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Exogenous Determinants of
Trade and Debt Patterns
in Latin America

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This paper is an attempt to show, in both a *priori* and empirical grounds, the crucial role of exogenous variables – and, especially, of those which are a by-product of macroeconomic policy decisions in the leading developed countries – for the trade and balance of payments performance of major Latin American debtors.

Section 1 defines a debtor country liquidity constraint and briefly reviews the determinants of the main variables involved. In Section 2 the past experience of, and the prospects for the conduct of macroeconomic policy in the G-5 countries are discussed. The channels through which policy-induced fluctuations in industrial countries are transmitted to the Latin American economies as well as other exogenous influences such as oil price jumps and protectionism are considered at some length in Section 3. Finally, there is an attempt, in Section 4, to quantify the evolution of financial requirements for the leading Latin American debtors in a medium term horizon under alternative scenarios regarding the evolution of the world economy.

1.   Determinants of the foreign exchange constraint facing debtor countries.

Basic balance of payments accounting shows that a debtor country will only avoid running into liquidity problems over time if it can induce a net inflow of foreign capital at least equal to the sum of its net imports and factor payments abroad. Formally, this condition can be written as:

$$NDIT + NM \geq (M - X) + I \qquad (1)$$

Where:

$NDIT$ – net direct investors' transfers, that is, the flow of new foreign direct investment in the debtor country net of the flows of profits and similar transfers abroad by foreign companies;

NM – new net foreign loans and credits (new money);

M – imports of goods and non-factor Services;

X – exports of goods and non-factor Services;

I – interest payments on net foreign debt;

Inequality (1) above provides a good starting point for a discussion of the determinants of the foreign exchange constraint facing a given debtor and the conditions for overcoming it. It shows that, for any given initial situation, adjustment towards avoiding a binding external constraint will have to rely on influencing the behaviour of the determinants of (i) imports, (ii) exports, (iii) world interest rates, and (iv) the net supply of foreign investment and loans.

The behaviour of the value of imports in semi-industrialized economies with relatively rigid import structures depends, in the short run, on domestic demand conditions and on import prices. Among the latter, oil prices have in the past exerted a powerful negative influence on the behaviour of imports in many debtor countries. In the longer run, however, structural adjustment policies aimed at reducing the output elasticity of imports can play a decisive role in the adjustment process.

The rate of growth of exports depends upon a more complex set of factors – mostly exogenous – influencing both export volumes and prices, in the short and long runs.

In the short run and for a given configuration of domestic export promotion and exchange rate policies, the behaviour of real manufactured exports crucially depends on demand conditions in the leading industrial countries. Moreover, although the volume of primary – especially agricultural – exports is supply determined in the short run, their prices can vary widely under the influence of fluctuations in central countries' demand, in international interest rates, and in the exchange rates between the dollar and other leading currencies, as explained in detail in Section 3, below.

In the longer run, however, underlying structural changes affecting the international division of labour and, thus, trade flows, play a Roy role in explaining export growth rates for any single country as, indeed, does the change in the structure of protection in industrial countries, which has accompanied this process of structural change.

Interest rates are, naturally, a by-product of macroeconomic management in the leading world financial centres. It should be stressed though, that the effects of interest rate fluctuations on the foreign exchange constraint facing debtor countries go beyond their immediate impact on the interest burden of the debt. Wide interest rate variations also have important indirect effects on the growth of debtor countries' exports through their impact on demand growth in central countries and, if accompanied by changes in differentials between dollar and non-dollar denominated assets, also on the dollar's effective exchange rate.

Finally, the supply of external capital depends, on the one hand, on domestic growth and the related creation of investment opportunities, which control the behaviour of net direct investors' transfers. On the other hand, the supply of loans is influenced by private banks' considerations regarding exposure risk and by the availability of loanable funds to multilateral banks.

Taking all the above mentioned factors together one can say that the feasibility of a solution for the balance of payments problem facing a debtor country depends on domestic demand contraction, macroeconomic management is the leading industrial countries – a fundamental determinant of export growth and interest rates – and the availability of external financing, as well as on longer term structural transformations in both the debtor country and in the world economy. As there are clear socially imposed lower limits to the rate of income growth in developing countries and an upper limit to the availability of foreign financial assistance for any given borrower, it follows that there is a

restricted set of values to export growth and interest rates for which there is a solution to the debtor country's balance of payments (liquidity) problem. Moreover, it can be shown that the condition for debtor solvency – i.e., its capacity to eventually *reduce* net debt over time – while transferring abroad a fixed proportion of its export proceeds is that the rate of growth of its exports exceeds the interest rate on debt[1].

Thus, it follows that solving a debtor country external problem depends on factors quite beyond the reach of measures the country's government, their bankers and multilateral lending agencies can take. The crucial variables influencing the feasibility of adjustment – export growth the terms of trade and world interest rates – are, indeed, directly or indirectly determined by macroeconomic management in the leading industrial countries, the transmission of the fluctuations it generates towards the debtor countries, and the parallel structural change and protectionist trends in the debtor's trade partners.

2.   Coordination of macroeconomic policies in the G5; past impact and prospects

The years since the second oil shock provide solid evidence of the importance of macroeconomic management in the leading industrial countries for the trade performance and external equilibrium of Latin American debtors.

The early eighties was a period markedly different from the aftermath of the first oil shock when, after a period of recessive adjustment in central countries, the US led a process of rapid recovery of world trade, and private financial institutions behaved in a stabilizing fashion[2]. As is well known, following the second oil shock, the strongly contractionary monetary policy implemented by the FED in late 1979 provoked a sharp rise in US interest rates and a slowdown in American economic growth which – combined with recessive demand management in Germany, Japan and several other leading economies – eventually caused a world trade slump and a collapse in commodity prices, culminating in the 1982 debt crisis.

