11.39	13.67	13.46	13.45	12.23	11.53	11.91
Manufactures	19.85	18.38	20.74	21.84	21.61	19.30	17.77	17.73
Light Manufactures	2.50	2.76	4.60	5.56	4.59	3.55	3.41	2.74
Food Group	2.86	2.87	5.10	6.09	5.12	3.76	3.79	2.90
Textiles	1.83	2.57	3.47	3.95	2.97	2.42	2.13	2.25
Heavy Industry	23.02	23.02	23.11	23.02	23.62	20.36	19.88	23.44
Paper	20.75	18.18	16.20	17.07	14.63	13.37	12.79	13.89
Chemicals	24.88	26.09	25.78	24.49	25.88	22.89	22.77	26.09
Non Metallic Mins.	5.09	4.71	6.33	6.48	4.98	4.49	3.80	3.79
Metallurgy	28.72	26.75	27.78	31.02	34.39	28.01	26.23	32.84
High Tech	55.55	47.79	50.81	54.57	54.91	55.38	47.53	43.88
Machinery	58.21	56.49	57.46	62.48	62.77	60.57	57.90	51.03
Transport Equip.	55.23	40.72	43.01	44.97	45.54	48.67	35.39	36.92

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 10

MEXICO

Indicators of Tradeability

	1970	1975	1980	1981	1982	1983	1984
Exports to Output Ratio (%)							
Total Trade	3.39	3.40	8.22	8.09	12.27	15.63	14.04
Manufactures	3.57	2.89	3.44	2.99	4.08	11.38	11.41
Light Manufactures	3.28	2.49	2.54	1.78	2.62	4.38	4.41
Food Group	4.28	3.11	3.30	2.20	3.33	4.30	4.18
Textiles	1.53	1.67	1.44	1.16	1.44	4.13	4.73
Heavy Industry	3.44	2.98	4.04	3.98	4.70	10.23	11.48
Paper	1.91	1.11	1.08	0.89	1.21	2.27	1.45
Chemicals	4.79	4.06	7.32	7.61	7.42	13.75	17.71
Non Metallic Mins.	1.98	2.80	2.53	1.88	3.41	7.61	8.36
Metallurgy	2.77	1.99	1.52	1.33	2.51	7.79	6.61
High Tech	5.00	4.13	4.34	3.76	6.28	34.37	30.05
Machinery	5.85	3.89	3.21	3.00	4.73	45.37	45.15
Transport Equip.	3.06	3.79	4.94	3.87	7.18	20.98	15.58
Imports to Apparent Consumption Ratio (%)							
Total Trade	6.69	7.18	10.20	9.90	8.76	6.63	7.10
Manufactures	10.49	9.97	16.09	16.30	15.80	13.27	14.20
Light Manufactures	1.79	1.15	4.35	3.73	3.65	3.04	3.09
Food Group	1.66	1.27	5.58	4.40	4.23	3.68	3.38
Textiles	1.96	0.82	2.45	2.80	2.91	1.96	2.61
Heavy Industry	9.74	11.15	15.57	14.82	14.38	11.58	12.44
Paper	6.49	3.22	6.83	5.39	5.51	4.59	4.52
Chemicals	13.35	14.43	17.66	16.77	17.55	14.77	16.04
Non Metallic Mins.	2.89	3.25	4.53	4.12	4.15	2.42	3.25
Metallurgy	6.78	10.64	18.77	19.12	16.24	10.64	11.69
High Tech	33.72	30.51	35.59	36.47	37.44	42.47	42.35
Machinery	37.65	32.12	40.16	42.38	44.36	54.00	59.25
Transport Equip.	25.83	26.76	28.04	27.45	26.13	27.69	22.54

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 11

CHILE

Indicators of Tradeability

	1970	1975	1980	1981	1982	1983	1984	1985
Exports to Output Ratio (%)								
Total Trade	15.29	37.22	16.94	11.82	22.17	19.41	19.06	23.94
Manufactures	3.95	9.13	10.94	8.02	16.00	17.62	13.63	13.39
Light Manufactures	3.03	8.64	11.51	8.56	11.05	13.96	12.43	13.75
Food Group	4.01	9.38	12.22	9.45	12.04	15.66	13.86	15.99
Textiles	0.04	1.87	0.96	0.64	0.62	0.29	0.41	0.77
Heavy Industry	5.45	10.53	10.48	7.18	15.93	15.10	9.53	8.90
Paper	16.37	38.07	26.77	20.97	28.76	28.68	28.55	29.69
Chemicals	3.68	5.58	8.14	4.75	16.19	14.19	4.89	4.60
Non Metallic Mins.	0.45	2.93	1.87	0.55	1.07	0.71	0.45	0.66
Metallurgy	2.52	9.17	4.43	2.83	6.54	8.04	5.52	5.35
High Tech	2.74	3.06	9.43	9.82	13.97	12.73	23.16	23.94
Machinery	1.19	3.53	5.08	3.40	7.88	5.26	6.05	3.99
Transport Equip.	3.25	1.98	12.59	16.04	19.64	34.21	32.25	37.99
Imports to Apparent Consumption Ratio (%)								
Total Trade	11.97	33.82	18.28	17.92	21.32	14.75	17.04	18.39
Manufactures	21.33	21.25	26.01	29.58	24.94	22.43	23.13	21.90
Light Manufactures	6.66	9.42	14.31	15.84	11.60	11.02	10.39	7.48
Food Group	7.98	11.25	13.12	10.70	7.97	9.44	7.95	5.30
Textiles	4.97	4.98	19.44	30.41	25.71	18.70	20.35	16.27
Heavy Industry	19.63	15.30	17.30	19.86	20.75	19.36	19.61	17.52
Paper	12.18	11.35	11.35	11.74	11.46	11.26	10.21	10.32
Chemicals	24.70	14.38	18.84	21.75	24.62	22.76	22.05	19.01
Non Metallic Mins.	10.94	12.23	14.73	17.47	16.07	11.82	12.58	11.18
Metallurgy	18.77	20.12	17.58	21.04	17.03	16.05	20.36	19.98
High Tech	46.68	54.40	66.15	72.38	72.89	69.95	74.22	76.28
Machinery	51.11	54.36	67.15	70.06	71.70	66.78	72.17	74.80
Transport Equip.	38.59	52.51	62.32	72.99	69.47	74.03	67.32	70.89

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.

ratio to a level five times as high as that, even after the considerable import adjustment undertaken since the beginning of the present decade.

Country by country analysis highlight important peculiarities of the evolution of tradeability in each particular country. In the case of Brazil 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 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 8, 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.

The Chilean case shows a clearly rising trend in export propensities since the first half of the 1970s, driven by the rapid growth in the large food and paper groups - although the share of exports in total output of the capital goods sectors also rose steadily, a trend which was strongly reinforced in the case of transport equipment in the 1980s. In relation to the behaviour

of the import-consumption ratio, the most striking development is he rapid rise in manufactured goods, led by light consumer manufactures, during the period of high peso appreciation in the second half of the 1970s and lasting to 1981, but which has since then been reversed. Still in relation to the import ratio, an interesting and distinctive feature of the Chilean case is its continuous rise and current high level in the capital goods sectors, including transport equipment.

In Colombia, very little change in aggregate export propensities can be observed either during the 1970s or in recent years. Even at a more disaggregated level marked trends are hardly visible, but for a fall in light manufactures since the mid-1970s. The same is true of aggregate import ratios. However, at a more disaggregated level, one can note a slightly declining trend in intermediate and capital goods industries which seems to have accelerated in recent years.

Mexico also presents a stable and small export coefficient of around 4% throughout the 1970s followed, however, by a remarkable rebound after the debt shock to around three times as much by the mid-1980s, with growth concentrated in non-traditional sectors and particularly in capital goods. As in the Chilean case, import ratios grew substantially in the years of oil and foreign credit <u>bonanza</u> before the debt crisis, a trend which have by now been reversed.

3.2. Changes in the geographical and commodity patterns of trade

The picture of the growth of trade and outwardness in our sample countries presented above should be complemented by an analysis of their changing geographical and commodity patterns of exports.

The analysis of changes in the direction of exports seems to indicate the determining influence of global macroeconomic fluctuations affecting relative levels of activity growth in main trade partners since the early 1970s, as well as the post-1980 sharp dollar appreciation against other key-currencies in shaping the trend variations observed in Tables 12 and 13. Indeed, in spite of the wide swings in the terms of trade between primary and manufactured products witnessed during the 1970s and 1980s, the data show little difference between changes in the direction of total exports vis à vis manufactured exports. The more striking change between 1980 and 1985 is a sharp reversal of the secular fall in the share of the American market for all countries, reflecting the rapid post-1983 US recovery and dollar appreciation.

There is little sistematic change in the small share of the centrally planned economies, the bulk of the increase in the rise of the US share being explained by a fall in the relative importance of the other market economies. Reflecting the relatively slower growth of developing countries within the latter

TABLE 12

Direction of total exports : 1970-85 (% of total in each year)

Destination	MEXICO				BRAZIL				CHILE				COLOMBIA			
	1970	1975	1980	1985	1970	1975	1980	1985	1970	1975	1980	1985	1970	1975	1980	1985
USA	70.25%	61.63%	65.80%	58.09%	24.68%	15.42%	17.37%	27.13%	14.20%	8.34%	9.81%	21.27%	36.43%	31.96%	27.09%	32.81%
Rest of OECD	18.32%	20.43%	12.97%	28.89%	53.84%	47.52%	38.59%	37.32%	72.80%	61.34%	51.26%	48.94%	43.34%	43.36%	44.90%	46.21%
Centrally Plan. Econ.	0.31%	1.45%	0.92%	0.94%	4.56%	9.57%	7.45%	7.74%	0.15%	1.26%	2.71%	4.57%	4.88%	2.28%	3.77%	2.51%
Other Latin American	10.49%	15.11%	6.61%	6.79%	11.74%	15.79%	14.84%	9.27%	11.31%	23.76%	24.24%	14.41%	14.08%	21.88%	17.71%	14.19%
Rest of the World	0.63%	1.38%	13.53%	5.30%	5.18%	11.69%	21.76%	18.54%	1.26%	5.29%	11.98%	10.80%	1.26%	0.52%	6.53%	4.28%
WORLD	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Source: Handbook of international trade statistics.several issues.Data for Brazil in 1985 from CACEX.Data for Mexico in 1985 refer 1984.

TABLE 13

Direction of manufactured exports (% of total in each year)

Destination	MEXICO				BRAZIL				CHILE				COLOMBIA			
	1970	1975	1980	1985	1970	1975	1980	1985	1970	1975	1980	1985	1970	1975	1980	1985
USA	69.88%	57.37%	61.73%	69.36%	28.69%	15.83%	18.76%	30.26%	13.79%	6.56%	9.94%	18.59%	39.55%	33.87%	26.39%	30.06%
Rest of OECD	14.53%	18.62%	23.34%	21.10%	47.85%	39.78%	36.76%	33.03%	74.03%	62.69%	53.55%	50.18%	43.17%	42.45%	50.02%	48.98%
Centrally Plan. Econ.	0.28%	2.03%	0.75%	1.28%	4.20%	8.74%	6.43%	6.79%	0.15%	1.29%	3.01%	5.77%	4.81%	1.76%	2.86%	1.73%
Other Latin American	10.07%	12.29%	4.72%	3.31%	10.99%	15.39%	14.54%	7.95%	7.98%	16.56%	11.66%	8.25%	8.56%	17.37%	14.55%	11.52%
Rest of the World	5.24%	9.69%	9.47%	4.94%	8.27%	20.34%	23.51%	21.97%	4.04%	12.90%	21.84%	17.22%	3.92%	4.55%	6.18%	7.71%
WORLD	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Note: Manufactures defined as all ISIC 3-digit categories.
Source: World Bank Database

group in the 1980s, this fall is particularly dramatic against trade partners in the South, being especially concentrated in intra-Latin American trade in the case of the three South American economies in the sample.

A glance at Table 14, showing the time pattern of the commodity composition of exports, reveals a general increase in the share of manufacturing exports between 1970 and 1985, but the time patterns and the extent of diversification vary across the sample countries. In Brazil one sees a strong and steady rise throughout the whole period. In Chile and Colombia diversification towards a higher share of manufactures in the value of total exports is concentrated in the 1970s, while the Mexican experience reflects the strong influence of oil discoveries during the period of rising prices on her patterns of specialization in the 1970s, and the recent readjustment based on strong incentives to manufactured exports.

The evolution of the commodity composition of imports, shown in Table 15, reveals a general trend of import substitution in the 1970s, if account is taken of the distortion introduced by the impact of the second oil price shock in the case of Brazil. Patterns of change in the eighties are less marked except in the case of Brazil, where there is a strong fall in the share of oil imports following changes in relative oil prices and a rapid rise in domestic off-shore production.

TABLE 14

Commodity Composition of trade:1970,1980,1985 (% share in total trade)
EXPORTS

	BRAZIL			CHILE			COLOMBIA			MEXICO		
	1970	1980	1985	1970	1980	1985	1970	1980	1985	1970	1980	1985
TOTAL TRADE	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
MANUFACTURES	14.38	38.59	46.20	4.59	9.70	7.40	8.07	20.44	19.20	32.68	14.66	18.63
NON-MANUFACTURES	85.62	61.41	53.80	95.41	90.30	92.60	91.93	79.56	80.80	67.32	85.34	81.37
Mineral Fuels	0.58	1.78	6.41	0.03	1.30	0.46	10.06	2.85	16.28	3.18	67.32	68.11
Other	85.04	59.63	47.39	95.38	89.00	92.14	81.87	76.72	64.52	64.13	18.02	13.26

Note: Manufactures defined as SITC groups 5 to 8 minus 68.Mineral fuels are SITC group 3.Data from Mexico in 1985 refer 1984.
SOURCE:"International Trade Statistics Yearbook".

TABLE 15

Commodity Composition of trade:1970,1980,1985 (% share in total trade)
IMPORTS

	BRAZIL			CHILE			COLOMBIA			MEXICO		
	1970	1980	1985	1970	1980	1985	1970	1980	1985	1970	1980	1985
TOTAL TRADE	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
MANUFACTURES	69.21	40.92	39.03	72.37	63.06	67.37	83.33	70.08	71.75	80.72	80.88	70.21
NON-MANUFACTURES	30.79	59.08	60.97	27.63	36.94	32.63	16.67	29.92	28.25	19.28	19.12	29.79
Mineral Fuels	12.35	43.00	47.40	6.20	18.44	19.28	1.04	12.20	11.74	3.16	1.50	4.34
Other	18.44	15.99	13.76	21.43	18.50	13.35	15.63	17.72	16.51	16.13	17.61	25.45

Note: Manufactures defined as SITC groups 5 to 8 minus 68.Mineral fuels are SITC group 3.Data from Mexico in 1985 refer 1984.
SOURCE:"International Trade Statistics Yearbook".

Tables 14 and 15 also illustrate the crucial importance of structural factors such as size in shaping differences in the extent of industrialization and, thus, in the relative importance of industrial and non-industrial goods in the trade patterns of the sample countries. While, in 1985, the shares of exports and imports of manufactures reach, respectively, 46.2% and 39.0% for Brazil, they stay below 20% and over 70% for Colombia and around 7% and 70% in Chile.

