

Bonelli, Regis; Franco, Gustavo; Fritsch, Winston

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Macroeconomic instability and trade liberalization in Brazil: Lessons from the 1980s to the 1990s

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DEPARTAMENTO DE ECONOMIA

PUC - RJ

TEXTO PARA DISCUSSÃO

No. 278

MACROECONOMIC INSTABILITY AND TRADE LIBERALIZATION IN BRAZIL:
LESSONS FROM THE 1980S TO THE 1990S

REGIS BONELLI
GUSTAVO B. FRANCO
WINSTON FRITSCH

FEVEREIRO 1992.

**Macroeconomic Instability and Trade Liberalization in Brazil:
lessons from the 1980s to the 1990s**

by

**Regis Bonelli
Gustavo B. Franco
Winston Fritsch (Project Director)**

**Department of Economics
Catholic University of Rio de Janeiro**

February 1992

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1. Introduction¹

This report presents the main results and conclusions of a research project carried out by the Department of Economics of the Catholic University of Rio de Janeiro, as part of IDB's Network of Latin American Research Institutions, on the theme Macroeconomics of Increasing Trade Openness. Its basic concern is to evaluate, on the basis of the experience of the 1980s, the threats posed by macroeconomic conditions to the successful completion of the ongoing trade liberalization in Brazil and put forward policy prescriptions that may lessen these threats.

The text of the report is divided into five substantive sections besides this introduction. Sections 2 and 3 review key aspects of Brazil's macroeconomic and trade performance in the 1980s. The former emphasizes the links between the sharp external adjustment effected during 1983-84 and the domestic instability experienced during the second half of the decade. The latter describes the evolution of the trade regime and the crucial influence of macroeconomic policies on international competitiveness. Section 4 describes the main aspects of the ongoing trade liberalization launched in March 1990, and the nature of the policy dilemmas implicit in sustaining the liberalization experiment in a very unstable macroeconomic environment, the main prospective policy problem addressed in this report. These policy dilemmas are analysed in greater analytical depth in Section 5, with the help of a simple macroeconomic model which takes into account some specific institutional features of the Brazilian economy. Finally, Section 6 summarizes the conclusions and draws economic policy recommendations.

¹ The authors wish to thank comments made by participants in the project seminars held in Santiago de Chile and Washington, D.C.. Special thanks are due to Messrs. Elio Londero and Sebastião Vital who sent written comments on earlier versions of this research report.

To keep the text of the final report within a reasonable length, longer empirical or analytical detours were placed in a Technical Annex, located at the end of the text of the report. A list of all references used in writing the report is to be found at the end of the document.

2. Brazil's macroeconomic performance in the 1980s: an overview

For analytical purposes, the macroeconomic behaviour of the Brazilian economy during the 1980s can be divided into two distinct phases. The first one, lasting until 1985, has as its main characteristic a sharp balance of payments adjustment following the debt crisis. Up to 1982, contractionary monetary policies were able to redress external balance at the cost of an output fall in 1981, especially through the impact of high interest rate differentials on voluntary capital inflows. As Table 1 shows, new money inflows financed the bulk of the large current account deficits between 1980 and 1982.

Table 1
Balance of Payments 1980-1990 (US\$ billion)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
1-TRADE BALANCE	-2823	1202	780	6470	13090	12486	8304	11172	19181	16142	10990
Exports	20132	23293	20175	21899	27005	25639	22349	26224	33786	34405	31414
Imports	22955	22091	19395	15429	13916	13154	14044	15052	14605	18263	20424
2-SERVICES	-10152	-13135	-17083	-13415	-13215	-12877	-13695	-12678	-14370	-14800	-14165
Interest	-6311	-9161	-11353	-9555	-10203	-9659	-9327	-8792	-9832	-9633	-9044
Profits & dividends	-3841	-3975	-5729	-3860	-3012	-3218	-4367	-3886	-4538	-5167	-5121
Others											
Unrequited transfers	167.8	198.5	-8.1	107.5	170.5	149.8	86.3	70.2	94	243.7	828
3- Current Transactions	-12807	-11734	-16311	-6837	45	-241	-5304	-1436	4904	1586	-2347
4- Capital	9679	12773	7850	2103	253	-2554	-7108	-7986	2894	-4179	-4708
Direct investment	1121	1584	991	664	1077	720	-263	531	2266	125	5
Financing & Loans	10596	15553	12515	6708	10401	7078	3109	3988	5177	3640	3505
Amortization	-5010	-6242	-6952	-6863	-6468	-8499	-11547	-13820	-15031	-33985	-7794
Others	2972	1877	1296	1594	-4756	-1853	1593	1314	10482	25174	-424
5- Surplus or deficits	-3472	625	-8829	-5405	700	-3200	-12356	-10228	6977	-3391	-7207

Source: BACEN

Following the collapse of bank lending in mid-1982, however, the situation changed dramatically and, between 1982 and 1984, Brazil effected what, by any standards, was an impressive external adjustment, turning a current account deficit of over US\$ 16 billion in 1982 into a small surplus in 1984.

Although helped by the fall in dollar interest rates from the second half of 1982, this adjustment was fundamentally based on a sharp swing in the trade balance stemming from three sources. The first was the exogenous contribution of the strong United States recovery of 1983-84 to the demand for Brazilian exports. The second was the contractionary demand management policy adopted in the context of the first IMF agreement in early 1983. As a result of such policies, industrial output experienced its second fall in a period of three years (see Table 2), and the investment to GDP ratio collapsed to levels 6% below those of the beginning of the decade. Last, but by no means least, there was the important contribution given to exports by the 30% devaluation of February 1983. However, in 1984 the economy went out of recession led by a fast recovery in manufactured exports and the easing of restrictive demand management.

Table 2
Real Output Indices (GDP and main sectors), 1980-1990
(1980=100)

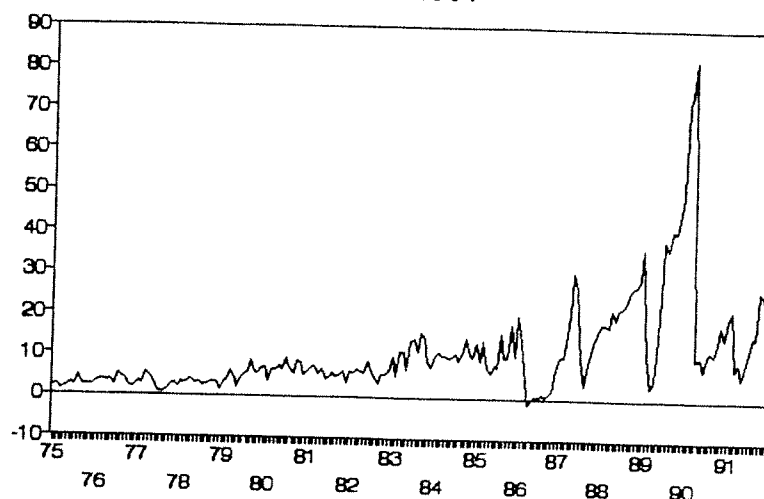
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
TOTAL	100	95.61	96.16	92.88	97.78	105.55	113.56	117.67	117.56	121.44	116.54
% change		-4.39	0.58	-3.41	5.28	7.95	7.59	3.62	-0.09	3.30	-4.03
AGRICULTURE	100	107.97	107.44	106.82	110.42	121.42	111.68	128.40	129.48	133.17	128.21
% change		7.97	-0.49	-0.58	3.37	9.96	-8.02	14.97	0.84	2.85	-3.72
INDUSTRY	100	91.15	91.17	85.84	91.51	99.08	110.73	111.90	109.00	112.14	103.84
% change		-8.85	0.02	-5.85	6.61	8.27	11.76	1.06	-2.59	2.88	-7.40
SERVICES	100	97.77	99.73	98.94	103.03	109.70	118.75	122.64	125.47	130.33	129.45
% change		-2.23	2.00	-0.79	4.13	6.47	8.25	3.28	2.31	3.87	-0.68

Source: IBGE

This impressive external adjustment was, however, accompanied by two important and interrelated domestic disequilibria. The first was an

inflationary surge caused by relative price changes effected as part of the adjustment program, in which the sharp real exchange rate depreciation played a major part (see Figure 1).

Figure1:Brazil-monthly inflation rates
1975-1991



The second, and a crucial aspect of Brazilian macroeconomic behavior in the second half of the 1980s whose implications extend into the present decade, was the impact of the external adjustment process on the public sector's financing capacity.

The key aspect of the deterioration of the public sector budget position was the erosion of the large government surplus in current transactions (see Table 3). Although aggravated in recent years by a steady rise in government consumption, especially by governments of the states following greater political competition after the return to democracy in 1985, the deterioration in public savings began with the cumulative impact of the acceleration of inflation on tax revenues (the Tanzi effect) and high interest rates paid on a rising public debt. This erosion in public sector savings, coming together with the fall in foreign financial flows and a reduction in seigniorage gains with the contraction in the demand for money caused by high inflation rates, seriously complicated the task of financing government

investment programs. The consequence of the erosion of the public sector capacity to invest was a damaging impact on overall capital formation, given the complementary character of public and private investment observed in Brazil, which accounts for the stagnation of the past few years.

