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*Deputy Executive Secretary for
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Gert Rosenthal

*Deputy Executive Secretary for
Co-operation and Support Services*
Robert T. Brown



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External restriction and adjustment. Options and policies in Latin America

*Nicolás Eyzaguirre**

*Mario Valdivia***

In 1982 the flow of external resources to Latin America suddenly stopped, and the countries of the region were obliged to devise economic policies consistent with the shortage of foreign exchange. This article makes a critical analysis of these policies and reviews a number of options.

The analysis of the dilemma of reallocating expenditure and production or depressing domestic demand as policy options for coping with external restriction indicates that the best thing is to combine the two alternatives. On its own, the reduction of expenditure causes production to fall and, paradoxically, the excess of expenditure over product is tackled with policies which reduce the product. On the other hand, reallocation of expenditure and production alone is not sufficient to correct an initial situation of excess expenditure.

The article then considers the difficulties of finding an adequate combination of cutback and reallocation of expenditure, difficulties which are connected with the evolution over time of the relevant elasticities, changes in the public's expectations, and rigidities which impede the transformation of the production structure.

Lastly, an account is given of the analytical differences between the separate adjustment of a small economy and the simultaneous adjustment of a group of economies; the earlier results are assessed in the light of this problem, and it is concluded that adjustment cannot be divorced from the economic policies of the creditor countries.

*ECLAC expert on monetary policy.

**ECLAC expert on monetary and financial affairs.

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Introduction

In 1982 Latin America experienced a sharp cutback in the flows of external resources which it had received in previous years, with the result that the financial balance (i.e., the difference between the net inflow of capital and the payment of capital services) suddenly became negative (table 1). Accordingly, financial movements caused a considerable hemorrhage of resources, compared, for example, with the value of the region's annual exports. This marked the reversal of a long-term trend of net inflow of financial resources into Latin America from abroad (CEPAL, 1986). This trend was more in accordance with what is to be expected of capital movements between countries with different degrees of development.

The sudden loss of resources exhausted the region's foreign exchange reserves and forced the Latin American countries to make sharp cutbacks in domestic expenditure. Per capita consumption fell in every year between 1981 and 1985, except in 1984, and in 1985 it was 10% lower than in 1980. Investment fell 20% between 1981 and 1983, and recovered only slightly in 1984 and 1985; the sharp cutback in expenditure (which reduced imports and freed production for exports, as will be seen below, nevertheless had very adverse effects on output, and Latin America's per capita gross domestic product fell 10% between 1981 and 1983, without any appreciable recovery up to 1985 (table 1). But not only did Latin America have to grapple with the production losses and the fall in living standards resulting from the cutback in consumption, it also had to accept a reduction in its future growth rate as a consequence of the decreased accumulation of capital.

The trade account of the balance of payments thus suffered the adverse impact of the negative financial balance. This was inevitable in view of the magnitude and persistence of the draining of resources out of the region. The manoeuvring to finance this resource flow by using accumulated international reserves could not be kept up for more than a short time. Only in 1982 was Latin America able to finance the negative financial balance with the exterior without having a comparable trade surplus (table 1). In that year, indeed, it lost reserves of

US\$22 000 million, equivalent to a quarter of the value of exports in the same period. After that the outflow of financial resources was financed by a more or less equivalent net loss of real resources.

Thus, and with sharp recessionary effects, domestic expenditure and production were adjusted and adapted to the need to generate the necessary surplus output of internationally tradeable goods and services. From 1983 Latin America produced unprecedented foreign trade surpluses, despite the deterioration of the terms of trade (table 1). The rest of the world, mainly the group of industrialized countries, began to absorb Latin American production in net terms. This external dissaving, equivalent to about a third of the value exported by the region in 1983-1985, produced the sharp fall in investment mentioned above, despite the fact that the cutback in per capita consumption, consistent with the decline in the per capita gross domestic product, not only failed to reduce the proportion of GDP saved but even increased it significantly in 1985.

One of the most dramatic effects of this recessionary adjustment of the Latin American economies to the new external conditions has been of a distributive nature. The fall in production caused sharp increases in unemployment

(table 2); furthermore, in many Latin American countries real wages fell more than the per capita gross domestic product (table 3). These two facts support the supposition that both the participation of labour in the product and the living standards of the poorest citizens fell, and they back the intuitive perception that the recessionary adjustment has exacerbated the poverty of vast sections of the population of Latin America.

The reversal of the flows of financial resources from abroad had its origin in the sharp reduction of the net capital inflows to unusually low levels from 1982. Furthermore, from the end of the 1970s and until 1981 there was a substantial increase in the region's capital income, especially in the form of foreign loans (Massad, 1986). As a result the foreign debt grew very quickly, trebling between 1978 and 1982. In 1982 it was above US\$300 000 million (table 4), a figure three times higher than the value of Latin America's annual exports. In these circumstances an interest rate of 10% on the debt meant allocating 30% of exports to the payment of financial services. As the international interest rate was far above that value from 1979, interest on the external debt weighed very heavily on the current account of the balance of payments, especially from 1981 (table 4). And when the inflow of capital was interrupted in 1982, the whole

Table 1

LATIN AMERICA (19 COUNTRIES)^a: ADJUSTMENT INDICATORS, 1980-1985*(Thousands of millions of dollars^b and percentages)*

	1980	1981	1982	1983	1984	1985
Financial balance ^c	12	10	-19	-31	-26	-30
Per unit of value exported	0.13	0.10	-0.22	-0.35	-0.27	-0.33
Trade balance ^d	-10	-13	-3	-26	34	30
Terms of trade (variation rates)	4.2	-7.6	-8.9	-1.8	4.1	-2.9
Investment	188	183	153	120	124	128
Variation rates	11.1	-2.7	-16.2	-11.6	3.6	3.2
Per capita consumption (variation rates)	2.8	-1.1	-3.8	-5.4	0.6	-0.7
Per capita GDP (variation rates)	3.0	-1.9	-3.8	-4.8	0.9	0.3

Source: ECLAC.

^aIncludes Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela.

^bInvestment, consumption and gross domestic product expressed in 1980 prices.

^cDifference between net inflow of capital and net payment of capital services.

^dExports less imports of non-financial goods and services.

Table 2

**LATIN AMERICA (15 COUNTRIES):
URBAN UNEMPLOYMENT, 1980-1985**

(Average annual rates)

Country	1980	1981	1982	1983	1984	1985
Argentina	2.6	4.7	5.3	4.6	4.6	6.3
Bolivia	7.5	9.7	9.4	12.1	12.6	15.0
Brazil	7.2	7.9	6.3	6.7	7.1	5.3
Colombia	9.7	8.2	9.3	11.8	13.5	14.1
Costa Rica	6.0	9.1	9.9	8.6	6.6	6.7
Chile	11.7	9.0	20.0	19.0	18.5	17.0
Ecuador	5.7	6.0	6.3	6.7	10.5	10.4
Guatemala	2.2	2.7	4.7	7.6	9.7	12.9
Honduras	8.8	9.0	9.2	9.5	10.7	11.7
Mexico	4.5	4.2	4.1	6.7	6.0	4.8
Panama	9.8	11.8	10.3	11.4	11.1	11.5
Paraguay	4.1	2.2	5.6	8.4	7.4	5.2
Peru	10.9	10.4	10.6	13.9	16.4	17.6
Uruguay	7.4	6.7	11.9	15.5	14.0	13.1
Venezuela	6.6	6.8	7.8	10.5	14.3	14.3
Average ^a	6.9	7.2	8.7	10.2	10.9	11.1

Source: ECLAC.

^a Arithmetic average.

painful effort of adjusting the region's foreign trade was insufficient to offset the payment of interest: the current account continued in the red and the debt continued to grow (table 4).

The indicators of the adjustment and of the external financial flows (tables 1 and 4) show that to understand the changes in Latin America's balance of payments in recent years it is necessary to consider at least two complementary factors. One is the variation in the net external financing available to the region; the other is the form in which the domestic economies have adapted their spending and the production of internationally tradeable goods and services to the cutback in financing.

