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Adjustment Costs and the
Distribution of New Reserves

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FRITZ MACHLUP
Director

Princeton University
August 1966

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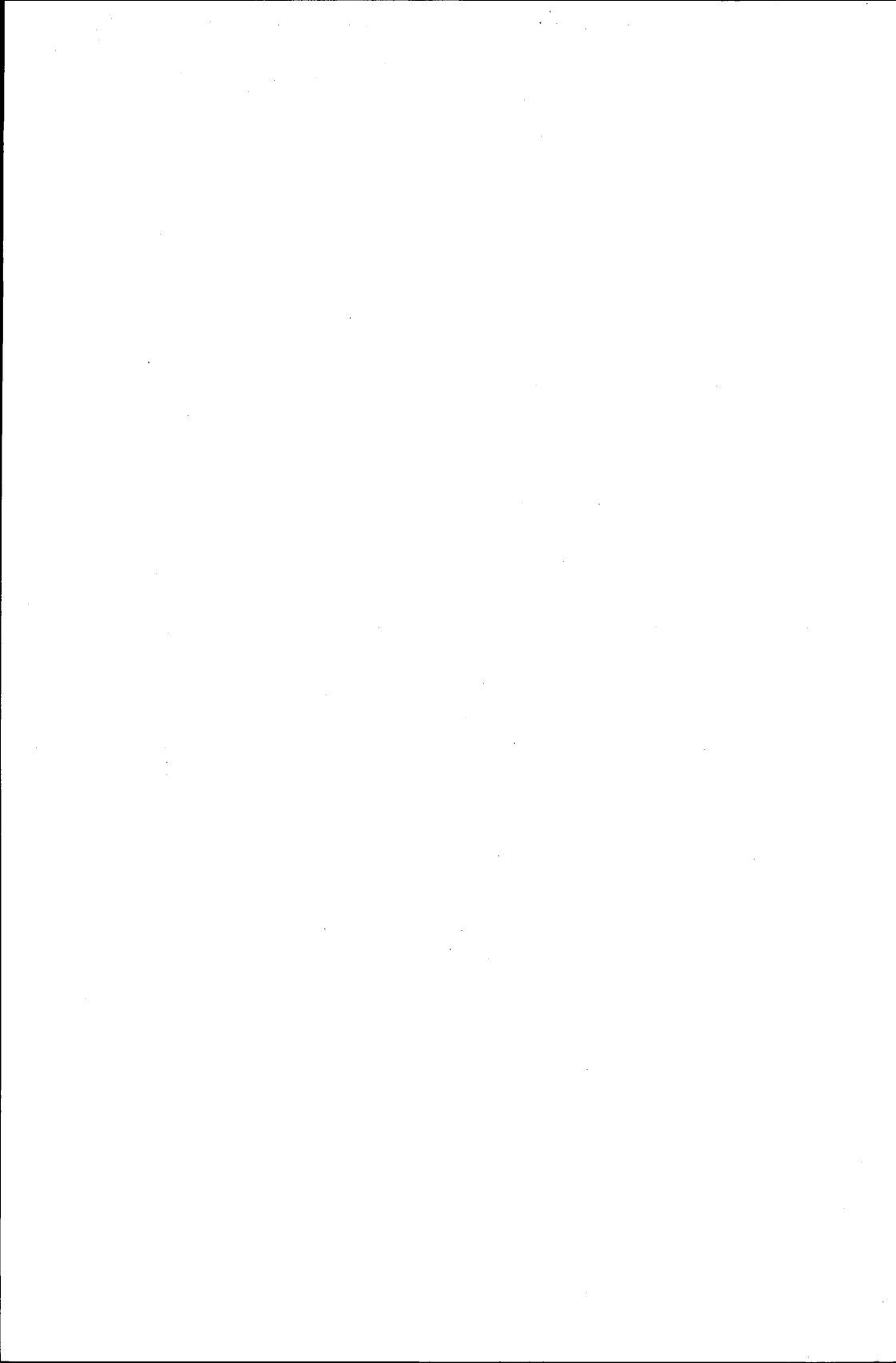
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ADJUSTMENT COSTS AND THE DISTRIBUTION OF NEW RESERVES