A look at the evolution of the commodity composition of manufactured exports seen in Table 16 provides a more detailed picture of the direction of the structural changes in the patterns of trade of the four countries. In this connection it is interesting to note that for Brazil, Colombia and Mexico a significant reduction in the importance of traditional light manufacturing, especially food products, can be observed throughout the 1970-85 period. In Brazil, during the 1970s, that takes place with significant advances in machinery and transport material, and after 1980 gains are observed especially in chemicals and iron and steel. In Mexico the more pronounced gains are in chemicals during the 1970s and machinery and transport equipment throughout the 1970-85 period, while in Colombia the gains are concentrated in the heavy, resource intensive, industries and more evenly distributed within its component sectors. On the whole these changes suggest that a significant technological upgrade appears to have taken place.

Table 16

Commodity Composition of manufactured trade:1970,1980,1985 (% share in total manf. trade)
EXPORTS

	BRAZIL			CHILE			COLOMBIA			MEXICO		
	1970	1980	1985	1970	1980	1985	1970	1980	1985	1970	1980	1985
TOTAL MANUFACTURES	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
LIGHT MANUFACTURES	84.60	58.85	46.45	35.07	45.39	44.56	41.01	50.91	27.88	46.78	32.78	16.30
Food Group	75.45	48.23	35.61	27.18	33.40	38.35	21.85	27.11	15.66	38.64	25.25	10.21
Textiles	3.62	8.20	9.30	0.17	0.84	0.44	14.87	21.47	10.08	6.66	5.85	4.70
HEAVY INDUSTRY	9.81	19.29	33.13	53.41	46.82	50.43	52.87	35.60	65.67	34.07	43.92	39.05
Paper	0.45	3.35	2.77	28.85	20.46	19.47	2.68	6.16	6.08	3.87	2.65	1.73
Chemicals	3.29	8.03	17.73	14.23	19.74	10.51	41.37	18.60	49.54	18.96	32.49	28.09
Non Metallic Mins.	0.53	1.01	0.83	0.45	0.60	0.15	6.14	6.23	3.23	2.53	3.73	3.91
Metallurgy	5.54	6.90	11.81	7.33	3.80	3.84	2.67	4.61	6.82	8.72	5.06	5.32
HIGH TECH	5.58	21.86	20.41	11.52	7.79	5.01	6.11	13.49	6.45	19.15	23.30	44.65
Machinery	3.78	9.25	7.41	2.48	2.06	0.80	2.88	4.29	2.52	11.73	8.56	26.98
Transport Equip.	0.73	10.01	10.52	6.55	4.90	1.53	0.55	2.44	0.73	5.59	13.34	16.40

Table 17

Commodity Composition of manufactured trade:1970,1980,1985 (% share in total manf. trade)
IMPORTS

	BRAZIL			CHILE			COLOMBIA			MEXICO		
	1970	1980	1985	1970	1980	1985	1970	1980	1985	1970	1980	1985
TOTAL MANUFACTURES	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
LIGHT MANUFACTURES	8.34	6.42	9.66	19.21	20.36	12.45	10.16	9.04	6.55	8.34	10.97	8.85
Food Group	4.83	5.02	6.15	12.40	12.66	6.22	8.31	6.87	5.13	4.83	8.37	5.71
Textiles	2.84	0.95	3.16	6.60	7.34	6.02	1.69	2.01	1.31	2.84	1.93	2.48
HEAVY INDUSTRY	32.45	48.68	42.11	28.79	28.61	42.17	43.85	45.59	56.38	32.45	36.07	37.71
Paper	4.58	2.48	3.13	2.05	2.50	2.93	5.02	4.28	5.03	4.58	3.40	3.81
Chemicals	19.27	37.28	32.91	18.77	18.08	28.21	28.60	30.74	36.30	19.27	16.88	23.45
Non Metallic Mins.	1.23	1.36	1.23	1.78	1.91	1.61	0.99	1.11	0.85	1.23	1.30	1.18
Metallurgy	7.36	7.56	4.85	6.13	6.11	8.76	9.24	9.46	14.00	7.36	14.49	9.27
HIGH TECH	59.21	44.91	48.24	51.99	51.03	45.39	45.99	45.37	37.07	59.21	52.96	53.44
Machinery	37.78	31.32	31.35	33.34	27.50	31.48	26.44	27.13	22.02	37.78	33.14	39.89
Transport Equip.	20.46	9.34	12.82	14.78	19.64	10.04	17.18	15.84	12.25	20.46	19.14	13.52

Table 16

Commodity Composition of manufactured trade:1970,1980,1985 (% share in total manf. trade)
EXPORTS

	BRAZIL			CHILE			COLOMBIA			MEXICO		
	1970	1980	1985	1970	1980	1985	1970	1980	1985	1970	1980	1985
TOTAL MANUFACTURES	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
LIGHT MANUFACTURES	84.60	58.85	46.45	35.07	45.39	44.56	41.01	50.91	27.88	46.78	32.78	16.30
Food Group	75.45	48.23	35.61	27.18	33.40	38.35	21.85	27.11	15.66	38.64	25.25	10.21
Textiles	3.62	8.20	9.30	0.17	0.84	0.44	14.87	21.47	10.08	6.66	5.85	4.70
HEAVY INDUSTRY	9.81	19.29	33.13	53.41	46.82	50.43	52.87	35.60	65.67	34.07	43.92	39.05
Paper	0.45	3.35	2.77	28.85	20.46	19.47	2.68	6.16	6.08	3.87	2.65	1.73
Chemicals	3.29	8.03	17.73	14.23	19.74	10.51	41.37	18.60	49.54	18.96	32.49	28.09
Non Metallic Mins.	0.53	1.01	0.83	0.45	0.60	0.15	6.14	6.23	3.23	2.53	3.73	3.91
Metallurgy	5.54	6.90	11.81	7.33	3.80	3.84	2.67	4.61	6.82	8.72	5.06	5.32
HIGH TECH	5.58	21.86	20.41	11.52	7.79	5.01	6.11	13.49	6.45	19.15	23.30	44.65
Machinery	3.78	9.25	7.41	2.48	2.06	0.80	2.88	4.29	2.52	11.73	8.56	26.98
Transport Equip.	0.73	10.01	10.52	6.55	4.90	1.53	0.55	2.44	0.73	5.59	13.34	16.40

Table 17

Commodity Composition of manufactured trade:1970,1980,1985 (% share in total manf. trade)
IMPORTS

	BRAZIL			CHILE			COLOMBIA			MEXICO		
	1970	1980	1985	1970	1980	1985	1970	1980	1985	1970	1980	1985
TOTAL MANUFACTURES	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
LIGHT MANUFACTURES	8.34	6.42	9.66	19.21	20.36	12.45	10.16	9.04	6.55	8.34	10.97	8.85
Food Group	4.83	5.02	6.15	12.40	12.66	6.22	8.31	6.87	5.13	4.83	8.37	5.71
Textiles	2.84	0.95	3.16	6.60	7.34	6.02	1.69	2.01	1.31	2.84	1.93	2.48
HEAVY INDUSTRY	32.45	48.68	42.11	28.79	28.61	42.17	43.85	45.59	56.38	32.45	36.07	37.71
Paper	4.58	2.48	3.13	2.05	2.50	2.93	5.02	4.28	5.03	4.58	3.40	3.81
Chemicals	19.27	37.28	32.91	18.77	18.08	28.21	28.60	30.74	36.30	19.27	16.88	23.45
Non Metallic Mins.	1.23	1.36	1.23	1.78	1.91	1.61	0.99	1.11	0.85	1.23	1.30	1.18
Metallurgy	7.36	7.56	4.85	6.13	6.11	8.76	9.24	9.46	14.00	7.36	14.49	9.27
HIGH TECH	59.21	44.91	48.24	51.99	51.03	45.39	45.99	45.37	37.07	59.21	52.96	53.44
Machinery	37.78	31.32	31.35	33.34	27.58	31.48	26.44	27.13	22.02	37.78	33.14	39.09
Transport Equip.	20.46	9.34	12.82	14.78	19.64	10.64	17.18	15.84	12.25	20.46	19.14	13.52

The Chilean case is the exception and seems to confirm the opinion that export expansion "was based on the exploitation of natural comparative advantages in the absence of a policy framework aimed at promoting the acquisition of new comparative advantages"[32]. In fact, light manufacturing significantly increases its share during the 1970s - the greater contribution coming from wood and furniture - at the expense of other segments, especially those with greater technological content, just the opposite of what is observed in the other - and especially in the larger - countries, and this trend is not reversed in the 1980s.

On the other hand, very little change can be observed as regards the evolution of the commodity composition of manufactured imports, shown in Table 17. In spite of large volume fluctuations, imports remained highly concentrated on intermediate inputs, especially chemicals, and machinery in all the four countries, as is typical of resource rich semi-industrialised countries which followed strong import substitution strategies in the past. During the late 1970s, however, again the Chilean experience provides a striking contrast as one can observe a marked increase in imports of light consumer goods, as the liberalization process greatly reduced the protection afforded to domestic producers, as discussed above.

---

32 R. Ffrench-Davis (1984, p500).

3.3. 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 industry i of 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[33].

---

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

Interpretation of this index is quite straightforward: it can take any positive value - higher values meaning greater competitiveness - while normalization by the domestic market size allows cross-country comparisons. 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:

