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Macroeconomic Adjustment in Developing Countries *

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Abstract

The paper deals with the two parts of the short-run adjustment problem in developing countries: the improvement of the current account and the reduction of inflation, the main cause in both cases being usually a fiscal deficit. It is shown how the two parts are related. Distinctions are made between the primary adjustment cost, which is inevitable, and the secondary cost which results, for example, from failure to devalue or from real wage rigidity. A sectoral cost benefit analysis is suggested. Reducing inflation involves both an inflation tax replacement and a price adjustment problem, and "heterodox" policies designed to deal with the latter are analyzed.

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Summary

This paper deals in broad terms with the two parts of the short-run adjustment problem in developing countries: the improvement of the current account and the reduction of inflation. In particular, it seeks to show how the two parts are related. The paper distinguishes between the primary adjustment cost, which is inevitable, and the secondary cost, which results from unemployment and output losses caused by failure to devalue sufficiently, by real wage resistance, by inappropriate use of import restrictions, or by disorderly adjustment. Structural rigidities (i.e., low price elasticities) raise adjustment costs. Present and future costs have also been distinguished.

Adjustment is difficult because, inevitably, there are losers. While no simple conclusion emerges from an analytical paper of this kind, this is one of the main themes. Factoral income redistribution effects of devaluation are important in determining who loses from a combination of expenditure reduction and devaluation. The paper gives examples of sectoral effects of adjustment and suggests that there is a need for sectoral cost-benefit analysis to understand and anticipate the obstacles to adjustment.

The paper also discusses the relation between capital flight and adjustment, in which interest rate and exchange rate policies are crucial.

A fiscal deficit can be monetized and so give rise to inflation. The problem of reducing inflation has been decomposed into two parts, namely, the inflation-tax replacement problem and the price adjustment problem, the latter resulting from various nominal rigidities. Policies of predetermining the nominal exchange rate according to a scale ("tablita") or "heterodox" policies that regulate many prices as well as wages are meant to overcome the latter problem and are analyzed.

The nominal fiscal deficit has various components, notably the money-financed deficit, which is likely to create inflation, and the part financed by foreign borrowing. If real government expenditure and taxes are kept unchanged, raising the proportion financed by the first will reduce the current account deficit at the cost of increasing inflation, while raising the proportion of the second will reduce inflation at the cost of worsening the current account. Reducing real government expenditure or increasing non-inflation taxes can help solve both problems. Domestic borrowing is also likely to worsen the current account and may, in addition, crowd out private investment.



I. Introduction

This paper analyzes in broad terms the short-run adjustment problem in developing countries. The macroeconomic adjustment problem usually has two parts to it, the improvement of the current account and the reduction of inflation. Both aspects are dealt with here, and it is shown how they are related. The first aspect can be analyzed with the help of standard balance of payments theory. This theory--using the concepts of expenditure reduction (or reduction of "absorption") and "switching"--is so well known that it hardly needs to be expounded here. It will only be used as a starting point for introducing some simple concepts of adjustment costs, emphasizing particularly distributive effects.

But this standard analysis does not allow for inflation. Another body of literature is concerned with inflation, with anti-inflationary policies and with the relationship between budget deficits and inflation. Since many developing countries, notably in Latin America, often face both a current account problem and inflation rates that are unacceptably high there is a need to show how the two parts of the adjustment problem interact.

Another matter to be dealt with here is so-called capital flight--i.e., the export of private capital when at the same time the government is borrowing abroad. This is not allowed for in the standard balance of payments adjustment theory but needs also to be related to it. 1/

II. The Current Account Problem and Adjustment Costs

1. Expenditure reduction and switching

A small open economy has a current account deficit which needs to be removed. The less foreign credits are available the more speedily this has to be done. The standard analysis is that total expenditures by government and the private sector combined on consumption and investment have to fall. This is "expenditure adjustment" which reduces demand for both tradables and nontradables. In addition there has to be a real devaluation which shifts both the pattern of domestic demand from tradables toward nontradables and the output pattern from nontradables toward

1/ The paper does not deal with one relevant matter, namely the methodology of the IMF, especially financial programming methods and the use of the Polak model which focuses on monetary and credit aggregates in monitoring adjustment. This is a large subject of its own and has been discussed extensively elsewhere, notably in Khan and Knight (1981) and International Monetary Fund (1987).

tradables. This is a "switching" policy which ensures that the process of attaining "external balance" takes place while "internal balance"--maintaining overall employment--is being maintained. 1/

If the policy instrument to bring about switching is to be exchange rate adjustment it is necessary that a real devaluation really does take place as a result of nominal devaluation. If wages rise when the prices of imports and the cost of living rise, or if there has not been an adequate expenditure reduction so that the devaluation-induced rise in demand for nontradables creates excess demand and then some inflation of nontradables prices (or, more broadly, of prices of home-produced goods), a real devaluation will not be achieved. It is common that initially a nominal devaluation does bring about real devaluation, but that its effects are gradually eroded at least to a partial extent. A great deal hinges on whether monetary policies are accommodating or not. Experiences have greatly varied among developing countries. 2/

An interesting question is whether a nominal devaluation could bring about some expenditure reduction automatically. This is possible, especially through the reduction in real balances that a general rise in the price level would yield. Here two other examples are given, though there can be no presumption that the expenditure reduction would necessarily be sufficient.

A devaluation raises the domestic currency prices of imported capital goods. If credit in nominal terms to the private sector (and also to the public sector) were kept constant, investment in real terms would decline. The value of capital goods imports measured in domestic currency might stay constant, but imports in real terms would have fallen.

1/ There is a diagrammatic exposition of the standard analysis in Chapter 1 of Corden (1985) which also contains references to the origins of these ideas. The basic theory originated with Meade (1951), the concept of "switching" with Johnson (1958), and the formal dependent economy model with Salter (1959). The concern in this paper with sectoral (distributional) effects of adjustment expands on the discussion in Chapter 2 of Corden (1985).

2/ Edwards (1987) analyzes 18 Latin American devaluation episodes and shows in each case what happened to the real exchange rate in each of three years after the devaluation. He calculates for each episode an "effectiveness index" and shows that, when there was stepwise devaluation, in most cases the real exchange rate effect was quickly eroded, sometimes completely after three years. On the other hand, when there was a "crawling peg" the real exchange rate did stay down, this result being obtained by frequent nominal depreciations. See also Connolly and Taylor (1976) for earlier evidence.