Table 3

Government current account surplus (government savings), 1970-1990

(% of GDP)

Year	Gross Taxes	Subsidies	Interest on Government Domestic Debt	Other Transfers	Federal Government Payroll	State & Municipal Government Payroll	Other Government Consumption Expenditure	Interest on Government Foreign Debt	Government Savings
1970	26.29	0.52	0.52	8.25	4.18	4.07	3.09	0.05	5.61
1971	25.19	0.78	0.39	6.98	4.07	4.46	2.71	0.08	5.72
1972	25.93	0.58	0.29	7.20	3.46	4.32	2.88	0.17	7.03
1973	25.00	1.17	0.39	6.64	3.54	3.50	2.93	0.10	6.73
1974	25.11	2.15	0.40	6.04	2.95	3.49	2.95	0.09	7.04
1975	25.23	2.67	0.38	6.76	3.33	3.81	3.05	0.19	5.04
1976	25.09	1.53	0.49	7.22	3.43	3.73	3.30	0.18	5.21
1977	25.55	1.48	0.48	7.26	3.13	3.45	2.85	0.16	6.74
1978	25.68	1.88	0.47	8.13	3.12	3.79	2.76	0.19	5.34
1979	24.66	1.91	0.55	7.80	2.89	4.09	2.92	0.29	4.21
1980	24.70	3.86	0.76	7.77	2.76	3.55	2.89	0.37	2.74
1981	24.65	2.68	1.08	8.22	2.96	3.50	2.86	0.29	3.06
1982	25.26	2.48	1.17	8.58	3.02	4.03	2.96	1.14	1.88
1983	25.07	2.65	1.55	8.36	2.89	3.72	3.05	1.56	1.29
1984	21.82	1.59	2.08	7.76	2.47	3.18	2.63	1.76	0.35
1985	22.53	1.59	2.30	7.24	3.06	3.88	2.93	1.51	0.02
1986	25.35	1.47	1.19	7.97	2.40	4.90	3.37	1.35	2.70
1987	23.34	1.59	1.01	7.54	2.78	4.99	4.39	1.42	-0.38
1988	21.89	1.23	1.58	7.18	3.21	4.71	4.68	1.72	-2.42
1989	21.94	1.93	1.44	7.50	4.11	5.61	4.60	2.03	-5.28
1990	27.43	1.72	-1.09	8.29	3.63	6.86	5.15	2.12	0.75

Source : BACEN

The second of the two phases mentioned above began in the mid-1980s, when the early fears of a foreign exchange crunch naturally gave way to concerns with high and downward-rigid inflation. The acceleration of inflation by the end of 1985 led to the launching of the Cruzado Plan in February 1986, the first of a series of failed attempts at curbing the chronic inflationary process by imposing a price and wage freeze. This time, the freeze was a key

component of the stabilization program, given the importance of feedbacks created by generalized indexation in explaining the Brazilian inflationary process. However, too expansionary demand management and a strong wages and incomes rise boosted industrial output to growth rates near 12% in the third year of a recovery (see Table 2). With many key prices frozen at unsustainable low levels, the demoralization of the Plan was a matter of time. Towards the end of the year inflation rates began to rise again (see Figure 1). At the same time there was a sharp reduction in the trade balance (see Table 1), which eventually led to a moratorium on bank debt by February 1987.

The aftermath of the Cruzado Plan ushered in a period of continuous domestic disequilibria. The ensuing price explosion led to a near stagnation in industrial activity levels stemming from the erosion of real wages and a sharp fall in consumption. Later, renewed attempts to recover real income levels - wage demands, marking up of prices caught low by the freeze and so on - exacerbated distributive conflicts and renewed inflationary pressures, leading to vicious stagflationary circles of price freezes followed by accelerating inflation, demand contraction and new price freeze, lasting to the end of the decade (see Table 2 and Figure 1).

A detailed analysis of Brazilian short-term macroeconomic policies in the second half of the 1980s is, however, beyond the scope of this section². Suffice it to recall that the first of such cycles coincides with the period of the so-called Bresser Plan, of June 1987, lasting until the Finance Minister resignation in early 1988. Again, the failure of the stabilization plan (see Figure 1) caused a sharp erosion of real wages as prices rose faster than wages and as industrial demand fell. A mediocre GDP growth rate was sustained in 1987 by the unusually good performance of agricultural output (see Table 2). The second cycle starts with the Summer Plan, of January 1989, also based on a

² For a detailed description, see Bonelli and Landau [1990].

freeze of prices, wages and the nominal exchange rate, introduced by a team which had taken office announcing the return to sound orthodox principles of contractionary demand management as the road to stabilization only one year before. Nevertheless, in spite of attempts at repressing inflation by recurrent spells of dear money, monthly inflation rates rose steadily from 3.6% in February to 53.5% in December, accumulating the astounding figure of 1,764% for 1989 as a whole.

With the inauguration of President Collor in March 1990 a strong liquidity squeeze was applied. This had a marked contractionary effect on activity levels, but only a temporary effect on the rate of inflation (see Figure 1 and Table 2). In January 1991, with inflation once more accelerating towards near hyperinflationary levels a price freeze was again applied, which was later replaced by a strong dear money policy which is still depressing activity levels below the levels of early 1990.

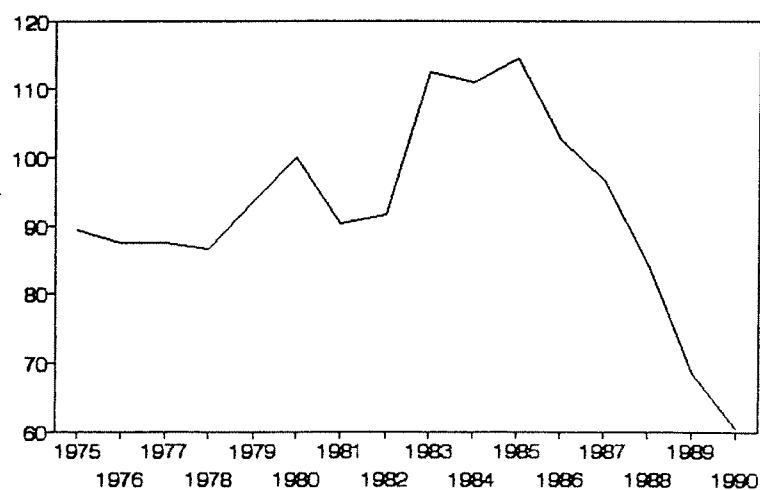
In the fiscal front, there was also little change from the previous situation as, although overtly committed to redressing fiscal balance, the new government lacks parliamentary support. Thus, after the enactment of some once and for all fiscal measures which restored a positive level of government savings in 1990, it has been unable to maintain budget equilibrium in 1991. However, the new administration launched a far reaching trade liberalization program which, by occurring in an environment of high domestic instability, poses new challenges to macroeconomic management, analysed in greater detail in Sections 4 and 5, below.

In conclusion, for the purpose of the present historical overview of the Brazilian adjustment process to the shocks of the early 1980s, two points should be stressed. The first relates to the impact of sharp external adjustment based on strong expenditure switching, induced by large real devaluations, on domestic equilibrium and, especially, on government savings. In fact, the impressive external adjustment effected during Phase I, in the

first half of the 1980s, did not pave the way for a sustained recovery. On the contrary, it has generated domestic disequilibria so that Phase II, in the second half of the decade, has been marked by a situation of repressed hyperinflation - marked by an unusual combination of dear money and very high inflation rates - large current output losses and a fall in the rate of potential capacity growth.

The second, and perhaps more directly relevant to the objectives of the present study, relates to the implications of domestic disequilibria on the sustainability of a good trade performance. The Brazilian experience since the mid-1980s shows that inflationary outbursts are invariably accompanied by real exchange rate appreciations since, in these critical situations, the nominal exchange rate is targeted towards stabilization objectives and not towards trade performance. Even when there is an attempt at realigning dollar parities, usually at a time of a new freezing of prices, one witnesses a tendency towards appreciation when inflation begins to creep up again. Moreover, as Figure 2 shows, as the cycle of accelerating inflation and price freezes repeats itself, one observes a clear appreciating trend in the real exchange rate.

Figure 2: Brazil-real exchange rate
1975-90



As will be demonstrated in the following section, this trend, visible after 1985, has an important bearing on Brazil's export performance in the second half of the decade, and underlies the dangers of launching a major trade policy reform before restoring domestic macroeconomic equilibrium.

3. The trade regime and trade performance in the 1980s

3.1. The evolution of the trade regime

Until the recent reform, the Brazilian commercial regime displayed two basic features. First, despite tariff cuts implemented in the mid-60s, there was a very restrictive import regime based on discretionary import licensing, used in support of industrial policies. The stringency with which these import controls were exerted varied depending upon the balance of payments position. It is reasonably accurate to say that, although some relaxation could be observed on import restrictions over the past few years, until 1990, when the current liberalization experiment began, the coverage of quantitative restrictions remained at 100%.

An important consequence of the operation of these administrative import controls was to make the relatively high Brazilian tariffs a secondary line of defense within the Brazilian protection system. Consumer goods were compressed by the low priority conferred to them in the issuing of import licenses, or faced outright prohibition, while intermediate and capital goods had to jump the very high additional barrier of the so-called "Law of Similars".

By generating an import structure basically formed by non-competitive goods, the system created an important distributive distortion: importing firms invariably applied for tariff exemptions or reductions under "special import

regimes" for priority imports, which were granted either by specific legislations or on an ad-hoc basis by the Tariff Commission (CPA). As a result, nearly 67% of all Brazilian imports entered the country in 1985 with tariff reductions or exemptions, a situation that would remain only slightly changed until 1990. An interesting consequence of the proliferation of "special regimes" for imports in the 1980s was the large difference between legal tariffs and the ones effectively practiced, i. e., the "true" levels, meaning the revenues of import taxes as a percentage of the value of imports (see Table 4). Note that the comparison is even more striking regarding effective rates of protection if we consider that the latter is underestimated given the overwhelming presence of QRs. The proliferation of these special import regimes had some fiscal implications, as it reduced the value of potential tariff revenue. However, given the existence of generalized administrative controls and import prohibitions, the impact of the tariff reductions on the level of protection was rather mild.

Table 4
Brazil: Legal and "True" Rates of Protection, 1984

Sector	Nominal		Effective	
	Legal	True	Legal	True
All manufacturing	90.0	19.1	165.6	34.5
Light manufacturing	130.5	10.1	246.1	35.2
Food	84.2	16.9	212.3	43.4
Textiles	176.9	3.3	268.4	1.1
Heavy Industry	71.9	3.9	114.4	32.4
Paper	82.2	39.4	212.9	110.9
Chemicals	34.2	11.5	95.2	24.6
Non-metallic minerals	98.7	29.5	182.1	41.5
Metallurgy	72.8	12.7	91.1	24.0
High tech	98.5	8.5	137.1	14.1
Machinery	81.2	14.9	121.3	19.1
Transport equipment	115.9	2.9	217.7	-9.6
Agriculture	57.3	22.6	63.3	26.7

Source: Fritsch and Franco [1989a] using raw data from Braga et al [1988], pp. 674-77. Weighted using shares in total value added.

The second major feature of Brazilian trade policy was the very active export promotion policy, including subsidies and import duty exemptions.

The basic role of these export incentives was to offset the anti-export bias created by the restrictive import regime in specific industries, generating a nearly neutral regime. This situation - high protection as a rule and export subsidies as an exception for exporters - runs against the usual policy prescription calling for a devaluation and a reduction of export subsidies and tariffs. The main obstacle to the adoption of such a course of action was the inflationary consequences of real devaluations, a concern that the experience of the 1980s crucially reinforced.

Indeed, a third important element in the Brazilian trade regime was for a long time the fairly well managed crawling peg implemented in 1968, which guaranteed an impressive real exchange rate stability against the dollar until 1979. This stable exchange rate policy was, indeed, a crucial element in the explanation of Brazil's export diversification and growth during the 1970s, as it avoided the damaging exchange rate appreciations typical of the early post-war years.

