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MACROECONOMIC RESPONSES BY DEVELOPING COUNTRIES  
TO CHANGES IN EXTERNAL ECONOMIC CONDITIONS

Willem H Buiter

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Centre for Economic Policy Research  
6 Duke of York Street  
London SW1Y 6LA

Tel: 01 930 2963

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ABSTRACT

The paper presents a non-technical survey of some of the issues involved in the design of stabilization policy in developing countries with special emphasis on policy responses to external shocks. First, the six most important external economic parameters of developing countries are reviewed: 1) the terms of trade, 2) the growth of world markets, 3) the cost and availability of private external finance, 4) the cost and availability of official and other concessional finance, including aid, 5) the world rate of inflation and 6) the exchange rates between the currencies of the major industrial countries.

The paper then reviews the macroeconomic policy arsenal and the demand and supply effects of the various policy instruments (monetary and credit policy, the entire array of fiscal instruments, exchange rate policy, the use of exchange and capital controls and incomes policy). Finally, there is a discussion of stabilization responses to four external shocks: a deterioration in the terms of trade, a slowdown in the rate of growth of export demand, an increase in the interest rate at which developing countries borrow abroad and an increase in the external rate of inflation. The prevalence of repressed financial markets and credit rationing makes effective demand and effective supply responses to monetary, fiscal and exchange rate policy quite different from what they are in most of the industrial world.

JEL classification: 133, 310, 315, 320, 430

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Willem Buiter  
Economic Growth Center  
Yale University  
37 Hillhouse Avenue  
New Haven  
Conn. 06520  
0101203 436-8159

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## NON-TECHNICAL SUMMARY

The paper presents a non-technical survey of some of the issues involved in the design of stabilization policy in developing countries, with a special emphasis on policy responses to external shocks.

Policy responses by developing countries to changes in the external economic environment are often considered to fall into two categories: macroeconomic stabilization policy and structural adjustment policy. Stabilization policy aims to influence deviations from full employment equilibrium or full capacity utilization equilibrium. Structural adjustment (or allocative) policy aims to influence the full employment equilibrium configuration itself. While this distinction is clear in principle, in practice virtually every fiscal, financial, monetary or regulatory policy action will have both stabilization and allocative (and indeed also distributional) consequences. While it would be better to speak of stabilization and structural aspects of a policy action or rule rather than of stabilization and structural policy, the inferior usage seems too well-ingrained.

Like all forms of government intervention in the economy, the case for macroeconomic stabilization policy rests on empirical judgements about the workings of the economic and political system and/or on a normative judgement supported by a politico-economic judgement. The empirical judgements concern the existence and severity of market failure and the possibility of policy interventions or intervention rules which enhance the performance of the economy or the welfare of the agents in it subject to the technical (or "academic") constraints on policy design.

(ii)

The empirical politico-economic judgement concerns the likelihood that these desirable and potentially feasible policy measures will in fact be implemented given the actual political and administrative constraints on the design and conduct of economic policy. The ethical or normative judgement that can either substitute for or reinforce the positive diagnosis of market failure, concerns the desirability of government interventions in the income and wealth distribution process. Dissatisfaction with the existing distribution of property rights should of course be supported by a positive politico-economic judgement that a proposed cure isn't worse than the disease because of negative side effects on stabilization or efficiency.

The identification of widespread market failure is no more difficult in most developing countries than it is in most industrial countries. Of course many of the distortions that underlie these market failures are the direct consequences of past, present and anticipated future government policy. A complete solution to this problem requires structural adjustment measures rather than macroeconomic stabilization. The cure for financial repression for example involves the abolition of artificial legal ceilings on interest rates and other rates of return. Note however, that credit rationing may occur even without such government interventions in the credit allocation mechanism. As another example, part of the explanation for urban unemployment in many developing countries lies in the artificially high wage rates in formal urban labour markets, where the government often is a major employer and unions are stronger than in the rural sector. Even though the ultimate remedy for such problems lies in structural reform, as long as the structural distortions are a part of the economic environment, they are apt to have important implications for the design of stabilization policy.

Some forms of market failure are inextricably linked to stabilization policy. They include capital market "imperfection" which prevent individuals and firms from borrowing on the same terms as their government. In addition the absence of instantaneous clearing in (some) goods and factor markets and specifically the existence of persistent non-Walrasian equilibria with rationing or imperfectly competitive equilibria lie at the heart of stabilization policy.

It is often argued that such non-Walrasian equilibria are endemic in the major industrial countries. Nevertheless the labour market structures and the composition of production are very different, and it is by no means self-evident that stabilization policies designed in response to the business cycles experienced by the industrial countries' appropriate for the developing countries. As a first approximation it is probably safe to say that the stabilization policies derived from the experience of the industrial countries are likely to be more appropriate to a developing country, the larger is the share of the modern industrial and service sectors in its total GDP. This implies for example that the more developed "Southern Cone" countries will ignore the industrial countries' experiences of demand management at their peril, even though they must also pay particular attention to important differences in the structure of their labour markets, their capital markets and their organization of production.

Countries with a small modern industrial sector, a large informal urban sector and a large share of GDP derived from subsistence agriculture are unlikely to provide an appropriate environment for the application traditional macroeconomic stabilization policies. Demand management is also unlikely to play a useful role when the production of agricultural cash crops for a

competitive global commodity market accounts for a major share of GDP. Supply management, e.g. policies to maintain a competitive real exchange rate or to reduce real marginal labour and capital costs, do play a crucial role in determining overall economic performance in such economies, but production is unlikely to be constrained by insufficient aggregate demand.

Section 2 of the paper illustrates the dangers of engaging in structural financial reform or trade liberalization without paying attention to the budgetary and monetary consequences of such reforms. Domestic financial liberalization or an increased degree of international financial openness may, through domestic or international currency substitution (e.g. dollarization), reduce the government's seigniorage base or inflation tax base. The inflation rate will increase as a result unless the government undertakes an appropriate fiscal correction (which may of course have stabilization or distributional consequences).

Section 3 reviews the six most important parameters in the external environment of the developing countries. These are 1) the terms of trade, 2) the growth of world markets, 3) the cost and availability of private external finance, 4) the cost and availability of official and other concessional finance, including aid, 5) the world rate of inflation and 6) the exchange rates between the currencies of the major industrial countries.

Section 4 reviews the macroeconomic policy "arsenal" available to developing countries, and the demand and supply effects of these policy instruments. These instruments include monetary and credit policy, fiscal policy (taxes, transfers, subsidies, tariffs and auctioned quotas in their revenue-raising capacities, public current and capital spending on goods and services), exchange rate policy, the use of exchange controls and capital controls and incomes policy.

(v)

Finally, Section 5 contains a discussion of sensible stabilization policy responses to four external shocks; a deterioration in the terms of trade, a slowdown in the rate of growth of export demand, an increase in the interest rates at which developing countries can borrow abroad and an increase in the external rate of inflation.

One important modification of the developed country paradigm deserves special attention in discussions of developing countries' policies. Rudimentary and/or repressed financial markets lead to credit rationing. Fiscal, financial and exchange rate policy are likely to be associated with financial crowding-out on the demand and on the supply side (through effective supply constraints).

A distinction is drawn between two situations in which the nominal exchange rate is used as a policy instrument. The first is a devaluation of the exchange rate that merely accelerates a real adjustment which is taking place anyway. This real adjustment is aimed at achieving a correction which would, in the absence of the devaluation, take place through an adjustment of domestic nominal prices and wages. The second is an exchange rate devaluation used to correct a persistent and well-entrenched real disequilibrium, such as excessive domestic real factor costs or an unsustainable real fiscal programme. Under the first set of circumstances, devaluation will be successful, but the benefits will be modest. The benefits of devaluation in the second situation may well be major, but the devaluation will be unsuccessful unless it is backed up by other measures which do the real work.

Without an effective policy to control real incomes or other labour market and/or industrial policies that change the balance of power between labour and (private or public) capital, a devaluation of the exchange rate is unlikely to have any lasting notional supply effects. The temporary effect on real wages from any incomplete indexing of wages will be eroded as predetermined nominal contracts come up for renewal.

With real wages and the real exchange rate unchanged, any absorption-reducing effects of a devaluation must have come through the real balance effect or the "real credit effect". In a reasonably efficient financial system in which interest rates and other asset returns adjust to clear markets, the real balance effect isn't likely to count for much. In a financial system with credit rationing and incomplete indexing of loans, the general price level increases associated with a devaluation will reduce the real flow of credit. This will depress the level of economic activity, not only through its effect on credit-constrained consumption, but also on credit-constrained forms of production, that is production relying heavily on borrowed working capital. The result may be price inflation and reduced output, and these stagflationary consequences of devaluations (and of tight money) cannot be ignored in the design of macroeconomic policy.

While controlled access to international credit can be beneficial to developing countries, full and unrestricted financial integration into the world economy is undesirable while internal financial, goods and factor markets are underdeveloped and inflexible. The same can probably be said of many industrialized countries also.



### Introduction

Policy responses by developing countries to changes in the external economic environment can conceptually be subdivided into macroeconomic stabilisation policy and structural adjustment policy.<sup>1</sup> Stabilization policy aims to influence (and, one hopes, to minimize) deviations from full employment equilibrium or full capacity utilization equilibrium. Structural adjustment policy or allocative policy aims to influence the full employment equilibrium configuration itself.<sup>2</sup>

While the distinction between stabilisation policy and structural adjustment policy is clear in principle, in practice (both in the real world and in the "practice" of the theoretical models we tend to work with) virtually every fiscal, financial, monetary or regulatory policy

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<sup>1</sup>This section draws on Ruiters [1984].

<sup>2</sup>Note that according to this definition there can be no stabilization policy in the instantaneous Walrasian equilibrium models of the New Classical School. It is possible to modify the definition by differentiating between a "full information" equilibrium, i.e. an equilibrium in which agents possess complete information on all relevant contemporaneous and past endogenous and exogenous variables, and an incomplete information equilibrium. Even in the hyperactive invisible-hand models of the New Classical School, alternative budgetary and financial policy rules can, in general, alter the information content of currently observed endogenous variables such as prices and thus influence the deviation of the actual from the full information equilibrium. (Turnovsky [1980], Weiss [1980], Ruiters [1980, 1981], King [1982], Marina [1985]). Such "stabilization" policy can then be distinguished from allocative policy actions or rules which aim to influence the full information equilibrium itself.

action will have both stabilisation and allocative (and indeed also distributional) consequences. Consider e.g. a policy of cutting exhaustive public spending on goods and services and reducing tax rates simultaneously, in such a way as to keep the public sector deficit constant. The objectives are the allocative or structural adjustment ones of freeing resources for private absorption and of creating more favorable tax incentives for the supply of effort. If there is any merit in the balanced budget multiplier theorem, this budgetary action will have contractionary stabilization consequences. The distributional consequences both of the spending cuts and of the tax reductions are likely to be important but are seldom analyzed satisfactorily. Unintended longer-term allocative consequences from public spending cuts are possible if the important distinction between current and capital spending is overlooked and exhaustive spending cuts fall disproportionately on public sector capital formation.