In the second example a devaluation raises export income in domestic currency and some of the higher incomes are likely to go to the government, whether in export taxes or through increased profits or reduced losses of state-owned enterprises. If the extra government revenue resulting from devaluation is not spent, the fiscal, and hence current account situation will improve. Hence national savings rise and the current account improves.

More generally, devaluation redistributes incomes from nontradables producers to tradables producers, and the latter could conceivably have higher propensities to save so that a current account improvement would result from devaluation. In the example just given the government may be the principal recipient of incomes from a major export and it has been assumed to have a high propensity to save. Of course it is not impossible that the difference in savings propensities goes the other way, in which case the devaluation would worsen the current account.

In considering the fiscal effects of devaluation, account should also be taken of the budgetary effects of devaluation on the domestic currency value of the government's debt service payments abroad. These will increase, so that this effect will worsen the fiscal deficit, possibly offsetting higher revenues from export taxes or from the profits of government-owned export corporations. The unifying concept here is that debt service can be regarded as a tradable import and the government could be a net importer or exporter of tradables.

In general one can hardly rely on a devaluation to generate automatically the necessary reduction in real expenditure, though it is possible, and its effects on real expenditure must always be considered. ^{1/}

The need for real expenditure reduction imposes an inevitable cost. This can be called the primary adjustment cost. It arises even when there is adequate switching or real factor prices are flexible so that internal balance continues to be maintained. A secondary adjustment cost arises when failure of switching mechanisms or rigidity of real wages, for example, lead to a decline in overall employment or underutilization of capacity. The primary adjustment cost is really the minimal cost. It is unavoidable. The secondary adjustment cost reflects inefficiency in adjustment. The aim of good adjustment policies should be to make this cost as low as possible.

^{1/} It is a well-known proposition that a devaluation may be deflationary for the kinds of reasons (and others) discussed here. See Diaz Alejandro (1965) and Krugman and Taylor (1978). The concern has usually been that it may reduce real expenditures too much, rather than too little. In any case, explicit expenditure policy, whether fiscal or monetary, is always available to supplement, or alternatively compensate for the expenditure-reducing effects of devaluation.

2. The costs of adjustment

The primary adjustment cost can be divided into a present cost and a future cost, broadly the distinction between cutting consumption and cutting gross investment. A number of policies which are often part of a country's adjustment program can be looked at here. In all cases, a primary cost is inevitable, and also in all cases it will be assumed that adequate devaluation switches the pattern of demand sufficiently toward home-produced goods for overall employment to be maintained even though expenditure is reduced.

(1) Wages of public sector employees are cut. Hence their consumption is likely to fall, though they are also likely to reduce the savings they were previously making, and in the short run they may even dissave. The extent of the reduction of consumption is likely to depend on whether or not the employees believe the wage cuts to be temporary or long term. The current account will improve to the extent of the budgetary improvement minus the decline in private savings.

(2) Budgetary subsidies for food or other products are cut, so that their prices rise. This also represents a fall in real income of the private sector and, as above, will lead to both a fall in consumption and in savings, with the current account improvement equal to the budgetary improvement minus the fall in private savings. Food consumption might be maintained, so that the higher cost of food to the general public would compel them to reduce consumption of other products. A policy of reducing food subsidies is likely to be particularly difficult to implement.

(3) Subsidies to government corporations which are making losses are cut. They are then compelled to raise prices to consumers. This has much the same effect as cuts in food subsidies: real incomes of consumers fall and they have to reduce consumption, choosing no doubt both to reduce consumption of the products supplied by the corporations and of other products. The corporations are also likely to reduce gross investment, perhaps allowing their capital to run down, in which case there is a future cost. In addition, their customers may be other producers, whose costs thus rise. These adverse effects may be moderated by improvements in productivity that are induced by the more difficult situations in which the corporations find themselves.

(4) Government gross investment is reduced. Possibly the infrastructure will be allowed to deteriorate. Possibly big development schemes will be slowed up or abandoned. One would normally expect this to lead to some future cost, though some investments--notably big schemes--may have been quite unsound, with a low or even zero social marginal product. Conceivably the prospective marginal product of an investment project may be negative: investments may involve commitments to future expenditures--whether further investment or current expenditures--that could be better utilized.

(5) Net lending to the private sector is reduced so private investment, whether in fixed capital equipment, in building and construction, or on consumer durables, falls. In all the previous cases the current account improvement is brought about by a reduction in the budget deficit; in this case it is brought about by an improvement in the private sector net financial balance. Whether the reduction in investment actually imposes a cost depends on whether the investment that is foregone would have been efficient; this is discussed further below.

Adjustment is likely to be relatively easy if the current account crisis had been caused by an expenditure increase to which the system had not yet fully adapted. There may have been a recent and large rise in public investment, or in some other category of expenditure. Perhaps there had been a public investment "binge" because of excessive optimism about future prospects induced by a recent discovery of natural resources or an improvement in the terms of trade. Perhaps the government has recently increased subsidies or allowed public corporations to get into large deficit. If all this is fairly new it may not be too difficult to reverse.

But another possibility is that the crisis was caused by a more fundamental change, say a terms of trade deterioration relative to a level that had been much higher for a fairly long period. The expenditure levels may be long established, and have been sustained by high private incomes and high tax revenues resulting from the earlier prolonged favorable terms of trade. People believe they have property rights in their high real incomes and in the expectation that these will continue. Then the matter of cutting expenditures is decidedly more difficult.

In thinking about the future cost it is really necessary to be more precise about what gave rise to the need for adjustment. If the terms of trade have deteriorated and this is expected to be lasting, an adjustment cost, whether present or future, is certainly inevitable. On the other hand, the pre-existing situation may have been one where there was a current account deficit and the need for adjustment arose because the country's reserves were running out or the availability of new foreign finance had declined or ceased. In this initial situation a future cost was actually being incurred every year: reserves were declining or foreign debt was increasing. If adjustment consisted of reducing consumption a present cost would be replacing a future cost, while if adjustment consisted of cutting domestic investment one form of future cost would be replacing another.

The net future cost may be positive or negative when investment is cut. It will be positive if the marginal social product of domestic investment that would have been financed by foreign borrowing would have exceeded the rate of interest that would have been paid. If funds would

have been unwisely used, the social product being below the interest cost, the reduced availability of foreign funds would yield a net gain, being a blessing in disguise.

