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DEPARTMENT OF ECONOMICS

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Defects in the present international monetary system and proposals for their correction can be approached from several different points of view, depending upon one's estimation of the nature and seriousness of the defects. A convenient basis for classification is the relative importance attached to the problems of confidence, liquidity, and adjustment.

The confidence and liquidity problems have received the lion's share of attention, both from central bankers and economists. No doubt the reason for this emphasis is the immediacy of the problems they pose.

Most of the proposed solutions to the confidence and liquidity problems do not radically alter the basic nature of the present system with respect to its mechanism of long-run adjustment. Even reform proposals as far-reaching as Triffin's leave the long-run adjustment mechanism of the present system unaffected. The implicit assumption of such proposals is that the adjustment mechanism of the present system is fundamentally sound, with any weaknesses in it to be taken care of in the process of solving the confidence and liquidity problems.

There is no basis in logic or experience for accepting as satisfactory the adjustment mechanism of the present system. Indeed, there are good reasons for concluding that the system is *devoid* of an adjustment mechanism in a meaningful and relevant sense. Yet the ultimate criterion of the efficiency of an international monetary system, and the very reasons for its existence, relate to its adjustment mechanism.

THE MEANING AND IMPORTANCE OF ADJUSTMENT

Narrowly conceived, adjustment refers to the processes through which the balance of payments is changed in response to situations of imbalance. On the usual definition, an imbalance of payments cannot endure indefinitely, so that adjustment is unavoidable. Adjustment, therefore, is not a normative concept that, *per se*, raises meaningful social problems. Problems arise only because there are alternative processes of adjustment, with the possibility of discretionary choice among them. The motive to exercise this option arises out of the different effects on both the international and national economy of different processes of adjustment.

There is probably as wide a consensus on the criteria of an ideal adjustment process as on any area in economics. Based on these criteria, the optimum adjustment process may be defined as one which removes imbalances of payments without (a) restricting the freedom of inter-

national payments, trade, and investment, and/or (b) interfering with domestic policies for full employment, a stable price level, and economic growth. Hereafter in this paper, by an optimum adjustment process I shall mean one that does not violate either of the above conditions.

That the present international system falls far short of providing an optimum adjustment process in the above sense is abundantly clear. Professor Mundell calls it a *disequilibrium* system. The social costs of its inadequacies are enormous. I know of no way of measuring the costs stemming from the misallocation of resources because of controls over trade and investment imposed for balance-of-payments reasons, but they are presumably large. Costs in the form of lost output attributable to constraints on domestic policies for full employment and economic growth must be measured in tens of billions of dollars. The experience of the United States a few years back and of the United Kingdom today is eloquent witness to the point. When an economy with a gross national product of several hundred billion dollars is forced to underutilize its resources by a balance-of-payments deficit of two or three billion dollars, the absurdity is that of the tail wagging the dog.

From a welfare point of view, if a choice has to be made between the major domestic objectives of full employment and stable prices and the allocative advantages of trade and payments free of controls, for most countries the presumption is strong in favor of the domestic objectives, though different weights would apply according to the importance of foreign trade in the national income. The presumption is strengthened by the second-best nature of free trade and payments in a world of imperfectly competitive markets for goods and factors. In reality, neither the domestic goals nor freedom of trade and payments are realized through the sacrifice of the other. Most frequently, both kinds of goals are compromised. In my judgment, this is largely the consequence of the internal contradictions contained within the structure of the present international trade and payments system. On the one hand, both goals are enshrined in agreed codes of conduct, while, on the other hand, the adjustment mechanism inherently fosters a conflict between them.

ADJUSTMENT IN THE PRESENT SYSTEM

The adjustment mechanism in the present system is dominated by the combination of downward inflexibility in costs and prices and the stability of exchange rates. Except in particular cases or as a result of fortuitous circumstances, the combination is lethal—adjustment of payments deficits leading to unemployment, and adjustment of payments surpluses leading to price and income inflation.

There is no general method of overcoming this conflict between the goals of full employment and price stability and balance in international

payments as long as the combination of inflexible prices and stable exchange rates prevails. In my opinion, none of the various proposals to reconcile these goals with stable exchange rates would be effective.

