CHAPTER 4

Exchange Rate Issues

We find it useful to employ the term "nominal exchange rate" to refer to the rate at which an average citizen carries out foreign transactions. That rate is endogenous for small open economies and depends on the reserve level and the demand and supply of foreign exchange. The nominal rate is to be distinguished from the official exchange rate. They are equal only when reserves are high and the expected supply of foreign exchange equals or is greater than the expected demand. Where demand is greater than supply or reserves are inadequate, whether the nominal equals the official exchange rate depends upon how the official rate is managed. If it is adjusted so there is no unofficial market the nominal and official rates may remain equivalent. In the typical case of a parallel market the nominal exchange rate should be considered a weighted average of the official and unofficial rates. The reader should bear in mind this distinction between the nominal and the official rate; in the usual practice the two terms are used interchangeably.

The fact that the nominal rate is endogenous does not imply that it is pointless to enquire into its effects. Although the authorities cannot set an independent exchange rate we need to know what consequences may follow from any rate which is dictated by economic policy and circumstance. Both nominal and official rates are to be distinguished from the effective or real exchange rate. The last two terms are often used interchangeably and in some circumstances together. The concept behind them is a rate at which a basket of home produced goods exchanges for an equivalent basket of foreign produced goods. Countries do not produce equivalent goods so a variety of proxies are used. Perhaps the most helpful in the case of small open economies is the relative prices of tradables and non-tradables. The price of tradables is equivalent to the international price level because of the small country assumption. The price of non-tradables is the domestically determined price. Depending on the intention of the analysis a number of other indices of real effective exchange rates might be employed. They include the relative wages at home and abroad, measured in the same currency; and the prices of tradables sold by domestic producers compared with their prices sold by competitors, measured in the same currency.

The issues to be discussed in this chapter include the circumstances in which the nominal and official exchange rates coincide; the expected effects of nominal exchange rate changes on exports, imports, the capital account, inflation, competitiveness, investment and factor use; the credibility of official exchange rate policy

and associated policies; the dynamics of official exchange rate adjustments; the effects of official exchange rate movements which are due to shifts in the rates among third countries; and indices of effective exchange rate changes.

The Nominal Exchange Rate

The one case where authorities may choose the nominal exchange rate level is only of academic interest. Where foreign exchange stocks are large and rising and where domestic absorption seems to be slack, an appreciation in the currency is indicated. A higher value should switch funds from the accumulation of foreign financial assets to expenditure on imports of goods and services. Since this presents a tougher competitive challenge for exports it will be strongly resisted unless export industries are strong enough to rise to the occasion. No Caribbean countries and very few LDCs worldwide find themselves in this situation. The typical cases range from situations of adequate foreign exchange reserves and balance of payments equilibrium to falling reserves, external payments arrears and parallel markets in foreign exchange.

Exchange rate appreciation is seldom possible in countries which have adequate reserves, balanced external payments and reasonable economic growth. The appreciation raises a spectre of unsustainable reserve losses that would eventually force a depreciation in the nominal exchange rate. A depreciation of the rate in order to make exports more competitive tends to cause inflation, a loss of credibility and capital flight. Outflows on the capital account may deplete stocks and will dictate how the nominal exchange rate depreciates. Fiscal and monetary policies to accompany the devaluation are unlikely to retain policy credibility if the devaluation is thought to be unnecessary.

Conceivably, an official devaluation may not engender a crisis of confidence if external balance is being maintained deliberately by economic stagnation. But in this case, the providers of domestic factor services are unwilling to suffer a further reduction in their purchasing power as a result of devaluation and fiscal and monetary stringency. There is a strong likelihood of capital flight.

The most frequently observed case is of countries with falling reserves and an inadequate stock of foreign exchange. The authorities are not in control of the nominal rate because rationing devices are useless in small open economies. Either the official rate is adjusted according to supply and demand or, more typically, a parallel market emerges at a rate below the official rate. The nominal rate, which may be measured as a weighted average of the official and the unofficial, varies with demand and supply.

