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Working Paper

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EXCHANGE RATES AND STRUCTURAL ADAPTATION

Tony Killick

**Results of ODI research presented in preliminary form
for discussion and critical comment**

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WORKING PAPER 33

**EXCHANGE RATES
AND
STRUCTURAL ADAPTATION**

Tony Killick

901071

January 1990

ISBN 0-85003-128-1

OVERSEAS DEVELOPMENT INSTITUTE
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Preface and acknowledgements

ODI Working Papers present in preliminary form work resulting from research undertaken under the auspices of the Institute. Views expressed are those of the authors and do not necessarily reflect the views of ODI. Comments are welcomed and should be addressed directly to the author.

This Working Paper is one of a series of draft chapters of a book currently under preparation by Tony Killick with the provisional title of The Adaptive Economy: Adjustment Policies in Low-income Countries. The purpose of this volume will be to discuss general principles of policies for what has become known as 'structural adjustment' and to set these in the context of longer-term economic development. Those who make or seek to influence policy are the chief target audience, although it is hoped that this work will also be useful for students and other members of the academic community. The complete set of papers to be issued in this series is as follows:

- 31 Economic development and the adaptive economy
- 32 Principles of policy for the adaptive economy
- 33 Exchange rates and structural adaptation
- 34 Markets and governments in agricultural and industrial adjustment
- 35 Financial policies in the adaptive economy
(forthcoming)
- 36 Problems and limitations of adjustment policies
(provisional, forthcoming)

The author is Senior Research Fellow of ODI and Visiting Professor of the University of Surrey. Thanks are due to the Economic Development Institute of the World Bank for financial support for this project but the author alone is responsible for any views expressed.

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I. INTRODUCTION

The exchange rate places a value on a unit of a country's currency, in terms of the amount of a foreign currency it will buy. It is therefore a price and, like other prices, it conveys information and incentives to guide decisions about what to produce and consume. In particular, it determines the relative prices of tradeable and non-tradeable goods - concepts introduced and discussed in Working Paper No. 31 (pp.5-7).¹ As such, it can be expected to have a potent influence on the composition of aggregate demand and supply - and hence on the process of structural adaptation. This helps to explain why exchange rate policies are normally at the centre of 'structural adjustment' programmes supported by the IMF and World Bank. So too does the special severity of the foreign exchange constraint in many developing countries, also discussed in Working Paper No. 31 (pp.23-27).

Considered as a price, however, the exchange rate has special properties. Since it affects many other prices and touches the interests of everyone, it is arguably the single most important price in the economy. It has the further quality of linking the general level of prices in the economy with prices in other countries. Given these qualities, the use of the exchange rate as a policy instrument is bound to excite controversy, not the least because almost all exchange rate 'adjustments' are in the downward direction, depreciating the national currency, reducing the amount of foreign exchange it will buy. The controversies remain lively today. Proponents of an active exchange rate policy see it as one of the chief ways in which governments can promote adaptation of the structures of production and demand, in favour of tradeables. Even its advocates would admit that it is not a straightforward instrument, however, and its critics argue that it often cannot be made to stick, that it will actually damage the economy, or that responses to it will often be inadequate.

¹ We there made the point that there are few, if any, pure non-tradeable goods or services, and described tradeability as a quality possessed in greater or lesser degree by most products. While it is convenient here to follow the usual course of writing of 'tradeables' and 'non-tradeables' as if they were distinct types of products, readers should bear in mind that the exchange rate has the effect of regulating the relative prices of products which are freely tradeable and those which have less of the quality of tradeability. Thus, an exchange rate depreciation will favour the former category relative to the latter. But since there is a spectrum of tradeability, it is clear that a depreciation will affect the prices of almost everything in varying degrees and thus can be expected to have rather complex effects on the productive structure.

There is, perhaps, wider agreement that an over-valued exchange rate (the meaning of which we will come to later)² is likely to have a variety of adverse effects on an economy:

- [a] **It will discourage exports by reducing the profitability of producing for world markets.** This is a crucial consideration, given the conclusion in Working Paper No. 32 in favour of an open-economy strategy. Export performance is probably the single most important determinant of the progress of small open economies.
- [b] **It will discourage national production of importables** because the local-currency cost of imports will be kept artificially low. This bias is likely to have serious consequences both for agriculture (as a producer of foodstuffs, as well as cash crops) and manufacturing (the chief import-substitution sector). These biases may be eased by the granting of protection but, by restricting competition, this is likely to breed inefficiency and low-productivity resource uses. In a small economy, sustained industrialisation is incompatible with over-valuation. Moreover, the encouragement of imports (as also the discouragement of exports) will hasten the emergence of a foreign exchange constraint.
- [c] **It will skew the distribution of income away from producers of tradeables and in favour of service and other non-traded activities.** This will frequently show up as a bias in favour of urban dwellers, discriminating against the rural economy where most of the poor usually live. And where shortages of foreign exchange necessitate the imposition of import controls, large excess profits are likely to accrue to those well connected enough to secure import licenses.
- [d] **It is liable to destabilise capital movements and to be associated with an external debt problem.** This will occur partly through the weakening in the balance of payments already mentioned: the larger the current deficit to be financed the greater the necessity to borrow abroad. This may be aggravated by **capital flight**: when a currency is clearly over-valued those who are able to do so have the maximum incentive to move their capital out of the country while it will still buy a relatively large amount of foreign exchange. By the same token, incentives will be reduced for foreigners to invest in the domestic economy so long as they expect that a large devaluation will occur in the foreseeable future.
- [e] **It will contribute to an unstable macroeconomic environment,** which we suggested in Working Paper No. 32 is detrimental to enterprise, investment and price responsiveness - over and above the more specific depressing effects already listed.

² Pfefferman, 1985, provides a brief but comprehensive discussion of these.

Over-valuation can thus be seen as detrimental to structural adaptation, biasing production and demand in ways which aggravate foreign exchange shortages and hampering the economy's ability to respond to these. By the same token, establishment of a competitive exchange rate ought in principle to be conducive to adaptation, providing an incentive to produce tradeable goods and a disincentive to buy imports. In this way an 'equilibrium' exchange rate will keep the current account payments deficit down to that level which can be financed by capital inflows on suitable terms, thus avoiding the depressing effects of foreign exchange shortages described in Working Paper No. 31.

Whether exchange rate policy can, in fact, produce such a desirable outcome is the subject of most of the following discussion. First, however, we must be clear about the concepts we are using.

II. WHICH EXCHANGE RATE?

We have thus far been referring loosely to 'the' exchange rate as if there were only one. We should now introduce greater precision. First, in any one country there are as many exchange rates as there are other currencies into which the national currency can be changed. Thus, a unit of the home currency will buy x US dollars, y yen, z Deutschmarks and so on. These are known as bilateral rates, in contrast to effective rates.

In most usages, an effective exchange rate is an average expressed as an index series. It is usually a weighted average of the most important bilateral rates, with the weights determined by each foreign currency's share in the denomination of foreign trade. The advantage of using an effective rate is that it smooths out most of the movements caused by fluctuations in the value of whatever foreign currency enters into a bilateral rate. Thus, if a country pegs its own currency to some fixed rate vis à vis the US dollar at a time when the dollars is itself rising in value relative to other major currencies then effectively the home country's currency is also appreciating, weakening its competitive position in relation to non-dollar trade.

Because of the pitfalls of using a single bilateral rate, some countries now define their official exchange rate in terms of a basket of currencies. This can be seen in Table 1, which summarises the exchange rate arrangements in force as at March 1988. Thus, column (5) shows a long list of countries which have pegged their currency to a 'composite', or basket, of currencies. The countries in column (4) are in a similar position because, although they are pegged to the SDR, the value of this is itself a weighted average of movements in seven of the world's major currencies. However, the table also shows that many countries still peg to the US dollar, the French franc or some other single currency.