The first factor is reflected in the current account of the balance of payments, including net flows of interest and profits. In recent years the central problem in this area has been rooted in the size of the foreign debt, the increase in international interest rates and the reduced supply of new loans.

The second factor was the need to reconcile the trade balance with the negative financial

balance. Of course, this adjustment of the trade balance takes place in the framework of world trade conditions, which can also undergo sudden changes (deterioration in the terms of trade, increases in quotas on Latin American exports in the industrialized countries, etc.).

As a rule, using the familiar scheme which distinguishes between two types of goods and services, those tradeable internationally (T) and those non-tradeable internationally (N), the situation can be described as follows: If G is expenditure, Y the product and P the price of goods and services N with respect to goods and services T, then, by definition:

$$G - Y = G_T - Y_T + P (G_N - Y_N)$$

Now, $G_T - Y_T$ represents the trade balance of the balance of payments, which should be equal to the financial balance (BF). This balance in turn is equivalent to the net inflow of capital (dD) less payments for external capital services (rD), where D is the net stock of capital and r the average rate of interest earned by it.¹

Thus:

$$G - Y + P (Y_N - G_N) - BF$$

$$BF = dD - rD$$

Table 3

**LATIN AMERICA (7 COUNTRIES):
AVERAGE REAL WAGES,
1980-1985**

(Percentage variation rates)

Country	1980	1981	1982	1983	1984	1985
Argentina	11.8	-10.6	-10.4	29.3	26.9	-9.9
Brazil	1.5	6.0	9.8	-8.6	-0.1	9.7
Colombia	0.8	1.4	3.7	5.0	7.5	-3.7
Chile	9.0	9.1	-0.4	-10.6	0.3	-6.5
Mexico	-4.3	2.4	5.2	-27.7	-4.2	-0.6
Peru	12.4	-8.6	2.0	-7.3	-13.5	-20.5
Uruguay	-0.4	7.5	-0.3	-20.7	-9.1	12.6

Source: ECLAC.

¹Foreign currency reserves can be considered external financial investments; variations in them are therefore included in the financial balance. Another approach is to assume that these reserves remain constant. At times of adjustment to a prolonged external shock, when these reserves have fallen to their absolute limit, the two possibilities are virtually equivalent.

Table 4
**LATIN AMERICA: INDICATORS OF EXTERNAL FINANCIAL FLOWS,
 1973-1985**

(Thousands of millions of dollars)

	1973- 1979 ^a	1980	1981	1982	1983	1984	1985
1. Net capital inflow	17.6	29.5	37.3	19.8	3.0	10.3	4.7
2. External debt	102.3	222.5	277.7	318.4	344.0	360.4	368.0
3. Interest paid ^b	7.6	17.9	27.1	38.7	34.2	36.1	35.1
4. LIBOR ^c	8.8	14.0	16.8	13.6	9.9	11.3	8.6
5. Current account balance	-12.2	-28.1	-40.4	-40.6	-7.4	-1.0	-4.4

Source: ECLAC.

^a Annual averages.

^b Includes interest on foreign debt and profits from direct investments.

^c Annual rate for dollar transactions in London, at 1980 days.

Strictly speaking, BF is a variable which cannot be considered in principle as a component of adjustment processes² or susceptible to modification by adjustment policies. Although D and r must be viewed as domestic economic policy data,³ this is not in principle true of the capital inflows dD. There are also equally sophisticated theories on the capital account of the balance of payments.⁴ These theories show that certain domestic economic variables help to explain the high levels of net capital inflows.

As a rule, if i is the domestic interest rate, r the international interest rate and e the expected variation in the exchange rate, then

$$i - e - r$$

represents the incentive in favour of capital inflows arising from the difference in returns. To the extent that i and e are variables sensitive to the adjustment policy, dD will be so as well.

Now, these theories which treat the credit market as just another market and the interest rate as some kind of price of equilibrium have

been the subject of much debate and criticism (Aliber, 1973; Dufey and Giddy, 1978; Stiglitz and Weiss, 1981; Fernández, 1983; Sarmiento, 1985; Eyzaguirre, 1978a; Zahler and Valdivia, 1987). But apart from that there is the clear empirical fact that in recent years Latin America has had a remarkably inflexible supply of external funds (Massad, 1985). Accordingly there is a period, not necessarily short, during which BF should be viewed as an exogenous variable which affects the adjustment process.⁵ The IMF's own adjustment scheme treats the net influx of capital dF in this sort of way (Zahler, 1986). This seems consistent with the fact that not even the IMF agreements have prompted a significant resumption of financial flows from abroad (Abramovic, 1985).

Three views of the adjustment problem are now described. The first is the orthodox concept, or market adjustment. The second is a critique of that concept in terms of the domestic rigidities of the economies undergoing the adjustment. The third takes into account considerations external to these economies and points to the need to treat the problem of adjustment from a global perspective that includes the economic policies of debtors and creditors.

²With greater reason if movements in international reserves are accepted as part of BF. According to what was stated earlier, these movements are excluded from the analysis.

³Or rather as parameters which can be modified by political negotiations, but which cannot be manipulated by economic policy as such. In other words, D and r represent the values of the debt and of the interest rate on the debt, which the adjustment policies must take into account.

⁴See an excellent review of these theories in Meller, 1987.

⁵This topic will be returned to later, with respect of the behaviour of international lenders throughout the internal and external economic cycles.

I

Synthetic adjustment scheme in conditions of total flexibility

The balance-of-payments adjustment scheme most commonly used at present in the preparation of adjustment policies is a synthesis of the absorption approach, which emphasizes total expenditure surpluses, and the relative prices approach, which focusses on the problem of the disalignment of the real exchange rate. When the total goods and services produced is divided between importables and exportables, this approach is called the "elasticity approach". We have preferred to use —it is certainly more up to date— the distinction between internationally tradeable goods and services and goods and services which are not internationally tradeable (Dornbursch, 1980).⁶ (The topic of the various models for balance-of-payments adjustment is considered in Meller, 1987.)

What follows is a neoclassical interpretation of this kind of synthetic scheme, which assumes total price flexibility in the different markets.

Using the terminology explained above, the basic macroeconomic formula is:

$$G - Y + P(Y_N - G_N) = BF$$

Given a degree of financial balance, the economy will be in equilibrium if everything that is produced is sold and all demands are satisfied in both sectors. In other words, if there is an excess of total expenditure equivalent to the financial balance, an excess which should be concentrated in the market in tradeable goods and services, since equilibrium in the market in non-tradeable goods requires that expenditure and product are equal:

$$G - Y = BF$$

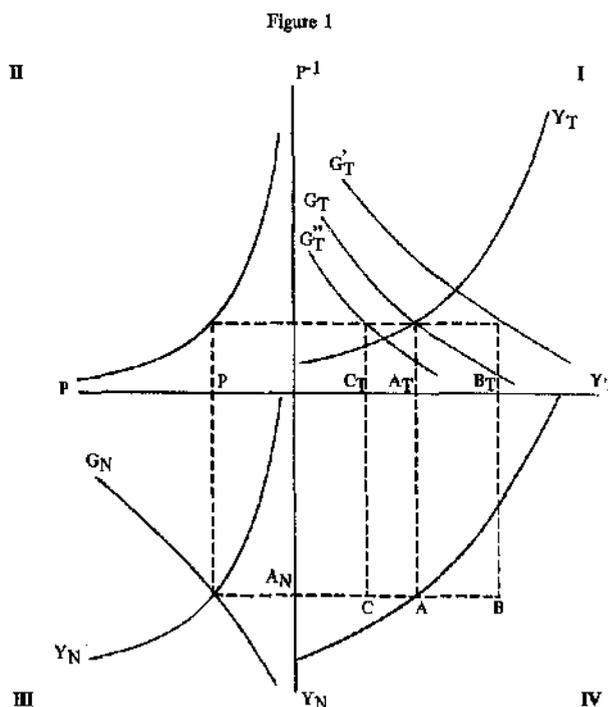
$$P(Y_N - G_N) = 0$$

Adjustment is a short-term process. It is therefore assumed that the stock of capital is fixed in each of the productive sectors —tradeable and non-tradeable goods and services. For this to happen, both supply functions (Y_N , Y_T) are subject to decreasing returns, i.e.,

they have increasing marginal costs. Therefore, it can be accepted that Y_T and Y_N depend exclusively on the relative prices (P).⁷ The demand functions (G_N , G_T) depend on P and the total expenditure (G).

