

# 8 Economic Adjustment and Growth in Small Developing Countries

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## 1 INTRODUCTION

This chapter explores the tools available to policy-makers in small developing countries, to ensure balance in the short run and growth in the long run. A convenient point of departure is the elusive 'Washington consensus' suggested by Williamson (1990). There is continuous debate about the specifics of the consensus, but in general the World Bank and the IMF – the institutions whose 'seal of approval' is *sine qua non* for developing countries' international creditworthiness – agree that adjustment programmes should feature fiscal reform, financial liberalisation, exchange-rate adjustment, trade liberalisation, human resource enhancement and the security of property rights.

Policies framed along these lines seem to be reasonably successful for economic adjustment, but their growth effects have been much less encouraging. We believe that, in the context of small developing economies, the IMF–World Bank suite of policies contains weaknesses and blind spots that account for the poor long-term performance. There is a misunderstanding of the effects of devaluation, involving unjustified faith in expenditure switching effects and the expectation that resources will be switched from import substitutes to augment export supplies. There is insufficient attention given to investment in the tradable sector as the source of export competitiveness, and a failure to distinguish between investment in non-tradables, which is ultimately no more growth-enhancing than is consumption, and investment in tradables. However, the Fund and the Bank are essentially correct with respect to fiscal policy and trade policy.

The other area of weakness is human resource development. Here

the problem has been to devise effective means of implementation, and reliable measures of achievement. We are not able to address this issue in the present chapter, though it is clear that the enhancement of human resources has implications which must be more precisely incorporated in the fiscal programme.

It is now generally accepted that, while economists all use the same analytical toolbox, economic policies and economic outcomes will vary depending on countries' institutional characteristics. Our model is designed to illustrate the policy combinations appropriate for adjustment and growth in small developing countries in the middle range of incomes. It was developed with Caribbean and Central American countries in mind, but it might also reflect the circumstances of countries like Botswana and the island nations of the Pacific and Indian oceans.

## 2 INTERNAL AND EXTERNAL BALANCES

We begin by defining the conditions for internal balance of the supply and demand of goods and services for domestic absorption and external balance of the demand and supply of foreign exchange.

The demand for goods and services to be absorbed internally is equal to the real income derived from the domestic product ( $y$ ) and real monetary injections ( $dmo$ ), that is, the change in real high-powered money; then

$$\text{internal demand} = y + dmo$$

The supply of goods consists of non-tradables ( $qn$ ) and imports of consumer goods ( $mc$ ). If imports of consumer goods and producers' goods are given by

$$m = m(y + dmo, rp)$$

that is, by the strength of demand and the relative prices ( $rp$ ) of tradables and non-tradables, and if we assume for convenience that the proportion of imports of producers' goods to total imports remains constant at  $\tau$ , we may derive the internal balance schedule:

$$y(m_y - \tau) = dmo(1 - m_y) + qt - m_p rp$$

where  $qt = y - qn$  is the output of tradables, and  $m_y$  and  $m_p$  are the partial derivatives of imports with respect to absorption and relative prices respectively.

To obtain the external balance equation we write the supply of foreign exchange as real exports ( $x$ ) times tradable prices ( $pt$ ) plus net capital inflows ( $k$ ) less the accumulation of foreign exchange reserves ( $dR$ ):

$$\text{supply} = x.pt + k - dR$$

The volume of exports is related to the real value added in the export sector by a constant  $\beta$ . Moreover, exports account for almost all non-tradable production in small countries where populations have risen above the subsistence level. The range of products that a small country can produce is too narrow to supply a significant proportion of tradable requirements at anything beyond the subsistence level. The proportion of non-export tradables in tradable output for middle income countries of the Caribbean and Central America is no more than 10 per cent. We may therefore approximate exports as  $\beta.pt.qt$ . The demand for foreign exchange is given by the import relation specified above. The schedule of external balance is:

$$m_y.pt.y = \beta.pt.qt - m_y.pt.dmo - m_p.pt.rp + k - dR$$

The response of output to relative price changes, both for internal and external balance, depends on the price elasticity of imports:

$$dy/drp]_{\text{int}} = m_p/(\tau - m_y), \quad \text{and}$$

$$dy/drp]_{\text{ext}} = -m_p/m_y$$

The price elasticity is low because of the limited scope for import substitution and the fact that, for the most part non-tradables cannot be substituted for tradables. This implies that the price adjustment mechanisms are very weak. To achieve economic equilibrium one needs to shift the internal ( $qq$ ) and external ( $xx$ ) balance schedules, by means of monetary changes ( $dmo$ ), changes in the output of tradables ( $qt$ ), net foreign capital flows ( $k$ ) or the use of foreign exchange reserves ( $dR$ ).