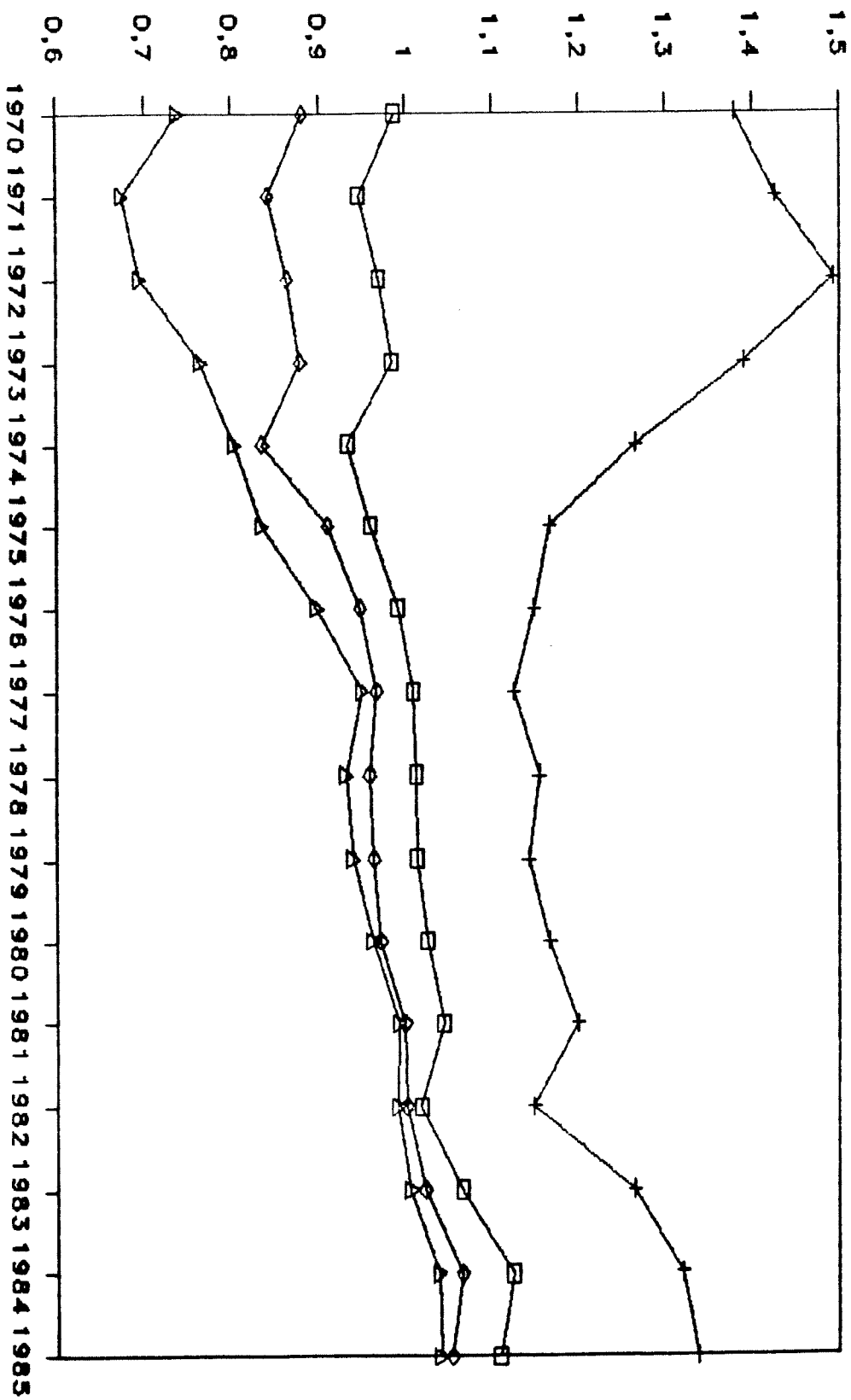
$$C(i) = 1 + x(i) - m(i) \qquad (2)$$

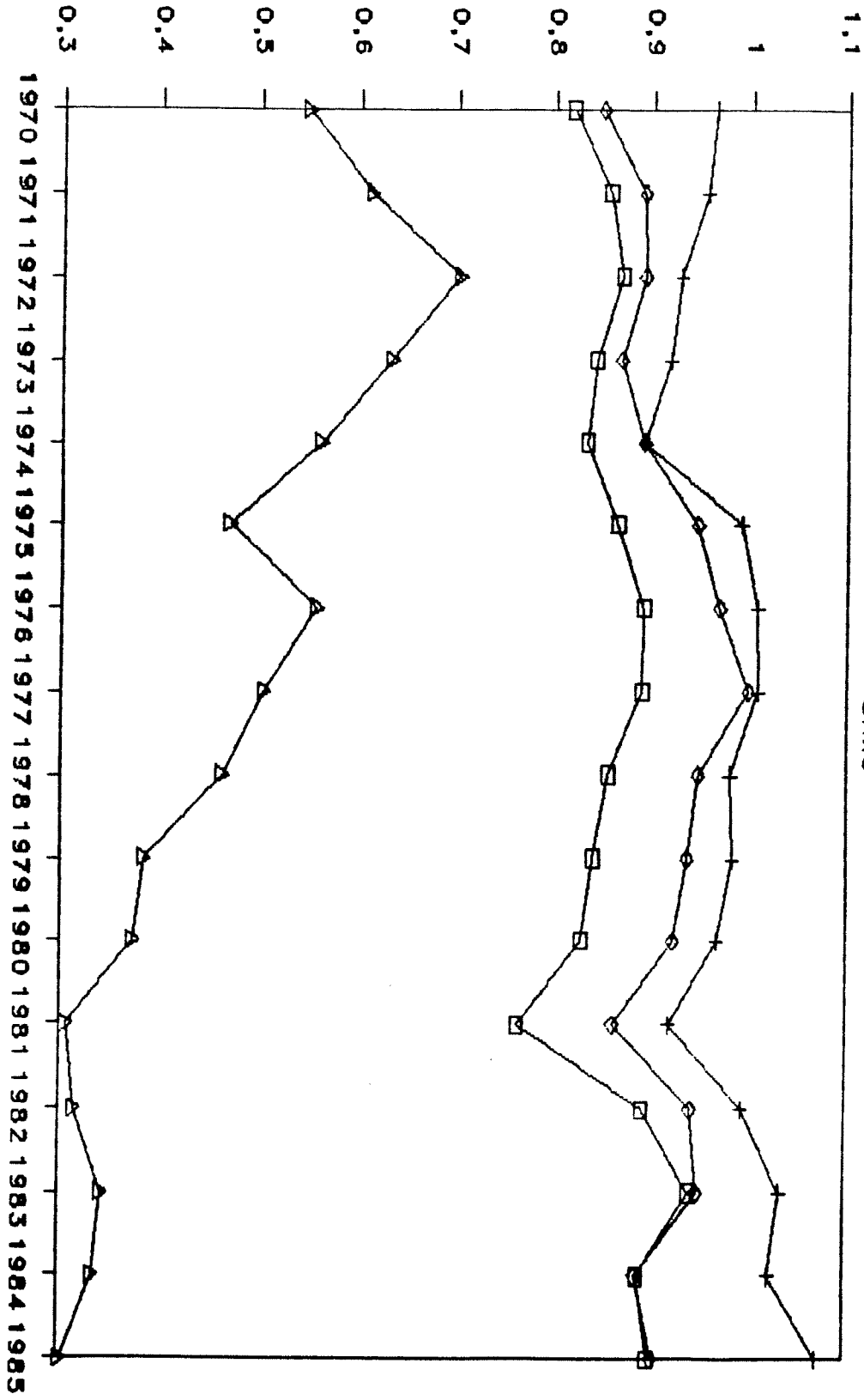
where x(i) and m(i) are, respectively, the shares of exports and imports in total domestic demand, and C(i) the rate of self-supply, the competitiveness indicator for industry i. Thus, as equation (2) shows, the index allows a clear decomposition of the effects of export expansion and of import substitution in the analysis of the causes of increasing "revealed" competitiveness, and Ci>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 for each of the four countries are shown in Tables A.1 to A.4 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.

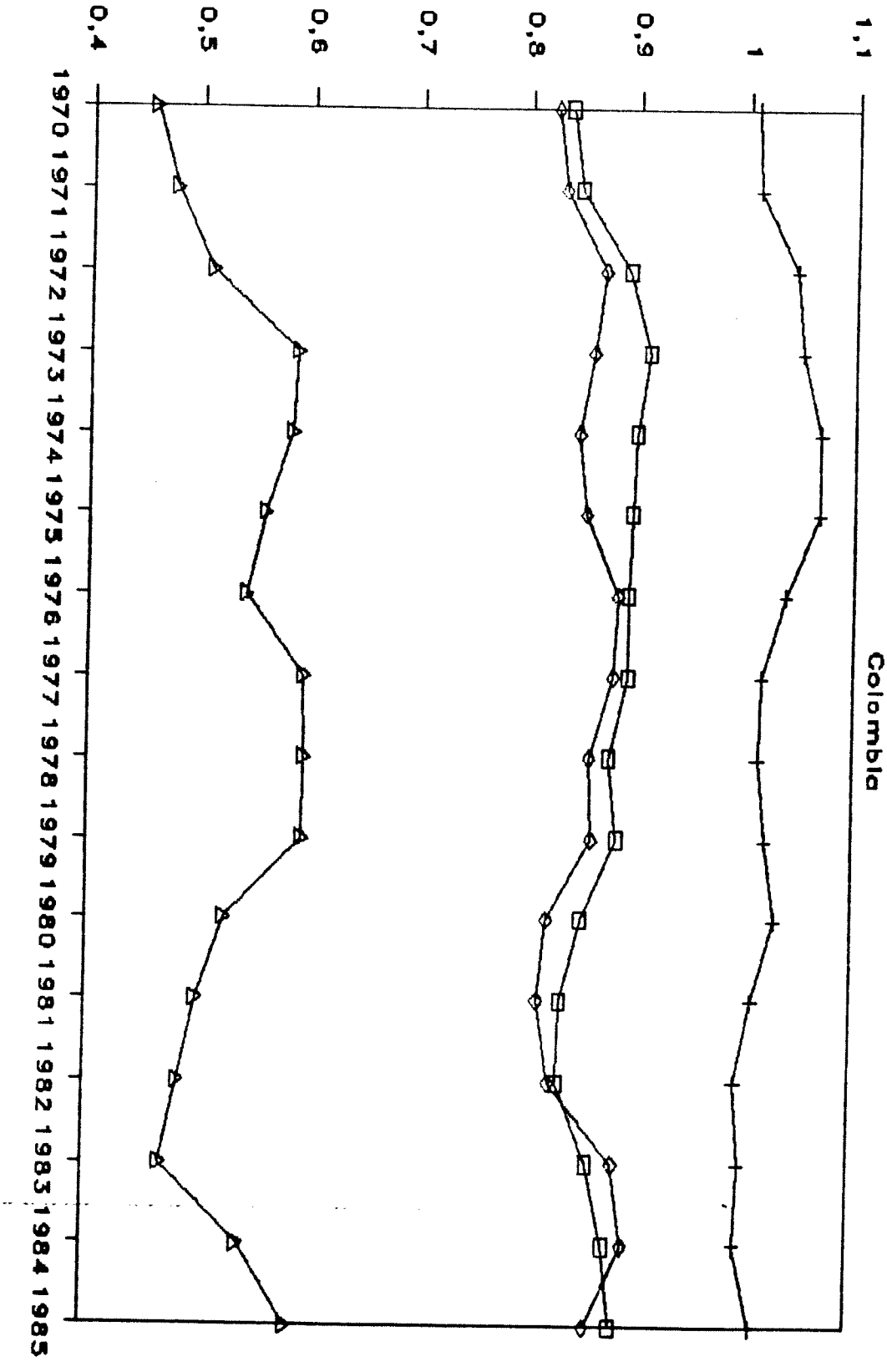
The indices of competitiveness in manufacturing as well as in each of the three component sectors according to the classification used in this study are plotted in Graphs 1 to 4, below. They show that since the first oil shock only Brazil shows a steady rise in competitiveness in total trade in manufactures, basically because all the three other countries lost competitiveness in the second half of the 1970s. In Mexico, exports lost dynamism as compared with domestic demand and this was not compensated by the large progress made in import substitution, especially in the more capital intensive sectors. In Chile and Colombia, weak export performance was strongly reinforced by the growth of the share of imports in domestic supply.

GRAPH 1


Indicators of Competitiveness
Brazil
1,5
1,4
1,3
1,2
1,1
1
0,9
0,8
0,7
0,6
1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985

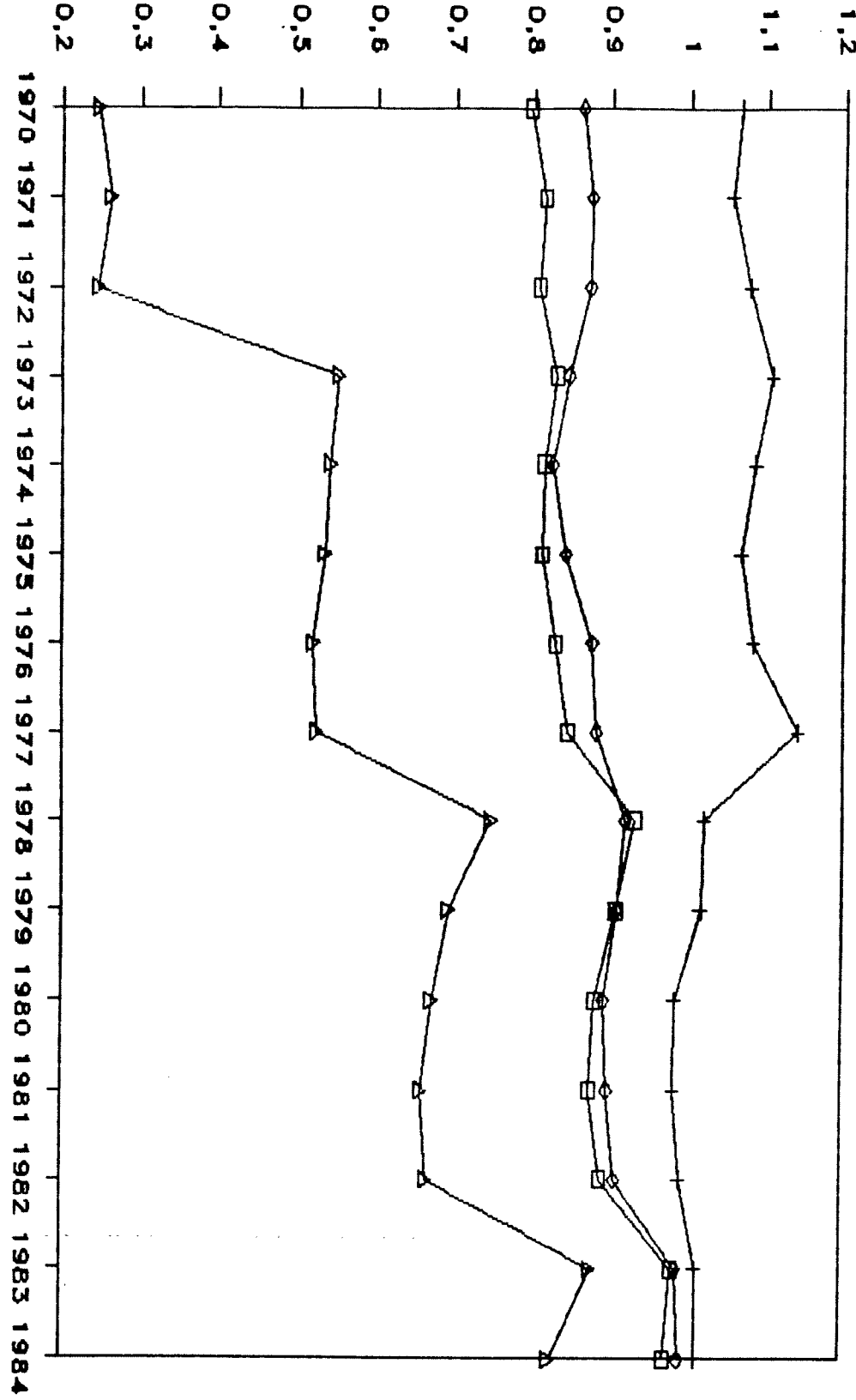

Chile
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985

GRAPH 2


Colombia
1,1
1
0,9
0,8
0,7
0,6
0,5
0,4
1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985

GRAPH 3

GRAPH 4


Indicators of Competitiveness
Mexico
1,2
1,1
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984

This picture clearly changes in the 1980s, when all the sample countries show gains in competitiveness, being especially large in the three HICs. This, as can be seen in Table 18, was based on both export expansion and import compression as a proportion of domestic demand. Sectoral patterns of adjustment as between export expansion and import substitution differ, however, as can be glanced in Tables 19 to 22. In Brazil and Mexico, the large and more industrialised countries, 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[34]. Another noticeable fact is the growth of two way trade in relatively less industrialized latecomers, Chile and Colombia, which still show high levels of imports in total domestic supply of manufactures- a classification which would include Mexico in the capital goods sectors. In Chile and Colombia, recent increases in competitiveness are based to a larger extent on falling import propensities, concentrated on light manufactures in Chile, and on and high tech goods in Colombia.

---

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

Table 18
Changing competitiveness in trade in manufactures and its components for all sample countries: 1970-1985

Country					Changes (% points)		
	1970	1975	1980	1985	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
Chile							
C(i)	81.9	86.7	83.1	90.2	4.8	- 3.6	7.1
x(i)	3.2	7.9	9.1	12.1	4.8	1.2	3.0
m(i)	21.3	21.3	26.0	21.9	0.0	- 4.8	4.1
Colombia							
C(i)	83.7	89.7	85.3	88.5	6.0	- 4.4	3.2
x(i)	3.6	8.1	6.1	6.3	4.5	- 2.0	0.2
m(i)	19.9	18.4	20.7	17.7	1.5	- 2.4	3.0
Mexico							
C(i)	79.5	81.1	88.1	97.3	8.6	7.0	9.2
x(i)	9.5	6.9	2.7	9.6	- 2.6	- 4.2	6.9
m(i)	29.9	25.8	14.6	12.3	4.1	11.2	2.3

Source: Tables A.1 to A.4.

A more detailed analysis of the sectoral patterns of the evolution of competitiveness and its determinants at the country level also provides interesting information on the peculiarities of each particular case. In Brazil, Table 19 shows a sharp erosion of competitiveness of light manufactures - mainly in the food group - in the early 1970s reversed in the 1980s by a strong recovery of exports relative to domestic demand growth. More impressive, however, is the extent of import substitution in the heavy and capital goods in the 1970s, which is accompanied 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 19
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.

In Chile, as shown in Table 20, there is a clear trend towards increasing competitiveness only in the light industries after the trade policy reforms of the 1970s, while the other more technologically complex sectors actually lose. The generalised record of competitivity losses during 1975-80 caused by the rise in import propensities caused by exchange rate appreciation is also clearly visible.

There is, on the other hand, a perceptible sustained rise of export propensity in high tech goods since the mid-1970s. This is, however, accompanied by an even higher growth of import as proportion of domestic demand, which suggests a new pattern of integration through assembly operations of technologically sophisticated goods, which generate large flows of intra-industry

trade. Finally, it can be seen that the single most important adjustment in the 1980s has been the compression of imports of light manufactures, and that export performance in the other two sectors remained poor.

Table 20
Chile: 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)	96.3	99.2	96.8	107.3	3.0	- 2.4	10.5
x(i)	2.9	8.6	11.1	14.8	5.7	2.5	3.7
m(i)	6.7	9.4	14.3	7.5	- 2.7	- 4.9	6.8
Heavy manufacture							
C(i)	85.0	94.7	92.4	90.5	9.7	- 2.3	- 1.9
x(i)	4.6	10.0	9.7	8.1	5.4	- 0.3	- 1.6
m(i)	19.6	15.3	17.3	17.5	4.3	- 2.0	- 0.3
High-tech sectors							
C(i)	54.8	47.0	37.4	30.3	- 7.8	- 9.6	- 7.1
x(i)	1.5	1.4	3.5	4.5	- 0.1	2.1	1.0
m(i)	46.7	54.4	66.1	74.2	- 7.7	- 11.7	- 8.1

Source: Table A.2.

As can be seen in Table 21, after a good overall performance in early 1970s, Colombia lost competitiveness in all sectors in 1975-80 and has a very poor overall performance over the long term relative to the other countries. There were some recent positive developments in the rise in the export orientation in intermediate (heavy) goods and a beginning of import substitution in the high tech branches. However, the country still shows a large trade deficit in the more sophisticated segments of manufacturing.

