

SPECIAL PAPERS IN INTERNATIONAL ECONOMICS

No. 7, MARCH 1965

RECENT
DEVELOPMENTS
IN THE THEORY
OF INTERNA-
TIONAL TRADE

W. M. CORDEN

INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

PRINCETON UNIVERSITY · 1965

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The author, W. M. Corden, is Professorial Fellow in the Australian National University, Canberra. He has written numerous articles in the field of international trade theory and policy.

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**FRITZ MACHLUP, Director
International Finance Section**

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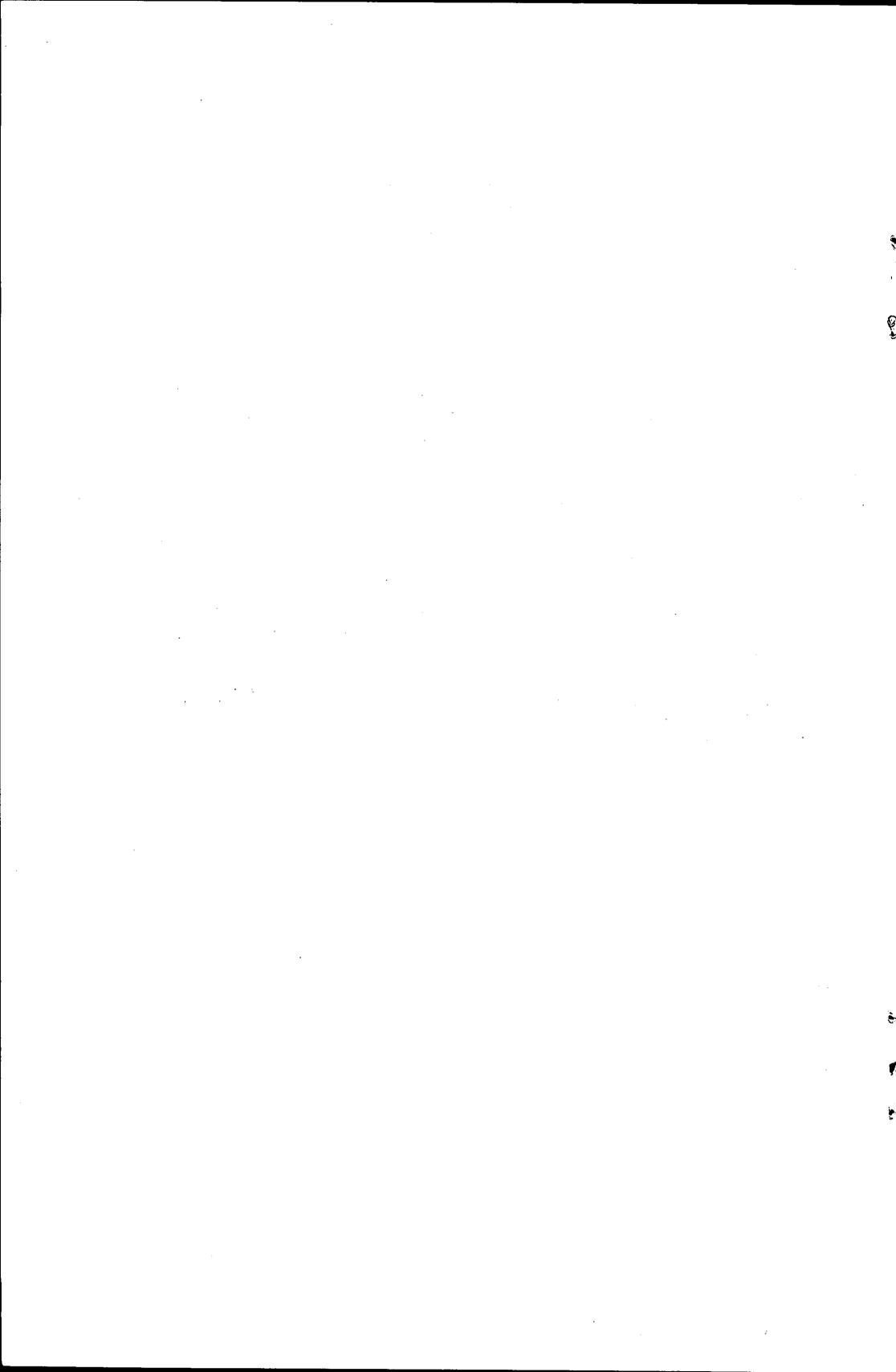
PREFACE

This is a slightly revised version of a paper presented at the January 1964 Congress of the Australian and New Zealand Association for the Advancement of Science. It may be regarded as a supplement to Professor Haberler's well-known *Survey* in the present series, although in some respects the points of view differ. Aspects of the theory of international trade which have attracted the most attention in recent years are dealt with more fully here. The paper was written before I saw Bhagwati's survey of the pure theory [14] which covers all aspects of the present paper other than Section I, and which is more detailed, rigorous, and formal. The approach here is rather to focus on the main changes in trade theory and to look at these, sometimes sceptically, in the light of their usefulness to applied economics. But our assessments of the main trends are very similar.

I am greatly indebted to H.W. Arndt, who persuaded me to contribute this paper as part of a symposium on "Recent Developments in Economic Theory" and who made numerous suggestions which have been incorporated in the paper.

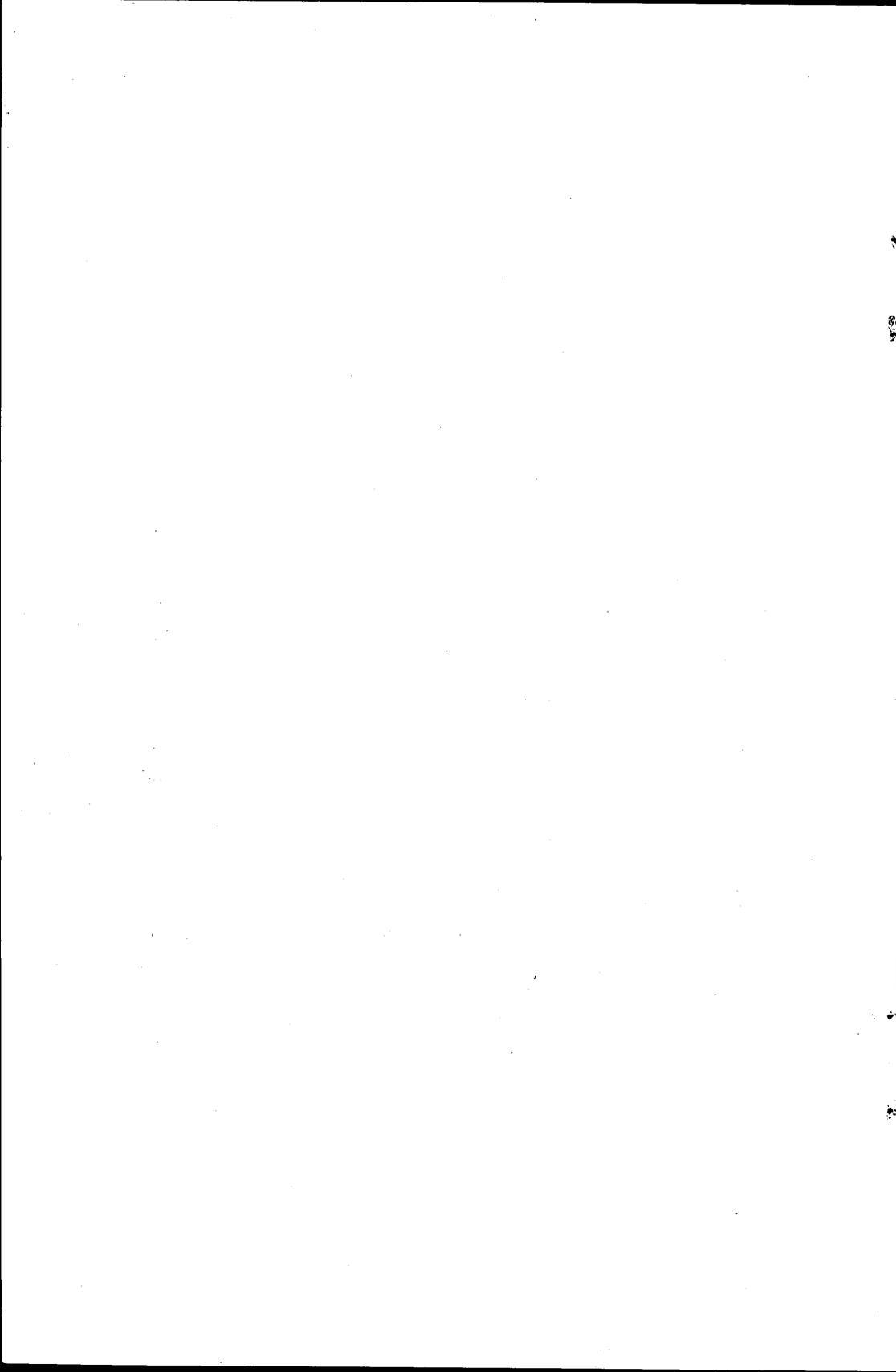
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W.M.C.



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Recent Developments in the Theory of International Trade

This paper outlines some of the principal improvements or additions to the theory of international trade since Metzler's survey [91], published in 1949. It covers, therefore, a period of some fifteen years, though many of the developments of this period have their origin in contributions published earlier. The emphasis is on recent developments, since excellent summaries of the current state of the theory by Haberler [35], Caves [19], and Johnson [51] are available.

First one must decide what is theory. There have in recent years been many controversies arising out of practical issues which have pre-occupied international-trade economists. Is there a long-run dollar problem, an international-liquidity shortage, a long-run tendency for the terms of trade of underdeveloped countries to deteriorate—and what are the causes and remedies for these alleged diseases? What place should international trade and the comparative-cost principle have in development plans of underdeveloped countries? What are the gains and losses from the establishment of common markets? In these controversies theorists usually play an active part and make full use of trade theory. But if it is just a matter of existing theory being applied, then there is no new development in theory. Sometimes in these debates new hypotheses are put forward with varying degrees of rigour. But one cannot say that there is at that point a new development in trade theory unless (a) the hypothesis is developed with the rigour appropriate to theory—i.e., the assumptions are clearly stated, the method of deriving the conclusions is explicit, and the relationship of the new concept to the existing state of thought is specified—and unless, in addition, (b) the particular theory can be integrated into the corpus of *the* theory of international trade—i.e., the theory has a relevance wider than the immediate application from which it has sprung.

Granted that we limit ourselves to *theory*, there is still the problem of choosing relevant theory. Of the numerous articles on international-trade theory which appear in the learned journals not all contribute to the development of the central body of thought. To the building of

models there is no end. Many are useful variations on a main theme, suitable for one country or one use, but not suggesting any new approach. Others may be highly complex and clever models but the results are not interesting because the assumptions are poorly chosen. Others, again, are tidying-up operations, perhaps using a modern technique to resolve an ancient argument, of little or no current interest. And then, of course, there are many ways of doing essentially the same thing. The choice between the relevant and the irrelevant, the subsidiary and the main-flow contribution, the original and the unoriginal, is one which I must make on my own responsibility. But let me take cover by noting that I shall be much influenced by the writings of others, if only as a check on my own impressions.

The history of contemporary economic thought is indeed a dangerous task upon which to embark. One may easily lack perspective. One may miss a crucial turning-point, perhaps an obscure article which later is revealed to have been seminal to a new theoretical approach. More likely, one may proclaim as revolutionary a new idea which is soon to be forgotten, which is perhaps just the rediscovery of an old truth, or which has happened to excite one's mentors or colleagues. Hence I approach the present task with caution.

I. Balance-of-Payments Theory

One branch of international-trade theory is usually called international-monetary theory and is concerned with the way in which equilibrium in the balance of payments is maintained or can be maintained. In Metzler's survey this subject was discussed under two headings.

First, in "the theory of employment and the balance of payments," he outlined the effects of the Keynesian revolution on trade theory through the concept of the multiplier. The classical theory had assumed that the balance of payments adjusted itself through a monetary mechanism, which combined with internal price flexibility to maintain full employment. Now it was realised that, quite distinct from this classic mechanism, an adjustment process operated through the *international-trade multiplier*—though, as Metzler pointed out, the adjustment would not be complete: some part of an initial balance-of-payments disequilibrium is likely to remain even after the multiplier has worked itself out.

Secondly, under the heading of "fluctuating exchange rates," Metzler discussed the circumstances in which exchange fluctuations could have perverse effects. This exchange-stability discussion had been very vigorous in the interwar period, inspired by the actual exchange instabilities of the time. The upshot of the theoretical discussion was a formula which expressed the *elasticity of the balance of payments*—i.e., the responsiveness of the balance of payments to exchange-rate variations—in terms of four *partial* elasticities: the elasticities of demand and supply for exports and imports. The formula states the conditions required for a devaluation to improve the balance of payments, i.e., for the exchange market to be stable. It is a development of the well-known Marshall-Lerner rule. An excellent exposition of this partial-equilibrium analysis has been provided by Haberler [33].

Two observations can be made about the state of the theory at that point of time. Firstly, it was concerned primarily with automatic processes and not with the determination of optimum policies. Metzler considered the way in which the multiplier mechanism naturally equilibrated or part-equilibrated the balance of payments. In framing the problem in this form, he, and the writers he summarised, were in the classical tradition, since the classical question was the mechanism

by which, under the gold-standard system, the balance of payments was equilibrated. Similarly, under his second heading Metzler asked, not the policy-orientated question whether a devaluation would improve the balance of payments, but the factual question whether foreign-exchange markets are stable.

Secondly, the theory appeared to separate quite sharply income effects (the multiplier) from price effects (exchange-rate variations). Metzler's exposition appeared to suggest that there are two automatic and distinct mechanisms—the international-trade multiplier, the analysis of which assumes constant prices, and variations of exchange rates, the analysis of which assumes constant money incomes. One can overdramatise the changes in this branch of theory which took place in subsequent years, since one can find substantial hints of the new developments in the standard writings before 1948. But in fact the change has been dramatic.

Meade's "The Balance of Payments"

The most important contribution to international-trade theory published during the period under review has, in my judgment, been J.E. Meade's *The Balance of Payments* (1951) [82]. The core of this book is a policy model. The policy objectives are taken to be internal and external balance, each carefully defined; internal balance being required in both countries of the two-country model with which Meade operates in the greater part of the volume. There are two main types of policy: income adjustments and price adjustments. Income adjustments operate through fiscal and monetary policies, price adjustments through exchange-rate variations or wage flexibility. To achieve simultaneously two objectives of policy, two policy variables are required; to achieve three objectives, three variables; and so on. This is the conceptual core of the model. In Tinbergen's terms, the number of instrumental variables must equal the number of targets. The model is worked out in great detail. It is shown that if only one policy variable is used, conflicts between objectives can arise. For example, if a country has a balance-of-payments surplus and excess demand for domestic goods, and if the only variable is income adjustment, external balance calls for an increase in expenditure and internal balance for a decrease. Similarly, if a country has a payments deficit and domestic excess demand and if the only variable is exchange-rate adjustment, external balance calls for depreciation of the exchange rate and internal balance for appreciation. Meade shows the gold-standard mechanism to be a

special case of his model: the gold-standard theory assumes that external and internal balance are maintained by a combination of income effects (through the monetary system) and price effects (through internal wage-price flexibility).

The new features of Meade's approach were (1) the policy orientation, and (2) the integration of income and price effects. In both respects there was a departure from previous theory, which had been concerned primarily with automatic processes and which tended to keep the income and price mechanisms in watertight compartments. Meade's basic model has become part of the luggage of every economist. Subsequent discussion has qualified it and generalised it, but the central theme stands. A number of diagrammatic representations have been published, such as the present author's [24], and Australian students have long been familiar with a diagram devised by Swan [124] which sums up the main elements of this type of model.

One may ask how original Meade's approach really was. The basic approach was developed about the same time by Tinbergen [125], who was concerned with the more general problem of achieving a number of policy *targets* with a variety of policy *instruments*. He made the key point that the number of instruments must be equal to the number of targets. Probably the fullest discussion of the relationship between domestic and international equilibrium which had previously appeared was in an article by Nurkse published in 1947 [106], but while the main issue was certainly posed, the solution was not systematically worked out. In Metzler's survey there was no more than a hint of the problem. Joan Robinson's essay on "The Foreign Exchanges" [114] was probably the principal text on balance-of-payments policy until Meade's book; it is in relation to the sole paragraph dealing with the relationship between a variety of policies and a variety of objectives—a paragraph which, while perfectly correct, leaves us with the impression that everything depends on everything else—that the achievement of *The Balance of Payments* should be judged.