However, as displayed in Figure 2, the second oil shock ends this long period of relative stability of real exchange rates. During the first half of the 1980s, when concern with external adjustment dominated the scene, as discussed in Section 2, two large - 30% nominal - devaluation attempts were made in late 1979 and early 1983. While the 1979 devaluation was quickly eroded in real terms, the second attempt was followed by a return to a relative stability of real rates under a crawling peg at a substantially devalued level when compared with the 1970s, which lasted until 1986. From then on, however, with the acceleration of inflation towards hyperinflation levels, exchange rate management became increasingly geared to the stabilization objective, giving rise to a clear appreciating trend (see Figure 2).

It is interesting to note that, given the geographical diversity of Brazil's export markets, the impact of this appreciation of the real cruzeiro-US dollar rate upon Brazilian competitiveness was dampened by the large

depreciation experienced by the dollar against other key currencies between 1985 and 1987. After 1987, however, as shown in Table 5, with the reinstatement of a relative stability among key currencies, the effects of the real cruzeiro appreciation against the dollar were again fully felt on the cruzeiro effective rate, with a damaging impact on competitiveness, as will be shown below.

Table 5
Real effective exchange rates and relative export prices, 1974-90
(1985=100)

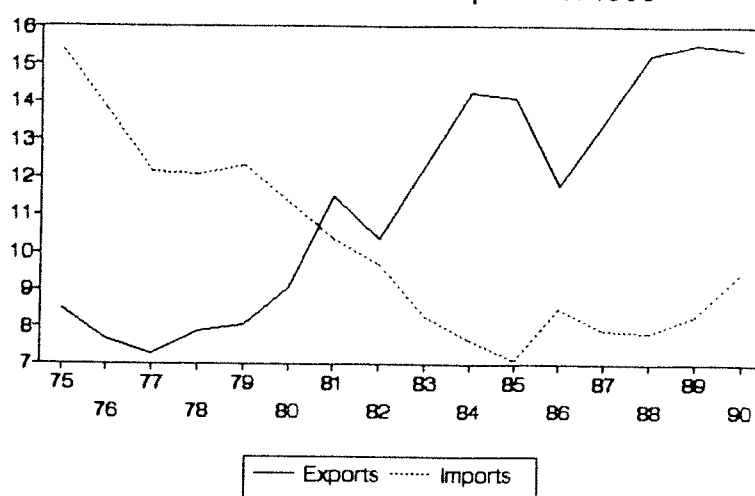
Year	Real Effect.Exchange Rate	Relative Export Prices
1974	85.86	68.42
1975	87.46	71.96
1976	87.43	65.50
1977	89.45	55.90
1978	94.25	62.45
1979	104.55	63.99
1980	114.12	67.11
1981	90.87	75.71
1982	86.70	82.79
1983	103.21	90.95
1984	96.60	92.25
1985	100.00	100.00
1986	103.37	91.72
1987	103.75	92.80
1988	93.07	86.53
1989	71.63	80.36
1990	64.25	79.46

Source: IMF/IFS and Brazilian Trade Statistics.

3.2 Macroeconomic influences on trade performance

During the period studied in this paper, Brazil's trade performance was driven by the imperatives of adjustment to a series of adverse external shocks. Thus, between 1975 and 1990, while exports grew at above 7% per annum on average, well above domestic (and world) market growth rates, imports markedly fell in real terms, especially until the middle of the 1980s³. Thus, as shown in Figure 3, one witness an increasing "outwardness", as measured by export propensities, accompanied by a growing "inwardness" to near autarky levels.

Figure 3 : Brazil - Trade propensities
1975-90 % of GDP const.prices of 1980



This fast export growth was accompanied by an important diversification towards manufactures, whose share in total exports increased substantially, especially after the second oil shock. As can be seen in Table 6, industrialized products (manufactures and semi-manufactures) presently account for some 70% of total exports.

Table 6
Structure of Brazilian Exports, 1974-90 (% and US\$ billion)

Year	Value	Structure (%)		
		Manufactured	Semi-manuf.	Basic*
1974	7.95	28.4%	11.5	57.6 [29]
1975	8.67	29.8	9.8	58.0 [34]
1976	10.13	27.4	8.3	60.5 [47]
1977	12.12	31.7	8.9	57.1 [41]
1978	12.66	40.2	11.6	46.8 [33]
1979	15.24	43.6	12.7	42.7 [29]
1980	20.13	44.8	12.0	41.9 [29]
1981	23.29	51.0	9.4	38.0 [25]
1982	20.16	50.8	7.3	40.6 [27]
1983	21.90	51.5	8.4	38.7 [26]
1984	27.01	56.0	10.5	32.4 [22]
1985	25.64	54.9	10.8	33.3 [23]
1986	22.35	55.5	11.2	32.6 [23]
1987	26.23	56.6	12.1	30.6 [21]
1988	33.79	56.8	14.5	27.8 [20]
1989	34.41	54.2	16.9	28.9 [21]
1990	31.39	54.2	16.3	29.4 [19]

Sources: Central Bank Bulletins (various issues), and Fachada da Silva [1990].

* Share of coffee, iron ore and soya in total exports.

Table 7 documents the evolution of the import structure, where the most visible changes are the rise and fall of the importance of oil, explained by price movements as well as by substantial import substitution in the early 1980s. Also remarkable is the fall in the share of imports of capital and intermediate goods in response to the domestic recession in the early 1980s.

Table 7
Structure of Brazilian Imports, 1974-90 (In % and US\$ billion)

Year	Primary Products	Mineral Extract.	Capital	Manufactured Intermed.	Consump.	Total Value
1974	5.3	22.5	25.4	39.0	7.8 (2.1)	12.6
1975	4.5	25.5	32.5	30.5	7.0 (1.5)	12.2
1976	6.1	30.4	29.3	27.5	6.7 (1.4)	12.4
1977	4.6	33.4	26.4	28.5	7.1 (1.7)	12.0
1978	3.5	35.3	28.8	18.8	13.6 (6.7)	13.7
1979	3.7	30.1	24.3	26.9	15.0 (8.6)	18.1
1980	2.8	43.3	19.6	23.8	10.5 (6.0)	23.0
1981	2.9	50.3	18.5	18.7	9.6 (5.2)	22.1
1982	2.9	51.7	17.5	18.3	9.6 (5.2)	19.4
1983	1.6	54.4	16.9	16.0	11.1 (6.4)	15.4
1984	1.9	53.2	15.8	17.6	11.5 (6.7)	13.9
1985	1.8	46.8	19.9	19.7	11.8 (6.3)	13.1
1986	4.5	25.5	26.5	25.8	17.7 (10.4)	14.0
1987	2.5	31.4	27.6	26.0	12.5 (5.3)	15.1
1988	1.9	28.8	31.0	26.2	12.1 (2.8)	14.4
1989	2.4	24.4	27.6	28.1	17.5 (6.9)	18.3
1990	2.4	25.8	29.9	25.0	16.9 (6.2)	20.4

Sources: FUNCEX, Bulletins.

Notes: Primary products includes wheat; Min. Extract. is mainly crude oil; Capital goods includes Mechanic, Electrical and Transport Equipment; Intermediate goods is composed of Non-metallic minerals, Basic Metals, Wood, Paper and Pulp, Leather and Chemicals; Consumption goods includes all other sectors, the most important of which being Food products (whose share is shown in brackets). The total FOB value in current US\$ billion dollars is shown in the last column.

³ Between 1975 and 1985, the accumulated fall in the volume of imports reached 43%.

The behaviour of imports seems to have been influenced by a combination of the very cyclical behaviour of the economy superimposed on the very protectionist policies put into place in the mid-1970s, which were reinforced after the debt crisis. Indeed, as the econometric evidence shown in Table 8 indicates, activity-related variables such as income or capacity utilization explain the bulk of volume variations. A glance at Table 7 reveals that, during the 1980s, manufactured imports of capital and intermediate goods follow a pattern which strictly conforms with the recession and recovery experienced by Brazil's industrial sector. However, by 1988 nominal imports of such goods were still at around the same level of the late 1970s, revealing the extent of across the board import repression and import substitution used as a central component of Brazil's adjustment to the external shocks since the 1970s.

Table 8
Selected estimates of long run import elasticities

	Income	Price	Cap. Utiliz.	Trend
Total Imports				
Fachada da Silva [1990]	1.61	- 0.51	2.12	-0.0129
Consumption goods				
Reis [1979]	1.45	- 0.29	0.08	
Abreu & Horta [1982]	1.29	- 0.34	-	
Intermediate goods				
Reis [1979]	1.24	- 0.33	0.64	
Abreu & Horta [1982]	1.13	- 0.51	1.11	
Abreu [1987]	1.00	- 0.54	2.15	
Fachada da Silva [1990]	1.16	- 0.87	2.88	-
Capital goods				
Reis [1979]	1.20	- 1.28	1.52	
Abreu & Horta [1982]	1.00	- 0.67	-	
Abreu [1987]	1.08	- 0.63	3.39	
Fachada da Silva [1990]	0.70	- 0.60	0.86	-0.0140

Notes: Except for Fachada da Silva, who used quarterly data, all other based on yearly data.

The recovery in nominal imports observed in 1989-90 can, however, be only partially explained by changes in the trade regime. In 1989, for instance,

imports of consumer goods (mostly cereals) increased by 173% due to problems of supply associated with the aftermath of the Summer Plan; raw materials rose 37% due to speculative purchases as fears of hyperinflation increased. In 1990, about half of the rise can be explained by increased oil prices in the second half of the year, the other half being explained by capital goods imports. These can also be explained by speculative purchases. Nevertheless, part of the imports increase in 1989-90 may have been due to changes in the trade regime namely, exchange rate appreciation⁴ and a reduction in the number of prohibited items from over 3,000 to around 1,300.

The behaviour of exports during the 1980s also seems to have been influenced by domestic cyclical variations. As shown in the survey of the econometric evidence on export equations for Brazil, presented in the Technical Annex, domestic demand was found to be an important negative influence on Brazilian exports, suggesting a clear "vent-for-surplus" logic in Brazilian exports. This is an expected result for a country with a large domestic market, exporting a substantial proportion of scale-intensive products, and in which exports represent a marginal activity for most exporting firms.

However, competitiveness played a decisive role in explaining the broad trends in manufactured exports during the 1980s shown in Table 6: their boom in the first half of the decade, and their stagnation in more recent years. Indeed, results from a constant-market-share analysis of export growth (see Technical Annex for details) show that the positive competitiveness residual shown during the period 1979-89, accounting for almost one third of the aggregate growth rate of exports, is clearly due to the performance from 1979 to 1984. While during 1980-84 the competitiveness residual increased by an accumulated 38.4%, the competitiveness effect accumulated a negative 24.7% from

⁴ Estimates of long run price and income elasticities of demand for manufactured imports indicate that the impact of price changes on the quantum of imports, although small, cannot be neglected. Actually, the effects of income growth are far more important. Note, however, that, given the long standing quantitative restrictions on imports, the quality of the estimated price elasticities as a guide to future behavior may be rather poor.