An adjustment program may well give rise to unemployment as a result of real wage rigidity brought about either by real wage resistance or by wage indexation imposed by public policy. A serious secondary adjustment cost will be imposed.

One example concerns public sector wages. When the government has to cut its expenditures, frequently the wage bill has to be reduced. The government may have to choose between cutting the nominal wage rates of its employees and reducing public employment. If nominal wage rates could be reduced sufficiently it would not be necessary to reduce public employment. On the other hand, if wages were rigid, because of real wage resistance, unemployment might be inevitable. Public employees dismissed from their jobs (or potential entrants into the public labor force) may not be able to move readily into the other fields, notably export industries, where profitability has improved as a result of devaluation. Rigidity of public sector wages which compels the public sector work force to be reduced will then be a direct cause of unemployment. Of course, if time for adjustment is allowed either unemployment or reduced wage rates would lead to a desirable transfer of labor to industries producing tradables. ^{1/}

In addition, devaluation will have raised the cost of living, so that, if public sector wages were fully indexed to the cost of living, nominal wage rates would actually rise. The fall in employment for any given required cut in the public sector nominal wage bill would then have to be even greater.

In the private sector real wage rates are also likely to fall as the result of an adjustment program. The devaluation will have raised the cost of imports, and reduced subsidies and higher indirect taxes will further raise the cost of living. If an adjustment program of expenditure reduction and devaluation would initially reduce real wages, wage indexation, whether formal or informal, designed to restore real wage rates will then in due course lead to an increase in the nominal wage level that will reduce the competitiveness of import-competing and export industries and negate--perhaps only partially--the effects of the initial nominal devaluation.

^{1/} The comparison of wage cuts and public employment reduction to attain a given decline in the public wage bill raises a number of issues not discussed here. For example, wage cuts may cause the better quality employees to leave first while employment reductions might give the government opportunities for selectivity, possibly retaining the better employees. But it is also an opportunity that can be misused.

Another source of secondary adjustment cost is the imposition of import restrictions to deal with the current account problem. This is, regrettably, very common and creates a familiar distortion cost which could be avoided by devaluing instead. 1/

3. Factoral income redistribution effects

The well-known two-instruments two-targets policy analysis expounded here provides the basis for the standard adjustment package: a combination of expenditure reduction and nominal devaluation. The matter of particular interest here concerns the sectoral or factoral distributional effects of the devaluation. It will now be assumed that it does lead to a real devaluation.

It has already been noted that expenditure reduction will have various adverse effects on different sectors, depending on the nature of the adjustment. The losers will be in the future when investment is cut. Real devaluation, on the other hand, is a relative price change and will yield both gainers and losers. Export producers will gain. Urban workers, whether private or public employees, are likely to lose owing to the higher prices of imports. In general, profits of nontradable producers are likely to fall and of tradables producers to rise.

The net effects on various sectoral incomes of the expenditure reduction and of the devaluation must then be combined. An analysis of this kind gives insights into where the principal resistances to an adjustment package may be encountered. For example, real wages of public employees may fall both because public expenditure, and hence their nominal wages, have been cut and because their cost of living has risen because of higher prices of imports. They may also be consumers of exportables, the prices of which will also have risen, unless kept down by price controls. For others there may be offsetting effects. Peasants producing export crops may lose through reduced subsidies, say, for fertilizer or through higher prices for electricity supplied by a public corporation which has been forced to reduce its losses. On the other hand they will gain from higher incomes in terms of domestic currency for their crops, this being partially offset by higher costs of imported inputs.

Contrary to one's first expectations, some manufacturing industries that produce potentially tradable products may lose as a result of devaluation. Many developing countries have manufacturing sectors which are protected by quantitative import restrictions and the domestic prices of

1/ The choice between import restrictions and devaluation as a switching device when the current account has to be improved is an important issue discussed in detail in Corden (1987).

which would not be raised by devaluation. Instead, the profits of importers who hold the scarce import licenses will be squeezed. While the manufactured products are potentially import-competing, quantitative restrictions have actually turned them into nontradables, their prices depending on domestic demand and supply conditions. Demand for these protected products will decline as a result of the general expenditure reduction, and their costs will increase both because the costs of imported inputs rise as a direct result of devaluation and because in due course the cost of labor may rise as export industries, whether urban or rural, expand.

The crucial point about short-term adjustment is that there are bound to be losers. This will make more difficult orderly implementation of adjustment measures, and may also cause the present cost to be reduced at the expense of a future cost--i.e., for investment rather than consumption to be cut. If a country cannot obtain sufficient foreign credits it will have no choice but to make an expenditure reduction, if not a devaluation. But the particular choice of measures will be affected by the varying strength of interest groups. Net investment may even cease completely so that the capital stock is actually run down. 1/

Adjustment may be "disorderly". It may be unplanned, chaotic, one unplanned crisis measure following upon another--because of the inability to reconcile pressures from different interest groups. The loss of efficiency that results from disorderly adjustment could be counted as part of the secondary adjustment cost--i.e., the cost that good management and flexible pricing could conceivably avoid. But disorderly adjustment is certainly not inevitable, as the experiences of various countries have shown. A description of a successful orthodox adjustment experience--Korea 1981-84--can be found in Aghevli and Marquez-Ruarte (1985).

4. Structural rigidities: low import or export elasticities

Structural rigidities mean that in the short run some supply and substitution elasticities are very low and possibly even zero.

The general insight of Latin American structuralism was that some import or export elasticities may indeed be very low, at least in the short run, and this then compels most of the short-run adjustment to take place either at very high social cost or in parts of the economy where

1/ For developing countries with debt service problems and hence serious adjustment needs there was a big fall in the investment ratio after 1981. For the three years 1979-81 the ratio of gross capital formation to gross domestic product averaged over 25 percent for them, but for the period 1983-86 it was down to 19 percent. (These figures refer to a large group of countries defined by the International Monetary Fund as "countries with recent debt servicing problems" and are calculated from the World Economic Outlook, October 1987.)

elasticities are relatively high, if there are such. Furthermore, when these elasticities are low and the adjustment has to be quick, real devaluation, and hence the domestic redistributive effects, may need to be high. Considerable factoral redistribution may then be required, presenting both political difficulties and sometimes the problem of real wage resistance.