It is now obvious that there is no one rate of exchange which is the equilibrium rate corresponding to a given state of world demands and techniques. In any given situation there is an equilibrium rate corresponding to each rate of interest and level of effective demand, and any rate of exchange, within very wide limits, can be turned into the equilibrium rate by altering the rate of interest appropriately. Moreover, any rate of exchange can be made com-

patible with any rate of interest provided that money wages can be sufficiently altered. The notion of *the* equilibrium exchange rate is a chimera. The rate of exchange, the rate of interest, the level of effective demand and the level of money wages react upon each other like the balls in Marshall's bowl, and no one is determined unless all the rest are given [114, p. 103].

Criticisms of Meade's "The Balance of Payments"

A variety of criticisms have been made of Meade's approach and model. It will be useful to examine these in some detail in the light of subsequent contributions to the literature. The first criticism, made rather forcefully by Johnson [46], is that *The Balance of Payments* contains explicit or implicit value judgments. The fundamental value judgment governing the whole book is that internal and external balance are desirable policy objectives. Most people would justify this on the ground that they are in fact policy objectives of most governments. But the book does also display a predilection in favour of the use of general price adjustments, notably variable exchange rates, in preference to other devices, such as quantitative controls. There are two aspects to this latter criticism. Firstly, "equilibrium" is defined as a situation where controls for balance-of-payments reasons are absent; thus, by definition, it is impossible to attain external balance through quantitative controls. A preferable approach is to generalise Meade's model by recognising that from the point of view of internal and external balance, the latter more widely defined, there are a number of policies which all have a similar effect: general price adjustments, such as exchange devaluation; selective price adjustments, such as tariffs and export subsidies; and quantitative controls. All these policies, given certain conditions, *switch* expenditure away from foreign goods on to home goods (or vice versa). These are *switching* policies, as distinct from expenditure-reducing or increasing policies. This generalisation of Meade's model we owe to Johnson [47, Ch. 6]. For example, for a country with an external deficit and internal balance, Meade would have recommended a general price adjustment (devaluation), combined with some reduction in expenditure, to absorb the excess demand which the devaluation would otherwise cause. Now we would say that some switching policy designed to shift expenditure from foreign to home goods, combined with expenditure reduction, is required. The choice between switching policies depends on a variety of considerations. They have different welfare effects, notably on the

internal distribution of income and on the terms of trade. Some carry an automatic expenditure reduction with them, and may be preferred for that reason.

The other criticism of Meade's general preference for price adjustments disputes his view that with given money incomes a reasonable devaluation will succeed in improving the balance of payments, i.e., will succeed in switching expenditure away from foreign goods. This is the old assumption that the foreign-exchange market is stable and does not require excessive price adjustments to cope with normal disequilibria; it implies certain assumptions about the values of the four elasticities concerned. He gives a number of plausible reasons why the relevant demand elasticities may normally be expected to be high enough, but these reasons are not in themselves convincing; only empirical evidence will convince. Subsequently another *a priori* reason for expecting exchange stability has been advanced by Morgan [96], namely that exchange instability implies that the market for at least one commodity must be unstable, apparently an improbable situation—though I must confess that the precise significance of this argument eludes me. More relevant seem to be the attempts at statistical verification of demand elasticities in foreign trade. Here a whole literature has grown up and many issues, basically of statistical methodology, have been debated. The early measurements, based on interwar data, yielded very low elasticities and gave rise to what has been called "elasticity pessimism." Subsequently it has become clear that the measurement techniques have been biased in favour of low elasticities and that for a variety of reasons long-run elasticities are likely to be higher. Harberger [39] and Cheng [21] have surveyed the evidence and the literature. It seems to be the general view now that, provided appropriate expenditure reduction is associated with it, a devaluation is likely in time to improve the balance of payments. Two observations may be made about the significance of a stable exchange market, i.e., one where a devaluation improves the balance of payments. First, a necessary (though not sufficient) condition for an unstable market is that the elasticity of the foreign demand for a country's exports is less than unity for movements down the demand curve. If the demand elasticity is on the same side of unity on both sides of the initial equilibrium point (i.e., elasticities are symmetrical), this means that the degree of trade restriction is initially below the optimum from the particular country's point of view; an export tax or quantitative control on exports would raise export income. One wonders how many

countries have failed to exploit such an obvious opportunity for national betterment. But Balogh and Streeten [8] have stressed the possibility of asymmetrical elasticities—above unity for movements up the curve and below unity for movements downwards; where this situation exists an unstable market is much more likely. Secondly, the whole discussion of exchange stability assumes an appropriate internal-balance policy, one which maintains constant money incomes. If a devaluation is permitted to give rise to internal inflation, it may not improve the balance of payments, even though the elasticities (defined for a constant money income) are high enough to satisfy the requirements of the stability formula. This aspect will be discussed again below. Furthermore, it assumes of course that foreign countries do not retaliate, that the foreign demand and supply curves are given.

A second criticism of Meade's approach is aimed at the implication that each policy variable is tied to a specific policy objective. Thus, in his main model financial policy is used to maintain internal balance and exchange-rate variations to maintain external balance. Nurkse [108] pointed out that, while it is possible to associate one policy with one aim and the other policy with the other aim, each policy does affect both the internal and the external situation, so that it is purely arbitrary to link one aim with one particular policy. For example, beginning in internal and external balance, a reduction in expenditure will create both unemployment and an external surplus. Furthermore, in certain circumstances—to be discussed below—a failure to maintain internal balance makes impossible the attainment of external balance.

Another limitation of Meade's book is its static character, even though the exposition may sometimes suggest a time element. An obvious development would be to study the problem of maintaining internal and external balance in a context of growth. No systematic theory has so far emerged here, though there has been no shortage of hints and references in the context of particular situations. The main development, to be referred to further below, is Johnson's model [47, Ch. 4] analysing the effects of productivity changes on the balance of payments. Another complication, recently introduced by Mundell [99], is to allow for varying time lags in the operation of different policy variables or adjustment processes. One can then obtain cyclical, cobweb, and similar models, all with the flavour of reality about them.

The final limitation of Meade's approach is a most important one. In his analysis of devaluation and of controls (in fact, what we would

call *switching* devices), Meade assumes that internal balance is always maintained by appropriate financial policy. Starting in internal balance, a devaluation, he points out, will be inflationary. But he assumes that expenditure is always appropriately reduced by means of financial policy. Now what is the effect of devaluation when internal balance is not deliberately maintained by expenditure adjustment? In other words, what is the effect of a switching policy alone, as distinct from a switching policy combined with an appropriate expenditure adjustment? This he does not pursue; as a result, in his analysis of devaluation he assumes that constant money incomes are maintained. He improves on his predecessors by showing clearly what is required to maintain constant money incomes, but like them does not show what happens to the balance of payments when constant money incomes are not maintained.

The Absorption Approach

It is this omission which is remedied by the *absorption* approach. Alexander, in an article published in 1952 [3], asked the old question of the effect of a devaluation on the balance of payments. But, unlike Meade, he did not assume that internal balance was automatically maintained by financial policy, and indeed neglected internal balance as a policy issue. He put all the emphasis on income effects by starting with the accounting identity that the foreign balance (deficit or surplus) is equal to the difference between the total production of goods and services and the total *absorption* of goods and services, absorption simply being the sum of consumption and investment expenditures in real terms. Therefore, if a devaluation is to improve the trade balance, irrespective of the elasticities, absorption has to fall in relation to production. The traditional elasticities seemed to have no place in this way of thought.

For the Keynesian situation of initial unemployment the absorption approach was not really new. A devaluation which succeeds initially in switching demand away from foreign to domestic goods sets up a multiplier process leading to a rise in imports and perhaps a rise in "hoarding" (savings minus investment). The absorption approach tells us that the trade balance can improve only if finally there is a rise in hoarding; otherwise the initial balance-of-payments improvement will be reversed by the rise in imports resulting from the multiplier. This mechanism is referred to in the classical articles on exchange stability—notably Brown's article of 1942 [18], but also in Joan Robinson's article

[114]—though the income effects were something of an afterthought and in the classical literature it was always assumed that the rise in real incomes associated with the multiplier process would in fact yield a rise in hoarding.

The absorption analysis is more significant when there is initially internal balance, not least because this was actually the situation in most countries in the 1950s. Consider the extreme case where no increase in domestic output is possible. A country has a balance-of-payments deficit and devalues, so that demand is switched from foreign goods to domestic goods. As this extra demand for home-produced goods cannot be satisfied, it may directly spill over on to imports, it may cause prices to rise until the excess demand has been diverted to imports, or it may be hoarded. Only insofar as any extra hoarding takes place can the balance of payments improve. But is there any reason why a devaluation should cause a rise in hoarding? Alexander explored various possible ways in which devaluation might raise hoarding—for example, through changes in income distribution and through the cash-balance effect—and he concluded, I think correctly, 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” [3, p. 274]. On the assumption that we start in internal balance and that a devaluation leads to no significant hoarding (or “disabsorption”), it follows that a devaluation alone cannot improve the balance of payments. Therefore, it is wrong to associate exchange-rate variations with external balance and financial policy with internal balance, as Meade has done. An improvement in the balance of payments due to devaluation is possible only if, simultaneously with the devaluation, expenditure (absorption) is reduced by deliberate policy. This is the amendment to Meade’s model or exposition required by the absorption approach, and is needed because Meade never considered the particular situation referred to here.

Alexander appeared to relegate the elasticities to the wastepaper basket. This gave rise to some debate from Machlup [77] and others. In an article in 1959 [4], Alexander presented a “simplified synthesis of elasticities and absorption approaches,” which represented a strategic withdrawal but was also a valuable clarification of the issue. He pointed out that the four traditional elasticities and the exchange-stability formula based on them can be defined as referring to a situation of constant money income, of constant domestic prices, or in fact any specified situation or pattern of responses. But (as Balogh and

Streeten had pointed out many years earlier [8]) to be useful they must be defined so that they can be independently evaluated. A reasonable approach is to assume constant money incomes. Yet money incomes do not stay constant, and the formula based on the elasticities does not tell the whole story. In Johnson's terms they determine only the effects of the initial switching policy. Some part of the switch away from foreign goods (assuming a stable market) may go into hoarding; there may thus be some initial disabsorption and only the remainder is directed towards home goods. This remainder sets up what Alexander calls "reversal factors," in fact a multiplier which raises money incomes. This multiplier has two parts: the first part operates up to the point of full employment and is identical with Brown's multiplier; the second part operates above the full-employment line and raises prices, not real incomes. As a result of the two multipliers there is a net change in hoarding, probably a rise in hoarding due to the unemployment multiplier and a rise or fall due to the overemployment multiplier. Alexander points out that with Meade's assumption of a compensating monetary policy which holds money incomes constant, there would be no reversal factors. On this Meadeian assumption he comments—and this defines the difference between Meade's policy-oriented and Alexander's automatic approach:

It does represent an ideal line of policy: with one hand guide the money supply so as to maintain full employment without inflation, and with the other hand set the exchange rate for foreign balance. Any change in the exchange rate would then require a correlative change in the money supply. Unfortunately, things are not always done this way.

In any case, the effects of two operations are not the effects of one of them alone. It is still appropriate to ask what are the effects of a devaluation unaccompanied by a compensating monetary policy [4, p. 25].

Various writers (notably Johnson [47, Ch. 6]) have pointed out that the absorption approach assumes a "neutral" monetary policy, i.e., a policy whereby the supply of money is varied automatically so as to maintain a constant rate of interest. It thus neglects monetary aspects of the problem in the same sense in which Keynesian income theory does. This was also the assumption which Meade made in *The Balance of Payments* when he described the effects of certain spontaneous changes on the balance of payments and before he came to the

policy-orientated section of the book. The main point is that a balance-of-payments deficit can only be sustained with a flexible monetary policy, of which a neutral policy is an extreme case. Starting in external balance, if the monetary authorities refused to increase the supply of money then there could be no imbalance—unless private cash balances are drawn upon, and these represent a limited stock. In this rather pre-Keynesian sense a balance-of-payments deficit, however caused, is always monetary in nature. It is a matter of opinion whether it is more “neutral” to assume a constant rate of interest or a constant money supply. In a policy-orientated Meade type of model this is no problem: given the usual parameters of the price level and the liquidity-preference schedule there is a particular interest rate appropriate to the internal-external balance point, and this interest rate implies a particular quantity of money. But in a model which describes the automatic responses to a switching policy, such as devaluation, or to a free exchange market, the determination of the monetary response must depend on the actual behaviour of the nation’s monetary institutions. Clearly, a comprehensive model should (unlike Alexander’s model and like the models of Tsiang [126] and Kemp [56]) be explicit about the effects of a devaluation on the rate of interest and the quantity of money.

Alexander mentioned the possible effects of a devaluation on hoarding through changes in income distribution. And Balogh [7] has also stressed the income-distribution effects of devaluation (as indeed he has reminded us of many other complexities neglected in over-simple trade theories). But only recently has a formal model been produced, by Alejandro [1], which gives income distribution the prominence it deserves. A devaluation shifts real incomes from consumers of tradeable products (exportables and importables) to producers. If the marginal propensity to import of the producers is greater than that of the consumers, imports will rise as a result of this income-distribution effect. Adding this effect to the substitution or switching effect, which depends on the price elasticities, the total impact effect on the balance of payments is obtained. Using the same type of analysis, one can see that a devaluation affects the demand for home goods not only through the switching effect (which will increase the demand for home goods provided the price elasticities are high enough) but also through the difference between the marginal propensities to consume home goods of the consumers of tradeable products and of the producers.

Quantitative Import Restrictions

The preoccupation of international-trade theorists with exchange-rate variation may seem out of proportion to the use of this device in the postwar world. Much of the discussion however, applies also to other switching devices, such as tariffs, export subsidies, quantitative import restrictions, and changes in relative price levels between countries. From the point of view of the absorption discussion, these differ from each other in the initial absorption to which they give rise. Quantitative import restrictions have probably been the main balance-of-payments device in use in the postwar period, often mixed up with a protective aim. Nurkse [107] has pointed out, in the context of underdeveloped countries, that import restrictions unaccompanied by disinflation will not necessarily improve the balance of payments and, though often designed to reduce consumption of luxury goods, may succeed only in changing the pattern of luxury consumption. It is, of course, realised that in the short run import restrictions may lead to substantial consumption and investment postponement and hence hoarding, but in the long run a country cannot do without an appropriate financial policy.

An article by Hemming and Corden [42], written for United Kingdom conditions, treats quantitative import restrictions as the principal switching device and shows that, starting in internal balance, a deflation is needed to obtain a balance-of-payments improvement, while import restrictions are required to minimise the unemployment effects of the deflation. The optimum combination of import restrictions and deflation weighs the unemployment created by deflation against the distortion created by import restrictions. If deflation has an export-promoting (and import restrictions an export-impeding) effect, a marginal shift from import restrictions to deflation has the additional disadvantage of worsening the terms of trade. Alexander [2], in a similar analysis, has weighed import restrictions (including tariffs) against devaluation as alternative switching devices, taking into account the terms-of-trade effects of devaluation. Johnson [51, Ch. 1] has stressed that a switching policy to attain internal and external balance is one thing; achieving the optimum degree of trade restriction another.

An influential theoretical development has been concerned with the welfare effects of import restrictions. It has yielded an argument in favour of a particular form of country discrimination in restrictions, and has provided a convincing demonstration of the disadvantages of

the nondiscriminatory approach embodied in G.A.T.T. and popular with liberal economists. The theory originated with Frisch [30], Ekker [26], and Fleming [28]; it assumes a situation of international imbalance and fixed exchange rates. It attempts to define the international structure of import restrictions that will minimise the degree of trade restriction. The theory is set out clearly in Meade's *Trade and Welfare* [83, Ch. 34]. Subject to various assumptions and qualifications, the main point is that countries should discriminate more heavily against imports from countries which in the absence of restrictions would have large rather than small surpluses. No pair of countries should have restrictions against each other's imports. "If two countries are restricting imports from each other, then they should simultaneously relax their import restrictions on each other's products until one of them has completely removed its restrictions on imports from the other" [83, p. 550]. At the time the theory was developed, it gave theoretical support to the practice of discriminating against dollar imports.