1985 to 1989 as well as an amazing -17% in 1990 (including the commodity-composition effect)⁵.

The analysis of the usual indicators of competitiveness confirm this loss of competitive edge in the second half of the 1980s. Estimates of a Relative Unit Labor Cost (RULC) index are shown in Table 9.

Table 9
Brazil: Relative unit labor costs, 1970-90
(1987=100)

Years	RULC*
1970	76.8
1971	101.0
1972	113.8
1973	100.8
1974	95.9
1975	95.0
1976	86.2
1977	83.3
1978	83.3
1979	88.0
1980	103.3
1981	81.1
1982	72.8
1983	105.2
1984	112.9
1985	100.7
1986	101.1
1987	100.0
1988	88.1
1989	59.5
1990	66.2

Sources: OECD, IBGE and IFS/IMF.

* Ratio of a weighted average of ULCs of 11 major trade partners to the Brazilian ULC, all in US dollars.

The series on RULC display three distinct movements since 1980. In the first one, up to 1982, the index falls 30%. The second, from 1982 to 1984, witnesses a sharp recovery: the RULC index rises not less than 55%. From 1984 to 1989,

⁵ Note that, as expected, the penetration in world markets is much more pronounced for manufactures than for non-manufactured products and the competitiveness residual is positive in most sub-periods analyzed. Considering the decade 1979-89 as a whole it explains nearly half the overall growth rate. Again, this result can almost entirely be attributed to the performance from 1980 to 1984. Indeed, competitiveness gains were modest both from 1979 to 1980 and from 1985 to 1989.

however, another sharp reduction of the order of 47% is observed, followed by a recovery in 1990 (and in 1991, not shown) which, however, leaves the RULC indicator well below its 1984 peak. The behaviour of two other indicators of competitiveness, the real effective exchange rate and export prices (unit values), points to the same pattern of increasing competitiveness in Phase I and decreasing competitiveness in Phase II, as can be seen in Table 5⁶. Since there was no marked change in the extent and structure of export promotion, and labour productivity remained fairly stagnant throughout the 1980s, the explanation of these sharp swings in competitiveness is to be found in the equally sharp swings in the real exchange rate experienced during the decade.

4. The new challenges of the 1990s: import liberalization in an unstable macroeconomic environment

4.1 The 1990-91 trade policy reform

In March 1990 Brazil started a sweeping trade liberalization experiment as part of wider changes concurrently introduced in the traditional principles, objectives and instruments of industrial policy. The change affected both import protection and export promotion instruments. On the one hand, there was a significant narrowing of the vast array of export promotion instruments. The first cuts were made in March 1990, when fiscal incentives conceded as income tax exemptions for export earnings were abolished together with several other subsidies and tax expenditures - except those under drawback arrangements - as part of a comprehensive fiscal package. In the same breath, the BEFIEX import-to-export program was terminated except for the contracts then in force. Later, in June 1990, the government announced a new export policy, confirming the reduction of subsidies to export credit lines granted by both the customary channels at Banco do Brasil, as well as by a special line for finance of equipment exports (Finamex) recently created by BNDES.

The most important changes took place, however, in the import regime. The liberalization experiment was conceived as a phased process, following a rather conventional path: first, a rationalization of the import regime would take place, whereby most "special import regimes" would be abolished; second, the actual liberalization process would begin with the abolition of QRs and its replacement by tariffs; third, tariffs would be progressively brought down.

The first step in this sequence was taken in March 1990. Among other minor changes, the government eliminated the bulk of import duty exemptions under special regimes and abolished the list of forbidden imports⁷, established by CACEX and known as Anexo C. The abolition of the Anexo C was in effect in May 1990 when new - and high - tariffs were created for the previously prohibited products. In July 1990 the long-standing quantitative controls administered by CACEX were relaxed, as the government announced that the issue of import licenses would become automatic. Shortly after, important definitions were made regarding the extent and timing of the future fall in tariffs. It was decided that a new tariff would be put in force at the beginning of 1991, together with advance notification of the pattern of fall up to 1994, when tariffs would average 20% within a range from zero to a maximum of 40%. Moreover, in the same breath, the government announced the beginning of the revision of the "market reserve" policy for the computer industry, which was eventually carried out by the end of the year.

The new tariff schedule, with the projected yearly variations until 1994, was announced on January 1st, 1991, to be in force by February 15th. Generally speaking, the methodology followed by the Coordenadoria Técnica de

⁶ The use of wholesale prices may bias the indicator (and distort its meaning) in the cases in which the prices of production for exports behave differently from the overall (domestic) price index.

⁷ Although the previous government had begun reducing the items on the list under US pressure, the list still comprised over one thousand items out of the 13,500 in the Brazilian tariff schedule.

Tarifas consisted in classifying the 13,500 items according to the following seven tariff brackets: (i) zero tariff: products with natural comparative advantages (mainly primary or semi-processed traditional exports), with natural protection (due to high transport costs), with no competitive domestic production and commodities with low value added; (ii) 5% rate: products which already paid 5% in 1990; (iii) rates between 10% and 15%: products using zero tariff products as their main input (such as the paper and pulp or cotton chains); (iv) 20% rate: the bulk of manufactured products; (v) 30% rate: fine chemicals, wheat, biscuits, pasta, TV sets, record players, video cassettes and sound equipment; (vi) 35% rate: autos, trucks and motorcycles; and (vii) 40% rate: informatics goods.

Having classified the products according to this general rule, the pattern of fall was designed to follow a rule of concentrating the heavier reductions during the first two years on intermediate and capital goods, thus enhancing effective protection and competitiveness of consumer goods sectors. The aggregate result of this exercise is shown in Table 10.

Table 10
The new Brazilian Tariff, 1990-94 (in %)

	1990	1991	1992	1993	1994
Average	32.2	25.3	21.2	17.1	14.2
Mode	40.0	20.0	20.0	20.0	20.0
Standard deviation	19.6	17.4	14.2	10.7	7.9

Source: Coordenadoria Técnica de Tarifas, MEFP.

The new tariff falls gradually over time and protection becomes more homogeneous among goods, witness the fall in the standard deviation of the rates. Nevertheless, if one takes into consideration that the tariff in force after the 1990 round of abolition of QRs had a maximum of 105%, the extent of the projected liberalization looks quite impressive.

It is true that local content requirements for access to subsidized domestic credit were maintained with only a slight reduction in levels

practiced by BNDES⁸, and that restrictions on imports on a list of over forty "informatics goods" are still in place. These restrictions kept the large Brazilian capital goods and the informatics industries in a more protected regime. This was reinforced, in the case of capital goods and parts by the suspension of new BEFIEX contracts, an important mechanism firms could use to gain access to imports of such goods. However, even with these remaining problems, the change in Brazil's structure and level of protection was a gigantic one.

4.2 The sustainability of the current trade policy reform: the problem of sequencing with stabilization policy

In the prevailing environment of persistent macroeconomic imbalances, the sustainability of the liberalization experiment is not, however, to be taken for granted. There are threats to be faced, especially in the medium run, posed by the classical sequencing problem between trade liberalization and stabilization policy in the prevailing very unstable macroeconomic environment. Indeed, substantial trade liberalization implies a previous successful stabilization effort for at least two reasons⁹. On the one hand, to avoid superimposing the fall in aggregate domestic demand caused by the stabilization program on the sectoral adjustment strains accompanying trade liberalization. On the other hand, to prevent the usual temptation to transitionally allocate the exchange rate to objectives of stabilization policy, thus leading to its appreciation. This would increase structural adjustment costs as well as the danger of balance of payments problems during the implementation of the reforms.

⁸ Local content requirements were first reduced in the financing of the acquisition of domestically produced capital goods through the FINAME program, and in February 1991 they were further reduced to a maximum of 60%. Note, however, that a 1988 law still in force establishes that all firms receiving any kind of fiscal subsidy and financing from official banks and involved in government procurement should be subject to a local content

These risks were clearly perceived at the onset of the Collor administration. The emphasis on stabilization as a high priority objective and the scheduling of the start of the liberalization program to 1991 witness the intention to follow the canonical sequence. However, the failure to control inflation during 1990/91 put this delicate political architecture in jeopardy for, as this failure became apparent, the trade liberalization program had already been launched. Still worse, the contraction in demand and output experienced during 1990 is likely to continue for some time, given the high interest rates practiced since the second half of 1991 to avoid a slide into hyperinflation. Moreover, the exchange rate has been moving in a rather erratic fashion, with corrective devaluations following protracted periods of currency appreciation.

The current macroeconomic scenario increases the political odds against the liberalization experiment. Although current tariff levels are still providing a comfortable margin of protection to most domestic industries, a macroeconomic environment of "repressed hyperinflation" through very contractionary demand management and erratic real exchange rates may increase the adjustment costs of trade liberalization beyond politically acceptable limits, especially as the margin of protection falls over time.

It is true that, given Brazil's very closed industrial system, the pressure of import penetration is unlikely to cause significant shifts in aggregate industrial employment levels in the medium run. In fact, in 1989-90 the average share of domestic demand in total manufacturing output was around 95%, against 9.5% for exports and only 4.5% for imports. Since, in the short run, changes in these shares can be ignored, one can write that:

$$dY/Y = (D/Y).dD + (X/Y).dX - (M/Y).dM$$

requirement.

⁹ See Sachs [1988].

where Y stands for output, D for domestic demand, X for exports and M for imports. In such a closed economy the impact of a 20% rise in real imports on domestic output and employment can be countervailed by an increase of less than 1% in domestic demand. Opposition to trade liberalization may, nevertheless, stem from sectoral or regionally localized unemployment caused by import competition coming on top of a general output contraction caused by the fall in the large domestic demand component.

However, there may be risks in the external front. Since medium term capital flows are likely to remain depressed before stabilization takes place, the equilibrium exchange rate is likely to be higher following import liberalization. To proceed with a real devaluation to maintain external balance will, however, conflict with the objective of internal equilibrium. To have a firmer grasp on this policy dilemma, we next discuss it in the context of a simple macroeconomic model which takes into account some central institutional features of the Brazilian economy.