Figure 1 summarizes the sectoral and global balances referred to above. Quadrants I and III show the supply and demand of tradeable and non-tradeable goods and services respectively. Quadrant II contains an equilateral curve for transforming P into P^{-1} . Accordingly, quadrant IV contains the transformation or productive possibility curve.

Given the relative price P , point A on the productive possibility curve represents balance in both markets, in A_N and A_T , and therefore a global balance between expenditure and product, i.e., $BF = 0$. At point B there is an excess of total



⁶To save space we shall refer to internationally tradeable goods and services as tradeable goods and to goods and services which are not internationally tradeable as non-tradeable goods.

⁷Obviously, they also depend on the respective stocks of capital and the available volume of work.

expenditure and, since at price P the non-tradeable goods market is balanced at A_N , this excess of expenditure occurs in the tradeable goods market (it equals $B_T - A_T$). The domestic supply and demand of tradeable goods are not equal; however, given the availability of external financing $BF = G - Y = B_T - A_T = dD - rD$, then point B is in equilibrium in the sense that every supply finds its demand and every demand finds its supply. In the case of tradeable goods, this supply is partly domestic (A_T) and partly international ($B_T - A_T$). At point C there is an excess of total production and tradeable goods equivalent to $A_T - C_T$. In this case, $BF = Y - G = A_T - C_T = dD - rD$ is negative: the accumulated interest on the foreign debt is greater than the inflow of new loans. C is the point of equilibrium in the sense that the surplus of tradeable goods $A_T - C_T$ finds an external demand.

If a negative financial shock occurs, i.e., a sharp fall in the volume of external financing (BF declines), the domestic economy must adjust.⁸ Suppose (figure 2) that in the initial situation relative price P is balanced in the non-tradeable goods market at A_N and there is excess

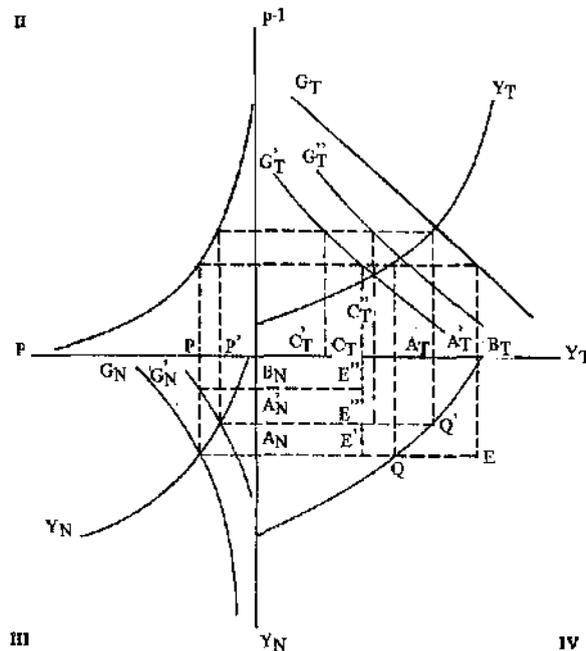
expenditure in the tradeable goods market equal to $B_T - A_T$. This situation can be sustained given the availability of external financing $BF = B_T - A_T$. The economy is producing at $Q = (A_N, A_T)$ on its productive possibility curve, and it is spending at $E = (A_N, B_T)$, below its production capacity. Now assume that, either through an increase in r or a reduction of the inflow of capital dD , there is a reduction in BF , a variable which becomes negative and equal to $C_T - A_T$.

Suppose for a moment that the decline in external financing is absorbed without changing P . In this case, the quantities offered in the two sectors remain unaltered, $Q = (A_N, A_T)$ and the product Y does not change. Accordingly, the adjustment of BF to the decrease in financing is achieved exclusively by the cutback in expenditure. Strictly speaking, it would be sufficient to reduce expenditure on tradeable goods from B_T to C_T , by cutting demand from G_T to G'_T . If price P is fixed, this can only be achieved by changing the basket of total expenditure from E to $E' = (A_N, C_T)$.

Now, the cutback in total expenditure will be reflected in an equivalent cutback in expenditure on tradeable goods only if T and N are perfectly substitutable. Otherwise, and this is obviously more realistic, the cutback in total expenditure will also reduce the demand for non-tradeable goods (for example, from G_N to G'_N). If P remains fixed, the position of total expenditure falls to $E'' = (B_N, C_T)$. This is an excessive reduction, because in addition to satisfying the external restriction $BF = C_T - A_T$, it generates excess supply ($A_N - B_N$) in the non-tradeable goods market.

The imbalance in the market in these goods cannot persist, if prices are flexible: P will fall towards P' as long as the excess supply exists. Accordingly, the production of non-tradeable goods will decline towards A'_N , while the production of tradeable goods will increase towards A'_T . If there is complete flexibility, the economy will immediately move from point $Q = (A_N, A_T)$ to point $Q' = (A'_N, A'_T)$ on its productive possibility curve. The final effect on the total output will depend on the units in which it is measured. In units of tradeable goods, the output will decline; the opposite will happen if it is expressed in units of non-tradeable goods. Therefore, given the use of a deflator which

Figure 2



⁸What follows is analysed in mathematical terms in the appendix.

weights the prices of the two groups of goods in accordance with the proportions of the total product which they represent, the real product has no reason to fall as a result of the adjustment. This is a fundamental consequence of the adjustment scheme in economic conditions of the neoclassical type. And the same thing happens with employment, both Q and Q' are points of full employment.

At price P' the non-tradeable goods market is again in balance, now at A_N' . In the tradeable goods market production increases to A_T' , as already pointed out, and expenditure falls to C_T' if the demand function is G_T' . It can thus be seen that the excess supply in this market ($A_T' - C_T'$) is higher than required by the new external financial conditions $BF = C_T - A_T$. This means that the reduction in demand from T does not have to be so sharp. For example, a reduction to G_T'' would be sufficient. As $A_T' > A_T, C_T'' > C_T$. Therefore $E''' = (A_N', C_T')$ represents a higher total expenditure on both types of goods than $E' = (B_N, C_T)$.

Now, the global equilibrium term ($G - Y = BF$) shows that, when Y declines (the product measured in units of tradeable goods), expenditure measured in the same units must fall more than the financial balance. The opposite occurs if everything is measured in units of non-tradeable goods. If the deflator referred to above is used, real expenditure falls to the same extent as the real financial balance.

In broader conditions of "good behaviour" of the demand and supply functions, there would be relative prices P and a level of total expenditure which would restore equilibrium to the non-tradeable goods market and to the economy as a whole. In other words, if the equilibriums in the two markets are stable, the economy will adjust to the decline in external financing and balance will be restored. At this new position the real product remains constant, full employment does not change and real expenditure falls, together with the financial balance, while the relative price of the tradeable goods rises, as does their share of total production. Adjustment is always expensive in terms of welfare, owing to the cutback in expenditure, but it does not have to be expensive in terms of reductions in the product and employment. At least, this is the consequence of the scheme outlined above, when

neoclassical conditions prevail, i.e., when the supply functions depend exclusively on relative prices and relative prices are totally flexible.

In real life, of course, relative prices are determined by relationships between absolute prices expressed in units of account or currencies. In this case, moreover, different units are involved. The price of the tradeable goods is expressed in foreign currency and the price of non-tradeable goods in national currency. Accordingly, the exchange rate (i.e., the price of the foreign currency in the national currency) is a key variable in the establishment of relative price P .