Mundell's Model

Perhaps the main message of the type of analysis of Meade's *The Balance of Payments* is that if both internal and external balance are to be maintained, two policies—expenditure variation and switching policy—must be used. There are, of course, a variety of switching policies and a variety of expenditure policies so that a choice of policies remains. But clearly the analysis is out of sympathy with influential current thinking which abjures the use of all switching policies, whether exchange-rate variation, tariffs, quantitative import restrictions, or price inflation in surplus countries. Is it then possible to maintain internal and external balance with expenditure policy alone? Mundell [101], in a significant extension of the Meade-type analysis, has shown that two expenditure policies—say fiscal and monetary policy—can indeed suffice to maintain both internal and external balance, provided only that they do not have identical effects. For any given expenditure reduction one must improve the balance of payments more than the other (or for a given balance-of-payments improvement one must achieve less expenditure reduction than the other). The particular case he considers is where (for a given expenditure reduction) monetary policy and fiscal policy have the same effect on the balance of trade, but in addition a rise in the interest rate encourages capital inflow and so improves the capital account. Thus, monetary policy has a greater effect on the external situation than fiscal policy. Alternatively,

instead of introducing the capital account, he might have assumed that the import content in a given expenditure reduction achieved by monetary policy is greater than in that achieved by fiscal policy. It is now possible to attain simultaneous internal and external balance by the use only of the two expenditure policies. To take an example, starting in external deficit and internal balance, a rise in the interest rate combined with a reduction in the budget surplus is required, so that total expenditure remains constant but the capital account improves (due to the higher interest rate) or the import content in expenditure falls. This Mundell approach could be generalised to show how any two policies could be used to attain the two policy objectives, provided only that the two policies do not have precisely the same effects. For example, two switching policies could be used. But there is one complication. When the two policies affect the internal and the external situation in the same direction (both a rise in the rate of interest and a higher budget surplus lower demand for home goods and improve the balance of payments), Nurkse's proposition that it is purely arbitrary to link one policy with one objective no longer stands. It is then necessary to tie a policy to the objective on which it has the greater effect, in order to avoid a possibly unstable situation. In our example, monetary policy must be linked with the objective of external balance. If fiscal policy were devoted to external balance and monetary policy to internal balance, then, for example, in an initial situation of internal balance and external deficit the budget surplus would be increased, this leading to unemployment and hence to a fall in the interest rate. As we saw earlier, both budget surplus and the interest rate would be moving in the wrong direction. There are the seeds of an interesting development in the theory of economic policy here; but it should be generalised, and account must be taken of other policy objectives influenced by the monetary-fiscal policy mix, such as the attainment of a desired growth rate or of an appropriate balance between public and private expenditure.

Other Developments

This completes what I believe to have been the main developments in this branch of international-trade theory since Metzler's survey. To conclude this section, I shall refer briefly to some other discussions in this field.

In the nineteen-fifties there was a lengthy, high-powered, and incredibly arid debate about the effects on exchange stability of the

relationship between savings and the terms of trade. The principal contributions were by Laursen and Metzler [64] and by Harberger [38], and the discussion has been summarised by Johnson [47, Ch. 7]. It was argued that a devaluation would in specified conditions worsen the terms of trade, hence the real value of a given money income, hence reduce money savings and so raise money expenditure out of a given money income. This rise in expenditure then calls for a complex amendment to the exchange-stability formula. All the steps in this argument have been thoroughly thrashed out, but looking back one wonders why so much thought was expended on what a devaluation will do to expenditure out of a given money income when the important issue is what would happen to money income itself. Furthermore, it is by no means certain that a devaluation worsens the terms of trade; this has also been the subject of much discussion, comprehensively summarised by Machlup [78]. Joan Robinson produced a formula in her 1937 article [114] which defined the precise elasticity conditions required in her partial-equilibrium model for the terms of trade to worsen because of devaluation. She suggested that there was a presumption in favour of deterioration. This has been queried, though it finds support from Michaely's statistical evidence that, on the whole, countries tend to play a larger part in the markets for their exports than in the markets for their imports [92]. But clearly each country or category of country is a special case. Some theorists have been misled by the fact that in the simple two-product model a devaluation must worsen the terms of trade. It is indeed a serious limitation of *The Balance of Payments* that the greater part of its analysis is carried out within the confines of the two-product model and so obscures the crucial characteristic of exchange-rate alteration, which is that it alters the internal price relationships between non-traded and traded goods. Pearce [111] has shown, what was indeed clear from the partial models, that once non-traded goods are introduced a devaluation can improve the terms of trade.

A vast literature has grown up on the issue of freely fluctuating exchange rates versus either completely fixed rates or pegged rates which are occasionally adjusted. To some extent this hinges on whether the exchange market is believed to be stable; this is usually agreed upon now (in the sense of stability with given money incomes), but there are many other arguments on either side, with many trade theorists, notably Friedman [29] and (until recently) Meade [82; 87], strongly in favour of flexible rates. This debate is illuminating, but a set of pro

and con arguments drawing on the existing body of theory and on judgments or biases about statistical magnitudes and reactions of monetary authorities to different situations does not represent a new contribution to trade theory. Of interest are Meade's argument that with a freely flexible exchange rate, as distinct from an adjustable peg, speculation will be stabilising, provided it is well-informed [82, Ch. 17], and the argument of Sohmen [121] and of Bhagwati and Johnson [15], having its origin in Marshall, that somewhere on either side of an unstable point must be two stable equilibria. Even if one accepts flexible or occasionally adjusted exchange rates as an evil necessary to reconcile internal and external balance in the absence of quantitative restrictions, the question still remains how many flexible rates there should be in the world. Should every nation-state have a flexible rate, should nations be grouped into currency areas within which rates are fixed in relation to each other while area rates fluctuate relative to each other, or perhaps should currency areas be smaller than nation-states or cut across national boundaries? In other words, what is the optimum currency area? The basic answer which Mundell [100] has recently supplied is that since factor mobility provides an alternative adjustment mechanism, an optimum currency area—i.e., the ideal area within which a single rate rules—is as large as the area of reasonable factor mobility.

An important debate is still vigorously in progress about a world liquidity shortage and the need for reform of the international monetary system, a guide to which is Machlup's excellent survey of various reform plans [79]. The discussion is by no means short of logical reasoning, but in the sense in which I have defined theory in this paper it cannot be said that, so far, with one exception, there have been new theoretical developments here. The one exception is Kenen's masterly model [58], exploring in formal terms one element of the current discussion, namely, the inherent dynamic instability of a system whereby the growth in international liquidity depends on increasing supplies of a reserve currency, such as the dollar. The main point is simple. In the absence of adequate increase in the supply of gold, if world liquidity is to grow, the United States must continue to run a balance-of-payments deficit in order to feed dollars to the rest of the world's central banks. Yet this very process may reduce the United States reserve ratio and thus the security of the dollar and its utility as a reserve currency. ". . . the more rapid the increase of world reserves, the sooner must that increase be curtailed" [58, p. 582].

II. The Pure Theory of International Trade

The pure theory of trade assumes that balance-of-payments equilibrium and full (or maximum) employment are maintained, and thus addresses itself to "real" rather than "monetary" issues. Traditionally the questions it asked were: what are the gains from trade and how are they distributed between countries? This involved both positive and normative issues, though the distinction was not drawn. Its great achievement was Ricardo's law of comparative costs, supplemented by Mill's reciprocal-demand explanation of the terms of trade. More recently the emphasis has shifted. Normative or welfare questions concerned with the gains from trade have been confined primarily to the theory of tariffs. The pure theory has concentrated on the determinants of the volume, terms, and pattern of trade and on the connections between trade and the economic structure of trading countries. Although the pure theory is at the core of international trade theory, I intend to discuss it only briefly as there are excellent surveys of recent developments by Haberler [35], Caves [19], Bhagwati [13; 14], and Mookerjee [95].

The Heckscher-Ohlin Theory

The dominating development in pure theory during the period under consideration has been the elaboration and filling-out of the Heckscher-Ohlin trade model. The Heckscher-Ohlin (H-O) theory explains a country's trade in terms of its factor endowments; a country will tend to have a comparative advantage in those products which use more intensively the country's more plentiful factors. It thus goes *behind* comparative advantage and shows the link between a nation's economic structure and its trade. Furthermore, it provides a model which displays the effects of a change in trade, due perhaps to the imposition of a tariff, on the internal economic structure and, in particular, on the internal income distribution. To oversimplify somewhat, the H-O contribution is to link the pure theory of trade with neo-classical production and distribution theory, to link the external with the internal, not unlike the contribution of Meade's theory of economic policy in relating external and internal-balance policy. The H-O revolution was almost complete at the time Metzler wrote, and he outlined the main features of the H-O model in his survey. The pioneer work was

a Swedish essay of 1919 by Heckscher [41]. This became the basis for the well-known treatise by Ohlin published in 1933 [109]. An important subsequent development was a paper by Stolper and Samuelson published in 1941 [123], which applied the H-O system to the tariff problem.

Recent trends in the pure theory are all connected with the H-O model. I shall briefly discuss three developments: (1) the factor-price-equalisation discussion, (2) refinements of the Stolper-Samuelson theorem, and (3) empirical testing of the H-O theory, leading to the so-called Leontief paradox. Each of these is discussed somewhat more fully in Haberler's *Survey* [35] and in detail in Caves's *Trade and Economic Structure* [19].

1. Heckscher had already argued that trade tends to equalise the relative returns to land, labor, and capital throughout the world. This proposition became the central feature of Ohlin's treatise. But Ohlin was very explicit in describing this as only a *tendency*, in holding that free trade was only a *partial* substitute for free factor movement, and that it would not equalise factor prices completely. He provided no formal proof that the equalisation would be partial and not absolute. In 1948 and 1949 Samuelson published two papers [116; 117] which proved that, subject to certain assumptions, free trade would equalise factor prices completely. Samuelson himself noted the unreality of some of the assumptions required, and the vast literature which followed made explicit a whole range of necessary assumptions, some of them by no means reasonable. It would be tiresome to outline all the contributions to the discussion and to explain fully the meaning of all the assumptions. The clearest exposition of the implications of the main assumptions, especially the more subtle ones, is in Meade's *Trade and Welfare*. Here it is sufficient to quote Haberler's *Survey*:

Briefly stated, the assumptions under which free commodity trade equalizes factor prices are as follows: (1) free competition in all markets; (2) absence of transportation cost, hence equality of all commodity prices as between different countries or regions; (3) all commodities continue to be produced in both countries after free trade has begun, in other words, that specialization is incomplete; (4) the production functions in both countries are identical and homogeneous in the first degree, that is, a given uniform percentage change in the quantity of all inputs results in an equal percentage variation in the resulting output; (5) in addition, the production

function must be such that one commodity is always labor intensive and the other always capital intensive whatever the relative supply of factors and the ratio of factor prices; (6) the factors of production are qualitatively the same in all countries, although they are available in different quantities; and (7) the number of factors is not greater than the number of commodities. In a two-commodity model, for example, there could be no equalization of factor prices (except by chance), if there were three or more factors [35, p. 18].

If we were interested only in whether free trade equalises factor prices, the obvious invalidity of the second assumption would obviate the need to pursue the subtleties of the other assumptions: it is clear that free trade need not equalise factor prices. It is perhaps more significant that the exploration of these assumptions has shown that in some circumstances free trade may actually widen the margin between factor prices. Thus, the attempt to carry to a somewhat ridiculous extreme the original Heckscher-Ohlin proposition of a *tendency* to factor-price equalisation has actually led to doubt being thrown on the original, more modest idea itself. Various writers, notably Pearce [110], have pointed out that factor intensities may reverse themselves—i.e. that assumption (5) above is not sustained. Minhas's [93] suggestion that factor reversal must be regarded as common or even inevitable is quite persuasive. Putting a complex argument somewhat crudely, if two industries have different elasticities of substitution and if each of these substitution elasticities is unchanging, there must inevitably be some factor-price ratio at which factor intensities reverse themselves. Suppose industry X has a low substitution elasticity and industry Y a high one, but that the production function of an industry is the same irrespective of its country. Then, in a country with a high ratio of capital to labour, where the profit-wage ratio is low, industry Y will be the capital-intensive industry, while in the country with the low capital-labour ratio, industry Y will be relatively labour-intensive. Thus industry Y is the flexible industry, being capital-intensive in the capital-rich country and labour-intensive in the capital-poor country. If the opening of trade involves the export of Y from the capital-rich country in exchange for imports of X from the capital-poor country, output of the capital-intensive product will rise in both countries. So in both countries the ratio of the profit on capital to the wage rate rises; there is, thus, no necessary tendency for the factor-price ratios to come together on account of trade. Minhas argues from some production-

function statistics and comparisons of factor-price ratios between countries that factor reversals are likely to take place over realistic ranges of the functions. This conclusion from the figures has been disputed by Leontief [67], who also queries the assumption of a constant elasticity of substitution. One might also (unfashionably) be sceptical about the figures themselves. Nevertheless, the basic argument has a certain appeal at the level of generality at which these theories operate. For what is more reasonable than to assume different substitution elasticities between industries and that for each industry the substitution elasticity is constant?

2. The Stolper-Samuelson theorem has stood up a little better, though it is also dependent on a whole list of assumptions, some of them identical with those required to sustain the factor-price-equalisation theorem. It has always been realised that tariffs affect the distribution of income, and that, while the community as a whole loses from a tariff, particular sections may gain. Stolper and Samuelson showed that it is possible for a large factor—one of the factors in a two-factor model—to gain absolutely as well as relatively from a tariff—and this they showed to be independent of the consumption pattern and thus not involving an index-number problem. This theoretical development had been stimulated by the Australian Brigiden report and provided theoretical support for one of its propositions. The simplicity of the Stolper-Samuelson proof has been shown in subsequent writings to be dependent on a number of assumptions. It was generally interpreted as meaning that a tariff will raise the real income of a country's scarce factor because (i) protection increases the internal relative price of the importable good, (ii) an increase in the relative price of a good increases the real income of the factor used intensively in its production, and (iii) the importable good is intensive in the use of the scarce factor. But this version has in fact to be qualified. Metzler pointed out in 1949 [89; 90] that protection may, perversely, not increase the internal price of the importable good, since it may improve the terms of trade sufficiently to shift not only the external terms of trade (i.e., the price ratio of exports relative to imports without tariffs) but also the internal terms of trade (prices including tariffs) in favour of exportables. The precise condition for this perverse result is that the elasticity of demand for exports is less than the domestic marginal propensity to consume exportable goods. Thus (unless imports are inferior goods) a necessary, though not sufficient, condition for the perverse Metzler result is that the export-demand elasticity is less than unity. The second

step in the argument involves the whole range of H-O assumptions; in particular, in a two-good, two-factor model, the tariff must not lead to complete specialisation on one product. Koo [60] has shown also that the introduction of a third product, an unprotected importable, may upset the conclusion. Even with only two goods, the conclusion holds strictly only when there are two factors of production. The third step depends on the definition of "scarce" factor. Lancaster [63] has pointed out that if it is defined as the factor of which there are fewer physical units per unit of the other factor than abroad, then it may not be true that the importable good is intensive in this factor. It will only be true if tastes in the two countries are the same. Otherwise, a country may import a product because it has a relatively high demand for this product, even though, on the production side, it may also have a comparative advantage in it. The assumptions required to sustain the Stolper-Samuelson theorem have been clearly summarised by Caves [19, Ch. 3] and Bhagwati [12].

3. The central proposition of the H-O theory is that a country tends to export those goods which use intensively the country's abundant factor and to import goods which use intensively the country's scarce factor. Leontief [65; 66] has attempted to test this proposition for the United States. He put his input-output machinery to work and found that United States exports are apparently labour-intensive and her imports capital-intensive. This paradoxical result stirred up a hornet's nest among international-trade economists. Again, it is not possible here to summarise all the arguments which have been advanced either to explain the result or to show that, for statistical or other reasons, it is misleading. This has been done adequately by Haberler and Caves. Leontief suggested as explanation that when one takes into account the superior quality of American labour, the United States is not relatively better supplied with capital than other nations. Others have pointed out that America's imports may well be labour-intensive in the supplying countries while production of similar goods in the United States is capital-intensive; in other words, contrary to a H-O tenet, production functions are not the same in all countries. Haberler supports the most convincing explanation of all, namely that Leontief takes into account only capital and labour, and neglects other factors of production, notably natural resources and entrepreneurship. Insofar as Leontief's econometrics neglected some factors of production, it is not a refutation of the H-O theory but simply an incomplete test of it.

Besides the factor-price equalisation and the Stolper-Samuelson

income-distribution theorems, recent developments have spelled out other implications of the H-O model. Mundell [97] has clearly defined the relationship between trade and factor movements. He shows that since free trade and free factor mobility are substitutes, trade impediments will stimulate factor movements and impediments to factor movements will stimulate trade; tariffs and impediments to factor movements tend to achieve the same type of results. Johnson [50] has explored the effect on international-trade equilibrium of differences in tastes between factors of production. If international trade affects the internal pattern of production it will also affect the distribution of income, and if tastes differ between factors then a change in the distribution of income will affect the pattern of demand and hence the international equilibrium. The crucial consideration here is whether factors have preferences for the products in the production of which they play the main part (i.e., does labour have a preference for consuming the labour-intensive product?). If this is so, then new possibilities of unstable and multiple equilibria, not considered in previous models, arise. Finally, the most important development of the H-O model has been its extension to economic growth. This will be fully discussed in the subsequent section of this paper.