The reader should be warned that the concept of an 'effective' exchange rate is sometimes used in a different way, to refer to the number of units of local currency actually paid or received for an international transaction. Actual rates will often differ from official rates, chiefly because of import and export taxes. Most importantly, many devaluations are accompanied by changes in taxes on trade in directions which muffle the impact of the devaluation. As a result, a study of 24 devaluations estimated the following average increases in exchange rates [Cooper, 1971]:

nominal	34%
effective - exports	26%
- imports	28%

Since people can be expected to respond only to changes in the prices they actually receive or pay, this second use of the term

'effective' is an important one. However, for the sake of simplicity, in what follows we will conform to the general parlance of using 'effective' to mean a weighted average of bilateral rates.

This brings us to an even more central distinction: between nominal and real exchange rates.³ Take a country which pegs its currency to some other currency, perhaps the US dollar. If it decides to devalue against the dollar, the effect will be to raise the local-currency prices of tradeable goods relative to the costs of producing them and to raise the local-currency prices of imports relative to locally-made goods. Now imagine instead that the country wishes to avoid a devaluation and tries to achieve the same results by means of anti-inflationary policies. Suppose it manages to get its inflation rate well below that obtaining in the US and for other goods traded in US dollars. After a while the effect would be that domestic producers of tradeables would find their local-currency costs diminishing relative to the prevailing level of world prices, and domestic consumers would find the local-currency prices of imports rising relative to the prices of locally-made substitutes. The effect of the anti-inflationary strategy, in other words, is much the same as a devaluation, encouraging local production of tradeables and discouraging imports. The strategy has achieved a 'real' devaluation even though the nominal rate has not been changed.

Unfortunately, the opposite is the more common case: of inflation in developing countries exceeding inflation in the rest of the world which, when combined with inflexible nominal exchange rates, result in real appreciations of their currencies, eroding competitive advantages and weakening the balance of payments. It is because of this tendency that the concept of the real exchange rate has become an important one in the analysis of policy. Although there are various formulae in use, for practical purposes the real exchange rate (RXR) is measured as the nominal rate (NXR) times an index of domestic prices divided by an index of world prices of tradeables:

$$RXR = \frac{NP_d}{P_w}$$

where $N = NXR$, P_d = the domestic price level (often proxied by a consumer price index or the GDP deflator) and P_w = the world price of tradeables. Thus, if the NXR remains unchanged in a period when world prices rise by 5% and domestic prices by 15%, then the RXR in period 2 (with period 1 = 100) is:

$$\frac{100 \times 1.15}{1.05} = 109.5$$

i.e. the domestic currency has appreciated by 9.5% in real terms, while the NXR has remained constant.

³ See Dornbusch and Helmers, 1988, chapter 2, for a more detailed discussion of the concept of the real exchange rate.

Table 1: Exchange rate arrangements as of March 31, 1988^a

Pegged					
Single currency			Currency composite		
U.S. dollar (1)		French franc (2)	Other (3)	SDR (4)	Other (5)
Afghanistan ^d	Lao People's	Benin	Bhutan	Burma	Algeria ^d
Antigua and	Democratic	Burkina Faso	(Indian rupee)	Burundi	Austria
Barbuda	Republic ^d	Cameroon	Kiribati	Iran, Islamic	Bangladesh ^d
The Bahamas ^d	Liberia	Central African	(Australian	Republic of	Botswana
Barbados	Mozambique	Republic	dollar)	Jordan	Cape Verde
	Nicaragua ^d				
Belize	Oman	Chad	Lesotho ^d	Libyan Arab	Cyprus
Djibouti		Comoros	(South African	Jamahiriya ^f	Fiji
Dominica	Panama	Congo	rand)	Rwanda	Finland ^g
Ecuador ^d	Paraguay ^d	Côte d'Ivoire	Swaziland	Seychelles	Hungary
	Peru ^d	Equatorial	(South African		Israel
El Salvador ^d	St Kitts &	Guinea	rand)		
Ethiopia	Nevis		Tonga		Kenya
Grenada	St Lucia	Gabon	(Australian		Kuwait
Guatemala ^d		Mali	dollar)		Malawi
Guyana ^d	St Vincent &	Niger			Malaysia ^g
Haiti	the Grenadines	Senegal			Malta
Honduras	Sierra Leone	Togo			
Iraq	Somalia				Mauritius
	Sudan ^d				Nepal
	Suriname				Norway
					Papua New Guin
	Syrian Arab				
	Republic				Poland
	Trinidad &				Romania
	Tobago				Sao Tomé &
	Uganda				Principe
	Venezuela ^d				Solomon Islands
	Viet Nam ^d				
	Yemen Arab				Sweden ^j
	Republic				Tanzania
	Yemen, People's				Thailand
	Democratic Rep.				Vanuatu
	Zambia				Western Samoa
					Zimbabwe

- (a) No current information is available relating to Democratic Kampuchea.
- (b) In all cases listed in this column, the US dollar was the currency against which exchange rates showed limited flexibility.
- (c) This category consists of countries participating in the exchange rate mechanism of the European Monetary System. In each case, the exchange rate is maintained within a margin of 2.25% around the bilateral central rates against other participating countries, with the exception of Italy, in which case the exchange rate is maintained within a margin of 6%.
- (d) Member maintains dual exchange markets involving multiple exchange arrangements. The arrangement shown is that maintained in the major market. The dual exchange market in the Yemen Arab Republic was unified on January 1, 1988.

Flexibility limited <i>vis à vis</i> a single currency or group of currencies		More flexible		
Single currency ^b (6)	Cooperative arrangements ^c (7)	Adjusted according to a set of indicators (8)	Other managed floating (9)	Independently floating (10)
Bahrain ^a Qatar ^a Saudi Arabia ^a United Arab Emirates ^a	Belgium ^d Denmark France Federal Rep. of Germany Ireland Italy Luxembourg ^d Netherlands	Brazil Chile ^d Colombia Madagascar Portugal	Argentina ^d People's Rep. of China ^d Costa Rica ^d Dominican Republic Egypt ^d Greece Guinea-Bissau Iceland India ^h Indonesia Jamaica Korea Mauritania Mexico ^d Morocco Pakistan Singapore Sri Lanka Tunisia Turkey ⁱ Yugoslavia	Australia Bolivia Canada The Gambia Ghana ^d Guinea Japan Lebanon Maldives New Zealand Nigeria ^d Philippines South Africa ^d Spain United Kingdom United States Uruguay Zaire

- (e) Exchange rates are determined on the basis of a fixed relationship to the SDR, within margins of up to $\pm 7.25\%$. However, because of the maintenance of a relatively stable relationship with the US dollar, these margins are not always observed.
- (f) The exchange rate is maintained within margins of $\pm 7.5\%$.
- (g) The exchange rate is maintained within margins of $\pm 2.25\%$.
- (h) The exchange rate is maintained within margins of $\pm 5\%$ on either side of a weighted composite of the currencies of the main trading partners.
- (i) The Central Bank establishes its selling rate daily and the buying rate is set at .5% below the selling rate. Commercial banks must use the Central Bank's selling rate, but are free to set their own buying rate.
- (j) The exchange rate is maintained within margins of $\pm 1.5\%$.

The concepts introduced above can now be illustrated taking the example of Francophone African countries which are members of the CFA Zone described in Box I. This arrangement has maintained a fixed NXR of 50 CFA francs to one French franc for over 40 years, since 1948. We can ask two questions about this. Since the rate is a bilateral rate, what has happened to the effective rate, taking into account the trade of the CFA members which is not denominated in French francs? The answer is provided for a sample of three CFA countries in Figure A, where it will be seen that there has been an appreciating trend in recent years. However, it is also apparent that each country has had a somewhat different experience despite a common bilateral rate with the French franc, reflecting the differing commodity and geographical compositions of their trade.