### 3 ALTERING RELATIVE PRICES

We turn now to ways of achieving relative price adjustment, notwithstanding that we expect such adjustment to have muted effects. Neglect of this issue is sure to leave questions in the minds of readers. The relative price is the ratio of the price of tradables to non-tradables:

$$rp = pt/pn$$

The price of tradables is the product of the exchange rate and an index of foreign prices:

$$pt = e.pf$$

The price of non-tradables may be represented as changing in response to excess demand for non-tradables:

$$d pn = p n_d (y + d m o, r p) - \Theta q n (-1)$$

Demand is a function of real purchasing power ( $y + d m o$ ) and relative prices, while supply is described as adjusting to the previous year's output. For convenience of exposition the factors influencing the speed of adjustment ( $\Theta$ ) are not specified here, though they may have some bearing on the medium-term response of relative prices to the exchange rate and foreign prices, as we shall indicate.

By differentiating the relative price expression as

$$d r p = d p t / p n - r p . d p n$$

we may obtain expressions which measure the effects of exchange-rate changes, foreign price changes, monetary expansion and changes in the speed of adjustment of the supply of non-tradables as follows:

$$d r p / d e = p f / [p n (1 + r p . p n_y)]$$

$$d r p / d p f = e / [p n (1 + r p . p n_y)]$$

$$d r p / d^2 m o = -r p . p n_y / (1 + r p . p n_y), \quad \text{and}$$

$$d r p / d \Theta = r p . q n (-1) / (1 + r p . p n_y)$$

The extent to which any of these changes alters relative prices depends on the value of the initial relative price ratio and the income elasticity of the demand for non-tradables. If that elasticity is high it somewhat dampens the relative price adjustment. Moreover, if the speed of adjustment of non-tradables slows when foreign prices rise, or if it speeds up when the domestic money supply expands, then we have effects which will offset the influence of devaluation and monetary expansion on relative prices, and the relative price changes will be even smaller than indicated by the partials above.

#### 4 FISCAL DEFICIT AND MONETARY EXPANSION

A change in the money supply is an effective way to shift the internal and external balance schedules in search of an equilibrium. To do this, in the open economy, means that government's deficit must be changed. Short-run expansion is possible, but it will be at the expense of foreign exchange reserves, and could lead to long-run exchange-rate instability if it persists.

We begin by deriving the relationship between the fiscal deficit and the supply of money. The change in the nominal amount of base money is defined as:

$$dMO = dR + dCBAG$$

where *CBAG* is the amount outstanding of central bank advances to government (net of government deposits with the central bank). To derive *CBAG*, note that the government deficit *DEF* is financed by a combination of foreign finance *KG*, finance from private banks and financial institutions *dFIAG*, finance from non-bank entities *dNBAG* and finance from the central bank. The amount of foreign finance may be considered exogenous; there is no space to explore the considerations that bear on the desirable limit of foreign borrowing in this chapter, but this is well analysed by Boamah (1988) and McDonald (1982). The amount of finance that is forthcoming from domestic sources depends on the differential between the return on government debt and the general interest rate. We presume that the country's financial system is liberalised and that there is no statutory requirement for the central bank or any other institution to hold government paper. That may not represent the reality in many developing countries, but it is the direction in which most are heading. The government's demand for credit from the central bank is:

$$dCBAG = DEF - KG - dFIAG - dNBAG.$$

The supply of credit from domestic sources is:

$$dCBAG = g_1 (rg - r)$$

$$dFIAG = g_2 (rg - r), \text{ and}$$

$$dNBAG = g_3 (rg - r)$$

Higher interest rates for government paper ( $rg$ ) influence the general level of interest rates, depending on the level of liquidity in the financial system. We may represent the process as:

$$r = r(LIQ, rg)$$

where  $LIQ$  is an index of liquidity such as the loan-deposit ratio.