A striking feature of the pure theory of trade is that it is fully spelled out geometrically, and the firm hold which it has on economists is probably connected with the clarity of the geometry. Many (though not all) of its conclusions can be extended to more than two factors, products and countries, but confining the model to two of each is clearly necessary to preserve the geometrical simplicity and hence heuristic value of the model. The history of the pure theory can be told in terms of the steady elaboration of this geometry. During the period under review there have been many developments, especially in elaborating the specifically H-O aspects of trade theory, namely the box diagram and its relationship to the transformation (or production-possibility) curve, useful contributions being those by Lancaster [62] and Savosnick [118]. The major consolidation of international-trade geometry since Marshall's *The Pure Theory of Foreign Trade* has been Meade's *A Geometry of International Trade* (1952) [85]. This consolidated earlier contributions by Leontief, Haberler, Lerner, and others. Its particular contribution was the new technique of the "trade-indifference curve" as a result of which it became possible to represent international-trade equilibrium with incomplete specialisation on a single diagram. Meade's *Geometry* does not concern itself with internal

economic structure and thus does not embrace the H-O model. Perhaps the best brief outlines of the complete system (i.e., including the H-O model) are Mookerjee's [95] and Johnson's [51, Ch. 2].

Criticisms

The pure theory of international trade, to the point to which it has now been developed, is undoubtedly a considerable intellectual achievement. It is a monolithic, formal structure, rigorous, and with every deductive nook and cranny of it thoroughly explored. If one accepts its restrictive assumptions, a vast number of conclusions can be squeezed out of it, bearing on the effects of changes in economic data on the volume, pattern, and terms of trade, on the effects of changes in trade (through commercial policy) on internal income distribution and the internal economic structure, on the interrelationship between trade and factor movements, and on the effects of a variety of changes on the gains from trade. The model is built up systematically, beginning with factor supplies and production functions in each country, leading to a statement of supply conditions, which, combined with demand conditions, then yields a description of each country's international-trade "offer" conditions. From the offer conditions of the countries is then derived the international-trade equilibrium, and from this one can work back to internal prices, income distribution, and economic structure. The main body of the theory assumes that prices of factors are equal to their marginal products and product prices to their marginal costs, that production functions are linear and homogeneous, that there are no transport costs, and that there are only two factors of production, two products, and two countries. In spite of its highly limiting assumptions the theory is of value in clarifying issues of practical importance, particularly as many of its conclusions can be directly applied to more general models. Thus the comparative-costs proof, while usually presented in terms of a two-product, two-country model, is directly applicable to a multi-product, multi-country world (though there are difficulties about translating the H-O theory into a multi-country world). For specific problems, it is often more convenient to use the basic model as a starting point, and then modify it where required, rather than to build up a new, and possibly unfamiliar, model from the ground up.

Nevertheless, one can also have doubts. One wonders whether the pursuit of this model does not lead economists astray. To understand the full implications of the model it may be necessary to know

whether, in the framework of the model, free trade must lead to factor-price equalisation. As has been pointed out by Pearce [110], Johnson [47, Ch. 1] and others, the answer is negative even within the framework of the model, since goods may reverse their relative factor intensities and since free trade may lead to complete specialisation. But, of course, as soon as the simple assumption maintained throughout the pure theory, that transport costs are zero, is removed, it becomes obvious that free trade need not lead to factor-price equalisation. The factor-price-equalisation discussion has tended to be an intellectual game. While it has yielded some incidentally useful results by clarifying the structure of the pure theory and by bringing out the interesting conclusion that in some circumstances trade may not even *tend* to equalise factor prices, the fact remains that no policy-maker has ever expressed a desire to know whether free trade would equalise factor prices (though he might like to know whether a movement *towards* free trade will *tend* to do so) and no empiricist would find the answer of any value in explaining any facts, statistical or otherwise, observable in the real world.

Furthermore, there are certain complications which seem essential to make the pure theory realistic, such as the consistent introduction of nontraded goods, of intermediate goods, of economies of scale, of product differentiation, of technical change as a determinant of the trade pattern, of transport costs, and of the size and nature of the home market—all of which would probably alter the model so much as to make it unrecognisable. There will also come a point when the model becomes so complicated as to lose its immense heuristic value.

New Approaches

Recently, as trade between industrial countries has grown, there has been increasing dissatisfaction with the patent inability of the H-O model to explain the pattern of trade in manufactured goods. Two approaches have been suggested. The first focuses on economies of scale and the second on technical change.

Economies of scale have not, of course, been overlooked in the pure theory of trade. Ohlin [109, pp. 50-58 and 106-111] referred to them and Matthews [81] has integrated static economies of scale into the standard two-good, two-country model by showing the relationship between increasing returns and the offer curve. But the recent literature exploring and refining the H-O model has ignored economies of scale by assuming linear homogeneous production functions. What difference do

economies of scale then make? The point at which the theory had left the problem until recently was that economies of scale make for specialisation in trade, but that the actual pattern of trade—i.e., which country specialises in which product—depends on “historical factors.” This has now been carried further by Linder [70], though he has not worked out a complete formal model. He argues that, while trade in primary products is explained by differences in factor endowments, trade in manufactures is explained mainly by similarity of demand patterns in the trading countries. Industries develop in a country because of the existence of potential home markets, and an industry is able to export once the home market has expanded to enable the industry to attain a sufficiently large scale to become competitive on world markets. The strongest foreign market is found in countries where the composition of demand is about the same, which means that their per capita incomes are at similar levels. Thus, while the H-O model says that trade takes place when countries are *different*, the Linder thesis suggests that it takes place rather when they are the same. Clearly, economies of scale, whether defined in the static or the dynamic (“learning by doing”) sense, are crucial. In Hirschman’s recent discussion of the growth process in underdeveloped countries [45, Ch. 6 and 7], the scale factor is one determinant of the pattern of import replacement.

Posner [112] has suggested a genuinely dynamic approach to explaining trade in manufactured goods as a supplement to the H-O and other theories. Trade can be caused by technical changes and developments that influence some industries and not others, or happen in some countries and not others. Trade takes place during the lag while the rest of the world imitates one country’s innovation. It would be difficult to subsume this very plausible explanation of certain kinds of trade in the H-O theory. It is not sufficient to refer to differences in research endowments, whether described as capital or specially skilled labour. Two countries may have the same research endowment (measured in terms of cost or the value of results) and yet trade should still result, as they will not discover and develop the same things at the same time.

The actual volume and composition of trade is the result not only of comparative advantage (depending on factor endowments, economies of scale, production functions, etc.) but also of various controls and interventions in trade. There may be some regularities in the nature of these interventions. For example, tariff systems usually discriminate in favour of imports of raw materials as against finished goods, and

this may bias the pattern of trade in favour of land-intensive products. Kravis [61] suggests that in the United States government controls have tended to shut out imports that could be produced at home though at somewhat higher cost. More generally, he says that the determinant of the pattern of trade is, in the main, "availability" or supply elasticities. "In short, it is the elasticity of supply abroad and its inelasticity at home that give rise to this [import] trade, not the relative capital or labor requirements of the products" [61, p. 150]. Availability depends primarily on natural resources. In addition, technological progress and product differentiation make trade largely the exchange of goods which are available in one country but not another, and help to explain the composition of U.S. exports. By treating the "natural resources" factor of production as the principal determinant of trade he has arbitrarily narrowed down the more general H-O proposition, though this may be more realistic than Leontief's emphasis on the two factors of production, capital and labour.

Thus, new approaches to the explanation of trade are being explored, opening up a reconstruction of the pure theory. They reflect dissatisfaction with the domination of the recent literature by the H-O model. To pursue the criticism further, the classical pure theory was a simple structure leading to a small number of crucial conclusions, notably the law of comparative costs. The theory as it has now been developed, especially in the last few years, is by contrast highly taxonomic—the consideration, in the abstract, of numerous possible cases, but still within the confines of an excessively simple model. As Meade has written, to condemn taxonomy is to condemn all general economic theory:

Personally, I fail to see any fundamental advantage in refusing to do any preliminary general exercises, but in insisting on working out separately for each particular issue all the relevant general questions to be raised. On the contrary, there would seem to be grave danger that some possibilities will in that case be overlooked which a more systematic preliminary consideration of logical alternatives would have brought to the surface [83, p. viii].

This was written in reply to a severe attack by Johnson [46] on Meade's *The Balance of Payments*. In fact, taxonomy has gone as far or farther in the pure theory as in the theory of balance-of-payments policy, and the most brilliant practitioner has been Johnson himself. I have no doubt that (apart from the factor-price-equalisation discus-

sions) it has been of value, but it may now be time to shift the emphasis, for

if economic theory is to be applied to problems of economic policy, this can most usefully be done within the context of a particular problem occurring in a particular environment. Only so will full justice be done to the complexities of policy problems, and adequate attention paid to the necessity of economic measurement [46, p. 828].

Spinners of theories might recall an older warning:

For the wit and mind of man, if it work upon matter, which is the contemplation of the creatures of God, worketh according to the stuff and is limited thereby; but if it work upon itself, as the spider worketh his web, then it is endless, and brings forth indeed cobwebs of learning, admirable for the fineness of thread and work, but of no substance or profit [5, p. 32].

III. Trade and Growth

A completely new development in international-trade theory has been the construction of models to show the effects of various forms of growth on trade. These models are not, on the whole, as sophisticated as the factor-price-equalisation models discussed above, nor can they claim to be genuinely "dynamic," but they are obviously useful and fill a glaring gap in trade theory. They concern themselves with the effect of growth on trade—on the balance of payments, the volume of trade, the terms of trade, and the pattern of trade. They provide a framework for answering a number of obviously relevant questions: Will growth create a balance-of-payments problem? Is the ratio of trade to the gross national product likely to rise or fall with growth? The models are essentially comparative-static. The main body of this theory does not concern itself with the effect of trade on growth or the complex interrelationship whereby trade affects growth and this growth then has repercussions on trade. The models take the sources of growth—population increase, capital accumulation, and technical progress—as given, and explore their impact on trade.

We owe the rapid evolution of this branch of theory to the lengthy postwar discussion about the "long-run dollar problem." Briefly, it had been argued by various writers that the dollar difficulties of the postwar period reflected the continuance of a prewar tendency; that there was in fact a long-run tendency for the United States balance of payments to run into surplus. Furthermore, it was often argued that low import-demand elasticities in the United States and in the nondollar world ruled out devaluation of nondollar currencies relative to the dollar as a remedy. A variety of reasons for the tendency were advanced: Balogh [6] and others argued that a source of the trouble was that United States productivity was rising faster than productivity in other countries—in other words, that the United States was outcompeting other countries and forcing them to adjust continually to the development of new products or improved ways of producing existing ones. Hicks [44] suggested, in addition, that innovations in the United States tended to have an import-replacing bias. The upshot of various investigations—notably that of MacDougall [75]—was that there was no evidence that U.S. productivity was rising much faster than in the nondollar world as a whole, or that there was a consistent import bias

in U.S. innovations. All this has been summarised by Machlup [76]. Furthermore, as is well-known, the dollar shortage has since 1958 turned into a dollar glut, so that it is certainly no longer taken for granted that there is such a thing as a "long-run dollar problem." But out of the discussion, and especially out of Hicks's argument that technical progress in the United States is import-biased and that this has an adverse effect on the terms of trade of other countries, has come an advance in theory of lasting value. The models have been applied not only to the dollar problem but also to the view that there is a long-run tendency for the terms of trade to turn against exporters of primary products (or underdeveloped countries) and in favour of exporters of manufactured goods. Incidentally, some, like Haberler [36], regard this view as no better based than the belief in the long-run dollar shortage.

The Basic Model

It will be most convenient at this point to sketch some of the characteristics of the basic model as it now stands, rather than trace it historically. It would take too long to spell it out rigorously and systematically here. For a general introduction, the reader is referred to Meier [88, Ch. 2 and 3] and, for a rigorous, detailed and up-to-date exposition of the main model, to Johnson [51, Ch. 4].

The central question which the model asks is how growth affects demand and supply of exportables and importables. It is assumed (a) that there are only two products, exportables and importables, (b) that there is an expansion of the production possibilities due to increases in supplies of factors of production or due to improved productivity, and (c) that full employment is maintained through a growth in expenditures (and hence incomes) which matches the growth in output potential. The question then is how demand and supply of exportables and importables would expand if all product prices stayed constant. Since there are only two products, the analysis can be restated in terms of either one of the products. In a two-country world, with the economies of both countries growing, this question must be asked for both countries. The greater part of the analysis is conducted on the constant-price assumption. Some forms of growth, particularly productivity improvement, affect costs and prices directly. In that case it is necessary for the purpose of this model to assume a reshuffling of factors of production so as to restore the pre-existing product prices.

Suppose that the increase at constant prices in output (and hence incomes) in one of the countries is 10 per cent. If, to maintain constant prices of the two products, output of each also expands 10 per cent, then we say that the output expansion is neutral; on the other hand, if, for example, at constant prices output of exportables would increase more than 10 per cent and of importables less, the output expansion is *biased* towards exportables. Similarly, the demand expansion may be neutral or biased in either direction. The same possibilities apply to the other country. One country's importables are the other country's exportables, and the issue is whether the demand and supply for each product expands at the same rate, or whether—at constant prices and with total output equal to total income—there develops an excess demand for one and excess supply of the other.

Clearly, there are numerous possibilities. The result depends on the biases in the demand and output expansions of both countries and on the *country bias* of growth. If there is neutrality in all respects—demand and output grow at the same rate in each country, and the two countries grow at the same rate—then the system will remain in equilibrium, with no need for a change in prices. With complete neutrality, the demand for each product, and the exports and imports of each country, and hence world trade, will all grow at the same rate. The ratio of trade to national products will stay constant. For any given set of biases, the size of the constant-price excess demand (supply) which results from growth also depends on the weights of the different elements in the model—the initial ratios of trade to production in each country and the relative sizes of the two countries.

The model can be worked through for numerous special cases. One result is especially interesting. If there is neutral demand and output growth in one country, but the other country is static (so that the only bias is a country bias), the terms of trade must turn against the growing country. More generally, if each country is growing neutrally, the terms of trade must turn against the faster growing country.

The classification of the biases, and the exploration of various combinations of them, is only the first step in the analysis. The next step is to go behind the biases and relate them to the underlying growth determinants. The factor-supply growth may be labour or capital-biased (when there are only two factors)—i.e., labour or capital may grow faster. If it is labour-biased, and with given linear homogeneous production functions, the output of the labour-intensive product will expand more at constant prices, so that the output bias depends on the

factor bias. If capital grows and labour is static there will be an *ultra-bias*—at constant prices the output of the labour-intensive product will decline absolutely, this following from the Rybczynski proof [115]. This is all a simple extension of the Heckscher-Ohlin theory. The same geometric equipment—the box diagram and the production-possibility curve—is used to derive the main proofs. The analysis can also be complicated by introducing non-linear production functions, such as economies of scale in one industry and diminishing returns to labour plus capital (due to a fixed factor, land) in the other.

Another source of growth is technical progress. This can be both product and factor-biased. It is product-biased if it takes place more in one industry than the other. It is factor-biased in an industry if, at constant factor prices, it alters the ratio in which the factors are employed. A labour-saving bias has the same sort of effect as an increase in the supply of labour, and thus will bias the output expansion towards the labour-intensive product. Many combinations are possible. For example, a labour-saving innovation in importables, where exportables are labour-intensive, will have two opposing effects; on the one hand, because the innovation is purely in importables it will tend to an *ultra-bias* towards importables; on the other hand because it is labour-intensive, it will tend to an *ultra-bias* towards exportables.

What lies behind the demand-expansion bias? With constant population, income distribution, and tastes, it depends on the income elasticity of demand for the two products. If population is growing, the matter becomes more complicated, even when changes in the age distribution and differences in tastes are ignored, since the bias will also depend on whether population is growing faster or slower than national income. It is also possible that tastes differ between the factors of production, either because they have different indifference maps or, with different per capita incomes, they are at different points of the map. A change in income distribution will then affect the demand expansion. Such a change in income distribution (at constant prices) must result from factor-biased growth. Johnson [52] discusses also various complex ways in which technical progress is likely to affect income distribution.

Having specified all the growth biases and the initial weights of the different elements in the model, and thus determined the nature and size of the disequilibrium which will result at constant prices, the next step is to establish the direction and extent of the terms-of-trade change needed to restore equilibrium. The main point is that if the

foreign-exchange market is stable, an excess supply of country A's exportables (excess demand for its importables) must lead to a deterioration in its terms of trade, and the extent of the deterioration depends on the import-demand elasticities in the two countries (which depend on both the supply and demand elasticities for importables). The higher the elasticities, the less the terms-of-trade change needed to cope with a given disequilibrium.

The analysis can tell us within the framework of the very simple model not only the effect of growth on the terms of trade, but also on the ratio of trade to the national product and, indeed, on the pattern of output. It lends itself to elaboration for special cases and to the introduction of numerous complications. It is simple in conception but is in my view one of the most useful advances in trade theory of recent years. We owe this advance principally to Johnson [47, Ch. 3], though the idea of export and import bias originated with Hicks's article on the long-run dollar problem [44], and contributions have been made by others, such as Bhagwati [10; 11], the present writer [22], and Findlay and Grubert [27]. The literature in this field is already vast. Reference may be made to the bibliographies attached to Johnson's recent summary article [51, Ch. 4] and to Meier's survey book [88].