It is sometimes asserted, or implied, that increasing international liquidity would solve the problem. This is based on the assumption that the inadequacies of the adjustment mechanism apply only to the short run, and that, given sufficient time for processes to work themselves out, equilibrium will be restored. While everyone agrees that instant adjustment under stable exchange rates cannot be expected, and that therefore adequate liquidity in the system is a *sina qua non* of adjustment, it clearly is not itself a *method* of adjustment. The absence of an optimum adjustment process under stable rates cannot be made to disappear through stretching out the period during which it is supposed to operate.

A second kind of proposal recognizes the deficiencies of the adjustment process under stable exchange rates, but suggests that they can be remedied through an appropriate combination of monetary and fiscal policies. Monetary policy, it is asserted, is the appropriate instrument for balance in international payments, fiscal policy for full employment and price stability. This is an ingenious system, but it does not meet the problem of adjustment of "fundamental disequilibrium." The contemplated mechanism of adjustment through monetary policy consists of capital flows induced by interest-rate differentials. A country suffering from a deficit in the balance of payments would raise interest rates through a tight-money policy, thereby inducing an inflow of capital; an easy-money policy would correct a surplus through inducing an outflow of capital.

There are two objections which can be raised to this approach. The first is its premise that capital flows are interest-sensitive. Whether or not this is true is an empirical question, but for our present purposes I am willing to accept it as true. The second objection is much more fundamental. The capital flows induced by monetary policies are in the nature of accommodating rather than autonomous transactions. They are *short-term* capital flows, substituting for gold flows or official compensatory financing. Hence, they are equilibrating only over the short run, and are therefore appropriate for corrections of temporary and reversible imbalances of payments. Correction of fundamental disequilibrium conceivably could be accomplished through autonomous long-term movements of capital, but these are not a function of short-term interest rates manipulable by the monetary authority.

FLOATING EXCHANGE RATES

If the conclusion is accepted that no devices, however ingenious, can always avoid the conflict between domestic goals and balance in payments

with free trade and payments as long as exchange rates are held stable, logic would seem to indicate the superiority of a floating-rate system. But this is too facile a conclusion.

An unmanaged system of floating exchange rates does permit the pursuit of internal policies by each country while balance in payments is automatically maintained by exchange-market forces. But this does not necessarily mean that it is the best system for reconciling domestic objectives and external balance. Unmanaged flexible rates involve costs, and these must be weighed against their advantages. One of the costs arises out of the inhibiting effects of continuously changing exchange rates on international trade and investment. The second cost is the sacrifice of the *stabilizing* influence of trade and investment on the internal economy when exchange rates are stable under particular conditions that will be specified below. If these costs were not associated with an unmanaged floating-rate system, it would be wise for such a system to be adopted by every hamlet within every country!—a *reductio ad absurdum*, but one with a serious point. For, unless every individual is to have his own independent currency, there must be some basis for establishing unified currency areas within which exchange rates are fixed. The concept of an optimum currency area cannot be dissociated from that of an optimum adjustment mechanism.

In the world as it is, unified currency areas are coincident, with minor exceptions, with national political boundaries. I have concluded that neither fixed nor floating exchange rates between these areas permit optimum adjustment to fundamental balance-of-payments disequilibrium. Optimum adjustment requires a combination of stable and flexible rates, such as provided by a *managed* flexible-rate system, in conjunction with appropriate domestic monetary and fiscal policies. For short, I shall call this a system of managed flexibility.

GUIDELINES TO OPTIMUM ADJUSTMENT WITH MANAGED FLEXIBILITY

It is in the nature of a managed system that it is subject to mismanagement, and indeed this is one of the basic arguments advanced by some economists in favor of an unmanaged system. However, this is a political judgment rather than an economic issue. The only economic question is what the proper guidelines for management are. Fortunately, these are fairly simple, and after verbal statement they can be easily graphed.

The problem to be solved is to remove the conflict between the internal goals of full employment and a stable price level and balance in international payments. The first approach is to examine each of four possible combinations of internal and external imbalance. Internal

imbalance will be identified as consisting of either unemployment or inflation, external imbalance as either balance-of-payments deficit or surplus.

Case I: Unemployment and Payments Surplus

The first combination to be considered is that of domestic unemployment, accompanied by a surplus in the balance of payments. In this and in the following cases, it will be assumed that there are no net autonomous capital movements or transfers, so that imbalance in payments is manifested solely in the trade account. The analysis is not substantially affected if autonomous capital movements are admitted, as will be shown later.