The prospects of a world financial crash with severe consequences to the large money centre banks led to a switch in US monetary policy by mid-1982 which drove nominal interest rates rapidly down to about a half of its previous peaks by the end of this year. At the same time, because of increased spending and tax reforms introduced under President Reagan the Federal government's structural budget deficit rose strongly.

This combination of looser monetary policy and strong fiscal stimulus launched the US

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[1] See Simonsen (1984).
[2] On this see, for instance, Bacha, Fritsch, Malan and Lara Rezende (1983).

economy in a rapid economic recovery. Its impact on world trade growth and commodity prices had a beneficial effect on Latin American export growth rates from 1983, which was – together with the lower interest rates – instrumental in avoiding an International financial crisis.

However, the recovery of activity levels in the US had in-built elements of instability. On the one hand, since reducing the US structural budget deficit seemed politically impossible (for the Executive refused to alter its defence spending priorities or to allow a tax increase while Congress blocked expenditure cuts in social programmes), net private sector savings started to fall with recovery, and the monetary authorities continued to declare their pledge to monetarist disinflationary policies, money markets began anticipating an inevitable crowding-out and a return to higher interest rates.

In a world of extremely volatile exchange rates, expectations of rising American interest rates induced expectations of rising net capital flows to the US and an appreciating dollar, which, in turn, had the effect of increasing the demand for dollar – denominated assets, putting a continuous upward pressure on the current dollar effective exchange rate. On the other hand, the appreciating dollar combined with US domestic growth rates well above that of its main trade partners except Japan, began to cause a rapid deterioration of the American trade balance and a widening current account deficit.

This situation was clearly unsustainable for at least two reasons. Firstly, the US growing external financial requirements would eventually undermine confidence on the dollar. Secondly, after interest rates stopped falling and the fiscal stimulus roughly stabilized in 1984, the rapid deterioration of the current account position began to drag down US activity growth. As there was no compensating demand stimulus from elsewhere in the OECD, world trade growth and commodity prices fell again from late 1984 and into 1985, the latter being particularly affected also by the strong dollar effective appreciation during 1984 and early 1985.

Thus, in the first half of 1985, the world was again confronted with the prospects of flagging world trade growth and falling commodity prices as well as rising protectionist pressures in the US whose effect on debtor countries' export growth rates could undermine the three-year long efforts to stem a financial crisis. At the root of these problems was the US trade deficit caused by the fundamental misalignment of the dollar *vis a vis* other leading currencies plus the substandard growth performance in Europe and Japan. This brought again to the fore the crucial issue of coordination of macroeconomic policies among the leading industrial economies.

The limited attempts at policy coordination among G-5 countries

An important first step in this direction was the decision to bring about a controlled fall in dollar

exchange rates, taken at the New York meeting of the G-5 in September 1985. However, both the extent and velocity of adjustment of US trade flows to an exchange rate devaluation are small. Net import changes are perceptible almost a year later and the modal time of the first impact on the trade balance is about eighteen months. Recent estimates (Marris (1985)) show that to correct the US current account imbalance by the end of this decade would require, under favourable world trade growth and inflation scenarios, a yearly dollar effective depreciation of around 15 percent – an accumulated fall of about 55 percent from its March 1985 peak. Thus, although falling oil prices might allow a downward revision of these estimates of the required dollar adjustment, even the recent impressive fall in the effective dollar rate will not produce an early substantial reversal of the US trade deficit.

An important contribution to speed up the US current account adjustment could be given by the temporary adoption of more expansionary monetary and fiscal policies in the other leading industrial economies. The success of such a coordinated strategy would fundamentally depend upon the adoption of expansionary policies in Germany and Japan, countries that by virtue of their relative size – German and Japanese imports in 1985 totalled the equivalent of 80% of US imports – and extremely comfortable inflation and balance of payments Outlook, should lead the reflation outside the US.

The US would certainly benefit from such an initiative to the extent that higher demand growth in the rest of the world would reduce the extent of the exchange rate depreciation needed to redress its external balance. This would contribute to stem worries with the effects of a too rapid dollar depreciation upon domestic inflation and foreigners' willingness to hold dollar-denominated assets. From the standpoint of Germany and Japan, it is also interesting that restoration of US current account equilibrium should not be achieved solely through exchange rate adjustment. The recent substantial appreciation of both the yen and the deutschemark has prompted protests from tradeable goods' producers in these countries, and expansionary domestic policies would help countervailing the recessive impact of falling net exports.

Until recently, however, the prospect for the adoption of expansionary demand management in these countries were dim. On the one hand, there is the fiscal orthodoxy of the present German and Japanese governments, which reflects an ingrained reaction to the large growth of public debt experienced by their economies over the past decade. As the rigid monetary policy stance which is a hallmark of these governments' macro policies since the second oil shock rules out the possibility of substantial monetization of public sector borrowing requirements, their worry with the growth of the public debt translates itself into a firm commitment towards reducing current budget deficits, as has occurred in the past few years.

On the other hand, the possibility of substantial monetary stimulus outside the US was ruled out by other G-5 governments not only because it was deemed inconsistent with their disinflationary

policies, but also for its international repercussions. In fact, a reduction in interest rates outside the US could only come about as a parallel reduction of rates in all the leading financial markets, which would keep International differentials in relation to US rates to maintain the desired structure of capital flows and exchange rates. However, with convergent rates of inflation in all the leading industrial countries, bringing down US interest rates required that financial markets began anticipating a Progressive reduction of American public deficits, an outcome which until recently was considered unlikely.