"Real" Exchange Rates

The concept of a real exchange rate is elusive. It is a shorthand measure of the foreign purchasing power of a bundle of domestic value added. No single real

exchange rate measure is wholly satisfactory because the relative prices that determine outcomes differ according to the sector or target under consideration. The point is best illustrated by example. For measuring exchange rate effects on aggregate demand, imports, the prices of non-tradables and the output of non-tradables the appropriate real exchange rate is the relative prices of tradables and non-tradables. For measuring effects on exports it is more appropriate to use relative wages in the same currency or the relative price of value added in the traded sectors in the home country and competing countries. For investment effects and long-term capital flows the relevant measure is the expected relative profitability domestically as compared to competitive locations. For short-term capital flows the relevant index must incorporate expected changes in the nominal exchange rate together with expected interest rates at home and abroad. For effects on the imports of consumption goods relative consumer price indices at home and abroad may be best. Each index may show a differing response to the same nominal exchange rate change because of the different parameters that define the reactions. A few examples are given later in this chapter.

The best way to anticipate the effects of nominal exchange rate changes is to use a testable model which includes as many prices as are needed to measure the principal macroeconomic outcomes. At a minimum one needs a model that will pick up the effects of relative prices of tradables and non-tradables and will describe the process of price determination and of wage determination (see Tables 8.2 - 8.6). Even this is a superficial level of abstraction. In practice the policymaker would wish to get much closer to the model of Appendix I in order to have any confidence about the measured outcomes of nominal devaluation. The relative prices of tradables and non-tradables, relative wages, relative levels of profitability and the price of tradables at home and in competing locations are all indices of some assistance in partial analyses; together they may produce a fair approximation about the implications of a fully articulated model. In contrast the various price adjusted official exchange rates in common use are of little assistance.

The effects of changes in the nominal exchange rate on the relative prices of tradables and non-tradables depend on their impact on inflation, the percentage of imports in the wage good, the relationship between wages and prices, the relative price and income elasticities of the demand for non-tradables, the price elasticity of supply of non-tradables and the price elasticity of supply of tradables.

The nominal exchange rate drives up the price of imports and causes significant inflation because of the high import ratio. There is a lag in wage response depending on the bargaining strength of labour and on the import content of the wage good. All else being equal a higher import content will produce a larger increase in wages. Cost increases, increases in wages and import prices drive up production costs. In the traded sector product prices increase by the full extent of nominal devaluation while costs increase by the proportion of imported inputs immediately and by the proportion of wages in the next period. If the supply price is elastic and there is excess capacity output will increase.

In the non-traded sector prices will not rise by the full amount of nominal

devaluation if the output of non-tradables contracts. Non-tradable output will contract if the elasticity of demand for non-tradables with respect to relative prices is significant or if income contracts, driving down the ability to consume non-tradables. Measured relative price elasticities in the Caribbean are never very large. Income need not contract if the increase in the output of tradable goods is substantial and the loss of output of non-tradables is slight. We would expect the relative prices of tradables and non-tradables to move in the same direction as the nominal exchange rate when all these factors are accounted for, but the magnitude of the response is highly uncertain.

In some export sectors, exchange rate effects derive from changes in domestic costs relative to those in competing producing countries. The gain in domestic cost competitiveness depends on the strength of inflation, the percentage of imports in the wage good, the relationship between wages and prices and the share of imported imports in traded production. The higher the proportion of the wage good the stronger the inflation and wage reactions and the larger the share of imported imports the less the cost advantage.

A cost comparison based on relative wages alone assumes the use of comparable technology in all competing locations and similar costs of all other factors. A more comprehensive measure would compare total factor cost and make allowance for different factor productivities that might be induced by changes in relative prices. For example, suppose that the Dominican peso depreciated by 20% against the Jamaican dollar and that the resulting gain in wage competitiveness for the Dominican Republic was 10% (i.e. 5% of the depreciation was lost to internal reactions by Dominican labour). Producers in the Dominican Republic may decide to widen the cost advantage by investing in more labour intensive technology now that labour is relatively cheaper. Their competitive advantage may therefore rise by more than 10%. However, Jamaican producers may respond to the competitive threat by investing in less labour intensive technology narrowing the comparative advantage below 10%. An appropriate measure of comparative advantage in this case is the price of tradables at home and in competing locations.