One operationally useful but not completely satisfactory way of fleshing out the distinction between stabilisation and structural adjustment is the following. Macroeconomic stabilisation policy concerns monetary, fiscal, exchange rate, exchange control, capital control and incomes policy actions within the historically given institutional framework and the domestic and international market

structure.<sup>3</sup>

Structural adjustment policy concerns changes in the institutional framework and in the laws, rules and regulations that govern property rights, liability, incentives and the flow of information, which together constitute the parameters within which production, exchange and distribution take place. Structural adjustment is about changes in regime. Macroeconomic stabilization policy is about policy actions within a regime, that is for a given institutional framework and a given market structure and/or non-market allocation and distribution mechanism.<sup>4</sup>

A problem with this characterization is that it suggests that stabilisation policy actions can always be implemented more swiftly than structural adjustment policy actions and that they have short-run effects only, i.e. effects which do not last longer than a typical

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<sup>3</sup> There is a rich and varied literature on stabilization policy in developing countries. Important references are Diaz-Alejandro [1965, 1981, 1983], Kapur [1976], Bruno [1979], Cline and Weintraub eds. [1981], Taylor [1981], Schydrowsky [1981], Dornbusch [1982, 1985b], Branson [1983].

The role of the IMF in macroeconomic adjustment in developing countries is discussed in J. Williamson [1982, 1983 (ed.)], J. Muns, ed. [1984], T. Killick, ed. [1982, 1984a, b], A. Crockett [1981], A. Ewira [1983], F. Keller [1980], Khan and Knight [1981, 1982], Katseli [1983], Branson [1984], IMF [1985], Goldstein and Montiel [1985]. The evolution of the Fund's views up to 1977 can be found in IMF [1977].

<sup>4</sup> See also Lai [1984].

business cycle. While monetary stabilization policy can, in most countries, be adjusted promptly, fiscal stabilisation policy often is the prisoner of unwieldy budgetary procedures. The "inside lag" of fiscal policy may therefore range from weeks to years. To the extent that stabilisation policy affects domestic capital formation, its effects may be long-lasting instead of merely cyclical.

Structural adjustment may be a long drawn-out process (e.g. achieving a significant change in the sectoral composition of production and employment) or a once-off shift of short duration (replacing a system of price controls for a single commodity by one of subsidies and a market-determined price). The administrative and expert knowledge required for the design and implementation of successful stabilisation policy is not a world removed from that necessary for an effective structural adjustment policy.

A final practical distinction between stabilisation and structural adjustment is that the former tends to be formulated at the macroeconomic or aggregative level and concerns the overall balance between effective demand and effective supply and their relationship to the full employment levels of output and employment. Structural adjustment policies frequently are disaggregated or microeconomic in design and are aimed at the sectoral, industrial or regional composition of production and employment.

Structural measures can be differentiated along many different dimensions. A useful two-dimensional classification distinguishes first between measures aimed at domestic markets and measures affecting the

conditions of international exchange and second between reform of financial markets and reform of "real" goods and factor markets. The matrix in Table 1 represents this classification and provides some illustrative examples of the structural adjustment policies in question.

While this paper is concerned with macroeconomic stabilisation policy in response to external shocks and disturbances, it is clear that structural issues cannot be ignored, even in the discussion of stabilisation policy narrowly conceived. At the very least, the institutional setting and rules of the game, and the domestic and international financial and real market structures condition the appropriate monetary, fiscal, exchange rate and incomes policy responses by developing countries to a change in the external environment. A temporary worsening of a country's terms of trade, for instance, will call for a very different macroeconomic policy response if the country has easy access to private international financial markets than if it is effectively excluded from further access to private international credit markets. Where optimal macroeconomic policy responses to external shocks depend on the nature of the structural adjustment policies that are being pursued, this dependence will be made explicit.

In principle, it would be better to speak of stabilisation and structural aspects or consequences of a given fiscal, financial or monetary policy action or rule, rather than of stabilisation and structural policy. The interior usage seems to be too well-ingrained, however, to try to dislodge it. In a number of cases, one or the other set of consequences clearly dominates. E.g. liberalisation of domestic

Table i  
A Classification of Structural Adjustment Policies

	<u>FINANCIAL</u>	<u>REAL</u>
DOMESTIC	Domestic Financial Reform	Labour Market Reform
	Introduction of market-determined deposit and loan rates	Land reform
	Creation of a domestic equity market	Reform of public sector pricing and investment boards
	Mobilization of rural savings	Reform of marketing boards
INTERNATIONAL	Reform of exchange controls and of laws, rules, and regulations affecting international capital mobility	Reform of trade policy import tariffs Export subsidies Quotas

factor and goods markets or of a "repressed" domestic financial system would seem to have mainly structural consequences, as do policies to change the degree of export-orientedness of domestic production or to alter the extent of integration of domestic financial and goods markets into the global financial and trading systems.<sup>5</sup> (But see Buffie [1984]).

Reducing public spending, lowering the rate of growth of domestic credit and devaluing the exchange rate to reduce domestic absorption and improve the external current account balance would seem to be examples of policies with mainly stabilization consequences. Changes in the volume and composition of public spending will, however, also tend to have important long-run structural consequences. A devaluation, possibly accompanied by a change in the rate of crawl of the exchange rate in a crawling peg regime, may also be one element in a structural adjustment package aimed at increasing the share of exports in domestic output.

Like all forms of government intervention in the economic process, the case for macroeconomic stabilization policy rests on empirical judgements about the workings of the economic and political systems and/or on a normative judgement.

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<sup>5</sup>The locus classicus of financial repression is McKinnon [1973]. On trade liberalisation and export-promoting vs. import-substituting development strategies see Krueger [1978], Balassa [1982a, b, 1984], and Bhagwati and Srinivasan [1979]. The important practical issue of the right order of liberalisation and reform is discussed in Harberger [1982], Barletta, Blejer and Landau, eds. [1983], Edwards [1984a, b, c] and Obstfeld [1984].

The empirical economic judgement concerns the presence and severity of market failure and the existence, taking into account only the technical (or "academic") constraints on policy design,<sup>6</sup> of performance-and-welfare-enhancing policy interventions or intervention rules. The empirical political or politico-economic judgement concerns the likelihood that these potentially feasible, performance-and-welfare-enhancing policy measures will in fact be implemented given the actual political and administrative constraints on the design and conduct of economic policy.

The ethical or normative judgement that can either substitute for the positive diagnosis of market failure or reinforce it, concerns the desirability of government interventions in the income and wealth distribution process. The ethical judgement that any particular distribution of wealth and income is undesirable leads to a policy prescription of redistributive measures only after (and to the extent that) it has been complemented with the empirical politico-economic judgement that the proposed cure isn't worse than the disease because of negative side effects (in terms of efficiency and/or stabilization).

The identification of widespread market failure is not a very challenging task in many developing countries (as in most industrial countries). Of course, many of the distortions that lie behind these examples of market failure are the direct consequences of past and

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<sup>6</sup> i.e. assuming a unified, benevolent, credible economic policy maker.



present government policy. The policy measures to rectify the situation often are of a structural or allocative rather than of a macroeconomic stabilization kind. For instance, the cure for financial repression involves the abolition of artificial ceilings on interest rates and other rates of return. Part of urban unemployment is due to artificially high wage rates in the formal urban sector (where the government often is a (or the) major employer and unions are stronger than in the rural sector), a problem that is sometimes compounded by a policy of paying higher food subsidies to urban than to rural consumers.

Many other forms of government-created or government-sponsored market failure can be thought of. While the ultimate remedy for these problems lies in structural reform and not in macroeconomic policy intervention, as long as the structural distortions are part of the actual economic environment, they are apt to have important implications for design of macroeconomic stabilization policy. The potential for acute financial crowding out problems in a financially repressed economy will be discussed below. While one may wish for financial liberalization, government budgetary policy design should be sensitive to the actual crowding out mechanism and not to the mechanism that one might have hoped for.

The forms of market failure that are the sine qua non of stabilization policy are 1) the capital market "imperfection" that (most) individuals and firms cannot borrow on the same terms as their government and 2) the absence of instantaneous competitive market clearing in (some) goods and labour markets or, more accurately, the

existence and persistence of non-Wairasian, quantity-constrained rationing equilibria or imperfect competition equilibria in some of these markets.

Even if one subscribes to the view that such non-Wairasian equilibria are endemic in the major industrial countries, the very different structure of developing countries' labour markets and their often very distinct composition of production make it by no means self-evident that stabilization approaches designed in the laboratories of the industrial countries' business cycles are transferable to all or any of the developing countries. As a first approximation it is probably safe to say that the larger the share of the modern industrial and service sectors in total GDP, and the larger the "formal" sector relative to the "informal" sector, the more relevant the stabilization policies derived from the experience of the industrial countries are likely to be. This means that the more developed "Southern Cone" countries will ignore macroeconomic stabilization policy at their peril, even if mutatis definitely sunt mutandis, with particular attention paid to important differences in the structure of the labour market, the capital market and in the organization of production.

Countries with a small modern industrial sector, a large informal urban sector and a large share of GDP derived from subsistence agriculture are unlikely to provide a welcoming environment for traditional macroeconomic stabilization policies. Demand management also is unlikely to play an important role when the production of agricultural cash crops for a competitive global commodity market

accounts for a major share of GDP. Supply management, i.e. policies to maintain a competitive real exchange rate or reduce real marginal labour and capital costs do play a crucial role in determining overall economic performance, but Keynesian-style quantity-constrained demand for output is unlikely to hold back production; an individual country (and certainly the individual producer in such a country) faces a very elastic global demand schedule for its products.

The identification of the observable empirical correlates of potentially successful stabilization policy in developing countries should be a research priority in the years to come. The almost bewildering variety of experiences, modes of economic organization and stages of economic development make it very unlikely that a single prototype policy model will serve for such a heterogeneous collection of countries.