The second, and more important, question is what has been happening to the real effective exchange rates (REXR) of these same countries? This is illustrated in Figure B, to which has been added the REXR of France. Comparison of Figures A and B reveals substantial differences for the CFA countries between their NEXRs and REXRs, pointing up the importance of the distinction between the two. Figure B also shows (a) a real depreciation for all countries in the early-1980s; (b) considerable divergences in trends in the second half of the decade; and (c) large divergences between the REXRs of France and the CFA countries - all these despite a pegged nominal rate. It is apparent from the diagram that the CFA Zone arrangements have failed to achieve similarity of experience among the CFA countries and to keep the CFA countries in line with the country to whose currency they are pegged. As is described in Box I, these divergences are beginning to place strain on the CFA Zone arrangements. For present purposes, however, the important point is that a stable nominal rate does not necessarily mean a stable real rate.

For the encouragement of structural adaptation, it is the real rate which is the most important. Since structural change is a long-term process, necessitating innovation and investment, the price signals that can induce such changes must themselves be persistent, to provide a basis for decisions about the future. Leaving aside the possibility of short term 'money illusion'⁴, it is to real changes that we must expect people to respond, for they quickly learn how a nominal change can be eroded by inflation. Indeed, we shall see shortly that one of the issues concerning the use of the exchange rate as a policy instrument is the extent to which nominal devaluations can be translated into real changes. Many countries have had the experience of seeing the incentive effects of a nominal devaluation quickly eroded by rapid domestic inflation.

⁴ A money illusion may be said to exist when people respond to a change in nominal magnitudes as if they were real changes. Such behaviour may be of importance in the short run, when, say, a devaluation is not fully anticipated, but illusions are unlikely to persist for long, as when inflation cancels out the incentives created by the devaluation.

Figure A: Nominal effective exchange rates
(1980 = 100)

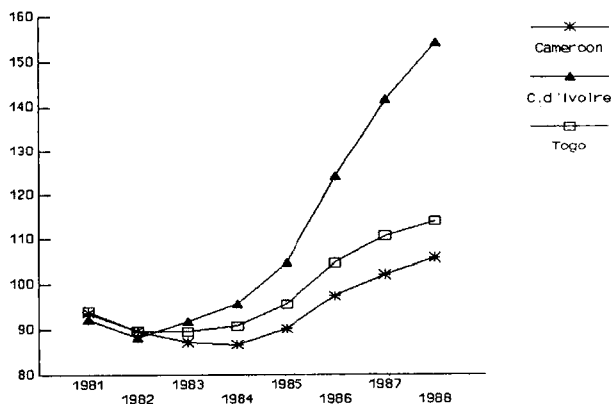
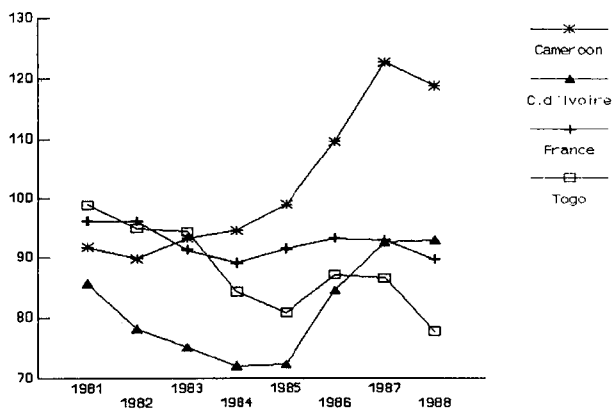


Figure B: Real effective exchange rates
(1980 = 100)



Source: International Financial Statistics

BOX I. ADJUSTMENT AND EXCHANGE RATES IN THE FRANC ZONE⁵

The *Communauté Financière Africaine* (CFA) zone is made up of monetary unions for Central and West Africa, of which a total of 13 Francophone countries are members. These arrangements:

- create a fixed nominal exchange rate pegged to the French franc;
- create monetary integration among members through the common currency and the pooling of international reserves; and
- provide a French guarantee of the convertibility of the CFA franc.

The objectives of these arrangements include the maintenance of a stable macroeconomic environment and the encouragement of foreign investment. There is little doubt that member countries have benefited over them - the CFA countries achieved higher growth rates in the 1960s and 1970s than other African countries and avoided the severe economic crises that have been suffered by some of these other countries. However, by the late-1980s the scheme was coming increasingly into question.

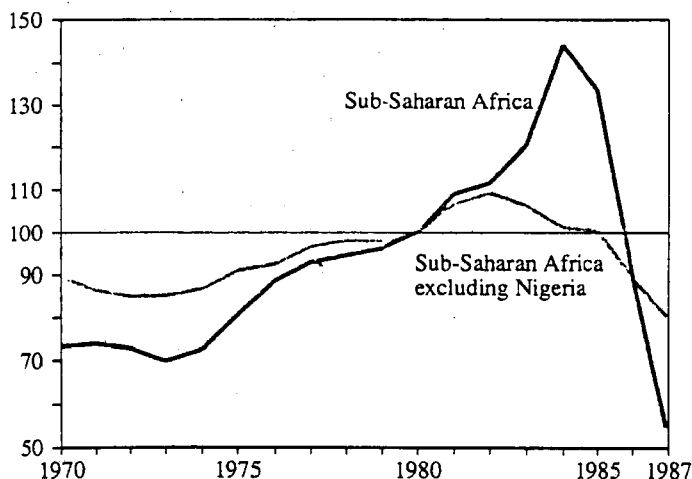
Part of the reason is illustrated in Figure B, namely the failure of the arrangements to result in stable and uniform REXRs. This partly reflects differences in the commodity and country composition of member countries' trade (e.g. while most are oil importers, Gabon and Cameroon are oil exporters) and, therefore, in their terms of trade experiences. But it results also from differences in domestic inflation rates. While the CFA arrangements include provisions limiting the freedom of action of members' fiscal and monetary authorities, e.g. by limiting the amount of credit they may receive from their regional central bank, there are loopholes. In particular, the arrangements have not exerted effective restraints over the finances of parastatal bodies nor over capital flows, so that several CFA countries now have large external debt servicing problems, aggravated by capital flight, and a serious shortage of international liquidity. Another symptom of stress was that for the first time the two central banks simultaneously went into deficit in the mid-1980s, creating an unprecedented demand for credits from the operations account (*compte d'opérations*) at the French Treasury, which guarantees the convertibility of the CFA franc.

What is clear from Figure B is that the currency union has not stabilised REXRs. Indeed, they have been less stable than a comparator group of other African countries and there is evidence that the system of financial transfers from France built into the scheme has contributed to this destabilisation. Equally seriously, a number of CFA countries have experienced an appreciation of their REXR in recent years, at a time when they were already in payments difficulties, with several of them now regarded as having seriously over-valued currencies. With a fixed NXR this leaves fiscal and monetary retrenchment as the main means for depreciating the REXR, but it is unclear whether member governments are willing or able to impose the necessary degree of austerity, with all the socio-economic costs it would impose.

⁵ English-language readers wishing to pursue this topic in greater depth are referred to Bhatia, 1985; Devarajan and de Melo, 1987; and Macedo, 1986.

It was on the basis of a belief in the central importance of the REXR that much concern was expressed in the early-1980s about trends in sub-Saharan Africa, for reasons illustrated in Figure C. We see there the rapid real appreciation which occurred for SSA as a whole over a decade beginning in the early-1970s, although a less dramatic picture is obtained when Nigeria is excluded from the average.⁶ We also see that, on either measure, a substantial real depreciation began for Africa from the mid-1980s (notwithstanding a contrary trend in some CFA countries), primarily as a result of adjustment programmes adopted in that period.

Figure C: Real effective exchange rate index, 1970-87
(1980 = 100)



Note: Group averages weighted by 1985 GDP in dollars.
Sub-Saharan Africa here includes only 30 countries.

Source: IMF data.

⁶ The difference between the with- and without-Nigeria curves in Figure C illustrates the caution that dramatically different averages can be produced by changing the countries included in the sample, the weights attached to them, the period selected, or other factors.

