

Effects of a Devaluation on a Trade Balance

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THE CONVENTIONAL ANSWER to the question, what is the effect of a devaluation on the trade balance of the devaluing country, runs in terms of the supply and demand conditions in the devaluing country and in the rest of the world. It is presumed that the devaluation initially tends to reduce the foreign prices of the country's exports in proportion to the devaluation. At these reduced prices, foreign demand for the country's exports will be increased, thus tending to bid up the foreign prices of these exports part-way back toward their predevaluation levels. How much the foreign currency proceeds of the country's exports will change then depends upon the elasticity of foreign demand for the country's exports and the elasticity of domestic supply of export goods. Similarly, on the import side, the initial effect of the devaluation is to raise the domestic price of imports, presumably leading to some reduction in the country's demand for imports, which in turn may tend to reduce the world price of the imported goods. The size of these reactions on imports depends upon the elasticity of domestic demand for imports and the elasticity of foreign supply of imports. The effect of the devaluation on the foreign trade balance can accordingly be expressed in a formula which involves principally the four elasticities mentioned above.¹

In the present paper, it is suggested that a more fruitful line of approach can be based on a concentration on the relationships of real expenditure to real income and on the relationships of both of these to the price levels, rather than on the more traditional supply and demand analysis.

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¹See A. P. Lerner, *The Economics of Control* (New York, 1946), p. 378; Joan Robinson, "The Foreign Exchanges," *Essays in the Theory of Employment* (2d ed., Oxford, 1947), p. 143, fn., reprinted in *Readings in the Theory of International Trade* (H. S. Ellis and L. Metzler, eds., Philadelphia, 1949), p. 93, fn. 10; A. J. Brown, "Trade Balances and Exchange Stability," *Oxford Economic Papers*, No. 6 (1942), pp. 57-76; Lloyd Metzler, "The Theory of International Trade," *A Survey of Contemporary Economics* (H. S. Ellis, ed., Philadelphia, 1948), p. 226.

The Elasticities Approach

The conventional analysis is an extension, to imports and to exports as a whole, of the familiar Marshallian supply and demand analysis of the price and production of a single commodity. While supply and demand curves are very useful tools for analyzing the factors that determine price and output for a single good, their value is much more questionable when applied to imports and exports as a whole. Similarly, the extension of the Marshallian partial equilibrium analysis to the determination of total employment and output has been found to be of limited use. The most important reservation against the use of the Marshallian supply and demand curves in the analysis of the effects of a devaluation arises from the complexity of the relationships which govern supply and demand conditions in international trade. The elasticities for which the conventional formulas are valid must be defined as total elasticities and not as partial elasticities.

Partial elasticities measure the effect of a change of price on the quantity supplied or demanded when all other things remain equal. Total elasticities relevant to a devaluation measure the corresponding relationship when the other things have changed that are likely to change as a result of the devaluation. Accordingly, a total elasticity does not measure the direct effects of price changes on quantity, but the covariation of price and quantity as the whole economic system seeks a new equilibrium. A total elasticity is the ratio of a percentage change in quantity to a percentage change in price. But the percentage change in quantity is the result not only of the price change to which it is related, but also of many other price and income changes which are themselves direct and indirect effects of devaluation. The percentage change in price is not generally equal to the percentage devaluation, but itself depends on the same complicated set of relationships. Therefore the total elasticities appropriate for the analysis of the effects of a devaluation depend on the behavior of the whole economic system, and the statement that the effect of a devaluation depends on the elasticities boils down to the statement that it depends on how the economic system behaves.

The Income-Absorption Approach

In examining the relationships of real expenditure to real income and of both of these to price levels, the analysis of the effects of devaluation should, of course, be applied to both the devaluing country and the rest of the world. It is generally recognized that a country's net foreign trade balance is equal to the difference between the total goods and services produced in that country and the total goods and

services taken off the market domestically. For brevity, the taking of goods and services off the market will be referred to here as absorption. Absorption then equals the sum of consumption plus investment as usually defined (including in investment any change in the holding of inventories). If a devaluation is to affect the foreign balance, it can do so in only two ways: (1) It can lead to a change in the production of goods and services in the country; this change will have associated with it an induced change in the absorption of goods and services so that the foreign balance will be altered by the difference between the change in income and the income-induced change in absorption. (2) The devaluation may change the amount of real absorption associated with any given level of real income.