Even when this first task is done and the economic models are "ready to roll", the expected payoff from the practical design and implementation of macroeconomic stabilization policy still is uncertain. In the second stage of the analysis--the evaluation of the real-world political, administrative and institutional feasibility of economic performance-and welfare-enhancing stabilization policy--political judgement and an understanding of the art of the possible (not at all the comparative advantage of the economist) are essential. It is to be hoped that political market failure is not so serious as to preclude the formation of viable, effective coalitions capable either of designing compensation schemes that turn potential Pareto improvements into actual

Pareto improvements, or of resisting veto attempts by losers from policy reforms that are deemed desirable according to some generally accepted social welfare criterion. It is my belief that, without dismissing the real dangers of "destabilisation policy", there is likely to be a sufficient reservoir of economic understanding and political common-sense to make "supply side-friendly" demand management policy and "aggregate demand-sensitive" supply side policy a practical possibility in a large number of developing countries.

The outline of the rest of the paper is as follows. Section 2 illustrates the dangers of engaging in financial reform or trade liberalization without paying attention to the budgetary and monetary implications of such reforms. After this slight digression, Section 3 reviews the external environment of the developing countries and Section 4 the stabilisation policy instrument arsenal at their disposal. Section 5 contains a discussion of stabilisation policy responses to four external shocks: a deterioration in the terms of trade, a slowdown in the growth of export demand; an increase in the interest rates at which developing countries borrow abroad and an increase in the external rate of inflation.

## 2. Budgetary, Monetary and Inflation Consequences of Two Kinds of Structural Reform: A Cautionary Tale

Just as inappropriate macroeconomic stabilisation policies can interfere with the successful implementation of structural adjustment policies, so structural adjustment policies can have unexpected and

unintended macroeconomic consequences which must be taken into account lest both sets of policies are reversed or abandoned for entirely the wrong reasons. Two important examples are the budgetary, monetary and inflationary consequences of domestic or international financial reform and the budgetary consequences of export-oriented liberalization measures.

Domestic financial reform, the budget deficit, seigniorage and inflation

From the public sector budget identity we know that any excess of public spending ( $G + i \frac{B}{P} + \frac{e_1 * H^*}{P}$ ) over public revenues ( $T$ ) must be financed by borrowing domestically ( $\frac{\Delta B}{P}$ ), by borrowing abroad ( $\frac{e \Delta B^*}{P}$ ), by printing money ( $\frac{\Delta M}{P}$ ) or by running down the stock of official foreign exchange reserves ( $\frac{-e \Delta R^*}{P}$ ).<sup>7</sup>

$$i) \quad G + i \frac{B}{P} + e_1 * \frac{B^*}{P} - T \equiv \frac{\Delta M}{P} + \frac{\Delta B}{P} + \frac{e \Delta B^*}{P} - \frac{e \Delta R^*}{P}$$

Consider the following not unrepresentative case: a country cannot afford to lose any more foreign exchange reserves and considers the cost

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<sup>7</sup>  $G$  is real public spending on goods and services,  $T$  real taxes net of transfers,  $i$  the domestic nominal interest rate,  $i^*$  the foreign nominal interest rate,  $B$  the nominal value of domestically held public debt (assumed to be denominated in domestic currency),  $B^*$  the nominal value of foreign-held public debt (assumed to be denominated in foreign currency),  $e$  the exchange rate (the price of foreign currency) which is, for simplicity, assumed to be the same for current and for capital transactions,  $P$  the domestic price level,  $M$  the nominal stock of government "base" or high-powered money and  $R^*$  the stock of foreign exchange reserves.

of accumulating additional reserves to be too high. Both the internal and external debt burdens have reached their upper limits.<sup>8</sup> These limits are to be viewed relative to some measure of debt servicing capacity, which for concreteness I take to be GDP. The maximal internal debt-GDP ratio is denoted  $\bar{b}$  and its external counterpart  $\bar{b}^*$ . It follows that  $s$ , the real seigniorage the government has to extract by printing new money, as a proportion of GDP, is given by

$$s \equiv \frac{\Delta M}{PY} \equiv \frac{G-T}{Y} + (r-g_Y) \bar{b} + (r^* + g_C - g_Y) \bar{b}^*$$

or

$$2) \quad s \equiv \delta + (r-g_Y) \bar{b} + (r^* + g_C - g_Y) \bar{b}^* \quad 9$$

Barring repudiation or default,  $\bar{b}$  and  $\bar{b}^*$  cannot be changed, at any rate in the short run. For a small country the foreign real interest

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<sup>8</sup> These limits can represent both economic and political constraints.

<sup>9</sup>  $\delta$  is the primary public sector deficit (the deficit excluding interest payments) as a proportion of GDP,  $r$  is the domestic real interest rate,  $r^*$  is the external (world) real interest rate,  $Y$  is real GDP,  $g_Y$  is the growth rate of real GDP and  $g_C$  is the proportional rate of increase in competitiveness or the proportional rate of deterioration of the terms of trade.

rate,  $r^*$ , and the proportional rate of decline of the terms of trade,  $g_c$ , are exogenous. With unrestricted international capital mobility, the domestic real interest rate would be governed by the external real interest rate. Even with restricted international capital mobility, there are likely to be rather strict bounds on the ability of the authorities to influence their debt service burden by varying the internal real interest rate.<sup>10</sup> More rapid growth of real GDP, and therefore of the economy's capacity for servicing both internal and external public debt, relaxes the debt service constraint and lowers the real amount of revenue to be raised by seigniorage, (the inflation tax), for any given primary deficit. Except for this last potentially important channel, the only way in which the government can limit its need for seigniorage (for recourse to the inflation tax) is by reducing the primary deficit i.e. by some combination of spending cuts and/or tax increases.

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<sup>10</sup> The internal domestic market for government debt is in many instances of negligible importance. When private domestic banks are required to absorb and hold more government paper than they would willingly do at current interest rates, an effective tax is levied on the banks equal to the excess holdings times half the difference between the market rate and the rate paid by the government. This tax can be viewed as another form of seigniorage. Many developing countries have complicated arrangements between the government (or the central bank) and the private banking system. It is not uncommon for governments to borrow from the banks (at rates below the shadow price of funds to the banks) and to lend to them simultaneously through some other arrangement. This complicates the practice (but not the principle) of the calculation of seigniorage (or equivalently of the true stock of outside money or monetary base).

Seigniorage as a proportion of GDP,  $s$ , can be written as the product of the proportional rate of growth of base money,  $\mu \equiv \frac{\Delta M}{M}$  and the reciprocal of  $v$ , the income velocity of circulation of base money

$$s \equiv \mu \times \frac{1}{v}$$

or

$$3) \quad \mu = sv$$

Given  $s$ , an increase in the velocity of circulation of base money, (a reduction in the demand for base money relative to income) increases the proportional rate of growth of the nominal stock of base money and thus, sooner or later, the rate of inflation. Therefore, any reform, financial or other, that does not lower the real interest rate paid on the public debt or raise the growth rate of real output, but increases the velocity of circulation of government base money will tend to raise the rate of inflation unless fiscal measures are taken to lower the primary deficit. Many intrinsically desirable proposals for internal monetary and financial reform have as one of their consequences an increase in the velocity of circulation of base money. The lifting of interest rate ceilings on commercial bank deposits, the encouragement of private financial innovation and the removal of artificial barriers to private financial intermediation all tend to enhance the availability and the attractiveness of financial claims (both public and private).



that pay market interest rates. Increasing international financial openness may lead to direct international currency substitution (e.g. dollarization) which depresses the demand for domestic base money (see Ortiz [1983]). Non-interest-bearing government money experiences a decline in demand; the inflation tax base shrinks. If the required seigniorage revenue is unchanged, the inflation tax rate will have to increase. To avoid higher inflation several steps are possible. If  $s$  is not changed, the inflation tax base can be expanded, say, by increased (non-interest-bearing) reserve requirements on domestic monetary and financial institutions. This is equivalent to imposing a tax on the private banking system. Alternatively  $s$  can be lowered, which for all practical purposes involves reducing public spending or raising taxes.

The issue is important because the velocity of circulation of base money is much lower in many developing countries than in most industrialized countries, (reflecting the frequently rudimentary and/or repressed nature of the internal monetary and financial system) and seigniorage sometimes is an important source of government finance. Table 2 shows the importance of seigniorage as a source of revenue in a number of developing countries. For social, political and administrative reasons, the tax base in many developing countries is narrow and difficult to expand. The position of most industrialized nations is quite different both as regards the importance of seigniorage revenue (which tends to be negligible (see Buiter [1985]) and as regards the breadth and expansibility of the tax base. Table 3 shows some

Table 2

## Seigniorage as a Percentage of GDP in Selected Developing Countries

ID	BANGLADESH	EGYPT	SENEGAL	PHILIPPINES
1961	NA	1.22	NA	.93
1962	NA	.82	NA	1.31
1963	NA	5.35	-2.44	1.29
1964	NA	4.58	.51	-7.65
1965	NA	3.15	-1.63	.79
1966	NA	-1.20	-1.09	.60
1967	NA	2.12	-1.13	2.13
1968	NA	.32	.92	.62
1969	NA	1.89	-1.05	-1.93
1970	NA	3.54	1.54	2.66
1971	NA	-1.55	.35	.78
1972	NA	2.90	.53	1.80
1973	NA	5.39	1.30	1.00
1974	2.36	7.18	3.84	1.73
1975	-.17	4.20	.71	.85
1976	.10	5.42	1.03	.78
1977	1.42	5.26	1.28	1.40
1978	1.77	6.97	2.31	1.56
1979	.94	7.62	-1.95	1.53
1980	1.07	17.52	1.88	.89
1981	.58	9.34	3.79	.65
1982	.58	12.83	3.11	.34
1983	1.79	12.78	-1.42	2.75
1984	2.19	6.78	-1.06	1.52

Source: IFS

Table 3

## Seigniorage as a Percentage of GDP in Selected Industrial Countries

ID	GERMANY	JAPAN	UK	USA
1961	.41	2.50	.39	.20
1962	.58	.78	.17	.23
1963	.76	1.82	.30	.39
1964	1.24	1.20	.76	.47
1965	.74	.62	1.04	.51
1966	.67	1.13	.59	.53
1967	-.31	1.53	.46	.45
1968	.72	1.58	.35	.70
1969	.32	1.65	.19	.33
1970	2.02	1.42	1.04	.50
1971	1.52	1.23	-.47	.91
1972	2.74	2.55	1.64	.14
1973	.89	3.40	2.67	.76
1974	-.13	1.77	.39	.61
1975	.31	.43	.89	.47
1976	1.07	.86	1.53	.42
1977	.84	.81	.41	.51
1978	1.40	1.40	.69	.63
1979	.59	.74	.66	.50
1980	-.40	.63	-.16	.38
1981	-.16	.26	.20	.21
1982	.50	.58	.21	.32
1983	.53	.51	.13	.36
1984	.37	.82	.18	.37

Source: IFS

illustrative examples of industrialized countries with a much higher income velocity of circulation of base money, a broader general tax base and a small and often negligible contribution of seigniorage to total government revenue.