The investor is interested in the effects of nominal exchange rate changes on the expected relative profitability of investment at home and abroad. In addition to considerations of wage changes, changes in technology and changes in productivity, he makes judgements about the future time paths of all the relevant variables. It is possible to measure the expected profitability over the time horizon of a potential investment, to discount by an appropriate opportunity cost and to compare with a similar calculation for a competitive location. However, this will overestimate investor response, if investors fear further exchange rate depreciation, an acceleration of inflation and increased indexation of wages to expected inflation.

Export Responses

The export response to a devaluation of the nominal exchange rate varies with the type of activity. Four types of export may be identified in Caribbean economies: supply-driven activities, such as manufacturing; demand-driven activities where there is product differentiation, for example tourism; minerals which are sold via arrangements within multinational corporations; and supply-driven activities where there is a substantial lag, particularly agriculture. The effects in the short run depend on the availability of excess capacity; the long run effects depend on the incentive to invest created by devaluation.

Measures of excess capacity in export sectors are elusive. In much of the Caribbean manufacturing firms operate with only one shift, suggesting excess capacity. But their processes are often obsolete and their production quality too low for export markets. Additional capacity cannot therefore be activated without new investment. Similarly, in tourism, apparent excess capacity is often substandard and investment in refurbishment is necessary for an increase in output. There will be no short run gain for agriculture except for the sale of any accumulated stocks. For these reasons considerable scepticism has developed about the near term export effects of devaluation in the Caribbean.

In cases where excess capacity is available the increase in exports depends on the composition of the export basket. Exports of manufacturing goods and other supply driven sectors are determined by the shift in supply curve in response to the increase in international prices. Shifting the supply curve depends on the proportion of imported inputs, the extent of labour usage and the wage reaction. The change in exports of tourism and other product differentiated activity will depend on the shift in demand as well as the shift in the price of exports. In the mining sector and in other activities where exports are sold on specified markets the export response depends on the extent of comparative cost gains. Exports of agriculture will respond only very slowly because of the length of the production chain.

The long run effects depend on the strength of the impact of devaluation on expected profitability, on the responsiveness of investment to increases in profitability and on the robustness of the initial gains in domestic comparative cost. These are empirical questions about which not enough is known. A framework for evaluating the effects of exchange rate changes on profits in the export sector appears in Worrell (1986) but the paper presents no results. There are no empirical studies of the determinants of investment in the Caribbean. Studies for less developed countries by Tun Wai and Wong (1982) and by Blejer and Khan (1984) shed no light on the influence of expected profits on investment. The difficulties in the way of firm empirical inference are large, including discounting of non-economic factors and externalities which affect the investment decision and specifying how expectations are formed.

Import Response

Evidence on import functions in the Caribbean suggests that income is the main influence on imports but that a sufficient change in relative prices may also be of consequence (Codrington & Worrell, 1989). The results would help to explain why devaluations in open economies tend to be large when they are effective. There are very few instances of official devaluations of less than 25% in the Caribbean and nominal devaluations have been much larger. A large nominal devaluation has a sufficient effect on relative prices and it also depresses real income through terms of trade losses; the combined effects are needed to secure import compression. Imports may increase or decline in the long run. There may be a decline if income stagnates but if income increases the income effects are likely to outweigh the relative price effects and imports may exceed their initial value.

The Capital Account

Government foreign borrowing should not be affected by nominal or official devaluation. The foreign debt service will rise as a proportion of total government expenditure but government should be able to tax away the additional financing from the private economy. This is a redistributional problem only, so long as nominal national income does not decline. We are unlikely to find a situation where the additional local financing required to meet the increased local cost of debt servicing is greater than the increase in nominal income gained by the private sector from the devaluation.

Private investment inflows should increase as a result of a nominal devaluation which raises the expected rate of return on domestic investment (discounted for country risk) relative to foreign rates of return. Almost no empirical results are available to indicate the nature of this relationship.

Short-term capital flows are of two types: speculative, to make gains from expected changes in the exchange rate; and store of value, motivated by a fear of future devaluation. Speculative outflows may be lured back into the country after devaluation by an interest rate that is sufficiently above the available foreign interest rates. However, funds exported to preserve their purchasing power are a permanent loss to the economy. Whether this is a continuing loss depends on the frequency of exchange rate changes. Government is advised to increase balance of payments support borrowing to provide a war chest for defending a devalued parity against intense speculative attack. The massive flight from domestic currency which follows most devaluations is the primary reason why so many exchange rate parities prove untenable once a long standing rate is changed.