It is immediately obvious that the concurrent presence of domestic unemployment and a balance-of-payments surplus offers an opportunity to approach both problems without conflict. However, the opportunity would be bypassed if the exchange rate were allowed to respond freely to the balance-of-payments situation. Appreciation of the currency, by increasing imports and decreasing exports, would impart further contraction upon the domestic economy, aggravating unemployment. (It is assumed throughout that the conditions for equilibrium in the foreign-exchange market are present.) The effect could be counterbalanced by an expansionary monetary and fiscal policy, but clearly a more direct approach would be to engage in domestic expansionary policies *without* a change in the exchange rate. The latter technique simultaneously reduces unemployment and the surplus in the balance of payments, avoiding the necessity of exchange-rate changes, or reducing their amount and frequency.

Case II: Price Inflation and Payments Deficit

A combination complementary to Case I is the concurrence of domestic inflation and a deficit balance of payments. Again there is an opportunity for moving toward a simultaneous solution, but not if the exchange rate is allowed to respond freely by depreciating. Improvement in the trade balance from exchange depreciation would increase inflationary pressures. While this could be countered through contractionary monetary and fiscal policies, the latter would operate directly to reduce both inflation and the balance-of-payments deficit with the exchange rate held stable.

Case III: Unemployment and Payments Deficit
Case IV: Price Inflation and Payments Surplus

The opposite to Cases I and II are the complementary pairs of Case III and Case IV. Correspondingly, opposite policies are called for. Instead of holding the exchange rate stable and using domestic policy

as the primary adjustment instrument, in these latter cases the exchange rate should be appropriately changed, with the possibility of avoiding the necessity of employing monetary and fiscal policies. Thus, the depreciation in exchange rate caused by a payments deficit would contribute to reducing unemployment as well as eliminating the deficit, while an appreciation in rate caused by a payments surplus would eliminate the surplus and thereby contribute to reducing inflation. If the exchange rate were held stable in either case, appropriate domestic policies would aggravate payments imbalance.

A Graphical Presentation. The preceding analysis can usefully be presented in graphical form, as in Figure 1. Only two policy variables are employed to achieve the domestic goals of full employment and a stable price level and external balance: the rate of exchange (R)—that is, the price of foreign currency in terms of domestic currency—and domestic expenditure on goods and services. The latter consists of domestic expenditure on home-produced goods and services, plus expenditure on imported goods and services. The term "domestic absorption" (A) will be used to designate the sum of these expenditures.

The rate of exchange is measured on the vertical axis, domestic absorption on the horizontal axis. It is assumed that foreign prices (in foreign currencies), foreign income, and the foreigners' propensity to import from our home country are given, and that the domestic propensity to import from abroad is also given.

Using a well-established technique we may now construct a curve SS' of internal balance. Each point on the curve indicates a particular combination of absorption level and exchange rate at which the full-employment equilibrium level of income would prevail. Since the national income is equal to the sum of domestic absorption and the trade balance, for any given level of domestic absorption there is some rate of exchange which will yield a trade balance just sufficient, in combination with the domestic absorption, to result in a full-employment level of income.

As a reference point, in Figure 1, A^0 is assumed to be the volume of absorption at which the full-employment level of income is achieved with a zero balance of trade. R^0, therefore, is assumed to be the exchange rate that, given A^0 absorption, equates imports and exports.

Now suppose that domestic absorption were less than A^0. Full employment would then require a positive trade balance, that in turn would require a higher rate of exchange than R^0. (The required trade balance is equal to the difference between the full-employment level of saving and the given level of domestic investment.)

By the same reasoning, if absorption is greater than A^0, stability of the domestic price level requires a negative trade balance, which in turn