5. The macroeconomics of trade liberalization in Brazil: a simple analytical framework

Recent research on macroeconomic policy in Latin America has revived the old "two-gap" tradition in development economics which relates growth with restrictions imposed either by the balance of payments or by savings capacity¹⁰. However, the adaptation of the approach to the 1980s registered an important breakthrough, namely the inclusion of a "third gap" related to the government budget constraint¹¹. This theoretical innovation followed from the perception that the 1980s were marked by debt transfers which have both a balance of payments component and a domestic counterpart, the latter being related to the fiscal burden associated with the transfer. The marked deterioration of public accounts along with the collapse of public investment in debt-plagued Latin America raised concerns with the negative growth effects of the fiscal "gap",

These new models may have different "closures", depending on the type of issues under consideration. However, by generally being fix-price models, they are not particularly suitable to address the macroeconomic adjustment mechanisms following external shocks, as typical of the Brazilian experience of the 1980s, in which there were wide relative price changes leading to the acceleration of inflation and fiscal disequilibria, with strong real effects. Indeed, as described in Section 2, the early 1980s witnessed a sharp real exchange rate devaluation, accelerating inflation and an impressive current account improvement. Following this "Phase I", Brazil experienced a sharp demand recovery and fiscal disarray leading to the near hyperinflation and real appreciation episodes described as "Phase II".

The existing two- or three-gap models are not particularly suitable to assess the macroeconomic impacts of the ongoing trade liberalization program, in which a real devaluation may have to be implemented to avoid a balance of payments deterioration. This is likely to result in renewed inflation, especially in an economy, like Brazil, subject to pervasive indexation. Increased inflation, in turn, may affect external balance if one admits that macroeconomic instability produces capital flight or currency substitution movements.

To reduce inflation, on the other hand, may require lower activity levels either through a Phillips curve mechanism or as an instrument to decrease distributive conflicts and wage resistance through unemployment. Higher inflation also affects the government budget constraint - the Tanzi effect on tax revenues, increased (or decreased) seigniorage (depending on the

¹⁰ See, for instance, Chenery and Bruno [1962].

¹¹ For applications to the Brazilian case, see Fritsch and Modiano [1988], Reis, Bonelli and Rios [1988], and Bacha [1989].

level of inflation), capital gains (or losses) related to the domestic currency counterparts of external payments and inflows (or outflows) - and thus the level of public investment which, in addition, is positively related to the level of private investment and, thus, strongly influence the overall growth rate. The possibilities are quite varied and, given the simultaneous nature of all these effects, one needs an analytical framework to isolate different effects.

A simple but very general analytical framework to address these issues, taking growth and inflation as endogenous variables, can be developed by considering three basic equations: a government budget constraint that plays the role of an IS-IM relation - i.e., it accounts fully for the demand side of the model - an external balance relation and an inflation equation accounting for the supply side of the model. These are to be satisfied as equilibrium relations to generate a given amount of external debt change associated to a trade regime - defined as the combination of a real exchange rate regime and tariffs and exports incentives affecting trade flows - given fiscal and monetary policies. The barebones of the model may be written as:

$$\begin{array}{llllll} \text{GBC} & (Y, & P, & \text{REE}, & D^*, & E1) & = & 0 & (1) \\ \text{INF} & (Y, & P, & \text{REE}, & & E2) & = & 0 & (2) \\ \text{BP} & (Y, & P, & \text{REE}, & D^*, & E3) & = & 0 & (3) \end{array}$$

Equation (1) represents the government budget constraint (GBC). It may be interpreted as a set of IS-IM equilibria for different values of the endogenous variables - income (Y), inflation (P), real exchange rates (REE) and net debt inflows (D^*). It is affected by the activity level (positively); by inflation rates (negatively by the Tanzi effect, or positively as inflation generates seigniorage); by real exchange rates, since they regulate the domestic purchasing power (or burden) of net foreign exchange inflows (outflows); and by net debt inflows (outflows) as such, as they represent a way to finance government deficits. Fiscal and monetary policy parameters affecting aggregate demand are included as exogenous variables in vector E1.

Equation (2) is a standard inflation equation, following the well established econometric results produced in the 1970s on attempted estimations of Phillips' curves for Latin American countries. Typically, these relations show inflation as having a strong auto-regressive component, leading to the common claim that current inflation is largely pre-determined, or "inertial", and extremely influenced by inflationary expectations. These phenomena are captured by the parameter $E2$. It is also common to find that the activity level affects inflation positively, along lines of the traditional Phillips curve, though the effect was shown to be quite weak. Additionally, the equation incorporates the notion that inflation is also positively influenced by the real exchange rate - that is, higher real exchange rate means lower real wages, more unions' activity and distributive conflict, and more inflation. The empirical relevance of this effect has also been commonly asserted in Latin America.

Equation (3) is a standard external balance relation. It is assumed that the current account is improved by real exchange rate devaluations and lower activity levels. Lower inflation should mean less currency substitution and capital flights, since it improves the capital account just as increased external indebtedness. Exogenous elements are comprised in parameter $E3$. With these three equations and four variables, the model can be closed in different ways. In particular, two interesting alternatives can be considered: (i) to consider D^* as exogenous, with the real exchange rate having to comply with the availability of external financing, which is equivalent to assuming a floating exchange rate regime; or (ii) to consider a given rule for the real exchange rate - a crawling peg guided by a PPP rule, for instance - and treating D^* as endogenous, i. e., as a residual that may or may not be consistent with the reality of international financial markets and the creditworthiness of particular countries. Under these conditions, if the resulting indebtedness path is deemed unfeasible it will be necessary to assume departures from the

established exchange rate rule (maxi devaluations, for instance), or debt moratoria, to correct the imbalance. Under (ii), which is the typical policy rule followed in Brazil, and considering an exchange rate policy rule that maintains REE constant, we may write:

$$REE = REE(-1) \cdot (1 + m) \quad (4)$$

where the real devaluation (m) is the policy instrument that may be triggered if debt is growing too fast, or if the required debt increase for a given combination of inflation and activity level is considered unfeasible.

With these remarks in mind, and neglecting for the time being the influence of inflation on the BP schedule, the equations system (1)-(3) can be rewritten in linearized form as:

$$Y = f1. P + f2.D^* + f3. m + e1 \quad (1a)$$

$$P = g1. Y + g2. m + e2 \quad (2a)$$

$$Y = h1.D^* + h2. m + h3.t + e3 \quad (3a)$$

where constants, other policy instruments, lagged variables and other considerations have been included in the shift parameters $e1$, $e2$ and $e3$. Note that the tariff t , assumed to affect external balance, and the real devaluation parameter m stand for the variables related to the trade regime. Note that for $m = 0$ - that is, when the real exchange rate is constant and consistent with a feasible path of debt accumulation - and no changes in the shift parameters, the system reduces to:

$$Y = f1. P + f2.D^* \quad (1b)$$

$$P = g1. Y \quad (2b)$$

$$Y = h1.D^* + h3. t \quad (3b)$$

and we can represent equilibrium graphically as:

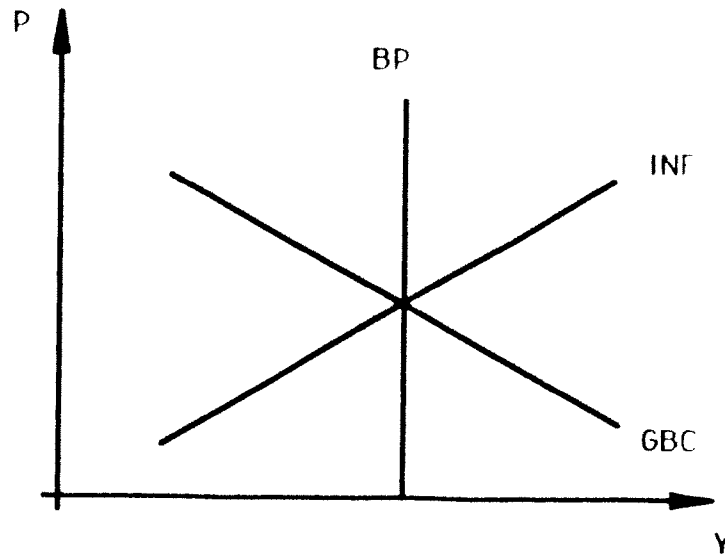
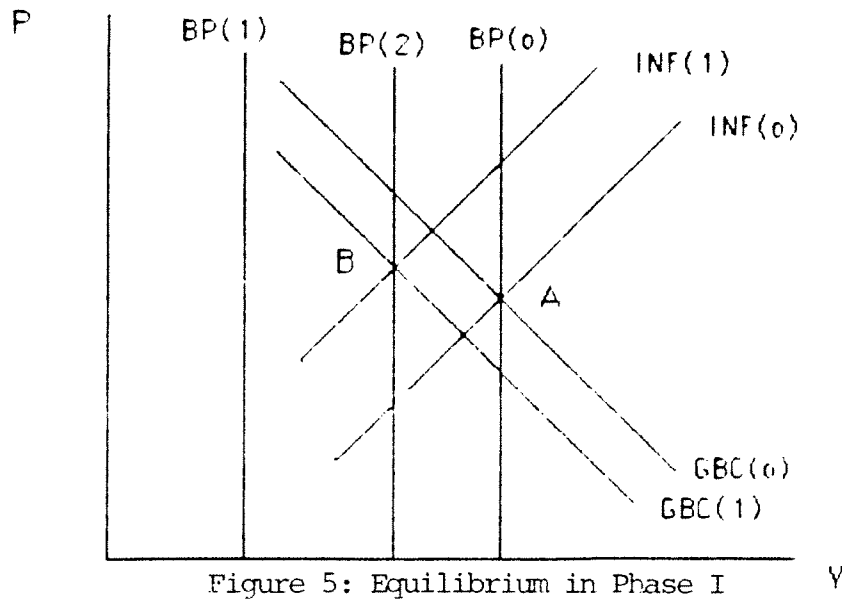


Figure 4: Equilibrium in the basic model

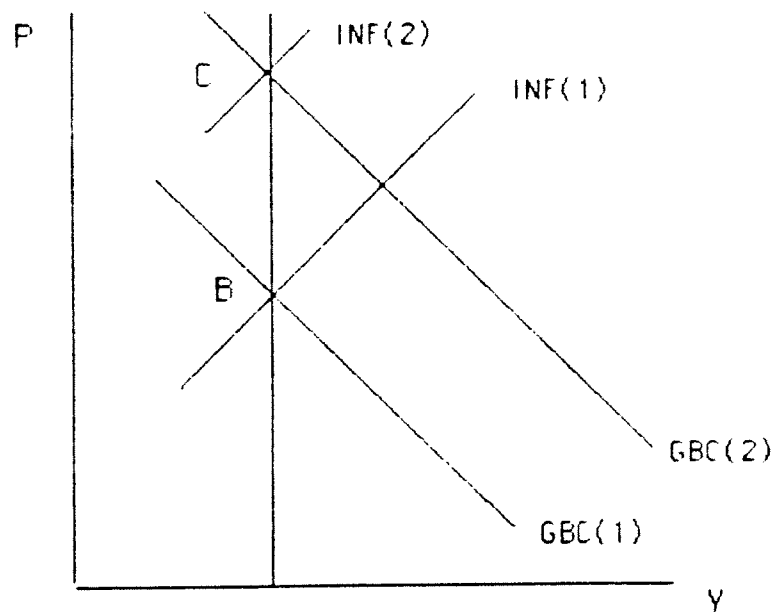
The slope of (1b) is assumed negative, which amounts to assuming that f_1 is negative. It means that inflation affects output negatively and through mechanisms other than the Phillips' Curve or the external constraint. It may be a supply side effect - such as the Cavallo effect - related to the information problems created by inflation on producers and investors. Or, alternatively, it may be the negative influence of inflation on the government budget constraint which provokes a reduction in public investment. The slope of (2b) is given by the Phillips' curve nexus and the BP schedule is assumed vertical for simplicity. It may well slope downwards if we assume that inflation acceleration has currency substitution effects and the need to reduce output to maintain external balance.