I. INTRODUCTION

The international debate on world monetary reform has entered a new phase. Previously, the discussion had focused on the issue first raised by such specialists as Robert Triffin¹: is the creation of new international monetary reserves necessary? Now, however, a consensus appears to have developed that so long as the gold-exchange standard remains essentially unaltered, additional liquidity in fact will, sooner or later, be required.²

This is currently the attitude not only of national and international civil servants, but even of those economists in the academic world who would still prefer that reform move in the direction either of a modified gold standard or of greater exchange-rate flexibility rather than in the direction of extending the present system.

The issues now are more technical: how much additional liquidity does the system need, in what form should the new reserves be provided, and to whom should they be distributed?³ In this essay I shall be concerned with this last question: the pattern of distribution. My purpose is to suggest—for reasons shortly to become clear—that whatever the amount and form of new reserves created, they ought to be distributed to countries in proportion roughly to the international distribution of the “transitional cost of balance-of-payments adjustment” (by which I mean the distribution of the cost of transition from international payments imbalance to an equilibrium with external balance).

First of all, this suggestion requires that we inquire into the determinants of the international distribution of transitional adjustment costs. The main argument in this study will be that the economic structure of each country has an important effect on its mode of adjustment required by external imbalance. That is, the international distribution of the transitional cost of adjustment is a function (at least partially) of the structural attributes of nations. Of course, it should be recognized from the start that this is a subject about which relatively

¹ Robert Triffin, *Gold and the Dollar Crisis* (New Haven: Yale University Press, 1960).

² See Pierre-Paul Schweitzer, “Fund Report at ECOSOC,” February 24, 1966, reprinted in *International Financial News Survey*, Vol. XVIII (February 25, 1966), Supplement. But compare Emile Despres, Charles P. Kindleberger, and Walter S. Salant, “The Dollar and World Liquidity: A Minority View,” *The Economist*, Vol. CCXVIII (February 5, 1966), pp. 526-529.

³ See Schweitzer, *op. cit.*, p. 68.

few precise quantitative statements may be possible. Yet even an approximate, qualitative sort of insight would be extremely useful in working out the most suitable formula for distributing newly created reserves. For it is a fact that even while imbalances are by and large symmetrical and shared—one nation's deficit is another's surplus⁴—the cost of adjustment is not. Indeed, the process of adjustment normally proceeds quite asymmetrically, and the transitional cost of adjustment is frequently not even shared at all.

As we shall see, the heaviest burden of adjustment costs falls on the less developed countries, whose economies are particularly vulnerable to external pressures. And this makes for a strikingly "inequitable"⁵ distribution, since it seems evident that these countries are compelled to pay a disproportionate share of the transitional cost of adjustment to disturbances wherever they originate, at home or elsewhere. Were they to receive a corresponding share of the new reserves to be created as a consequence of world monetary reform, the developing countries could employ their new resources to reduce their rather marked "adjustment vulnerability." In time, this would ensure that all countries share more equitably than they do now in the balance-of-payments adjustment process. True, distributing new reserves according to this pattern would deliberately link the problem of international liquidity and economic development. But that is precisely the purpose of this study: to indicate why this would be an appropriate procedure.

Chapter II of this study will discuss the meaning and significance of adjustment costs, and will suggest that in order to analyze the international distribution of transitional adjustment costs, it will be necessary to reconsider the role of the state in balance-of-payments theory. The proposed analytical model will be explored in greater detail in Chapter III. Chapter IV will consider the influence of four particularly important structural attributes of nations on the distribution of transitional adjustment costs. The study will end with a brief summary and conclusion.

⁴ Ignoring special definitions of balance (such as the Lederer definition) and increases of monetary gold stocks, both of which have the effect of destroying accounting symmetry; and also ignoring statistical discrepancies, which may in some instances be quite substantial. See Poul Høst-Madsen, "Asymmetries Between Balance of Payments Surpluses and Deficits," *International Monetary Fund Staff Papers*, Vol. IX (July 1962), pp. 182-201.