Growth and the Balance of Payments

The model, as I have described it, is a "real" model. It assumes that appropriate income and price variations maintain full employment and balance-of-payments equilibrium, the focus of the model being on the nature of the necessary price variation. The model can in fact also be used to determine the effect of growth on the balance of payments, assuming that prices are constant. In all those cases where a terms-of-trade deterioration is required to restore equilibrium (assuming stable foreign-exchange markets) growth at constant prices will create a trade deficit. But a model aiming to describe the effect of growth on the balance of payments should also take into account the independent effect of growth on internal prices. If the price level of country A rises faster than the price level of country B, then a balance-of-payments deficit will result, unless the foreign-trade elasticities are such that the foreign-exchange market is unstable. This deficit will be additional to the deficit (or surplus) which results from growth, biased or unbiased, at constant prices. It is this type of model that is most appropriate for clarifying the discussion of the long-run dollar problem.

Here also Johnson [47, Ch. 4] made the classic contribution, com-

binning the income and price effects of productivity growth on the balance of payments, and in effect carrying further Meade's analysis in *The Balance of Payments*. He assumed that each of the two countries in his model is producing only a single product, so that no question of an output bias arises. His general proposition about the effect of productivity growth in both countries on the balance of payments was as follows. *If the relationship between the price levels of the two countries does not alter, and unless the income elasticity of demand for imports of the faster growing country is sufficiently below that of the slower growing country, the balance of trade of the more rapidly growing country will deteriorate. But, in addition, since growth is due to productivity improvements, the price level of the country which is growing more rapidly is likely to fall relative to the price level of the other country. This price effect will tend to improve its balance of trade, provided the sum of the elasticities of demand for imports of the two countries is greater than unity, and to worsen it if the sum is less than unity.*

Dynamic Elements in Trade Theory

The taxonomic exploration of a two-product, two-country model which takes growth as a datum is certainly not a sufficient treatment of the relationship between trade and growth. The relationship between growth and commercial policy I shall discuss further below. Here I wish only to note that there have been a number of other, essentially isolated contributions, which introduce dynamic elements into trade theory. Clearly, capital accumulation cannot be taken as a datum. Johnson [47, Ch. 5] has produced a model which extends the Harrod-Domar model to international trade. In a two-country world, suppose that balance-of-payments disequilibrium is allowed to persist, the surplus or deficit helping to determine the growth rates in the two countries through its effect on effective demand. One form in which the problem can then be posed is as follows: Given the rate of growth in one country, and therefore the rate of growth in its demand for imports, what is the growth rate required in the other country to maintain full employment? Bensusan-Butt [9] and Lewis [69] have both constructed elaborate models that integrate capital accumulation and trade, and provide a framework for historical analysis, especially of the early stages of growth. Various articles with dynamic content are summarised by Caves [19, Ch. 9], and in a recent book Kindleberger [59, Ch. 11 and 12] has sketched out, though not

rigorously, a variety of relationships between trade and growth, drawing in the main on earlier literature. Meade [83, Ch. 27] has also presented a highly sophisticated, but essentially comparative-static analysis of the effects of international migration on the terms of trade, one which really anticipated some of the main features of the trade-and-growth model that I have described at length in this section.

Apart from the limited, but at least rigorous and useful, model which I have described in detail in this section, efforts to relate growth theory and trade theory and to "dynamise" trade have so far been sparse. This is certainly a direction in which trade theory will develop in the future. To quote Haberler's *Survey*:

As far as abstract theory is concerned there exists, however, not much more than occasional hints and programmatic pronouncements concerning the necessity of dynamizing traditional theory plus a few fumbling steps in the direction of the actual construction of dynamic models. Economic history has more to offer than theoretical analysis for the solution of these problems. Those who believe that it is possible to set up model sequences of economic development should go ahead and do it, instead of merely criticizing others for not having done it. Traditional theory, contrary to the views of its critics, by no means precludes the construction of such a broader theoretical frame, although some incautious policy conclusions derived from static reasoning may have to be modified [35, p. 58].

IV. Trade and Welfare

One branch of international-trade theory studies the effects of commercial policy on welfare. Commercial policy includes a whole range of devices—tariffs, quantitative import restrictions, multiple-exchange rates, export taxes. The literature has been concerned mainly with tariffs, but most of the conclusions can be readily adapted to other devices. The question is usually formulated more precisely: how does a restriction of trade through the imposition of a tariff, or an increase in a tariff, affect welfare? There are two extreme situations—that of free trade (zero tariff) and that of no trade (prohibitive tariff). The classic question of the gain from trade, therefore the gain from moving from a no-trade to a free-trade situation, is a special case of the general problem. In this section, I shall be concerned only with tariffs which do not discriminate as between sources of supply; the theory of discriminatory tariff changes will be discussed in the following section.

The condition of the theory of tariffs at the time of Metzler's survey may be summarised briefly as follows. The central concept was the classic case for free trade, which, unqualified, had meant that limited trade was better than no trade and free trade better than limited trade. The gain from trade was divided between countries according to the terms of trade, which depended on reciprocal-demand conditions in both countries (in a two-country world). This basic case for free trade was modified by a number of distinct arguments for protection. One of these, the infant-industry argument, was fully accepted by Mill and subsequent writers as a valid qualification to the case for free trade. Others, notably the terms-of-trade argument, can also be traced a long way back—the terms-of-trade argument also to Mill. But they were not given prominence or regarded as practically significant. In the nineteen thirties and forties three arguments for protection—three possible qualifications to the free-trade case—were developed rigorously, though they all had their roots in earlier literature. Metzler's survey described these developments. One was the terms-of-trade argument—the concept of the "optimum tariff" which balances the loss from trade restriction due to reduced international division of labour against the gain due to improved terms of trade, a gain which is at the expense of other countries. Another was the Stolper-Samuelson

distribution-of-income argument, and a third the "mercantilist" or employment argument. The theory of the optimum tariff had been developed to a high degree of sophistication; it specified the level of the optimum tariff in terms of the foreign-trade elasticities. The Stolper-Samuelson proof was not really a case for protection as such; it argued only that *if* a country wanted to raise the real income of one factor of production at the expense of another, it could in certain circumstances succeed in doing so through a tariff. It was quite clear that aggregate welfare might be reduced by the imposition of a tariff designed to affect income distribution, and that there might be better ways of achieving the desired redistribution of income. The mercantilist argument had always been a popular argument for protection, but Keynes made it intellectually respectable.

All these arguments for protection have been subsequently developed and refined. Graaff [31] extended the optimum-tariff theory to a theory of an optimum-tariff structure—a structure of tariffs, export taxes, and import-supply elasticities, which would maximise a single country's welfare. Johnson [47, Ch. 2] refined the theory of tariff retaliation, and demonstrated the possibility that (in a two-country world), if both countries follow an optimum-tariff policy, a net gain to one of them, relative to free trade, could conceivably remain.

Kemp [57] has recently shown that welfare with a prohibitive tariff must be less than with any degree of limited trade; i.e., there is always a gain from some trade. This can be seen intuitively. In this type of model the only gain due to trade restriction comes through improvement in the terms of trade, which is balanced against a comparative-costs loss; but, if there is no trade left, the terms of trade cease to matter and only the comparative-costs loss remains. The clarification of the Stolper-Samuelson proof has already been discussed. Haberler [34] has shown that rigidity of factor prices may cause trade to bring about unemployment, and so may justify protection. This factor-price inflexibility is distinct from immobility of factors internally, which is not in itself an argument for protection, though it reduces the gains from trade. A neat summary of all the respectable arguments for tariffs, embodying most of the recent developments in tariff theory, is found in Black's article "Arguments for Tariffs" [17].

The key work in the branch of trade theory concerned with commercial policy and welfare during the period under discussion was Meade's *Trade and Welfare* (1955) [83; 84]. To begin with, it consolidated and clearly expounded the existing theory, providing a highly

significant classification of arguments for trade control, in terms of distributional, structural, and "second-best" arguments. The distributional argument has two parts to it: the argument for influencing the international distribution of income through the terms of trade, and the (Stolper-Samuelson) domestic-distribution-of-income argument. The structural argument was an improved version of the infant-industry argument, while the second-best concept represented a new contribution to tariff theory.

Out of *Trade and Welfare* have come three major new developments in trade theory, and it is these I wish to discuss in detail now. All these developments have their roots in earlier literature, and indeed the central idea Meade obtained from a seminal article by Fleming [28]. Two of the developments represent reversions to more old-fashioned approaches, though the impact on modern trade theory came through *Trade and Welfare*. While it will be convenient to discuss the three new approaches separately, all actually form an integral part of the Fleming-Meade technique.

Meade's Welfare Weights

The first is concerned with the very heart of welfare theory, the problem of interpersonal comparisons of utility. An act of economic policy, such as a tariff, is likely to have different effects on different sections of the community. It may raise the incomes of different sections in varying proportions, and may indeed reduce the income of one section and raise that of another. Can one then talk of the national or, indeed, the world welfare? The solution of the "new welfare economics" was to introduce the idea of compensation or *potential* welfare. If the gainers from an act of policy, such as a tariff, could compensate the losers and a net gain remained, then, it was argued, there was an improvement in efficiency or *potential* welfare. Everyone *could* be made better off by the policy. The virtue of this approach was seen to be the distinction it made possible between problems of efficiency—the proper sphere of the economist—and problems of equity or income distribution—on which, so it was said, the economist had nothing to contribute. This approach tried to ignore the income-distribution effects of a policy by assuming that an associated policy of subsidies and taxes would effect appropriate compensation. It made it possible, for example, to draw community indifference curves, a highly useful device in trade theory. A similar result is obtained if income-distribution effects are completely ignored by simply treating

the community as a single individual with a preference system similar to that of an individual.

There are two difficulties about this compensation approach. One is that it makes the original income distribution the standard. It tells us whether, given that distribution, a tariff increases potential welfare or not. But with another distribution the change in potential welfare will be different. A given policy change could raise potential welfare (efficiency) with one distribution and reduce it with another. One solution is to say that there is an optimum for each possible income distribution. The other is to select two distributions only, that actually existing before the particular change considered and that existing after, and to argue that there is an unambiguous improvement in national welfare only if the act of policy raises efficiency in terms of both income distributions. This means that not only the compensation test but also the so-called "bribery test" must be applied (the bribery test asks whether it is worth while for potential losers from the policy to bribe potential gainers not to make the change). The more important difficulty is that the income-distribution effects of a policy do in fact matter, and that compensation may not actually take place. The new welfare economics is really considering not the effects of a single policy, but the effects of two policies combined—the tariff change and the compensation. *Potentially*—i.e., if compensation took place—everyone might be better off as a result of an act of policy such as a tariff change, but in fact some people would be worse off; and without interpersonal comparisons of utility one cannot really say how a policy affects the national welfare. Thus welfare economists proceeded to destroy the elaborate edifice which their predecessors had built up, without putting anything in its place. Little [74], Graaff [31], and others argued that we are not permitted to make interpersonal utility comparisons; in fact most policies make some people better off and others worse off and compensation does not take place, so that we cannot say how these policies affect welfare. Little, Graaff, and Mishan [94] all conclude that sophisticated welfare economics is not much use, that recourse must be had to common sense.

This is exactly what Meade, more constructive-minded than the other welfare theorists and basing himself on Fleming, has done. "We cannot," he writes, "make any progress on this part of our present inquiry unless we are prepared to make comparisons between the satisfactions of different citizens" [83, p. 69]. So he introduces the concept of *marginal-welfare weights*, essentially a reversion to older cardinalist

ideas. He assumes that the policy-makers allot welfare or "distributional" weights to the incomes of the various citizens or groups of citizens,

in the sense that they are prepared to say whether to add \$1 to the income of B is one-half, twice, or three times as important an objective as adding \$1 to the income of A. The economist's job can only be on the basis of any given schedule of distributional weights to say whether an economic policy would then lead to greater welfare or not. But although these distributional weights cannot be objectively tested, they are not altogether unnatural. Indeed, they are part of the normal stock in trade of politics [83, p. 70].

In my view, the virtue of this approach is that it neither ignores distributional considerations nor makes the unrealistic assumption that compensation always takes place. It makes explicit the nature of policy choices and the dependence of the optimum on the choice of welfare weights. In the special case where the welfare weights are the same for all sections of the community, income distribution does not matter and for purposes of analysis the result is the same as if compensation had actually taken place. In another special case a zero weight is attached to one section. For example, in a community consisting of two categories of income-earners, labour and capital, a zero weight may be attached to capital's welfare by the policy-makers. The optimum tariff is then one which maximises the real wage, on Stolper-Samuelson lines. Or suppose that, in a two-country world, a zero weight is attached to the welfare of one of the countries. The optimum tariff is then the tariff which maximises the welfare of the other country, i.e., that country's "optimum tariff" in the traditional sense of the term.

The Theory of the Second-Best

The second, and most novel, contribution of *Trade and Welfare* is the principle of the "second-best." This has been further elaborated and generalised by Lipsey and Lancaster [73]. It underlies a clarification by Bhagwati and Ramaswami [16] of the relationship between optimum tariffs and subsidies, and plays an important part in Johnson's [53] recent review of tariff policies. The idea is indeed simple, almost obvious, but it is destined to make as big an impact on the theory of economic policy as the Tinbergen-Meade system of policy targets and instrumental variables. In any given situation an economy is always subject to a set of *constraints* which set limits to possible policies and

responses to policies. Usually economists regard the technical production possibilities, the demand pattern (the indifference maps) and the foreign-demand and supply conditions (the foreign-offer curve) as given, as "in the nature of things." These are then the constraints usually assumed. Given these constraints, a particular economic policy will maximise economic efficiency, disregarding distribution-of-income considerations, by assuming either compensation or equal welfare weights. These Meade calls the conditions for Utopian efficiency; they are more generally described in the literature as the Paretian optimum conditions. Now introduce an additional constraint, in the form of a tax, an entrenched monopoly, or perhaps an inflexible price. Such additional constraints might be classified into economic-environment constraints (monopoly) and government-policy constraints (tax), and into those constraints which it is feasible to remove and those which it would be unrealistic to regard as anything but given. Given then the additional constraint, the optimum values for the remaining variables will now differ from their Paretian values. It may be, for example, that Paretian conditions require tariffs on both A and B to be zero. But if the tariff on A is constrained at 10 per cent then the second-best optimum tariff on B will no longer be zero. For every set of constraints there is a particular second-best optimum for the remaining variables. Whether an increase in a particular tariff raises or lowers welfare depends on the constraints in the situation. The central point is that one cannot assume that all other prices, policies, etc., are at their Paretian values, and divergence of some prices from their Paretian values may justify the divergence of other prices from their Paretian values also. Welfare would be maximised if both sets of prices were at their Paretian values, but if one set is constrained at a non-Paretian value, then to attain a second-best optimum (which will yield something less than Paretian welfare) the other set of prices may need to be also at a non-Paretian value.

The theory of the second-best is very relevant to the theory of customs unions; this will be discussed in more detail below. It has led Johnson [53] to reinterpret the whole range of arguments for tariffs. In a sense, practically all arguments for tariffs are second-best arguments. If it is desired to alter the internal distribution of income, then the "first-best" policy would be to do so by direct taxes and subsidies. If this is not possible (i.e., there is a constraint in tax policy), it may be done by tariff protection. But while this will achieve the aim it will also have side effects which are adverse, and the wel-

fare attained with the tax constraint will not be as high as without it; indeed, welfare could fall. Johnson's main point is that "the correction of domestic distortions requires a tax or subsidy on either domestic consumption or domestic production or domestic factor use, not on international trade"; and taxes on trade are in such cases only a second-best. In fact, he claims that the only first-best argument for tariffs is the terms-of-trade argument; all other arguments for protection are arguments "for some kind of government intervention in the domestic economy, and lead to the recommendation of protection only when supported both by practical considerations that render the appropriate form of intervention infeasible, and empirical evidence that protection will in fact increase economic welfare" [53]. He is probably carrying this too far, partly because he ignores the costs and distortions which result from government intervention not directly impinging on trade, e.g., income taxes. One must also remember that with Johnson's assumptions the terms-of-trade argument is from a world point of view also a second-best argument, international lump-sum transfers being preferable. In every situation there are constraints, and in a sense every situation is a second-best situation, since a different and higher optimum would be attained if one of the constraints were removed. But the virtue of this approach is that it focuses on the constraints, and the feasibility of removing them, which differentiate one policy environment from another.