The speed of the capital account reaction may set off an explosive spiral of devaluation and inflation. An unusually perceptive government will decide upon a devaluation when it is clear that reserves will soon be exhausted. More typically, the decision is taken only after reserves are all gone and arrears have begun to

accumulate. There is very little to defend the new rate other than balance of payments support loans tied to the devaluation and to economic adjustment policies. Public reaction to the devaluation is an inevitable run on foreign exchange. Unless there is a drastic cut in purchasing power or massive external borrowings the proceeds of the balance of payments support loans may soon be exhausted. The cycle of devaluation and borrowing must begin all over again. Repeated devaluation sets up strong expectations of continuing inflation, and domestic factors exert pressure for indexation. In the end, there may be little change in relative prices despite high inflation and continuing currency depreciation. Factor price indexation is seldom defeated except by means of economic contraction and severe unemployment.

The international mobility of capital is a principal channel by which the exchange rate in open economies is made endogenous. The size of capital flows in a given period may vastly outweigh current account flows. A sufficiently large run on foreign currency spurred by actual or expected devaluation ratchets the exchange rate down. The rate falls well below what the current account balance would require even in the long run. It may keep on falling if strong wage reaction sets in. The only cure is a deep recession, sufficient to cut domestic demand for foreign exchange to what remains after all who can afford to convert their assets to foreign currency have done so.

Inflation, Costs and Competitiveness

Devaluation is inflationary in small open economies because of their high import content. It raises the prices of traded goods imported in final form and generates price changes for non-tradables, depending on demand elasticities and the extent of imported materials used in their production (see Holder and Worrell, 1985).

Cost effects depend mainly on factor price reaction to inflation. Although import prices may affect such local inputs as energy and infrastructure, wages are the principal local cost component. The wage response to inflation that results from devaluation may be deduced from empirical studies (see Chapter 8). In the Caribbean wages generally do not keep up with inflation even after a one-year lag. Devaluation therefore increases competitiveness (the comparative rate of return vis-a-vis investment in competing locations) by driving a wedge between the price of tradables and the cost of domestic factors.

This is a dubious growth strategy for the longer term, since it condemns wage earners to an unimproved standard of living. A non-subsistence standard of living may be improved upon in the small open economy by increasing the ability to purchase imports. The devaluation strategy deliberately reduces that capacity. It stimulates output if there is a severe excess supply of labour at the prevailing wage. If the strategy succeeds the excess supply of labour is absorbed in time and wages can be expected to rise. When this happens, it will no longer be feasible to maintain competitiveness by depressing the international purchasing

power of the domestic wage.

It might be argued that the strategy is misplaced in the first instance. Instead of depressing the external purchasing power of wages one might invest in advanced technology which provides a competitive edge at a relatively high wage (in terms of foreign currency). This strategy puts the country on the right track from the outset and will not require a process of replacing low technology industry when full employment is reached. The fact that the high-tech strategy absorbs labour more slowly is no great disadvantage for small countries with access to large markets. Even with low labour intensity, market demand may stretch the limits of the small country's production capacity. Devaluation may improve competitiveness in the wrong direction since it does not focus on the longer-term competitive advantage.

Investment, Capacity and Growth

Investment in the tradable sector will, in the long run, determine whether the exchange rate stabilises and the economy expands. If investment in the tradable sector is insufficient export production will not increase and it will not be possible to balance external payments at a positive growth rate. Income will have to contract so as to depress imports; otherwise, as imports exceed foreign exchange earnings the exchange rate depreciates, generating inflation and wage increases. Devaluation therefore promotes growth and stability to the extent that it induces additional investment in the tradable sector. A vital empirical question is the minimum devaluation required to make a significant difference to the expected rate of return in the tradable sector. The improvement in the rate of return must be large enough to cause a meaningful increase in investment in tradables.

In calculating the expected increase in the rate of return we assume that the exchange rate will remain at its new value or depreciate further. Only if the exchange rate is expected to appreciate might there not be an investment response to the increase in expected rates of return. The calculations must also make allowance for the strength of the domestic cost reaction to devaluation-induced inflation. The devaluation must be larger than it appears from its impact on the price of exports if it is to provide sufficient rate of return after we take account of the cost increases. The problem becomes acute when the exchange rate is expected to depreciate further. There may be too much uncertainty about the extent of domestic cost reactions. Though the expected increase in the rate of return may be quite large its variance may also be high – high enough to inhibit investment.