Table 21
Colombia: 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)	100.7	106.7	103.0	101.4	6.0	- 3.7	- 1.6
x(i)	3.2	9.5	7.6	4.1	6.3	- 1.9	- 3.5
m(i)	2.5	2.8	4.6	2.7	- 0.3	- 1.8	- 1.6
Heavy manufacture							
C(i)	82.4	85.4	82.2	86.2	3.0	- 3.2	4.0
x(i)	5.4	8.5	5.3	9.7	3.0	- 3.1	4.3
m(i)	23.0	23.0	23.1	23.4	0.0	- 0.1	- 0.3
High-tech sectors							
C(i)	45.6	56.0	52.6	58.8	10.4	- 3.4	6.1
x(i)	1.1	3.8	3.4	2.7	2.7	- 0.4	- 0.7
m(i)	55.6	47.8	50.8	43.9	7.7	- 3.0	6.9

Source: Table A.3.

Mexico is, together with Brazil, a case where competitiveness in manufacturing grew steadily over time since 1970, as can be seen in Table 20. It is interesting to note, however, that the evolution of the competitiveness of Mexican manufacturing, shown in greater detail in Table 22, registers a dramatic change in the determinants of its increasing competitiveness in the first half of the 1980s as compared with the period 1975-85. On the one hand, there was a generalised rise in the importance of export markets as a component of domestic demand, reversing a long term trend of falling export propensity in all sectors. On the other hand, the trend towards imports substitution in technologically intensive sectors - which was particularly strong during the second half of the 1970s - was

either substantially dampened or, as in the case of the high tech group, sharply reversed. Thus, while in the intermediate and natural resource based sector, the Mexican pattern follows that of Brazil, where import substitution goes hand in hand with a rising export propensity - as one would expect during the "maturation" of efficient infant sectors - the capital goods sector follows a Chilean pattern of rising two way trade, also reflecting the growing importance of globally integrated manufacturing operations.

Table 22
Mexico: 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)	106.5	106.6	98.4	101.2	0.1	- 8.2	2.8
x(i)	14.0	12.1	2.2	3.9	- 1.9	- 9.9	1.7
m(i)	7.5	5.5	3.8	2.7	2.0	1.7	0.9
Heavy manufacture							
C(i)	86.3	84.1	89.3	99.1	- 2.2	5.2	9.8
x(i)	6.8	5.1	3.2	9.4	- 1.7	- 1.9	6.2
m(i)	20.5	21.0	13.9	10.3	- 0.5	7.1	3.6
High-tech sectors							
C(i)	24.4	53.4	67.4	82.6	29.0	14.0	15.2
x(i)	8.7	5.1	2.9	24.4	- 3.6	- 2.2	21.5
m(i)	84.3	51.6	35.5	41.8	32.6	16.2	- 6.3

Source: Table A.4.

3.4. 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 comparative advantage in each country 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[35].

---

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

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 government policies do not "create" comparative advantage"[36], thus limiting the analysis of the factors behind the rapidly changing specialization patterns in trade in manufactures in newly industrializing economies[37].

The comparative advantage indicator 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. Distortions in cross-country comparisons introduced by

---

36 UNIDO (1985, p.79).

37 Cf. J. Donges & J. Riedel (1977, pp. 58 ff).

differences in country size are minimized by normalising the indicator by the size of GDP[38]. 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. First, 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 this country would have a comparative disadvantage even though she

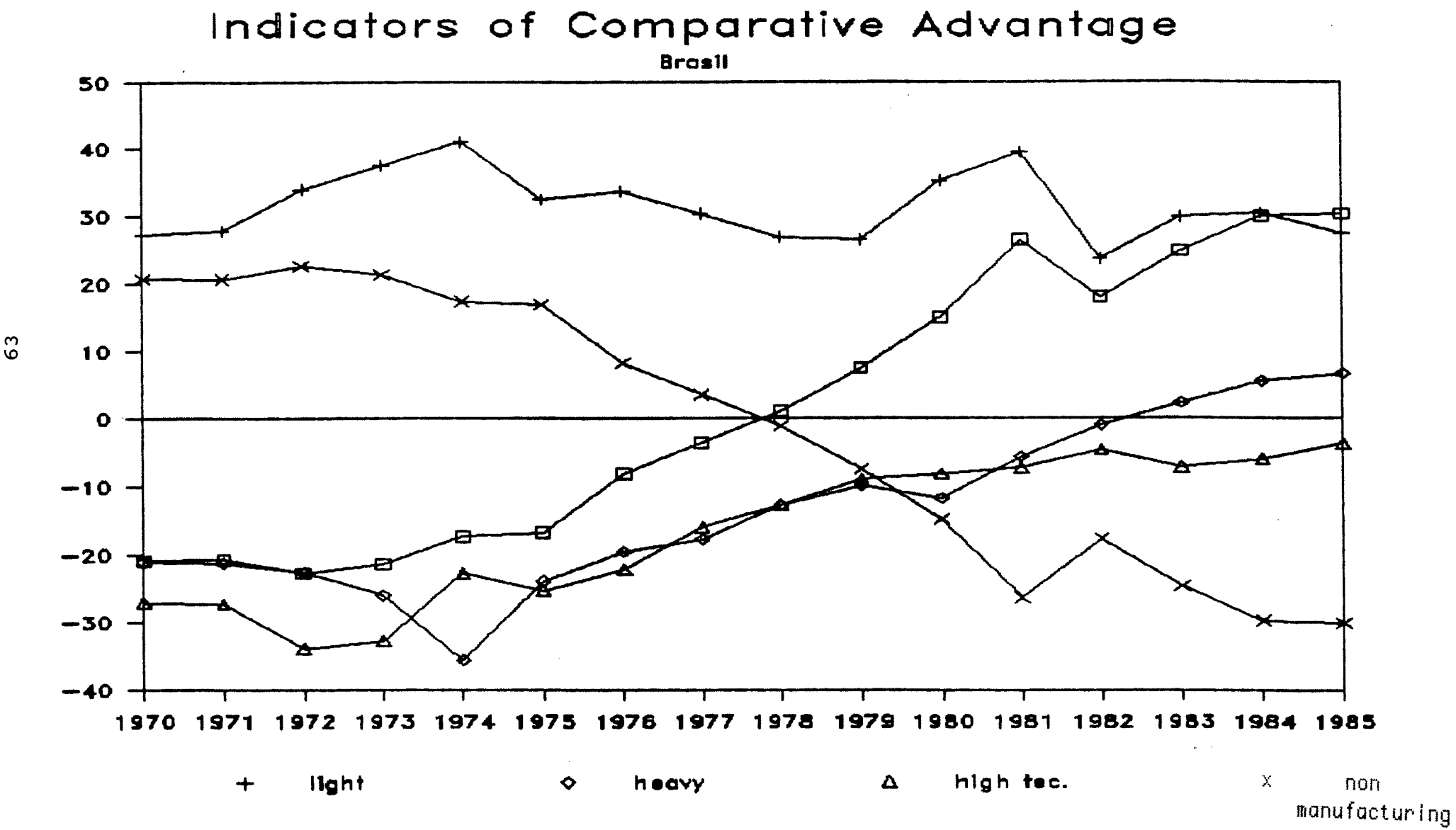
---

[38] For a fuller dicussion of the properties of this index, see G. Lafay (1988, pp. 8 ff.).

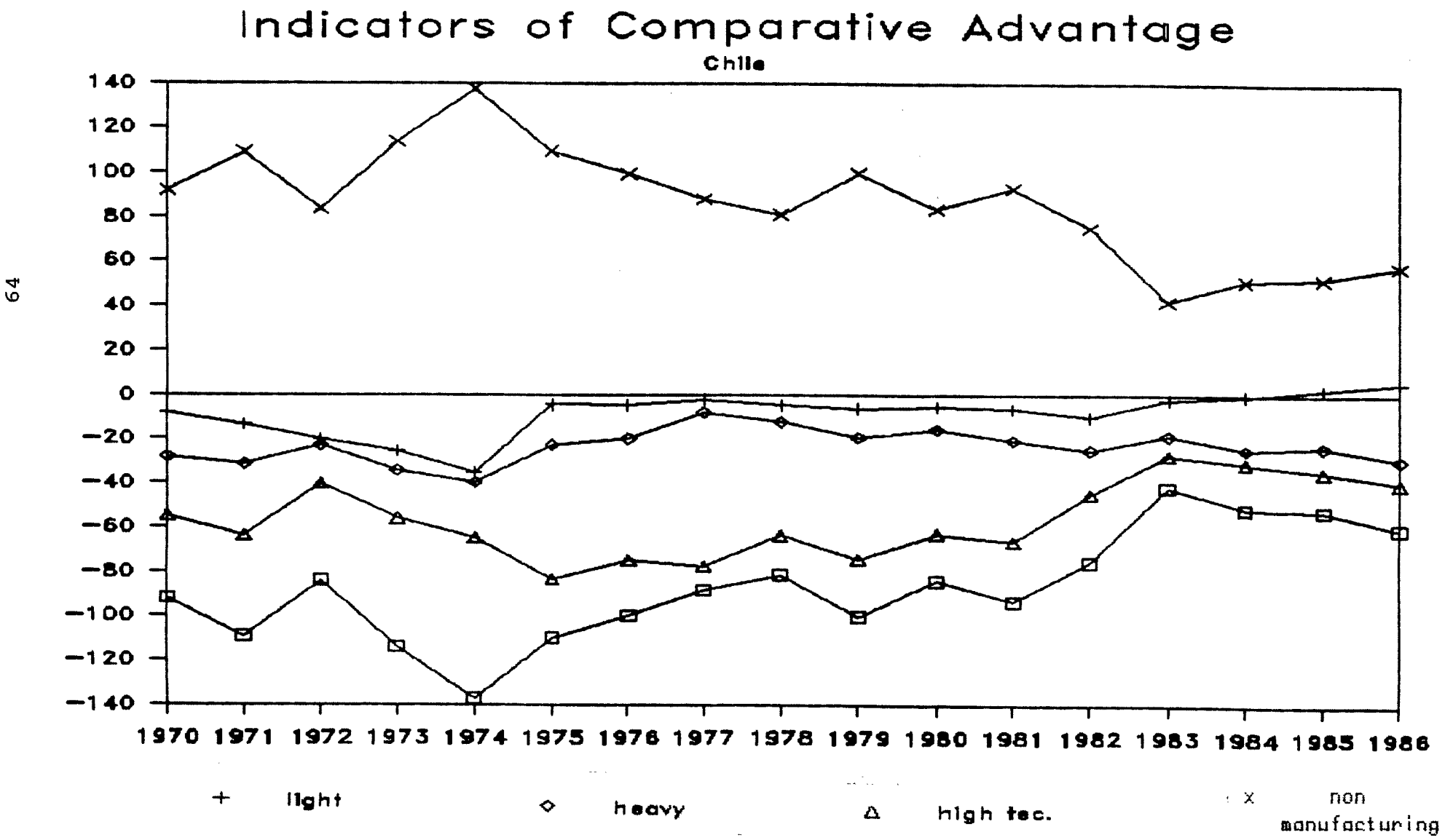
has a trade surplus in this industry. Second, the indicator corrects for the influence of factors generally affecting the competitiveness of all industries in a given country, such as an overvalued exchange rate. It can easily be seen that, although a particular industry may show a trade deficit (Mi-Xi), 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 the total trade of the country, that is, if $(Mi-Xi)<(M-X).(Xi+Mi)/(X+M)$. Finally, direct comparisons of the extent of comparative advantage of a given sector in different countries or among sectors for a given country, as well as for a given country or sector over time, are made possible by the cardinality of the index

The overall picture of the evolution of comparative advantage in non-manufactured as well as in manufactured goods in each of the four countries between 1970 and 1985 is shown in Graphs 5 to 8, drawn from data presented in Tables A.5 to A.8, in the Appendix. One can see that the levels and patterns of changing comparative advantage in manufacturing and its components is quite diversified among countries. The charts also illustrate the influence of size on the possibilities of shaping comparative advantage patterns in a wider range of industrial goods through policy intervention: specialization in far more marked in the

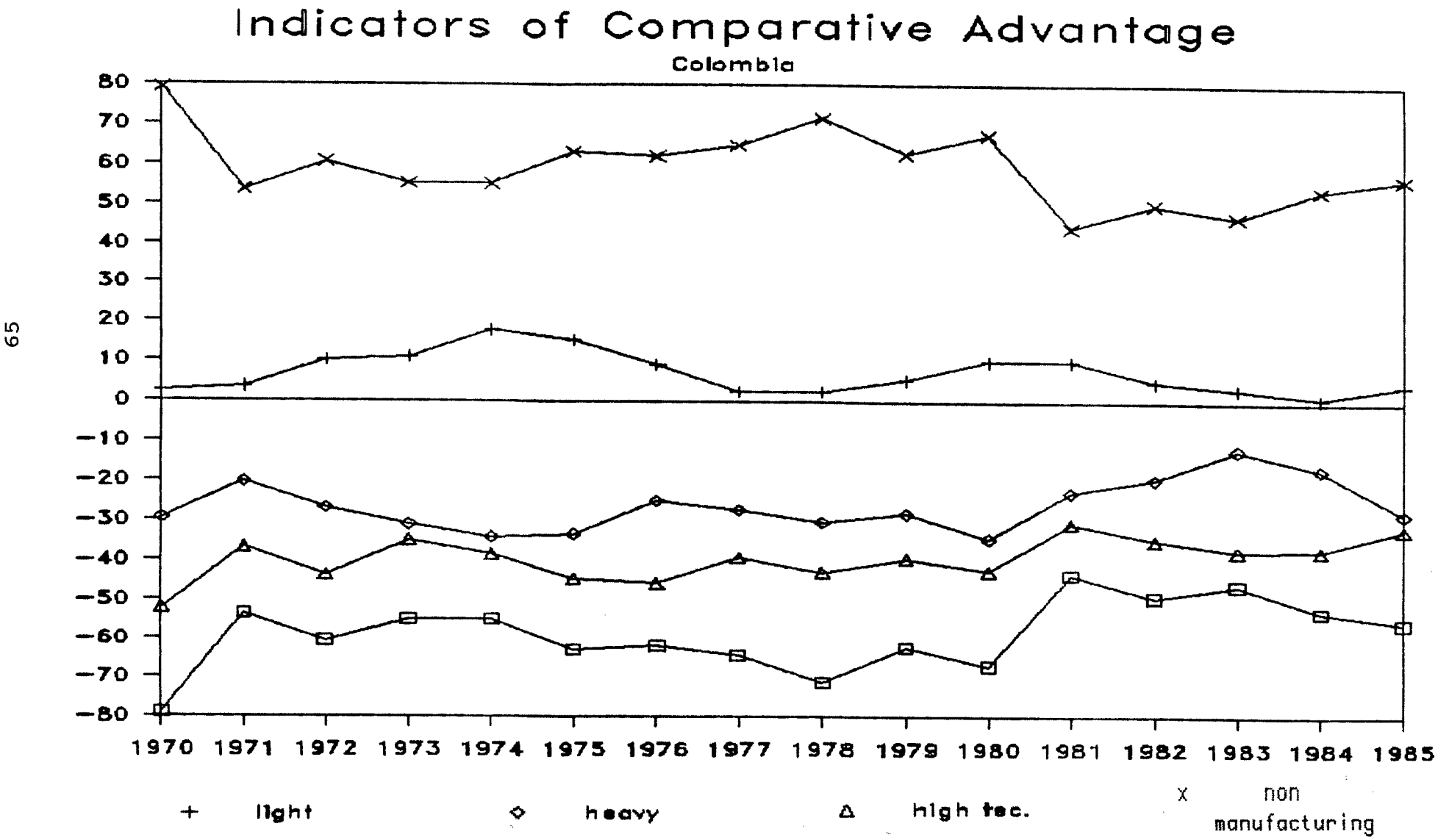
GRAPH 5


Indicators of Comparative Advantage
Brasil
50
40
30
20
10
0
-10
-20
-30
-40
1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985
+ light
◇ heavy
△ high tec.
X non manufacturing

