Exchange Rates and National Income

by

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1. — Income effects.

In the first paper certain difficulties were analysed which arise from the breakdown of partial equilibrium analysis and from the oligopolistic nature of the relationships. We have seen that the «elasticities» depend: 1) upon each other, 2) upon price reactions in oligopolistic markets, 3) upon employment levels, 4) upon the amount and the direction of price changes, 5) upon reactions in other trading countries. We shall in the following discuss: 1) more fully the effect of employment and income variations both in the short and long run; 2) the effects of changes in the distribution of income.

An alteration in the exchange rate will affect income and employment in three ways of which only the first is usually analysed.

(a) There are income effects which arise from the change in the *volume of exports* and the *balance of trade*. These are supposed to be brought about by the interplay of the «elasticities» and have been fully analysed, notably by Mrs. Robinson. They need not detain us further.

(b) There are effects which arise from changes in the *distribution* of income within the country. They are usually entirely neglected.

(c) There are finally changes in the *real income* of the country which result from changes in the *terms of trade*.

Now all these effects will alter saving, consumption and investment and hence the demand for imports and the supply of exports. Thus a deterioration in the terms of trade and a reduction in real income is likely to reduce the demand for imports (although we have seen

that it may give rise to inflationary movements in money wages which would have the opposite effect). A shift to profits is likely to raise savings and hence to reduce the demand for imports. The increased competitiveness of domestic business with foreign industry will provide new investment opportunities, etc. and, by raising incomes, raise demand for imports.

2. — Short run changes in income.

We shall consider the short-run effects on effective demand and monetary stability in this and the long-run effects on the growth of capital and income in a subsequent section. We shall discuss the question how these changes affect the concept of « price elasticities » and of « equilibrium rates of exchange ». The first concept is relevant to value theory, the second to welfare economics.

An alteration in the exchange rate is likely to alter the level of effective demand for the reasons given above. The customary treatment of initial price effects, to be measured by price elasticities, and consequential income effects, to be measured by income elasticities and propensities, is not satisfactory. Although the multiplier effects of changes in the balance of payments might conceivable be treated as « secondary », the effects on income of changes in the terms of trade and of distribution are simultaneous and *analytically inseparable* from the price changes. Exchange rate alterations are *ipso facto* income alterations. Moreover, if these income changes give rise to cumulative movements, the final reactions to price changes will be irreversible, for cumulative movements are not symmetrical for upward and downward changes.

A further asymmetry is introduced into the picture by the lack of perfect mobility of labour and the lags due to the time taken to adjust the capital structure of the country. The short-run effects of changes on investment depend on the direction and extent of the change. A reduction in net investment is perhaps most easily carried out. Even here strong complementarities might impede adjustments. An increase in net investment, though perhaps slower than a decrease, can be carried out more rapidly than an actual dis-investment of durable capital. The difference in lags however will tend to impart a deflationary bias into the system as a whole — which *can* of course be counteracted. Investment decisions are discontinous in any case and their timing will also be affected by actual or anticipated shifts in any of the schedules due to changes in exchange rates. These in their turn will alter the relevant propensities to consume and to import.

Against this, it is frequently argued that one of the conditions of a workable « equilibrium » rate of exchange is the equation of aggregate supply to aggregate demand in the trading countries. Only if inflation and deflation or inflationary and deflationary pressures are avoided can the rate of exchange be expected to work.

This argument is based on the tacit assumption that the attempt to equate aggregate supply to aggregate demand does not itself alter the relevant propensities and schedules. Demand and supply functions, with respect to price and income are assumed to be given and policy does not effect them. If there are restrictions, demand is frustrated and presses against the walls of controls. But such assumptions are not always justified. Frequently, we are not dealing with comparable schedules in two situations, one of which contains restrictions, the other of which does not. Pressures of excess demand are often modified by the imposition or the lifting of restrictions.

It is very doubtful whether one can speak legitimately of the intensity of a *given* demand, exerting a *given* inflationary pressure against controls. Controls often work more like canals and drainage systems than like absolute dams, by diverting and reducing inflationary pressures and thus altering the underlying situation.