III. THE PROBLEM OF THE MOVING TARGET

If indeed the exchange rate is of such importance in adjustment policies, the further questions arise of how a government can judge when action is necessary and how it should determine what is the optimal rate to aim for. The first of these questions is the easier. Various symptoms will show up when a currency becomes misaligned. If we take the case of a currency which has become over-valued, one thing that is likely to happen is the emergence of a black market, offering more local currency per unit of foreign currency than the official rate. Where there is a long-standing black market, the over-valuation will show up as a widening of the spread between the official and black rates.

An excess demand for imports is another likely sign, as imports become cheaper relative to local products, leading either to an import boom or to the imposition (or tightening) of import restrictions. Controls will lead to scarcity premia on imported goods, leading to widening profit margins for traders and rising prices. Where the government responds by imposing price controls this is likely to spawn other black markets, for imported goods at above controlled prices. The same forces creating an excess demand for imports will also be at work eroding the profitability of the country's exports. This is likely to show up first in the form of complaints by exporters, possibly followed by reduced production. Where the government taxes exports, it will come under pressure to reduce this taxation in order to sustain the profitability of exports.

There are more formal ways in which misalignment can be gauged.⁷ One is the calculation of a time series for the country's REXR, of the type illustrated in Figure B. If the year chosen as the base is one in which the REXR was regarded as satisfactory, misalignment can be judged as the degree of deviation from the base REXR. Since the REXR is a measure of the relative prices of tradeable and non-tradeable goods and services, another possibility is to compare price indices of these categories of goods. Where a downward trend in the relative price of tradeables is shown, again starting from a base period in which the price relationship was regarded as satisfactory, this too can be taken as evidence of over-valuation. Detailed studies of exporting or import-substituting industries are another possibility, again with the intention of examining trends in profitability and international competitiveness.

Through these various indicators, over-valuations of any magnitude are likely soon enough to make themselves felt. They will raise the question of a devaluation of the currency, but the more difficult question is how to determine to what rate the currency should be reduced.

⁷ See Johnson et al., 1985, for an excellent discussion of this and related topics.

Economists like to define this in terms of an 'equilibrium' rate, although this is of only limited practical use. The equilibrium exchange rate can be formally defined as that rate which results in the simultaneous achievement of external and domestic balance. That is to say, it is that rate which will confine any deficit on the current account of the balance of payments to a level which can be financed by inflows of foreign capital on terms regarded as satisfactory to the recipient country and without necessitating unwanted restrictions on trade and payments, or on domestic economic activity. Domestic balance can be thought of as being achieved when the desired excess of expenditures over income - or of investment over saving - is the same as the expected capital inflow, i.e. the balance of payments current account with opposite sign.

It is immediately apparent that determination of an equilibrium exchange rate is a highly complex and contingent exercise. For one thing, it is contingent upon world economic conditions. The equilibrium rate can only be specified given world prices, world interest rates and trends in world capital movements. It is contingent also upon a wide range of government policies in other areas: the 'stance' of fiscal policy and the extent of deficit financing; domestic credit policies; the structure of taxes on imports and exports; restrictions on trade and payments. To put the matter another way, fiscal, monetary and regulatory policies have to be consistent with exchange rate policies. The worst case of all is where the government pursues expansionary fiscal-monetary policies while trying to maintain a fixed NXR. In the absence of large excess capacity in the economy, an appreciation of the RXR is an almost guaranteed result. Many governments have run into difficulties via this route, for commitment to a fixed rate presumes a particularly strong discipline in fiscal and monetary policies (as illustrated in Box I on the CFA Zone).

We should note an important implication of the above discussion: an exchange rate misalignment does not necessarily imply a policy failure; it can occur as a result of forces beyond the control of the government. Thus if a satisfactory REXR is established and the government is successful in keeping domestic inflation within the limits set by world price increases for tradeables, the currency can still become over-valued if there occurs a persistent deterioration in the terms of trade, or in world capital market conditions. Indeed, it was the adverse terms of trade effects of the second oil shock at the beginning of the 1980s which set in motion the explosion of 'structural adjustment' programmes that was such a landmark of that decade. Countries faced with long-term declines in their terms of trade (of the type illustrated in Working Paper No. 31, Figure B) need to compensate by depreciating their REXR.

A further complication is that the equilibrium exchange rate, besides being difficult to determine, will be changing over time as conditions in the world and domestic economies alter. Governments will find themselves aiming at a moving target. Thus, a persistent deterioration in the country's terms of trade

will point in the direction of a depreciation; improved access to world capital markets, or lower world interest rates, will point the other way, and so on. As a practical matter, it may be difficult to go much beyond the earlier suggestion of fixing on a year when the REXR was regarded as satisfactory, in terms of external and domestic balance, and treating maintenance of this rate as the target, subject to adjustments for changes in the terms of trade and other basic determinants. The policy would then be to manipulate the NEXR so as to produce this result, and to order other government policies so as to be consistent with this exchange rate target.

Starting from a position of over-valuation, the government still has to decide by how much to devalue. Some of the indicators of over-valuation already mentioned will convey some idea of this. Thus, if the objective is to restore the REXR to some former level, it should be possible to estimate the nominal devaluation necessary to produce that result, given information about world and domestic prices (and including allowance for the price-raising effects of the devaluation itself). Studies of the profitability of producing tradeables should yield an idea of the size of nominal change necessary to restore international competitiveness. This might be especially useful where one or two products dominate a country's exports.⁸ The size of the discrepancy between the official and black market rate will also give an indication. However, being the product of a residual and illegal market, the black rate will tend to overstate the size of the needed depreciation, or will mark the upper end of the range of needed change.

The use of price elasticities provides a further technique. Given the type of economy with which this series of Working Papers is concerned, it will generally be appropriate to make a 'small country assumption', i.e. to assume that the country's export supplies are small in relation to total world supplies of those commodities and that the country's demand for imports is a small proportion of total world demand. The effect of this assumption is to treat the country as a price taker - unable by altering supply to influence the world price of its exports and unable by manipulating its demand to influence the world price of its imports. On such an assumption, the price elasticities that matter are the domestic price elasticity of demand for imports and the domestic price elasticity of supply of exports and other tradeables. Given some desired improvement in the balance of payments it is in principle possible to use the relevant elasticities to calculate the size of devaluation

⁸ However, governments should beware of determining exchange rates simply in terms of the competitiveness of their traditional exports in situations where a diversification of exports - stressed in Working Paper No. 32 - is desirable. It would then be important to ensure that the new rate is such as to provide incentives for the production of non-traditional exports.

necessary to achieve the desired reduction in imports and expansion of exports.

Apart from the now familiar warning to concentrate on real, as against nominal, changes there are two other cautions about using the elasticities approach. One is that it is likely to work better for modest, incremental changes than for situations of gross over-valuation. The elasticities approach is derived from neoclassical microeconomics and is less well suited to the analysis of large disequilibria, the solution of which require discontinuous change. A further caution is against too unthinking a use of the small country assumption. A small country can produce a large proportion of the one or two export commodities in which it is specialised. Thus, Zanzibar is a tiny, semi-autonomous island, part of the Republic of Tanzania, which appears to be a totally insignificant member of the world trading community but which actually produces about a third of total world exports of cloves. Were exchange rate policies to lead to a large expansion of its clove exports the world price would likely fall and the small country assumption would cease to be valid. We deal with such a situation in Box II on the Sudan later. It should also be noted that the elasticities approach (and some of the other indicators mentioned above) relates only to the trading or current account of the balance of payments, whereas the exchange rate can also have an important influence on capital movements - an influence which, however, is difficult to quantify in advance.

We should finally note a solution which absolves the government from forming a view of the necessary devaluation at all: to leave the currency free to float to whatever level is determined by supply and demand. We return to the pros and cons of this device later.