The implications of financial liberalisation for the seigniorage base and thus, given the public sector's revenue needs, for inflation are but one example of the often unfamiliar ways in which structural adjustment policies can have consequences for macroeconomic stabilisation.

#### Budgetary Consequences of Outward-Looking Trade Liberalization Measures

Trade liberalisation measures such as the reduction or removal of import tariffs or the relaxation of import licensing requirements and export promotion measures such as export subsidies may have important budgetary consequences. It is not true, of course, that lowering tariff rates or even abolishing tariffs altogether necessarily lowers revenue. A higher than unitary price elasticity of import demand or a prohibitive (zero revenue) tariff are obvious cases in point. Many import restraints furthermore take the form of non-revenue-raising, non-tariff barriers such as (non-auctioned) quotas. Even so, tariff revenues represent a significant share of total public sector revenue in a number of developing countries, as shown in Table 4.

The budgetary implications of trade liberalisation must be taken into account lest seigniorage be forced to make up any revenue

Table 4

Tariff Revenues as a Percentage of Central Government Tax Revenues  
in Selected Developing Countries

ID	INDIA	TURKEY	GHANA
1973	NA	13.52	13.94
1974	17.88	14.12	12.61
1975	17.88	13.24	17.23
1976	16.86	16.84	15.14
1977	16.92	15.14	15.54
1978	20.24	16.26	17.30
1979	25.86	10.38	13.65
1980	27.16	5.34	12.24
1981	28.36	4.87	14.59
1982	28.06	NA	11.66
1983	NA	NA	17.59

Source: G.F.S.

shortfall, with adverse consequences for the rate of inflation. The structural adjustment implications and the macroeconomic stabilization aspects of the spending and/or taxation measures undertaken to compensate for any adverse budgetary consequences of trade liberalisation must be entered into the overall cost-benefit calculation.<sup>11</sup>

### 3. The External Environment of the Developing Countries

The most important exogenous features of the international environment for developing countries are the following:<sup>12</sup>

1. The level and variability (both anticipated and unanticipated) of the terms of trade, now and expected for the future. This will reflect the behaviour of all price and non-price aspects of international trade, such as export prices, non-price conditions of access to export markets (such as non-tariff protectionist barriers), prices of final goods imports and prices of intermediate, raw materials and energy imports.

Figure 3 gives the behaviour of some important international relative prices. It includes the terms of trade since 1970 of all

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<sup>11</sup>For a full discussion of the macroeconomic consequences of trade liberalisation, see Khan and Zahler [1983] and Buffie [1984].

<sup>12</sup>See e.g. Dornbusch [1985a] and Sachs and McKibbin [1985].

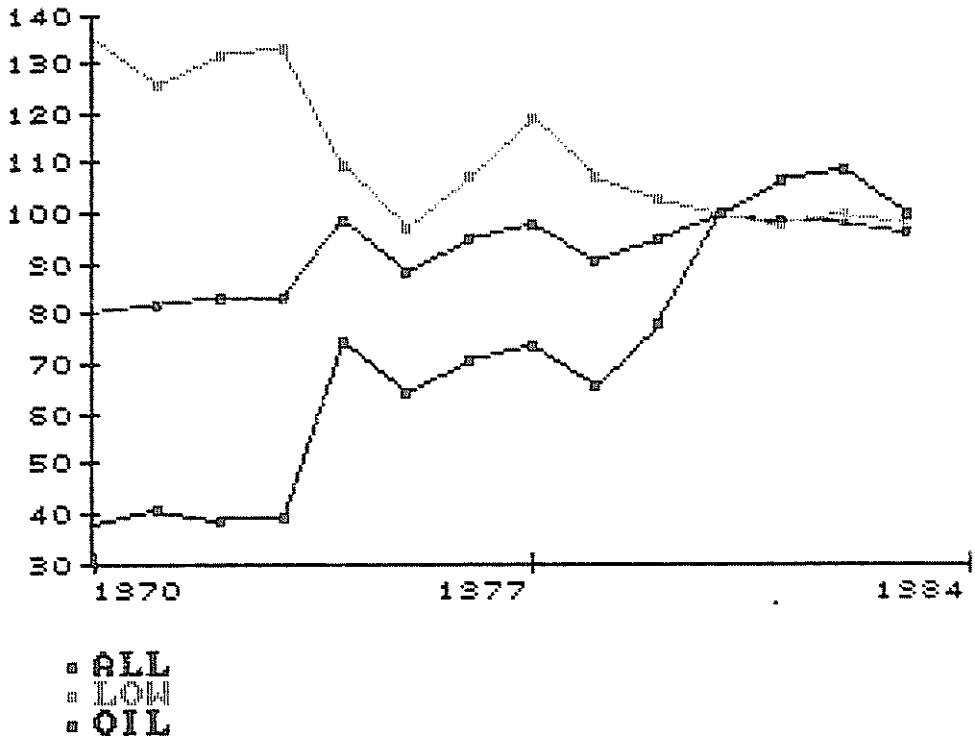


Figure 1

The behavior of the terms of trade for three groups of developing countries

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Source: World Bank internal calculations

developing countries (all), of the low income developing countries (low) and of the middle income, oil exporting developing countries (oil). Figure 2 shows the behaviour of the dollar price and the real price of OPEC oil since 1960.

2. The level and variability of the growth of world markets for developing country exports where developing countries are "large" relative to the size of the market and face a less than perfectly elastic world demand schedule. Four countries small enough to take world prices as parametric, the growth of world demand for their products will appear as an exogenous rise in their export prices. Again both current and prospective future developments matter, as do anticipated variability and true uncertainty. Figure 3 gives the growth rate since 1957 of real GDP in the industrial world, a crucial indicator of the growth of global markets for developing country exports.

3. The cost and availability of external finance. This includes the "supply conditions", now and in the future, of private and official external credit and aid.

The level and variability, now and anticipated in the future, of U.S. dollar interest rates, both short and long, are key parameters in the external environment of the developing countries. The spread over Libor at which countries actually borrow is not a good indicator of the external financial constraints on borrowers, as it is in part determined by the behaviour and characteristics of the borrowing country itself.



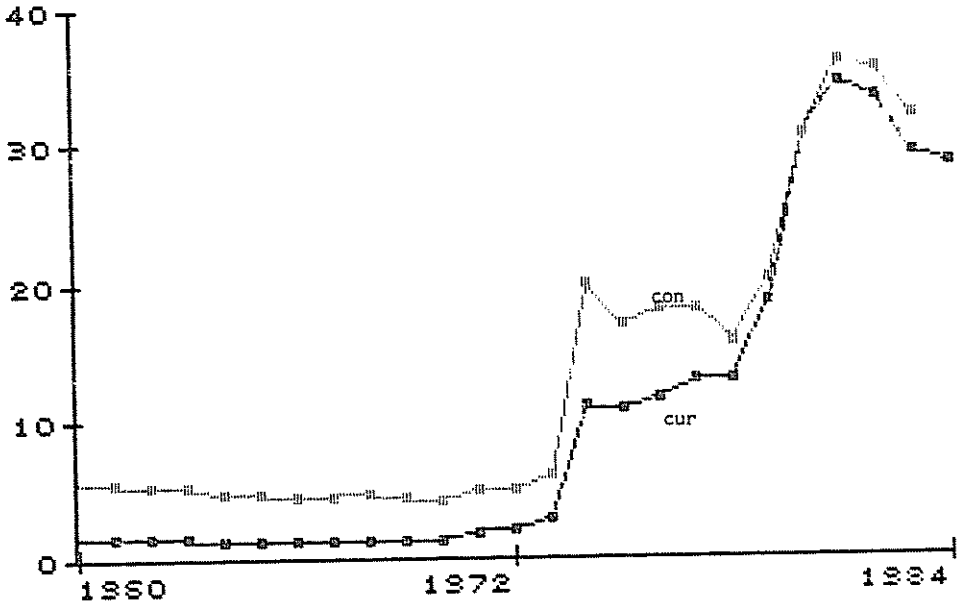


Figure 2

The nominal and real price of OPEC oil since 1960

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cur: weighted average OPEC crude current price (US \$'s)

con: weighted average OPEC crude constant (1980) price

Source: World Bank Commodity Handbook

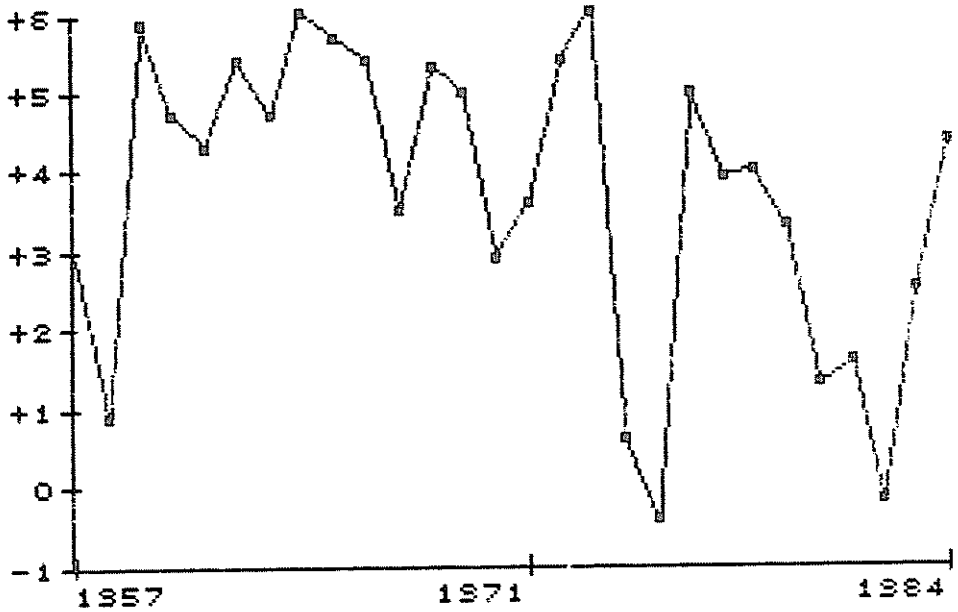


Figure 3

The growth rate of GDP in the industrial world (%)

Source: IFS

Creditworthiness and credit ratings are in part a choice variable, at any rate in the long run. Where credit rationing takes place, market rates are a poor proxy for the shadow price of investible resources. At constant interest rates, the degree of external financial pressure can vary greatly. Figure 4 shows the behaviour since 1957 of short (RUS\$) and long (RUSL) interest rates on U.S. dollar denominated debt. The availability of external resources at below-market cost is represented in Table 5 by the real value of private and official aid and credit extended at concessional rates.