⁵ Tentative criteria of equity are proposed below in Chapter III.

II. MEANING AND SIGNIFICANCE OF ADJUSTMENT COSTS

Balance-of-Payments Adjustment

To explore the concept of adjustment cost, we must begin with the concept of adjustment. In accordance with standard practice, we may define balance-of-payments adjustment as "a marginal reallocation of productive resources and exchanges of goods and services under the influence of changes in relative prices, incomes, and exchange rates." This is the classical concept of "real" adjustment, the basic tool of balance-of-payments theory. Real adjustment is normally distinguished from transactions that merely finance an imbalance.⁶ It is this concept of adjustment that will be employed in this study.

The nature of the adjustment process has been summarized most succinctly by Fritz Machlup's well-known Group of 32 Economists in its study of international monetary problems:

The classical method of adjustment consists in a fall of money incomes, wage rates, costs, and prices in the deficit countries relative to those in the surplus countries. This can be brought about either by a change in exchange rates between the currencies of the countries concerned or by changes in the absolute levels of money incomes, wage rates, costs, and prices in some or all of the countries.⁷

In short, the process of balance-of-payments adjustment requires monetary inflation or currency revaluation by the surplus country or monetary deflation or currency devaluation by the deficit country (or some combination of the two).⁸ This is so whether the imbalance of

⁶ Lately, some dissatisfaction has been expressed regarding this conventional distinction. Under the pressure of the international-liquidity problem, economists have become acutely aware of how difficult it is to draw a line between transactions that require financing and transactions that perform the function of financing. This has led Fritz Machlup to propose an intermediate classification of "compensatory corrections," to describe transactions which help to "balance the accounts" (reducing the need for adjustment) but which do not themselves constitute "real" adjustment. See Fritz Machlup, "Real Adjustment, Compensatory Corrections, and Foreign Financing of Imbalances in International Payments," in Robert E. Baldwin *et al.*, *Trade, Growth, and the Balance of Payments* (Chicago: Rand McNally and Company, 1965), pp. 185-213. This contribution is useful, but it does not affect the definition of adjustment outlined in the text, since the new classification consists entirely of transactions that may be regarded as performing the function of financing.

⁷ Fritz Machlup and Burton G. Malkiel (eds.), *International Monetary Arrangements: The Problem of Choice* (Princeton: International Finance Section, 1964), p. 25.

⁸ For the sake of simplicity and clarity, I shall continue throughout most of this study to speak of payments imbalance as a matter involving just *two* countries, one in deficit and one in surplus. Although for most analytical purposes a two-

payments manifests itself initially as a "real" imbalance on current account or as a "financial" imbalance on capital account. Both are species of general disequilibrium; to achieve general equilibrium—and not merely some chimera of statistical balance—real adjustment is necessary.⁹ That is, the deficit country must decrease its imports of goods and services from the surplus country relative to its exports of goods and services. And this can only come about through a relative realignment of money incomes and price levels in the two countries sufficient to generate the required reallocation of resources at the margin.

In fact, the balance-of-payments adjustment process has two dimensions: speed and magnitude. Adjustment may proceed swiftly or slowly; and the required resource reallocation may be moderate or extensive. It is manifest that these two dimensions are interdependent, though the nature of the interdependence is uncertain. On the one hand, it might be argued that for a given balance-of-payments disturbance, the longer the period over which the process of adjustment is stretched, the more resistant will be the untenable allocation of resources and exchanges, consequently the greater will be the magnitude and extent of the required reallocation. On the other hand, rapid adjustment or prompt initiation of adjustment may also involve rather extensive resource shifts, if it turns out that the disturbance was temporary and real allocation not called for.¹⁰ I shall not dwell on this question of speed, since for our purposes this dimension of the adjustment process can be ignored. What concerns us more is the other dimension of adjustment: the magnitude of the marginal resource reallocation necessary to eliminate the disequilibrium. Indeed, this is the very sense of the classical concept of real adjustment, as I have already mentioned. The magnitude of the resource reallocation is, *ex ante*, the measure of adjustment required; *ex post*, it is the evidence that the process has taken place.

country model is sufficient, for some it is not. The most important limitations of the two-country model are noted and discussed in Chapter III, below.