In order to simplify the discussion, any factors affecting the foreign balance of a country other than those connected with trade in goods and services will be ignored. Also, it will be assumed that there are no restrictions on trade and payments, although that assumption is not necessary for the validity of the subsequent analysis. Furthermore, only the simplest forms of the various relationships involved will be considered. For example, only one price level will be considered, and the change in that level will be denoted by p . The reader who wishes to think of a more complex and realistic model may consider p as denoting a whole set of price changes that might be represented by a vector. Similarly, y will denote the change in the aggregate net production of goods and services, i.e., in national income.² Finally, the relationships in the devaluing country will be examined; to complete the picture, a similar analysis, with some of the terms reversed, would have to be applied to the rest of the world.

A starting point is the identity that the foreign balance, B , is equal to the difference between the total production of goods and services, Y ,³ and the total absorption of goods and services, A :

$$B = Y - A.$$

Changes in these quantities may be denoted by the corresponding small letters, so that

$$b = y - a \quad (1)$$

² This might be taken by the ambitious reader to mean the whole set of changes in the output of various goods and services each taken separately. Any linear coefficient, such as the propensity to absorb, which appears as a simple constant in this discussion could also be re-interpreted as an appropriate vector or matrix which multiplies the income or price vector. In short, the analysis will proceed in terms of a highly simplified model which could be made much broader by a re-interpretation of the symbols.

³ It makes no difference for the formal analysis whether Y is taken net or gross, i.e., whether it is national income or gross national product, provided A is correspondingly defined as net or gross. For convenience, Y will subsequently be referred to as national income, or, more briefly, income.

is our fundamental identity. It indicates that the change in the foreign balance equals the difference between the change in output and the change in absorption of goods and services. It shows that the first question to be investigated is how the devaluation will affect the two terms, y and a . The above relationships hold, of course, both in real and in money terms. The present discussion will deal only with real quantities, not with money values.

Account may first be taken of the fact that the absorption of goods and services depends, at least in part, on real income, which itself is equal to the output of goods and services. Absorption may also depend on the price level, or other factors related to the devaluation, so that

$$a = cy - d \quad (2)$$

where c is the propensity to absorb, equal to the propensity to consume plus an analogous effect of income on investment, which may be called the propensity to invest. The term d may be called the direct effect of the devaluation on absorption. It expresses whatever tendency there may be for the devaluation to induce a change in the amount of real absorption at any given level of real income.

Equation (2) therefore states that the change in the absorption of goods and services in real terms as a result of devaluation is made up of two parts. The first, cy , is the change in real consumption plus real investment that is induced by the change in real income that results from the devaluation. The other part, d , is the change in absorption which results other than through the income effect.

A combination of the functional relationship (2) with the fundamental identity (1) yields

$$b = (1 - c)y + d. \quad (3)$$

This formulation is useful in that it directs the investigation to three basic questions: How does the devaluation affect income? How does a change in the level of income affect absorption, i.e., how large is c ? How does the devaluation directly affect absorption at any given level of income, i.e., how large is d ? In order to analyze these questions in precise terms, the entire economic structure of the devaluing country and of the rest of the world would have to be considered. Such an analysis would be far more complicated than is desirable for the presentation of the main ideas of this paper. Consequently, what follows is a summary of these main ideas, rather than a precise formulation of the relationships.

Effect of Devaluation on Income

Idle resources effect

The principal effect of a devaluation on income is associated with the increased exports of the devaluing country and the induced stimulation of domestic demand through the familiar multiplier relationship, provided there are unemployed resources.⁴ In addition to the multiplier itself, the limiting factors on the process of inducing enlarged output are (1) the degree to which an increased output of goods and services is forthcoming without an extensive price rise in the devaluing country, and (2) the degree to which the rest of the world can absorb the increase in exports that is associated with the decline in the foreign prices of exports made possible by the devaluation—after allowance for the counteracting upward movement of the domestic prices of export goods, which occurs as the demand for these goods expands. These considerations are familiar in the literature.