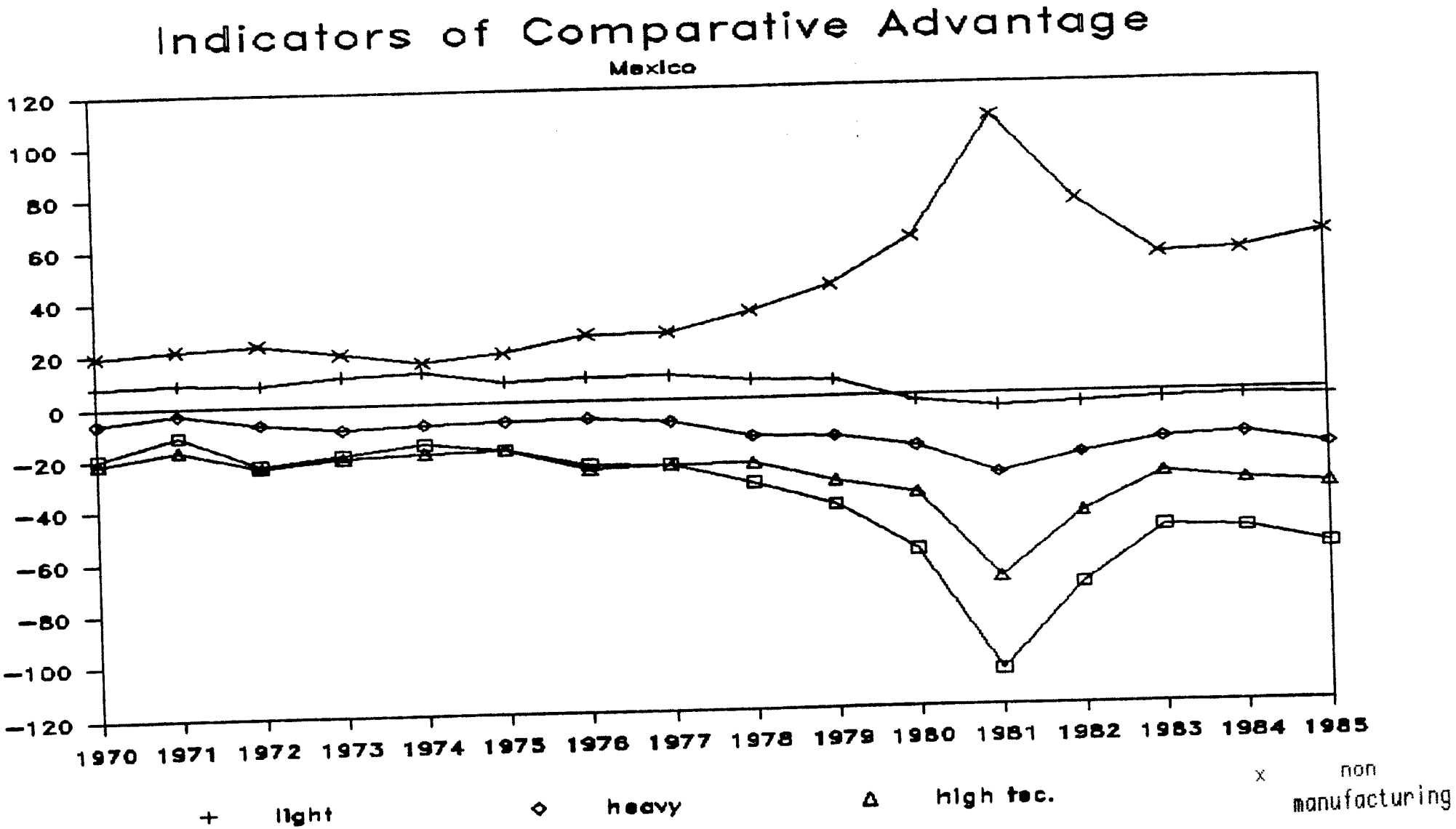
GRAPH 6


Indicators of Comparative Advantage
Chile
140
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
-140
1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986
light
heavy
high tec.
non manufacturing

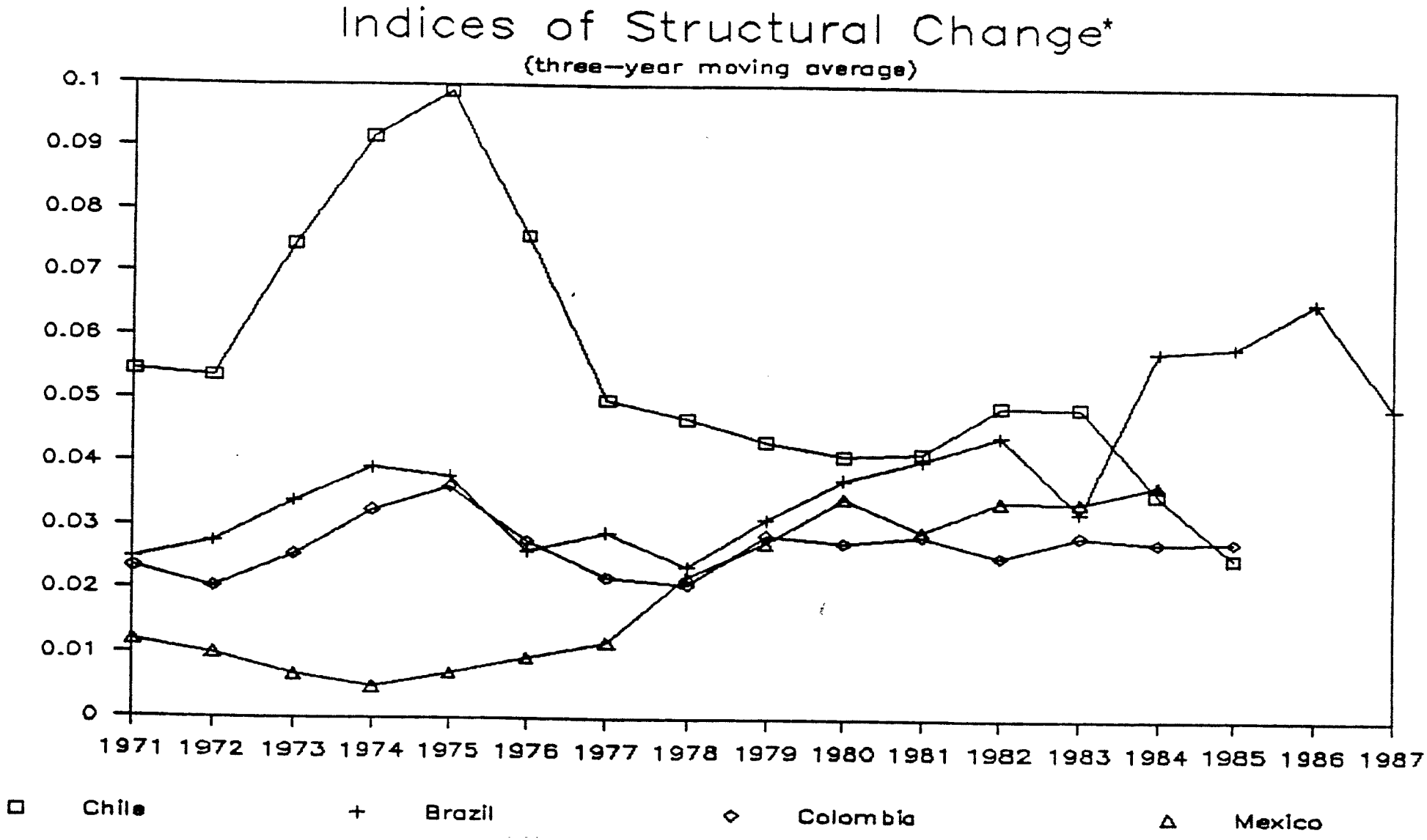
GRAPH 7


Indicators of Comparative Advantage
Colombia
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985
+ light
◇ heavy
△ high tec.
X non manufacturing

GRAPH 8


Indicators of Comparative Advantage
Mexico
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985
+ light
◇ heavy
△ high tec.
x non manufacturing

GRAPH 9



* Sum of positive share changes.

smaller countries irrespective of the wide differences in the trade regimes of Chile and Colombia, than in Mexico or Brazil.

As these are all resource rich countries, it is not surprising that they all showed a strong comparative advantage in both non-manufacturing and labour and natural resource intensive light manufactures, as the typical pattern up to beginning of the 1970s. However, over the years major swings in prices of major primary exports (oil, coffee and copper), together with a multitude of factors affecting industrial efficiency, played a crucial role in changing comparative advantage in different ways in these countries.

The main changes, visible from the mid-1970s, stem from two shocks: the rise in oil prices and the debt crisis. The first strongly affected specialization patterns in Mexico and Brazil, though in opposite directions. The latter affected all - but especially the HICs - by triggering firm expenditure switching policies with strong impact on the competitiveness of manufacturing exports, thus changing "natural" specialization patterns towards manufactures, as reflected in a narrowing band between the value of the comparative advantage for manufactures and non-manufactures in all countries.

This is most clear in the Brazilian case, where these two factors combine 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 seventies. It is also clearly visible in the Mexican case, where oil prices led to strong specialization in the late 1970s, while changes in the trade regime and readjustment in real oil prices in the first half of the 1980s restored comparative advantage in manufactuting. The effect of the changes in the trade regime from the early 1980s on comparative advantage in manufacturing is also noticeable in the cases of the much more specialised economies of Chile and Colombia.

4. Trade policy, trade performance and structural change.

The decisions regarding resource allocation between manufacturing and other activities and the pace and composition of manufacturing value added are, to a significant extent, affected by trade policy and performance. Several points have already been made in the last section regarding changes in trade orientation, competitiveness and international specialization, and their likely relation with observed patterns of growth and structural change in each of the four countries under study. In this section an attempt is made to discuss some common features of the development experience of these four countries which may shed light on the relationship between changes in the trade regime, changes in tradeability and structural change.

The section starts, in sub-section 4.1, with a discussion of an important conditioning factor of the industrialization experience of Latin American countries, namely the presence of "booming" primary export sectors. It is argued that exchange rate overvaluation - in many cases for reasons akin to those generating "Dutch Disease" - has been a chronic obstacle to industrialization in Latin America over the years and, especially in the late 1970s, it was felt very strongly in some of the countries under study. Next, in sub-section 4.2, the focus shifts to the nature of adjustments to the debt crisis, its impact on patterns of trade and structural change and the consistency between recent developments and longer run trends. Finally, sub-section 4.3

considers the perspectives regarding trade performance and structural change in the light of the export growth imperative posed by the present external constraint, some fundamental features of industrial organization in the sample countries, and global developments conditioning the patterns of growth and diversification of manufactured exports from semi-industrialized developing countries.

4.1. Exchange rate appreciation and manufactured trade performance

Exchange rate appreciation has a powerful influence on competitiveness in manufacturing and the national experiences described in Section 2 allow the identification of clear episodes of appreciation in Mexico, Chile and, to a lesser extent, in Colombia. These episodes of exchange rate overvaluation were the consequence of two basic factors. The first are major swings in prices of the non-manufactured staple exports. It should be recalled that the indicators of comparative advantage examined in the last section revealed that all countries except Brazil still display a more or less stable pattern of specialization biased towards non-manufacturing. These major price swings may produce a "Dutch Disease" phenomenon, that is, a crowding out of the traded goods sector produced by the spillovers of the booming export sector, or more especifically by a real appreciation caused by the export boom[39].

---

[39] See W.M.Corden & J.P.Neary (1982) for an extended discussion.

Although this phenomenon has originally been identified with sudden discoveries of depletable natural resources - as the effect of natural gas exports had in Europe, after which the "disease" was actually named - it is interesting to note that this phenomenon can be identified in countries where primary products, subject to exogenous price shocks or prolongued bonanzas, occupy a large share of exports. In Latin America, where many countries do fit this description, one may surely find many instances of this "disease". The usual Latin American medicine is the practice of multiple exchange rates - with an overvalued rate applying to the staple - and/or the enforcement of export taxes, both with the purpose of avoiding the transmission of investment stimuli created by the export boom to the domestic economy, thus preventing the shrinkage of manufacturing.

The second source of exchange rate appreciation is policy induced: the use of the exchange rate as an instrument of inflation stabilization. This has been a common practice in Latin America, and one that resulted in extended periods of overvaluation, the most dramatic example being the Southern Cone countries under monetarist influence in the late 1970s. Overvaluation thus developed, just like in the "Dutch disease" case, produces a shrinkage of the sectors producing tradable manufactured goods.

Among the national cases addressed in this study the

Mexican - and to a much lesser extent the Colombian[40] - experience seem to fit the "Dutch" type. In the Chilean case, however, the "disease" is clearly present but in the "Latin American" variety, namely extended overvaluation created by macroeconomic policies oriented towards "global monetarism" and reinforced by import liberalization during the 1970s. However, the impact of exchange rate appreciation on the process of industrialization varied among these national experiences. Contrary to the typical Dutch case, in Mexico and Colombia the actions and price distortions introduced by regulatory agencies and other state enterprises or ad hoc authorities in charge of (occasionaly booming) export sectors have met with success in avoiding a shrinkage of traded manufactures to judge from the behavior of shares of manufacturing value added in GDP. According to UNIDO figures, from 1973 to 1986 the shares of MVA in GDP in Mexico fluctuated around a more or less constant trend of 22,6%, and in Colombia have suffered a very slight decrease, from 23,8% to 22,6%. In Chile, however, the share of manufacturing value added to GDP fell from 29.5% in 1974 to 18,9% in 1982.[41]

It should be stressed, however, that in all the four countries the debt crisis brought about a radical shift in this regard and real depreciations - sometimes marked ones - have been the norm during the years covered by this study.

---

40 On the Colombian case, see Villar (1988, p11).

41 While the joint share of financial services and real state rose from 9.0% to 20.6% in this same period Cf. S. Edwards & A.C.Edwards (1987, p.119).

4.2. Trade orientation and structural change.

There can be little doubt that the pace of industrial growth in Latin America was very significantly affected by the external shocks of the early eighties. The growth rates of manufacturing value added shown in Table 23 do convey the impression of a clear divide in the beginning of the present decade. During the first half of the 1980s one sees a major decelleration in manufacturing growth which has no historical parallel except for the Chilean crisis during the transition towards the free market policies of the authoritarian regime, reflected in the poor performance of the 1970-75 years.