One important application of second-best theory in *Trade and Welfare* concerns the effect on world welfare (assuming either equal welfare weights or compensation) of a reduction in tariffs by one country when the tariffs of other countries are given [83, Ch. 31]. It has certainly been the popular view that the tariffs of other countries justify the tariffs of one's own country. By contrast, trade theory has been very explicit that, within the framework of the usual static assumptions, a tariff reduction by a country will always raise world welfare even if other countries maintain their tariffs. This, it now turns out, is not necessarily so. A tariff reduction by one country may bring the internal price relationships closer to the internal prices of one of the other countries but take it further from the internal prices of the third. Distortions at the margin due to different prices may thus rise or fall; welfare may decline or increase. Vanek [128] has recently reexamined this proposition and defined more precisely the conditions in which world welfare may rise or fall as a result of unilateral tariff reduction. He shows that if the tariff which is reduced is an extreme

tariff—higher than the tariffs of both other countries—welfare must increase; thus world welfare is always benefited when the tariffs of high-tariff countries are reduced. He also draws an interesting policy implication: if world protection is to be reduced so that welfare increases at every step, tariffs should be reduced from the top downwards, first cutting the very highest tariff to the level of the second-highest, then cutting both to the level of the third, and so on.

Measurement of Welfare Changes

The third contribution of *Trade and Welfare*, also based on Fleming's article, was to introduce a general method for measuring small changes in economic welfare [84, Ch. 2], a method which is only a slight variation on the Marshallian consumers'-surplus technique. The method is useful only for small changes and basically requires partial-equilibrium assumptions. Like Marshall's surplus, it assumes the marginal utility of money to be constant, but differs from Marshall's approach in that no specific assumption need be made that Paretian optimum conditions operate elsewhere in the economy. Rather, Meade's method is suited both for Utopian and for second-best problems, and can allow for varying degrees of monopoly and monopsony, for external economies, for taxes, and in fact for any clearly defined divergence between marginal costs and benefits elsewhere in the economic system. The condemnation by welfare theorists, such as Samuelson, Little, and Graaff, of Marshallian consumer's surplus seems to apply completely to this method—for infinitely small changes, a tariff (for example) imposes no cost, while for large changes the method disregards the income effects of the tariff. Meade's method in principle allows for any number of indirect effects, but in practice many of these are likely to be disregarded. As Lerner [68] has pointed out, consumers' surplus seems most appropriate for the study of small, but not infinitesimally small changes. Hicks [43], in a sense, rehabilitated consumers' surplus by making explicit the assumptions which make it a valid concept (and bringing out the possibility of various definitions of the concept, all of which would come to the same thing if there were no income effects). The Fleming-Meade method has carried this further by showing that the concept can be applied, with suitable qualifications and variations, to concrete international-trade problems. But the objections by Little [74] and others are still valid, so that we have here a conscious rehabilitation of a concept with very clear limitations. The alternative is to give up all attempts at measure-

ment of welfare effects. Implicitly Meade has decided, rightly in my view, that "the best is the enemy of the good" or, to put it more bluntly, that one should not allow the perfectionism of theoretical welfare economists to destroy the usefulness of economic theory.

The Fleming-Meade rehabilitation of consumers' surplus has provided a theoretical basis for the measurement of welfare effects of international-trade policies. This trend towards measurement is new and valuable. It is clearly necessary if the discussion of policies is to be carried beyond vague generalisations and the statement of opposing "forces" at work. As Johnson has written:

Measurement of the economic gain or loss resulting from particular economic policies is clearly an interesting aspect of the quantification of economic relationships that modern mathematical and statistical techniques make possible and that contemporary methodology insists should be the aim of scientific endeavor [49, p. 328].

The techniques used here have all the limitations of the simplest form of the method, though complications could in fact be introduced. They usually assume the existence of Paretian optimum conditions elsewhere in the economy and ignore distribution-of-income considerations by implicitly assuming equal welfare weights. The method has been suggested or used by Corden [23], Johnson [48; 49], Wemelsfelder [131], Harberger [40] and Stern [122]. The basic approach is very simple and can be illustrated by considering the effects of a 20 per cent tariff on the welfare of the country imposing the tariff. Suppose that the net effect of the tariff is believed to be to reduce imports (valued excluding the duty) by £100 million. This is the net reduction in imports after all repercussions have been taken into account, including a possible exchange-rate adjustment to maintain internal and external balance. The excess of demand price over supply price of the last unit of imports restricted is 20 per cent, and on the first unit nearly zero. The total excess of demand price over supply price, assuming the demand curve to be linear and the foreign elasticities infinite, is then half of £20 million, i.e., £10 million, this being in a limited sense the welfare loss or "cost" of the tariff. If one does not wish to assume a linear demand curve, one can say that the welfare loss is something less than £20 million. This "cost" is then often related to the gross national product. If the effect of the tariff was to reduce imports by 20 per cent, so that originally imports must have been £500 million, and if these were 25 per cent of the G.N.P., then the

“cost” of the tariff is 0.5 per cent of the G.N.P. These are not implausible figures and, while many of the assumptions are doubtful, they suggest orders of magnitude. Making these sorts of calculations, it has been argued that the importance of changes in various international-trade policies, such as of Britain joining or not joining the Common Market, or of a country reducing its tariff levels unilaterally by, say, 50 per cent, has been much overrated.

Undoubtedly, these methods ignore the possibly crucial effects of changes in trade policies on the internal income distribution and on incentives and economic efficiency. But the reason for the cost or benefit of these changes turning out to be so small is that imports are rarely more than 20 per cent of a country's G.N.P., that any particular trade policy rarely affects more than, say, one-quarter of these imports, and that (income distribution apart) the social costs of foregoing these imports and producing similar goods at home instead, or the social gain from ceasing to protect, is usually less than the value of these duty-free imports simply because tariffs are usually less than 100 per cent. These results actually justify the use of the method. They show that changes resulting from international-trade policies—even such dramatic changes as Britain joining the Common Market—are, in the perspective of the whole economy, only small changes, and it is for such small changes that the Fleming-Meade method is appropriate. It seems quite probable that as the “unimportance of international trade,” or at least the relative unimportance of most changes in trade policies, is more fully appreciated we will see a general rehabilitation of partial techniques in trade theory at the expense of the more elegant but less directly applicable general-equilibrium techniques.

V. The Theory of Customs Unions

The theory of customs unions is a completely new branch of the theory of tariffs. It originated with Viner's *The Customs Union Issue* (1950) [129]. Since 1955 it has been rapidly elaborated by Meade [86], Lipsey [71; 72] and others, who have shown that it is one of the most important applications of the theory of the second-best. This development has of course been stimulated by the European Common Market and the discussions about European union that were in the air before 1955. But its application is much wider than the formation of new customs unions, common markets, free-trade areas, and the like. It is the theory by which any discriminatory system, such as the Commonwealth-preference system, or the economic impact of any existing federation, can be analysed. The familiarity of government and international officials around the world with the key concepts of trade creation and trade diversion testifies to the timeliness of this theory.

Viner's central proposition was that a customs union is not necessarily a movement towards freer trade, since it combines elements of freer trade with elements of greater protection. Therefore, in the simple type of model in which freer trade would raise welfare, a customs union cannot be guaranteed to raise welfare. Consider a three-country world, where A and B form a union and C is the outsider. The union will create trade between A and B but will divert trade away from C: in A's market B will tend to replace C and in B's market A will tend to replace C. Thus, while A and B trade more with each other, they also afford each other more protection. It is of course possible that neither A nor B is capable of producing C's type of product, in which case there is no trade diversion. On the other hand, if they are not capable of producing each other's product, there can be no trade creation. This may be summarised by saying that "the customs union is more likely to bring gain, the greater is the degree of overlapping between the class of commodities produced under tariff protection in the two countries" [72, p. 499].

Viner's model was limited in a number of ways, though the elaborations which others have added, essential as they are in bringing the model closer to reality, have not altered its main message. Viner ignored consumption effects, and assumed that commodities were consumed in fixed proportions, unaffected by changes in relative prices

brought about by the customs union. In fact, trade creation between A and B consists not only of more specialisation between them in production, but also of A consuming more of the type of goods which she buys from B (and some of which she used to buy from C) and, similarly, B consuming more of the goods which she buys from A (and some of which were previously bought from C). Furthermore, consumption of the type of good bought mainly from C will fall relative to the type of good which A and B buy mainly from each other. There are, in fact, distinct production and consumption effects. One special case, stressed by Lipsey [71], may be noted. On the production side there may be only-trade diversion. A and B each switch purchases of particular goods away from C to each other, but there is no reduction in A's output because of competition from B's imports, or vice versa. Yet there may still be a net gain from the union owing to the (trade-creating) consumption effect. Since the goods previously bought from C and now from each other become cheaper in A's and B's home markets, they will consume more of them, and each country's total imports will increase, quite apart from the sources of these imports being diverted away from C. One may define trade creation and trade diversion either in the Vinerian sense as concerning only production shifts, and regard the consumption effects as additional (as Lipsey does), or incorporate consumption effects into the Vinerian conceptual structure by regarding trade creation and trade diversion as each having a production and a consumption element. The latter approach, adopted by Johnson [51, Ch. 3], is in my view preferable, as it emphasises that there are only two types of opposing forces at work—the free-trade (trade-creating) effect and the protection (trade-diverting) effect of the customs union—and that the welfare effect of the customs union depends on the relative strength of these two.

Viner also assumed constant costs in the three countries. This means that the terms of trade of C relative to A and B together stay constant (though A and B will find that the average prices of their imports rise insofar as they are no longer buying some products from C, which must in these cases have been the cheapest source). Introducing rising supply curves complicates the analysis considerably, and the reader is referred to Meade and Johnson for an elaboration of this refinement. Perhaps the main point is that trade diversion will now turn the terms of trade against the outsider, C. This will add to the loss inflicted on C, but will reduce or even completely offset the loss due to trade diversion borne by A and B. The effect of trade diversion

due to a customs union between A and B is the same as the effect of a tariff imposed by A and B together on C's goods—the welfare of A and B may rise or fall as a result, depending on whether the gain from improved terms of trade is greater or less than the loss from reduced international division of labour with C. In addition to this effect of trade diversion, which may be favourable or unfavourable for A plus B, there is of course the favourable trade-creation effect.

With varying degrees of substitution on the production and consumption side between the goods of A, B, and C, with possibilities of complementarity, with varying supply elasticities for different goods in the three countries, and with indirect repercussions through balance-of-payments adjustment to take into account, the analysis becomes exceedingly complicated. Meade has worked out a whole series of cases to illustrate the factors at work, and, using the simple Fleming method discussed earlier, which is only valid for small changes, finds that the net effect on international welfare of a customs union depends on whether on balance total trade rises or falls. Do any simple conclusions emerge from the post-Viner discussion?

The first, and main, one, generalising rather than altering Viner's conclusion, is that the customs-union problem is a special case of the theory of second-best. If reductions of all the tariffs of A, B, and C to zero would maximise welfare by attaining Paretian optimum conditions, then if the C tariff and the A and B tariffs relative to C are constrained at positive values, it no longer follows for certain that reducing the A and B tariffs relative to each other will raise welfare. All one can say is that, with the tariffs relative to C fixed, the second-best optimum for the A-B tariffs will be something greater than zero and less than the tariffs on imports from C. From this it follows that the second-best optimum is some kind of preferential area rather than a complete customs union—"when only some tariffs are to be changed, welfare is more likely to be raised if these tariffs are merely *reduced* than if they are completely *removed*" [72, pp. 506-507].

Meade concludes that "it is impossible to pass judgement upon customs unions in general. They may or may not be instruments for leading to a more economic use of resources. It all depends upon the particular circumstances of the case" [86, p. 107]. Nevertheless, he does venture a number of useful generalisations. The most important single generalisation is that a customs union is more likely to lead to a net increase in economic welfare if the economies of the partner countries

are actually very competitive (or similar) but potentially very complementary (or dissimilar). Johnson has elaborated this as follows:

... a customs union is likely to be beneficial if the countries are alike at the start but can become different. The more alike they are the more scope there is for them to become complementary to each other by specializing; the scope for such complementary specialization is small when the countries already produce completely different goods [51, p. 44].

In addition, a customs union is more likely to lead to a net increase in economic welfare the higher the initial rates of duty on imports into the partner countries, the greater the proportions of the world's production, consumption, and trade that are covered by the members of the union, and the greater the scope for economies of large-scale production in those industries within the union that are now enabled to expand by undercutting similar industries in other parts of the union. A customs union is also more likely to raise welfare if each of the two countries is the principal supplier to the other of the products that it exports to the other and if each is the principal market for the other of the products that it imports from the other.

Thus, the theory of customs unions now provides a highly sophisticated framework for analysing a variety of practical situations. The literature—and particularly Meade's work—has also explored the implications of customs unions for balance-of-payments adjustment, and has introduced a number of other variables, such as quantitative import restrictions. Practically every aspect of customs unions has been touched upon in the extensive literature which has sprung up under the stimulus of the Common-Market debate, though the rigorous models have operated within an excessively narrow framework. Some of the considerations that have not been emphasised in the models are also those which have been neglected in ordinary tariff theory—economies of scale, the effects of free trade or protection on efficiency, and the effects of growth. But the principal limitation, in my view, is that the most comprehensive study, that of Meade, works in terms of a "cosmopolitan" welfare criterion. The interesting question is how a customs union affects the welfare of each of the separate units making up the union, and of the outsiders, since in a world of nation-states it is an analysis of this type that will explain and guide actual policies.

VI. Trade Policy and Underdeveloped Countries

The interest in the economics of underdeveloped countries in recent years has provoked a reconsideration of many aspects of the theory of trade and welfare and has led to considerable criticism of the relevance of the neo-classical framework. So far we have only fragments; no systematic revision of theory has as yet emerged, and some confusion reigns at present in this branch of economics. The literature has been reviewed at length by Meier [88] and Myint [104]. The broad position is this: theorists who think in terms of the orthodox or neo-classical model have introduced (sometimes reluctantly) modifications of the model to make it apply to situations prevalent in underdeveloped countries. On the whole, their view is that the standard trade theory, properly modified and applied but not radically altered, can provide a framework for the analysis of the trade and the commercial policy of underdeveloped countries as much as of advanced countries. By contrast, there are others (notably Balogh [7], Myrdal [105], and Prebisch [113]) who consider the standard theory thoroughly unrealistic, inadequate, and politically biased in its conclusions, and who are developing apparently new propositions—on the whole, propositions which stress the failure of underdeveloped countries to obtain gains from trade and the benefits to be derived by them from industrial protection.

Before looking in detail at these two approaches, it is necessary to define precisely the issues involved, particularly since some contributors appear to be at cross-purposes about the questions they are asking. The first question concerns the gains derived by underdeveloped countries from the opening-up of trade. This is a matter of comparing a (nearly) no-trade with a (nearly) free-trade position. The second issue concerns the need for and the gains derived from restricting trade by industrial protection. While the first issue is essentially historical, the second is a contemporary policy issue, and compares the welfare derived from free trade with the welfare derived from particular policies which restrict trade to some extent or alter its pattern without abolishing it or even, in the long run, without necessarily reducing it. This second issue can logically be divided into three

parts. First, one may look at the underdeveloped country statically—and this is at least as justifiable as looking at advanced countries statically, since in fact the latter are the faster growers—and ask to what extent the orthodox static theory of tariffs applies to underdeveloped countries. Secondly, one may examine the relevance of this theory to an underdeveloped country which is actually growing. Clearly, in this latter respect the static theory is certain to be less relevant, and this is true not only when it is applied to growing underdeveloped countries but also when it is applied to growing developed countries. Thirdly, one may ask whether the theory applies to an underdeveloped country where growth, and preferably radical transformation of the economy, is a major object of policy. Here also it must be remembered that in an advanced country growth may be an object of policy, and if the standard theory fails with respect to underdeveloped countries it may also do so with respect to advanced countries—though to initiate growth or encourage a transformation of the economy is a different and bigger thing from helping to sustain a growth which is already in progress. Table 1 lists these various issues of trade policy, distinguishing between underdeveloped and advanced countries for each case. Orthodox theory is concerned primarily with issues V and VI, though it has had something to say on I, II, and VIII. I shall be concerned here only with issues I to IV. The relation between commercial policy and growth in the context of advanced countries has been relatively neglected and will not be discussed here.

TABLE 1

		<i>Under-developed countries</i>	<i>Advanced countries</i>
What are the gains from trade? (compare no-trade with free-trade situation)		I	V
What are the gains from trade restriction? (compare free-trade with restricted-trade situation)	Static economy	II	VI
	Growth of the economy	.. is given	VII
		.. is an object of trade policy	IV

Gains from Trade

The first issue, the gains from trade, is essentially historical. The question may really be asked in three forms. (1) Have the underdeveloped countries historically gained from the opening-up of trade with the west, or would they have been better off had they continued in isolation? (2) Why has the gain from trade, direct and indirect, to the underdeveloped countries been less than that to advanced and to newly settled countries, and in particular, why did the growth in exports fail in their case to stimulate general economic development? (3) Has the share of the underdeveloped countries in the gain from their trade with the advanced countries been less than it should have been, perhaps because of policies of exploitation by the imperial countries? These are large questions, and I can here refer only briefly to some of the main elements in the discussion.