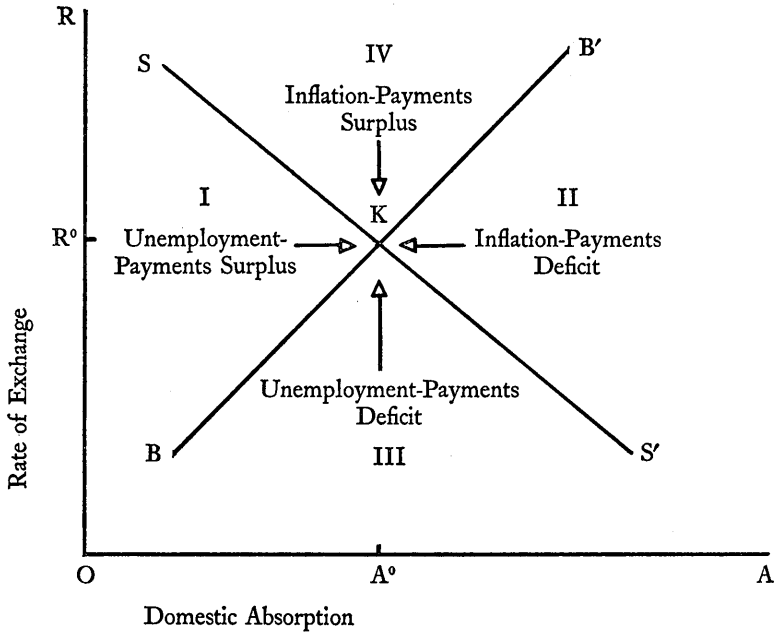

FIGURE 1

requires an exchange rate lower than R^0. (The required excess of imports over exports is equal to the excess of the given domestic investment over the full-employment volume of saving.)

For these reasons, the internal-balance line has a negative slope. All points above and to the right of the line represent a combination of absorption and trade balance that would cause inflation, while anywhere below and to the left of the line there would be unemployment.

Through a similar process, an external-balance line BB' can be constructed, on each point of which the trade balance is zero. One such point has already been indicated—namely at the combination of A^0 absorption and R^0 exchange rate. If absorption were less than A^0, the trade balance would show a surplus unless the rate of exchange were lower than R^0. Absorption greater than A^0 would cause a deficit in the balance of trade unless the exchange rate were above R^0. Hence, BB' has a positive slope, and at all points above and to the left of it there would be a trade surplus, and below and to the right a trade deficit.

Full employment and a stable price level are realized simultaneously with external balance only at point K, where SS' and BB' intersect.

The four cases of concurrent failure to achieve domestic goals and

external balance are represented in the four quadrants of the figure. For ease of comparison, the quadrants are numbered to correspond to the cases previously described.

It is graphically clear why in quadrants I and II, corresponding to cases I and II, a stable exchange rate, with adjustment first approached through changes in domestic expenditure, is preferable to adjustment through the exchange rate. The first adjustment process works in the direction of reducing the disparity between full employment and price stability on the one hand, and external balance on the other hand. The second adjustment process causes a widening of the disparity, with a movement toward one of the goals being accompanied by a movement away from the other.

By contrast, in quadrants (and cases) III and IV, adjustment through the exchange rate works in the direction of achieving both internal and external objectives, while adjustment through expenditure policy with the exchange rate constant leads toward one goal but away from the other.

INCOMPLETE ADJUSTMENT AND COMBINED POLICIES

Unfortunately for a simple and uncluttered set of policy guidelines, a single policy instrument will be fully successful in achieving both domestic goals and external balance only under special conditions that cannot in general be expected to prevail in the real world. In graphical terms, starting from somewhere within any one of the quadrants, the appropriate single policy brings the economy closer to K, but only accidentally exactly to K. Put another way, the probability is that one of the lines, either SS' or BB', will be reached first, with only partial adjustment accomplished. For example, suppose that in an initial situation of inflation and balance-of-payments surplus (quadrant IV) the rate of exchange is lowered, with no change in expenditure policy, as recommended. This may result in external balance before inflation is stopped, leaving the economy somewhere on the segment KB'. Or internal balance may be reached before the surplus in the balance of payments is eliminated, leaving the economy on the segment KS.

More generally, we may note that these results are equivalent to initial situations of balance in one sector, combined with imbalance in the other sector. Four such combinations are possible, as follows:

Case I′: Unemployment—external balance (segment BK).

Case II′: Full employment with price stability—surplus in the balance of payments (segment SK).

Case III′: Inflation—external balance (segment KB').

Case IV′: Full employment with price stability—balance-of-payments deficit (segment KS').

Because of the functional relationship between the national income and the trade balance, it is at once clear that a single policy instrument is not sufficient for complete adjustment in any of these cases. Correcting the imbalance in one sector creates imbalance in the other. Hence, both policy instruments are required. However, the appropriate combination of instruments is unique in each case, as can clearly be seen in graphical terms.

Starting from a point on the segment *BK*, an increase in both domestic expenditure and the rate of exchange is required; on segment *SK*, an increase in expenditure combined with a decrease in exchange rate; on segment *KB'*, a decrease in expenditure combined with a decrease in rate; on segment *KS'*, a decrease in expenditure and increase in rate.