4. The level, variability and uncertainty, now and in the future of the world rate of inflation.<sup>13</sup> Figure 5 shows the behaviour of the external inflation rate faced by the developing countries since 1957.

5. The level and variability of exchange rates between major industrialized countries. While this affects developing countries mainly through the first four channels mentioned above, it is worth emphasizing in its own right. There is a robust empirical regularity which associates a weakening of the U.S. dollar with a lower real price of oil and an improvement in the terms of trade of non-oil LDC's. It has also recently tended to be associated with lower dollar interest rates and a narrowing of the spread between Libor and the T-Bill rate [Dornbusch 1985a]. While this remains a set of observations in search of a theory (and could be no more than the reflection of a fortuitous

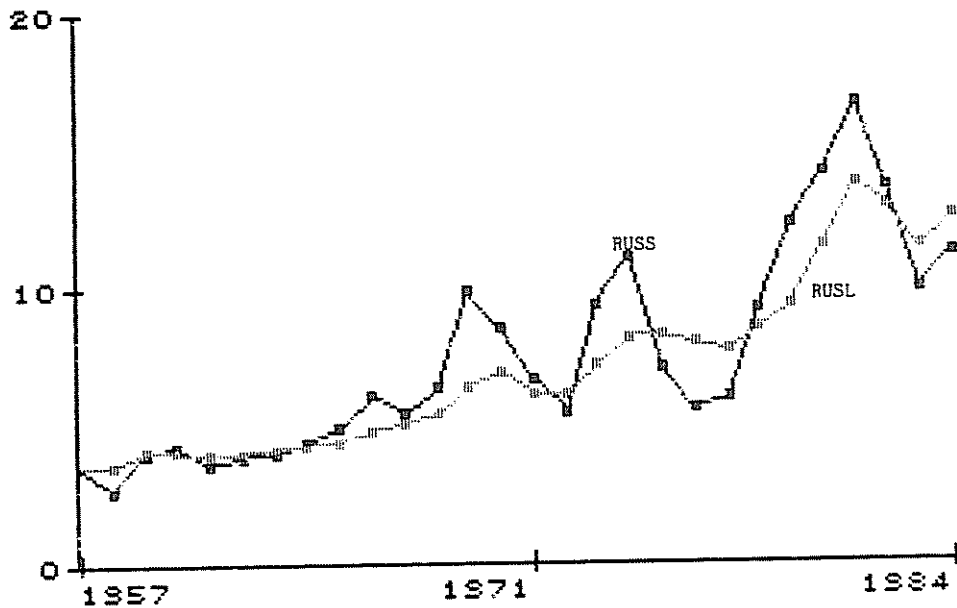
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<sup>13</sup> See e.g. W.R. Cline and Associates [1981].

Figure 4

Cost of external finance for Developing Countries (%)

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Source: RUSS: 1957-1969 , 6 month US Treasury Bill Rate  
 1970-1977 , 6 month Eurocollar rate  
 1978-1984 , 6 month Libor rate

RUSL: US government long term bond rate (20 year)

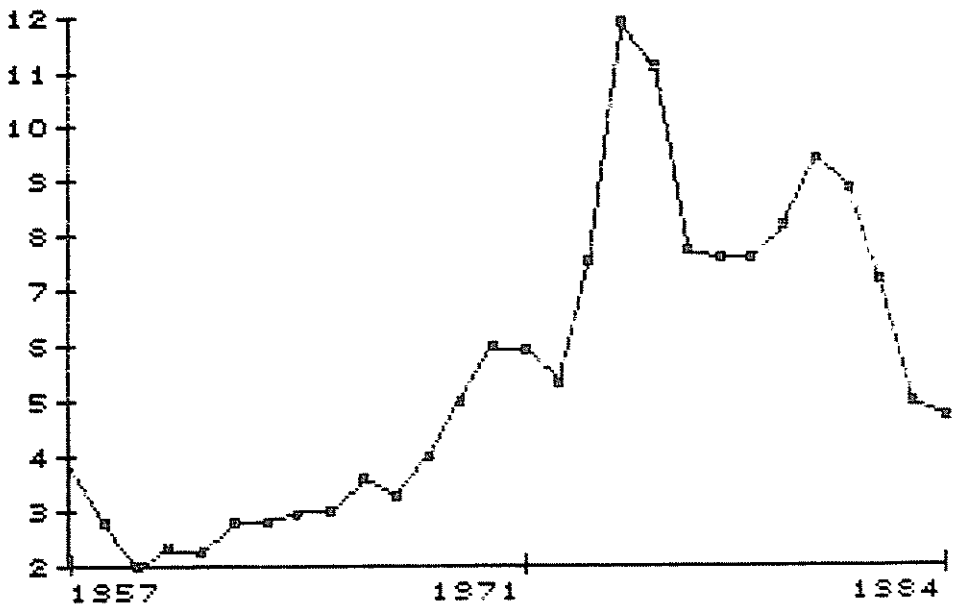
Table 5  
Availability of Aid and Concessional Finance

	Total net IDA flows	Total ODA
	(Millions of U. S. \$ at 1980 constant prices)	
1975	1,727.57	31,520.00
1978	1,222.26	33,920.00
1979	1,481.73	33,240.00
1980	1,553.90	36,860.00
1981	1,924.96	34,180.00
1982	2,470.54	33,630.00
1983	NA	32,970.00

Source: WDR and World Bank Debt Tables

Total ODA: Overseas Development Assistance by OPEC and GECC

Figure 5

Inflation in the industrial world (%)

Source: Percentage rate of change in GDP deflator of industrial countries. IFS

and once-off concurrence of events) it appears that debtor, non-oil developing countries have an interest in a weaker U.S. dollar. Figure 6 contains the behaviour of the US \$ effective exchange rate since 1970.

The significance and the welfare implications of changes in these external parameters will of course depend crucially on the domestic circumstances of the country in question. E.G. an increase in export volume (at given terms of trade) only represents an increase in welfare if there are idle resources whose shadow prices are below their market prices, i.e. in Keynesian demand-constrained regimes rather than in classical or supply-constrained regimes. In what follows full employment (or a high level of capacity utilization), price stability and balance of payments equilibrium are taken to be the objectives of stabilisation policy.

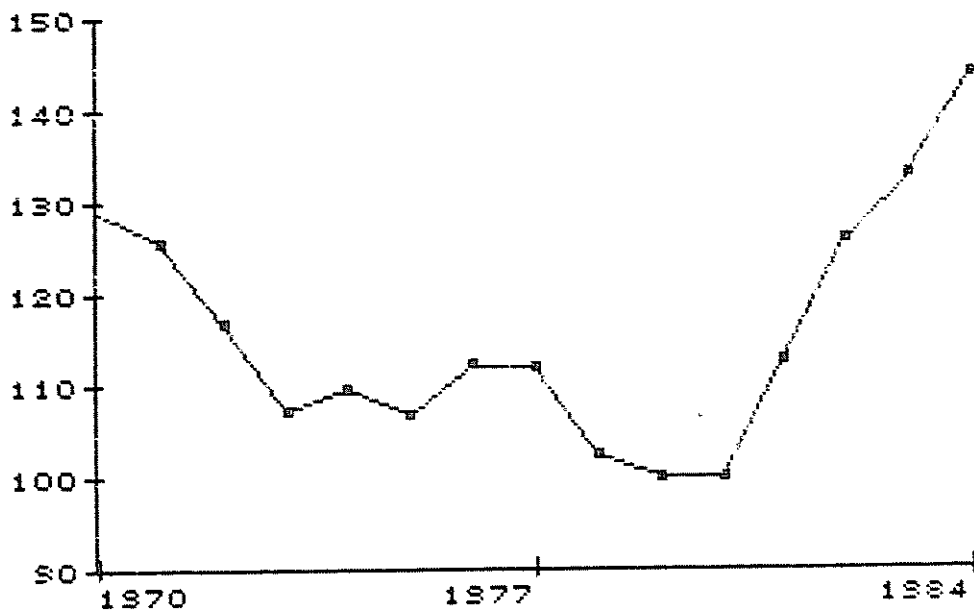
#### 4. The Macroeconomic Stabilisation Policy Arsenal

Macroeconomic stabilisation policy aims to influence the level and composition of effective aggregate demand as well as the level and composition of effective aggregate supply in the short to medium term. It contains both demand management and short-run supply management. The main instruments are the following:

a) Monetary policy. This includes changes in the level and/or rate of change of the stock of domestic credit (under a managed exchange rate regime) or of the money stock (under a market-determined exchange rate). A narrow monetary aggregate like  $M_1$  (or even the monetary base) is the relevant one in most developing countries other than the semi-industrialized group that tends to have a more developed financial

Figure 6

US \$ effective exchange rate



Source: US \$ effective exchange rate, IFS. (Increase denotes appreciation)



system. In a repressed financial system with interest rates controlled at below market-clearing levels and consequent credit rationing, variations in controlled interest rates and in the degree of stringency of credit rationing are further important policy instruments. Changes in the allocation of rationed credit between sectors or between consumption credit and credit for working capital or fixed capital formation will also have potentially long-lasting supply side effects.<sup>14</sup>

Demand effects of monetary policy. Tight money impacts on aggregate demand in a familiar manner. Higher nominal and real interest rates and implicit and explicit required rates of return on other assets depress demand, reinforcing any real balance effect. More severe credit rationing also squeezes demand (especially inventory accumulation and fixed investment), when financial markets are underdeveloped and/or repressed and bank credit is the major external source of investible funds for firms. With a greater or lesser lag, nominal wages and the general price level adjust downwards (in terms of the level or rate of change, depending on the nature of the monetary contraction). In the long run real activity effects disappear and monetary policy is reflected only in changes in nominal magnitudes. The duration of the adjustment process depends on the details of the institutions of labour

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<sup>14</sup> From the government budget identity it is clear that monetary, fiscal and financial policy possess one fewer degrees of freedom than one might have thought (or hoped). Given the deficit and the amount of internal and external borrowing, domestic credit expansion is residually determined.

and product markets, but will be shorter when the monetary authorities are blessed with credibility as to the firmness of their long-run commitment to monetary control. Painless, instantaneous adjustment has never been observed and is not a practical possibility.