It must be emphasized that the net effect of the recovery of income and production on the foreign balance is not the total amount of additional production induced, but merely the difference between that amount and the induced increase in absorption. This difference between the real production or income and the real expenditure on goods and services may be termed real hoarding. The foreign balance is, by the fundamental identity, equal to the aggregate real hoarding of the economy as a whole. The income-induced change in the balance, b , is accordingly equal to the income-induced change in real hoarding, i.e., the change in income, y , multiplied by the propensity to hoard, $1-c$. The existence of the business cycle makes it plausible that c may be greater than unity, that an increase in income may stimulate an even greater increment in the absorption of goods and services into consumption and investment. Many of the current theories of the business cycle do depend on the assumption that c is greater than unity. If c is equal to or greater than unity, the foreign balance will not be improved as a result of the increased output. Under such circumstances, the devaluation might be effective in stimulating recovery but not in improving the foreign balance except possibly through direct effects, which will be considered below.

At any rate, under conditions of unemployment, devaluation may be expected to exert a favorable effect on production and employment. This fact became evident in the devaluations of the thirties, and was recognized even before the promulgation of the Keynesian theory,

⁴Fritz Machlup, *International Trade and International Income Multiplier* (Philadelphia, 1943) and J. E. Meade, *The Balance of Payments* (London, 1951).

though not in so systematic or analytic a framework.⁵ The competitive depreciations of the thirties were largely associated with a recognition of the income effects of a devaluation, a recognition that was perhaps dim and intuitive on the part of many of those responsible for the devaluations, but nevertheless clear enough to motivate those devaluations. Of course, to the extent that the additional exports of the devaluing country displace those of its competitors, the levels of production and income in the competitor countries will be adversely affected. Recognition of this fact, as well as direct balance of payments considerations, must lie behind the opposition to competitive devaluation from an international point of view, as reflected in the International Monetary Fund's Articles of Agreement, I (iii).

From the point of view of a devaluing country that has unemployed resources, the effect on income, as well as the favorable effect on the balance of payments if c is less than unity, must constitute the most attractive potentiality of a devaluation. If the country is at full employment, this potentiality does not exist and the effects of a devaluation must depend on the more tenuous and less attractive direct effects on absorption.⁶

Terms of trade effect

Another income effect frequently considered as influencing the foreign balance is that of the terms of trade. It is usually presumed, frequently with justification, that a devaluation will result in a decline of export prices in foreign currency greater than the decline of import prices in foreign currency. This presumption is based on the fact that a country's exports are usually more specialized than its imports, so that the price of exports will be much more subject to the influence of devaluation than will the price of imports. There may be some compensation, though probably only to a minor degree, if imports greatly exceed exports prior to the devaluation. Thus, if before the

⁵ See Seymour Harris, *Exchange Depreciation* (Cambridge, Massachusetts, 1936), especially pages 6 and 7.

⁶ See J. J. Polak and T. C. Chang, "Effect of Exchange Depreciation on a Country's Export Price Level," *Staff Papers*, Vol. I, pp. 49-70 (February 1950) for statistical evidence that, as far as effectiveness in altering export prices relative to those of competitors is concerned, the effects of a devaluation tend to be much stronger in depression than in full prosperity or inflation. However, Barend de Vries, in an unpublished paper, found that there was little difference in the competitive price effects of important devaluations as between the extreme depression period 1931-33 and the recovery years 1935-36. Deflation in non-devaluing countries in the earlier period tended somewhat to reduce the competitive advantages gained by the devaluers, while presumably in the later period the rise of domestic prices in the devaluing countries themselves also tended to reduce the competitive price effect of the devaluation.

devaluation the country concerned was importing twice as much as it was exporting, and if as a result of the devaluation the fall in foreign prices of exports is 2 per cent and of imports 1 per cent, the deficit in foreign currency would be unchanged if the physical values of imports and exports were unchanged. It may, however, be assumed that the normal result of a devaluation will be such a deterioration of the terms of trade of the devaluing country as to make the balance of payments deteriorate by the amount t . That is, t is the measure of the reduction of the country's real income associated with the deterioration of the terms of trade.

A fallacious argument, frequently encountered, is that a deterioration of the terms of trade on account of devaluation will improve the foreign balance since it reduces the real income of the country and hence the demand for imports. It is true that the reduced income associated with a deterioration of the terms of trade will reduce the demand for imports as well as for domestic goods. Thus the decline in income, t , resulting from the changed terms of trade will induce a reduction of absorption by the amount ct , which will permit an equivalent improvement in the foreign balance partly through the direct reduction of imports included in ct and partly through the eventual transfer to the production of exports or of import substitutes of the resources formerly used to produce the domestic components of ct . The effects of the deterioration of the terms of trade accordingly will be, after resources are transferred, an improvement of the amount, ct . But the entire deterioration, t , of the national income as a result of the changed terms of trade is initially a reduction in the foreign balance. That is, the change of the terms of trade initially imposes a reduction, t , in the foreign balance and then has the effect of stimulating an improvement, ct , so that the change in the balance associated with the initial terms of trade effect on income, t , is $t-ct$ or $(1-c)t$. This might have been seen directly from equation (3). If t is negative, as assumed, and if c is less than unity, then a deterioration in the terms of trade also implies a deterioration in the foreign balance. Only if c is greater than unity will the adverse terms of trade effect improve the foreign balance.