In fact, if P_T^* is the price of products T expressed in foreign currency and t is the exchange rate:⁹

$$P = P_N/P_T = P_N/(tP_T^*)$$

Since P_T^* and P_N are fixed, the devaluation reduces P . This is achieved by increasing the equivalent in the national currency (P_T) of the international price of the tradeable goods. This requires, of course, that the domestic markets have sufficient flexibility to accommodate these changes in the relationship between prices P_T and P_N . In this case, P_N does not "follow" the increases in P_T .

Furthermore, if P_T^* and t are fixed, the reduction in P made necessary by the negative external shock can only be made if P_N is reduced. This means that a fixed exchange rate policy facilitates economic adjustment only if the domestic prices of the non-tradeable goods are sufficiently flexible on the down side.

To sum up, whatever the exchange rate policy used to cope with a negative external shock (fixed or flexible exchange rate), the change in the prices ratio P requires flexibility in the domestic markets. In one case the prices of the non-tradeable goods must be flexible on the down side. In the other, the prices of these goods must increase proportionally less than the prices in the national currency of the tradeable goods. Clearly, these are two very different require-

⁹Note that the equation implicitly used ($P_T = tP_T^*$) is not a defining equivalence. If P_T and P_T^* are the internal and external prices of the tradeable goods, then this equation represents a condition of equilibrium between the two markets. This is called the "single price law".

ments. The upward adjustment of relative prices does not usually present any insuperable problems (unless there is universal indexing). In contrast, the downward adjustment of prices in absolute terms seems little less than impossible. This is a very important reason why fixed exchange rates do not last long in Latin America.

Before concluding this presentation of the ideal adjustment scheme, it must be pointed out that the sharp cutback in external financing has been one of the most important problems faced by Latin America in recent years, but it has not been the only one. The changes in the terms of trade have also hurt the region (table 1).

The tradeable/non-tradeable classification of goods is the most suitable for analysing the decline in external financing, but it is not the most suitable for examining the effects of changes in the terms of trade. Clearly, it would be better for this purpose to divide tradeable goods into importables and exportables; however, that would unnecessarily complicate this article on adjustment to external difficulties which have been mainly of a financial nature.

Here it is important to stress the following point. In the neoclassical conditions or conditions of full flexibility considered so far, a worsening of the terms of trade is not necessarily

incompatible with balance in the trade account of the balance of payments. This is because, as a rule, there have not been any restrictions of the magnitude or speed of the adjustment of expenditure and of the respective outputs. In any event, the purchasing power of the product in terms of importable goods declines owing to the change in relative international prices.

The most interesting case is most probably when the deterioration in the terms of trade tends to create a deficit in the current account of the balance of payments. In other words, if the level of real expenditure remains constant, the new equilibrium (after the adjustment) in the non-tradeable goods market is only possible if there is a foreign trade deficit. Unless financing is obtained (either by running down reserves or securing foreign loans) this is tantamount to a negative shock in the financial balance. The economy has to adjust by reducing total real expenditure and increasing the relative price of the tradeable goods above that point of equilibrium which could not be sustained for lack of financing.

Thus, this simple scheme of adjustment to a sharp decline in external financing can also be used to illuminate the effects of poorer terms of trade.

II

Difficulties and problems of the ideal adjustment scheme

The ideal scheme considered above poses difficult problems of adjustment policy. This is borne out by the recessions usually accompanying an adjustment in practice, which, according to the theory we have outlined, ought not to exist.¹⁰ In a way, adjustment problems have been known to economic theory for a very long time, although some of them have been invested with new relevance by the exceptionally acute external crisis currently facing Latin America.

On the one hand, the problem is to determine the right combination of exchange rate and

spending policies,¹¹ and the precise mix of measures for reducing and shifting expenditure and altering the composition of production. It is not easy to decide by how much expenditure should be reduced and relative prices changed, for the relevant elasticities are not accurately known. These elasticities link changes in output and sectoral spending with variations in relative prices and total spending. Strictly speaking, it is not even safe to assume that these elasticities are stable. Moreover, in the conditions in which the

¹⁰Marcelo de Paiva Abreu and Dionisio Dias Carneiro (1987) discuss a case of orthodox adjustment with recessionary results in Brazil between 1982 and 1984.

¹¹This is not the place to consider why the strategy of a free exchange rate has not been used in Latin America. The norm has been exchange controls. Accordingly, the need, timing and extent of devaluations have been burning problems of economic policy at times of external shock (French-Davis, 1978; Dornbusch, 1981).

policies are actually carried out, the variation of relative prices, and especially the reduction of expenditure, is rarely uniform. Accordingly, it is necessary to identify a set of specific elasticities in every case of adverse external circumstances. Clearly this is an irremediable problem of lack of information which affects adjustment policies even when the economy is operating with the flexibility assumed by the ideal scheme.

On the other hand, there can never be absolute certainty as to the effect on relative prices (P) of a given exchange policy decision. A nominal devaluation will increase the domestic prices of the tradeable goods (PT). This will exert direct pressures on costs in the non-tradeable goods market, pressures which will be doubled if the economy is indexed, particularly with respect to wages and financial assets and liabilities. The devaluation may lead to nothing in real terms and relative prices may remain constant.¹²

The widespread existence of indexing (a typical legacy of the chronic inflation of Latin American economies in the 1970s) has neutralized more than one exchange rate policy. In these conditions the devaluation solves no problems. Of course, problems are even less likely to be solved by the alternative of not devaluing; in this case the adjustment of relative prices requires a reduction of the price of the non-tradeable goods (PN), which is practically impossible, and especially so when prices are indexed. The successful devaluation schemes have included de-indexing of the economies, at least where wages and financial assets and liabilities are concerned.¹³ This does not of itself solve the problem of eliminating the inflationary effect of a change in the exchange rate parity, but it does at least suggest that a real devaluation is feasible.

¹²This article does not consider the problems of inflation which, while distinct from external adjustment problems, often accompany them (Ramos, 1986).

¹³It is a widespread tradition of economic theory to consider the labour market as particularly liable to intervention and distortion caused by trade-union or similar activities. Accordingly, wages usually seem to take most of the blame for preventing the flexible adjustment of relative prices. The recent experience of many Latin American countries which have undergone severe domestic financing crises has highlighted the defects, distortions and manipulations of the financial securities market. It might be supposed that, given an over-expansion of financial activity, variations in the prices of the financial liabilities of enterprises constitute a much more significant obstacle to the flexible adjustment of relative prices than does wages rigidity (Zahler, 1985; Eyzaguirre, 1987b).

Now, if $P = PN/PT$ is too high, i.e., if a devaluation in response to a sharp decline in external financing is insufficient in real terms, the balance of payments can be balanced by a sufficient reduction of expenditure. However, this reduction will create unnecessary tensions in consumption or investment and will produce excess supply in the non-tradeable goods market. This excess supply will cause the production of these goods to decline and there will thus be an unnecessary fall-off in total production. Strictly speaking, the spending cutback may be so sharp as to cause excessive adjustment in the trade account of the balance of payments; in this case the excessive reduction of expenditure will be accompanied by an unwanted accumulation of international reserves.¹⁴ Of course, it is also possible that the cutback in expenditure will be insufficient to bring the balance of payments into equilibrium; in this case reserves will be lost at an undesirable speed: an unsustainable situation.¹⁵

However, if $P = PN/PT$ is too low, i.e., if the devaluation in response to a sharp fall in external financing is too large in real terms, the balance of payments can be brought into equilibrium by a relatively smaller reduction in expenditure. However, this reduction will generate excess demand in the non-tradeable goods market which will put pressure on its prices. If these prices do not rise, the supply will not increase and the total product will be lower than the potential product. Of course, the non-tradeable goods market can be balanced by reducing total expenditure sufficiently. In this case the fall in consumption or investment is too great, the total product declines and international reserves are accumulated at an undesirable speed.