Most economists, other than extreme critics, would reply an emphatic "Yes" to the first half of the first question. But recent developments in theory do suggest two qualifications, so that a loss in welfare due to the opening-up of trade is at least conceivable. Haberler [34] has pointed out that if there is price inflexibility (combined with less than perfect mobility of some factors of production) the opening-up of trade may create long-term unemployment, and the resulting loss may offset the normal gains from trade. Thus the opening-up of trade may displace a domestic handicraft sector, and owing to factor-price inflexibility the handicraft workers may remain unemployed rather than transfer to other occupations. Secondly, even if there is price inflexibility and the displaced import-competing workers transfer to other occupations, a redistribution of domestic income will result from the opening-up of trade. If the Fleming-Meade welfare weights attached to the displaced or import-competing workers are greater than the average welfare weight attached to the rest of the community, and in particular those attached to the gainers from the opening-up of trade (notably the exporters), then the weighted national welfare may fall as a result of the opening-up of trade. These are qualifications which fit into the framework of standard theory.

Then the critics take over, though imprecision in their thinking makes it more difficult to summarise their views. They point out that classical trade theory assumed given tastes, internal factor mobility, and international factor immobility, while in fact the opening-up of trade with underdeveloped countries was associated with the diffusion

of new tastes and with tremendous international migrations of capital and labour, and while one of the troubles of the underdeveloped countries is a lack of internal factor mobility. This argument can go back and forth. The observations of the critics do not in themselves prove that there were no gains from trade. Changes in tastes raise a problem of welfare measurement, but it is not evident that because the opening-up of trade leads to changes in tastes there is, for that reason, likely to be a welfare loss. International factor movements do not exclude gains from trade, and internal factor immobility (insofar as it existed) certainly reduced the gains but could not have eliminated them, unless it was associated with price inflexibility. Nevertheless, it is possible to construct a rigorous Lewis type of model [69], in which the opening-up of trade fails to raise the income per head of the original inhabitants of the underdeveloped country, though they do possibly gain in numbers. In this model the gains from trade are confined to the foreign capital and labour employed in the export sectors. One could then introduce such external economies as the construction of roads and the payment of royalties or taxes to local rulers, and obtain a net gain from trade to the original inhabitants. On the other hand, if one held that the flag followed trade, and that the imposition of foreign rule is the greatest diseconomy of all, then indeed there was a loss from "trade."

To the other questions—why the growth in exports has failed to stimulate development, and whether the underdeveloped countries have obtained their fair share of the gain from trade—international-trade theory has no precise formal answers, though there is an extensive literature on these subjects—surveyed by Meier [88] and including, in particular, contributions by Myint [102; 103]. The trend of thinking on the failure of export growth to stimulate general economic development is that the "linkage" between exports and the rest of the economy depends both on particular characteristics of the exports—their factor proportions, whether they require extensive processing, and so on—and on the extent of market imperfections within the domestic economy.

I now come to the lively current policy issue of whether there are special arguments for protection applicable to underdeveloped countries which are not provided for in standard international-trade theory. I shall deal in turn with protection arguments coming under categories II, III, and IV of Table I, respectively.

The Manoilescu Argument

To the small list of rigorously worked-out arguments for protection has been added the Manoilescu argument [80]. This can be handled in terms of the static theory which justifies protection when there are departures from Paretian optimum conditions. The theory starts from the observed fact that in underdeveloped countries (and indeed some developed countries) average income in the advanced sector, whether industrial, commercial, or plantation, is higher than in the rural subsistence sector. Manoilescu and many others since have concluded that this in itself provides an argument for encouraging a movement of labour out of agriculture into industry. But this is so only if the *marginal* product of labour is higher in the advanced than in the subsistence sector. A difference in marginal products does not necessarily follow from a difference in average income, though it is widely argued, with convincing if not conclusive empirical support, that the marginal product of equivalent labour is in fact higher in the advanced than in the subsistence sector. Two quite distinct explanations are usually given. First, in the advanced sector the real wage is equal to the marginal product of labour and this real wage is determined by the average product in the subsistence sector. Owing to disguised unemployment in the subsistence sector, the marginal product of labour in that sector is actually zero, but the familial system ensures a spreading of incomes so that even the marginal worker (if he could be detected) receives the average income. It follows that, with (1) the real wage equal to the marginal product of labour in the advanced sector, (2) the real wage also equal to (or greater than) the average product of labour in the subsistence sector, and (3) diminishing returns in the subsistence sector, so that the marginal product is below the average product and is possibly even zero, the marginal product in the advanced sector is above that in the subsistence sector. Over and above this, it is argued that the real wage in the advanced sector is actually higher than average income in the subsistence sector, and that this is a *real* excess, and not just accounted for by cost of transfer and a higher cost of living in urban areas.

The empirical basis for this modern version of the Manoilescu argument, and the doubts which have been expressed, I cannot discuss here, and I shall assume that this discrepancy between marginal products exists. The question then is whether it provides an argument for indirect subsidisation through protection of the industrial sector. As Johnson [53] has pointed out, it is clearly a second-best argument,

since protection affects relative commodity prices and the source of the welfare loss is a discrepancy in factor prices. A more important point which has been raised is that the cost of capital is usually higher in the subsistence than the advanced sector, and that this may offset the higher costs in the advanced sector due to the higher wage. It does seem that if capital is too dear in one sector and labour too dear in the other, the proper policy is directly to subsidise the supply of capital to the subsistence sector and the supply of labour to the advanced sector. But there are other complications. As Kafka [54] has pointed out, the high wage may be due to costs of transfer; insofar as these are once-for-all costs not fully borne by the eventual beneficiaries, there may be a type of infant-industry argument for protection here. It may also be that output in the advanced sector is limited by the supply of capital, skill, and management, and would not increase with a rise in price or fall in the real wage. In this case, protection would simply provide a bonus to profits in that sector, possibly shared with wage-earners, but at the expense of the already poor rural sector which has to pay higher prices for the protected goods. This modern development of the Manoilescu argument we owe principally to Lewis [69] and Hagen [37]. Myint [104] has provided the clearest statement and critique of it.

The Terms-of-Trade Argument in Growth Form

The Manoilescu argument for protection is essentially a static argument, though it can also be expressed in growth terms. This also applies to the terms-of-trade argument for protection. Since standard theory has fully explored the static version of the terms-of-trade argument, any novelty must lie in its conversion into a growth form. This time we assume that the underdeveloped country is growing, but that world demand for its exports is static in the sense that the demand curve does not shift to the right over time. We may imagine the export-supply curve moving to the right with growth, the free-trade equilibrium point shifting downwards along the static demand curve. It follows that if the price elasticity of demand for exports declines as one moves down the curve, the rate of optimum tariff or export tax must rise with growth. There could thus be an argument for an increasing rate of protection designed to avoid some of the decline in the terms of trade which would otherwise take place, a dynamic version of the optimum-tariff argument. Even the static optimum-tariff argument is more weighty for underdeveloped countries, since their

export-demand elasticities tend to be particularly low and since they have more justification than advanced countries for restricting trade deliberately to shift the international income distribution in their favour. This standard optimum-tariff argument for protection must be distinguished from a situation where a country expects a decline in its terms of trade, which, for the maintenance of external balance, will eventually require a readjustment of its productive pattern. The question then is whether it should anticipate this decline and by protection transfer resources from export to import-competing industry in advance. If the terms of trade are expected to stay high for five years and then decline, it is arguable that a country is foolish not to derive full benefits from the high terms of trade for the five years. On the other hand, prudence requires some advance preparation for the shift of resources out of exports, and since private enterprise may not show the necessary foresight, some incentive through protection may be needed. This is akin to one version of the infant-industry argument.

Infant-Industry Argument

Finally, we come to the infant-industry argument for protection, which is an argument for protection when growth is an object of policy and is to be distinguished both from the static Manoilesco and terms-of-trade arguments and from the terms-of-trade argument just discussed, which takes growth as given. The case for infant-industry protection is certainly very old and respectable; it was elaborated by List and Hamilton and recognised by Mill as applicable to industrially underdeveloped or developing countries. The main case for protection of industry in underdeveloped countries is still the infant-industry argument, and the form in which it is now accepted is very similar to what may be described as the pre-neo-classical version. It is worth spelling out the formal logic of this argument in some detail. It has in fact two branches, one based on internal economies of firms and the other on external economies. The argument from internal economies is valid in specific circumstances of an imperfect capital market, or of a difference between private and social time-preference, foresight, or assessment of risk, and is especially relevant for large, lumpy investment decisions. Theorists have often pointed out that in its crude popular form it is not necessarily valid. Here I shall discuss at more length the external-economies branch. In neo-classical theory some prominence has been given to a situation where economies are external to firms but internal to the industry: if one firm expands, its

costs do not fall, but if all expand together their costs do fall. This has been a convenient case since it reconciled a falling cost curve for an industry with rising cost curves of individual firms and hence with perfect competition; but it is not necessarily realistic. It afforded an argument for temporary protection of the industry provided (as Kemp [55] has stressed) that the firms make sufficient profits eventually to be able to repay with interest the subsidy implied in protection. But it is not a relevant model for underdeveloped countries since an industry often consists of only one firm, and even when there are several firms the external economies that are generated are not usually confined to the industry. Therefore, the tendency now is to think not in terms of an industry but in terms of the whole manufacturing complex; the external economies which a particular firm generates through its growth may be spread either uniformly throughout all manufacturing industry or be distributed in a variety of possible ways vertically or horizontally. Thus the expansion of the various firms which make up the whole of manufacturing industry will tend to lower the general costs of all manufacturing firms. The case is for infant-economy rather than infant-industry protection, though it is still arguable that some firms generate more external economies than others, so that a basis for discrimination among firms or industries still exists. Thus the main theoretical development has been to extend the infant-industry to the infant-economy argument for protection and to attempt to specify more closely the nature of the external economies involved.

An infant-industry tariff represents an investment by the community in a particular industry or perhaps in the whole of manufacturing industry. The investment is financed by the consumers of the products the prices of which have been raised; unless these consumers are compensated in some way, the investment is in fact financed by forced savings. But there are other ways in which protection can increase savings—and hence the rate of growth—and thus there are other arguments for protection which apply when growth is an object of policy. These have been discussed in detail by Nurkse [107]. In particular, protection may shift the distribution of income from low-savings to high-savings groups. Protection of capital-intensive industries which yield high profits may raise the average savings propensity. In the short run, quantitative import restrictions on consumption goods may raise savings, but, as Nurkse stresses, these are likely to be temporary, as spending is eventually diverted to domestic goods or exportables. He also notes that it is pointless to protect an industry unless savings are

available to finance investment in it. The case for protection to affect the savings propensity is clear as a second-best argument, whenever the social and private time-discount rates differ or when the capital market is imperfect. This argument for protection can be easily accommodated within the standard theory of trade and welfare.

Criticisms of the Arguments

Indeed, if one tried hard enough, one could no doubt accommodate, in the form of amendments and qualifications to the orthodox theory, every valid argument for protection. But what then remains of the original version? The simplest version of the orthodox theory assumes equilibrium factor prices, perfect competition (or equal degrees of monopoly), disregards many possible divergencies from the Paretian optimum, ignores distributional considerations, and argues that, unless there is a terms-of-trade effect, free trade will maximise static welfare. It then introduces the infant-industry argument and so establishes in principle the conditions for maximum welfare over time. Apart from the infant-industry complication, it assumes that investment will be directed into the correct channels, taking place in small doses and guided presumably by current prices. But what if current factor prices do not reflect marginal products and if investment does not take place in small doses and yet has nothing but current prices to guide it? Must not a deliberate attempt be made to plan investment, taking into account future expected prices—which will depend on the investments themselves? These are qualifications which tend to break down the accepted theory. There are many new ideas in the air, but, broadly, they have not yet reached the point of clear formulation and system-building.

Another line of criticism, implied in Chenery [20], Hirschman [45, Ch. 6] and elsewhere, suggests that orthodox theory is not wrong but that it is too aggregative and that the simple two-sector model hides the crucial issues concerned with intersectoral relations and with the stimulus which the growth of one industry or sector gives to the growth of another. One can of course reply that all this is covered by the concept of external economies, but it remains true that orthodox theory has failed to spell out this concept in sufficient detail, and through this failure has tended to underplay its importance. Many of these issues have come to the fore as a result of a long debate about "balanced growth." The balanced-growth doctrine, popularised by Nurkse [107] and for a time very popular indeed, has been described by Sheahan

as a "creatively ambiguous generalization" [120, p. 184]; it would be too great a labour here to spell out its meaning, its implied assumptions, its qualifications, and its numerous versions. For the original exposition the reader is referred to Nurkse [107], for a critique to Sheahan [120], and for a survey of the debate and a full bibliography to Dagnino-Pastore [25]. It has been not so much a new argument for restriction of trade as a theory which ignores the possibilities of increases in trade; it has accepted the reality of limited export markets for underdeveloped countries (and thus the terms-of-trade argument for protection) and also the importance of the non-traded-goods sector of the economy. The balanced-growth discussion has led to a restatement and reformulation of old doctrines and, more fruitfully, has led Scitovsky [119] to make an important extension of the concept of external economies, one which takes account of the failure of the price mechanism as an adequate signalling device for simultaneous large investment decisions. It has also stimulated Hirschman [45] into an advocacy of deliberately unbalanced growth as a stimulus to investment and enterprise in underdeveloped countries, of the virtue of imports as market creators and indicators for domestic industrialists, and of a variety of provocative and superficially paradoxical propositions relating to the effect of trade on growth. Viner had truly remarked, even before Hirschman's book, that "the procedure currently fashionable among our modern theorists" is to seek "escape from the hum-drum, from platitude and commonplace, or from unwelcome conclusions, by resort to paradox" [130, p. 47]. Undoubtedly the next decade will see important theoretical advances in this field, as the theorists pick up the imprecise and paradoxical doctrines and the piecemeal arguments of the critics—arguments which are often based on close observation or sound instincts about the real world—and systematise and relate them to the body of received doctrine.

VII. Conclusion

To conclude, I should like to refer briefly to the relationship between developments in trade theory and developments in other branches of economics. Many new developments in economics have originated in the past in discussion of issues of trade policy, especially in nineteenth-century Britain. The leading economists of Britain have, not unnaturally, always been interested in international trade. More recently, the optimum-tariff argument has played an important part in the evolution of the new welfare economics. During the period under consideration here, trade theory has contributed one major new idea to the general body of economic doctrine, one which will probably be widely applied outside trade theory itself, namely the general theory of the second-best. But, on the whole, trade theory has not been in the lead. Trade played no part in the major advance in twentieth-century economics, the Keynesian revolution. Keynesian theory has been incorporated in trade theory in three stages—first the international-trade multiplier, then the Meadeian policy model concerned with internal and external balance, and finally, the absorption approach. It took time, but the lag has now been eliminated. This is not true of the other major advance in economic theory since Marshall, the theory of monopolistic competition. It is possible to allow in the Fleming-Meade welfare system for given distortions due to monopoly, but the effects of tariffs on the degree of monopoly itself have not been incorporated in the body of trade theory. While I am not certain what amendments to trade theory are required by monopoly, monopolistic competition, and product differentiation, the frequency with which trade theorists assume perfect competition and ignore economies of scale is certainly disconcerting.

The most vigorous branch of economics in recent years has been growth theory. But the new thinking has made surprisingly little impact on trade theory. One exception has been the Lewis dual-economy model, which has become the generally accepted framework for thinking about growth of underdeveloped countries. This type of model also underlies Myint's writings about the relevance of classical trade theory to underdeveloped countries [102; 103], though the principal formal development in trade theory directly derived from this model has been the modern version of the Manoilescu argument

for trade protection. In *Towards a Dynamic Economics*, Harrod briefly extended his model to international trade; the elaborate extension of the Harrod-Domar model to international trade by Johnson [47, Ch. 5] has already been referred to. But generally modern trade theory has treated growth as exogenous. Perhaps most strikingly, the onslaughts of the Cambridge economists, Joan Robinson and Kaldor, on neo-classical thinking, and in particular on the use of the production function and the concept of homogeneous "capital" as a factor of production, and on the separability of technical progress from capital accumulation, have made little impact on trade theory. It is only when growth theory is neo-classical that it finds a meeting ground with trade theory as at present constituted. Not only should it be easy to incorporate endogenous growth through capital accumulation in standard trade theory, but trade theory has actually something to give in return. Recently there has been a vigorous elaboration of neo-classical two-sector growth models—the two sectors being (in good Marxian style) a consumption-goods and a capital-goods sector. Since pure trade theory in its Heckscher-Ohlin stage has consisted largely of the elaboration of two-sector models (importables and exportables), the whole body of trade two-sector theory—with its elaborate geometry of box diagrams and production-possibility curves and its numerous conclusions about factor prices, income distribution, and economic structure—is directly applicable to growth theory.