Recent improvements in the outlook for greater policy coordination

This unwillingness of the main US partners to alter their domestically "sound" macroeconomic policies in pursuance of international objectives was clearly perceptible at least until the last Bonn summit and even at the Plaza G-5 meeting. It has, however, since early this year, began to change under the influence of some new developments.

The first was the collapse of oil prices, which, by dramatically reducing the already low inflationary pressures in central countries, made room for a substantial loosening of current monetary targets and a fall in nominal interest rates in the G-5 countries. This is particularly true outside the US where deflationary pressures are being strongly reinforced by the rapid dollar depreciation since March 1985.

Besides, there are signs that the political will of the US government to redress its large budgetary imbalance has increased. The recently passed Balanced Budget and Emergency Deficit Control Act – also known as the Gramm-Rudman Act – establishing compulsory yearly limits to the federal government deficit so as to eliminate it by 1991, although likely to be declared unconstitutional, is indicative of the growing concern over the destabilising potential of the large current US budget deficit. These worries are being certainly reinforced by expectations that, as the US recovery gathers a renewed momentum under the push of the lower dollar and cheap oil, failure to reduce the budget deficit will eventually lead to upward pressure on interest rates with damaging domestic and international repercussions.

These new developments, by allaying fears – expressed, especially, by the European governments – that a loosening of monetary policies would lead to undesirable pressures on their price levels and exchange rates, effectively opened a window of opportunity for a switch to more expansionary monetary policies in the larger OECD economies. This opportunity is indeed being seized; witness the all-round reduction of interest rates in the leading money markets since the beginning of the year.

Progress in the present coordinated nominal interest rate cuts in the US, Germany and Japan

depend, nevertheless, on the fulfilment of current expectations in relation to an early enactment of measures aimed at reducing the US budget deficit. Failure to do that would eventually revert the present downward trend of US interest rates, reduce world trade growth and may even bring the dollar back to an appreciating trend.

US deficit cuts and not, however, an unqualified blessing. Given the Reagan Administration's determination against raising taxes, any drastic reduction of the budget deficit may involve very large expenditure cuts even under optimistic output growth assumptions. Recent IMF estimates (IMF (1986))[3] of the impact of different speeds of adjustment of the US fiscal deficit upon industrial countries' activity levels show that more radical approaches, such as that implicit in the Gramm-Rudman Act, may lead to substantial loss of output if not compensated by other demand stimuli. It is estimated that, as compared with a baseline scenario of a more moderate budget consolidation strategy that would reduce the current US budget deficit of around 5 percent of GDP to 2.5 percent by 1991, the Gramm-Rudman target of a balanced budget by 1991 would imply – under the assumption of unchanged monetary policy in the US and unchanged fiscal and monetary policies elsewhere – a further decline in output in the industrial countries of around 1 percent a year until the end of the decade (in relation to the baseline scenario).

There is, however, enough room to compensate for the recessive impact of the reduction in the US fiscal deficit through appropriate macroeconomic policies both in the US and in the other leading developed countries. US budget deficit cuts will allow, as noted above, proceeding with the present coordinated loosening of monetary policies in the G-5, which can offset their recessive effects. IMF estimates show that if monetary targets in industrial countries a revised upwards so as to allow a reduction in interest rates of the order of 1 percentage point below the level set to generate the baseline scenario mentioned above, industrial countries' GDP level by the end of the decade would increase by approximately 0.5 percent (IMF (1986)).

Moreover, there is the possibility of a coordinated *fiscal* reflation in the other G-5 countries, especially in Germany and Japan. The results of such policy shifts would, indeed, be substantial. The IMF forecasts that a permanent expansionary shift of the order of 1 percent of GDP in the fiscal policies of Japan and the large European economies would halve the adverse impact on industrial countries' output of a Gramm-Rudman-type contraction in the US budget deficit in relation to the baseline scenario. It is also interesting to note that, by allowing faster output growth in the US, a fiscal reflation in the other G-5 countries would contribute to a faster reduction of the US budget deficit: a fall of something of the order of 0.1 percent of US GDP per each percentage point of fiscal impulse

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[3] The IMF simulations were based on the Fund¹s MINIMOD model as well as on a number of International linkage models such as OECD's Interlink, the FED's Multi Country Model, and University of Pennsylvania's LINK. For a fuller discussion of the methodology and assumptions used in constructing these projections, see IMF (1986), pp. 72 ff.

outside the US.

Last but not least, coordinated shifts in fiscal policies by G-5 countries would have a fundamentally positive effect on the Outlook for Latin American countries. On the one hand, US deficit reduction would, as explained above, make room for a continued fall in nominal interest rates and thus contribute to reduce the region's debt transfer burden. On the other hand, the impact of an increase in fiscal impulse outside the US of about 1 percent of GDP was estimated by the IMF as increasing the level of developing countries' GDP from 1 to 1.5 percent by the end of the decade, through its effect on the growth of world trade.

In conclusion, there can be little doubt that a firm commitment of the US government to substantially reduce its budget deficit together with a collective move in other OECD countries, following a German and Japanese lead, towards more expansionary fiscal policies would greatly contribute towards restoring a less divergent trend in private investment and government expenditure in relation to domestic savings in the US relative to its G-5 partners, which lays at the root of the present world economic imbalances. Unfortunately, however, this is only a virtual possibility, as there are yet no firm official commitment in the US to fiscal austerity and no signs at all outside the US that government opinion is moving earnestly in the direction of more expansionary fiscal policies.