Thus recommendations that a currency should *e. g.* be devalued so as to make the restoration of « equilibrium » and the abandonment of controls possible, must face the following difficulties: First, the rise in import prices and domestic prices resulting from depreciation and decontrol may itself aggravate the danger of inflation. Unless there is a substantial shift to non-invested profits in the export trades, consumption and investment demand will tend to exceed available supplies. If the additional deflationary measures are recommended in order to make the devaluation and decontrol « effective », it is by no means obvious that this would not involve a larger, more painful and socially less desirable reduction in consumption and investment than that brought about by restrictions. Second, the availability of imports, though at higher prices, may raise the *propensity* to import compared with the situation in which they were not available. Advertising, joint demand, habit formation and external diseconomies of consumption will play their part. The foreign exchange problem may thus be aggravated and even further-going deflation at home might have to be used in order to restore « equilibrium » in the foreign exchange market. In short, restrictions on imports other than price restrictions often raise not only saving but the *propensity* to save (partly through favourable terms of trade which make money income stabilisation easier) and reduce not only imports but the *propensity* to import (by altering tastes and habits). There is no obvious reason why habits and tastes engendered by a free pricing system alone should be the « right » ones.

3. — *Effects of changes in the rate of exchange on income distribution.*

A finite devaluation of the currency *ipso facto* alters the distribution of income both within a country and between members of different countries and hence the propensities to consume, invest and import. It is therefore illegitimate to treat the problem as if it were a case of an infinitesimal variation whose consequences can be neglected.

The internal effect of a devaluation will benefit export trades and those producing substi-

tutes for imports, while the consumers of imports and also of substitutes for imports will suffer. Since wages must be assumed to be sticky there will be a redistribution in favour of profits. This will be aggravated if imports are largely necessities.

It is impossible to predict the net effect on savings but it is very probable that there will be a change. There are three possibilities: either there will be an inflationary impetus which might offset or more than offset any improvement in the balance from devaluation; or there may be a deflationary effect which would help the balance though possibly at a heavier price than is necessary; or finally internal monetary equilibrium is maintained but the amount of savings and imports is altered. In all three cases the movement in the exchange rate and the ensuing reactions are not likely to be reversible. Only in the case of zero net saving both before and after the change and absence of any monetary cumulative effects could one speak of determinate « elasticities », were it not for the difficulties mentioned in previous sections. In addition, one would have to take account of trade union reactions to changes in the cost of living, secondary income changes resulting from the change in the balance of trade (both on consumption and investment) and speculative movements in anticipation of price changes.

In multiplier analysis it is now generally recognised that changes in employment are not only a function of the aggregate marginal propensity to consume and changes in investment, but of the *composition* of these aggregates. Rarely are analogous qualifications introduced into the theory of demand and supply responses to exchange depreciation. Yet it is clear that the composition of the demand for imports and the supply of exports which depends on the changes in the distribution of income will affect the relevant « elasticities ». Thus any given change in the exchange rate will have different effects upon supply and demand according to different consequential changes in income distribution.

These changes are not reversibile and any given change in the terms of trade is always uniquely related to a change in income distribution. But it is well known that contractually

fixed incomes are much more flexible upwards than downwards. A country whose workers have once benefited from an improvement in the terms of trade and have grown used to a certain standard of living may find it difficult to enforce the return to the old low real wage level if a deficit should demand such a readjustment. The worsening of the terms of trade might be brought about by unemployment, by a reduction in profits or in costs, but it is most unlikely that the movement will be parallel and symmetrical to the original upward shift. Hence « elasticities » will be different for upward or downward movements, according to the altered distribution of incomes. This is another reason for asymmetrical reactions.

Just as « elasticities » cannot be defined without provisos about changes in the income distribution *within* a country, so provisos have to be made concerning the distribution of income (per head) *between* countries. Changes in the distribution of income will affect demand and supply « elasticities » at least for three reasons: First, because they will change the composition of demand and supply. Secondly, because they will change the rates of growth of real income (by affecting saving and investment) and thirdly, because they will affect the ease or difficulty of maintaining monetary equilibrium and preventing cumulative movements.

Hitherto we have discussed the difficulties that arise in the formulation « of elasticity » concepts if the distributional effects of price changes are irreversible. These « elasticities » are often used to recommend methods of achieving an « equilibrium » through an « equilibrium » exchange rate in the balance of payments. The concept of an « equilibrium » is often taken to stand for a desirable state of affairs. A few remarks may therefore be appropriate about the welfare implications of an « equilibrium » rate of exchange.