Given the probability that the recommended adjustment procedures in cases of concurrent internal and external imbalance will lead to adjustment in one sector before balance is restored in the other, at which point a change in the exchange rate is required to complete the adjustment, why not let the adjustment process consist from the beginning in appropriate rate changes? And if this be so, why not let the market determine what is the "appropriate" rate, instead of risking the consequences of setting the incorrect rate? In short, has not the analysis come down to an argument in favor of freely fluctuating exchange rates, combined, of course, with domestic policies for full employment and a stable price level?

Two basic reasons can be advanced for rejecting the approach suggested by these questions.

The first is that it would sacrifice the contribution to internal objectives that stable exchange rates provide when a country is confronted with either inflation combined with a deficit in the balance of payments or unemployment combined with a surplus in the balance of payments. Empirical observation, as well as theoretical reasoning, identify these as the two most probable kinds of concurrent imbalance. Moreover, concurrent imbalance in both the internal and external sectors is more often to be expected than balance in the one with imbalance in the other.

The second objection to adjustment via the exchange rate in the above two cases is from the point of view of international trade and investment. Changes in the rate of exchange that are necessary to correct external payments imbalance are consistent, and even required, for the optimum flow of trade and investment. But unnecessary changes in exchange rates can only hinder the optimum flow of trade and investment.

Keeping these two points in mind, let us examine the consequences of letting the exchange rate be the primary instrument of adjustment when a country is suffering simultaneously from inflation and a deficit in the balance of payments. Adjustment in the balance of payments is pre-

sumably effected immediately through a rise in the exchange rate. But this means that inflationary pressures on the internal economy are increased. A negative trade balance serves to constrain domestic inflation. A rise in the exchange rate not only removes this constraint, but positively adds to inflationary forces by increasing the prices of imported goods and increasing wage demands. While the inflationary results of exchange depreciation can be modified by contractionary monetary and fiscal policies, these are slow-working, and have their burden increased by the depreciation.

Perhaps even worse, however, the lag in internal adjustment necessitates a second change in the rate of exchange, and in the opposite direction from the initial change. The exchange rate establishing payments balance creates payments imbalance as domestic policies succeed in reducing inflation. To avoid a surplus in the balance of payments, exchange appreciation is then required.

If, instead of the above sequence, the exchange rate were held stable until inflationary forces were brought under control, not only would the task of stopping inflation be eased by the continuing (though diminishing) balance-of-payments deficit and stable import prices, but the degree of subsequent rate change would be smaller (in a limiting case, zero), and the probability of a necessary secondary reversal in exchange rate reduced.

Precisely the same kind of analysis rejects the exchange rate as the primary instrument of adjustment when domestic unemployment coexists with a balance-of-payments surplus.

The case against freely fluctuating exchange rates is further strengthened, for reasons similar to those given above, whenever external payments imbalance is of a temporary and reversible character.

THE SYSTEM WITH CAPITAL MOVEMENTS

The preceding analysis has been based on the assumption of zero net capital movements and transfers. The modifications required upon relaxing this assumption may now be briefly indicated.

First, a sharp theoretical distinction should be made between short-term or accommodating and long-term, autonomous movements of capital. The first type do not affect the fundamentals of the recommended system, though they may facilitate or interfere with the appropriate adjustment processes, depending upon circumstances. If in a particular case a facilitative role is played, all to the good. If it is inhibitive, counteractive measures by the monetary authority are called for. It is to be expected, however, that balancing short-term capital movements would be more common under the proposed system than under either the present system or a system of freely fluctuating rates. The principal

source of disequilibrating capital movements in the present system of fixed rates with infrequent but occasionally large changes in them is the virtual absence of risk and prospect of sizable gain by shifting funds out of countries with a chronic balance-of-payments deficit. In a system of freely fluctuating rates the primary source of disequilibrating movements is the uncertainty of rate movements, with the ever-present possibility of very large degrees of fluctuation. Neither of these sources would be present, at least to the same extent, under a system of flexible rates managed according to the rules prescribed by the foregoing analysis.

With respect to autonomous long-term capital movements, the adjustment procedures remain the same as in the first model, with one possible exception to be noted in a moment. However, the conditions of concurrent internal and external balance are somewhat different. If a country is experiencing a net outward movement of capital, concurrent internal and external balance requires a lower level of domestic absorption out of a given full-employment level of income, and a higher rate of exchange than would be the case with a zero net balance on capital account. This is because external balance demands a current-account surplus equal to the net capital outflow. The higher rate of exchange produces the positive trade balance, and the lower level of domestic absorption releases the extra resources for export while avoiding excessive aggregate demand and inflation. In the reverse case of net capital inflow, the appropriate level of domestic absorption is higher and the exchange rate lower.