The aggregate income effects may then be expressed as $(1-c)$ multiplied by the change of income. That change of income will have two components. One, presumably positive, is the idle resources effect, i.e., the increased production stimulated by the devaluation. The other, presumably negative, is the effect on income of the change in the terms of trade. The resulting change in income, y , will induce a change in absorption, cy , so that it will, according to equation (1), result in a change of the foreign balance equal to $y-cy$ or $(1-c)y$.

Direct Effect on Absorption

If there is initially full employment, or if c is almost unity or greater than unity, the principal favorable influence of a devaluation on the foreign balance is through the direct effect on absorption. This direct effect is largely associated with a tendency for a high or rising price level to discourage consumption or investment out of a given level of real income. It is important to recognize that this effect is not connected with any tendency for higher prices to force a reduction of consumption or investment out of a given money income. That would be an effect through real income, since if prices go up relative to money income, real income goes down. Except for the terms of trade effect on income, the real income of the devaluing country should not be expected to decline; at full employment, money income and money prices can be expected to move together. The direct effect on absorption is any influence toward lower real expenditure as money income and money prices rise together as a result of the devaluation.

In order most clearly to illustrate the nature of the forces behind d , the direct effect on absorption, certain assumptions which imply that all other effects are absent can be made. Accordingly, assume that the devaluing country is at full employment so that real income produced cannot be increased as a result of devaluation. Furthermore, assume that the foreign supply of imports and the foreign demand for exports are perfectly elastic, so that the foreign currency prices of imports and exports, and hence the terms of trade, will be unchanged. Thus there will be no income effects, either through increased production or through a change in the terms of trade.

The higher import and export prices in domestic currency resulting from devaluation will initially induce an attempt by individuals and enterprises in the devaluing country to shift their demand from imports to the home market and to export more. The resulting increased demand for the country's production would tend to raise domestic prices and money incomes to the point where the increased demands are choked off by the combined operation of the direct absorption effect and the narrowing price differential between the foreign and the domestic markets. If there were no direct absorption effect, domestic prices would continue to rise until there was no longer any tendency to substitute domestic goods for imports, or to try to export more, and there would be no change of the foreign balance as a result of the devaluation.

The relationship involved may be illustrated by a crude example. Suppose, under the assumed conditions of full employment and perfectly elastic foreign supply and demand, that there is a 10 per cent

devaluation and an elasticity of direct absorption of 0.1. This would mean that a 1 per cent increase in the general price level would induce a 0.1 per cent reduction of absorption at a given level of real income. It may also be assumed that the substitutability of domestic goods for imports in consumption, and of resources as between the production of domestic goods and exports, is such as to link the domestic price level to the prices of foreign goods by a factor of 0.5, so that the 10 per cent increase of import and export prices in domestic currency leads to a 5 per cent rise of the general domestic price level. Then the devaluation would lead to a reduction of absorption by one-half of one per cent of total absorption. If imports furnish about 20 per cent of total absorption, the improvement of the foreign balance would amount to $2\frac{1}{2}$ per cent of imports. In terms of the conventional analysis, the inelasticity of domestic supply of exports and of import substitutes reduces the effect of the devaluation in spite of the perfect elasticities of foreign supply and demand. At full employment, the elasticity of domestic supply for import substitutes and exports taken together must be just another way of expressing the direct absorption effect.

It is frequently taken for granted that, even when the devaluing country is at full employment, a devaluation will lead to increased exports and reduced imports. If it does so, then clearly domestic absorption will have been reduced. The question to be explored is why, with a given real income, when money incomes and prices rise in the same proportion there should be a reduction of real consumption or investment.

The direct absorption effect can be divided into a cash balance effect, an income redistribution effect, a money illusion effect, and possibly into other, miscellaneous direct absorption effects.