In contrast, if P attains its level of equilibrium, the insufficient reduction of expenditure reduces reserves by too much (and this is unsustainable) and causes excess expenditure and price pressures in the non-tradeable goods market. On the other hand, if expenditure is reduced too far, both sectors experience excess supply and the product falls unnecessarily.

¹⁴If this increase in reserves is treated as an increase in foreign loans, the excess reduction of expenditure is equivalent to an increase in the impact of the shock on the financial balance.

¹⁵This loss of reserves can be treated, of course, as a reduction in the impact of the external financial shock.

In all cases, there will be instability in foreign exchange reserves, in the non-tradeable goods market and in the real exchange rate. The product will tend to fall below its potential level.

In short, there is only one combination of devaluation and reduction of total expenditure which allows the economy to adjust to the sharp variation in external financing and remain in balance. It is no easy task to find this combination. In addition to the difficulty of obtaining the necessary information for the practical implementation of this ideal adjustment scheme, the scheme also has problems in itself. One of them is that it lacks a definite dynamic. Although in the scheme the behavioural relationships are clear and coherent in themselves and the conditions of equilibrium (and of stability of equilibrium) are precisely defined, nothing is said about the speed at which the different variables reach this equilibrium.

It seems reasonable to expect that the different economic variables will not adjust instantaneously and simultaneously to changes in the relevant parameters. On the one hand, demand and supply may react in different time-frames to changes in relative prices: demand probably rapidly, supply more slowly. On the other hand, supply may react swiftly to a fall in relative prices (reducing production levels in a very short space of time) and slowly to increases in relative prices (for the production increases imply transfer and reorganization of resources). This relative slowness in the production increases can be very significant in the case of exportable goods. These goods are rarely perfect production substitutes for the domestic market, for reasons of quality, specification, etc. Accordingly, not only do the production increases require investment of time and resources in suitable projects, but the cutback in spending on goods which are in principle tradeable does not necessarily create surpluses which can actually be exported. Lastly, the adverse impact of larger quantities of goods on the supply functions can operate in the short term with greater force than the favourable variations in relative prices. For example, a sharp cutback in total expenditure can quickly lead to widespread production fall-offs, even in sectors which are at the same time enjoying price incentives resulting from the devaluation, as can happen with the tradeable goods.

All this generates rapid falls in production which have no reason to be so pronounced (strictly speaking, they have no necessary reason to occur) in the medium or long term.

Variations in the domestic product expressed in units of tradeable goods depend on variations in the physical output of both sectors and on variations in the relative price of the non-tradeable goods with respect to the tradeable goods. In other words, if

$$Y = Y_T + PY_N$$

then,

$$dY = dY_T + PdY_N + Y_NdP$$

In the case of a devaluation, $dP < 0$. If the production of non-tradeable goods falls rapidly, $dY_N < 0$. If, on the other hand, the increase in the production of tradeable goods takes time, then $dY_T = 0$ in the short term. As a result, the product falls: $dY < 0$.

This means that the devaluation has recessionary effects in the short term. The longer it takes the supply of tradeable goods to adjust to the devaluation, the more persistent will be this recessionary effect (Solimano, 1984).

Moreover, if in the short term the supply function of non-tradeable goods is sensitive to variations in expenditure, this means that:

$$Y_T = Y_T(P) \text{ and } Y_N = Y_N(P1, G/P)$$

In this case adjustment means a devaluation and a reduction of expenditure. The devaluation, as in the previous case, reduces in the short term the production of non-tradeable goods and its equivalent in units of tradeable goods. In turn, the spending cutback also reduces the production of non-tradeable goods (if the reduction of expenditure on them is proportionally greater than the devaluation). Therefore, the recessionary effect is even more pronounced than in the previous case. It hardly needs saying that the sharp falls in domestic product will create heavy unemployment regardless of the degree of flexibility of nominal wages (Meller, 1978). The impact on employment will be proportional to the negative impact on the product.

All this means that, if it is not to have a destructive impact on the product (and on employment), adjustment needs time, which is the same as saying that it needs financing. This seems to be the key factor in moving beyond recessionary adjustment schemes and putting into practice expansionary adjustments, or at

least ones which do not cause such large falls in the product. It is a question of reducing the speed at which the sharp reduction of a financial balance BF to the lower BF' is tackled. This means securing some alternative source of special financing to spread the effect of this reduction over time. The production of tradeable goods will thus have sufficient time to offset the decline in production of non-tradeable goods resulting from devaluations.

Linked to this is the additional problem that this adjustment scheme lacks an explicit model of expectations. It operates in fact as if the effective value of the variables was their expected value, even though we know that this is not usually the case in practice.

The adjustment takes place in an international context whose future development is very uncertain. The external demand for tradeable goods is uncertain, as are international prices, the interest rate and the supply of foreign credit. Moreover, adjustment involves changes in economic policy which can be very costly in terms of welfare and can therefore ignite political conflicts. Accordingly, there is also uncertainty about the durability of these changes (for example, changes in the real value of the exchange rate, the level of public expenditure, tariff policy, etc.).

This uncertainty can do much to increase rigidity, instability and delay in adjusting the expenditure and output of economic agents. For example, there will be no new investment in tradeable goods if there is mistrust of exchange rate policy and excessive uncertainty about the movement of international prices. Furthermore, in this case the expenditure may be shifted to speculative transactions.

The uncertainty about the (permanent or transitory) nature of policy changes and alteration of the international economic context can cause losses of product and employment and delay the rebalancing effects expected from these policies. The lack of mechanisms to clarify these expectations is a very important defect of the adjustment model.

It may be wondered whether the magnitude of the recession affecting the Latin American countries can really be explained by the difficulties and problems of the ideal adjustment scheme which have been described. Is this a

basically suitable adjustment "model" which, like any other model, has problems with respect to the information needed for its practical use? Do the difficulties arise mainly, or even to a large extent, from the lack of accurate knowledge of certain elasticities or of the real effects of a nominal devaluation? Can recessions of this magnitude be imputed to slowness of the adjustment process in balancing the sectoral outputs? Everything seems to indicate that this is not the case. It is thus necessary to determine whether the adjustment scheme itself contains some fundamental errors.

The fall in the product does not result, strictly speaking, from an inability to increase the output of tradeable goods in the short term, but from the short-term decline in the output of non-tradeable goods. According to the adjustment scheme we are considering, this is a result of the fall in the price of these goods. As the economy is operating in conditions of equality of prices and marginal costs, and these are increasing, there is a direct one-to-one relationship between prices and the quantities produced. The implicit technical assumption, as pointed out earlier, is that capital assets are fixed and the available manpower variable. The output of the manpower factor is declining owing to the fixed factor, and this generates increasingly large marginal costs.

In this model, then, alteration of the production structure is a crucial element in the adjustment. And particularly crucial is the fall in the output of non-tradeable goods owing to the alteration of relative prices. Workers are laid off and the intensiveness of the use of the fixed capital declines. The released manpower makes it possible to increase the output of tradeable goods, a sector in which the new relative prices facilitate more intensive use of the fixed capital. Since the adjustment model assumes full employment, the output of tradeable goods can be stepped up only if manpower is laid off from the production of non-tradeable goods, i.e., if their production falls. It can be seen that in this model the only reason that can justify a fall in output is delay in the adjustment of the production of tradeable goods caused by friction resulting from the cost of the labour mobility.

It is perfectly reasonable to question the empirical validity of this technical assumption.

In the short term it is not only the capital assets that might be fixed but also the technical combination of factors in the various activities which make up each productive sector. Output levels, therefore, are proportional to the use of capital assets. Accordingly, given sufficient demand, both sectors will operate at a level dictated by their installed capacity at a fixed unit cost and, therefore, at a given rate of return. In this case the fall in the relative price in a sector will diminish its rate of return but not necessarily its output.