To sum up, we have suggested that it is the REXR which is the key variable for the purposes of structural adaptation. Unfortunately, the REXR is not strictly a policy instrument since its determination is contingent upon a wide variety of external and domestic economic conditions, in addition to policy actions. The REXR can be manipulated, however, by a combination of adjustments to the NEXR and supporting domestic economic policies. We have gone through the symptoms that will show up a misalignment, the causes of misalignments, and ways of judging the desirable scale of change. But do exchange rate changes actually produce the benefits the textbooks say they will? Does devaluation work?

IV. DOES DEVALUATION WORK? ⁹

Those who are sceptical about this suggest [1] that devaluation tends to have stagflationary effects; [2] that responses to the changed price incentives will be small; and [3] that it tends to place excessive demands on governments' abilities to manage their economies. We will outline these arguments in that order.

IV.1 Stagflation ¹⁰

This is a condition in which an economy experiences simultaneously accelerated inflation and depressed levels of output and employment. Take first the inflationary component, bearing in mind that we are writing of small open economies. Imports will be large relative to economic activity in such economies, providing necessary raw material and other productive inputs, capital equipment and finished consumer goods. A devaluation can normally be expected to raise the domestic prices of these, by raising the local-currency cost of imports.¹¹ This initial price-raising effect may then set off defensive reactions by groups within society seeking to protect their living standards. This will tend to happen, for example, where organised labour is strong and is able to secure wage increases to compensate for the effects of the devaluation; or where producers follow cost-plus pricing rules. In short, a devaluation may trigger an acceleration of inflation, depending on the nature and strength of the transmission mechanisms within the socio-economic structure.¹² Where this happens, the real effects of a devaluation of the NEXR will quickly be eroded and the REXR may be left no lower. This criticism, then, is that governments are commonly unable to translate NEXR actions into necessary changes in the REXR.

⁹ I am here using devaluation loosely to refer to any substantial and deliberately engineered nominal depreciation of the currency.

¹⁰ See, for example, Krugman and Taylor, 1978, and Taylor, 1988.

¹¹ When devaluation is preceded by a situation where imports are held down by quota restrictions, final prices may not rise by the full extent of the devaluation because there will be a tendency for previously-existing scarcity premia to be eroded, so that part of the effect will take the form of reduced profit margins rather than higher prices.

¹² Montiel, 1988, suggests, for example, that large exchange rate depreciations triggered inflationary episodes in Argentina and Brazil - both countries, note, where there are strong transmission mechanisms.

This brings us to the alleged recessionary effect of a devaluation. The effect of the initial price-raising effects of a devaluation will be to absorb purchasing power while raising domestic cost structures. The pre-existing volume of monetary demand will now be able to sustain a smaller volume of production. Of course, to the extent that workers and others are able to protect their living standards - the transmission mechanism - this effect will be reduced. There will be a trade-off between inflationary and recessionary effects, but the end result may be a mixture of more inflation and lower real economic activity. The demand-absorbing effects of a devaluation may, however, be increased if it results in a transfer of real incomes from producers of non-tradeables with low marginal propensities to save to producers of tradeables with higher saving propensities.

This potentially recessionary effect may be used as an argument against the use of the exchange rate in two ways. First, it is possible that the recession will lead to reduced investment, because of smaller demand and weaker confidence, and this may retard the process of structural change necessary for a successful reallocation of resources in favour of tradeables. Second, it can be argued that the cost of using this instrument is too high if it leads to large losses of production, employment and income. The task then would be to find alternative policies that would permit adjustment to be achieved at higher levels of output.

Against these possibilities we should set other considerations, however. First, it is very common for devaluations to occur in situations where there is already an excess of demand that it is desirable to absorb if the balance of payments is to be strengthened and inflationary dangers avoided. In this case, a devaluation may be twice blessed: encouraging the production of tradeables and mopping up excess demand. However, it is most unlikely that the devaluation will mop up exactly the required amount of demand and there remains a danger of overkill. The other consideration has already been mentioned: that devaluation also has a stimulating effect on output and incomes in the tradeable goods sector. If the size of the positive response amongst tradeables is larger than the contraction amongst non-tradeables, there will be a net injection into the economy, tending to offset the demand-absorbing effects already discussed.

It is fairly clear from this that there is nothing inevitably recessionary about a devaluation. The outcome will depend upon the respective magnitudes of the demand-depressing and output-stimulating effects. This will depend upon the relative sizes of the tradeable and non-tradeable sectors, their responsiveness to changed price relativities, elasticities of demand for imports

and local substitutes, and various other factors. This is not a matter which can be decided *a priori*.¹³

IV.2 Elasticity pessimism

For a devaluation to improve the balance of trade the relevant price elasticities must be above some minimum size. If we make the small country assumption, the crucial elasticities are the domestic price elasticities of demand for imports and elasticity of supply of exports. The argument is then about whether these elasticities are likely to be large enough in developing country conditions to produce the desired balance of payments improvements.

To some extent, this controversy is part of a much wider argument about price responsiveness in developing countries, already touched upon in Working Paper No. 31 - an argument which has gone against the pessimists. However, we should also recall from that Working Paper the reasons why small, low-income developing countries are less flexible - and have lower elasticities - than more developed economies. More specifically, in the type of economy with which we are concerned elasticities for demand for imports and supply of exports will be dampened by: a limited degree of substitutability between imports and locally-produced goods; dependence on exports of agricultural or mineral products subject to substantial gestation lags and with little, if any, domestic markets; immobility of factors between sectors; poor information flows; other types of market failure; and an underdeveloped infrastructure. In other words, the characteristics of the small, low-income economy are among the least favourable for strong responses to devaluation-induced incentives.¹⁴ It is therefore possible to argue that measures targeted directly at the structural weaknesses which retard elasticities could be more effective than the broad-brush approach of devaluation. We should also bear in mind the earlier warnings against too ready an adoption of the small country assumption.

IV.3 Managerial capabilities

The argument here builds upon the fact that a devaluation needs to be accompanied by supporting measures and draws attention to the difficulty of implementing such a package successfully,

¹³ As one recent theoretical study has concluded [Lizondo and Montiel, 1989 p.44]: '...there can be no presumption as to the nature of the impact effect of a previously unanticipated devaluation on domestic macroeconomic activity...'.

¹⁴ See Branson, 1983, for an interesting exploration along these lines of the relationship between economic structure and the choice of trade policy.

particularly in the light of the potentially large effects of a devaluation on the government's budget.

We made the point when discussing the equilibrium exchange rate that fiscal, monetary and regulatory policies have to be consistent with exchange rate policies. In some degree they may be substitutes, with rigorous fiscal-monetary discipline permitting a stable exchange rate, or with a flexible exchange rate accommodating a more expansionary fiscal and monetary stance. The necessity for macro policy co-ordination is also implicit in the above discussion of the potentially stagflationary effects of a devaluation: the government must so manage aggregate demand as to avoid accommodating an inflationary process that would eliminate the real effects of the devaluation, while also avoiding the opposite danger of excessive demand absorption and depressed investment. Easier said than done! In addition, devaluations will often not bring their full benefits unless accompanied by supporting measures of a more microeconomic, supply-side nature (see Box II) - to strengthen the infrastructure, provide extension and marketing services, and so on. The range and difficulty of these tasks is large enough, but the complexities will be compounded by the effects of the devaluation on the government's own revenues and expenditures.¹⁵ Here again, there will be conflicting tendencies at work. First, it is likely that a devaluation will increase government revenues. This is most obviously the case with taxes on international trade, for the local-currency unit value of imports and exports will be increased. Given the probability of an only modest price elasticity of demand for imports, there is likely to be a positive net effect on receipts from import duties, unless the duties are expressed in fixed, *ad valorem* terms or the government partly compensates for the devaluation by reducing tariffs.

To the extent that imports are also subject to excise duties and locally-made excisable goods are based on imported inputs, revenue from excise taxation is also likely to go up. If the devaluation succeeds in achieving an increase in the production of tradeables greater than the reduced output of non-tradeables, there is also likely to be a net gain in receipts from corporate and personal income taxes. There will also be increased local-currency receipts from aid grants received from other governments. In general, then, a devaluation is likely to widen the tax base, and to bring benefits to the budget.