Table 23
Value added* growth in manufacturing, 1970-85 (in %)

	1970-75	1975-80	1980-85
Brazil	10.8	6.9	- 0.0
Mexico	7.1	7.5	0.2
Colombia	7.4	5.0	1.4
Chile	- 5.0	7.9	- 1.9

Sources: UNIDO (1988)
* In constant 1980 prices.

Since the growth of industrial activity is an important influence upon investment and, thus, upon the extent of structural

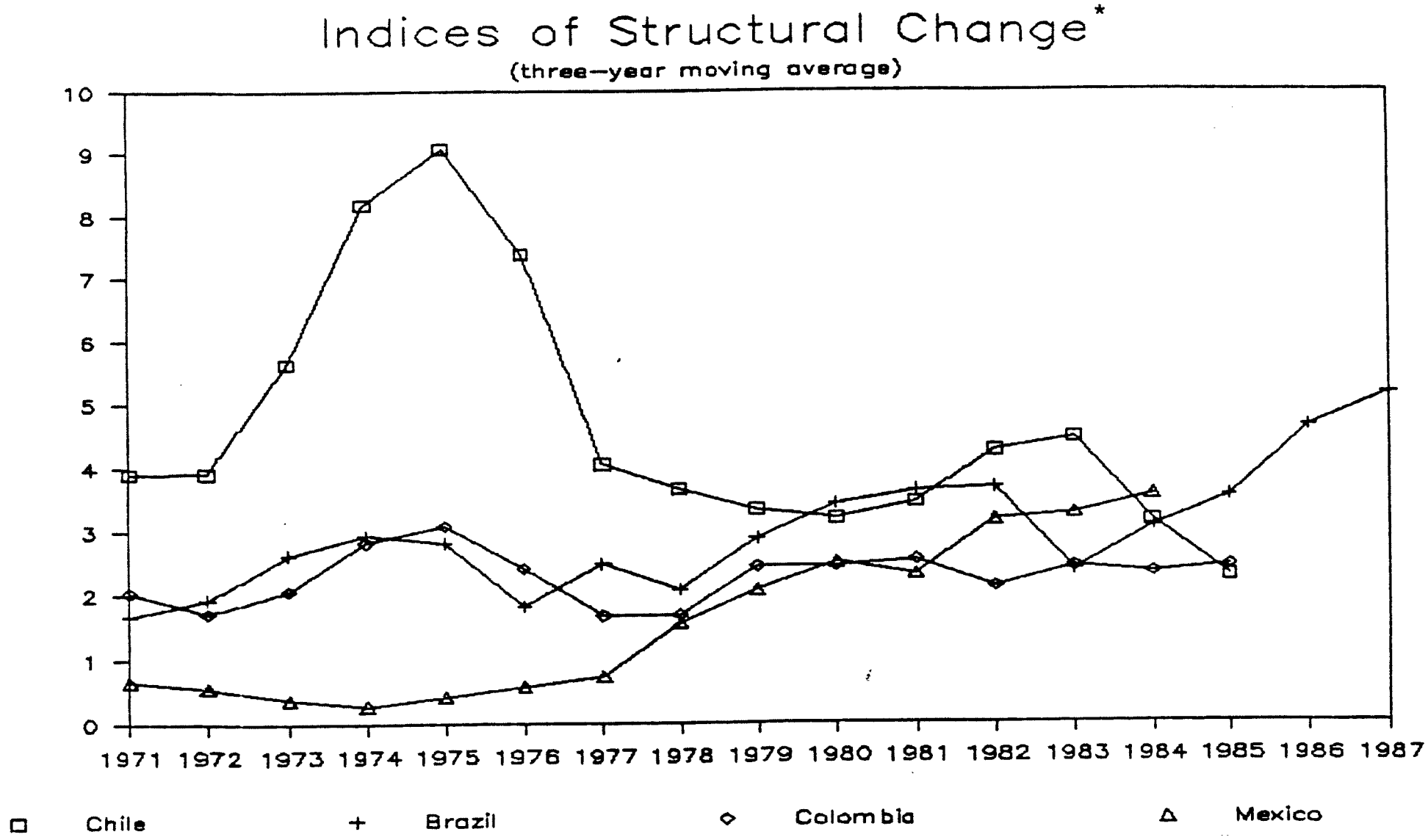
change in manufacturing - as usually defined, with reference to changes in the sectoral distribution of manufacturing value added - one would a priori expect that the outbreak of the debt crisis could also be a major benchmark in the process of structural change in the manufacturing sector of these four countries. However, the extent to which the strong expenditure reducing and switching policies implemented to generate the huge trade surpluses following the 1982 crisis was accompanied by significant changes in the sectoral distribution of value added in manufacturing is an empirical issue.

There are a number of ways to approach this issue in an empirical vein. An interesting first step is to identify the extent and time profile of structural change in manufacturing in the countries under study according to the usual measures, as shown in Graphs 9 and 10. The graphs present two different indices of structural change computed on an yearly basis and smoothed by three-year moving averages. Both are based on changes in sectoral shares of value added in manufacturing at the ISIC 3-digit level: the first consist in the sum of all positive variations in these shares[42], while the second is defined as the

---

[42] Its theoretical maximum value is 100%, when the whole composition of value added is reversed. For a discussion of methodology of these indexes see UNIDO (1988).

GRAPH 10



* Square root of sum of squared share changes.

square root of the sum of squared share changes. An interesting feature of the graphs is that, as the indices were computed with identical levels of aggregation in all countries, one may undertake inter-country comparisions of the level of structural change in manufacturing. Another important feature of the graphs is that they allow a view of the time profile of structural change. This is important since it is difficult to relate changes in trade policy and performance, as well as domestic cyclical factors, with structural change without an explicit, fully specified, model and more importantly, without precise indicators of trade policy changes.

The time profile of structural change should capture the effects of major changes in the trade regime and also the effects of changing levels of domestic activity, given that different branches of manufacturing exhibit different income elasticities, recessions and upswings should affect the composition of value added and consequently the value of the structural change index. In the Chilean case, where a major liberalization episode was launched in 1974, structural change is indeed significant by historical patterns and with respect to other countries in the few years after 1974. It is important to note, however, that these are recession years (in 1975 manufacturing value added fell 25%). The time pattern of structural change is much smoother in other countries, most notably in Colombia where indications of some change are only noted in 1974-75 and after 1980. Mexico displays the most stable structure of value added - namely the lowest

levels of structural change - up to 1979, after which structural change assumes a consistently highter level vis-à-vis her historical pattern. All countries exhibit increasing numbers in the early 1980s, which coincides with a period of important changes in trade policy but also with major recessions.

Though revealing as regards the extent and time profile of structural change the graphs conveys little information as to (i) the sectoral consistency of changes, namely whether observed yearly changes are "vibrations" around a norm or trend, or a move towards a new stable composition of value added in manufacturing, that is, structural change "proper"; (ii) the extent to which one could associate the observed structural change in manufacturing to changes in trade orientation. Regarding the sectoral bias of structural change over time, Table 23A presents an index of "consistency of change" whose purpose is to check whether - and the extent to which - trends in the sectoral composition of value added have been reversed. The index is the ratio of the change of a given sector's share in value added between the end year and the first year of a given period - 1973-81 and 1979-85 in the table - and the sum of the absolute values of changes observed on an yearly basis during that period. The ratio ranges from zero - when all share changes cancel out - to one, when changes are consistently in the same direction. Table 23A presents indices computed for a number of important industrial branches, for the periods 1973-81 - the years before the debt crisis - and 1979-85, which should capture changes produced by the post 1982 adjustment.

Table 23A
Structural change in manufacturing: indices of consistency of change

	1973/1981				1979/1985			
	Brazil*	Chile	Colombia	Mexico	Brazil*	Chile	Colombia	Mexi
Food		0.34	0.09	0.90	–	0.94	1.00	0.9
Textiles	0.52	0.60	0.72	0.93	0.01	0.96	0.98	0.9
Furniture								
Paper	0.13	0.52	0.07	0.43	0.29	0.96	1.00	0.14
Oil refineries	–	0.37	0.72	0.90	–	0.95	1.00	0.97
Plastic	–	0.85	0.72	0.64	–	1.00	1.00	0.39
Iron & steel	–	0.87	0.19	0.67	–	1.00	1.00	0.12
Non-metalic.	–	0.92	0.62	0.25	–	1.00	1.00	0.77
Metallurgy	–	0.46	0.41	0.73	–	1.00	0.07	0.97
Non-elect. machin.	0.22	0.39	1.00	1.00	0.19	1.00	0.34	0.96
Elect. machin.	0.37	0.99	1.00	0.63	0.08	0.99	0.37	0.97
Transp. equip.	0.59	0.31	0.35	0.48	0.03	1.00	1.00	1.00

Sources: UNIDO (1988), IBGE (1988). * Preliminary computation.

Table 23A
Structural change in manufacturing: indices of consistency of change

	1973/1981				1979/1985			
	Brazil*	Chile	Colombia	Mexico	Brazil*	Chile	Colombia	Mexico
Food		0.34	0.09	0.90	–	0.94	1.00	0.92
Textiles	0.52	0.60	0.72	0.93	0.01	0.96	0.98	0.95
Furniture								
Paper	0.13	0.52	0.07	0.43	0.29	0.96	1.00	0.14
Oil refineries	–	0.37	0.72	0.90	–	0.95	1.00	0.97
Plastic	–	0.85	0.72	0.64	–	1.00	1.00	0.39
Iron & steel	–	0.87	0.19	0.67	–	1.00	1.00	0.12
Non-metalic.	–	0.92	0.62	0.25	–	1.00	1.00	0.77
Metallurgy	–	0.46	0.41	0.73	–	1.00	0.07	0.97
Non-elect. machin.	0.22	0.39	1.00	1.00	0.19	1.00	0.34	0.96
Elect. machin.	0.37	0.99	1.00	0.63	0.08	0.99	0.37	0.97
Transp. equip.	0.59	0.31	0.35	0.48	0.03	1.00	1.00	1.00

Sources: UNIDO (1988), IBGE (1988). * Preliminary computation.

The indices in the table seem to point to less "consistent" changes in 1973-81 than in the later period, the exception being the Chilean case, the only one for which the "level" of structural change was high in the 1970s, as shown in the graphs. Moreover, for certain branches there is "consistency" of change in both periods, underlining the importance of long term tendencies. In the light of this, the presence of "more" structural change in the later period seems to suggest that an important feature of the adjustment to the debt crisis was the deepening of the trends of structural change under way since the past decade.

The fact that post-1982 structural changes in manufacturing has not been much significant and that they revealed a fair amount of consistency with respect to past trends, have to be reconciled with observed movements in trade policy and performance during these years. On the one hand, except for the short lived Chilean resort to protection on balance of payments grounds, the changes in trade policy are not contradictory to past

trends. The interruption of the relatively timid import liberalization trends in the other three countries in 1982 does not really establishes a deviation of past practice of compressing imports in times of foreign exchange stringency. The sharp improvement in export incentives in Mexico after 1982, for example, reinforces the impression that, to a large extent, adjustment towards the crisis was made basically trough "more (sometimes much more) of the same". Thus, the Chilean case apart, one may argue that trade policy has been fairly consistent over the years, and this has surely contributed to help explaining such low "levels" of structural change with high levels of consistency.

5. Conclusions

It is now apt to pull together the main findings of this study, and this final section presents a summary of the conclusions of the three preceding sections.

Changes in the trade regimes

The changes in the trade regimes of our four Latin American countries since the early 1970s, reviewed in Section 2, point to a common long term trend towards greater neutrality in the structure of producer incentives in the tradable goods sectors, but with a clear discontinuity during the payments shocks of the early eighties. This long term trend, usually begun in the late sixties but which took root during the 1970s, was marked by sharp changes in the trade regime inherited from the days of classic post-war import substitution policies. These changes were generally biased towards increasing export promotion and, in all the four sample countries, export credit and fiscal subsidies were important new features of the trade regime. The pattern of change in the import and exchange rate regimes varied, however, among the four countries. Only the smaller countries - Colombia and, most notably, Chile - attempted substantial reductions in import protection. Liberalization attempts started in Brazil in the late 1960s and in Mexico during the 1970s were eventually abandoned, and relatively high levels of import protection were still maintained in the these countries.

Changes in exchange rate policy were also a crucial element in determining changes in competitiveness. However, while in Brazil and Colombia greater control over foreign exchange markets avoided large departures from a crawling peg targeted towards objectives of commercial policy, in Chile and Mexico long spells of exchange rate appreciation had non-negligible disturbing effects on the patterns of trade in manufactures.

The debt crisis had two sequential effects on the trade regime. In a first moment, acute foreign exchange problems led to a generalized wave of import repression and exchange rate devaluations. However, as it became clear that the fall in voluntary bank lending was not to be easily reversed or fully compensated by other sources of external finance and the recovery of world trade in 1983, high export performance became an imperative in any strategy aimed at restoring sustained growth. This increased concern with export performance - no doubt reiforced by pressures from the IMF and the World Bank - was reflected in changes in both commercial and exchange rate policies.

As far as commercial policy is concerned, the general feature has been an even greater emphasis on export promotion, particularly on "import-to-export" schemes in Brazil, Colombia and Mexico, countries exhibiting higher levels of protection in manufacturing. Although one can note a general move towards

liberalization prompted by increasing concern with the inefficiencies generated by import protection, the extent of effective trade liberalization has varied widely. While Chile slowly returns, since 1984, to the low levels of tariff protection prevailing before the debt crisis and Mexico implemented an important tariff reform though preserving discretionary controls in some sectors, Brazil and Colombia have not undertaken extensive effective changes in their import regimes. Table 24, below, resumes these changing patterns of protection in recent years.

Table 24
Trade policy indicators of the four countries before, during and after the payments crisis

Country	Average tariff rates* (%)			Incidence of NTBs**		
	Before	During	After	Before	During	After
Brazil	25	25	22	high	100	high
Chile	10	35	15	0	low	low
Colombia	26	61	52	<66	66	50
Mexico	27	24	23	60	100	35

* Unweighted average nominal rates except for Brazil, where import weighted values apply.
** Import coverage.
Source: Tables 4 and 5, above; E.P. Guimarães (1989, Table 1, p 11); and S. Laird and J. Nogues (1988, Table 1, p.5).

The most clear departure from pre-crisis policies can be seen, however, in the behaviour of exchange rates. As shown in Table 25, all countries have undertaken severe devaluations following the 1982 shock and low rates were systematically maintained thereafter.

Table 25
Index of real exchange rates for the four sample countries
(1980=100)

	1981	1982	1983	1984	1985	1986	Ratio of 1986 rate to the highest rate in the 1980s
Brazil	122	128	104	104	100	94	0.73
Chile	118	106	87	85	69	58	0.49
Colombia	108	115	114	104	91	63	0.59
Mexico	114	81	72	84	86	60	0.53

Source: S. Laird and J. Nogués (1988, Table 2, p. 9).