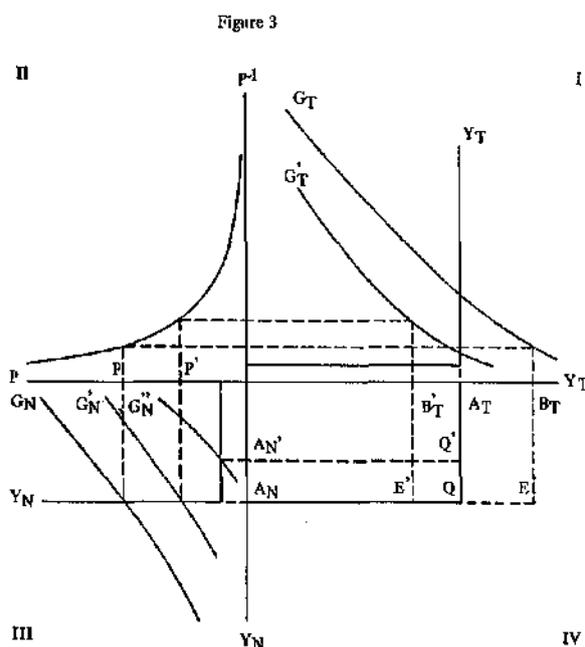
Figure 3 attempts to analyse a situation such as the one just described. Both supply functions, Y_T and Y_N , are completely rigid from certain points, A_T and A_N respectively, which represent the full use of the sectoral capital assets. For outputs below these levels, the quantities offered depend on the respective demands. The productive potential curve has the shape indicated in quadrant IV. The point $Q = (A_N, A_T)$ is the only point of maximum output. It represents full employment of the existing assets but it will involve full employment of manpower only by chance. In all probability there will be unemployment of a structural nature.

Given the demands G_N and G_T , the non-tradeable goods market is balanced at A_N at relative price P . At this price the tradeable goods

market has excess expenditure equal to $B_T - A_T$. The output formula is $Q = (A_N, A_T)$; the expenditure formula is $E = (A_N, B_T)$. If B_T declines and becomes negative and equal to $B'_T - A_T$, the economy has to adjust by cutting the demands to G'_N and G'_T and putting up the relative price P . Output remains at Q but expenditure moves to $E' = (A_N, B'_T)$. In addition, the sectoral rates of return are altered: they decline on the production of N and increase relatively on the production of T . As a result, net investment will alter the capital assets in each sector, increasing the supply Y_T and reducing Y_N . Accordingly, the alteration of the production structure is a long-term process resulting from the change in investment behaviour following the adjustment. In the short term, adjustment is exclusively a matter of reducing expenditure from point E to E' .

It can be seen that in this technical context great importance attaches to the selective reduction of expenditure. This is of particular significance where government spending is concerned. The more the expenditure on tradeable goods is cut in response to the reduced expenditure on non-tradeable goods, the less the possibility of causing recessionary effects. On the contrary, insufficient (or badly managed) selectiveness may reduce, for example, G_N to G'_N and cause a pointless loss of product from $Q = (A_N, A_T)$ to $Q' = (A'_N, A_T)$, with a consequent impact on unemployment. This effect is to be expected, in principle, only with these technical assumptions. If the supply functions are elastic to changes in relative prices, the lack of selectiveness in the expenditure cutback will not, in principle, have any recessionary impact, but only cause a more marked movement of the exchange rate.

This argument depends above all on two facts. First, that the level of supply of the non-tradeable goods and services does not depend on their relative price. Second, that expenditure can be shifted between tradeable and non-tradeable goods. Such a shift indicates that the demand structure cannot be altered independently of the relative price of the products. If this were not the case, expenditure could not be shifted to the non-tradeable goods and only its total volume could be altered. It is perfectly reasonable to expect that public sector expenditure can be shifted selectively independently of the variations in P .



III

Need for global international approaches

The current adjustment problems exist in a framework of an international economic crisis affecting, although to differing degrees and with different characteristics, both the industrial world and the countries of relatively lower levels of economic development. This crisis broke out at the beginning of the 1980s with the slowdown in the economic growth of the industrial countries, the explosive increase in international interest rates, the fall in world trade, and the interruption of the flows of capital to the less developed countries. Thus, the external situation had a simultaneous and widespread effect on all the countries of Latin America, and this in turn had an indirect impact on the industrialized countries.

It is impossible to ignore the consequences of the interdependence of a group of countries which adjust their economies simultaneously or the relationship of this group of countries with the world economy. However, they are systematically ignored in this adjustment model, in which abundant use is made of assumptions of "*ceteris paribus*" (with respect to world economic activity, international prices, resource flows, etc.) and of the "small economy".

The small economy assumption, of course, posits that the size of a country is infinitesimal in comparison with the world market and that therefore the effect of its transactions on international prices is nil. In general terms, it is held that the countries which have to adjust their external accounts enjoy an infinitely elastic supply and demand of the goods and services which they buy and sell internationally. However, when a group of countries implements adjustment policies simultaneously, this assumption becomes very debatable. Moreover, in the context of a world crisis, to assume that the adjustment in a series of countries should be carried out without the requirement of a concomitant change in the situation of the world economy and of the industrialized countries is equivalent to accepting a given allocation of the costs of resolving the crisis (Massad, 1984).

This kind of assumption or hypothesis in the adjustment scheme is unjustifiably restrictive or false and should be questioned. What is needed are global approaches which take due account of the existing interdependencies and the balance required in national adjustment costs and efforts.

Take the following question for example: Who should make adjustments to resolve a global payments crisis? Should it be the group of countries with balance-of-payments deficits, accepting as immutable the corresponding surpluses of the other countries, or should these latter countries co-operate actively in the correction of the imbalances? The first group of countries should cut back its domestic expenditure and devalue its currencies in real terms; the second should increase its domestic expenditure and revalue its currencies in real terms. The overall end effect of both policies could of course be the same. However, the most likely result is that the cost of one or the other policy for individual national economies will be very different in terms of loss of welfare, product and jobs.

To put it another way, the adjustment model which emphasizes domestic economic policies is based on a conceptual framework in which an individual small economy has to adjust its external imbalance, but with the other economies in equilibrium.¹⁶ In this situation the model can be considered appropriate and the policies derived from it efficient. But in the world context the situation is precisely the opposite. From its very beginning, the foreign debt of Latin America has been the result of imbalances in the world economy. The need to recycle petrodollars arose from the particular way in which the central economies adjusted to the first sharp rise in oil prices (Sachs, 1981). The surplus of the members of the Organization of Petroleum Exporting Countries (OPEC) was not offset by a deficit in the central countries, and balance was therefore achieved by

¹⁶If the economy in question is marginal its external imbalance does not imply imbalance in other economies.

means of a deficit in the countries of the third world: i.e., the developing economies acquired debt.¹⁷ Similarly, the debt crisis initiated by the interruption of resource flows to Latin America was the result of the subsequent alteration of the domestic demand policies of the United States. The generation and expansion of that country's trade deficit diverted towards its economy the financial flows from the surplus economies, part of which had previously gone to Latin America. Thus, the creation and crisis of foreign debt in Latin America emanated from changes in economic policy at the world level. It is therefore difficult to find a solution exclusively in the economic policies of the Latin American countries, as is implicit in the adjustment schemes which have been analysed.

The foreign debt crisis is a global phenomenon and its solution must be global as well; the economic policies of the debtor countries can be only a part of an integrated set of policies at the world level which will provide an effective solution to the problem. It is impossible for Latin America to generate the trade surpluses needed to service its debt, unless the countries of the centre, as a whole, have a significant deficit. It will be the economic policies of the industrial countries and not of the Latin American countries which will determine the creation of such a deficit. Adjustment schemes based only on containing domestic demand and real devaluation of the currencies of the debtor countries are destined to fail in the absence of a global adjustment plan, for they assume that a deficit can be caused in the countries of the centre by lowering the prices of products exported by the periphery. What these schemes have achieved in practice is that the exports must increasingly exchange price for quantity.¹⁸

In fact, in the case of a group of countries which adjust their economies simultaneously to an adverse change in the conditions of external financing, the assumption that the terms of trade of these countries can be considered constant during the adjustment process must be open to question. Although each country indi-

vidually can be considered a small economy, the same is not true for the whole group of countries. For example, many of them produce the same kind of goods, usually commodities; accordingly, the group does not have an infinitely elastic demand for these goods. A simultaneous devaluation in the group of countries can cause significant expansion (in terms of the size of the world market) of exports of certain products which ultimately forces their international price down.¹⁹

Accordingly, if the terms of trade fall sufficiently the countries, having adjusted and paid all the costs with respect to welfare, can end up with even worse balance-of-payments problems. The adjustment scheme destroys itself through the effects of aggregation.