An extreme but possibly not unknown situation is what Little (1982) has called "import starvation." The country has become highly dependent on particular imports for which there are no domestic substitutes, at least in the short run. Import restrictions may already have eliminated less essential imports and all those for which local production, though high-cost, is at all possible. The imports that remain are either essentials, such as medical supplies, petroleum, spare parts for transport vehicles, and so on, or basic components or materials for local manufacturing industry. Reducing imports further would cause unemployment and output losses in local manufacturing industry. This is an unplanned consequence of a long-term policy of import substitution which has kept exports down to a level where only the most essential imports could be financed. A reform of the trading regime designed to foster exports is really needed, and this should have taken place before the balance of payments problem arose.

If imports cannot be reduced much the real devaluation will have to expand exports--and rather quickly--if major problems are to be avoided. A greater real devaluation will be needed to attain a given current account outcome than if the domestic price elasticity of demand for imports had been higher. Hence the factoral redistribution effects--with all their problems--will be greater.

III. The Adjustment Problem with Capital Flight

In most developing countries with balance of payments adjustment problems there is a fiscal deficit and this is the essential cause of the current account deficit. 1/ The current account deficit is definitionally

1/ This statement is based on casual impression and awareness of particular cases, and really needs empirical support. The issue was analyzed in Kelly (1982). Kelly's empirical work based on analysis of IMF programs 1971-80 led to the conclusion that "... (i) external imbalances in years prior to program years tended to be associated with large fiscal imbalances, and (ii) that reductions and increases (relative to gross national product (GNP)) in the current account/overall balance of payments deficit in the year of Fund programs tended to be associated with reductions and increases (relative to GNP) in the overall government deficit/domestically financed government deficit." It must also be added that association of fiscal deficits with current account deficits cannot automatically be regarded as indicating causation.

equal to the fiscal deficit minus the excess of private savings over private domestic investment. The fiscal deficit should be defined as the "public sector borrowing requirement" and the public sector should be broadly defined to include all branches of government as well as government-owned or controlled corporations, these sometimes being called "parastatals." Sometimes there is considerable ambiguity as to what is public and what is private. This is particularly so when supposedly private borrowing is guaranteed explicitly or implicitly by the government.

The usual situation is that the fiscal deficit is financed partly by borrowing abroad, whether or not on concessional terms, and partly from the excess of domestic private savings over domestic investment. The mechanism in most developing countries by which domestic savings are channeled to the government is not through a capital market (which hardly exists) but through the banking system. Private savers deposit their funds with the banks and the government borrows from the banks.

The simplest situation is one where there is little or no international capital mobility, so that private savers cannot send their money abroad because of exchange controls and, similarly, foreign funds do not flow directly to the private sector (though they may do so indirectly through government borrowing abroad, the funds then being passed on by the government). In this simple case government borrowing abroad plus the reduction in foreign exchange reserves is equal to the current account deficit. An adjustment problem arises when reserves run out or new borrowing by the government becomes very difficult or costly. In practice what is required, above all, is a decline in the fiscal deficit.

The case will now be considered where the private sector is open to the world capital market, as it is in many developing countries now. Local investors and banks do not have faith in the government, or at least in the exchange rate, so that the excess of private savings over domestic investment is sent abroad rather than being kept in local currency denominated assets available to be lent to the government. This is often called capital flight. It might just as well be described as portfolio diversification by local private investors, or as reflecting an anticipated devaluation combined with a domestic interest rate that is too low. ^{1/} At the same time, the government borrows abroad to finance its deficit. The private sector is lending abroad and the government is borrowing abroad. When the country's own citizens are declining to finance its fiscal deficit foreign borrowing by the government has to be greater than otherwise.

Again, it will be assumed that there is an adjustment problem: the government's foreign borrowing has to be reduced possibly because foreign funds have dried up. In principle there are now two ways of dealing with

^{1/} For general discussion of capital flight, see Cuddington (1986).

this problem. The first is to reduce the fiscal deficit, and hence the current account deficit, associating this with real devaluation to maintain internal balance. The second is to divert domestic private savings from going abroad and to induce them or force them to finance the fiscal deficit instead--in other words, to reverse capital flight. In that case the fiscal and hence current account deficits may not need to be reduced at all. Indeed, not only current capital flight could conceivably be reduced or ended, but some part of the stock of capital that was exported in earlier years could be repatriated.

Certain remedies are available for capital flight. The remedy that is often tried but that is administratively very costly to enforce and also creates various distortions, is the imposition of exchange controls. Operating through the market and providing appropriate inducements is likely to be better. Given the domestic interest rate, a major reason for capital flight is often the expectation of devaluation. Timely exchange rate adjustment or the introduction of a floating rate, are then possible solutions. Even better, an end might be put to the domestic policies--usually inflationary policies--that gave rise to the expectation of devaluation in the first place. Furthermore, the expectation may have been created that in case of fiscal difficulties the government might default on loans from local banks or on bonds sold to domestic residents. Even if it might not default it might sharply increase tax rates on interest income.

Interest rate policy is crucial. For any set of expectations, other than the certainty of default, there is, in principle, some after-tax interest rate that should attract domestic funds to finance the budget deficit rather than going abroad. One might then argue that the problem always comes down to the relationship between the domestic interest rate and the various expectations just discussed.

If expectations cannot be changed, a very large rise in the interest rate may be needed if it is desired to finance the budget deficit with domestic (or, indeed, foreign) private savings. But there is likely to be some limit to the rise in the interest rate that is useful: the higher the real rate of interest that the government offers the greater would be its future expected debt service burden and hence the more the market would allow for the possibility of default. A reduction in the non-interest fiscal deficit may thus be unavoidable.

When foreign borrowing is replaced by local financing of a budget deficit this can be called "adjustment" from a national point of view. Presumably domestic savings could indefinitely finance part or even all of the fiscal deficit. On the other hand, it is just a change in the pattern of financing of the fiscal deficit. Furthermore, solving the immediate problem by fully reversing capital outflow may not necessarily be optimal: it may be better for the country, especially its long-term prospects, if the fiscal deficit is reduced, with local savers financing more private investment at home and perhaps also fruitfully investing abroad to some

extent. Some private investment abroad may sometimes be optimal from a national point of view--for example, when the funds would otherwise finance wasteful public spending or private investment in highly protected industries.