Monetary restraint will tend to improve the official settlements balance of the international balance of payments under a managed exchange rate and put upward pressure on the nominal exchange rate path under a market-determined exchange rate. In the short run, nominal exchange rate appreciation (more or less) equals real exchange rate appreciation and tight money worsens international competitiveness, either by reducing the relative price of traded to non-traded goods and/or by raising the relative price of exports to imports. Where there is very limited international capital mobility, the behaviour of the current account surplus mirrors that of the official settlements balance. When there is a high degree of capital mobility, monetary policy has, under a managed exchange rate regime, a negligible effect on real activity and spills over directly and immediately into the overall balance of payments. Few developing countries are in this position.

Effective supply side effects of monetary policy. In an economy with limited international capital mobility, a deceleration in the rate of growth of domestic credit (under a managed exchange rate) or in the rate of growth of the domestic money stock (under a floating exchange rate) will cause a temporary increase in real interest rates and/or (especially in a financially repressed system) a temporary increase in the severity of credit rationing faced by industry. The increase in the

cost of working capital (or the reduction in its availability) that this represents acts like an adverse effective supply shock. Notional supply (supply in the absence of credit rationing and with the real interest rate equal to the marginal social cost of borrowing) exceeds effective supply. (See Blinder [1965]). Together with the demand-depressing effects of tight money, this suggests the likelihood of a transitional stagflationary phase in response to a deceleration of credit or money growth. Longer-run effects of changes in the rate of inflation associated with changes in the rates of growth of money on the capital intensity of full employment production (through Tobin effects, etc.) fall outside the scope of cyclical stabilisation policy and are probably quite insignificant quantitatively.

β) Fiscal policy. This includes changes in the level and composition of real public spending on currently produced goods and services ("exhaustive" spending), changes in transfer payments (social security, pensions) and subsidies or in eligibility and entitlement rules, changes in direct and indirect tax rates etc. Aspects of commercial policy and of industrial policy with major public sector revenue consequences also properly belong to fiscal policy. (Tariffs and the revenue consequences of the pricing and investment policies of public corporations that can fall back on the government as the lender of first resort come to mind).

Demand effects of fiscal policy.

Public spending cuts and tax increases lower the level of aggregate demand, except in the special case of 100 percent or full crowding out.

In the standard IS/LM model this will occur in the short run if the income velocity of circulation of money is constant (unless the economy fixes its exchange rate and faces a perfectly elastic international supply schedule of capital). "Confidence effects" may lower the risk premia and thus nominal and real interest rates when credible policies to reduce fiscal deficits are implemented or announced. There is no evidence that these effects are sufficiently strong to reverse the conclusion that the impact effect of tight fiscal policy is a contraction of real effective demand. In the longer run, the accumulation of debt associated with any continuing deficit will either put upward pressure on real interest rates, (if it proceeds sufficiently rapidly to raise the debt-output ratio, the real debt burden), or lead to credit rationing by external creditors. Ultimately any policy involving a primary (non-interest) deficit and a real after-tax interest rate in excess of the growth rate of capacity output becomes unsustainable and will require correction lest the deficit be monetized and/or the debt repudiated. Fiscal stabilization policy must be reversible, i.e. should not imply any increase in the trend debt-GDP ratio.

Public spending cuts also change the composition of demand. The distinction between current and capital spending is crucial in this regard. Tax cuts will tend to crowd out private investment if they take the form of personal income tax cuts, but will crowd it in if they take the form of private investment incentives.

In a financially repressed economy with credit rationing the degree of crowding out of private borrowing by public borrowing will tend to be

greater (for a given interest-sensitivity of the demand for money) than in an economy with market-clearing interest rates, and even 100 percent crowding out becomes a theoretical possibility again.

Fiscal policy measures that reduce the public sector budget deficit also tend to reduce the current account deficit or the balance of payments, but less than one-for-one, except in some special cases.

Supply side effects of fiscal policy.

Well-designed tax cuts and cuts in benefits or entitlements can increase the incentives to work, save and invest, with obvious short-run and long-run effects on capacity output, i.e. on notional supply. The distributional consequences of such measures are of course central to any determination of their overall desirability. Cuts in exhaustive public spending are likely to have adverse long-run notional supply side consequences if they fall on public sector capital spending, (on infrastructure investment or investment by public enterprises) or on maintenance.

Spending classified as current (e.g. education and training) may have an important human capital formation dimension and spending cuts that affect such components will have long-run adverse notional supply consequences. Cet. Par., lower deficits are associated with lower interest rates, reduced credit rationing and enhanced incentives for private investment. The tax increases or spending cuts that bring about these lower deficits may, however, adversely affect private saving and investment (and a fortiori total national investment if the public spending cuts take the form of cuts in public sector capital formation).

where the foregone public sector capital is complementary with private capital, as in the case of infrastructure). The design of fiscal policy is therefore a lot more complicated than the determination of the magnitude of the public sector financial deficit. Financial crowding out, especially if it occurs via credit rationing, may depress effective supply below national supply.

γ) Exchange rate policy.

Under a managed exchange rate, monetary policy becomes subordinate to exchange rate policy. This is true even in the very short run, if the degree of international capital mobility is very high and the money stock is demand-determined. With limited international capital mobility, the short-run "offset-coefficient" of reserve losses on domestic credit expansion is less than unity, but in the long run, money becomes fully endogenous again.

Demand side effects of devaluations

In the simple IS-LM model, devaluation expands demand if the Marshall-Lerner conditions are satisfied, (from an initial position of balanced trade, the trade balance improves if the sum of the export and import price elasticities exceeds unity). That this proposition is very model-specific is clear from the simplest one-commodity monetary model of the balance of payments in which relative price changes play no role but absorption is reduced and the trade balance is improved through the real balance or wealth effect of the increase in the general price level brought about by the devaluation of the nominal exchange rate. Even when devaluation does change relative prices in the short run, the

effect on the trade balance of such a temporary worsening of the terms of trade is ambiguous on theoretical and empirical grounds. A permanent worsening in the terms of trade, i.e. a permanent reduction in the real income (measured in terms of the purchasing power over the economy's consumption bundle) represented by a given volume of domestic production, might well lead to an equal reduction in consumption, with no effect on saving or on the trade balance. The temporary worsening of the terms of trade expected after a devaluation may well lead to a smaller reduction in current consumption than in current real income, because consumption is, at least in part, governed by permanent income which has gone down by less than current income. The result would be a worsening of the trade balance, not an improvement. Credit markets in developing countries are probably too imperfect to give too much weight to the permanent income hypothesis, where behaviour in accordance with this hypothesis would require borrowing against anticipated future labour income or the realization of illiquid real or financial assets. It remains true that the effects of devaluation on the trade balance and on real demand are by no means obvious, unless one is willing to put a very significant weight on the real balance effect, (which would seem to be an empirical non-starter), or on the effect of a devaluation on the real value of credit in a credit-rationed financial system with incomplete indexing of bank loans to firms.

There are many other theories arguing the possibility of (short-run) adverse effects on the current account of a devaluation. The J-curve, which relies on low short-run demand and supply

elasticities is probably the best-known example. Other arguments about the possible contractionary demand effects of a devaluation have been made by Kurgman and Taylor [1978] and by Diaz-Alejandro [1981]. (See also Taylor [1983]).

If the balance of trade and real demand effects are ambiguous, the price level effects are quite unambiguous. Devaluation raises the price level (through a temporary increase in the rate of inflation) in the long run by the same proportion. A higher rate of "crawling" depreciation will after a lag lead to an equal increase in the rate of inflation.

#### Supply-side effects of devaluation

In the short run, a devaluation will raise the price of traded relative to non-traded goods. Resources will flow out of the non-traded goods sector and into the traded goods sector. The magnitude and duration of this resource transfer (which will have to be reversed when relative prices revert to their pre-devaluation values) will be dependent on the expected duration of the depreciation of the real exchange rate. If there is short-run rigidity of money wages, and if employment is "real wage constrained", a devaluation and the associated increase in the general price level will, by temporarily lowering real wages, permit a temporary expansion of output supply and employment. If there is a rapid pass-through of cost-of-living-changes into factor payments, whether by de-jure or by de-facto indexation, and if demand-constrained employment regimes emerge frequently during cyclical downswings, the importance of this positive supply-side effect of a



devaluation is probably quite minor. The opposite argument, that devaluation, to the extent that it worsens the terms of trade and raises the real product wage corresponding to any given real consumption wage, reduces labour demand and output also seems unimportant empirically.<sup>15</sup>

#### 8) Exchange controls and capital controls

It is fairly arbitrary whether one views capital controls or foreign exchange controls in general as instruments of stabilization policy or as important parameters conditioning the consequences of variations in the other macroeconomic policy instruments (as I would prefer). A good case can be made for the view that strict limits on the international mobility of financial capital are essential for orderly macroeconomic development if domestic financial markets are underdeveloped and domestic factor markets do not fit the idealized competitive paradigm. Countries that have liberalized international capital flows before domestic factor and goods markets have frequently undergone traumatic overvaluations of the exchange rate (brought about by rapid capital inflows), followed by a loss of confidence and a financial collapse with serious consequences for the real economy (see e.g. the Southern Cone experience reviewed in Harberger [1982], Barietta, Blejer and Landan eds. [1983], Edwards [1984a, b, c] and Obstfeld [1984]). Tight capital controls are of course quite consistent

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<sup>15</sup> E.g. with a fixed (fully indexed) real consumption wage, a worsening of the terms of trade raises the "product" supply price of labour and reduces employment where this is real-wage constrained.

with a welcoming attitude towards long-term foreign direct investment. While it is possible, in principle, to use variations in the scope and degree of stringency of exchange controls as a cyclical stabilization device, there is neither an academic literature on the subject, nor any practical experience.

#### E) Incomes policy

Incomes policy can be used as an instrument of nominal wage restraint (or wage and price restraint), i.e. as an intervention to achieve a given desired reduction in the rate of inflation at least cost in terms of output and employment forgone, or as an instrument for real wage control. In the latter case it will have obvious supply-side effects by permitting an increase in employment if this is real wage-constrained. By raising profit rates, private investment is likely to be stimulated (assuming no adverse aggregate demand effects from a redistribution from labour to capital). Since the public sector is a major (often the largest) employer in the formal sector in many developing countries, there will always have to be at least a public sector incomes policy. Policies affecting the relative wages of different categories of labour (young vs. adult, skilled vs. unskilled etc.) will have important supply side consequences but cannot be used easily for stabilisation purposes. Nominal incomes policy can be used to add credibility to monetary and fiscal disinflation programmes and to break through the "after you" non-cooperative stance of individual groups of workers in segmented labour markets. Real incomes policy is unlikely to meet with lasting success unless the underlying balance of

forces in the labour market is consonant with its objectives or is altered to become so.