Cash balance effect

The cash balance effect is perhaps the best known of the direct absorption effects. If the money supply is inflexible, and if money-holders desire to maintain cash holdings of a certain real value, they must, as prices rise, accumulate more cash. This will require a reduction in their real expenditures relative to their real incomes. It might be possible for any individual to increase his cash holdings by selling other assets, but this is clearly impossible for the country as a whole as long as the banking system or government does not create more money, except to the extent that goods or services may be sold abroad and the domestic money supply thereby increased. Capital movements are ruled out here; if they were allowed they might change or eliminate the cash balance effect.

One result of the attempt to maintain real cash balances by increasing their money amounts while prices rise may be to drive down the prices of assets, i.e., to increase the rate of interest. This in turn might have some effect on real consumption or investment relative to real income: thus the cash balance effect may operate *directly* on the income-expenditure relationship through the foregoing of expenditure in order to build up cash, or *indirectly* through the rate of interest as the result of an attempt to shift from other assets into cash—an attempt that can be discouraged only by a rise in the rate of interest. Clearly, one of the most important components of the direct absorption effect would be the cash balance effect. A hypothetical example applied to the United Kingdom may illustrate the possible magnitude of that effect. Suppose that in the United Kingdom the total money supply is £5 billion, and that a devaluation raises domestic prices by 5 per cent and thus cuts the real value of cash balances by about 5 per cent or £250 million. Suppose that cash balances were previously in adjustment with the level of real incomes, and that for each £10 that they are out of adjustment there is a cut of expenditure of £1 to rebuild them. There would then be a cash balance effect (ignoring any repercussions through the rate of interest and assuming no change in real income) of about £25 million per year on absorption, and therefore on the foreign balance.

It is possible that the reduction of absorption on account of the cash balance effect, or of the other direct absorption effects, might be directed toward certain domestic goods and services, from whose production it is not easy to transfer resources to the production of exports or import substitutes; therefore, some unemployment might result. The results of this unemployment might then be traced throughout the economy. If c is less than one, the net result of this adverse effect on income produced would be a deterioration of the foreign balance which would tend to counteract the improvement from the direct absorption effects.

It is pointed out below that, before any of the analysis of this paper is applied to a practical case, it is necessary to abandon the oversimplification here adopted and to recognize that y , a , p , and c are sets of quantities, i.e., that they must be regarded as vectors or matrices. The economic content of this fact is that it will make a difference, in view of immobility of resources and other imperfections, in what sector of the economy a particular reduction of absorption, or change of income, takes place.

Redistribution of income

The redistribution of income effect is also well recognized. There may be a long lag of wages behind prices, and profits might therefore gain at the expense of wages as a result of the devaluation. Rising prices will transfer income from fixed money income groups to the rest of the economy. Taxes, at least in advanced countries, can be expected to take a larger share of a given real income when the price level is higher. To the extent that income is shifted from those with a high marginal propensity to absorb to those with a low propensity, the foreign balance will be improved by the devaluation. It must be remembered, however, that absorption includes both consumption and investment, so that it is by no means certain that a shift to profits will lead to reduced absorption. Although the proportion of any increment of income consumed by the profit recipient may be smaller than the proportion consumed by the wage earner, the higher profits may stimulate investment demand. The government can, in advanced countries, usually be expected to have a low marginal propensity to absorb, so that the tax shift might be a significant factor influencing the relationship of absorption to income, and so affecting the foreign balance.

Money illusion

The money illusion may contribute a favorable effect to a devaluation if it actually leads people to pay more attention to money prices than to money incomes. If at higher prices people choose to buy and consume less even though their money income has increased in proportion, over and above what can be attributed to the cash balance effect, the result on the balance of payments will be favorable. But rising money incomes and rising prices may actually operate in the opposite manner; for example, annual savings may be calculated in money terms and may fail to rise in proportion to money incomes and prices.

Miscellaneous direct absorption effects

There may be other direct absorption effects, some working toward a favorable, others toward an unfavorable, change in the foreign balance. Expectations of price rises may be inspired, leading to increased absorption with adverse effects on the foreign balance, at least in the short run. If investment goods come largely from abroad, investment may be much less attractive after the devaluation than before because of the rise in the domestic price of investment goods, provided no close

substitutes are produced domestically. More generally, the goods imported may be such that when the domestic prices rise, the domestic purchasers cut their expenditures on those goods but save or hoard the difference, rather than shift the expenditures to other goods. The importance of such a tendency in any actual case is open to doubt, but it is a theoretical possibility.