3.   The impact of macroeconomic policies of developed countries on Latin America

These recent events have dramatically underlined the close links between Latin America and the main developed economies in spite of its relative closeness, especially in relation to trade, if compared to other developing areas. This interdependence has, indeed, become extremely complex for, while in the not so remote past it was possible to try to quantify the impact of policy changes in developed economies over developing economies by the use of simple export multipliers, the expansion of financial links makes this impossible now[4]. The more so as Latin American countries became relatively move relatively move indebted than other developing countries.

Demand growth, interest rate fluctuations and, to a lesser extent directly, inflation rates are the crucial macroeconomic variables to follow in terms of their influence on the economic performance of developing countries. Their impact determines in large measure the behaviour of exports and debt Service in developing countries and consequently – given the level of imports and the behaviour of autonomous capital inflows – balance of payments results.

Given the extremely heterogeneous conditions among Latin American economies concerning

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[4] See Dornbusch (1985) for Branson's comments on this. This is perhaps the place to stress that attention here will be concentrated on the so-called cash flow aspects of foreign indebtedness and not on its welfare impact through the terms of trade and the interest rate.

export composition and market structure, debt-export ratios, import composition and success in substituting imports, the impact of macroeconomic policies in developed economies on specific Latin American economies is bound to vary quite considerably. Based on these differences – oil exporters and importers establishing the main contrasting categories – it is possible to define the existence of differentiated economies in terms of their vulnerability to unfavourable policy developments in their major trade and financial partners. The analysis of the several mechanisms of transmission between developed and developing countries must take these important differences into account.

Transmission of demand fluctuations

Demand conditions in developed countries are extremely important to define both export volumes and export prices, especially those of commodities, in developing countries. This obvious short-run relation between demand conditions in the developed countries and export volumes in developing economies must however be qualified by long run arguments, as structural trends are extremely powerful. The impact of OECD activity on commodity prices, on the other hand, is not evenly distributed, being especially powerful in the case of non-oil commodities. Again, the relative strength of those links is bound to vary quite considerably depending on the specific Latin American economy under analysis.

Export volumes

In the short-run, given export promotion and exchange rate policies, demand growth in developed countries is the most important single variable which explains the behaviour of manufactured and non-oil commodity exports by developing countries. While prices, of course, are also relevant, their elasticity is not high, especially so in the case of non-oil exports[5].

Oil export volumes are, of course, also affected by activity variables but the administration of supply by OPEC makes this a rather special case. Actual estimated elasticities of export volumes are in fact considerably higher for developing countries, which export fuel than for other groups[6].

While the relationship between demand conditions in developed countries and developed countries' export volumes is well documented[7] results tend to obscure the pronounced instability of results in relation to marginal changes in specifications and the marked pro-cyclical behaviour of such elasticities as illustrated by their evolution since the early 1970s: immediately after the first oil

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[5] See Dornbusch (1985), p. 337.
[6] IMF (1986A), p. 26.
[7] See, for instance, IMF (1986A), pp. 26 and 32.

shock they became negative in the OECD, then increased to more than 2.0 to fall again in 1980/81 to -2.67 and -0.50 and then recover to reach 2.0 in 1983/85[8].

In the case of Latin American exports, such elasticities have been much more stable, especially for countries, which do not export oil (Table 1). However, even oil exporters had impressive export performances only marred in the two last years. Indeed, in terms of volumes exported the performance after the mid-1970s of oil and non-oil Latin American exporters was not significantly different (see Table 2). Specific countries, however, fared much worse – Venezuela is the best example – or much better – as Argentina, Brazil and México – than their respective groups.

Table 1

Latin America: Export Volume Growth Rates, 1976-85

Elasticity in relation to OECD growth

Year	Total exports	Oil exporters	Non-oil exporters	OECD growth	Total exports	Oil exporters	Non-oil exporters
1976	7.1	3.0	8.8	4.8	1.48	0.63	1.83
1977	7.2	5.8	7.8	3.8	1.89	1.53	2.05
1978	11.5	14.5	10.4	4.0	2.87	3.63	2.60
1979	10.5	13.8	9.2	3.1	3.39	4.45	2.97
1980	5.9	5.7	6.0	1.2	4.92	4.75	5.00
1981	9.2	1 .2	12.7	2.0	4.60	0.60	6.35
1982	-1.3	9.2	-5.4	-0.5	2.60	-18.40	10.80
1983	7.1	6.2	7.8	2.4	2.96	2.58	3.25
1984	7. 2	4.4	9.8	4.9	1.47	0.45	2.00
1985	-1.7	-6.4	2.5	2.8	-0.61	-2.29	0.89

Source: CEPAL (1984), CEPAL (1985) and OECD (1985).

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[8] See Resende, Lago, Abreu and Fritsch (1984), pp. 22-25.

Table 2

Latin America: Export Volumes, 1970-85 (1970 = 100)

	1975	1980	1983	1984	1985
Latin America	77.8	166.7	196.0	210.2	206.7
Oil exporters	85.8	128.8	151.6	158.3	148.1
Mexico	119.9	278.9	496.7	492.8	451.8
Venezuela	63.9	59.0	48.3	50.1	46.6
Non-oil exporters	127.4	190.8	225.5	247.7	253.8
Argentina	77.8	147.8	192.6	186.1	217.2
Brazil	157.9	265.1	349.9	414 .9	413.6

Sources: CEPAL (1984) and CEPAL (1985).
Oil exporters include Bolivia, Ecuador, Mexico, Peru and Venezuela.

These contrasting performances are mainly explained by the very unequal behaviour of specific groups of Products – energy, raw materials, food and manufactures – over the two cycles of OECD economic activity since the early 1970s. OECD aggregate import volume per GDP unit varied roughly in line with GDP but energy and raw material import volumes per unit of output were particularly laggard falling 40% and 20% respectively over the last 12 years due to conservation, substitution and changes in the GDP mix. In the other extreme the volume of manufactured goods imports per unit of GDP increased by more than 30% in spite of the rise of protectionism. In principle, the more able was a Latin American country to diversify its exports by increasing the share of manufactures, the less vulnerable was it to these very marked structural trends.