This is an important dilemma of exchange rate management. It is quite difficult to make a once-for-all change in the exchange rate and to sustain it, because of speculation and capital flight. However, if there is doubt that the new rate will hold, people prefer to keep their surpluses in liquid assets and they shun fixed investment. The devaluation then fails to produce an additional investment incentive.

So long as investment in tradables comes about as a result of devaluation the

rate of growth should improve. Investment provides increases in foreign exchange to finance the additional imports which income growth requires. If income appears sluggish in these circumstances it will be because of depressed demand for non-tradables and it may be cured by judicious fiscal expansion. Uncertainty about the future of the exchange rate inhibits investment in tradables and income is likely to decline.

To avoid a long immiserising process it is usually wise to cut the demand for non-tradables immediately by fiscal contraction. This also helps to cut imports and stabilise the exchange rate. The hope is that by stabilising the balance of payments by economic contraction in the short run the authorities may stimulate additional investment and renewed growth in the long run. Whether devaluation promotes growth depends on the strength of the investment in tradables. If that investment is not vigorous, devaluation will secure balanced external payments only at the expense of economic contraction.

The Credibility of Exchange Rate Policy

The effects of exchange rate changes depend crucially on the credibility of the current exchange rate. It is generally accepted that fiscal and monetary policies must be consistent with exchange rate policies. Exchange rate adjustment without changes in fiscal and monetary policy will not have the intended effects. It is probably more realistic to maintain that the way to achieve a target exchange rate is by choosing appropriate monetary and fiscal policy. The credibility of the exchange rate depends on the associated monetary and fiscal policies, not on the exchange rate *per se*.

The timing and frequency of exchange rate changes also affects credibility. Timing is as much good luck as good judgement. There is no great merit in early devaluation. It may create a motive for capital flight where none existed. It is notoriously difficult to predict foreign exchange flows, which are the best indicator of the sustainable value of the exchange rate. With wide variance in the expected value of foreign exchange reserves it is difficult to choose a trigger point for exchange rate action. Using indicators other than foreign exchange reserves may give confusing signals because no other indicator includes both capital and current account effects. Policy failures may be the result of using purchasing power parities, real effective exchange rates and other devices which ignore the capital account. On the other hand, to devalue after the foreign exchange market has determined that the currency will depreciate prejudices the chances that sufficient foreign exchange reserves will remain to defend the new rate.

To have any effect exchange rate changes in the Caribbean must be sizeable. Therefore, if they happen more than once or twice in any year expectations of further devaluations become entrenched. The only practical way to manage exchange rates in a non-inflationary manner is to make occasional discrete changes. After each episode there should be a period – preferably of several years – of no change.

This is possible only if the demand and supply of foreign exchange stabilises at the new exchange rate once the initial period of scepticism has passed. Fiscal and monetary policies to secure this equilibrium must be within reach.

Many countries' circumstances will not permit them to achieve a fixed official rate. They may have no external creditworthiness with which to borrow to acquire a stock of foreign exchange reserves, or the economy may not withstand the extreme stress involved in depressing national expenditure sufficiently to generate a surplus for foreign exchange accumulation. Under these circumstances a dual exchange rate seems inevitable. The official exchange rate will not clear the market. A possible target for the authorities is a rate which attracts a sufficient supply of foreign exchange to official channels in order to meet the demand for a specified list of essential goods that might be limited to basic foods, fuel and drugs. There should be no quantity ration on these items; if the supply of foreign exchange does not meet existing demand that is a signal that the official exchange rate needs to be devalued. Other transactions should be allowed to find an exchange rate level in a licensed unofficial market. Dual exchange rate regimes create enormous incentives for rent-seeking activity. They are feasible only if the official market is confined to a small number of relatively undifferentiated products.

A fixed exchange rate system is potentially crisis prone. Large capital movements threaten to precipitate unwanted devaluations which are inflationary and do nothing to accelerate investment. The best answer would seem to be high reserve levels, aggregate demand management to keep domestic inflation no higher than foreign inflation, nominal interest rate differentials in favour of domestic financial assets and mild exchange controls on the capital account only. The exchange controls should be designed to record and direct the pace of legitimate capital flows, not to ration the supply of foreign exchange.