Impermanence and non-proportionality of effects

Many of the direct absorption effects may be transitory. Thus the money supply may respond to the increased demand for cash balances, so that the cash balance effect may gradually disappear or be counter-balanced by additional absorption financed by credit creation. Similarly, some of the income-distribution effects are associated with lags, but the lagged income may eventually catch up, e.g., wages may eventually rise to restore the predevaluation wage-profit relationship. Other effects depend on dynamic movements, on rising prices rather than on high prices. As the rise in prices comes to a halt, these effects will tend to disappear.

Furthermore, some of the effects may be non-proportional. A small devaluation may take advantage of the money illusion, or of wage inertia; a large devaluation may shatter the money illusion, or impart a dynamic momentum to the wage inertia, or lead to modifications of tax rates, etc.

In general, then, many of the effects of a devaluation on the balance of payments through the direct absorption effects may be expected to be transitory and non-proportional. It does not necessarily follow that, in the absence of unemployment, a devaluation cannot have a strong influence on the balance of payments; that depends on the strength of the various effects discussed above. The author's impression, however, is that in many cases, in which the question of devaluation is likely to become a live issue under conditions of full employment, the favorable direct absorption effects are likely to be weak. It would seem to be much more effective to operate on absorption directly through monetary and credit policy—limitation of government expenditures, of private investment and, possibly, of private consumption—provided these can be brought to bear on the foreign balance without adversely affecting income and employment. They must, of course, "adversely" affect absorption, since, at full employment, it is possible to improve the foreign balance only through reducing absorption.⁷

This practical conclusion is not, however, the main conclusion of this paper. The main conclusion is that the most fruitful approach to

⁷ Theoretically it is also possible through improving the terms of trade as well.

the general problem of obtaining a satisfactory foreign balance, and in particular of appraising the effects on the foreign balance of a devaluation, is via the analysis of the income-absorption relationship. It is theoretically possible to obtain the same answers in terms of supply and demand elasticities, but one is more likely to be misled. It seems more in accord with the realities of the situation to recognize that, if the foreign balance is to be improved, the community as a whole must reduce its absorption of goods and services relative to its income. The inquiry can then best follow the line of asking who is to cut his absorption relative to his income, or what is to be the shift of income from those who, on the margin, absorb more to those who absorb less. Supply and demand conditions, in the sense of partial elasticities, may be useful tools in this analysis. But the total elasticities, for which the conventional formulas alone are valid, are not only poor tools; they may mislead, or at least obscure the analysis.

Devaluation Compared with Other Methods

If an improvement of the foreign balance is required, it may possibly be achieved either through a devaluation or through some other method of reducing absorption relative to production. The general alternative to devaluation is sometimes referred to as deflation, but that term has a narrower connotation than it is desirable to give to the alternatives to devaluation. These alternatives, which may for brevity be referred to as disabsorption, may be characterized as the discouragement of absorption relative to income by means other than devaluation. Disabsorption may be attained through monetary policy, as for example, by discouraging investment and consumption through tightening credit. It may be achieved by direct controls, such as investment licensing or rationing of consumers goods. It may be applied over the whole economy, as in the form of a sales tax or income tax, or in selected spheres, as in the form of investment licensing or import controls. The means to disabsorption are many and varied, but they may all be characterized as domestic measures calculated to change the relationship of absorption to income, and hence to affect the foreign balance.

An analysis of the relative advantages, from the point of view of a single country, of devaluation and trade restrictions has been presented elsewhere.⁸ That analysis is appropriate only to conditions of full employment. It can be extended to any other domestic measure for achieving a given balance of trade at full employment. Measures tending to reduce imports are of benefit to the country concerned as

⁸See Sidney S. Alexander, "Devaluation Versus Import Restriction as an Instrument for Improving Foreign Trade Balance," *Staff Papers*, Vol. I, pp. 379-96 (April 1951).

long as the relative domestic welfare value of import goods relative to export goods does not exceed the marginal terms of trade, i.e., the rate at which export goods can be exchanged for import goods at the margin on foreign markets, account being taken of any tendency for the prices of exports to fall relative to imports as more exports are offered and imports demanded.