##### 5. External Shocks and Domestic Policy Responses

Before turning to a discussion of specific macroeconomic policy responses to particular exogenous shocks, the following five points should be made. First, macroeconomic stabilisation policy is (and should be) conducted not only in response to external shocks but also in response to internal shocks and disturbances that originate outside the government sector. Second, stabilisation policy errors (combinations of selecting the wrong instrument, the wrong dosage and the wrong timing) often have been a source of macroeconomic disruption and an obstacle to efficient and fair structural adjustment. The first task of macroeconomic policy design is of course to prevent macroeconomic policy itself from putting unnecessary strain on the economic system. Third, there is no convincing case (but only a misapplication of the theory of  $n^{\text{th}}$  best) for "correcting" misconceived macroeconomic stabilisation policy by making changes in structural adjustment policies that would not otherwise have been implemented. E.g. an excessively lax fiscal policy stance is likely cet. par. to result in an increased deficit on the current account of the balance of payments. "Correcting" such an imbalance through protectionist measures (such as import restrictions) would be unwise and counterproductive for two reasons. One, the effect of an increase in the degree of protection on the current account is ambiguous. Protection is a two-edged sword, as it tends to reduce international trade in general, both imports and exports. Such a

reduction in the "openness" of an economy can be accompanied either by a worsening or by an improvement in the current account.<sup>16</sup> Two, to the cost of correcting a macroeconomic imbalance is added the efficiency loss associated with a shift in the pattern of production and resource allocation away from the economy's underlying comparative advantage.<sup>17</sup>

Fourth, as will become apparent in the subsequent discussion of specific shocks and policy responses, the effectiveness of macroeconomic adjustment policy and indeed the very nature and magnitude of the proper policy responses depend crucially on the credibility of the policy announcements of the government. The current behaviour of the exchange rate (where it is free to reflect market forces), of capital flows, of interest rates, of wages, prices, savings, investment, employment and output depends on past policy actions, on current policy actions and on past and current expectations concerning future policy actions. The effects of current fiscal and monetary policy may be reinforced or neutralized by the effect that current policies and current policy announcements have on domestic and international perceptions about the likely future course of policy. Credibility is a function of reputation

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<sup>16</sup>This point is closely related to the well known theorem of the equivalence of an import tariff and a tax on exports in a static economic system with full employment and balanced trade (Lerner [1936]).

<sup>17</sup>Assuming the initial configuration corresponded (more closely) to the one dictated by comparative advantage.

which in turn reflects past policy actions and the extent to which governments can convincingly commit themselves in advance to a sequence of future policy moves. Multilateral institutions like the World Bank and the IMF can play a crucial role in supplying credibility to countries with poor track records, in exchange for a commitment to pursue structural or financial adjustment policies.

Finally, other things being equal, larger policy responses are required for permanent than for transitory disturbances. (More generally, longer-lasting shocks require larger and/or longer-lasting policy responses). Nominal shocks should not lead to policy responses that imply lasting real effects. E.g. higher world inflation should be met with a lower rate of depreciation of the home currency, not with a fiscal response. The policy response to shocks should begin when they are first anticipated, not when they finally occur. In the presence of adjustment costs to changes in employment, in the capital stock, in the sectoral allocation of resources etc., a policy response conducive to a gradual adjustment of these endogenous variables will in general be optimal, even if the shock is permanent. If adjustment costs are associated with variations in the values of the policy instruments themselves (say because of administrative bottlenecks) a gradual response of the policy instruments themselves will be desirable. The degree of confidence with which expectations concerning the future evolution of the external environment are held will determine the magnitude and speed of the policy response as well as the range of the policy instrumentarium to be deployed. Irreversible or

costly-to-reverse policy actions will tend to be postponed if the passage of time is likely to resolve at least some of the uncertainty.

5a) Stabilization policy responses to a deterioration in the terms of trade of a small open economy.

A deterioration in the terms of trade will, holding public spending, tax-transfer programmes, domestic credit expansion, the (rate of crawl of the) exchange rate and the pressure of incomes policy constant, have the following demand and supply effects.

The real income corresponding to any given level of production of domestic output is lower. To prevent the emergence of a current account deficit, real absorption (in terms of the consumption bundle) should decline by the same amount as real income. If the terms of trade deterioration is permanent, real private consumption may well decline in line with real private permanent disposable income. However, there is no similar mechanism ensuring that the other two components of absorption, private investment and public exhaustive spending, will (or should) follow suit.

First consider the case where the deterioration in the terms of trade involves the terms of trade of final consumption goods only. This means that private investment should stay constant in terms of home output, i.e. decline in terms of the consumption bundle. Real public consumption and investment also should remain constant in terms of home goods; that means a cut in volumes if part of this spending is on imports which now are more expensive. Contractionary fiscal policy (a balanced budget cut in public sector consumption spending) would seem the appropriate fiscal response in this case.

An increase in the relative price of an imported intermediate, raw material or energy input lowers the value added corresponding to any given amount of gross output. Again, private agents following permanent income principles would make the required corresponding reduction in private consumption spending. Public consumption should also be cut to reflect the objective worsening of the sustainable national standard of living. The short-run response of private and public investment, actual and desired, is ambiguous, however.

A rise in the price of energy, say, is likely to reduce the long-run desired stock of capital and other complementary factors. In a vintage capital model, the energy price increase may, especially if it was unanticipated, lead to large-scale scrapping of energy-intensive older vintages, while sharply raising the return to net investment in new energy-efficient technology. The result could be a temporary investment boom, associated with a current account deficit that is quite sound and above board provided the returns to the investment cover the cost of external borrowing.

An increase in energy prices also lowers the "warranted real wage",<sup>18</sup> the real wage, in terms of the price of gross domestic output (and thus also the real consumption wage) corresponding to any given level of employment, including full employment.

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<sup>18</sup>Strictly the "warranted real marginal cost of labour", including wage and non-wage costs.

Without a lowering of the actual real wage, classical unemployment would result (if the real wage initially constrained employment). The warranted real rental rate of capital also declines. Any policy, including tighter incomes policy, that facilitates this transition to a lower real wage will help maintain employment.

The deterioration in the terms of trade can either raise or lower the domestic general price level at a given exchange rate depending on whether it takes the form of an increase in dollar import prices or a cut in dollar export prices. Price level stabilisation calls for an exchange rate revaluation in the former and a devaluation in the latter case. There is no clear case for any monetary policy response.

If the terms of trade worsening is pretty confidently expected to be long-lasting, the policy response should be as swift and as complete (in terms of the adjustment to the new long run equilibrium) as is consistent with a proper allowance for costs of adjustment.

When the terms of trade change is in the opposite direction, the policy prescriptions are reversed. For net energy importers, the decline in the real price of energy calls for the following policy responses (all relative to what would have been done otherwise).

- 1) - a fiscal relaxation (specifically a balanced budget increase in public consumption spending).
- 2) - an increase in the warranted real wage, say through a relaxation of real incomes policy, and in the warranted real rental rate.
- 3) - a devaluation if the relative price decline of energy imports is a dollar price decline of imports, a revaluation if it takes the form of an increase in the dollar price of exports.



4) - no monetary response

5) - a swift and full response (subject to adjustment costs) under 1), 2), and 3) if the oil price decline is confidently expected to be permanent, a slower and partial response otherwise.

For net energy exporters, 2), 3), 4) and 5) are the same, but 1) is reversed.

5b) Stabilization policy responses to a slowdown in the rate of growth of export demand for a developing country with some market power.

In the absence of any policy response in the developing countries, a slowdown in the rate of growth of export demand for their output (say because of industrial country protectionism in the OECD or because of a recession in the industrial world) constitutes a contractionary shock to aggregate demand. The equilibrium adjustment to such a shock would be a transition (maintaining full employment of resources) to less favourable external terms of trade and a shift in the composition of production away from exportables and towards import-competing or non-traded goods. If the slowdown is perceived to be cyclical and therefore temporary, total absorption would, if external credit is available, decline by less than real income and the current account would go into deficit. Provided matching surpluses are run during periods of above normal growth of export demand when the terms of trade have an exceptionally high value, such cyclical deficits are nothing to worry about. If the weak growth of demand and the associated unfavourable terms of trade are perceived as permanent, there would be no justification for maintaining private plus public consumption at its previous level.

Without proper fiscal and monetary policy responses, the actual transition is likely to be rather more painful than the equilibrium transition. Labour and product markets do not clear instantaneously, factor mobility is limited and excess capacity and unemployment will follow the deceleration of export demand growth. Expansionary fiscal policy could provide the short term demand stimulus required to maintain full employment, but unless it were to take the form of a "balanced budget" expansion, it would add greatly to the pressure on the current account. Expansionary monetary policy is called for, accompanied by a devaluation of the nominal exchange rate and an incomes policy aimed at translating nominal exchange rate depreciation into improvements in real competitiveness.

5c) Stabilization policy responses to an increase in interest rates in the industrial world

In the case where the increase in nominal interest rates is also an increase in real interest rates, even the equilibrium adjustment to the increased cost of borrowing will involve painful choices for the developing countries that are net debtors. The only exception to that rule would occur in the felicitous but unlikely event of an increase in aid and other concessional resource transfers from the industrial world to the developing countries, which compensates them fully for the increase in their debt service costs. As long as the marginal cost of external debt is increased, there will be a reduction in the optimal amount of debt for a borrowing country. The transition to this lower level of external indebtedness requires the debtor countries to run

current account surpluses, that is to effect a net transfer of resources to the creditor countries. First consider the case where the higher interest rates are considered to be a permanent feature of the external economic environment. At full employment, part of the required reduction in absorption would come from the private sector (even without any increase in taxes), if the increase in external real interest rates is reflected in the cost and/or availability of domestic credit. Private investment will fall and so will private consumption.<sup>19</sup> Attempts to insulate the domestic economy from the global increase in interest rates will merely postpone the inevitable adjustment process and may well end up making it more painful than it need have been. In the new high interest rate long-run equilibrium, the capital intensity of production will be lower than it would have been otherwise and the equilibrium "warranted" real wage is lower also.

Public consumption spending too should be cut, unless the marginal valuation of public consumption exceeds that of private consumption over the entire relevant range, which would indicate a serious misallocation of resources in the initial equilibrium. The increase in the foreign rates of interest would put downward pressure on the exchange rate and/or induce a loss of foreign exchange reserves.

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<sup>19</sup> For the economy as a whole, both substitution and income effects (in the case of a net debtor) favour saving. The private sector, however, could be a net creditor even if the private and public sectors combined are a net debtor. The statement in the text ignores this possibility.