The alternative is to replace the fixed exchange rate with a crawl or managed auction. There are circumstances where this would be the preferred strategy – when the country has difficulty in accumulating foreign exchange reserves or is unable to sustain a dual exchange rate. The authorities might then announce the intention to attain a medium term official exchange rate target by process of gradual depreciation. The target would be set in order to achieve a specific relative price ratio. It would be conditional, usually on the increase in wages. If the wage increase exceeds expected levels, official exchange rate depreciation must be accelerated so as to achieve the relative price target. The system is stable if there is no wage indexation. If indexation becomes entrenched it carries the risk of hyperinflation.

Monetary authorities in Caribbean economies may not avoid a credibility gap by holding the exchange rate fixed and rationing foreign exchange. Rationing leads to the establishment of a parallel market in foreign exchange; the authorities cannot exercise effective monopoly on foreign exchange transactions. The persistence of a parallel market exchange rate, different from the official rate, creates an ongoing fear of devaluation of the official rate. Some confidence may return if both rates remain unchanged for a sufficiently long period and if the parallel rate is not too far away from the official rate.

Dynamics of Exchange Rate Adjustment

1. Wages and Inflation

Wages in Caribbean economies respond to inflation with a lag. Increased wages will erode part of the cost advantage gained by devaluation in the long run. Policy makers need to be reassured that wages will not over-react, leading to an explosive wage price spiral and a continuous cycle of new devaluations. Also, there is a danger that the pattern of wage–price interaction may change in the inflationary post-devaluation period, particularly in countries which previously had grown accustomed to low rates of inflation. The fact of a devaluation may itself raise expectations of high inflation. Domestic prices, wages and other factor costs may rise in anticipation and the spiral of wage–price inflation and further devaluation may become a self-fulfilling prophecy.

2. Domestic Factor Use

Almost all analysis of exchange rate changes uses the assumption of fixed technology. In fact devaluation may seduce firms away from investment in the new technologies needed for competitiveness in the long run. This is especially true of activity such as communications where computers have completely revolutionised the industry. A strategy of devaluation to maintain low domestic wage cost might make firms profitable for a while with pre-computer technologies but their failure to retool will eventually make them obsolete. The exchange rate should be targeted to the country's future comparative advantage. This requires assumptions about the technologies to be used for local production in the future and the rate of adoption of new technology by the country's competitors.

3. The Product Mix

Similar considerations apply to the mix of activities in national output. Tastes and markets are changing within the country and in the external markets where the country buys and sells. The economic strategy must be designed to drive the output mix in the direction of the future basket which the authorities' best judgement recommends. A strategy which addresses the current product mix can have only limited success. It will be overtaken by economic change in the rest of the world, even if local consumption and production do not create disequilibrium.

Changes in the Exchange Rates of Third Countries

Volatility among exchange rates worldwide faces small economies with the need to compensate for exchange rate fluctuations between the currencies of major

markets or major suppliers, and with the consequences of devaluation by competing producers.

Exchange rate changes among the country's trading partners create sectoral income redistribution but do not significantly affect underlying trends of growth, inflation and the balance of payments. Most external transactions of small open economies are with a single trading partner whose currency may be regarded as the *numeraire*. If other countries' exchange rates appreciate relative to the *numeraire* there are windfall gains to the sectors exporting to those countries and increased costs for sectors importing from them, all in terms of local currency. One might expect export supply to shift towards the appreciating currency and import demand to shift towards the *numeraire* if the new third country parities are expected to persist. But experience of the last two decades gives no reason to expect persistent long run trends in the exchange rates of major currencies, so that traders may be reluctant to switch. If any switching does take place it will be in the sourcing of imports. The penetration of new export markets is relatively difficult and time consuming.

Changes in the home country's exchange rate in terms of the *numeraire* are not a useful counter for third country exchange rate changes. A mechanism is needed to neutralise the internal income redistribution so as to capture the windfall surplus from exports to the appreciating currency country and pass the windfall to the sectors which import from that source. The redistribution might be done efficiently by a combination of taxes and subsidies. This action is warranted only if the foreign currency appreciation is very large and persists for some time. Subsidies may be unnecessary as importers will tend to switch to cheaper sources if the appreciation persists.