In graphical terms, the effect of autonomous long-term capital movements is to displace the BB' line from its position in the absence of such movements. This is shown in Figure 2 for the case of net capital outflow by the dashed line. The appropriate combination of absorption and exchange rate moves from A^0, R^0 to A'^0, R'^0 as a result of the capital outflow.

In the case of net capital inflow, the new external-balance line would be below BB' and intersect to the right of point K.

Adjustment procedures remain the same as delineated previously, unless long-term capital movements are induced by changes in domestic absorption and/or exchange-rate variations. It is highly unlikely that exchange-rate variations of the type envisaged would significantly affect long-term capital movements, but quite possibly changes in domestic expenditure and national income would. If any reaction occurs, it most probably will be an inflow of capital as a country moves from unemployment toward full employment, and an outflow of capital as it moves from inflation toward price stability. This may seem paradoxical, in view of low interest rates usually associated with the first movement and high interest rates with the second. However, it must be assumed that

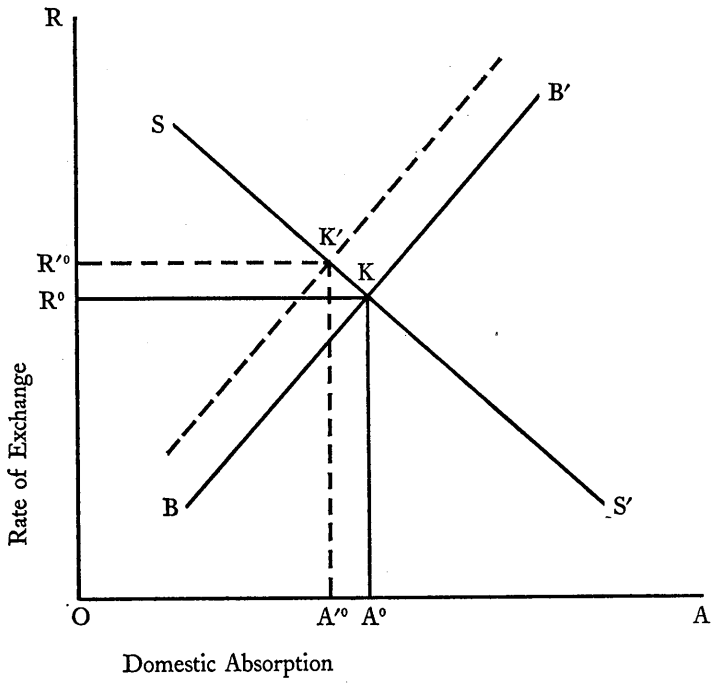

FIGURE 2

long-term capital movements are not very sensitive to short-term interest-rate differentials subject to cyclical fluctuations. On the other hand, long-term capital, in particular for direct investment, may be strongly attracted by improving rates of return on real investments, and this tends to be the situation as a country's national income is undergoing expansion from a state of unemployment. By the same token, contractionary movements away from inflation may discourage foreign capital from moving in and encourage domestic capital to seek more profitable outlets elsewhere.

Assuming these relationships prevail, the effects on the adjustment process depend upon the balance-of-payments situation. If unemployment coexists with a deficit in the balance of payments, any long-term capital inflow induced by domestic expansion will cause external balance to be reached more quickly, reducing the degree of appropriate exchange depreciation. Correspondingly, the chances are increased that a greater amount of expansion in domestic expenditure will be required to restore full employment, unless the inflow of capital directly causes increased domestic investment.

If, on the other hand, the initial situation is one of unemployment

combined with a surplus balance of payments, any inflow of long-term capital increases the surplus in the balance of payments to be corrected, increasing the chances that full employment will be reached before balance in payments. In this event, the exchange rate may have to be lowered and domestic expenditure further increased to reach both internal and external balance. Or, more fortunately, the increased surplus in the balance of payments may provide the extra "room" to allow domestic objectives to be reached without having to raise the exchange rate.

The same kind of analysis is applicable to long-term capital outflows that may be induced by adjustment processes in the case of initial imbalance with domestic inflation. The general conclusion which emerges is that the optimum mix of domestic expenditure and exchange-rate policies may be affected, but the fundamental approach remains unaltered.