Protectionism

Developed country protectionism prompted by protracted structural adjustment, rising unemployment and exchange rate misalignment acts as an important filter insulating developing countries' exports from the favourable impact of expansionary demand management in the developed countries. It is extremely difficult to evaluate with any precision what has been the impact of the recent rise of protectionism in terms of loss of trade especially so in the case of non-tariff barriers. It is unlikely, however, those developing countries' exports *as an aggregate* would increase by more than 12-15% in the event there was a complete removal of protectionist barriers in developed countries[9]. This rate could be larger in Latin America than for the world as losses entailed by

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[9] This supposes no terms of trade effects. See IMF (1986A), p.40 and UNCTAD (1985).

protectionism are bound to hurt those countries specializing in products facing major trade obstacles such as Argentina – whose exports are hurt by the extremely protective agricultural policies of the EEC and Japan as well as by EEC and US export subsidies and Brazil – vulnerable to VERs affecting many manufactured products in the US and the EEC, as can be gauged from Table 3.

Table 3

Rates of Increase of Imports of Developed Countries Originating in

Developing Countries in the Event Tariff and Non-Tariff Barriers are Totally Removed

	USA	EEC	Japan
Food items	9.1	21.0	24.2
Food and live animals	9.0	21.0	25.8
Oil seeds and oil nuts	5.8	0	1.0
Animal and vegetable materials	15.0	46.4	8.6
Agricultural raw materials	6.1	1.2	2.2
Ores and metals	6.0	16.9	3.6
Iron and steel	28.1	46.5	14.7
Non-ferrous metals	0.7	2.0	3.8
Fuels	0.7	9.3	2.9
Chemicals	4.2	8.7	9.2
Other manufactured goods	43.2	28.6	12.5
Leather	1.8	11.9	81.6
Textile yarn and fabrics	49.0	43.1	10.1
Clothing	134.1	92.3	21.2
Footwear	69.6	67.4	34.6

Source: UNCTAD (1985), p. 45.

Export prices: oil and non-oil

Non-oil commodity prices have been the object of exhaustive studies showing the paramount importance in their explanation of fluctuations in demand variables defined by macroeconomic policies in the major developed economies. Results tend to converge to estimates for the elasticity of real non-oil commodity prices in relation to activity in developed countries of around 2. There is evidence suggesting that elasticities are the smaller the longer the period of analysis, so elasticities for the period 1977-84 tend to be larger if compared with those estimated for 1972-82, still larger for those for longer periods. Elasticities also vary considerably depending on the type of non-oil commodities, metals and agricultural raw materials being more sensitive to activity fluctuations than

food and beverages[10].

The other important variables to explain non- oil commodity prices are the real dollar exchange rate and inflation in the main developed economies. Chu and Morrison (1984) obtained an elasticity of 1.0 linking prices to the real dollar exchange rate: an appreciation of the dollar, involves, *ceteris paribus*, a fall in non-oil commodity prices at an equivalent rate[11] because of the increase in prices denominated in European currencies on the level of non-US OECD imports of non-oil commodities.

As inflation rates varied quite considerably in the main OECD economies since the late 1970s, there was a correspondingly significant impact on non-oil commodity prices, first tending to strengthen them, then, after 1982, to depress them[12]. Interest rate fluctuations, on the other hand, while not irrelevant in explaining the behaviour of non-oil commodity prices have been found to be relatively insignificant in terms of the magnitude of their influence.

The interaction of such factors produced a rather unfavourable impact on Latin American non-oil commodity export prices after the second oil shock. In contrast with the first oil shock, non-oil commodity prices fell quite significantly after 1980, recovered somewhat modestly after 1982 as the US economy started to grow rapidly and then were depressed again through the joint impact of the dollar appreciation and the fall of inflation rates (see Table 4). Again, the impact on specific Latin American countries varied rather significantly depending on the composition of their exports, Argentina being more unfavourably affected than other non-oil exporters.

The behaviour of manufactured goods export prices is notoriously difficult to explain in the longer perspective. At least since the early 1980s it would seem that they are more akin to non-oil commodity prices than with the prices of the developed countries' exports with which they at least in some cases complete. That this is the case for Brazil over the past few years is shown in Table 5 where export and import prices are presented. This somewhat surprising feature can be explained partly by the extremely competitive nature of markets for exports in which Brazil specialize partly by the substantial real devaluations undertaken as part of adjustment policies adopted since 1981 with their consequent terms of trade unfavourable impact.

The link between aggregate demand in developed economies and oil export prices is qualified by OPEC's supply policies, at least in the short run. Table 3 indicates that between 1980 and 1985 export prices for oil and non-oil exporters in Latin America have varied more or less in line with each other while in the previous period oil exporters had enjoyed much higher price increases. This trend is likely to be sharply reversed after 1985 with the precipitous fall of oil prices in the international markets turning upside down analysis based on 1972-85 relative price patterns[13].

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[10] See IMF (1986A), p. 16 ff.
[11] See IMF (1986A), p. 22 ff.
[12] Chu and Morrison (1984); the relevant inflation elasticity is of the order of 2.0.
[13] It is not unlikely, however, that oil prices will recover from their very depressed present levels of *circa* US$13.00/barrel

Latin American countries, which depend on oil imports, were, of course, particularly strongly hit by oil price increases; their terms of trade deteriorating since the early 1970s more than 40% in some cases (see Table 6). Indeed, in magnitude the fall in terms of trade in these countries is similar to the one, which occurred in the late 1920s and early 1930s.