In any case, some reduction in the fiscal deficit may be inevitable. Local private savings may not be enough to finance the whole of the deficit as well as existing private investment. This must be so if there is a current account deficit; in that case the excess of private savings over private investment falls short of the fiscal deficit and if we rule out any crowding out of domestic private investment there will still have to be some decline in the fiscal deficit if foreign borrowing is to cease completely.

IV. Reducing Inflation

Countries that have high rates of inflation usually also have current account problems, but this association is not essential. A country will now be considered that has high inflation but does not have a current account problem. The aim here is to isolate the inflation problem by assuming away the current account problem discussed so far. The government wants to reduce inflation because of the various dislocations it causes. The country's inflation rate is higher than that of its trading partners, so that the exchange rate will have to depreciate steadily--possibly with a "trotting peg"--to avoid continuing real appreciation.

It will now be assumed that the current account has to stay in balance or--when there is a given inflow of new foreign funds per annum, whether obtained by public or by private borrowing--a current account deficit does not, for the time being, need to be reduced. Assuming no structural or other real changes at home or abroad (aside from those that result from the disinflation process to be discussed here) the real exchange rate should then stay constant and, with domestic inflation exceeding foreign inflation, continuous nominal depreciation will ensure this.

Adjustment now refers to anti-inflationary policy. There is an inflation adjustment problem and it will have some inflation adjustment costs. It will now be shown that the problem has two quite distinct parts--namely the "inflation tax replacement problem" and the "price adjustment problem."

1. The inflation tax replacement problem

Presumably inflation will be fed and financed by monetary expansion. In most developing countries such monetary expansion is explained by the need to finance a fiscal deficit: monetization of the deficit is normally the essential cause of prolonged inflation. Holders of money balances have to save to obtain increases in nominal money supply sufficient to

keep their real money balances at desired levels. These savings in effect finance partially or wholly the government's dissavings--i.e., the fiscal deficit. The reduction of real balances owing to inflation is the inflation tax.

Of course the demand for real balances will increase because of real growth of the economy. It may also increase because the advanced, monetized sector is expanding relative to the subsistence (or less monetized) sector. To that extent a growing supply of money that finances a fiscal deficit need not lead to inflation. Furthermore, growth in the money supply need not inevitably be caused by a fiscal deficit: it can also result from expansion of credit to the private sector. In addition, if inflationary expectations accelerated, the demand for real balances would fall, so that even a given growth in the money supply would lead to increasing inflation. Nevertheless, taking all this into account, it remains true that when inflation is high a principal explanation is usually a monetized budget deficit. 1/

Given then that the fiscal deficit is the principal cause of monetary expansion, and monetary expansion is the cause of inflation, government expenditure has to fall or other sources of taxation have to be found if inflation is to be reduced. That is the "inflation tax replacement problem."

The cost or distortion that high inflation imposes even in a steady state where the economy has fully adjusted to inflation is well known: money holdings (which normally bear little or no interest) yield negative returns so that people will economize on the use of money to the general inconvenience of private and business affairs. In addition, high inflation inevitably leads to distortions in relative prices. At the same time, alternative taxes also have familiar distortion costs--on incentives and on the patterns of consumption and of resource use--and, in addition, they have collection and compliance costs. Similarly, cutting government expenditure involves costs and political obstacles as discussed earlier.

The inflation tax is likely to be very inefficient, at least when inflation is high, and thus more costly than, say, a value added tax or even a revenue tariff. It is thus possible that in an overall or economy-

1/ It is well known from the theory of hyper-inflation that if inflationary expectations exceed the actual rate of inflation the latter will accelerate, essentially because the demand for real balances relative to GDP is falling. As the inflation tax rate rises the base of the tax actually falls. Hence the revenue from the inflation tax (expressed as a proportion of GDP) would fall if the monetized budget deficit increased beyond a certain point: sufficient private savings to finance the budget deficit at an initial rate of inflation could not be generated, thus leading to a dynamic monetary disequilibrium--i.e., hyper-inflation.

wide sense (leaving aside distributional effects) there may be a net gain, and hence, no inflation adjustment cost at all, when the inflation tax is replaced by a well-constructed set of explicit taxes. This could also be true when government expenditure is cut, rather than taxes being raised.

The actual fiscal deficit expressed as a proportion of gross national product is likely to be much greater than the deficit which has to be eliminated if inflation financing is to end. There are two reasons for this. Firstly, inflation usually leads to reduced tax revenue--i.e., in revenue from explicit taxes measured in real terms--even with given tax rates. This is explained by the inevitable lags in tax collections. Nominal tax collections lag behind nominal government expenditures which frequently adjust more rapidly to inflation. Cutting the rate of inflation would boost real tax revenues. This is the "Tanzi effect." ^{1/} Secondly, a part of the deficit is likely to be bond-financed and this does not need to be reduced or eliminated in order to reduce the money growth rate. In fact, as will be discussed below, this part of the deficit will itself decline owing to a reduced nominal interest bill when inflationary expectations decline.

While a shift from the inflation tax to, say, a value added tax or a simple excise tax may yield a net overall gain through reducing distortions, there will be important sectoral redistribution effects, just as in the case of devaluation. Inflation taxes money holders--especially those not smart enough to get into interest-bearing or real assets as much as possible--while alternative taxes are quite likely to bear heavily on more specific groups, who may strongly resist imposition of the new taxes. If taxes cannot be increased government expenditure will have to be reduced, leading again to sectoral resistance. Usually, ordinary people will gain from a reduction of inflation because their accumulated savings in the form of bank deposits will not be taxed so much, while they will lose through the price-raising effects of higher commodity taxes.

2. The price adjustment problem

The concern so far has been with the budgetary problem that an anti-inflationary policy presents. Quite distinct is the "price adjustment problem." It can be assumed for the moment that the country is in a steady state of inflation where all prices are fully adjusted to expected inflation, notably the nominal interest rate, the nominal exchange rate and the nominal wage. Actual inflation is equal to expected inflation. The real interest rate, the real exchange rate and the real wage are not raised or reduced just because there is inflation.

^{1/} See Tanzi (1977).