⁹ Real adjustment is hardly necessary in *all* situations of payments imbalance, of course. In certain conditions, where the disturbance is clearly temporary and non-repetitive—such as an earthquake or a crop failure—financing by means of gold and short-term capital movements is a much more appropriate response. But these are not the conditions that interest us here. In this study we are concerned only with disequilibrium situations of a more general and lasting nature; that is, situations where the payments imbalance is caused by persistent monetary inflation or deflation, or by permanent changes in the demand or supply schedules for particular commodities in international trade. In such situations, real adjustment is the only appropriate response. See Edward M. Bernstein, "Strategic Factors in Balance of Payments Adjustment," *International Monetary Fund Staff Papers*, Vol. V (August 1956), pp. 151-169.

¹⁰ See, for example, Machlup and Malkiel, *op. cit.*, pp. 48-53.

It follows from what has just been said that *adjustment is a mutual process*, just as imbalance of payments is a mutual experience. For just as one country cannot be in deficit without a second being in surplus,¹¹ so resources cannot be reallocated within one of them without an equivalent and offsetting reallocation of resources within the other. In brief, the process of adjustment involves a reallocation of resources at the margin that is *complementary*. Should the deficit country, for instance, move resources that were previously employed in producing for the home market into export production, the surplus country will also find itself obliged to shift resources about as it begins to receive additional imports. Likewise, should the deficit country instead increase output in import-competing industries, the surplus country will find itself exporting less and therefore with additional resources available for use in production for its own internal market. In either event, the reallocation of resources is complementary; the process of adjustment is always *shared*.

However, while it is true that the *process* of adjustment is always shared, it is not true that the *cost* of adjustment is always shared. Quite the opposite is true, as we shall see. Furthermore, the process of adjustment is costly. Indeed, we may distinguish between two different costs inherent in the adjustment process, one a "transitional" cost, one a "continuing" cost.¹² The latter is never shared, and the former tends, more often than not, to fall on particular countries with certain specific structural attributes. In this study we shall be concerned primarily with the international distribution of the transitional cost of balance-of-payments adjustment. It will be useful, though, to begin with a brief discussion of the continuing cost of adjustment.

Continuing Cost of Adjustment

The continuing cost of balance-of-payments adjustment is *always* borne *wholly* by the deficit country. We have noted that real adjustment requires that the deficit country decrease its imports of goods and services relative to its exports of goods and services. This can be accomplished through (1) an absolute decline in the value of the debtor's imports with no corresponding change in the value of its exports (or with only a small rise of exports), (2) an absolute decline in the value of imports exceeding a corresponding decline in the value of exports, (3) an absolute rise in the value of exports with no corresponding change in the value of imports (or with only a small de-

¹¹ Again, we are ignoring special definitions, increases of monetary gold stocks, and statistical discrepancies, and speaking only in terms of a two-country model.

¹² I am indebted to Fritz Machlup for suggesting the terms "transitional cost" and "continuing cost," the meanings of which are much more readily apparent than those of the two terms I had originally intended to use.

cline in imports), or (4) an absolute rise in the value of exports exceeding a corresponding rise in the value of imports.

Associated with each of these four main alternatives is a very different combination of changes in real national income and real national "absorption"¹³ in the deficit country: (1) a reduction of real national absorption of goods and services relative to a more or less stable real national income; (2) an absolute loss of national income as well as absorption (via unemployment or an unfavorable movement of the factor term of trade)¹⁴; (3) an increase of national income, all of which, however, is absorbed abroad; or (4) an absolute increase of absorption as well as national income.

Thus, it is clear that the approaches to adjustment are several in number. Yet the fact remains that in all cases the effect on the deficit nation is the same: its real national absorption is reduced relative to that of its trading partner. That is, at the new international equilibrium, the former deficit country must be worse off than the former surplus country, in the sense that it now receives a smaller proportion of the combined output of the two nations. This is the continuing cost of balance-of-payments adjustment. It is a continuing cost in that it is an open-ended phenomenon—the continuing real cost that the new international situation, *prevailing after all change has occurred*, imposes on the former deficit country. *Ex hypothesi*, this cost is at all times borne entirely by the deficit country, whatever the particular approach to adjustment.