Table 4

Latin America: Export Unit Prices, 1970-85 (1970 = 100)

	1975	1980	1983	1984	1985
Latin America	224.2	380.8	316.8	329.4	316.1
Oil exporters	322.6	621.0	534.2	551.8	532.2
Mexico	186.0	427.3	354.2	363.8	354.7
Venezuela	532.4	1,241.0	1,170.8	1,228.2	1,191.4
Non-oil exporters	181.9	277.6	223.1	233.8	222.1
Argentina	214.8	306.2	228.2	343.5	214.3
Brazil	196.4	277.3	227.7	237.3	221.8

Sources: CEPAL (1984) and CEPAL (1985).
Oil exporters include Bolivia, Ecuador, Mexico, Peru and Venezuela.

Table 5

Brazil; Export and Import Prices, 1977-85 (1980 = 100)

Year	Goods produced by manufacturing industry	Non-industrial goods	Goods competing with manufacturing industry
1977	81.9	138.7	75.6
1978	77.1	109.6	78.0
1979	91.7	109.4	92.4
1980	100.0	100.0	100.0
1981	98.4	68.2	104.5
1982	89.4	69.9	102.7
1983	83.0	73.3	106.3
1984	84.4	83.7	98.4
1985	77.4	76.0	92.8

Sources: *Conjuntura Econômica*, several issues.

(Brent).

Table 6

Latin America: Terms of Trade, 1970-85 (1970 = 100)

	1975	1977	1979	1982	1983	1984	1985
Latin America	116.3	127.6	119.3	106.6	105.7	110.0	106.8
Oil exporters	193.2	195.7	206.0	215.8	206.3	210.8	205.8
Mexico	105.7	122.9	132.5	160.7	155.4	154.2	150.0
Venezuela	335.3	344.6	401.1	508.8	525.1	559.7	545.7
Non-oil exporters	84.9	98.8	83.7	62.4	62.3	66.1	63.7
Argentina	100.7	86.3	81.1	82.2	79.7	88.1	77.9
Brazil	85.4	100.8	79.9	54.0	55.0	59.6	57.4

Source: ECIA (1984) and ECIA (1985).

Brazil was in fact the only large Latin American economy to face such terms of trade. Indeed, it was the country most affected in the world economy by oil price increases in absolute terms, oil imports corresponding to 40% of total imports and 5% of GDP[14]. Other Latin American economies similarly affected but to a much lesser extent were Uruguay, Chile, Colombia and many smaller Central American economies whose oil export bill rose to 15-20% of total imports.

Interest rate fluctuations and their impact on financial and trade flows

The impact of interest rate fluctuations on the economies of developing countries is rather complex as they affect demand growth in developed countries and consequently, as already discussed the prices and volumes of their imports. Moreover, interest rate fluctuations are crucial determinants of real exchange rate fluctuations, which are, as already mentioned, crucial to explain developing countries' export volumes – by determining their competitiveness – and prices.

The more direct and important impact of interest rate fluctuations on developed countries is, of course, on the interest element of debt Service[15]. It is now generally recognized that a crucial element of the deterioration of the balance payments position of developing countries since the late 1970s has been the steep increase of nominal interest rates in the US, which prompted the further accumulation of foreign debt. Debt-export ratios increased very rapidly in Latin America, again very unequally as between countries as shown in Table 7. Among the larger Latin American, economies Argentina reached an extremely high debt-export ratio even compared to Latin American standards and became

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[14] GATT (1986), p. 22.

[15] It is interesting to note that a 3% variation in the interest rate is roughly equivalent in terms of balance of payments impact to the complete disappearance of protectionism in the developed countries.

extremely vulnerable to interest rate fluctuations as became clear during the period of very high interest rates in the US until 1982. Venezuela was in the other extreme being relatively immune to interest rate increases. If the important fall in oil prices started in the end of 1985 is maintained it is to be expected *ceteris paribus* that Venezuela and even more Mexico will eventually become much more vulnerable to interest rate fluctuations than in the past.

Table 7

Latin America: Debt-Export Ratios, 1983-85

	1983	1984	1985
Latin America	3.91	3.70	4.0
Oil Exporters	3.43	3.25	3.61
Mexico	4.13	4.02	4.54
Venezuela	2.30	1.97	2.12
Other	3.57	3.56	3.83
Non-oil exporters	4.42	4.09	4.33
Argentina	5.94	5.92	6.02
Brazil	4.41	3.77	4.04
Other	3.63	3.72	3.91

Source: CEPAL (1985).
Oil exporters include Bolivia, Ecuador, Mexico, Peru and Venezuela.

The negotiation – in a context of credit rationing – of agreements establishing minimum foreign exchange transfers related to the foreign debt Service in many Latin American countries has entailed the need to produce massive trade surpluses in a context of an almost complete interruption of voluntary private capital flows and political limits to the import contraction entailed by demand shrinkage. This simple general equilibrium argument has to prove to be extremely difficult to digest by vested interests in developed countries concerned with the production of those goods more exposed to foreign competition. It is obvious that stable equilibria over time concerning the debt problem of developing countries will have to take into account both trade and financial interests in developed countries as well as the requirement of a politically determined minimum rate of import growth in developing countries.

While specific indebted countries may have success in their adjustment policies through increased exports, it is obviously impossible for *all* such countries to succeed especially so when the rate of growth of world trade is relatively laggard. For all Latin American countries to adjust a marked break with past export, performance would in any case be required.

In dynamic terms the trade-debt link in each economy is made explicit by the requirement – given certain conditions related to the behaviour of imports – that to avoid ever increasing debt – export ratios the rate of growth of exports must exceed the nominal rate of interest[16].