But what of the expenditure side? There are three crucial variables here: [i] the extent to which the government is itself a purchaser of imports; [ii] the extent to which it is necessary to raise public sector salaries as a result of the devaluation; and [iii] the size of the external public debt. The first two of these are self-explanatory; the third merits further

¹⁵ For discussions of the budgetary effects of exchange rate changes see Tanzi, 1988; and Reisen and van Trotsenburg, 1988.

BOX II. SUDAN: DEVALUATION IN A RIGID ECONOMY ¹⁶

In 1978-79 the government devalued the Sudanese pound in moves seen as central to a programme of stabilisation measures agreed with the IMF. The appropriateness of this approach in Sudanese conditions was subsequently criticised, however.

It was argued, first, that the structural rigidity of the economy meant that export supply elasticities were inevitably small, while import demand elasticities were likely to approach zero. An estimate of the supply elasticity for the chief export, cotton, yielded a figure of 0.38, while the elasticity for total exports was estimated as 0.49. It was secondly suggested that domestic export production costs were sensitive to the exchange rate, with substantial imported inputs, and with wages and other local costs also being strongly affected. The long-run elasticity of wages to the exchange rate was estimated as 0.68, and of all domestic resource costs as 0.75. In other words, there was a tendency for the NEXR devaluation to be eroded, leaving a much smaller change in the all-important REXR. Indeed, an estimate of Sudan's REXR for 1981 shows it only 5% below the 1978 level despite a 30% nominal depreciation.

It was thirdly suggested that the small country assumption was not appropriate for Sudan because increases in its export supplies depressed the world prices of the commodities in question. It was estimated that for exports as a whole this offset 9% to 46% of the local-currency revenue-raising results of the devaluation. It was concluded that the balance of payments outcome of a devaluation from this combination of structural characteristics was uncertain, and that it had left the profitability of traditional exports unchanged overall. Devaluation in this situation was described as a second-best solution by comparison with measures designed to tackle specific structural weaknesses such as shortages of labour, fertilisers, fuel and spare parts, frequent power failures, and rehabilitation of the Gezira and other irrigation schemes.

All the writers on which this box is based were agreed on the importance of supply-side measures in Sudan. It was not obvious, however, that these were competitive with action on the exchange rate. Indeed, devaluation and the consequential ability to pay higher wages could help to alleviate labour shortages experienced by the cash crop industries. It could also encourage the development of non-traditional exports and it stimulated a large inflow of foreign aid which could assist with supply side measures.

¹⁶ This box is based primarily on Hussain and Thirlwall, 1984; supplemented by Nashashibi, 1980, and an interchange between these writers in the Oxford Bulletin of Economics and Statistics, 48(1); February 1986.

discussion given the importance of the debt overhang in many developing countries.

Where there is a large external public debt one of the disadvantages of the exchange rate weapon is that it raises the local-currency cost of servicing that debt by the same proportion as the currency depreciation. Since it is rather unlikely that revenues net of increases in other types of expenditure will rise to the same extent, the net effect will probably be in the overall budgetary position. Moreover, it has been a common experience in heavily-indebted countries that large devaluations can place private businesses which have borrowed abroad in great

financial difficulties and that governments have felt obliged to 'nationalise' these debts, taking over the servicing obligations as an alternative to bankruptcies and unemployment. Such a situation, of course, further increases the probability that the net budgetary effect will be negative, increasing the government's deficit and the danger of an inflationary monetisation of it.

The conclusions that might be reached from this discussion, then, are that in all countries the budgetary effects are likely to be substantial but difficult to forecast with accuracy, thus increasing the difficulties of putting adequate supporting fiscal-monetary policies in place; and that in heavily-indebted countries there is a considerable risk that the net budgetary effect will be negative, undermining the ability of the government to restrain aggregate demand and raise savings. The extent of indebtedness thus emerges as a variable of particular importance.

IV.4 The evidence

Ultimately, the question "does devaluation work?" is an empirical one, so what does the evidence show? One difficulty here is that most of the available cross-country evidence does not differentiate between different types of developing countries. This is unfortunate if it was correct earlier to suggest that use of the exchange rate is likely to bring fewer results in small low-income countries than in larger and/or more wealthy countries. The results summarised below may thus have an optimistic bias.

One evidential question we can ask is whether devaluations actually succeed in converting a depreciation of the NEXR into a depreciation of the REXR, and in raising the prices of tradeables by more than the general price level. If the answer to this is negative then devaluation cannot be expected to assist structural adaptation or the balance of payments. The answer to this will give us an important clue to the strength of the managerial problem just discussed: if governments are unable to prevent inflation from cancelling out the effects of an NEXR devaluation that would suggest an inability to cope with the management problems created.

There is no doubt that most devaluations have a price-raising effect.¹⁷ The crucial question is whether this initial effect will be truly inflationary in the sense of setting off a cumulative process. The answer to this depends upon particular country conditions and the evidence is therefore mixed. Table 2, taken from Edwards [1989], analyses 28 devaluations in 1962-79 by measuring the extent to which a nominal devaluation was reflected in an REXR depreciation at various times after the

¹⁷ For a survey of the evidence on the price effects of devaluations see Bird, 1984, pp.103, 109-10.

Table 2: Index of effectiveness of nominal devaluation

Country	Year	Quarter of devaluation	1 quarter after	4 quarters after	8 quarters after	12 quarters after
Bolivia	1972	0.68	0.66	0.36	0.09	0.03
	1979	0.51	< 0	< 0	< 0	*
Colombia	1962	0.94	0.48	< 0	< 0	< 0
	1965	1.00	0.88	0.50	0.57*	0.66*
Costa Rica	1974	0.82	1.04	0.75	0.75	0.83
Cyprus	1967	1.00	0.19	0.27	0.31	0.32
Ecuador	1961	1.05	1.06	0.93	0.51	0.03
	1970	0.88	0.74	0.73	0.59	0.66
Egypt	1962	1.03	1.03	0.98	0.85	0.32
	1979	0.99	1.05	0.98	0.93	0.76
Guyana	1967	1.03	0.96	1.10	1.31	1.42
India	1966	0.92	0.81	0.56	0.56	0.62
Indonesia	1978	1.00	0.98	0.73	0.64	0.61
Israel	1962	0.94	0.87	0.74	0.63	0.53
	1967	0.95	0.93	0.99	1.05	0.57
	1971	0.98	0.64	0.53	0.23	< 0
Jamaica	1967	0.96	0.99	0.83	0.57	0.37
	1978	0.46	0.43	0.31	0.26	0.20
Malta	1967	0.93	0.88	0.99	1.12	0.99
Nicaragua	1979	0.17	< 0	< 0	< 0	< 0
Pakistan	1972	1.00	0.99	0.78	0.61	0.45
Peru	1967	0.89	0.65	0.40	0.41	0.36
Philippines	1962	0.97	0.89	0.87	0.73	0.69
	1970	0.72	0.65	0.49	0.47	0.55
Sri Lanka	1967	0.82	0.71	0.54	0.70	0.69
Trinidad	1967	0.82	0.71	0.54	0.70	0.69
Venezuela	1964	0.98	0.95	0.96	1.00	1.02
Yugoslavia	1965	0.67	0.46	0.42	0.29	0.26

Note: This index is the percentage change in the real exchange rate between one quarter before the devaluation and the quarter given, divided by the percentage change in the nominal exchange rate during the same period. An asterisk indicates that a new devaluation took place.

Source: Edwards, 1989, Table 1.

devaluation. To illustrate, take Bolivia's 1972 devaluation. Three months later the depreciation of the REXR was 66% of the nominal change; a year afterwards it was only 36%, and two years afterwards the effect had been virtually cancelled out by rising prices.