We may derive the relationship between the fiscal deficit and the nominal money supply as:

$$d^2MO/dDEF = g_1 / [(1 + m_y pt) (1 - r_{rg}) (g_1 + g_2 + g_3)]$$

The impact on the real money supply may be deduced from:

$$d^2MO/dDEF = d^2MO/p - dp \cdot dMO/p$$

The impact of the fiscal deficit on the money supply depends on the interest penalty which domestic lenders impose for additional funding to government, the effect of interest on government paper on the general level of interest rates, the direct import leakage from newly created money and the rate of inflation.

## 5 MONETARY EXPANSION IN THE SHORT RUN AND THE LONG RUN

In the short run monetary expansion affects output directly, as may be seen from the equations for internal and external balance, and indirectly, through the influence of money on relative prices. Monetary expansion will affect relative prices by increasing the demand for non-tradables, and it may also cause a depreciation of the exchange

rate, if there is a sufficient foreign exchange loss. The full effect of monetary expansion on output may be represented as:

$$\begin{aligned} dy/d^2MO &= \delta y/\delta^2MO + (dy/drp) (drp/d^2MO) \\ &+ (dy/drp) (drp/de) (de/d^2MO) \end{aligned}$$

We may derive separate expressions for the shift in internal and external balance; the schedules may move in either direction, depending on the magnitudes of the parameters included in these expressions, that is, import price and income elasticities; the proportion of imports of producers' goods; the price and income elasticities of demand for non-tradables; the response of the exchange rate to changes in reserves, and the initial price relatives.

If monetary expansion leads to a deterioration of the exchange rate we may expect a fall in output in the long run, whatever happens in the short run. This will be demonstrated below, when we show the effect of exchange-rate variability on wages and on investment in the tradable sector. By aggravating wage reactions to price increases, and by inhibiting investment, monetary expansion hinders long-term growth.

## 6 THE NOMINAL EXCHANGE RATE

Can the exchange rate be used to speed up the adjustment process, and does its use increase the probability that adjustment will lead to economic growth?

In some circumstances the exchange rate is endogenous. Exchange rate adjustment may be defined as follows:

$$de = 0, \quad dR > -[R(-1) + \epsilon]$$

or

$$de = e(-dR, DEF/py), \quad dR < -[R(-1) + \epsilon]$$

that is, there is no change if the reserve loss is not too large in light of the initial stock of reserves. If the reserve loss is large the currency depreciates at a rate determined by market expectations, which are proxied by the size of the reserve loss and the size of the fiscal deficit relative to national output.

Fiscal expansion may force a depreciation of the exchange rate through its monetary effects as follows:

$$\begin{aligned} de/dDEF &= (de/dm) (dm/d^2MO) (d^2MO/dDEF) \\ &+ (de/dm) (dm/dy) (dy/d^2MO) (d^2MO/dDEF) \\ &- e_{def}DEF (dy/d^2MO) (d^2MO/dDEF) + e_{def}/y \end{aligned}$$

The terms on the right-hand side measure the effects via additional import demand, additional output – that is, the effects on imports and direct effects- and additional uncertainty due to the larger deficit.

The effects of exchange rate changes on the growth of output and the accumulation of reserves may be derived from the balance-of-payments identity and the equations for import demand and non-tradable demand. The resulting expressions are inconvenient combinations of the elasticities of the import and non-tradable equations and the initial price relatives. They do not permit us to say unambiguously whether exchange-rate depreciation will stimulate growth and stabilise the balance of payments in the short run, except in cases where devaluation reduces the supply of money.