The two phases of the Brazilian macroeconomic experience of the 1980s discussed in the last section may be explained as comparative statics exercises in this model. Consider first the adjustment experience under "Phase I". The balance of payments crisis of 1982 may be represented as the leftward shift in the BP relation towards BP_1 , in Figure 5. The policy response was a real devaluation, shifting the inflation relation upwards towards INF_1 and the balance of payments again rightwards to BP_2 , while fiscal restraint pushes the

government budget constraint to GBC_1 . The new equilibrium at point B obtains under a lower activity level and a higher inflation rate.



The experience of "Phase II", the stagflationary aftermath of Phase I in the second half of the 1980s, is illustrated in Figure 6.



Growing fiscal disequilibria shifts GBC1 upwards towards GBC2, while inflationary expectations deteriorate, shifting INF1 upwards to INF2. External balance is maintained (in spite of an appreciating exchange rate) due to lower external transfers, leading the economy towards point C with a much higher inflation rate and a nearly stagnant activity level. Note, however, that more is needed to explain the extraordinary inflation acceleration experienced by the Brazilian economy in the first few months of 1990. The threat of repudiation of domestic public bonds, for instance, may hardly be captured in this model, and was an important element to explain hyperinflation in that period.

The model can also be used, as suggested above, to analyse the effects of a trade liberalization experiment such as that now being implemented. A tariff reduction-cum-devaluation package generates shifts in the equations in the graph in a quite simple manner, as seen in Figure 7. Tariff reductions shift the BP curve leftwards as the tariff cut worsens the current account thereby requiring an output reduction to restore external balance. An exactly offsetting devaluation, that is, $h2.m = h3.t$, maintaining, *ceteris*

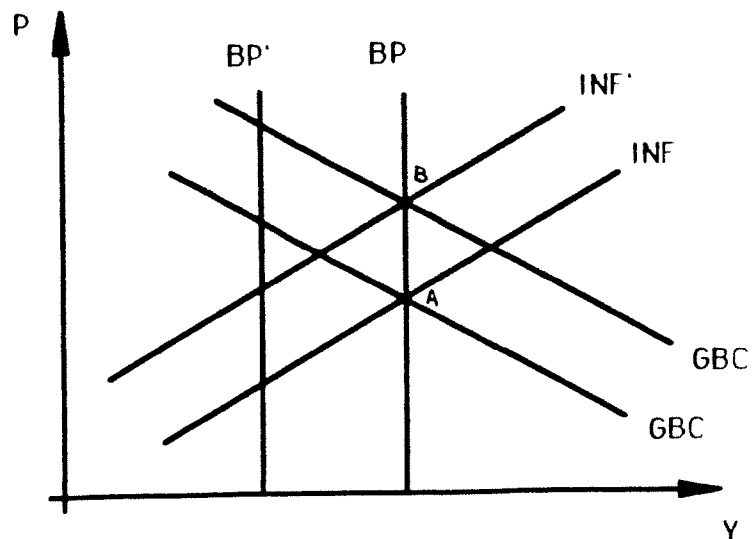


Figure7:Effects of trade reform

paribus, external balance at the same level of activity would, in addition, shifts both the inflation schedule and the GBC curve upwards. It is not at all clear whether the new equilibrium would be on the initial level of activity, since the shifts on the inflation curve and on the government budget constraint curves are of different magnitudes. If the inflationary effect of the devaluation is very strong it may be that the equilibrium is to the left of the initial level of activity, which may require a further devaluation.

The actual result will, of course, depend on the value of the relevant parameters and on whether capital inflows may ensue to lessen the external constraint. It is very clear from the graph that an inflationary effect is to be expected from the canonical liberalization package, and this is a rather worrisome consideration as far as the Brazilian experience is concerned. In this connection, any element helping the external balance relation - as, for instance, capital inflows - may weaken the need for the devaluation. Yet, these capital inflows may be very sensitive to the stabilization outlook, thus creating a vicious circle through which capital inflows wait for a stabilization that can only obtain if they enter the country - which they do not because inflation remains high. It seems clear, on the other hand, that the instrument to allow the economy to leave that vicious circle is fiscal reform - a downward shift in the GBC relation. If this is enough to bring about a resumption of confidence, lowering inflationary expectations and generating higher capital inflows, a "virtuous circle" towards a more favourable macroeconomic environment may obtain.

6. Lessons of the 1980s to the 1990s: some policy prescriptions

This paper argued that a crucial aspect of the Brazilian macroeconomic performance in the 1980s was the impact of the sharp real

devaluation and domestic demand cuts implemented as part of the external adjustment efforts in the first half of the decade upon inflation as well as upon public sector financial equilibrium. The dramatic erosion of Brazil's traditionally large government surplus in current account caused by the stagflation of the early eighties was aggravated, in the second half of the decade, by rising government consumption, especially from state and local governments, while inflation could only be prevented from rocketing towards hyperinflationary levels by periodical mandatory price freezes and/or extremely high interest rates. The erosion of public sector savings, in tandem with the fall in foreign financial flows and a reduction in seigniorage gains with the contraction in the demand for money caused by high inflation rates, seriously hampered the task of financing government investment programs, with a negative impact on growth.

The consequence of this harmful link between exchange rate devaluation, inflation, fiscal disequilibrium, investment and activity levels was a decade of chronic stagflation, in which industrial output practically stagnated in spite of large cyclical swings. Moreover, the chronic domestic disequilibrium in the second half of the decade had an important bearing upon Brazil's international competitiveness, as the exchange rate was increasingly geared to stabilization objectives, leading to a steady real appreciation over time.

Under the very restrictive import regime prevailing during the 1980s, the main impact of this fall in competitiveness was felt by manufactured exports. In the 1990s, however, the maintenance of external equilibrium will have to cope with the effects of the sweeping trade liberalization program recently launched, and an equally unstable domestic macroeconomic environment. As argued above, this will imply an important medium term dilemma as far as the allocation of the exchange rate as a policy instrument is concerned. As long term capital inflows are likely to remain depressed in the horizon of the

liberalization program, the equilibrium exchange rate is likely to be higher under the new import regime. However, the possibility of undertaking a real devaluation to maintain external balance will, as argued above, be limited by the present severe internal disequilibrium. Therefore, if the goal of increasing trade openness is to be consistently pursued, the policy agenda has to place a serious stabilization program as a top priority.

This, however, is more easily said than done, as the pursuit of stabilization increases the difficulties in implementing the trade liberalization program in the short run. In the absence of a sharp fiscal adjustment, preventing the slide towards hyperinflation will require very high interest rates -the "repressed hyperinflation" situation described in Section 2 - with two noticeable effects. On the one hand, high interest rate differentials may induce short term capital inflows, a large part of which is a return of previous capital flights. This may lessen the threat of a binding external constraint. However, it may also induce exchange rate appreciation, which increases the rate of import penetration. On the other hand, high interest rates depress domestic activity and employment levels and, if wages are not fully indexed, leads to lower real wages. These two effects increase adjustment costs and generate an atmosphere in which liberalization may not be politically sustainable.

The movement towards a more liberal trade regime in Brazil has, therefore, to be conducted on a very thin edge. Clearly unambiguous policy proposals are few and relatively straightforward. First, it is crucial to avoid long periods of exchange rate appreciation under the pretext of aiding the stabilization program. The experience of the 1980s shows that during stabilization attempts exchange rate devaluation often lags behind inflation. This amplifies the balance of payments effect of reduced protection and confuses economic calculations of the impact of the time-framed tariff reductions on the levels of protection.

Second, before a sustained improvement in voluntary capital inflows is felt as a result of domestic stabilization - which, by the way, may eventually increase the difficulties of following the appropriate exchange rate policy - the management of aggregate demand has to be restrictive, given the sensitivity of both imports and inflation to activity levels and capacity utilization.

Third, it is essential that, as long as stabilization priorities place a constraint on the allocation of the exchange rate as an expenditure switching device, export promotion schemes - greatly reduced since the beginning of the recent import liberalization experiment - be quickly enhanced. This is necessary not only to alleviate potential balance of payments problems but, especially, to offset the negative impact on the level of employment caused by the fall of domestic demand during stabilization. The package announced in mid-February by the Brazilian government seems to point precisely in this direction.

Last, but by no means least, the crucial role played by redressing fiscal equilibrium in controlling high inflation episodes, and the negative effect of real devaluations on fiscal balance in Brazil, makes striving to recover historical levels of public sector fiscal revenue a priority policy objective. The importance of redressing fiscal balance is underlined by the fact that it can lessen the threats to liberalization likely to arise, as argued above, in a scenario of protracted very high interest rates to repress hyperinflation, as shown at the end of Section 5. It should be noted in this connection that, as foreign debt in Brazil largely consists of public debt, fiscal adjustment in the crucial short run could be eased by a reduction of debt related transfers, either through new money inflows or debt relief arrangements.

TECHNICAL ANNEXES

Annex 1

Constant-Market-Share Analysis of Export Growth

This annex presents the results of a constant-market-share (CMS) analysis of export growth using data for selected years from 1979 to 1990. The sample of 26 countries for the CMS exercise covers 77% of Brazilian exports in 1979 and 1984 (but 75% in 1989). The countries represent 75% of world imports in 1979, 74% in 1984, and 78% in 1989: USA, Canada, Germany, Japan, France, Italy, United Kingdom, Netherlands, Belgium, Spain, Austria, Denmark, Hungary, Portugal, Sweden, Switzerland, Egypt, Argentina, Chile, Paraguai, Venezuela, Mexico, URSS, China, Hong Kong and Australia. The shares of Brazilian exports to groups of countries in 1979, 1984 and 1989 are shown below.