The same type of negative effect of the aggregation of independent economies engaged simultaneously in an adjustment process can be caused by the recessionary chain-reactions which occur. The reduction of expenditure on imports in an economy adjusting to a sharp external change has a recessionary impact on the export activities of the economies with which it trades. This impact may tend to reduce output in these economies, with the result that their expenditure falls. This reduced spending can have an adverse effect on the export activities of the first economy, and so on. Multiplier effects of a second or higher order may be insignificant in the case of a national economy which implements adjustment measures in a normal international context. But they can acquire greater weight in the case of a group of economies which trade to a significant degree among themselves and all encounter an adverse change in external financing at the same time.²⁰ Similarly, the International Monetary Fund (IMF, 1986) has recognized that the decline in the imports of the whole of Latin America has had a powerful recessionary impact on the industrial countries, while the IMF attributes the depressed export prices of Latin America to the sluggishness of the industrial economies.

¹⁷This in no way excuses the errors committed in each country's borrowing policies or in the use made of the resources.

¹⁸It is obvious that this must happen if the net trade balance of the industrial countries remains constant.

¹⁹Klaus Schmidt-Hebbel and Felipe Montt (1987) present data on this problem for two commodities: coffee and copper.

²⁰Joaquín Vial (1987) examines this problem in the case of the Latin American economies during the present international economic crisis.

The global nature of the current economic crisis also creates specific financing problems for the adjusting countries. The supply of financing from international banks tends to be procyclical: expanding in booms and contracting in recessions. This means that at times when the situation of international trade is (cyclically) more difficult for the countries of lower relative development, there is less external financing available to them (from a medium- or long-term perspective). Accordingly, in the attempt to solve the external problem excessive weight is given to adjustment of the current account of the balance of payments, without any compensating finance.

The procyclical nature of bank financing is due to two facts (Massad, 1985). On the one hand, both the expected and the actual profits from the projects and the real value of the assets received as surety by the banks fluctuate directly with the cycle; on the other hand, willingness to lend to a country depends on its foreign exchange liquidity and the perception of its "will" to pay. Both variables are inversely correlated with international economic cycles. Owing to the linkage of both "prices" and "quantities" between the industrial countries and those of lower relative development, the current account of the balance of payments of the less developed countries behaves procyclically. Other conditions being equal, this causes a loss of reserves which impairs the international liquidity indicators of the debtor countries; similarly, since it leads to adjustment by cutback of domestic expenditure, losses of welfare occur which impose social costs on the will to pay. Therefore, this will can become very difficult to maintain.

In short, the availability of external private financing does not seem to be linked to the long-term capacity to pay of the economies of lower relative development. More than at external solvency, private banks tend to look at the international liquidity indicators of the countries to which they lend. At times of economic recession in the industrial countries these liquidity indicators tend to decline more than the solvency indicators, as the latter are linked to a more normal performance of the world economy. Accordingly, the available financing will tend to be less than indicated by medium- or long-term considerations, and this accentuates the need for adjustment and exacerbates the cycle.

Thus, the adjustment is made without the industrial countries establishing economic policies to create a net trade deficit consistent with the surplus needed by the debtor countries to service their debt. Nor is private financing available to facilitate the attainment of a global balance on the basis of a lower surplus in the Latin American countries. Faced with these enormous restrictions, these countries try to manage the crisis by means of economic policies which generate a larger surplus of tradeable goods. To do this they reduce their imports, with the consequent cost in output and jobs, and promote their exports. These policies have little success whenever the tightness of the external market forces export prices down, so that the Latin American economies exchange quantity for price.²¹

The cost of this strategy of generating foreign exchange does not extend only to losses in employment and the terms of trade. The dilemma of having to generate foreign exchange in a situation of tight export markets is causing Latin America to revert to earlier forms of international insertion. They are increasingly exporting products which make intensive use of natural resources and have less aggregate value, so that their domestic production is specializing in goods with little future.

Lastly, a critical evaluation must be made of the role played by multilateral bodies, many of them established specifically to relieve the tensions caused by international balance-of-payments problems. One possible solution to the impasse created by the contradiction between the net deficit of the industrial countries and the surplus which the debtor countries of Latin America must generate might have been the provision of funds by multilateral bodies to facilitate a global balance which would require a smaller surplus in the region. This has not happened; on the contrary, the net transfers of resources from multilateral bodies to Latin America have constantly declined.²²

The present world financing system based on the IMF has the capacity to influence the

²¹José Alberro and Jorge Cambiaso (1987) examine these problems in the case of the adjustment of the Mexican economy.

²²For example, the net resources transferred to Latin America by the World Bank fell from around US\$1 200 million in 1985 to roughly US\$200 million in 1986.

policies of the countries to which it furnishes financial aid to cope with payment difficulties, but it lacks influence with the surplus countries. The ones which make the adjustment are the deficit countries, without any complementary changes in the policies and economic situations of the surplus countries.²³

This marked asymmetry has emerged with particular clarity in the problem of the foreign debt of Latin America. Although the market value of the foreign debt instruments ought to be significantly lower than their nominal value, the present world financial system has not been able

to form a market in this debt. Accordingly, its market value has not declined, and the debtor countries have had to bear the whole cost of their over-indebtedness.

To sum up, when the crisis is a global one, the adjustment model devised for the case of a small country which adjusts individually in a normal international economic situation is quite inadequate. What is needed are more global approaches which take into account the general nature of the crisis and the mutual interdependences generated in such a context. In conjunction with this kind of approach, there must be a system of international financial institutions to ensure the overall co-ordination of countries' economic policies and, therefore, the implementation of adjustment schemes which are more symmetrical and balanced among the parties involved.

²³With the important exception of the United States, which despite being a debtor or deficit country is not "conditioned" by the multilateral bodies as its currency, the dollar, is a means of international payment.

Appendix

Using the subindices N and T to denote non-tradeable and tradeable goods and services respectively, we have:

$$1) P = P_N/P_T$$

$$2) Y = Y_T + PY_N$$

where Y is the product in units of the tradeable item;

$$3) G = G_T + PG_N$$

where G is the expenditure in units of the tradeable item;

from (2) and (3) we have:

$$4) G - Y = G_T - Y_T + P (G_N - Y_N)$$

We know that $P_T (G_T - Y_T)$ is the (negative) trade balance of the balance of payments. We can therefore see that the trade account deficit is equivalent to an excess of expenditure over output only if the non-tradeable goods market is in equilibrium.

The financial balance (BF) is defined as the difference between the inflow of foreign capital (dD) and the payment of interest on the stock of capital which has come in (rD). For example, a decline in international reserves will be counted as an outflow of foreign capital. In symbols,

$$5) BF = dD - rD \text{ measured in units of the tradeable items.}$$

Any imbalances between the expenditure on and output of tradeable goods have to be financed. The counterpart of these imbalances is precisely the financial balance. Thus,

$$6) BF = G_T - Y_T$$

from (4) and (6) we have:

$$7) G - Y - P (Y_N - G_N) = BF$$

The economy will be in internal balance when $Y_N = G_N$, or when $G - Y = BF$.