Devaluation definitely reduces the supply of money when it reduces the fiscal deficit. If government revenues consist of income taxes and import duties (another simplification for ease of exposition) we may write:

$$REV = t(py, pt.m)$$

Expenditures comprise the wages bill, transfers, purchases of goods and services, and local and foreign interest payments:

$$EXP = w.Lg + TRANS + p.G\&S + rg\Sigma AG + r\Sigma KG$$

We may derive the effect of exchange-rate changes on the size of the deficit and on central bank financing for government, through the impact on wages (a lagged effect), prices, income and imports. Also critical are the tax elasticities and the amount of outstanding debt. Whether the deficit contracts as a result of devaluation is an empirical question.

## 7 INVESTMENT

Looking back at the equations for internal and external balance, we may argue that the most dependable source of long-run growth lies in the tradable sector. Output may increase as a result of monetary expansion, but that causes balance-of-payments deterioration and problems in the long run. Increasing relative prices may have only weak growth effects, and they are difficult to engineer. The introduction of new technologies and the entry of new producers in export markets makes for a downward tendency in international prices, while gains in domestic living standards tend to lower the relative prices of tradables by increasing real domestic costs. By contrast, an increase in tradable output is a dependable source of sustained growth.

For the sustained expansion of tradables we need ongoing investment in the sector. The supply of tradables may be written:

$$qt = qt(w, rp, PRODY)$$

Tradables are produced with labour at price  $w$  and producers' goods at price  $rp$ . There is productivity-enhancing technical progress which shifts the supply schedule by a factor equal to  $PRODY$ . Investment may increase productivity in various ways such as improving the quality of goods and services, improving marketing techniques, shifting the product mix towards more sophisticated goods and services, improving organisational efficiencies. Investment may be expected to increase productivity with a lag:

$$PRODY = PRODY[i_t(-1), i_t(-2), \dots]$$

Investment depends on a number of non-quantifiable factors such as political stability and the industrial relations climate. Assuming these are favourable, we may write investment as a function of expected prices and their variance:

$$i_t = i_t[E(rp), \sigma_{rp}rp]$$

This is a crucial relationship. Investment may be expected in sectors where a competitive edge can be sustained in the face of international competition, and the volume of investment will depend on the stability of relative prices.

The increase in productivity must be sufficient to overcome the depressing effects of real wage increases on output. Price stability may play an important part in pre-empting an inflationary wage spiral. Wage increases may be represented as responding to price increases with a lag, the strength of the reaction being governed by the stability of prices:

$$dw = w(\sigma_{rp}rp(-1), \sigma_{rp}rp(-2), \dots)$$

If prices are volatile an element of anti-inflation insurance will be built into the wages contract.

This points to the importance of exchange rate stability, because exchange rates and foreign prices are the main sources of domestic inflation. Not only should deliberate exchange-rate changes be avoided, but also the fiscal deficit should be so managed as to avoid involuntary exchange-rate changes. Their effects on the balance of payments are dubious and they may do harm by discouraging investment and provoking wage increases. Prudence dictates that the fiscal deficit should not be allowed to increase in response to adverse shocks, while foreign exchange reserves should be allowed to build up in cases of favourable shocks.

## 8 CONCLUSION

We have demonstrated that, with economic structures of the kind which characterise many small middle-income economies, growth oriented policy is one which stimulates investment in the tradable sector. Successful adjustment in the short run depends on the appropriateness of fiscal policy, in particular, the extent to which the fiscal deficit is financed by money creation. Major emphasis on exchange-rate policy is misplaced, indeed, exchange-rate variation seems to inhibit investment rather than encourage it, and the exchange rate does not serve to stabilise the balance of payments, except via fiscal effects, which might well be secured by direct fiscal intervention. Exchange-rate stability also inhibits inflationary wage increases. Finally, there is little independent scope for monetary policy, which is largely determined by the fiscal out-turn.

**References**

- Boamah, D. (1988) 'Some Macroeconomic Implications of External Debt for Barbados', *Social and Economic Studies*, vol. 37, no. 4 (December) pp. 171-91.
- McDonald, D. (1982) 'Debt Capacity and Developing Country Borrowing: A Survey of the Literature' (Washington, DC: IMF Staff Papers, December).
- Williamson, J. (ed.) (1990) *Latin American Adjustment: How Much Has Happened* (Washington, DC: Institute for International Economics).