Table A.1

Shares of Brazilian Exports according to groups of countries in the sample: 1979, 1984 and 1989 (in %)

Countries	1979	1984	1989
USA and Canada	20.5%	30.0%	26.0%
Europe*	35.3	28.7	32.2
Latin America	12.5	7.9	7.1
Asia, USSR and Australia	8.8	10.1	10.0
Total	77.1%	76.7%	75.3%
Selected countries/World imports	75.2%	74.3%	78.3%

Sources: Brazilian Trade Statistics. *Egypt included.

The ten groups of products corresponding to the SITC sections form the commodity groupings. They are shown below, together with the shares of Brazilian exports in 1979, 1984 and 1989.

Table A.2

Structure of Brazilian Exports according to SITC commodity sections, 1979, 1984 and 1989 (in %)

SITC sections	1979	1984	1989
(0) food and live animals	41.5%	35.2%	17.6%
(1) beverages and tobacco	2.5	2.8	1.9
(2) crude materials. except fuels	15.0	12.3	16.5
(3) min. fuels, lubr.& related prod.	0.3	0.4	0.3
(4) animal and vegetal oils and fats	2.7	1.7	1.3
(5) chemicals	2.7	5.7	6.0
(6) manuf. goods classified by mat.	15.2	18.7	25.1
(7) machinery and transp. equip.	14.3	11.8	21.9
(8) miscellaneous manuf. articles	5.4	7.4	6.9
(9) other commodities and transactions	0.3	0.1	0.2
Total	100.0	100.0	100.0

Sources: Same as previous table.

At the heart of the constant-market-share method is the assumption that a country may experience export growth above the world average - i.e., increase her share in world sales - if her exports: (i) are concentrated in commodities for which demand is growing relatively fast; (ii) are going primarily to markets whose demand is expanding relatively fast; (iii) have been benefitting from competitive gains. It is implicitly assumed that if it were not for these factors a country's share in world markets would remain constant. The difference between this norm and the actual performance is attributed to the effects of competitiveness, further divided into a commodity composition effect, a market distribution effect and a pure (actually, residual) competitive effect. The actual value taken on by this residual results from the interaction of both demand and supply factors - among these, particularly, causal factors such as productivity increases.

A negative residual is associated with a failure to maintain export shares. A positive residual means success in increasing export shares. In either case, it may be due to: (i) differential rates of export price inflation; if positive, may be due exogenous (to the country) relative price increases; if negative, it may result, for instance, from (endogenous) exchange rate devaluations or from reducing exporters profit margins due to low domestic and/or external demand; (ii) differential rates of quality improvement and development of new exports; (iii) differential rates of improvement in the efficiency of marketing or in the terms of financing export sales; (iv) differential changes in the ability for prompt fulfillment of export orders¹².

The next table presents the results for selected time periods from 1979 to 1990 in terms of accumulated growth rates. Four different sources of Brazilian export growth are distinguished: (1) due to increase in world trade; (2) due to commodity composition; (3) due to market distribution (destination of exports); (4) due to increased competitiveness. The sub-periods 1980-84 and 1985-89 are examined as a whole. The table also includes a preliminary estimate for 1989-90 that pools together the commodity composition and the competitiveness effects.

Table A.3
Sources of Growth of Brazilian Exports: 1979-1990 and selected sub-periods (in %)

% Change in Exports	79-80	80-84	84-85	85-89	89-90	79-89
Due to world trade	20.1%	-4.1%	6.3%	58.7%	14.6%	96.8%
Commodity composition*	-13.9	5.9	-0.7	5.1	**	-4.9
Market distribution	6.5	-1.6	-1.6	-8.7	-2.5	-13.7
Increased competitiveness	14.3	38.4	-8.8	-24.7	-16.6	40.2
Total ***	27.0	38.5	-4.7	30.4	-4.5	118.5

Sources: Authors' estimates from UN International and Brazilian Trade Statistics Yearbooks. Results for 1990 are preliminary.

*It is arbitrary whether one allows first for the effect of the commodity composition and then the market distribution, or vice-versa. The results will in general not be the same. In the present case, however, the numerical difference between the two procedures is, except for 1979-80, very small compared to the other effects.

** Data non-available. Included together with the competitiveness term.

***Totals may not add due to averaging or/and rounding.

¹²See, for instance, Leamer and Stern [1970].

From a longer term perspective, and excluding 1990, Brazilian exports have displayed a positive competitiveness residual, accounting for almost one third of the aggregate growth rate of exports. This result is in accord with the experience of the 1970's. A recent study (Horta [1985]) has shown that the competitiveness effect accounts for approximately 40 % of the total exports growth rate from 1971 to 1978, a rate that reached 23.6% on a yearly average over this period. This result is, in our case, concentrated in time since: it is clearly due to the 1979-84 performance.

The estimates for 1979-80 are impressive: a 27% growth of exports, 7% above world total imports, due to the fact that sales were relatively concentrated in fast growing countries and, especially, to increased competitiveness. The importance of the commodity-composition effect is highly negative: it subtracts between 8 and 14 percentage points from the total.

During 1980-84, when world imports (sample countries) decreased approximately 4%, Brazil successfully managed to penetrate foreign markets: the competitiveness residual increased by an accumulated 38.4%. The pattern of change for the succeeding periods is equally remarkable, but for different reasons. In 1985 Brazilian exports fell almost 5% despite a world imports increase of 6%. The competitiveness residual decreased by 8% in a single year. For the remaining years of the decade the negative trend continued: -24.7% accumulated from 1985 to 1989 as well as an amazing -17% in 1990 (including the commodity-composition effect).

In an effort to explore the behavior of different groups of products the sample was split into two parts: the first, composed of SITC sections 5 to 8, contains most of manufactured goods; the second part, comprehending SITC sections 0 to 4, includes essentially primary products and low-processed industrialized goods. Consider first the decomposition for industrialized products in the next table.

Table A.4

Sources of Growth of Brazilian Exports, SITC sections 5 to 8, 1979-1989 and selected sub-periods (in %)

% Change in Exports	79-80	80-84	84-85	85-89	79-89
Due to world trade	10.6%	12.2%	10.9%	83.4%	152.5%
Commodity composition	0.3	-1.4	-1.9	...	-6.4
Market distribution	10.5	-6.7	-2.0	-16.7	-23.1
Increased competitiveness	1.0	62.5	-7.7	4.7	122.6
Total *	22.4%	66.6%	-0.7%	71.6%	245.7%

Sources: Authors' estimates from UN International and Brazilian Trade Statistics Yearbooks. Results for 1990 are preliminary.

*Totals may not add due to averaging or/and rounding.

The pattern for the subgroup of industrialized products is different from the aggregate estimates. The penetration in world markets is much more pronounced and, except for 1984-85, the competitiveness residual is positive in all sub-periods analysed. Considering the decade 1979-89 as a whole it explains nearly half the overall growth rate. This result, however, can almost entirely be attributed to the performance from 1980 to 1984. Indeed, competitiveness gains were modest both from 1979 to 1980 and from 1985 to 1989. Horta's [1983] results for the 1970's are in marked contrast with ours. She finds that the competitiveness effect accounts for nearly 74% of the manufactured exports growth rate from 1971 to 1978, a proportion that decreased from 71% in 1971-74 to 43% in 1974-78. The upshot of these considerations is that Brazilian exports

seem to have gradually become more and more dependent upon the growth of world trade, and less on her own competitiveness, even in manufactures.

A decomposition exercise similar to the previous one was performed for the group of non-industrialized products. The results, shown in the next table, confirm, in general lines, the conclusions arrived at above. With one important difference, though. It is clear from the table where the loss of overall competitiveness after 1984 came from: the competitiveness factor alone represented a negative 49.2% rate between 1985 and 1989, at a time when world trade in current dollars was growing 2.8% yearly. It is comforting to realize that, within non-manufactured exports, the commodity composition effect has been highly positive, meaning that Brazil has concentrated its exports on the highest demand-dynamic products most of the time.

Table A.5

Sources of Growth of Brazilian Exports: 1979-89 and Selected Sub-periods, SITC sections 0 to 4 (in %)

% Change in Exports	79-80	80-84	84-85	85-89	79-89
Due to world trade	23.0%	-14.1%	-1.4%	11.8%	16.5%
Commodity Composition	-19.8	10.8	4.4	35.4	42.4
Market Distribution	4.3	1.3	-1.3	-2.1	-8.0
Increased Competitiveness	22.5	24.8	-9.8	-49.2	-10.1
Total *	29.9%	22.8	-8.0	-4.1	40.7

Sources: Same as previous table. Totals may not add due to averaging or/and rounding.

To sum up: the competitiveness of aggregate Brazilian exports over the 1980s has been high - a result that averages out a quinquennium of positive values and another one of negative estimates. Sorting out the competitiveness effect for the sub-group of more industrialized products (SITC sections 5 to 8) one finds a substantial positive residual. This factor, however, has been displaying a decreasing importance in "explaining" the growth of both industrialized and non-industrialized products over a longer time horizon that includes the 1970s.

Annex 2

Evidence from Export Equations: Econometric Estimates

A 1983 survey¹³ of the extensive econometric work linking the behavior of aggregate manufactured exports to macroeconomic variables covering the 1960s and 1970s would reveal that, despite the richness of methodological details, the essential elements of the exercises were very similar: a quantum index for manufactured exports, or their value at constant dollars, was regressed against variables such as real exchange rates (adjusting for subsidies and tax incentives so as to interpret it as exporters' returns), world demand, and cyclical influences usually defined as deviations from a productive capacity variable (often potential output). The more recent work uses a supply and demand specification and the results for price and world income elasticities of export demand, as well as price and domestic demand elasticity of export supply have displayed a fair amount of consistency, as shown in next table.

¹³See Braga and Markwald [1983].

According to the table, manufactured exports supply price elasticities are slightly above one, and domestic demand was found to be an important negative influence on Brazilian exports, asserting a clear "vent-for-surplus" logic in Brazilian exports. This is an expected result for a country with a large domestic market and in which exports represent a marginal activity for most exporting firms. Estimates of manufactured exports demand price elasticities are less homogeneous than the others, ranging from -0.31 to -2.82. Income elasticities of manufactured exports demand, on the other hand, seem to be on the order of two, a very high value. The estimates for elasticities of total exports are much lower than the ones for manufacturing in all categories.

The interpretation of these exercises involves some important issues. First, the influence of structural factors affecting export performance is not made explicit as these equations generally include only deviations from potential output, in order to capture the "vent-for-surplus" effect, so that productive capacity increases in exporting industries, which are the result of the operation of structural factors, become hidden. A superficial reading of this literature would tend to associate export growth with domestic recessions thus conveying the impression of a contradiction between the export led and domestic market led growth.