An important variation of the rationing argument just mentioned above refers to loans by multilateral organizations whose capacity to raise funds is directly and indirectly influenced by the fiscal stance of the major developed economies through their decisions to fund such agencies. Such supply of funds can also be affected by protectionist lobbies fearing the development of more efficient productive capacity in countries applying for official multilateral finance.

Another important trade-debt transmission link refers to the consequences of the impact of recessive policies adopted in developing countries to ease their balance of payments troubles through import contraction on their developing trade partners. This problem is especially serious for countries with a more diversified geographical export distribution but reveals itself in the case of Latin America as a whole: exports to such markets fell from 28% of total exports in 1981 to 25% thereafter[17].

4.   The crucial role of exogenous determinants in the evolution of major debtors' finance requirements

In the two preceding sections the possible patterns of macroeconomic management in the leading developed countries and the way economic fluctuations induced by those policies are likely to be transmitted to Latin America were discussed. In this final section, an attempt is made to illustrate to what extent the external financing requirements of the four major Latin American debtors can vary under alternative hypotheses as to the behaviour of these fundamental exogenous conditions. This is done with the help of a simple simulation model[18] which, based on alternative scenarios concerning the behaviour of main variables in the OECD and structural characteristics of the relevant Latin American economies, can generate levels of indebtedness for a given debtor country in a finite time horizon. The exercise is undertaken for the period 1986-89 for Argentina, Brazil, Mexico and Venezuela.

The three scenarios adopted are described in Table 7. The "basic" scenario is essentially an inertial scenario: rates of OECD growth in the 3.5-3.0% region, falling rates of interest and oil prices around US$ 18/barrel in 1986 then constant in nominal terms, not too high export elasticities. The "optimist" scenario involves higher OECD rates of growth, still lower rates of interest and oil prices

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[16] See Simonsen (1984).

[17] GATT (1985), table A10. In Brazil, this share fell from more than 40% to around 33% in the same period, FUNCEX (1982 to 1985). Export contraction in developing countries is bound in due course to provoke the contraction of their imports. See, for instance, GATT (1964), where it is shown than in four years a cut in Korean exports will be fully compensated by a fall in Korean imports.

[18] For a description of the simulation model used here, see Appendix 1.

around US$ 22/barrel in 1986 then constant and higher export elasticities. The "pessimist" scenario is based on rapidly declining OECD growth rates, increasing rates of interest, oil prices around US$ 15/barrel in 1986 then constant and lower export elasticities.

Table 8

Alternative Scenarios for the End of the Decade: Latin America

Year	1986			1987			1988			1989		
Scenario	B	O	P	B	O	P	B	O	P	B	O	P
OECD growth rate (%)	3,5	4,0	3,0	3,5	4,0	2,0	3,0	3,5	1,5	3,0	3,0	1,0
Interest rate (%)	7,25	7,0	7,5	6,5	6,0	9,5	6,0	5,0	10,0	6,0	5,0	10,0
Spread (%)		1,125			1,125			1,125			1,125	
Import prices (%)												
Argentina	4	6	5	5	6	4	5	6	3	5	6	3
Brazil	-7	-3	-10	5	6	4	5	6	3	5	6	3
Mexico	4	6	5	5	6	4	5	6	3	5	6	3
Venezuela	4	6	5	5	6	4	5	6	3	5	6	3
Export prices (%)												
Argentina	6	8	7	7	8	3	7	8	1	7	8	0
Brazil	6	8	5	6	10	3	6	8	1	6	8	0
Mexico	-21	-15	-26	2	3	1	2	2	0	2	2	0
Venezuela	-33	-25	-40	0	0	0	0	0	0	0	0	0
Import Elasticity												
Argentina		2			1.5			1.0			1.0	
Brazil		1.5			1.2			1.2			1.2	
Mexico		1.5			1.5			1.0			1.0	
Venezuela		1.5			1.5			1.0			1.0	
Export Elasticity												
Argentina	1.2	2.0	1.0	1.2	2.0	1.0	1.2	2.0	1.0	1.2	2.0	1.0
Brazil	1.5	2.0	1.5	1.8	2.0	1.5	1.8	2.0	1.5	1.8	2.0	1.5
Mexico	1.2	1.3	1.2	0.8	0.9	0.7	0.8	0.9	0.7	0.9	0.9	0.8
Venezuela	1.0	1.0	1.0	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.5	0.4
Net Direct Investment (US$ billion)												
Argentina		0.1			0.1			0.2			0.2	
Brazil		0.3			0.5			0.5			0.5	
Mexico		0.5			0.5			0.5			0.5	
Venezuela		0.0			0.1			0.1			0.1	

B = Basic; O = Optimist; P = Pessimist

To simulate debt patterns it was supposed that the different economies would grow at their "historical" rates: Argentina at 3,5% a year, Brazil at 8,0%, México at 6%, Venezuela at 5,5%.

The total indebtness positions at the end of the year simulated by the model for 1986-89 are listed in Table 8. There is a very marked contrast between oil exporters and non-oil exporters. Indeed, even in the most favourable the scenarios the total debt of Mexico and Venezuela increases very substantially in absolute terms. In relative terms Venezuela's debt increases considerably faster than Mexico's. Non-oil exporters fare much better: Argentina's foreign debt only increases – and not very rapidly – in the pessimist scenario. Brazil's foreign debt decreases at almost unbelievably fast rates in both the optimist and basic scenarios; even in the pessimist scenario, it remains roughly stable. Table 9 registers the yearly financial requirements for each country. Negative values imply increasing foreign reserves or ever, eventually, repayment of principal.