As expected, the table provides a very mixed overall picture. There is a clear tendency for the REXR depreciation to be eroded over time, with coefficients in the last column generally well below those of the earlier periods. In a few cases rapid inflation quickly left the REXR higher than pre-devaluation (see the entries marked <0, for Bolivia, Colombia, Nicaragua, etc.). On the other hand, 19 of the 28 had coefficients of 0.5 or more after a year, and for over half of them (15) this was true even after three years. These results are, moreover, consistent with the findings of other, earlier, researchers.¹⁸ No grounds are provided for blanket pessimism, therefore. Edwards found that trends in the budget, wages and, particularly, domestic credit creation were the chief variables explaining the results in Table 2.

Where it was possible to avoid large budget deficits, where wages were not indexed so that they went up in compensation for the devaluation, and where limits were enforced on the expansion of bank credit, much of the devaluation would be reflected in the REXR and this effect would persist over time. We should note, however, that the table includes almost no small low-income countries; and also that it refers only to the 1960s and 1970s, leaving open the possibility that results were weaker in the less favourable decade of the 1980s.

If indeed devaluations do succeed in raising the relative price of tradeable goods and services, a further question is whether the price elasticities of supply are large enough to induce a significant response in terms of greater output of exports and import-substitutes. The most substantial evidence relates to supply elasticities of primary product exports - i.e. that category of tradeable goods for which we would expect elasticities to be smallest. Bond [1987] has surveyed a large volume of evidence contained in other studies as well as making her own estimations and concludes that taking all countries together there are positive and significant elasticities of supply for agricultural products in response to changes in export prices in both the short and long runs, with the results summarised below:

	other studies		Bond's
	<u>short-run</u>	<u>long-run</u>	<u>own</u>
Food	0.43	0.80	0.70
Beverages and tobacco	0.27	0.46	0.66
Agricultural raw materials	0.33	0.51	0.43
Minerals	0.00	0.27	0.24

¹⁸ Bird, 1984, p.103.

Here again, the data relate mainly to the 1960s and 1970s. Short-run elasticities for minerals are typically zero, but in the long run are positive and significant. No grounds for blanket pessimism are provided, although few of these averages even approach 1.0. Bond's evidence also suggested that supply responses in Africa were weaker, sometimes apparently negative, but this seems likely to have been due to failures to pass export price increases on in the form of higher producer prices.

No equivalent survey is available for manufactured exports and import-substitutes but there is a good deal of impressionistic evidence that non-traditional exports are more responsive than traditional ones.¹⁹ If so, we would expect devaluation to be an important stimulus for the diversification of exports advocated in Working Paper No. 32. In this connection, Bond and Milne [1987, p.119] report that export diversification was strongly influenced by the REXR in the countries they studied, as well as by the general absence of major macroeconomic disequilibria.

There is also a dearth of recent cross-country evidence on import demand price elasticities. In a sample of 15 developing countries Khan [1974] found elasticities of close to or greater than 1.0, but this evidence is now seriously out of date. Given the characteristics of the type of economy we are concerned with here, with little industry and limited substitutability between imports and local goods, the general expectation must be that import price elasticities will be quite small. Indeed, there is evidence that import volumes may actually rise following a devaluation, due not to perverse price responses but to the income effects of improved export earnings and to a relaxation of import controls that may accompany the devaluation.²⁰ If the balance of payments is to benefit we would therefore expect this to come from improved export performance (and perhaps a strengthening of the capital account) rather than from a reduced import bill.

To sum up our overall conclusion we can borrow the politicians' cliché about being cautiously optimistic. The evidence does not support any across-the-board pessimism about governments' abilities to manage devaluation successfully, nor about price elasticities. In particular, we emphasise the potential importance for the exchange rate of providing the incentives for the diversification of exports away from traditional primary products. But small low-income economies have characteristics unfavourable to strong results from devaluations and we need more systematic and recent evidence before arriving at any decisive assessment.

¹⁹ See Donovan, 1981, for supporting evidence. See Bird, 1984, pp.103-5 for a general survey of the evidence on export supply elasticities.

²⁰ See Bhagwhat and Onitsuka, 1974; and Donovan, 1981.

V. MODALITIES

Before concluding, however, we should give a little more consideration to the modalities of exchange rate policy. If we return to Table 1 we see that it is arranged roughly according to the degree of flexibility of the exchange rate. At one end of the spectrum are the 'pegged' currencies (columns 1 to 5). For these a fixed exchange rate is maintained, sometimes for long periods. The CFA Zone provides an extreme example, with a fixed nominal exchange rate between the French and CFA francs unchanged since 1948. However, a pegged currency is not necessarily inflexible for it is open to the government to change the peg as often as it chooses. Thus, although Tanzania pegs its shilling to a basket of other currencies this has not prevented it from devaluing on a number of occasions in recent years. The case of an unchanging rate is called a 'fixed peg', one which is subject to infrequent changes an 'adjustable peg' and a frequently changed rate a 'crawling peg'.

The 'independently floating' currencies (column 10) are at the other end of the flexibility spectrum. In principle these currencies float freely in response to changes in market conditions, either on the basis of a foreign exchange auction or an interbank market. A floating currency might be regarded as completely flexible but in practice the monetary authorities of these countries intervene on the market from time to time, if only to smooth out short-term fluctuations - so-called 'dirty floating'. A number of developing countries have adopted auctions in recent years, but these have proved open to manipulation and other disadvantages so the tendency now is towards interbank markets.

Also of interest is the group classified as having currencies 'adjusted according to a set of indicators'. Included here are a number of countries which explicitly attempt to maintain a target REXR. In such cases the indicator used is an index of local prices relative to the foreign prices of tradeables, or P_d/P_w from the formula on p.5, with the authorities adjusting the NEXR in the light of changes in P_d/P_w .

Attention to the notes in Table 1 reveals some further wrinkles. Note [d], for example, refers to dual exchange markets. By this is meant the simultaneous maintenance of two exchange rates, with one (usually giving a higher value for the domestic currency against foreign currencies) typically reserved for certain official transactions and essential imports, and a second (often more freely adjusted) for all other foreign exchange transactions. Such systems are not without difficulty, however, particularly if a large gap opens up between the two rates. Sometimes an elaborate system of multiple rates is maintained, but these tend to be even more problematic. Finally, we should note that it is possible to manipulate the REXR without touching the NEXR, chiefly by fiscal means. The effect on the final prices of imports of an across-the-board increase in tariffs, for

example, is similar to that of a devaluation. The subsidisation - or reduced taxation - of exports is another example. Some governments have simulated a devaluation by imposing a special tax on foreign exchange transactions. Such fiscal measures bring only some of the advantages of an overt devaluation, however, and generally create problems of their own.²¹

How should governments choose between the alternative styles of exchange rate management? It is beyond the scope of this discussion to treat this question in depth²² but it is clear from the discussion that we favour flexibility of the NEXR in order to achieve the desired REXR. The case for flexibility and against a fixed or infrequently changed peg is that small frequent changes are easier to adjust to; less likely to have adverse political repercussions; provide fewer incentives for destabilising speculation; and require fewer resources to be locked up in international reserves.

But if the case for flexibility is accepted, should it take the form of a crawling-peg system or a float? There is no general answer to this: it will depend on country circumstances. Circumstances favourable to floating include the prior existence of a substantial cushion of international reserves, substantial inflows of foreign capital and other foreign exchange receipts to put onto the market to avoid a precipitous overshooting depreciation, a substantially developed financial system, liberalised exchange and trade systems, and a reasonable level of public confidence in the adequacy of government policies and in the future prospects of the economy. By and large, these are conditions more likely to be satisfied in relatively advanced developing countries and/or in countries whose exchange rate is not much over-valued.