THE OPTIMUM CURRENCY AREA

As indicated earlier, the optimum adjustment process cannot be separated from the optimum currency area. By a currency area is meant the area within which there is a common monetary unit. An optimum currency area is one which maximizes the opportunity for optimum adjustment processes.

At the theoretical limits there are, at one extreme, a unified world currency, and at the other extreme as many independent currencies as distinguishable economic entities. In between, there is a multitude of possibilities, with the most realistic alternatives being national or regional currency areas.

From the point of view of the adjustment process, the principal relevant characteristic of a currency area is that, with respect to monetary relations among the entities within the area, exchange-rate variations are excluded. This will obviously be the case if there is a common currency. But essentially the same condition prevails if there are different currency units with unalterably fixed exchange rates between them, provided that no restrictions on the conversion of one unit into another are present. The essence of a single currency area embracing the major trading countries was embodied in the pre-1914 gold standard.

It follows from these definitions that an optimum currency area is one within which optimum adjustment occurs with exchange rates fixed, while with respect to relations between that area and other areas optimum adjustment requires the option of variable rates. The question of what constitutes an optimum currency area thus boils down to what conditions favor fixed exchange rates, a question which has been dealt with by Robert Mundell.

Optimum adjustment has been defined in this paper in terms of the

simultaneous realization of full employment and price stability and external balance without the imposition of controls on payments, trade, and investment. Under modern conditions, full employment and price stability require the persistent and judicious use of monetary and fiscal instruments. One key requirement for an optimum currency area is thereby immediately determined: its boundaries must coincide with the limiting boundaries of effective monetary and fiscal policies. Conceivably, this requirement could be fulfilled through a full-scale coordination of such policies among independent monetary and fiscal agencies. More realistically, however, it can be fulfilled only if there is a single monetary and fiscal authority.

Even though a fully coordinated or single monetary and fiscal authority is a necessary condition for an optimum currency area, it is not a sufficient condition. Common monetary and fiscal policies obviously eliminate problems arising out of differences in such policies, but they do not preclude the emergence of other sources of imbalance which monetary and fiscal policies alone are incapable of handling. As a generic classification, these other sources may be called *structural*, and include changes in tastes, resources, and technology.

To illustrate, suppose that a currency area consists of two parts, A and B, each of which produces only one product, X in A, Y in B. Starting from an equilibrium position with full employment of resources in both A and B and a net zero trade balance between them, let the aggregate demand for Y increase and for X decrease because of a change in tastes. Employment and income decrease in A and increase in B, while A's trade balance turns negative and B's trade balance becomes positive. An adjustment mechanism automatically begins to operate. The decrease in A's income and money supply exerts a deflationary influence and causes a reduction in her demand for both goods, while the increase in income and money supply in B causes an expansion in her demand for both goods. Trade balance thus tends to be restored. But if wages are inflexible in a downward direction in A, continuing unemployment in A is unavoidable unless additional adjustments are made.[1] One possibility is for the central monetary-fiscal authority to adopt expansionary policies, but in this case full employment is attained at the cost of a stable price level.

It is clear that there is only one kind of satisfactory adjustment—namely, a reallocation of A's resources away from the X industry and

[1] It is to be noted that, if the exchange value of A's currency in relation to B's could be depreciated, the trade balance could be restored without unemployment through a combination of currency depreciation and expanded home expenditure in A. Stability conditions would thus be satisfied, although A's real income cannot escape being reduced through a deterioration in her terms of trade.

toward the Y industry. This will be possible within A, however, only if A's resources are readily adaptable to the production of Y, so that costs are competitive with B's costs. If the production functions for X and Y are markedly different, and if relative factor supplies in A and B are also significantly different, adjustment through reallocation within A is precluded.

There remains, however, a second method of reallocation—the movement of factors from A to B. With a high degree of factor mobility present, this is in fact what would tend to occur, and constitutes an essential part of optimum adjustment.

Unfortunately, in the real world factors are never perfectly mobile. Moreover, not all that are mobile are readily adaptable to other uses. Hence, some degree of residual unemployment may be unavoidable in practice. The only method of taking care of any such residual unemployment is through some sort of compensatory extra-market measures, such as public works programs, retraining of workers, and the like, and, finally, transfer payments, financed by the central fiscal authority.