Here again the two types of distributional effects must be considered; internal and international. The choice between foreign exchange and import restrictions of luxuries, combined with « overvaluation » on the one hand; and of an « equilibrium » rate, through devaluation without restrictions on the other, is not one between a « disequilibrium » and an « equilib-

rium » but rather between two types of domestic policies of distribution. The concept of an « equilibrium rate » is meaningless for *welfare* theory.

The same is true of the effects upon the distribution of income between different countries. Again, restrictions coupled with « overtries. Again, restrictions coupled with « overvaluation » are not necessarily a sign of « disequilibrium ». In so far as restrictions are used to prevent an undesirable deterioration in the terms of trade of a country whose standard of living is threatened, devaluation would not produce « equilibrium » in a sense in which it is something commendable. If the principle of the desirability of reducing extreme inequalities in international income distribution is accepted (analogous, though not necessarily identical to those widely accepted for internal income distribution) (1) and if other means of income transfer (loans and grants) are impracticable, then the « overvalued » rate combined with restrictions is nearer to an « equilibrium » rate in a normative sense than the so-called « equilibrium » rate (2).

4. — Equilibrium and static theory.

The simple theory of exchange rate adjustment assumes a zero level of net investment and net saving. Without changes in the level of effective demand and without changes in capital equipment, a definite meaning might conceivably be given to an « equilibrium rate of exchange » with the qualifications discussed in previous sections. But positive saving and investment create a number of problems. In the previous sections it was argued that the rate of saving and investment will be altered by exchange rate alterations in an irreversible

(1) Thus the principle that gross inequalities should be reduced might have to be qualified for international application for two reasons. First, external diseconomies of consumption are likely to play a smaller role internationally than internally for people are more ignorant of standards in other countries. Secondly, it is divergencies from habitual consumption rather than the absolute level of consumption that make people (within limits) feel better or worse off. Thus the international principle would be as much the prevention of lapses from habitual living standards as the equalization of living standards. This is an important requirement for Marshall Aid despite the fact that Africa and Asia are much poorer than Western Europe.

(2) Difficulties arise, of course, if the desirable *international* redistribution of income does not lead to a corresponding *internal* redistribution in the benefiting countries.

manner and that even in the short run the effects on real income and on monetary stability must not be neglected. In the long run, when capital and real income must be assumed to grow, two additional problems arise for the definition of an « equilibrium exchange rate ».

First, it will no longer be possible to construct a model with a positive rate of growth (« trend ») because that rate of growth itself cannot be assumed to be given. If it were independent of the fluctuations round it, a dynamic model might replace the static assumption of zero net investment. The relative rates of growth of real income in different countries will give rise to disequilibria and the manner in which these disequilibria are adjusted will affect the rates of growth of real income. Thus a series of devaluations, even if they were practicable, might slow down the relative rate of income growth in the deficit country and aggravate the difficulties of adjustment in the future, whilst *e. g.* policies with less detrimental effects on the terms of trade and hence (foreign trade) productivity might facilitate future adjustments by raising the relative growth of income and productivity in the deficit country. *It is one of the difficulties of static equilibrium theory that it requires a dynamic theory of growth* (domestic and foreign) *before it can be applied to actual conditions* and that the dynamic changes are themselves a function of the adjustments envisaged by static equilibrium theory. The concept of an « equilibrium rate of exchange » is ambiguous because any one rate of exchange alters the conditions underlying the moving « equilibrium ».

The second problem is this: if we assume that real income grows at different rates in different countries, a permanent cause of unbalance arises which impairs the application of such concepts as « elasticities » and « equilibrium rates » if applied to the long run. In the case of two countries, each expanding at a different rate, an equilibrium exchange rate is conceivable if either of two possibilities is realized: either the rapidly expanding country has a sufficiently high income elasticity of demand for imports to provide a market which expands at the same rate as its exports (or a sufficiently high income « elasticity » of demand for its exportable goods to reduce the rate of growth

of exports sufficiently to maintain balance). Relative inequalities will then increase cumulatively and cyclical instability will probably be aggravated but there would be no secular pressure to deflate or devalue on the more slowly expanding country. Or else the rapidly expanding country must inflate its costs and prices (or the slowly growing country deflate its costs and prices) sufficiently fast to prevent unbalance. In this case, given favourable price « elasticities » a balance might be maintained, again, at the cost of cumulative inequality and possibly cyclical instability.