The debt dynamics in each country is explained by a different set of variables. It is possible even to speak of a rough taxonomy of debtors. Argentina's debt pattern is very much dependent on the evolution of interest rates as total debt is very large in relation to exports. Brazil's debt pattern is more evenly dependent on the interest rate, export prices and OECD growth patterns. Mexico's and Venezuela's indebtedness pattern almost entirely depends initially on the evolution of oil prices. After the first year, debt patterns are explained by the sluggish behaviour of export volumes in contrast with Argentina and Brazil.

Simulation results bring focus to the primacy of the impact of G-5 coordinated macroeconomic policies and its results in terms of high growth rates, low interest rates and their impact on export prices in relation to other desirable objectives for developing countries such as removal of protectionist barriers.

Even for Brazil, the impact of such macroeconomic policies tends to outweigh the result of the extremely unlikely complete removal of trade barriers. Moreover, it would be very naive to expect very considerable reduction in OECD trade impediments affecting Latin American exports even in a longer-term horizon extending to the end of the decade. The most that can be expected is a standstill and perhaps a modest rollback as extremely high unemployment rates especially in Europe remain as powerful stumbling blocks to any extensive trade liberation.

Table 9

Simulated Debt Patterns in Latin America, 1986-89 (in US$ millions)

Year	1986	1987	1988	1989
Argentina				
Basic	49.956	48.982	47.071	44.329
Optimist	49.409	47.299	43.416	38.084
Pessimist	50.118	51.251	52.923	55.059
Brazil				
Basic	97.652	90.716	81.411	69.935
Optimist	96.710	87.295	74.015	57.683
Pessimist	97.758	95.522	94.941	96.434
Mexico				
Basic	102.060	107.061	112.841	120.074
Optimist	100.513	103.411	106.371	110.697
Pessimist	103.582	113.468	126.349	142.100
Venezuela				
Basic	31.877	34.432	37.997	42.925
Optimist	30.732	32.079	34.302	37.879
Pessimist	33.086	37.853	44.186	52.142

Table 10

Yearly Financial Requirements in Latin America, 1986-89 (in US$ millions)

Year	1986	1987	1988	1989
Argentina				
Basic	-44	-974	-1.911	-2.832
Optimist	-591	-2.110	-3.883	-5.332
Pessimist	118	1.133	1.672	2.136
Brazil				
Basic	-4.368	-6.936	-9.305	-11.476
Optimist	-5.220	-9.415	-13.280	-16.332
Pessimist	-4.172	-2.236	-581	-1.493
Mexico				
Basic	4.360	5.001	5.780	7.233
Optimist	2.813	2.898	2.960	4.326
Pessimist	5.882	9.886	12.881	15.751
Venezuela				
Basic	1.577	2.465	3.565	4.928
Optimist	432	1.347	2.223	3.577
Pessimist	2.786	4.767	6.333	7.956

The macroeconomic policies of the main OECD economies have been of crucial importance to explain the deterioration of the external accounts of most countries in Latin America through very high rates of interest and low rates of growth, which entailed low exports through its price and volume effects. It is vital that such policies should provide an adequate basis if not for the solution at least for the realistic consideration over the longer term of the Latin American debt problem. It is clear from the simulations presented in Table 10 that even the optimist scenario entails heavy additional financial commitments in oil exporting countries by private international banks and multilateral agencies such as the World Bank. The pessimist scenario would imply financial demands incompatible with the supply of funds and impose unacceptable costs on debtors. Macroeconomic coordination of policies has fastly evolved from being almost a dream to the position of being an essential condition for the stability of the world economic system.

APPENDIX 1

The model used in the debt projections presented in Section 4 explores the idea that if the quantity elasticities of imports in relation to GDP as well as the quantity elasticities of exports in relation to OECD output growth are known, the time pattern of borrowing can be generated for each time pattern of domestic output growth and a given scenario for the evolution of OECD growth, international interest rates, terms of trade and net direct investment.

In fact, if for each period $t, t = 0, 1, \ldots, n$, one defines:

$X(t)$ –   nominal value of exports in period t.

$M(t)$ –   nominal value of imports in period t.

$p_x(t)$ –   export prices growth rate in period t.

$p_m(t)$ –   import prices growth rate in period t.

$g(t)$ –   rate of growth of OECD output in period t.

$y(t)$ –   rate of growth of Brazilian output in period t.

$\theta(t)$ –   quantity elasticity of Brazilian exports relative to OECD growth in period t.

$\varepsilon(t)$ –   quantity elasticity of Brazilian imports relative to domestic output in period t.

$ib(t)$ –   average nominal interest rate (plus spread and fees) paid on outstanding net private debt at the end of period t.

$im(t)$ –   average nominal interest rate charged on outstanding net official debt at the end of period t.

$IDL(t)$ –   net foreign direct investment in Brazil minus dividends paid abroad in period t.

k –   net non-factor services as a proportion of total imports.

The balance of payments equilibrium condition in period t can be represented as:

$$X_0 \prod_{j=1}^{t} [1 + \theta(j) \cdot g(j) + p_x(j)] - M_0(1 + k) \prod_{j=1}^{t} [1 + \varepsilon(j) \cdot y(j) + p_m(j)] - (ib(t) + 1)$$

$$\cdot D_b(t - 1) - (i_m(t) + 1) \cdot D_m(t - 1)$$

$$= [D_b(t) - D_b(t - 1)] + [D_m(t) - D_m(t - 1)] + IDL(t)$$

Thus, given the initial values of private and official debt, the equation above allows the iterative calculation of the time pattern of net financial requirements for alternative scenarios defined as a set of parameters $(\theta, k, p_x, p_m, \varepsilon, ib, im, IDL)$.

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