An anti-inflationary program--requiring a reduction in the fiscal deficit and leading to a reduction in the money growth rate--is then embarked upon. The problem is that product prices may fail to respond in reasonable time and, in addition, major distortions in relative prices can result. Hence overall costs and factoral redistribution effects can be imposed. These costs are not inevitable, but a few examples of the kinds of problems that can arise and have arisen can be given here.

(1) Agents in product markets are surprised by the anti-inflationary policy, do not expect the program to last and hence continue to raise prices on the basis of the initially expected rate of inflation. This has been called "inertial inflation"--i.e., inflation that is not quickly responsive to demand contraction. Hence, given the policy of monetary restraint, the real money supply falls, the real interest rate rises and the economy contracts. The anti-inflationary policy has a classic deflationary effect.

With a floating exchange rate and international capital mobility this would lead to incipient capital inflow and thus real appreciation, the rate of depreciation falling behind the rate of domestic price inflation. Hence the relative prices of tradables to nontradables would be lowered and there would be a particularly adverse effect on tradable goods industries. If intervention by the central bank ensured sufficient depreciation to prevent the real exchange rate from appreciating to the full extent (so as to maintain the competitiveness of tradables) there would be some actual capital inflow in response to the higher interest rate, which would tend to increase the money supply and so moderate the anti-inflationary policy.

The implication is that, if the "inertia" is to be overcome, the policy shift must be widely understood and credible, something that is not easy to attain when inflation has been long-lasting and previous attempts to slow it up have failed. The fact that an anti-inflationary policy is likely to involve a short but painful period of deflation because of the slowness of expectations to adjust leads to the expectations that such a policy once begun would not be sustained for political reasons. This very expectation is then the cause of the adverse deflationary effects. This does not mean that continued "inertial inflation" is inevitable, but only that a difficult transition period is possible, and that the firmness of the orthodox anti-inflationary program must be clearly established.

(2) The rate of increase of wages fails to adjust to the lower rate of money growth as rapidly as do product prices. Hence real wages rise. Nominal wages in industrial countries and in the formal sectors of some developing countries tend to be somewhat inflexible, possibly because of explicit or implicit contracts. When there is inflation, inflexibility or inertia refers to the rate of increase rather than the absolute level of prices and wages. On the other hand, product prices may be quite

flexible. Tradable goods prices will be heavily influenced by the rate of depreciation, and this depreciation rate may decline rapidly because of lower money growth and, even more, because of expectations of lower money growth in the future. The policy implication is that the anti-inflationary policy must be well understood and believed by agents in the labor market. In some countries the role of trade unions, especially in the public sector, is crucial.

There may be formal or informal wage indexation. This is usually lagged--i.e., backward-looking--with wages in the current period being adjusted to price changes in a previous period. This means that when the rate of price inflation declines, the decline in the rate of nominal wage growth will lag behind and so real wages will rise. Such real wage increases squeeze profits and are likely to increase unemployment. The policy implication is that, if indexation itself cannot be ended, the indexation formula should be adjusted to prevent real wages from rising.

(3) Firms may have locked themselves into incurring debts with nominal interest rates adjusted to the initially expected rate of inflation. While the loans may be fairly short term, a sudden decline in the rate of inflation could have a sharp short-term effect in redistributing wealth from debtors to creditors and thus in causing bankruptcies. In addition, high inflation tends to benefit the financial sector, and a successful reduction of inflation can have a severely adverse effect on it.

In considering these costs of reducing inflation it must be remembered that the starting point is never a well-adjusted steady state inflation. Relative prices are always distorted when there is high inflation (say above 50 percent per annum). A good reason for wishing to reduce or even eliminate inflation is that the distortions caused by inflation are often so high. Normally there are institutional rigidities and various controls which prevent some prices, but not others, from adjusting adequately to the rate of growth of nominal demand. The motivation for controls is usually a misplaced effort to control inflation not at the source but by tackling some of the symptoms. Hence some nominal interest rates are controlled, leading to negative real rates, some product prices may be controlled, leading to shortages and distortions in resource allocation, and frequently the exchange rate is not depreciated sufficiently to compensate for the excess of domestic over foreign inflation, leading to a squeeze on the profitability of industries producing tradables and to a current account deficit.

Against the distortions caused by inflation must be set the costs of an anti-inflationary program. As noted above, an anti-inflationary program which faces "inertia" and is initially not fully credible will have price adjustment costs. These costs--which are likely to be temporary--must then be weighed against the costs created by the existing distortions caused by inflation which will eventually be ended. Essentially there is

a trade-off to be made between the possibly high short-term costs of an anti-inflationary program and the long-term benefits--some of which may also be felt immediately--of reducing the rate of inflation.

3. Exchange rate and heterodox policies:
Minimizing inflation adjustment cost

Two particular approaches to the problem of minimizing the part of the inflation adjustment cost that is caused by the "price adjustment problem" have been tried.

One approach has been to fix the nominal exchange rate--or at least to have a preannounced movement of the exchange rate on the basis of some kind of scale (called "tablita" in Argentina). ^{1/} The exchange rate is maintained by exchange market intervention and in an indirect way prices of tradable goods will then be somewhat controlled, depending on inflation abroad. When import-competing goods are only imperfect substitutes for imports the control is inevitably imperfect.

The problem is that, if domestic credit continues to expand faster than the exchange rate depreciates, prices of nontradables will rise faster than those of tradables--the real exchange rate will appreciate--with the usual adverse resource allocation effects. It is crucial that the exchange rate policy be associated with orthodox credit restraint policies. Furthermore, with some wage inflexibility, nominal wages in the tradable sector may not adjust sufficiently fast, causing a cost-price squeeze in tradables, and hence unemployment.

A second, broader approach is the so-called "heterodox approach" (Dornbusch and Simonsen, 1987; Blejer, 1987; Blejer and Liviatan, 1987). It really embraces the first as a special case. It was tried in 1985-86 in Israel, Argentina and Brazil.

This time many prices--product prices, wages, the exchange rate, the nominal interest rate--are controlled or at least are made subject to various predetermined scales. In theory, at least, this does not replace but only supplements the "orthodox" policy of monetary restraint through reducing the fiscal deficit. The idea is that for a transitional period controls take the place of market expectations in determining prices and wages, given the difficulty discussed above of getting expectations to adapt to the anti-inflation program. It is, of course, crucial that the heterodox policies be regarded as complements to, and not substitutes for the essential orthodox policy of monetary restraint.

