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OPTIMUM ADJUSTMENT PROCESSES  
AND CURRENCY AREAS

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*FRITZ MACHLUP, Director  
International Finance Section*

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# OPTIMUM ADJUSTMENT PROCESSES AND CURRENCY AREAS

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 *sine 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

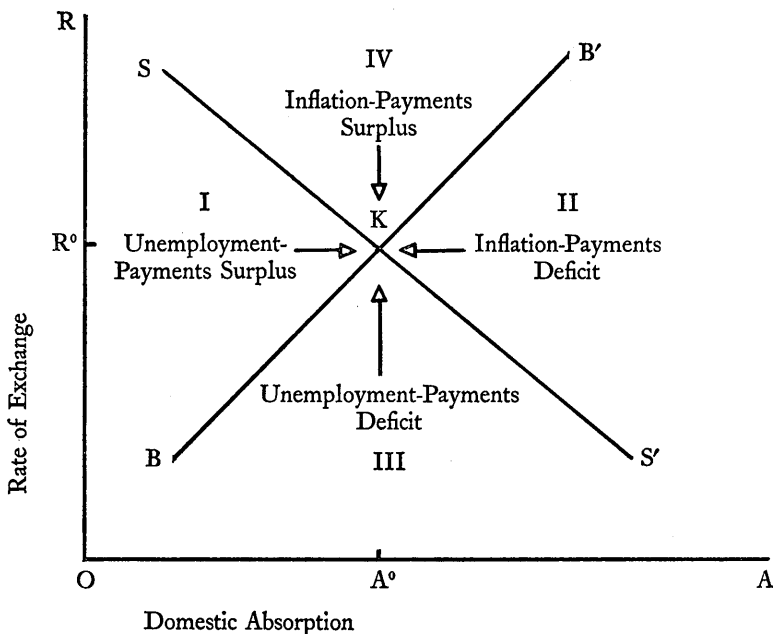


FIGURE 1

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