Trade patterns and performance

The 1970s witnessed some important new trends in the trade performance of the four sample countries, such as the growing importance of manufactured exports, further waves of import substitution towards more capital or technologically intensive sectors, and a growing share of intra-Latin American trade. The oil shock also brought impressive changes in the patterns of specialization of Brazil and Mexico, inducing a strong rise in comparative advantage in manufacturing in the former and the opposite in the latter.

There were, however, marked variations in manufactured export performance and the extent of import substitution across countries and over time for a given country along the decade, mostly reflecting changes in the trade regime and cyclical fluctuations affecting each individual economy. First, manufactured export growth performance varied, Brazil, Chile and

Mexico showing higher volume growth rates than Colombia. As growth rates also differed, this was not reflected in changes in export propensities, as measured by the ratio of exports to domestic demand, which rose in Chile and Colombia and fell in the two larger countries over the whole decade. Second, while in Brazil and Mexico the share of imports in total domestic supply of manufactures fell markedly, especially during the second half of the decade, it rose in the two smaller sample countries, and especially so in Chile due to the joint impact of trade liberalization and currency overvaluation.

This more or less variegated picture changes in the 1980s. The common external problems experienced by the four countries - and especially by the three HICs, Brazil, Chile and Mexico - not only produced a synchronous cyclical shock, as triggered similar expenditure reducing and expenditure switching policies required by external adjustment, inducing an impressive homogeneity in trade performance with three major features. First, in all countries a general rise in export propensities was accompanied by a fall in imports as a proportion of domestic demand. While in Mexico and Brazil, the improvement in competitiveness stemmed from a rise in export propensities in the more technologically sophisticated sectors, adjustment through import compression was more pronounced in Chile and Colombia, countries with a more liberal trade regime before the shock. Second, the policy incentives to the tradable goods sectors had a much more important impact on manufactures, strongly affecting the patterns of

international specialization in all countries. Finally, the scissor movement of growth rates between the Unites States and Latin America, and dollar appreciation, twisted the direction of exports towards the American market.

Trade and structural change

Since the 1970s many influences have operated to alter the direction or the pace of structural change in the economies under study. However, although the effects of adverse short term shocks or major policy changes can explain some observed swings in structural change in industry in the countries here studied, the record of structural change, as measured by the conventional indices, is relatively uneventful. Moreover, the extent and time profile of structural change in manufacturing in the four sample countries during the first half of the eighties seem to be, by and large, governed by long term factors as opposed to changes in the trade regime.

This conclusion is not surprising. One should not forget that, as trade propensities in most branches of manufacturing are generally low in the sample countries - especially so in the larger two - the impact of changing tradeability on structural change is likely to be small. Given the evolution of relative factor costs and, as stressed in the previous section, exchange rate policies, long term trends in the sectoral distribution of manufacturing value added seem to be fundamentally driven by the

active industrial promotion policies usually followed in these countries and the strategic responses of large national and international firms. It is this interaction which explains the creation of comparative advantage in sectors one should not expect, given conventional trade theories, these countries to become exporters, as clearly perceived in Brazil and more recently in Mexico[43].

This phenomenon has been the focus of recent works emphasizing the importance of factors like learning effects, economies of scale, the presence of multinational corporations (MNCs) and other features of the industrial organization to the determination of changing comparative advantage and patterns of trade in manufactures[44] as opposed to trade policy per se[45]. A thorough treatment of this issue is, however, beyond the scope of this study.

---

[43] For a discussion of the Brazilian experience see W. Fritsch & G.H.B. Franco (1989, Chapter 2).

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

[45] See for example D.Rodrik (1988). The inconclusive evidence of the relationship between trade regimes and total factor productivity growth provides an indication towards the complex dynamic effects trade liberalization may have. On this see H. Pack (1988).

References

B. Balassa (1965). Trade liberalization and "revealed" comparative advantage. Manchester School, 33.

_____ (1983) "Trade Policy in Mexico" World Development 11(9).

R.Baumann (1985) Exportações e Crecimento Industrial no Brasil Rio de Janeiro: IPEA/INPES.

_____ & H.C. Moreira (1986) "Os Programas BEFIEX e alguns Mitos a Respeito" Mimeo.

H.C.Braga et al (1988) "Proteção Efetiva no Brasi: uma estimativa a partir da comparação de preçós" Rio de Janeiro:IPEA-INPES.

N.Bucay & E.Perez Mota (1986) "Trade Policy in Developing Countries: the case of Mexico" Mimeo.

CEPAL (1983), "Las Empresas Transnacionales en la Economia de Chile, 1974-1980", Santiago - CEPAL.

H. Chenery et al (1987), Industrialization and Growth. A comparative study, OUP/The World Bank, London.

W.M. Corden & J.P.Neary (1982). "Booming Sector and De-Industrialization in Small Open Economies". The Economic Journal, 92.

C. Diaz-Alejandro (1975), "Trade Policy and Economic Development", in International Trade and Finance: frontiers for research, Cambridge Univesrity Press.

M.F.S.P. Dib (1985). Importações Brasileiras: políticas de controle e determinantes da demanda. Rio de Janeiro, BNDES.

J. Donges & J. Riedel (1977). The expansion of manufactured exports in developing countries: an empirical assessment of supply and demand issues. Weltwirtschaftliches Archiv, 113 (1).

S. Edwards & A.C.Edwards (1987) Monetarism and Liberalization: the Chilean Experiment Cambridge: Ballinger.

R.Ffrench-Davis (1984).Import liberalization: the Chilean experience, 1973-1982.

W.Fritsch & G.H.B.Franco (1988). Foreign Direct Investment and Industrial Restructuring in Brazil: issues and trends. Paris, OECD Development Centre.

G.K.Helleiner (forthcoming) Trade Policy, Industrialization and Development: a reconsideration Helsinki and Toronto: WIDER.

_____ (1988) "Trade Strategy in Medium Term Adjustment". Paper presented at the UNU/WIDER conference "Medium Term Strategies for Adjustment". Helsinki, August 1988.

G. Lafay (1988) "Les Indicateurs de Spécialisation Innternationale" Document de Travail du CEPII, no. 88-01.

_____ & C. Herzog (1989). Commerce international: la fin des avantages acquis. Paris, CEPII/Ed. Economica.

R.C.López & L.A.T. Castro (1987). "La protección a la industria en un régimen de exenciones". Revista de Planeación y Desarollo, XIX (1-2)

N. Lustig (1989), "Tipo de cambio, proteccion efectiva y exportaciones manufatureras. México, 1983-1987". Presented at the annual meeting of the members of RIAL, Madrid (revised version, March).

F. de Mateo (1986). "Trade Policy in Mexico". mimeo.

H.C. Moreira & A.B. de Araujo (1984). "Política Brasileira de Importações: uma descrição". Rio de Janeiro, IPEA-INPES.

J.Noguez & S. Laird (1988) "Trade Policy of the Highly Indebted Economies", The World Bank, International Economics Department, Washington.

J.A.Ocampo (1988). "The Effects of Liberalization and Direct Import Controls on Colombian Manufacturing, 1976-1986". Paper presented at the UNU/WIDER conference "New Trade Theories and Industrialization in Developing Countries", Helsinki, August 1988.

A. Martinez Ortiz (1986) La Estructura Arancelaria y las Estrategias de Industrializacion en Colombia 1950-1982 Bogotá: Centro de investigaciones para el Desarollo.

H. Pack (1988) "Learning and Productivity Change in Developing Countries", mimeo, Wider, Helsinki.

D.Rodrik (1988). "Closing te Technological Gap: Does Trade Liberalization Help?", in G.K.Helleiner (forthcoming), Trade Policy, Industrialization and Development: a reconsideration. Helsinki and Toronto: WIDER.

S. Teitel & F. Thoumi (1986), "From Import Substitution to Exports: the manufacturing exports experience of Argentina and Brazil", Economic Development and Cultural Change, 34.

UNIDO (1988). Handbook of Industrial Statistics. Vienna, UNIDO.

_____ (1985) Industry in the 1980s: Structural Change and Interdependence. New York, United Nations.

V. Urquidi et al . (1987) "Export Promotion of Manufactures in Mexico". Joint Research Program Series no. 71. Institute of Developing Economies.

L. Villar (1989), "Comércio exterior y políticas de ajuste en Colombia en la década de los ochenta". Presented at the annual meeting of the members of RIAL, Madrid.

L.N. Willmore "Controle Estrangeiro e Concentração na Indústria Brasileira", PPE 17(1), Abril 1987.

APPENDIX TABLES

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	1.056
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	0.150
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	0.107

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

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

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
TOTAL TRADE																
Competitiveness (C(i))	0.985	0.976	1.001	1.011	0.985	0.998	1.002	1.022	1.007	1.002	0.979	0.942	0.942	0.954	0.973	0.983
Export\Demand ratio (x(i))	0.100	0.070	0.103	0.117	0.115	0.112	0.115	0.128	0.129	0.118	0.116	0.077	0.076	0.076	0.089	0.102
Import\Demand ratio (m(i))	0.115	0.094	0.102	0.105	0.130	0.114	0.112	0.106	0.122	0.115	0.137	0.135	0.134	0.122	0.115	0.119
MANUFACTURES																
Competitiveness (C(i))	0.837	0.847	0.893	0.912	0.901	0.897	0.895	0.895	0.878	0.885	0.853	0.835	0.833	0.862	0.878	0.885
Export\Demand ratio (x(i))	0.036	0.042	0.064	0.083	0.093	0.081	0.066	0.060	0.057	0.057	0.061	0.053	0.049	0.055	0.055	0.063
Import\Demand ratio (m(i))	0.199	0.195	0.171	0.170	0.192	0.184	0.171	0.165	0.179	0.172	0.207	0.218	0.216	0.193	0.178	0.177
Light Manufactures																
Competitiveness (C(i))	1.007	1.010	1.044	1.051	1.068	1.067	1.037	1.016	1.013	1.020	1.030	1.010	0.997	1.001	0.998	1.014
Export\Demand ratio (x(i))	0.032	0.037	0.065	0.079	0.108	0.095	0.071	0.056	0.055	0.059	0.076	0.066	0.042	0.036	0.033	0.041
Import\Demand ratio (m(i))	0.025	0.027	0.021	0.028	0.040	0.028	0.035	0.040	0.041	0.039	0.046	0.056	0.046	0.035	0.034	0.027
Heavy Industry																
Competitiveness (C(i))	0.850	0.832	0.870	0.860	0.847	0.947	0.884	0.881	0.860	0.862	0.822	0.813	0.825	0.885	0.895	0.862
Export\Demand ratio (x(i))	0.054	0.057	0.064	0.069	0.094	0.085	0.072	0.070	0.071	0.065	0.053	0.044	0.062	0.089	0.094	0.097
Import\Demand ratio (m(i))	0.230	0.224	0.194	0.209	0.247	0.230	0.187	0.188	0.211	0.203	0.231	0.230	0.236	0.204	0.199	0.234
High Tech																
Competitiveness (C(i))	0.456	0.476	0.510	0.588	0.584	0.560	0.543	0.596	0.597	0.596	0.526	0.501	0.486	0.470	0.543	0.588
Export\Demand ratio (x(i))	0.011	0.029	0.062	0.130	0.050	0.038	0.037	0.047	0.033	0.034	0.034	0.047	0.035	0.024	0.018	0.027
Import\Demand ratio (m(i))	0.556	0.553	0.552	0.542	0.466	0.478	0.494	0.451	0.436	0.438	0.508	0.546	0.549	0.554	0.475	0.439

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.3

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

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
TOTAL TRADE																
Competitiveness (C(i))	0.985	0.976	1.001	1.011	0.985	0.998	1.002	1.022	1.007	1.002	0.979	0.942	0.942	0.954	0.973	0.983
Export\Demand ratio (x(i)	0.100	0.070	0.103	0.117	0.115	0.112	0.115	0.128	0.129	0.118	0.116	0.077	0.076	0.076	0.089	0.102
Import\Demand ratio (m(i)	0.115	0.094	0.102	0.105	0.130	0.114	0.112	0.106	0.122	0.115	0.137	0.135	0.134	0.122	0.115	0.119
MANUFACTURES																
Competitiveness (C(i))	0.837	0.847	0.893	0.912	0.901	0.897	0.895	0.895	0.878	0.885	0.853	0.835	0.833	0.862	0.878	0.885
Export\Demand ratio (x(i)	0.036	0.042	0.064	0.083	0.093	0.081	0.066	0.060	0.057	0.057	0.061	0.053	0.049	0.055	0.055	0.063
Import\Demand ratio (m(i)	0.199	0.195	0.171	0.170	0.192	0.184	0.171	0.165	0.179	0.172	0.207	0.218	0.216	0.193	0.178	0.177
Light Manufactures																
Competitiveness (C(i))	1.007	1.010	1.044	1.051	1.068	1.067	1.037	1.016	1.013	1.020	1.030	1.010	0.997	1.001	0.998	1.014
Export\Demand ratio (x(i)	0.032	0.037	0.065	0.079	0.108	0.095	0.071	0.056	0.055	0.059	0.076	0.066	0.042	0.036	0.033	0.041
Import\Demand ratio (m(i)	0.025	0.027	0.021	0.028	0.040	0.028	0.035	0.040	0.041	0.039	0.046	0.056	0.046	0.035	0.034	0.027
Heavy Industry																
Competitiveness (C(i))	0.824	0.832	0.870	0.860	0.847	0.854	0.884	0.881	0.860	0.862	0.822	0.813	0.825	0.885	0.895	0.862
Export\Demand ratio (x(i)	0.054	0.057	0.064	0.069	0.094	0.085	0.072	0.070	0.071	0.065	0.053	0.044	0.062	0.089	0.094	0.097
Import\Demand ratio (m(i)	0.230	0.224	0.194	0.209	0.247	0.230	0.187	0.188	0.211	0.203	0.231	0.230	0.236	0.204	0.199	0.234
High Tech																
Competitiveness (C(i))	0.456	0.476	0.510	0.588	0.584	0.560	0.543	0.596	0.597	0.596	0.526	0.501	0.486	0.470	0.543	0.588
Export\Demand ratio (x(i)	0.011	0.029	0.062	0.130	0.050	0.038	0.037	0.047	0.033	0.034	0.034	0.047	0.035	0.024	0.018	0.027
Import\Demand ratio (m(i)	0.556	0.553	0.552	0.542	0.466	0.478	0.494	0.451	0.436	0.438	0.508	0.546	0.549	0.554	0.475	0.439