^{1/} This was tried in Argentina, Chile and Uruguay in the 1970s. There is now a large literature analyzing these episodes. For a detailed description of the Chilean episode, see Edwards and Edwards (1987) and for overviews of all three "Southern Cone" experiences, see Corbo and de Melo (1985) and Corbo, de Melo and Tybout (1986).

The central problem is the familiar one of getting relative prices right. If relative prices were initially in reasonable equilibrium, with no notable shortages or excess demands, and if there were no changes in demand and supply conditions, in the terms of trade, and so on, it would be simplest to freeze all prices and wages. In practice comprehensive enforcement is difficult, so that some relative prices will change in unplanned directions. Leaving this aside, there are usually some underlying shifts in demand and supply that require relative price changes. One would surely expect a shift from inflation tax to explicit taxes or a reduction in government expenditures to change equilibrium relative prices.

Furthermore, one cannot assume that in the initial high inflation situation relative prices were in "equilibrium." It may be necessary to make some once-and-for-all price and wage changes before the whole set is frozen or set on some kind of automatic pilot for a temporary period, and these preparatory reforms are not easy. Usually price determination is something that is best left to the market rather than to central controllers. Controlling prices is likely to lead to shortages for particular products, making the program both unpopular and inefficient.

In some cases, prices of public sector enterprises have been frozen or prevented from rising sufficiently while wages have continued to increase. The increased subsidies needed to keep the enterprises afloat have then militated against the policy of monetary restraint which is the key "orthodox" element of the anti-inflationary program without which the "heterodox" element will achieve very little. Finally, the heterodox approach might be applied for a brief period, until expectations adjust so that controls can be removed. But it may be difficult to convince people that prices will not rise again when controls are removed since they may attribute the short-term decline in inflation more to the price and wage controls than to the decline in the money growth rate.

V. Two Adjustment Problems: Current Account and Inflation

A current account problem is quite likely to be caused by a fiscal deficit. In principle it could also be attributable to an excess of private investment over savings, but usually the correct focus is on the consolidated budget deficit, broadly interpreted to include the deficits of all public agencies. ^{1/} In addition, in most developing countries where there is serious and prolonged inflation the explanation is continued monetary expansion resulting from monetization of a fiscal deficit. Thus a fiscal deficit can cause both a current account and an inflation problem, and there have been plenty of cases where these two problems have coexisted. It is then necessary to combine the analyses of the two adjustment problems.

^{1/} See footnote on page 9.

1. The financing of the fiscal deficit

To start with, it will now be assumed that the fiscal deficit is financed in two parts. Partly it is financed by borrowing abroad. And partly it is financed by money creation, which produces inflation and hence leads to saving by the private sector designed to restore real balances. At this stage it will be assumed that there is no domestic borrowing by the government, other than from the central bank. Furthermore, there has not been any domestic borrowing in the past so that the government and central bank combined have no indebtedness in domestic currency. The whole of the public sector's interest bill is debt service on the accumulated foreign debt denominated in foreign currency. The complication of domestic debt will be introduced later.

A reduction in the current account deficit means that foreign borrowing will be reduced. Unless there is increased inflationary financing, the fiscal deficit must be reduced appropriately either by government expenditure being cut or taxes being increased. To avoid unemployment the reduction in the fiscal deficit has to be associated with real devaluation. If there is some degree of real wage rigidity or other factors giving rise to frictions some unemployment may be unavoidable.

Similarly, a reduction in inflation requires the money-financed fiscal deficit to be reduced. Unless there is to be more foreign borrowing and hence a worse current account, this also requires cuts in government spending or increased taxes. This time, because of the price adjustment problem, leading to a temporary decline in the real money supply and possibly a temporary rise in real wages, there may also be temporary unemployment. The conclusion is that a reduction in government spending or rise in tax rates could both improve the current account and reduce inflation. How much one objective rather than the other is achieved depends on which of the two forms of financing is reduced more.

The implications for the exchange rate are interesting. The improvement of the current account requires real devaluation if employment is to be maintained. At the same time the reduction in inflation requires a reduced rate of nominal depreciation to maintain a given real rate. When a reduction in the deficit is meant to lead to improvements on both fronts various desirable time paths of the nominal exchange rate can then be envisaged. At first, as domestic inflation is reduced the rate of nominal depreciation might continue as before, until the desired real depreciation is attained and, after that, the rate of nominal depreciation would decline in line with the decline in the rate of monetary expansion.

It also follows that either objective--current account improvement or reduced inflation--can be achieved at the expense of worsening the situation with respect to the other. Suppose the fiscal deficit is given. A shift from money financing to foreign borrowing will reduce inflation and worsen the current account, and a shift from foreign borrowing to

money financing will increase inflation but improve the current account. It must be reiterated that in all cases appropriate exchange rate adjustment is assumed. Difficulties often arise because the exchange rate adjustment is not appropriate.

2. Borrowing domestically: the four parts of the fiscal deficit

Finally, government debt denominated in domestic currency can be introduced. ^{1/} This leads to complications which cannot be ignored but do not really alter the main messages presented so far. Thus this discussion could be regarded as an extended footnote. One part of government expenditure consists now of interest payments on domestic debt. And the deficit may be financed partly by issuing more of such debt.

Just to simplify, it will first be assumed that the whole of the deficit is financed in this way. There is no foreign borrowing or use of reserves and no money-financing, and no inflation or inflationary expectations. Initially there is internal balance. Furthermore, owing to effective exchange controls, there is no international capital mobility. Therefore the domestic and foreign interest rates are not related. It can be shown that the whole of a fiscal deficit financed by domestic borrowing will--given the assumptions--be financed by crowding-out domestic investment.

Domestic borrowing raises the domestic interest rate and thus crowds out some domestic private investment in the first instance. In addition, with a constant real money supply and an unchanged exchange rate it would raise aggregate domestic demand both for imports and for home-produced goods. It must be remembered that, in the absence of foreign borrowing by the government and no change in reserves, and with no international capital mobility, the current account cannot change. Hence the exchange rate must depreciate to divert all the extra expenditure toward home-produced goods. But, since there was initially internal balance this must lead to excess demand for home-produced goods, so prices rise and, with a given nominal money supply, the real money supply will fall and the interest rate will rise further, crowding out domestic investment further.