Changes in the official exchange rate on these grounds alone would clearly be a mistake. It would imply altering a basic equilibrium in the demand and supply of foreign exchange to accommodate a relatively small shift whose consequences are mainly for the internal distribution of income. The point is worth mentioning because such an exchange rate response is implicit in recommendations that the domestic currency value be linked to a basket of currencies. Where the nominal exchange rate is different from the official, changes in third country rates may cause the nominal rate to shift, if they are sufficiently large or persistent; but changes of the order of magnitude of US–Sterling fluctuations in the past two decades have altered nominal rates by very few points.

Third country exchange rate variation does increase the uncertainty of investment decisions. In addition to anticipating technical changes, competitive conditions, inflation, interest rates and wage increases the investor must also anticipate changes in a variety of exchange rates. To minimise the uncertainty, investment in export sectors might focus on the dominant trading partner. As far as possible investment might be made in products and services which can be sold on several foreign markets. A proportion of investment directed to sales in other currencies might be determined by the risk preference of investors.

It is often suggested that the official exchange rate be devalued in response

to devaluations by competing countries. Competitors' devaluations cannot affect the supply of manufactures or agricultural goods since these activities are able to exploit an infinite international demand at the ruling world prices. It might affect tourism as competitors gain a larger slice of a shared market. Minerals might also be affected if incremental output is switched to the devaluing country. The availability of investment finance should not be affected; infinite amounts of finance are available on international markets for countries which are creditworthy. However, investment in the home country may be expected to take place in different activities using different technology than in the country which devalues. The production of import substitutes may be affected but their potential contribution to economic growth is limited.

A country's main competitors in tourism are not necessarily the same as for minerals. A devaluation by any one competitor may not cause a major loss of business if the home country has a diversified export base. Countries which export manufactures and agricultural products will not be much affected. The implications for economic growth are not serious since investment should not be affected. The principal effect of third country devaluation is to change the countries on the list of competitors for domestic producers. The domestic country's export product mix and use of technology may be expected to diverge from that of devaluing countries, as they gradually drop from the list of competitors. There is no strong case to be made for domestic exchange rate changes in response to third country devaluations or appreciations.

Exchange Rate Indices and Continuously Variable Exchange Rates

To devise a conceptually correct exchange rate index one needs to project into the future and to incorporate both the capital and the current account. An exchange rate index should be based on projections of the future product mix and therefore on the exchange rate itself, projections of future technology, projections of external market prices, projections of domestic import requirements (also depending on the exchange rate) and projections of capital inflows and official borrowing. It is possible to envisage an index which incorporates most of these features. In effect, it would be the reduced form of a structural model. The available indices are a far cry from what is really required.

An index using export elasticities as weights for currencies may serve as a starting point for assessing the exchange rate target. Projected some distance into the future it gives an indication of what the country's export performance might be if current structures remain unchanged. That is only part of the information required to set the exchange rate target. Other effects which then have to be factored into the calculation include import demand, expected growth rates, inflation, changes in the structure of production and capital account effects.

This process bears little resemblance to the typical use of exchange rate indices. Exchange rate targets in the economic adjustment programmes supported

by finance from international financial institutions are still subject to the following strictures. They use trade weights which have no theoretical foundation and give the wrong signals. A country which successfully adapts production and exports to an appreciating nominal exchange rate is treated as having an overvalued currency nonetheless. The assessments are always based on the current exchange rates, with no projections of future economic circumstances. The choice of the base period for comparison is entirely arbitrary, which exposes the protagonist to an accusation of having chosen the base period in order to secure a preconceived result. The indices, as currently used, take no account of structural changes, of growth, inflation, import reactions or the capital account. The continued use of these inadequate measures is a considerable disservice to the developing world.