To be sure, depending on the particular approach to adjustment, the *magnitude* of the continuing cost of adjustment required by any given payments imbalance may vary considerably. The magnitude of the cost, measured in terms of real national absorption foregone, is a direct function of the changes in real national income experienced in the two countries as a result of the adjustment process. Adjustment requires a reallocation of real resources, but similar resource reallocations can be generated by different adjustment techniques, and these different kinds of techniques may impose strikingly different costs in terms of human suffering and unpleasantness.

¹³ See Sidney S. Alexander, "Effects of a Devaluation on a Trade Balance," *International Monetary Fund Staff Papers*, Volume II (April 1952), pp. 263-278. The expression real national "absorption" means the same as the term "domestic real intake," which Fritz Machlup prefers and which he defines as "the total domestic use for consumption and investment of goods and services valued at constant prices." See Machlup, "The Terms-of-Trade Effects of Devaluation Upon Real Income and the Balance of Trade," *Kyklos*, Vol. IX (1956), pp. 438-442.

¹⁴ It should be noted that, in theory, there might be no loss of national income at all if a decline in the value of imports results entirely from a drastic movement of the net commodity terms of trade. Such a possibility is so unlikely, however, that we can safely disregard it as a practical alternative in this discussion.

In discussing different kinds of adjustment techniques, Staffan B. Linder distinguishes qualitatively between two major categories of reaction by deficit countries to external disequilibrium.¹⁵ According to Linder, there are "negative" reactions, such as monetary deflation, trade restriction, exchange control, and currency devaluation¹⁶; and "positive" reactions, such as technological innovation or imitation and sales promotion. Although he does not explicitly say so, it is clear that corresponding to each of these two qualitative categories of reactions by the deficit country is a parallel category of reactions by the surplus country. Thus, following Linder, we may say that the surplus country reacts positively to external imbalance to the extent that it helps the deficit country avoid negative adjustment techniques—that is, to the extent that it inflates or revalues, or to the extent that it permits imitation of its technology or sales promotion in its home market. The surplus country reacts negatively to the extent that, by policies designed to preserve its payments position, it compels the deficit country to employ negative adjustment techniques.

It is no accident that Linder uses such normative terms as "positive" and "negative" to describe the reactions of deficit and (implicitly) surplus countries to mutual payments imbalances. Negative reactions tend to impose comparatively high continuing costs of adjustment on the deficit country in terms of real national income (and therefore absorption) foregone, especially insofar as they result either in an underemployment equilibrium or in protection to inefficient industries. Positive reactions, on the other hand, impose correspondingly smaller continuing costs, especially insofar as they result in improved technology, higher-quality products, or new market opportunities.¹⁷ In short, the magnitude of the continuing cost of adjustment is a direct function of the kind of adjustment techniques employed. But the fact

¹⁵ Staffan B. Linder, *An Essay on Trade and Transformation* (New York: Wiley and Company, 1961), p. 145.

¹⁶ In reality, it is perhaps inappropriate to list devaluation unequivocally as a "negative" reaction; it might be more appropriate to list it in an intermediate "either-or" category, since in some respects—especially in respect of the transitional cost of adjustment—the effect of devaluation on the deficit country may be distinctly "positive." See below, the last section of this chapter.

¹⁷ I should point out that, in adopting Linder's useful, but normative, terminology, I do not mean to introduce technical progress as a *deus ex machina* in balance-of-payments theory. I do not mean to imply, for instance, that a country *must* innovate or imitate because it has a payments deficit, or even that a country is likely to do so. On the contrary, I mean to imply only that there are different kinds of adjustment techniques, some of which are relatively high-cost, some relatively low-cost; and that among the latter we must, as a practical matter, include technical innovation and imitation. The terms "positive" and "negative" are used here to refer only to the magnitude of the cost implied by different kinds of adjustment techniques, not to the magnitude of their contribution to "progress" (however defined).

still remains that whatever the kind of techniques employed—positive or negative—the consequent continuing cost is borne entirely by the deficit country. At the new international equilibrium, it is always the former deficit country that receives a smaller share of the combined output of the two nations. With respect to this cost of adjustment, therefore, there is no problem of international distribution.