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.4

Competitiveness Indicators: Mexico, 1970-84 (in %)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
TOTAL TRADE															
Competitiveness (C(i))	0.966	0.971	0.974	0.970	0.955	0.961	0.969	0.983	0.983	0.973	0.978	0.980	1.040	1.107	1.081
Export\Demand ratio (x(i))	0.033	0.035	0.044	0.052	0.043	0.033	0.042	0.050	0.060	0.064	0.080	0.079	0.128	0.173	0.152
Import\Demand ratio (m(i))	0.067	0.065	0.070	0.081	0.089	0.072	0.073	0.067	0.077	0.091	0.102	0.099	0.088	0.066	0.071
MANUFACTURES															
Competitiveness (C(i))	0.795	0.815	0.807	0.831	0.814	0.811	0.830	0.845	0.932	0.909	0.881	0.875	0.889	0.982	0.973
Export\Demand ratio (x(i))	0.095	0.108	0.122	0.135	0.111	0.069	0.090	0.114	0.040	0.036	0.027	0.024	0.032	0.096	0.096
Import\Demand ratio (m(i))	0.299	0.293	0.314	0.305	0.297	0.258	0.260	0.269	0.108	0.127	0.146	0.149	0.143	0.115	0.123
Light Manufactures															
Competitiveness (C(i))	1.065	1.054	1.077	1.107	1.085	1.066	1.083	1.141	1.020	1.016	0.984	0.983	0.991	1.012	1.012
Export\Demand ratio (x(i))	0.140	0.136	0.169	0.223	0.201	0.121	0.140	0.215	0.036	0.036	0.022	0.015	0.022	0.038	0.039
Import\Demand ratio (m(i))	0.075	0.083	0.091	0.117	0.116	0.055	0.057	0.074	0.016	0.020	0.038	0.032	0.031	0.026	0.027
Heavy Industry															
Competitiveness (C(i))	0.863	0.875	0.872	0.846	0.825	0.841	0.877	0.882	0.919	0.910	0.893	0.898	0.908	0.988	0.991
Export\Demand ratio (x(i))	0.068	0.082	0.085	0.080	0.085	0.051	0.087	0.092	0.037	0.034	0.032	0.032	0.038	0.083	0.094
Import\Demand ratio (m(i))	0.205	0.207	0.212	0.234	0.260	0.210	0.210	0.210	0.118	0.125	0.139	0.134	0.130	0.095	0.103
High Tech															
Competitiveness (C(i))	0.244	0.261	0.245	0.551	0.542	0.534	0.521	0.525	0.748	0.695	0.674	0.661	0.669	0.878	0.826
Export\Demand ratio (x(i))	0.087	0.121	0.132	0.137	0.070	0.051	0.047	0.058	0.056	0.040	0.029	0.025	0.042	0.298	0.244
Import\Demand ratio (m(i))	0.843	0.860	0.887	0.586	0.528	0.516	0.526	0.533	0.308	0.345	0.355	0.364	0.373	0.420	0.418

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.3

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	-17.836	-12.896	-10.008	-11.886	-5.721	-1.825	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	-8.321	-6.916	-6.218
Transport Equip.	-6.477	-4.661	-3.962	-4.834	-2.663	-1.796	-1.720	-1.229	0.298	2.668	1.837	4.667	3.259	1.209	0.585	2.528
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	-1.455	-0.014	0.166	N.A.
Food and Live Animals	22.601	23.116	26.291	24.430	31.216	25.275	24.618	24.229	17.836	16.629	22.148	23.736	15.397	18.096	18.101	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	-9.283	-10.448	-11.292	-14.244	-26.704	-24.643	-28.351	-27.523	-24.882	-30.389	-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.
International Monetary Fund, 'International Financial Statistics', Yearbook of 1989.
World Bank.

TABLE A.6

Comparative Advantage: Chile, 1970-86

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
MANUFACTURES	-91.815	-109.159	-83.616	-113.862	-137.269	-109.636	-99.429	-87.962	-81.010	-99.722	-83.563	-92.906	-75.010	-41.871	-51.134	-52.104	-59.955
LIGHT MANUFACTURES	-8.294	-13.588	-20.298	-25.568	-35.704	-4.407	-4.601	-2.251	-4.510	-6.318	-5.448	-6.394	-10.190	-2.372	-0.523	2.413	5.062
Food Group	-5.529	-8.786	-15.527	-22.163	-32.219	-5.534	-5.600	0.214	-1.172	-1.000	-0.997	3.652	-1.345	1.605	3.902	5.664	8.704
Textiles	-3.478	-5.769	-5.032	-5.261	-4.679	-2.131	-2.203	-7.097	-7.698	-10.418	-9.131	-13.017	-9.983	-5.645	-6.532	-4.681	-5.557
HEAVY INDUSTRY	-28.367	-34.622	-23.074	-34.633	-40.015	-22.879	-19.911	-7.978	-12.359	-19.276	-15.958	-20.769	-25.050	-18.731	-24.909	-28.531	-29.375
Paper	0.362	2.064	2.268	1.472	10.331	11.170	4.549	8.482	9.221	7.415	6.204	6.599	2.300	3.025	4.691	3.061	3.569
Chemicals	-17.536	-22.722	-16.457	-25.580	-34.703	-22.682	-17.244	-11.925	-15.555	-19.916	-14.340	-18.216	-19.792	-16.814	-22.321	-19.607	-24.020
Non Metallic Mins.	-1.881	-2.643	-1.871	-1.584	-2.614	-2.304	-1.589	-1.535	-1.874	-2.386	-2.203	-2.934	-2.068	-1.311	-1.438	-1.240	-1.370
Metalurgy	-9.447	-8.573	-7.183	-9.078	-13.223	-10.173	-6.815	-3.887	-5.093	-5.231	-6.176	-6.688	-5.740	-3.892	-6.221	-5.928	-7.768
HIGH TECH	-55.238	-63.754	-40.373	-56.358	-64.578	-82.937	-74.374	-77.060	-63.440	-74.165	-62.616	-65.849	-44.861	-27.305	-30.840	-34.839	-39.593
Machinery	-33.559	-41.903	-23.345	-32.896	-39.964	-51.973	-44.183	-49.753	-40.576	-41.760	-34.735	-34.104	-28.216	-19.778	-23.322	-24.906	-28.604
Transport Equip.	-18.535	-16.767	-14.328	-20.239	-20.129	-25.656	-25.829	-22.218	-18.120	-26.526	-23.219	-26.651	-12.266	-5.590	-5.553	-7.585	-8.221
NON-MANUFACTURES	91.815	109.159	83.616	113.862	137.269	109.636	99.429	87.962	81.010	99.722	83.563	92.906	75.010	41.871	51.134	52.104	57.580
Non-Ferrous Metals	101.945	114.911	99.448	141.555	211.998	146.453	134.335	96.975	85.398	110.176	85.835	70.400	45.693	39.157	35.668	32.189	30.748
Food and Live Animals	-10.589	-11.136	-19.365	-34.115	-69.175	-16.091	-33.409	4.522	-1.940	-0.606	-1.356	8.434	17.043	2.211	10.368	16.092	22.177
Beverages and Tobacco	N.A.	N.A.	N.A.	N.A.	N.A.	0.342	0.134	-1.288	-0.824	-0.369	-0.810	-0.793	0.000	-0.382	0.146	0.215	0.077
Crude Materials, except Fuels	10.589	23.206	17.285	21.713	37.653	31.420	23.210	26.444	27.086	38.413	32.069	37.881	12.274	26.349	27.605	25.624	23.259
Mineral Fuels	-7.859	-14.840	-11.398	-12.083	-36.454	-47.174	-22.987	-35.914	-27.427	-46.159	-31.761	-22.722	0.000	-22.858	-20.525	-20.494	-16.708
Animal, vegetable oils and Fats	-1.696	-2.329	-2.128	-3.002	-5.927	0.000	-1.854	-2.776	-1.283	-1.733	-0.414	-0.293	0.000	-2.606	-2.127	-1.523	-1.969

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.

29/06/89

TABLE A.7

Comparative Advantage: Colombia, 1970-85

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
MANUFACTURES	-79.121	-53.580	-60.572	-55.144	-54.991	-63.026	-61.962	-64.534	-71.376	-62.516	-67.267	-48.753	-49.613	-46.574	-53.326	-56.196
LIGHT MANUFACTURES	2.451	3.607	10.190	11.003	17.789	15.317	9.104	2.453	2.405	5.449	10.105	10.042	4.963	3.245	1.061	4.108
Food Group	0.281	0.823	4.753	3.287	5.033	8.168	-0.009	-4.294	-3.525	-1.931	3.207	2.127	0.273	1.037	-0.866	0.967
Textiles	1.702	2.317	4.675	6.781	10.782	6.694	8.354	6.247	5.577	6.741	6.603	7.534	4.218	2.222	1.984	2.773
HEAVY INDUSTRY	-29.482	-20.439	-26.964	-31.078	-34.204	-33.504	-25.130	-27.487	-30.509	-28.328	-34.525	-22.948	-19.615	-12.052	-16.913	-28.285
Paper	-5.820	-3.696	-4.979	-5.524	-6.398	-5.861	-2.956	-2.337	-2.407	-2.433	-2.150	-0.488	-0.935	-1.680	-2.033	-2.443
Chemicals	-12.643	-8.990	-14.035	-18.761	-18.229	-17.805	-15.580	-19.468	-21.062	-19.462	-25.367	-17.836	-12.655	-4.708	-8.386	-15.564
Non Metallic	0.294	0.229	0.381	0.467	1.127	0.943	1.572	0.716	0.821	1.620	1.236	1.624	1.385	0.230	0.195	0.394
Metalurgy	-11.227	-7.975	-8.315	-7.133	-10.635	-10.638	-8.092	-6.322	-7.860	-8.048	-8.240	-6.156	-7.355	-5.773	-6.580	-10.487
HIGH TECH	-52.091	-36.747	-43.799	-35.069	-38.577	-44.839	-45.936	-39.500	-43.271	-39.636	-42.847	-30.847	-34.961	-37.767	-37.473	-32.018
Machinery	-29.213	-23.688	-29.326	-25.231	-23.044	-24.998	-24.601	-24.273	-25.346	-22.102	-27.080	-20.818	-22.606	-23.870	-25.091	-19.496
Transport Equip.	-20.776	-11.964	-15.831	-14.749	-15.613	-18.731	-20.178	-14.378	-16.389	-16.063	-15.834	-10.723	-12.139	-12.669	-11.175	-11.090
NON-MANUFACTURES	79.121	53.580	60.572	55.144	54.991	63.026	61.962	64.534	71.376	62.516	67.267	48.753	49.613	46.574	53.326	56.196
Non-Ferrous Metals	-2.348	-1.677	-2.298	-2.659	-5.050	-2.804	-2.952	-3.054	-2.991	-2.780	-2.723	-1.997	-1.664	-1.867	-2.159	-1.999
Food and Live Animals	73.157	49.159	55.143	55.386	53.753	59.803	65.402	72.492	83.672	76.237	82.761	55.919	57.469	49.426	54.336	58.952
Beverages and Tobacco	-0.649	0.400	0.539	0.526	0.887	0.293	1.071	0.115	0.178	-0.178	-0.416	-0.089	-0.087	-0.116	0.142	-0.450
Crude Materials, except Fuels	0.978	0.355	1.864	-1.555	-1.766	1.057	-0.065	1.619	-0.704	-0.285	1.822	4.169	1.069	0.630	-0.103	-0.476
Mineral Fuels	9.522	7.192	6.816	5.182	9.467	6.522	1.741	-2.875	-4.826	-6.630	-11.407	-11.533	-4.599	0.429	3.623	4.411
Animal, vegetable oils and Fats	-1.539	-1.848	-1.491	-1.737	-2.299	-1.844	-3.235	-3.763	-3.952	-3.848	-2.770	-2.816	-2.574	-1.929	-2.513	-2.243

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.

29/06/89

Table A.8

Comparative Advantage Indicators: Mexico, 1970-85

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
MANUFACTURES	-19.502	-11.234	-23.001	-19.238	-15.602	-18.434	-24.907	-25.307	-33.096	-42.378	-60.198	-106.833	-73.753	-52.626	-53.350	-60.028
LIGHT MANUFACTURES	7.979	8.581	7.925	10.791	11.709	7.667	8.640	9.881	6.817	6.118	-2.358	-4.972	-3.884	-2.908	-1.923	-2.302
Food Group	7.452	7.457	6.711	7.084	7.368	5.650	6.784	7.185	5.534	5.259	-1.752	-3.278	-2.445	-2.909	-1.907	-1.599
Textiles	0.445	0.903	0.992	3.434	4.033	1.892	1.666	1.383	0.902	0.651	-0.397	-1.367	-1.236	-0.094	-0.057	-0.599
HEAVY INDUSTRY	-6.001	-3.003	-7.022	-9.452	-8.108	-7.528	-6.866	-8.721	-14.742	-15.466	-19.858	-30.831	-23.474	-18.148	-16.785	-21.326
Paper	-0.969	-0.521	-1.118	-1.313	-0.952	-0.303	-0.769	-0.718	-0.822	-1.401	-2.089	-2.689	-2.200	-2.464	-2.694	-2.911
Chemicals	-3.423	-3.410	-6.295	-6.455	-4.657	-4.097	-3.264	-6.625	-7.073	-7.166	-6.869	-9.963	-11.581	-10.688	-7.645	-11.572
Non Metallic Mins.	0.104	0.565	0.612	0.567	0.575	0.377	0.637	1.274	0.987	0.199	-0.311	-0.729	-0.440	0.309	0.377	0.320
Metalurgy	-0.947	0.800	0.316	-1.260	-2.228	-2.814	-3.110	-2.392	-7.490	-6.510	-10.025	-16.854	-8.979	-4.960	-6.422	-6.668
HIGH TECH	-21.480	-16.812	-23.904	-20.577	-19.203	-18.573	-26.681	-25.467	-25.171	-33.030	-37.981	-71.030	-46.394	-31.570	-34.642	-36.399
Machinery	-12.947	-11.050	-15.813	-13.618	-12.006	-10.275	-16.300	-14.304	-15.391	-19.812	-23.475	-43.668	-30.567	-20.457	-24.109	-26.475
Transport Equip.	-7.199	-4.657	-6.067	-5.481	-6.124	-7.178	-9.052	-9.788	-8.148	-11.012	-12.036	-22.858	-12.403	-9.207	-8.199	-6.598
NON-MANUFACTURES	19.502	21.488	23.001	19.238	15.602	18.434	24.907	25.307	33.096	42.378	60.198	106.833	73.753	52.626	53.350	60.028
Non-Ferrous Metals	2.860	2.910	2.399	5.675	5.356	3.870	3.261	2.959	1.872	0.010	-0.068	-0.686	-1.012	1.814	1.024	N.A.
Food and Live Animals	13.577	15.382	17.336	15.236	10.314	7.165	13.314	12.466	14.528	11.716	-0.207	-1.469	1.362	-9.331	-2.771	N.A.
Beverages and Tobacco	0.468	0.453	0.362	0.605	0.841	0.624	0.658	0.585	0.720	0.573	0.338	0.916	0.555	0.387	0.434	N.A.
Crude Materials, except Fuels	3.116	3.702	5.327	2.801	2.193	2.723	2.996	-0.617	-0.319	-0.222	0.812	0.208	-2.948	-5.322	-7.339	N.A.
Mineral Fuels	-0.201	-0.791	-2.238	-4.145	-2.094	4.315	4.976	10.335	16.941	30.634	60.073	108.617	76.192	65.078	62.001	N.A.
Animal, vegetable oils and Fats	-0.319	-0.169	-0.184	-0.934	-1.008	-0.264	-0.297	-0.421	-0.646	-0.333	-0.749	-0.752	-0.404	0.000	0.000	N.A.

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.