Again the transition to the new equilibrium with its lower external debt burden and its lower capital intensity of production is unlikely to be achieved at full employment, in the absence of a well-designed stabilization policy package. If the exchange rate is not permitted to weaken, the lower aggregate demand associated with the higher real interest rates will cause a recession. (I am assuming that the effective domestic cost and/or availability of credit goes up in line with the external cost; if this is not permitted to happen, the correction of the resulting current account deficit will require other contractionary, absorption-reducing policy measures.) If the exchange rate is devalued (or permitted to depreciate), if nominal exchange rate changes correspond, at any rate in the short run, to real exchange rate changes and if "real devaluations" have an expansionary effect on demand, then employment and capacity utilization can be maintained in the face of an increase in world real interest rates. The devaluation will lead to an upward shift in the path of the price level, but there need be no long run increase in the rate of inflation.

To converge to the sustainable long-run equilibrium with its reduced external debt, its lower capital-output and capital-labour ratios and its lower real wage, requires on balance a fiscal contraction along the adjustment path, as well as a policy for reducing real marginal labour costs. Unless non-wage labour costs (employers' social security contributions, other social premiums paid by employers as a function of their wage bills, and rules and regulations limiting managerial discretion in hiring, firing etc.) can be reduced, a cut in

real take-home pay is inevitable. Many of the policies that lower non-wage labour costs (but not all, vide relaxing employment protection legislation) have adverse consequences for the public sector deficit. This is especially unfortunate when the overall stance of fiscal policy should be favouring a reduction of public sector financial deficits. Income policy may well be an essential ingredient of any attempt to lower real wages across the board.

If the increase in world real interest rates is expected to be temporary rather than permanent, there is of course no ground for pursuing any long-run adjustment, and the management of the short-run problems should also be simplified. Larger current account surpluses (or smaller deficits) will have to be achieved temporarily in order to finance the temporary increase in the real debt service burden associated with the higher interest rates. A temporary tightening of the fiscal stance is required, and the contractionary effects of this combined domestic fiscal tightening and external interest rate increase imply the need for a balancing devaluation and monetary expansion. This will lead to a higher price level and therefore a temporary increase in inflation, but no increase in the long-run rate of inflation. The expansionary effect of the combined devaluation-monetary expansion will erode over time as the rising domestic price level restores the original real exchange rate and real stock of money balances.

5d) Monetary, fiscal, exchange rate and incomes policy responses to an increase in the world rate of inflation

For once the appropriate policy response is straightforward. If the initial domestic rate of inflation was optimal, there can be no

Table 6

	low	con	g <sub>y</sub>	RUSS	p1	e
low	1.00					
con	-.86	1.00				
g <sub>y</sub>	.66	-.62	1.00			
RUSS	-.54	.74	-.53	1.00		
p1	-.47	.27	-.57	.32	1.00	
e	.24	-.14	-.69	-.17	-.64	1.00

Correlation matrix of six external parameters, 1970-1985

reason for following the rest of the world into higher inflation by maintaining the (proportional rate of crawl) of the exchange rate. The country should reduce the rate of crawl of its exchange rate by the same amount as the increase in the world rate of inflation, thus maintaining its original rate of inflation. No further monetary or fiscal action is required. Income policy too is redundant.

5e) Stabilization policy responses to increased variability of the external parameters and to increased uncertainty

These kinds of shocks can be visualized as mean-preserving increases in the total variance (increased variability) or in the unanticipated variance (increased uncertainty) of the parameters of the external environment. Any operational measure of the external instability or uncertainty faced by a country probably involves some (possibly quite complex) function of the variances and covariances of the entire set of external parameters. Furthermore, it may be misleading to analyze external sources of instability and uncertainty in isolation from the internal, domestic sources. Without attempting such a theoretically and empirically ambitious undertaking, some interesting information can be gained from a simple inspection of the correlation matrix of six external parameters (the terms of trade of low income developing countries ( $low$ ), the real oil price ( $con$ ) OECD real GDP growth ( $g_y$ ), the short dollar interest rate ( $RUSS$ ), the OECD rate of inflation ( $\pi$ ) and the level of the US effective exchange rate ( $\epsilon$ )) during the period 1970-1983. This information is given in Table 6.

Table 7 gives the correlation matrices for four of the external parameters ( $con$ ,  $g_y$ ,  $RUSS$  and  $\pi$ ) for the subperiods 1960-1973 and 1974-1983, as well as their means and variances.

Table 7

	con	g <sub>y</sub>	RUSS	pi
con	1.00			
g <sub>y</sub>	.35	1.00		
RUSS	-.15	-.12	1.00	
pi	.10	-.09	.84	1.00

Correlation matrix of 4 external parameters, 1960-1973

	con	g <sub>y</sub>	RUSS	pi
con	1.00			
g <sub>y</sub>	-.43	1.00		
RUSS	.77	-.45	1.00	
pi	-.52	-.50	.07	1.00

Correlation matrix of 4 external parameters, 1974-1983

	Mean 1960-1973	Mean 1974-1983	Variance 1960-1973	Variance 1974-1983
con	4.85	24.21	.27	66.19
g <sub>y</sub>	4.85	2.16	.93	2.50
RUSS	5.87	10.49	4.18	13.43
pi	4.04	6.45	2.66	3.94



Tables 6 and 7 show, not surprisingly, that external shocks don't come in isolation. If e.g. it is fiscal policy in the DECD as a whole that is the source of the disturbances to the developing countries external environment in a particular period, then we would expect declining interest rates and declining growth rates of DECD GDP to go together (both being the short-run consequences of contractionary fiscal policy). If DECD monetary policy were the major driving force instead, we would expect to see declining interest rates associated (contemporaneously) with rising DECD GDP growth.

Table 7 shows the worsening of the external environment of the oil-importing developing countries after 1973 in a summary fashion. The mean oil price shoots up and its variance increases dramatically. Mean growth of real GDP in the DECD is more than halved while its variance increases. World nominal interest rates double and the variance of interest rates triples. World inflation more than doubles. The strong positive correlation between DECD inflation and nominal interest rates of .84 in the early period falls to .07. The early positive correlation between DECD growth and the real price of oil (presumably reflecting demand effects) becomes negative in the later period as negative oil supply shocks dominate. Generally speaking, the correlation patterns differ dramatically.

Tables 6 and 7 only show measures of total variability (anticipated plus unanticipated). A mechanical and imperfect measure of uncertainty (which is likely to overstate the true extent of ignorance because information other than past time series observations on the variables in

question is in reality used to form expectations of them) can in principle, given sufficient data, be obtained from the contemporaneous variance-covariance matrix of the residuals from a vector-autoregressive representation of the external environment variables. Lack of degrees of freedom precludes such an exercise at this stage.

From the point of view of a debtor country, given the variability in its terms of trade, greater variability of the interest rates it faces is not necessarily a bad thing. If e.g. whenever the terms of trade move against a debtor country, the interest rate on its external debt were more likely to decline, the overall position of this country might well be superior to that of a country experiencing a variable (or uncertain) terms of trade and a constant interest rate. Negative covariances between adverse external shocks can provide something akin to portfolio diversification and thus reduce the overall riskiness of a country's external exposure.

#### Conclusion

While much of the knowledge concerning stabilization policy that has been developed in the context of the industrial world can be transferred, mutatis mutandis to a wide range of developing countries (basically those with a non-negligible modern industrial sector), certain important modifications to the industrial country paradigm deserve special attention. Rudimentary and/or repressed financial markets lead to credit rationing. Financial crowding out on the demand side and effective supply effects from fiscal and financial policy are likely to complicate macroeconomic management.

An issue worth emphasizing is the distinction between two kinds of devaluations. The first is a devaluation of the exchange rate that merely serves to speed up or facilitate a real adjustment which is taking place anyway. It is aimed at a correction which would, in the absence of the devaluation, take place through an adjustment of nominal prices and wages. The second is a devaluation as a means for correcting a persistent and well-entrenched real disequilibrium. The former will be successful, but the benefits will be modest. The benefits from achieving the latter might well be major, but the policy will be unsuccessful unless it is backed up by other measures.

Without an effective real incomes policy or another set of labour market policies and/or industrial policies that change the balance of power between labour and (private or public) capital, a devaluation of the exchange rate is unlikely to have any lasting national supply effects. As predetermined nominal contracts come up for renewal, the temporary effect on real wages of any incomplete indexing of wages will erode.

With real wages and the real exchange rate unchanged, any absorption-reducing effects of a devaluation have to come through the real balance effect or the "real credit effect". In a reasonably efficient financial system with market-clearing interest rates and other asset returns, the real balance effect isn't likely to count for much. In a repressed financial system with credit rationing and incomplete indexing of loans, the general price level increases associated with a devaluation will reduce the real flow of credit. This will lower both

credit-constrained forms of spending (inventory accumulation, fixed capital formation etc.) and credit-constrained forms of production (production relying heavily on working capital). The possible stagflationary consequences of devaluations (and of tight money) in a financially repressed economy cannot be ignored in the design of macroeconomic policy. Changes in the severity and indeed in the mechanism of financial crowding out under credit rationing deserve close attention. Blinder (1985) has argued that these lessons apply, if perhaps to a lesser degree, to the industrial countries as well.

One clear implication of any analysis of policy design in a variable and uncertain economic environment is that such variability and uncertainty increase the importance 1) of controlled access to international credit and capital markets by developing country governments and private agents and 2) of OECD macroeconomic policies conducive to the least-restricted availability of credit at low real interest rates. Access to international financial markets potentially enhances a nation's capacity for smoothing consumption over time by breaking the closed economy identity of absorption and income. A closed economy or an open economy restricted to balanced trade can use only variations in domestic capital formation to influence the time profile of total national consumption. An open economy with access to international credit markets can vary both domestic capital formation and net foreign investment in pursuit of that same objective. This extension of the nation's "intertemporal consumption possibility set" would be important even in a world without uncertainty if countries are

perturbed by predictable variations in the weather or in other exogenous variables. It is even more important when uncertainty plays a major role, because international credit and capital markets can provide de facto partial insurance against incompletely correlated national contingencies.

Restrictions on capital mobility and other forms of exchange control are likely to be necessary in the second, third or n<sup>th</sup> best world inhabited by most developing (and developed) countries, in order to protect the domestic real economy from the severe damage that a sudden massive influx or outflow of financial capital can cause. Finally, it is the responsibility of the industrial countries to ensure that the potential benefits from access by developing countries to international financial and goods markets are not thrown away or turned into actual losses through policies that result in persistently high global real interest rates, unfavourable terms of trade for developing countries and disappointing growth of their export markets.

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