When consideration is given to measures to improve the foreign balance under conditions of widespread unemployment, the above criterion must be so modified as to be abandoned for all practical purposes. That criterion is based on the proposition that, if the marginal rate of exchange of export goods for import goods in the foreign market is less favorable than their domestic welfare values, it would pay to cut back on imports and thus gain a greater welfare value in the export goods saved for the domestic economy. But if the resources used to make those export goods would, under those conditions, become unemployed, then there would be no gain from the restriction but rather a considerable loss. It is generally recognized that under conditions of widespread unemployment a domestic expansion policy is appropriate. Any adverse effects on the foreign balance can, except in extreme cases of inelasticity of foreign demand and supply, be appropriately handled by devaluation rather than by disabsorption under such circumstances. Disabsorption becomes an attractive policy only as full employment is approached.

If disabsorption of a general nature, say through a broad deflationary policy, should lead from full employment to the idleness of certain resources which cannot be expected to be transferred to the production of exports or import substitutes, it is to that extent undesirable. It is well recognized that when deflation leads to unemployment it is an undesirable measure for improving the foreign balance. Other means, such as import restriction or devaluation, would be preferable. In actual practice, therefore, the choice between devaluation and disabsorption will be affected not only by the considerations of the terms of trade on which the above criterion is based, but more immediately by considerations of other effects of any particular measure on the domestic economy. Considerations of the desirability of the resulting changes in the distribution of income as among individuals are ignored here, although in practice these considerations may be important and sometimes governing. One of the most important effects of any measure to improve the foreign balance is the influence it has on production as well as on absorption.

In the analysis both of devaluation and of disabsorption, the issues turn largely on the price rigidities and general inflexibilities of the economy. A satisfactory analysis of the problems depends on the

identification and the appraisal of these inflexibilities. This is strictly analogous to the familiar question of whether, for stimulating employment, a reduction of wages can be as effective as an increase in aggregate monetary demand. That question hinges on whether the supply of labor is related to real wages or to money wages; that is, whether the effect of a given change in real wages that comes from a reduction of the general price level differs from that which comes from an increase in money wages.

Similarly, in evaluating various measures likely to affect the balance of payments, an identification of the rigidities and inflexibilities is vital to the conclusions. Thus, in the foregoing theory no attempt was made to distinguish between those components of a reduction in total absorption, a , which actually provide additional exports or import substitutes and those which do not. This constituted an implicit assumption that the resources freed by a reduction in absorption anywhere in the economy could be applied anywhere else, and in particular to the production of exports or import substitutes. It is, accordingly, necessary in any actual case to deal with a far more complicated set of components of the quantities, such as income and absorption, than have been used in this discussion. It must first be ascertained whether the contemplated measure will actually bring about the desired disabsorption and whether there may not merely be a shift of absorption to other objects, e.g., to clothing if food is rationed. It is further necessary to consider whether the resources to be set free by any contemplated disabsorption will in fact find their way into the production of exports or import substitutes. Thus what is required is a highly detailed analysis of the locus of impact of the contemplated measure and the nature of the adjustments in absorption and in production that will consequently be made.

Even where some form of disabsorption—for example, restriction of investments through licensing—can be achieved in such a manner that the investment goods can then be exported, the choice between that measure and devaluation must depend on whether the economy can spare the investment goods better than the different set of goods that would be foregone as the result of a devaluation or a restriction on imports. At this level of generality, it is possible to distinguish between two important lines of inquiry that must be followed in evaluating the relative merits of various possible measures to improve the balance of payments. The first concerns the effects on income, the second the relative welfare value of the absorption that must be foregone. These two considerations must be appraised jointly. Thus, for example, an import restriction may not reduce income at all but merely change the level of absorption in the country concerned. A devalua-

tion at full employment that achieved an equal improvement in the foreign balance might have a tendency to reduce the real income by the terms of trade effect. Imports may, however, have a domestic welfare value sufficiently above that of exports so that the reduction in real income associated with a more desirable composition of absorption is preferable to the higher real income but less desirable composition of absorption associated with import restrictions. This paradox contains an implicit criticism of the measure of real income used here; it implies that a lower real income can have a higher welfare value. The paradox could be eliminated by an improved method of measuring real income, but the fundamental principle remains. In evaluating alternative measures for improving the balance of payments, the final criterion must be the welfare value of the goods and services absorbed at the given balance of payments to be achieved. This will depend not only on the level of employment and production but also on the composition of that production, and on the level and composition of trade.