Table A.6
Long Run Manufactured Export Elasticities for Brazil

Price	Domestic demand	Foreign demand	Author	period*

manufactured export supply				
1.04*	2.5*	...	Cardoso & Dornbusch [1980]	1960-77 A
1.19*	2.1*	...	Markwald [1981]	1964-80 A
2.64	2.1	...	Braga & Markwald [1983]	1959-81 A
1.10*	1.3*	...	Rios [1987]	1964-84 A
1.39*	1.6*	...	Zini [1988]	1970-86 A
ns	2.9*	...	Fachada [1990]	1974-88 Q
manufactured export demand				
0.68	...	2.53*	Lemgruber [1976]	1965-74 A
1.12	...	2.19*	Pinto [1983]	1954-75 A
2.82	...	2.59*	Braga & Markwald [1983]	1959-81 A
1.38*	...	2.31*	Rios [1987]	1964-84 A
0.31	...	4.92	Zini [1988]	1970-86 Q
1.93*	...	2.41*	Fachada [1990]	1974-88 Q
total export supply				
0.91	-1.0	...	Zini [1988]	1970-86 Q
total export demand				
0.17	...	0.75	Khan [1974]	1951-69 A
0.41*	...	1.97*	Lemgruber [1976]	1965-74 A
0.95	...	2.89*	Zini [1988]	1970-86 Q

* significant at 5% A stands for annual and Q for quarterly data; ns stands for non-significant.

Source: Zini [1988], p. 650, and Fachada da Silva [1990], p.206.

Second, on the price side, it is important to distinguish between the effects of exchange rate policies and of export subsidies, and most arguments emphasizing "artificial" competitiveness underline the weight of the latter. In

this connection it was shown that the value of export incentives in effect in Brazil from the late 1970s on was very substantial. A recent study reports that, for 1984, the aggregate value of all export incentives reached 48.7% of the FOB value of exports, 35.5% referring to rebates and exemptions of indirect taxes, 9.1% referring to benefits associated with draw-back operations and the rest (4.1%) produced by subsidized credit and income tax reductions¹⁴. Although these values seem high and raised concerns on the fiscal cost of export promotion¹⁵, it should be considered that 2/3 of the indirect tax incentives are common in foreign trade operations (the exemption applies to avoid double taxation on the same value added). Note also that these estimates were based on the unrealistic assumption that, in the absence of the incentives, the same amount of exports and imports would have happened - i.e., foreign trade has no sensitivity to the presence of incentives. Interestingly enough, it was observed that "the official justification for the concession of such benefits has been based on the argument of the necessity to offset the cost pressures derived from the tariff structure"¹⁶. Indeed, for a country in which the rate of effective protection is very high¹⁷, the anti export bias would be generally very high if not offset by export promotion schemes attempting to place exporters on a more or less neutral regime.

The analysis on the determinants of exports can be updated by estimating an econometric model for the supply and demand of manufactured exports using the most recent data available. The model for manufactured products is based on the hypothesis of imperfect substitution between production for exports or for the domestic market, depending upon the respective relative prices¹⁸. It is composed of equations for the demand and supply of manufactured exports, shown below:

$$(1) \log(XQD) = \text{constant} + a1.\log(PX/PW) + a2.\log(YW)$$

$$(2) \log(XQS) = \text{constant} + b1.\log(E.PX.[1+s]/PDOM) + b2.\log(UTCAP) + b3.\log(POT.GDP)$$

or, alternatively,

$$(2') \log(XQS/POT.GDP) = \text{constant} + c1.\log(E.PX.[1+s]/PDOM) + c2.\log(UTCAP),$$

if we assume the existence of a "normal" share of manufactured exports on potential GDP (or on potential industrial output).

In the estimation of the equations above $XQD (=XQS)$ is the real value of manufactured exports at 1977 prices, obtained implicitly by dividing a series of nominal export values by an index of manufactured export prices (unit values). PX/PW is an index of the dollar price of manufactured exports relative to world export prices. YW is an index of world income (GDP). In the supply equations E is the nominal exchange rate (Cr\$ per dollar), $PDOM$ is a domestic wholesale price index of industrial products, s is the rate of fiscal and credit incentives on manufactured exports (included to reflect exporters' earnings), $POT.GDP$ is an index of potential output for the economy as a whole,

¹⁴Neves and Moreira [1987], p. 484.

¹⁵Concerns have also been voiced on the possibility that benefits were distributed on a regressive fashion. See Braga [1981].

¹⁶Neves [1985], p. 66.

¹⁷For 1985 ERP would be 53.3% considering "implicit" protection, i. e. computing "true" tariffs through direct price comparisons, and 167.4% considering legal tariffs. Braga et al. [1988], p. 47.

¹⁸For primary products we could adopt a perfect substitution model or, alternatively, we could take into account the fact that trade in many of these goods is based on long term contracts or world agreements. In what follows we concentrate on the estimation of export equations for manufactured products.

and UTCAP is an index of capacity utilization in manufacturing. The expected signs of the coefficients are as follows:

$$a_1 < 0 \quad a_2 > 0 \quad b_1 > 0 \quad b_2 < 0 \quad b_3 > 0 \quad c_1 > 0 \quad c_2 < 0$$

Despite the fact that the theoretically more correct procedure would be to use a method of simultaneous estimation of demand and supply, recent studies have shown that the errors that may be incurred in this case due to incorrect specification point to the use of single equation instrumental variables estimation methods¹⁹. This is particularly telling in our case due to the existence of serial correlation of residuals, as will be seen.

The results for the demand equation are shown next. The next results were obtained using the 2SLS/Generalized Instrumental Variables method²⁰.

$$(1) \text{XQD} = -10.06 \quad -0.52.\text{PX/PW} \quad +4.18.\text{YW} \quad R^2 = 0.97, \text{DW} = 0.57 \\ (-5.03) \quad (-1.15) \quad (9.64)$$

Due to the presence of serial correlation the Cochrane-Orcutt correction procedure was used, yielding the following results:

$$(1) \text{XQD} = -6.15 \quad -0.53.\text{PX/PW} \quad +3.33\text{YW} \quad R^2 = 0.98, \text{DW} = 1.82 \\ (-1.46) \quad (-1.23) \quad (3.73) \quad \text{Rho} = 0.77$$

These results are different from those of previous research in two important aspects: first, the price elasticity of demand is considerably smaller²¹ (nearly all previous estimates were below -2.0); second, the income elasticity is higher than in most previous estimates (usually in the range 2.0 to 2.5).

The supply equation results are shown below. Due to the existence of serial correlation of residuals in the original equation only the results obtained with the CORC procedure are shown;

$$(2) \text{XQS} = 1.86 \quad -0.60.\text{P} \quad -2.06.\text{UCAP} \quad +2.06.\text{POT.GDP} \quad R^2 = 0.98 \text{DW} = 1.58 \\ (.18) \quad (-2.97) \quad (-1.69) \quad (4.11) \quad \text{Rho} = 0.53$$

Note that although the fit is good, the supply price (real exchange rate corrected to take into account export incentives, as an indicator of the profitability of exports) enters (significantly!) with the wrong sign. In specification (2'), below, the same happens but the coefficient is not significantly different from zero at 10%.

$$(2') \text{XQS/POT.GDP} = 10.83 \quad -0.36.\text{P} \quad -2.00.\text{UCAP} \quad R^2 = 0.96 \text{DW} = 1.89 \\ (2.75) \quad (-1.24) \quad (-2.36) \quad \text{Rho} = 0.88$$

Despite the fact that the price elasticity has the wrong sign, the utilization of capacity coefficient is on the same order of magnitude as in previous econometric estimates. It implies that a 1% increase (decrease) in the degree of capacity utilization in manufacturing lowers (increases) the share of real exports to potential GDP in 2% relative to a normal value. The wrong sign for the price elasticity of supply, however, remains a puzzling result,

¹⁹See, for recent surveys, Braga and Markwald [1983], Polonia Rios [1987], Zini Jr. [1988] and Fachada da Silva [1990].

²⁰The instrument variables were all the exogenous variables. All variables in logs. The sample period is 1970-89, and t-values for the estimated coefficients appear under the respective estimates.

²¹Note, however, that the coefficient is significantly different from zero only at 10-15% of confidence.

particularly when compared to nearly all recent estimates of exports supply equations²². The solution to the puzzle is not difficult to find. Fitting the data to different sample periods substantially improves the results if we exclude from the sample the second half of the 1980s. The following equation was fit to 1970-84, and should be compared to (2') above.

$$(2.a') \quad XQS/POT.GDP = 27.28 + 0.66.P - 7.07.UCAP \quad R^2=0.85, DW=1.75 \\ (8.42)(2.78) \quad (-9.46)$$

The conclusion that can (cautiously and preliminarily) be stated is that the experience of the more recent years, particularly the second half of the 1980s, suggests that non-price factors have been more important in explaining export behavior than price itself. This is true for both demand and supply relationships, but especially the latter. In the former case, growth of world income seems to have become more and more important. In the second case, the level of domestic manufacturing demand - as expressed by an index of capacity utilization - stands out as the most important factor in explaining supply.

These conclusions are reinforced with the results of a reduced form equation like the following one:

$$(3) \quad XQ = 3.68 + 2.97.YW - 2.72.UCAP + 0.40.PIBPOT + 0.52E.PW/P \\ (0.85) \quad (5.99) \quad (-4.16) \quad (1.05) \quad (2.37) \\ R^2=0.983, DW=1.66$$

Despite the fact that the potential output coefficient (which represents a trend) is not significantly different from zero and the DW statistic lies in the indefiniteness region, these results confirm the relevance of world income and domestic demand in determining export performance. In addition, the fit is good even in the second half of the 1980s.

Therefore, we conclude that non-price factors have become relatively more important in explaining recent export performance. This was probably due to the strong real exchange rate fluctuations observed in the past quinquennium. What seems surprising is the very high export levels observed during this same period - in 1988 exports reached their highest historic peak. This is an indication that there are other factors, not considered so far, that may help to explain the recent performance of exports²³.

In particular, the observed behavior may be due to a hysteresis effect associated with the costs incurred by firms to penetrate external markets. The hysteresis would be a delay to react to sudden and sharp real exchange rate fluctuations that may be due to the existence of sunk cost that firms incurred in order to penetrate external markets²⁴. Once they succeed, firms tend to keep on supplying these markets even when price-cost margins (temporarily, they expect) shrink or disappear - particularly (but not necessarily) in face of a weak domestic demand. This hypothesis would reconcile observed Brazilian experience and econometric evidence.

²²Note, however, that the supply price elasticity found by Fachada da Silva [1990] using quarterly data for the period 1974-88, although positive, is not significantly different from zero either using specification (2) or (2').

²³For a detailed account of constraints on the exports of manufactures in Latin America, see Schwartz (ed.) [1991].

²⁴See, for instance, Krugman [1989].

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