If either of these conditions are fulfilled the rapidly expanding country will not tend to generate export surpluses. Apart from the undesirability of these processes on grounds of equity and stability, the assumptions are not likely to be fulfilled. It is well known that the income « elasticities » of demand for imports are likely to be low and that the pressure to inflate on a potential creditor country is weaker than the pressure to deflate on a potential debtor country. The monetary authorities in the potential creditor country may not want to inflate sufficiently, for distributional or internal stability reasons; even if they wanted they may not succeed in expanding credit and raising prices sufficiently; even if they succeeded the total expenditure on the country's exports may rise as its prices rise. Thus the brunt of the pressure would fall on the deficit country with the deplorable consequences of deflation.

The alternative would be a series of exchange depreciations. But clearly, the notion of an « equilibrium rate of change » of « exchange rates » is artificial. Anticipations alone would make it nugatory. Even if it were imperfectly foreseen, it would lead to a series of financial crises. Speculative forces would swamp the underlying « real » forces and expectations about the equilibrium rate of change of the exchange rate would produce grave disequilibria. The well-known vicious spiral of inflation and devaluation would be at work, for internal price rises will also be anticipated and will aggravate the difficulties. Capital flight to the countries against which the currency is expected to be depreciated will be encouraged with very awkward effects on current account transactions. It appears that the concept of a

constantly moving rate of exchange creates more difficulties than it solves.

Like the rate of interest, the « equilibrium rate of exchange » does not depend only on the level of effective demand but also on the rate of growth of real income. It will both affect this rate of growth (which, as we have seen above, is a function of productivity, an important function of which is the value productivity of the terms of trade) and be affected by it. This weakens the case of the elasticity optimists who argue that it is the long-run « elasticity » that matters if devaluation is considered and that it is likely to be high. The longer the run, the more time will have passed for investment and real income effects to work themselves out and swamp the price effects of devaluation. It is, of course, on the face of it, not obvious in which direction these effects will work in any particular case. But the concept of a long run « elasticity » of demand is unwarranted and the concept of a long-run equilibrium rate of change in the exchange rate is, quite exceptional circumstances apart, selfdefeating.

Conclusions.

The use of the concept of « elasticity » in the analysis of international economic problems has been shown to disregard complications of a sufficient order of magnitude to render the procedure inappropriate. The various functions, the « elasticities » of which are supposed to govern the reaction of the balance of payments to the variations of exchange rates, have been shown to be interrelated in such a way that the calculation of elasticities may involve indeterminacy as the functions are shifted and probably distorted.

Secondly, we found, as one would expect in the case of functions which represent macroeconomic aggregates, that the state of employment in the constituent units has an important bearing on the reactions of the balance of payments to changes in the rate of foreign exchange and tends to render them irreversible and unique. Thirdly, the traditional analysis tends to neglect variables other than price-quantity relations, and thus gives an over-simplified view of these relationships. Fourthly, finite changes in the rate of exchange alter not merely

the distribution of the national income but also the size of the real income. Thus not only the savings and investment schedules are changed, but with them cumulative movements are engendered quite apart from the secondary multiplier effects of the change in the balance which alone has received alteration.

If all those factors are taken into account it would seem that the practical men who have always been disinclined to permit changes in foreign exchange rates once they were established, were more often right than economists.

Although some of our arguments point in the opposite direction, it appears that, on balance, they lead to the advocacy of a greater degree of exchange rate stability than is popular to-day. Though exchange rate alterations are suitable in *some* conditions, their value is doubtful if the necessary adjustments are *large*. And it is likely that in the literature the size of the required adjustment has been underestimated and the effectiveness of devaluation in bringing about any given adjustment overestimated. Hence slight adjustment may be inef-fective and large changes may throw the whole international system into movements, the final consequences of which are exceedingly uncertain. Weaker countries who cannot take risks would seem likely to suffer most.

We have also seen that exchange rate alterations are unsuitable remedies if they would have to be used *repeatedly* in fairly short intervals. Finally, even where their application promises to be a remedial, they ought always to be considered in conjunction with full employment and international distributional effects and effects on internal monetary stability. Only if no excessive sacrifices of these alternative objectives are required can one advocate devaluation with a clear conscience. Orthodox theory, based on the safety of partial equilibria and the variation method, suffers from the same deficiency as the theory used to justify certain wage policies. Far-reaching practical measures are prescribed on the basis of simple abstract models without consideration how to qualify and modify these models in order to adapt them to real life.