The general conclusion which emerges is that an optimum currency area meets the following qualifications:

1. A single monetary-fiscal authority.
2. Either a uniform distribution of productive resources or a high degree of factor mobility.
3. A central responsibility for compensatory measures.
4. A certain minimum size and degree of self-sufficiency.[2]

It is instructive to note the implication of these criteria for international monetary arrangements. A fixed exchange-rate system is totally inappropriate among countries with independent monetary-fiscal authorities—unless there is such a degree of coordination that the independence is fictional—or among countries with markedly different relative factor supplies or a high degree of factor immobility, or among countries not willing to assume a common responsibility for compensatory measures. To a very large extent, the fulfillment of the requirements for an optimum currency area depends upon political arrangements. Monetary-fiscal independence is a primary attribute—and instrument—of national sovereignty. Short of the creation of a common government, it is difficult to imagine different countries constituting an optimum currency area. Regional blocs, such as the European Economic Community, have a clear potentiality of developing in this direction, in which event fixed exchange

[2] The arguments supporting this fourth qualification have not been included in the preceding discussion. This point was added to take account of Ronald McKinnon's analysis in "Optimum Currency Areas," *American Economic Review*, Vol. LIII (September 1963), pp. 717-725. McKinnon shows that for a small area, with a high ratio of tradable to non-tradable goods flexible exchange rates would not work well.

rates within the bloc but with managed flexibility between the bloc and the outside world may become the proper arrangement.

Besides the inappropriateness of the present exchange-rate system internationally, it can be argued that some *national* currency areas are not optimum. Evidence that such is the case for the United States, for example, is the existence of "depressed areas" in the context of a booming over-all economy, and the apparent irreconcilability between full employment and a stable price level. However, the political barriers to the fractionalization of existing currency areas are even greater than to their expansion. More important, from an economic point of view, the requirements for an optimum currency area are probably as well satisfied in most national states as they can be in practice in this imperfect world.

INSTITUTIONAL ARRANGEMENTS

The emphasis in the paper has been on the theoretical case for the managed flexibility of exchange rates. For such a system to be implemented it would be necessary to establish a new set of operating rules for the international monetary order in substitution for current rules under the International Monetary Fund. Institutional changes would also be necessary, though these could be of a relatively minor character.

Any one of several different specific arrangements could serve as the institutional framework for implementing the principles of managed flexibility, ranging from national stabilization-fund operations to a supranational agency, such as a transformed IMF. Space disallows a detailed examination of these alternatives, but certain general principles which must be followed for the system to be effective may be indicated.

The most important principle is the commitment of each country to pursue the internal and external policies indicated as appropriate for the reconciliation of domestic goals and external balance. What these policies would be under different sets of circumstances have been adumbrated previously and need not be repeated.

This raises the potentially greatest danger to the integrity of the system. While every country should be willing to agree to the prescribed general policy guidelines if the latter are understood and accepted as valid, the successful operation of the system requires that appropriate national policies not conflict. To cite the clearest case, the injunction to country *A* to raise the exchange rate on the currency of country *B* must not coincide in time with the injunction to *B* to raise its rate on *A*'s currency.

The probability of such conflicts is greatly reduced if all countries succeed reasonably well in maintaining full employment and price stability. It is further reduced by the unlimited convertibility of currencies, so that the impact of any one country's policies is spread over

the rest of the world, affecting no one other country significantly. Most importantly, the optimum adjustment processes of the system as earlier formulated contain a built-in consistency of national policies. Currency depreciation is never indicated unless there is a balance-of-payments deficit, and then not always; and currency appreciation is never indicated unless there is a balance-of-payments surplus, and then not always. (In Case II described above, depreciation is not resorted to, even though there is a payments deficit, and in Case I appreciation is avoided, even though there is a payments surplus.) Hence, so far as countries simultaneously in external imbalance are concerned, any appropriate exchange variations are consistent with each other. For third countries for which the appropriate policy is stable exchange rates, the depreciation of deficit currencies and appreciation of surplus currencies tend to have offsetting effects on the balance of payments, though perhaps usually not completely offsetting.

For these reasons, inconsistencies in appropriate adjustment policies are not likely to occur on any serious scale, and this would seem to be the primary prerequisite for the practical feasibility of the system.

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William Fellner, Fritz Machlup, Robert Triffin, and Eleven Others, *Maintaining and Restoring Balance in International Payments* (1966). [This volume may be ordered directly from Princeton University Press, Princeton, New Jersey 08540, at a price of $6.50.]