The use of a basket for pegging the official value of domestic currency alleviates the income redistribution effects of third country exchange rate fluctuations to some extent (provided economic circumstances are such that the nominal and official rates are equal), but the redistribution will not be complete. While exporters will wish to capitalise on the full extent of a depreciation importers may delay purchases in the hope of a reversal of the exchange rate change. We continue to assume that there will be no major change in sources of imports and destinations of exports. Theoretically, a basket leads to a smaller variance of income, but in practice this may not be significant if there are asymmetrical reactions to appreciations and depreciations. Furthermore, uncertainty about the value of domestic currency in terms of the currency of the *numeraire* may aggravate exchange rate speculation. The ensuing short-term capital flows may make it necessary to change the official value of domestic currency in terms of the basket when otherwise it would have remained stable. The variance of income, with the basket, is greater than the variance of income with a single currency peg because the exchange rate itself varies more (in terms of every other currency) with the basket than it would under a single currency peg. In any case, because external transactions are predominantly with one country, the reduction in the variance of income and the income redistribution that may theoretically be achieved by the basket are not very great. The case for a basket fails because, in the best of circumstances, the potential gain is slight. Moreover, that gain is unlikely to be fully realised because of incomplete adjustment to fluctuations in third country exchange rates. The basket peg will have perverse effects if it triggers exchange rate speculation. Caribbean countries will therefore wish to peg to the currency of the dominant trading partner.

Capital Flight

In the analysis of the relationship between capital movements and exchange rate changes insufficient emphasis may have been placed on the importance of foreign currency as a store of value. For Caribbean-type economies, the yardstick of real worth is the power to purchase the goods of the dominant trading partner. A single devaluation results in a drastic fall in the purchasing power of domestic

financial assets. The value of real assets may catch up with time but often they are not fully restored to their pre-devaluation worth. The earnings on financial assets, even at generous real interest rates, are not enough to protect against this loss of purchasing power unless these earnings may be compounded for several years when there is no devaluation. The same is true for the appreciation in value of real assets.

Capital gains of a year or two are wiped out by devaluations; several years must go by to allow sufficient worth to accumulate.

Domestic assets are a dependable store of value only if devaluation is a rare occurrence. Once exchange rate movements become commonplace, capital flight becomes endemic as foreign assets, both real and financial, come to be the preferred form of holding surpluses. There is no domestic policy other than maintaining an unchanged value of the exchange rate in terms of the dominant trading currency that will alleviate the flight of capital which is motivated by the desire to accumulate.

However, capital flight is only a minor problem so long as the condition for sustained growth obtains, i.e. that investment in tradables is profitable by international standards of comparison. This implies that the return on investment in tradables is competitive with returns on foreign financial assets and that such investment is therefore an attractive alternative to capital flight. Those who wish to hold their assets in liquid form will still prefer foreign assets. The proportion of foreign investment in total investment in the tradable sector might be greater than it would have been in the absence of capital flight even if the exchange rate remains unchanged over a long period. A larger proportion of the net foreign exchange earned or saved must therefore be paid in foreign dividends and debt service but this may be compensated for by earnings on the capital that has flown the country. Countries should focus on solving the essential growth requirement, i.e. securing an internationally competitive rate of return on investment in tradables. Securing this return also solves the problem of capital flight.

Exchange Rate Guidelines for Caribbean Type Economies

Policy makers in small open economies should recognise that the nominal exchange rate is an endogenous variable. They should set a target exchange rate to be attained by choice of suitable fiscal and monetary policy. The target exchange rate should be in accordance with future production and consumption, taking account of prospective comparative advantage, changes in products and technology, and prospects for the capital account and debt service. It is best to base the target on a macroeconomic model, however rudimentary, supplemented by as much concrete information on current sectoral trends as is available. An elasticities weighted export index may be used as a parameter of the model to help write the scenarios for deciding on the exchange rate target. Conventional trade weighted indices and real effective exchange rates should be avoided, as they may lead to error.

Once the target rate has been determined upon, policies should be designed to take the rate to that point and to hold it there. Whether it is possible to do so in a single move will depend upon the country's economic circumstances. In some circumstances a managed float or crawl is unavoidable. The rate should be fixed in terms of the currency of the dominant trading partner. The exchange rate is an anchor for the adjustment process. An unchanging rate cures expectations of high inflation, inhibits currency speculation and restores confidence in domestic assets as a reliable store of value.

The burden of adjustment falls on monetary and fiscal policy. These policies must be manipulated so as to secure a balance of external payments and rates of return on investment which will maintain a stable exchange rate, positive growth and inflation in line with international inflation rates. Fiscal policy must also be used to compensate for third country fluctuations where necessary.