One of the advantages of floating, however, is that it depoliticises exchange rate decisions whereas all of the pegging arrangements keep such decisions within the sphere of discretionary action by the government. The crawling peg is less likely to generate great political attention than the adjustable peg, with frequent small - and therefore not very noticeable - changes being made according to some more-or-less objective formula. The crawling peg thus has considerable attractions, provided the government is determined to allow it to work without interference. The temptation is always for it to intervene in order to defend some particular value of the NXR, which then becomes a riskless target for speculative capital flight. A further danger of the crawling peg (and of floating) is that it may be seen as an alternative to fiscal and monetary

²¹ See Laker, 1981, for a discussion of this topic, and Bird, 1984, pp.114-15, for a brief review of the literature.

²² For a survey of this literature see Wickham, 1985; Quirk et al., 1987, provide a valuable study of the use of floating rates in developing countries. See also Roberts, 1989, on African experiences.

discipline, as a form of indexation to accommodate whatever inflation may be generated by deficit financing and monetary expansion. Whatever mechanism is chosen for the exchange rate, none can substitute for the advantages of a stable macroeconomic policy environment.

VI. THE EFFICIENCY OF THE EXCHANGE RATE WEAPON

We commenced this discussion with a statement of the theoretical case for regarding the exchange rate as a primary instrument in the pursuit of adjustment, and of the ways in which an over-valued rate is liable to damage an economy. In the light of the complications and evidence introduced, how should we now conclude? We can try to sum up by going through the most relevant of the various criteria for gauging the efficiency of a policy instrument set out in the preceding chapter, namely:

- How large will the response of the target variables be to a given change in the instrument variable?
- How probable is it that the expected results will actually be achieved, and how quickly will they occur?
- Does the policy act upon the causes of the problem at which it is directed?
- What are the resource costs of the policy?
- Is the policy selective in its application and flexible over time?
- What indirect economic effects will the instrument have, and will they be positive or negative?
- In what ways is the public likely to react to the policy?
- What will be the socio-political effects?
- Is it likely that the policy will be implemented successfully and sustained over time?

How well does action on the exchange rate pass these tests?²³ As regards the **magnitude of response**, much will depend on the sizes of the relevant price elasticities. We have suggested that there are no grounds for generalised elasticity pessimism, particularly on the export side. Much will depend, however, on the extent to which changes in the NEXR are translated into changes in the REXR, and the benefits are passed through to exporters as higher prices; on the extent to which

²³ The following is summarised from Killick, 1981, pp.209-220, which provides a more fully stated discussion of the comparative advantages of use of the exchange rate and exchange controls.

complementary policies are enforced domestically; and the particular circumstances of the country in question. Some of the same considerations will apply to effects on capital movements. Devaluation is likely to move the current and capital accounts in the desired directions but the magnitude will vary according to circumstances.

What about the **speed and probability of results**? These are not tests by which devaluation scores well. The results may well be slow, because price elasticities are smaller in the short-run. Indeed, devaluation is probably better thought of as a medium-term measure, for producers and consumers need time to adjust their decisions to changed price relativities. Moreover, the size of the outcome of a devaluation is likely to be quite speculative, particularly for large changes. The size of elasticities is unlikely to be known with any accuracy; the effects on the capital account will be even less easy to predict; and government economists are unlikely to have a sufficiently good econometric model of the economy to be able to trace through the indirect effects on the economy in a more than approximate way.

The next test - **whether the policy acts upon the causes of the problem** - is much more favourable. If we take the case of a country facing payments difficulties because of import demand growing faster than export earnings, devaluation acts directly upon incentives to consume imports and to produce exports and import-substitutes. In this sense it acts upon the causes, by comparison with controls on imports and capital movements which merely suppress the symptoms.

Is use of the exchange rate **selective in its application and flexible over time**? Selectivity is not one of its qualities. It is a broad-brush instrument changing relative prices economy-wide and relying for its effects on the workings of market forces. This will often be what is called for but this quality does imply that it is liable to be a mistake to use the exchange rate to resolve sectoral bottlenecks or other specific structural weaknesses. This was one of the issues in Box II on the Sudan, and there are other examples.²⁴ It is this lack of

²⁴ Thus Rwegasira, 1984, cites the situation of agricultural marketing in Tanzania to illustrate this point. He points out that inefficiency in the marketing boards led to drastic declines in the share of world price being passed on to farmers during 1969-80, e.g.

	<u>1969</u>	<u>1980</u>
cashew nuts	70%	35%
coffee	81%	45%
cotton	70%	45%
tobacco	61%	48%

Unless specific measures were put in place to tackle the marketing inefficiencies the effects of any devaluation were likely to be quickly eroded, as yet more revenue was absorbed by the boards.

selectivity which has led to the introduction of multiple exchange rates mentioned earlier, although these are usually an inefficient response if maintained for long. As regards flexibility, a market-determined exchange rate is fully flexible and a crawling peg only a little less so.

This brings us to the **indirect economic effects** of exchange rate policy. We discussed the most important of these earlier under the heading of 'stagflation', concluding that a devaluation will have an initial price-raising effect and could trigger an inflationary episode, but that the strength of the transition mechanism, including the power of organised labour, would determine the extent to which the initial price rise led on to a sustained acceleration of inflation. We further saw that a devaluation contains both recessionary and expansionary impulses and concluded that there was no *a priori* way of telling which influence would be dominant. The outcome is thus indeterminate. A devaluation is indeed likely to have significant indirect effects, but it is difficult to say much in general about their direction or magnitude.

There are further considerations, however. A devaluation is likely to have a substantial effect on the distribution of income, broadly away from those earnings their incomes from non-tradeables in favour of those engaged in the production of tradeables. Whether this shift is in favour of the poor is, however, impossible to generalise. This will depend upon the factor proportions employed, on the ownership pattern of those factors, and on other factors, although it may often produce a shift in favour of the rural population. What can be said more firmly is that if import controls are the alternative to an active exchange rate policy, this is liable to have severely inegalitarian effects on income distribution, generating large unearned scarcity rents for those with the contacts to get licenses. Another consideration is that exchange rate flexibility is likely to improve the allocation and productivity of resources, by making greater use of the gains from international trade and by shifting resources into internationally competitive industries.

What, next, may be the **socio-political effects** of exchange rate policy? One of the problems here is that citizens are prone to identify the exchange rate with national prestige. Another is that it affects everyone's interests in some degree and can result in major shifts in the distribution of income. The exchange rate can thus be a political hot potato. However, much hinges on the choice of technique. There is empirical evidence, admittedly old, that devaluations are politically risky, which helps to explain why some governments try to cling to patently over-valued rates. Cooper [1971] found that in seven out of twenty-four cases he examined the government fell from power within a year of devaluing, about twice as many as would otherwise have been predicted. Finance Ministers were even more at risk, with 14 out of 24 losing their jobs within a year - about three times as many as would have been predicted! It is significant, however, that Cooper's study was of

substantial devaluations of the type which occur under an adjustable peg system. One of the hypothesised advantages of a crawling peg or of floating is that they take some of the political heat out of exchange rate decisions, loosening the identification of the government - and the Minister - with any depreciation which may be occurring.

Finally, is it likely that the policy will be successfully implemented? One of the features of this instrument is that it meets most of the implementation criteria set out in Working Paper No. 32. It is relatively simple to administer; it can be executed within existing institutions; and it is clear who is responsible for implementation. It may, however, cut against the interests of some of those who are responsible, when a devaluation is used to liberalise imports, for officials may have been benefiting from the power which comes with the administration of import licensing. Overall, however, and depending on the technique chosen, it is among the easiest of instruments to use.

We should also relate discussion of this point to the earlier treatment of governments' abilities to 'manage' devaluation in the sense of successfully carrying out a necessary package of supporting measures. This is perhaps an appropriate point on which to conclude: that, whatever technique is used, fiscal-monetary and exchange rate policies need to be made consistent with one another. This task is complicated by the strong influence of the exchange rate on government revenues and expenditures, especially in heavily-indebted countries. Supporting supply-side, microeconomic measures may also be needed, as in the Sudanese example. It is in this task of policy co-ordination that the true difficulty of devaluation lies. But it is the damage which an over-valued currency can do which makes it such a necessary task.

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