Let us assume the following implicit performance functions:

$$8) G = G(P), \text{ i.e., a change in relative prices will have an impact on expenditure. The symbol of this correlation cannot be specified } a \text{ priori; this problem is dealt with, in another division of goods, by means of what are known as the Marshall-Lerner conditions.}$$

- 9) $G_T = G_T(P, G)$, $G_{T1} > 0$, $G_{T2} > 0$
 10) $G_N = G_N(P, G)$, $G_{N1} < 0$, $G_{N2} > 0$

The positive correlation of expenditure on both types of goods with global expenditure means that we are assuming normality for these goods.

The elasticities in sectoral expenditure are subject to restrictions given by equation (3). By differentiating (3) for constant P we have:

$$dG = \frac{\partial G_T}{\partial G} dG + P \frac{\partial G_N}{\partial G} dG$$

Reordering this expression we have:

- 11) $E_{G_T G} \frac{G_T}{G} + E_{G_N G} \frac{PG_N}{G} = 1$ where $E_{x'y}$ = elasticity of x with respect to y .

Then, totally differentiating (3) we have:

$$\frac{\partial G}{\partial P} dP = \frac{\partial G_T}{\partial P} dP + \frac{\partial G_T}{\partial G} \frac{\partial G}{\partial P} dP + G_N dP + P \frac{\partial G_N}{\partial P} dP + P \frac{\partial G_N}{\partial G} \frac{\partial G}{\partial P} dP$$

Reordering, we have:

- 12) $E_{G_N P} \frac{G_T}{G} + (E_{G_N P} + 1) \frac{PG_N}{G} = 0$

Lastly, let us suppose that the supply of marketable and non-marketable goods is a function of the relative prices of these goods. Thus,

- 13) $Y_N = Y_N(P)$ $Y_{N1} > 0$
 14) $Y_T = Y_T(P)$ $Y_{T1} < 0$

We now have to investigate the process of adjusting an economy to a disruption caused by a reduction of BF.

Suppose initially that P remains fixed. This would be the case in which the price of the non-marketable goods is inflexible on the down side and the economic authorities do *not* react by devaluing the currency.

Using (7) we have:

- 15) $dBF = dG - dY + P dY_N - P dG_N$
 since Y , Y_N are only functions of P , and $dP = 0$, we have (initially) $dY_N = dY = 0$.
 then:

$$dBF = dG - P dG_N = dG \left(1 - E_{G_N G} \frac{PG_N}{G} \right) = dG E_{G_T G} \frac{G_T}{G}$$

hence:

- 16) $dG = \frac{dBF}{E_{G_T G} (G_T/G)}$

for plausible values of the expenditure elasticity of marketable goods, $dG > dBF$.

Equation (16) represents the necessary reduction of total expenditure in response to the change in BF (or in other terms, the level of expenditure on tradeable goods compatible with their domestic production and the net supply of external financing).

However, the spending cutback implicit in (16) disturbs the domestic balance:

- 17) $dG_N = \frac{\partial G_N}{\partial G} dG = \frac{E_{G_N G}}{E_{G_T G}} \frac{G_N}{G_T} dBF$

A reduction of external financing, $dBF < 0$, will then mean, if $dP = 0$, a cutback in expenditure on non-tradeable goods. Since $dY_N = 0$, the adjustment produces an excess supply of these goods; naturally, the enterprises which produce these goods do not go on accumulating stocks indefinitely but

instead cut back output and jobs. We thus encounter the following paradox: the economy adjusts to an excess of expenditure over output by reducing output.

Since the loss of output is caused by the excess supply of non-tradeable goods resulting from the spending cutback, a suitable adjustment policy should seek to absorb the decline in external financing without altering the balance in the non-tradeable goods market. To do this, the economic authorities can use movements of relative prices: let us calculate the change needed in P to absorb this decline in financing and preserve the domestic balance.

Let us define the domestic balance as $P(Y_N - G_N) = 0$; since $P \neq 0$, we can also express this balance simply by means of the term $Y_N = G_N$.

Directly from the accounts formula (7) we obtain the following expression:

$$18) \text{BF} = G - Y_T - PG_N \\ \text{then } d\text{BF} = dG - dY_T - d(PG_N)$$

Introducing the term $Y_N = G_N$, we find that $d\text{BF}$ will not alter the domestic balance if:

$$19) d\text{BF} = dG - dY_T - d(PY_N)$$

By differentiating (19) totally with respect to P , we have:

$$20) d\text{BF} = \frac{\partial G}{\partial P} dP - \frac{\partial Y_T}{\partial P} dP - P \frac{\partial Y_N}{\partial P} dP - Y_N dP$$

Reordering the terms, we have:

$$d\text{BF} = E_{G,P} G \hat{P} - E_{Y_T,P} Y_T \hat{P} - (1 + E_{Y_N,P}) PY_N \hat{P}$$

Where:

$$21) \hat{P} = \frac{d\text{BF}}{E_{G,P} G - [E_{Y_T,P} Y_T + (1 + E_{Y_N,P}) PY_N]}$$

Expression (21) requires clarification. If the economy has full employment of resources before the financial disruption, the term in parentheses in the denominator of expression of (21) is cancelled out. This is because the weighted sum of the supply price elasticities contained in this parenthesis is cancelled out at the so-called "production frontier" or "transformation curve". (The mathematical demonstration of this proposition is a direct application of the envelope theorem.) Thus, with full employment initially, the size of the change needed in relative prices to preserve the balance in the non-tradeable goods market will be inversely proportional to the effect of this change on total expenditure. We pointed out earlier that the impact of relative prices on expenditure is ambiguous; in fact, we suspect that its impact is small. This means that the absorption of reductions of external financing in conditions of full employment cannot be achieved solely by relative price policies. Expression (21) would indicate devaluations or revaluations of P of enormous magnitudes. In the extreme case, if $E_{G,P} = 0$, there is no solution.

The economic inference is as follows. If the economy has full employment, the non-tradeable goods market will necessarily be shifted out of balance by a change in relative prices, other conditions being equal. This is because the reduction of P needed to adjust the tradeable sector's deficit to the reduced supply of external financing will increase the demand for non-tradeable goods. This additional demand cannot be satisfied in conditions of full employment, which, in addition, requires a shift of resources to the tradeable goods sector.

Thus, the conclusion is that to absorb an adverse financial change it is necessary to alter relative prices, a policy which should be supplemented by a cutback in domestic expenditure if initially the economy has full employment.

Formally, in order to specify the combination of policies which will absorb the reduction in external financing without job losses, we must alter the aggregate expenditure equation slightly in order to accommodate the direct impact of policies which affect the level of expenditure, which are usually monetary and fiscal policies.

22) $G = G(X, P)$ where X represents the monetary-fiscal intensity.

Thus, equation (20) is now substituted by:

$$d\text{BF} = E_{G,P} G \hat{P} + E_{G,X} G \hat{X} - E_{Y_T,P} Y_T \hat{P} - (1 + E_{Y_N,P}) PY_N \hat{P}$$

where $E_{G,X}$ represents the multiplier effect, and \hat{X} is the rate of change in the monetary-fiscal intensity.

Thus,

$$23) \hat{P} = \frac{dBF - E_{G,X} G \hat{X}}{E_{G,P} G - [E_{Y,T,P} Y_T + (1 + E_{Y,N,P}) P Y_N]}$$

or simply

$$\hat{P} = \frac{dBF - E_{G,X} G \hat{X}}{E_{G,P} G}$$

if the economy initially has full employment.

To sum up, the preceding analysis justifies the conclusion that to absorb adverse financial changes efficiently it is necessary to implement a set of policies designed to modify both the level of expenditure and its allocation between tradeable and non-tradeable goods. Policies which seek only to reduce the absorption cause unnecessary job losses; those focussed only on relative prices cause the opposite problem, i.e., excess demand in the sector producing non-tradeable goods.

It must be stressed that this happens only if the adjusting economy is small and there are no effects of interdependence. If this is not the case, it is necessary to introduce a general balance scheme which can lead to reductions in the elasticities described above, depending on the behaviour of the deficit countries which have to absorb the trade surplus.

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