Transitional Cost of Adjustment

We have noted that the continuing cost of adjustment falls on the deficit country after all change has occurred, that is, after the process of adjustment is concluded. But the process itself also imposes a cost—the cost of making the change. Adjustment implies transition, a once-for-all phenomenon. And in economics each transition, each reallocation of resources, has its own cost, separate and quite distinct from the presumed cost of the new situation obtaining after the transition is complete. Thus the transition itself from payments imbalance to an equilibrium with external balance must also have a cost, separate and quite distinct from the continuing cost associated with the new international situation. This is the transitional cost of balance-of-payments adjustment.

Perhaps a simple illustration will help clarify the distinction being drawn here. Consider the individual worker who, having lost his job and being unable to find a comparable one, finally accepts a lower-paying position. This process of adjustment imposes two costs on the worker. The more obvious one is the real cost implied by the new position, that is, the difference between his previous wage and his new wage. This is an open-ended phenomenon, a loss of income that will continue so long as the worker remains in his new position. This, in other words, is the continuing cost for him of the adjustment process. But, in addition, the worker must have suffered some loss of income during his period of enforced idleness; there must have been some real cost involved in searching for a new job, possibly also the cost of moving his residence or investing in new skills. This is a once-for-all phenomenon, a single loss of income associated with the process of transition and change—in other words, the transitional cost of the adjustment process (which someone has to pay).

It is in this sense that we shall continue to speak of the transitional cost of balance-of-payments adjustment: to mean the cost of change, the cost of transition to the new international equilibrium. Unlike the continuing adjustment cost, which is measured in terms of real national *absorption* foregone and can therefore be expressed only *indirectly* as a function of changes in real national income, the transitional adjustment cost can be measured *directly* in terms of real national

income foregone. Our problem is: how can we identify this cost, and how can we know who pays it?

Recall that the process of adjustment involves a relative realignment of money incomes and price levels in the two countries (deficit and surplus) sufficient to generate the required complementary reallocation of resources at the margin. This may be accomplished by monetary inflation or currency revaluation by the surplus country, or by monetary deflation or currency devaluation by the deficit country (or some combination). It is manifest that all of these alternatives are costly (though not equally costly): all imply that a certain amount of real national income will have to be foregone by one or both of the countries during the adjustment process—and because of it.

For example, some of these alternatives—monetary deflation, in particular—tend to result in temporary unemployment of a part of the national supply of manpower and machinery. Usually this may be expected to occur in the deficit country, but not necessarily—for instance, if the surplus country revalues its currency and as a result suffers a sudden and sharp loss of exports. Until such time as these idle resources can be reabsorbed into the production stream, the potential benefits from their productive capacity will be lost. Conversely, some of the four alternatives mentioned—especially monetary inflation—tend to result in a rising level of internal prices. This usually may be expected to occur in the surplus country, but once again not necessarily—for instance, if the deficit country devalues its currency without pursuing a sufficiently restrictive monetary policy. This result, too, may be costly. For, apart from their possibly unwanted effects on income distribution, accelerated price increases are apt to create an incentive for diverting investment resources from normal productive channels into such speculative activities as transactions in real estate and on the stock and commodity exchanges. Since this implies a certain distortion of the production structure, it means that the benefits of a more appropriate allocation of resources will be lost until such time as prices can once again be stabilized and the speculative fever has abated.

In practice, therefore, we may identify the transitional cost of adjustment—the amount of real national income foregone during and on account of the adjustment process—by observing the extent to which each of the two countries sharing a payments imbalance must undergo either price inflation or resource unemployment so that mutual balance can be restored.

Plainly, some part or even virtually all of the transitional adjustment cost may be borne by either country even though the adjustment process itself is shared. That is, the complementary reallocation of resources may be paid for largely or even wholly by either the deficit