^{1/} The term "government" is used here to include the central bank. Hence domestic borrowing refers to borrowing by the government from the private sector or, conceivably, the sale of bonds by the central bank in the open market while at the same time it is buying bonds from the government. The main point is that when there is "domestic borrowing" as defined here, the budget deficit is financed domestically without the money supply being increased. When a fiscal deficit is money-financed it is actually financed by borrowing from the central bank, which then creates the extra money; this process is not defined as domestic borrowing here.

Finally, real expenditure will be back where it started, the increase that resulted from the fiscal deficit being offset by the reduction of private investment. If the higher interest rate generated more domestic savings there will have been some crowding out of domestic consumption as well as investment.

If the domestic and foreign capital markets are linked, the higher domestic interest rate will attract capital inflow, which will appreciate the exchange rate and produce a current account deficit. For this purpose capital mobility does not have to be perfect nor domestic and foreign bonds perfect substitutes. The capital inflow will also moderate the rise in the domestic interest rate and hence the decline in domestic investment. In this quite realistic case the fiscal deficit will be financed partly by a reduction in domestic investment and partly by foreign borrowing carried out this time by the private sector in the capital market rather than directly by the government.

Putting all this into reverse one can start again with the familiar balance of payments adjustment problem: the country has a current account deficit that has to be reduced. The fiscal deficit is financed partly by the government borrowing abroad and partly by borrowing domestically. For the moment, it is assumed that there is no inflationary financing. To achieve a given current account improvement the fiscal deficit would then need to be reduced more when domestic financing is reduced because in that case part of the effect would be a fall in the domestic interest rate which would increase domestic investment. If such an increase in investment is not desired direct foreign borrowing by the government should be reduced first. The more integrated in the world market is the local capital market--so that the domestic interest rate can change very little--the less difference does it make which form of borrowing is reduced.

Inflation must now be brought back into the picture. Inflation generates inflationary expectations, and inflationary expectations raise the nominal interest rate. As is well known, the effects depend on the length of maturities of bonds and whether or not they are floating rate bonds. In any case the effect of an increase in inflationary expectations is to raise the interest bill on the domestic-currency denominated debt. This refers only to expectations about domestic inflation since foreign inflation and expectations are given.

Holding all other elements of government expenditure and tax revenue constant, the net effect of a rise in inflationary expectations will be to increase the fiscal deficit. One part of the deficit can thus be directly attributed to inflationary expectations. If the real interest rate is 4 percent and inflationary expectations are 46 percent, so that the nominal interest rate is 50 percent, no less than 92 percent of the interest bill on domestic debt will be attributable to inflationary expectations. This part can be called the "domestic-inflation caused

deficit." Financing this part of the deficit with domestic bonds will simply maintain constant the expected real value of these bonds held by the public.

This part of the deficit will decline if money-financing of the rest of the deficit declines provided reduced money-financing also leads to a decline in inflationary expectations. Thus, if inflation is to be reduced to a given extent without any deterioration in the current account the proportion of the fiscal deficit that must be eliminated by cutting non-interest spending or raising taxes is less than might appear at first sight because there will be some endogenous reduction in the deficit.

To summarize, the total nominal fiscal deficit can be classified as follows: 1/

(1) First, there is the money-financed deficit. To the extent that it causes or increases inflation, it is matched by private savings to restore real balances and hence does not affect the current account. As noted earlier, it is likely that some of the increase in the money supply does not generate inflation because the demand for money is expanding for other reasons, for example general growth of the economy.

(2) Second, there is the domestic-inflation caused deficit, just discussed. This is caused by inflationary expectations which raise the domestic interest rate and hence debt service: it would disappear if inflation were not expected and is thus essentially endogenous.

(3) Third, there is the foreign-borrowing financed deficit which deteriorates the current account and appreciates the real exchange rate. 2/

(4) Finally, there is the domestic-bond financed real deficit which is the part of the deficit financed with domestic currency denominated bonds less the part attributable to inflationary expectations. This will both crowd out domestic investment and deteriorate the current account, crowding out being relatively less the more integrated is the domestic capital market in the world market.

1/ On the measurement of fiscal deficits in the presence of inflation, see Tanzi, Blejer, and Teijeiro (1987).

2/ This part of the deficit could be divided into two parts. One part is attributable to inflationary expectations abroad (which raise the nominal interest rate) and the remaining part is the foreign-financed real deficit. The first part will simply restore the real value of the foreign debt or, at least, will be expected to do so on the basis of inflationary expectations.

VI. Conclusion

No simple conclusion emerges from an analytical paper of this kind. But a few themes and distinctions that have emerged can be underlined, apart from the obvious concern with expenditure reduction and switching to deal with a current account problem and the key role of the fiscal deficit both for this problem and for reducing inflation.

The distinction has been made between the primary adjustment cost and the secondary adjustment cost, the latter resulting from unemployment and output losses caused by failure to devalue sufficiently, by real wage resistance, or by the inappropriate use of import restrictions. Structural rigidities (i.e., low price elasticities) raise adjustment costs. Present and future costs have also been distinguished.

Adjustment is difficult because, inevitably, there are losers, and *factoral income redistribution effects of devaluation are important in determining who the losers are from expenditure reduction and devaluation combined.* There is a need for sectoral cost-benefit analysis to understand and anticipate the political and pressure group obstacles to adjustment.

Capital flight has been related to the adjustment problem and various ways of reversing it have been noted.

A fiscal deficit can be monetized and so give rise to inflation. Unavoidably, the fiscal deficit must be reduced or bond-financing increased if the rate of inflation is to be cut. The problem of reducing inflation--yielding inflation adjustment costs--has been decomposed into two parts, namely the inflation tax replacement problem and the price adjustment problem, the latter having several facets. Policies of predetermining the nominal exchange rate according to a scale (tablita), or "heterodox" policies which regulate many prices as well as wages, are meant to overcome the latter problem (especially "inertia") but have their difficulties.

Finally it has been shown that the nominal fiscal deficit has various components, notably the money-financed deficit, which is likely to create inflation, and the part financed by foreign borrowing. If real government expenditure and taxes are kept unchanged, raising the proportion financed by the first will reduce the current account deficit at the cost of increasing inflation, while raising the proportion of the second will reduce inflation at the cost of worsening the current account. Reducing real government expenditure or increasing non-inflation taxes can help with both problems. Domestic borrowing is also likely to worsen the current account and may, in addition, crowd out private investment.

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