It must be confessed, in conclusion, that the pure theory of international trade has suffered from bad public relations. Some of its main conclusions are often misunderstood, and, even when understood, very often disagreed with. There are two reasons for this. Firstly, the models of the pure theory usually make a large number of assumptions, some of which when stated explicitly sound so unrealistic as to discredit the whole model from the start, while others tend to be forgotten. Let me give examples of each. The pure-theory models usually assume "perfect competition"; in fact this could be restated as an assumption of equal degrees of monopoly, and when restated in this way is a reasonable first approximation which then requires modification for particular circumstances. Other assumptions—such as two factors, two products, two countries, internal factor mobility and international immobility—are not always necessary to sustain the main conclusions, though they are often necessary to provide simple but rigorous proofs. The main assumption of the pure-theory models, which is often forgotten, is the assumption of internal and external

balance; indeed, a great deal of harm has probably been done by the sharp separation of balance-of-payments theory from the pure theory. When a "free-trader" claims that the abolition of tariffs would maximise welfare he is implicitly assuming that a general price adjustment, such as exchange-rate alteration, is used to maintain internal and external balance; the opponent of free trade sees only the unemployment which would be created by abolishing the tariff. The second reason for the poor image in some countries of trade theory is the commitment to free-trade liberalism of many of the leading theorists. Does this mean that trade theorists perceive a truth—in particular, the simple but often misunderstood truth of the law of comparative costs—which it is their duty to convey to the world; or does it mean rather that there are missing pieces in their models or that the particular Fleming-Meade welfare weights which they attach to different elements in their models are not realistic weights? Is it that students of the price mechanism become too readily advocates of the price mechanism, or is it only its students who appreciate its achievements and possibilities? We may deplore the all-too-common failure to use trade theory at all, to exploit the riches built up for more than a century by the reflections of some of the greatest minds of the economics profession. We must also deplore misuse of trade theory, failure to adapt it adequately to the circumstances of each case, to remember (in Keynes's words) that "the theory of economics does not furnish a body of settled conclusions immediately applicable to policy. It is a method rather than a doctrine, an apparatus of the mind, a technique of thinking which helps its possessors to draw correct conclusions."

Bibliography

This bibliography lists all books and articles referred to in the text of the paper, but it is not a comprehensive bibliography. Fuller bibliographies can be found in Haberler [35], Caves [19], Vanek [127] and Bhagwati [14], and especially to be recommended is the bibliographical essay in Meier [88]. The major books and articles, representing the seminal contributions, are denoted by *; and the principal survey books and articles by **.

1. Alejandro, C. F. D., "A Note on the Impact of Devaluation and the Redistributive Effect," *Journal of Political Economy*, Vol. 71 (Dec. 1963), pp. 577-580.
2. Alexander, S. S., "Devaluation versus Import Restriction as an Instrument for Improving Foreign Trade Balance," *IMF Staff Papers*, Vol. 1 (April 1951), pp. 379-396.
- *3. Alexander, S. S., "Effects of a Devaluation on a Trade Balance," *IMF Staff Papers*, Vol. 2 (April 1952), pp. 263-278.
- *4. Alexander, S. S., "Effects of a Devaluation: A Simplified Synthesis of Elasticities and Absorption Approaches," *American Economic Review*, Vol. 49 (March 1959), pp. 22-42.
5. Bacon, Francis, *The Advancement of Learning*. (1st edition: London, 1605; 2nd edition: Oxford University Press, 1876.)
6. Balogh, T., *The Dollar Crisis: Causes and Cure*. (Oxford: Blackwell, 1949.)
7. Balogh, T., *Unequal Partners*, Vol. 1. (Oxford: Blackwell, 1963.)
8. Balogh, T. and Streeten, P. P., "The Inappropriateness of Simple 'Elasticity' Concepts in the Analysis of International Trade," *Bulletin of the Oxford Institute of Statistics*, Vol. 13 (March 1951), pp. 65-77.
9. Bensusan-Butt, D. M., "A Model of Trade and Accumulation," *American Economic Review*, Vol. 44 (Sept. 1954), pp. 511-529.
10. Bhagwati, J., "International Trade and Economic Expansion," *American Economic Review*, Vol. 48 (Dec. 1958), pp. 941-953.
11. Bhagwati, J., "Growth, Terms of Trade and Comparative Advantage," *Economia Internazionale*, Vol. 12 (Aug. 1959), pp. 393-418.

12. Bhagwati, J., "Protection, Real Wages and Real Incomes," *Economic Journal*, Vol. 69 (Dec. 1959), pp. 733-748.
- **13. Bhagwati, J., "Some Recent Trends in the Pure Theory of International Trade," in Harrod, R. and Hague, D. C. (eds.), *International Trade Theory in a Developing World*. (London: Macmillan, 1963.)
- **14. Bhagwati, J., "The Pure Theory of International Trade: A Survey," *Economic Journal*, Vol. 74 (March 1964), pp. 1-84.
15. Bhagwati, J. and Johnson, H. G., "Notes on Some Controversies in the Theory of International Trade," *Economic Journal*, Vol. 70 (March 1960), pp. 74-93.
16. Bhagwati, J. and Ramaswami, V. K., "Domestic Distortions, Tariffs and the Theory of Optimum Subsidy," *Journal of Political Economy*, Vol. 71 (Feb. 1963), pp. 44-50.
- **17. Black, J., "Arguments for Tariffs," *Oxford Economic Papers*, N.S. Vol. 11 (June 1959), pp. 191-208.
18. Brown, A. J., "Trade Balances and Exchange Stability," *Oxford Economic Papers*, Vol. 6 (April 1942), pp. 57-76.
- **19. Caves, R., *Trade and Economic Structure*. (Cambridge [Mass.]: Harvard University Press, 1960.)
20. Chenery, H. B., "Comparative Advantage and Development Policy," *American Economic Review*, Vol. 51 (March 1961), pp. 18-51.
- **21. Cheng, H. S., "A Collection of Elasticities and Propensities in International Trade," *IMF Staff Papers*, Vol. 7 (April 1959), pp. 107-158.
22. Corden, W. M., "Economic Expansion and International Trade: A Geometrical Approach," *Oxford Economic Papers*, N.S. Vol. 8 (June 1956), pp. 223-228.
23. Corden, W. M., "The Calculation of the Cost of Protection," *Economic Record*, Vol. 33 (April 1957), pp. 29-51.
24. Corden, W. M., "The Geometric Representation of Policies to Attain Internal and External Balance," *Review of Economic Studies*, Vol. 28 (Oct. 1960), pp. 1-22.
- **25. Dagnino-Pastore, J. M., "Balanced Growth: an Interpretation," *Oxford Economic Papers*, Vol. 15 (July 1963), pp. 164-176.
26. Ekker, M. H., "Equilibrium of International Trade and International Monetary Compensations," *Weltwirtschaftliches Archiv*, Vol. 64 (1950), pp. 204-254.
27. Findlay, R. and Grubert, H., "Factor Intensities, Technological

- Progress and the Terms of Trade," *Oxford Economic Papers*, N.S. Vol. 11 (Feb. 1959), pp. 111-121.
- *28. Fleming, J. M., "On Making the Best of Balance of Payments Restrictions on Imports," *Economic Journal*, Vol. 61 (March 1951), pp. 48-71.
29. Friedman, M., "The Case for Flexible Exchange Rates," in *Essays in Positive Economics*. (Chicago: University of Chicago Press, 1953.)
30. Frisch, R., "On the Need for Forecasting a Multilateral Balance of Payments," *American Economic Review*, Vol. 37 (Sept. 1947), pp. 535-551.
31. Graaff, J. de V., "On Optimum Tariff Structures," *Review of Economic Studies*, Vol. 17 (1949-50), pp. 47-59.
32. Graaff, J. de V., *Theoretical Welfare Economics*. (Cambridge [England]: Cambridge University Press, 1957.)
33. Haberler, G., "The Market for Foreign Exchange and the Stability of the Balance of Payments: A Theoretical Analysis," *Kyklos*, Vol. 3 (1949), pp. 193-218.
34. Haberler, G., "Some Problems in the Pure Theory of International Trade," *Economic Journal*, Vol. 60 (June 1950), pp. 223-240.
- **35. Haberler, G., *A Survey of International Trade Theory* (Special Papers in International Economics, No. 1). (Princeton: International Finance Section, Princeton University, 1955; 2nd ed. 1961.)
36. Haberler, G., "Terms of Trade and Economic Development," in Ellis, H. S. (ed.), *Economic Development for Latin America*. (London: Macmillan, 1961.)
37. Hagen, E. E., "An Economic Justification of Protectionism," *Quarterly Journal of Economics*, Vol. 72 (Nov. 1958), pp. 496-514.
38. Harberger, A. C., "Currency Depreciation, Income, and the Balance of Trade," *Journal of Political Economy*, Vol. 58 (Feb. 1950), pp. 47-60.
39. Harberger, A. C., "Some Evidence on the International Price Mechanism," *Journal of Political Economy*, Vol. 65 (Dec. 1957), pp. 506-521.
40. Harberger, A. C., "Using the Resources at Hand More Effectively," *American Economic Review, Proceedings*, Vol. 49 (May 1959), pp. 134-146.

- *41. Heckscher, E., "The Effects of Foreign Trade on the Distribution of Income," *Ekonomisk Tidskrift*, 1919. Reprinted in Ellis, H. S. and Metzler, L. A. (eds.), *Readings in the Theory of International Trade* (Philadelphia: Blakiston, 1949), pp. 272-300.
42. Hemming, M. F. W. and Corden, W. M., "Import Restriction as an Instrument of Balance-of-Payments Policy," *Economic Journal*, Vol. 48 (Sept. 1958), pp. 483-510.
43. Hicks, J. R., "The Rehabilitation of Consumers' Surplus," *Review of Economic Studies*, Vol. 8 (Feb. 1941), pp. 108-116.
- *44. Hicks, J. R., "An Inaugural Lecture," *Oxford Economic Papers*, N.S. Vol. 5 (June 1953), pp. 117-135.
45. Hirschman, A. O., *The Strategy of Economic Development*. (New Haven: Yale University Press, 1958.)
46. Johnson, H. G., "The Taxonomic Approach to Economic Policy," *Economic Journal*, Vol. 61 (Dec. 1951), pp. 812-832.
- *47. Johnson, H. G., *International Trade and Economic Growth*. (London: George Allen and Unwin, 1958.)
48. Johnson, H. G., "The Gains from Freer Trade with Europe: An Estimate," *Manchester School of Economic and Social Studies*, Vol. 26 (Sept. 1958), pp. 247-255.
49. Johnson, H. G., "The Cost of Protection and the Scientific Tariff," *Journal of Political Economy*, Vol. 68 (Aug. 1960), pp. 327-345.
50. Johnson, H. G., "Income Distribution, the Offer Curve and the Effects of Tariffs," *Manchester School of Economic and Social Studies*, Vol. 28 (Sept. 1960), pp. 215-237.
- **51. Johnson, H. G., *Money, Trade and Economic Growth*. (London: George Allen and Unwin, 1962.)
52. Johnson, H. G., "Effects on Changes in Comparative Costs as Influenced by Technical Change," in Harrod, R. and Hague, D. C. (eds.), *International Trade Theory in a Developing World*. (London: Macmillan, 1963.)
53. Johnson, H. G., "Optimal Trade Intervention in the Presence of Domestic Distortions" (mimeographed, 1963).
54. Kafka, A., "An Economic Justification of Protectionism: Further Comments," *Quarterly Journal of Economics*, Vol. 76 (Feb. 1962), pp. 163-166.
55. Kemp, M. C., "The Mill-Bastable Infant-Industry Dogma," *Journal of Political Economy*, Vol. 68 (Feb. 1960), pp. 65-67.

56. Kemp, M. C., "The Rate of Exchange, the Terms of Trade and the Balance of Payments in Fully Employed Economies," *International Economic Review*, Vol. 3 (Sept. 1962), pp. 314-327.
57. Kemp, M. C., "The Gain from International Trade," *Economic Journal*, Vol. 72 (Dec. 1962), pp. 803-829.
58. Kenen, P. B., "International Liquidity and the Balance of Payments of a Reserve-Currency Country," *Quarterly Journal of Economics*, Vol. 74 (Nov. 1960), pp. 572-586.
59. Kindleberger, C. P., *Foreign Trade and the National Economy*. (New Haven: Yale University Press, 1962.)
60. Koo, A. Y. C., "Duty and Non-Duty Imports and Income Distribution," *American Economic Review*, Vol. 43 (March 1953), pp. 51-75.
61. Kravis, I. B., "'Availability' and Other Influences on the Commodity Composition of Trade," *Journal of Political Economy*, Vol. 64 (April 1956), pp. 143-155.
62. Lancaster, K., "The Heckscher-Ohlin Trade Model: A Geometric Treatment," *Economica*, N.S. Vol. 24 (Feb. 1957), pp. 19-39.
63. Lancaster, K., "Protection and Real Wages: A Restatement," *Economic Journal*, Vol. 57 (June 1957), pp. 199-210.
64. Laursen, S. and Metzler, L. A., "Flexible Exchange Rates and the Theory of Employment," *Review of Economics and Statistics*, Vol. 32 (Nov. 1950), pp. 281-299.
- *65. Leontief, W., "Domestic Production and Foreign Trade: The American Capital Position Re-examined," *Proceedings of the American Philosophical Society*, Vol. 97 (Sept. 1953), pp. 332-349.
66. Leontief, W., "Factor Proportions and the Structure of American Trade: Further Theoretical and Empirical Analysis," *Review of Economics and Statistics*, Vol. 38 (Nov. 1956), pp. 386-407.
67. Leontief, W., "An International Comparison of Factor Costs and Factor Use," *American Economic Review*, Vol. 54 (June 1964), pp. 335-345.
68. Lerner, A. P., "Consumer's Surplus and Micro-Macro," *Journal of Political Economy*, Vol. 71 (Feb. 1963), pp. 76-81.
69. Lewis, W. A., "Economic Development with Unlimited Sup-

- plies of Labour," *Manchester School of Economic and Social Studies*, Vol. 22 (May 1954), pp. 139-191.
70. Linder, S. B., *An Essay on Trade and Transformation*. (New York: John Wiley, 1961.)
71. Lipsey, R. G., "The Theory of Customs Unions: Trade Diversion and Welfare," *Economica*, N.S. Vol. 24 (Feb. 1957), pp. 40-46.
- **72. Lipsey, R. G., "The Theory of Customs Unions: A General Survey," *Economic Journal*, Vol. 70 (Sept. 1960), pp. 498-513.
73. Lipsey, R. G. and Lancaster, K., "The General Theory of the Second Best," *Review of Economic Studies*, Vol. 24 (1956-7), pp. 11-32.
74. Little, I. M. D., *A Critique of Welfare Economics*. (Oxford: Clarendon Press, 1950.)
75. MacDougall, D., *The World Dollar Problem*. (London: Macmillan, 1957.)
76. Machlup, F., "Dollar Shortage and Disparities in the Growth of Productivity," *Scottish Journal of Political Economy*, Vol. 1 (Oct. 1954), pp. 250-267.
77. Machlup, F., "Relative Prices and Aggregate Spending in the Analysis of Devaluation," *American Economic Review*, Vol. 45 (June 1955), pp. 255-278.
78. Machlup, F., "The Terms-of-Trade Effects of Devaluation upon Real Income and the Balance of Trade," *Kyklos*, Vol. 9 (1956), pp. 417-452.
- **79. Machlup, F., *Plans for Reform of the International Monetary System* (Special Papers in International Economics, No. 3). (Princeton: International Finance Section, Princeton University, 1962; 2nd ed. 1964.)
80. Manoilescu, M., *The Theory of Protection and International Trade*. (London: P. S. King, 1931.)
81. Matthews, R. C. O., "Reciprocal Demand and Increasing Returns," *Review of Economic Studies*, Vol. 17 (Feb. 1950), pp. 149-158.
- *82. Meade, J. E., *Theory of International Economic Policy*, Volume I: *The Balance of Payments*. (Oxford: Oxford University Press, 1951.)
- *83. Meade, J. E., *Theory of International Economic Policy*, Volume II: *Trade and Welfare*. (Oxford: Oxford University Press, 1955.)

84. Meade, J. E., *Theory of International Economic Policy*, Volume II: *Trade and Welfare, Mathematical Supplement*. (Oxford: Oxford University Press, 1955.)
- *85. Meade, J. E., *A Geometry of International Trade*. (London: George Allen and Unwin, 1952.)
- *86. Meade, J. E., *The Theory of Customs Unions*. (Amsterdam: North-Holland Publishing Co., 1955.)
87. Meade, J. E., "The Case for Variable Exchange Rates," *Three Banks Review*, Vol. 27 (Sept. 1955), pp. 3-27.
- **88. Meier, G. M., *International Trade and Development*. (New York: Harper and Row, 1963.)
89. Metzler, L. A., "Tariffs, the Terms of Trade, and the Distribution of National Income," *Journal of Political Economy*, Vol. 57 (Feb. 1949), pp. 1-29.
90. Metzler, L. A., "Tariffs, the Terms of Trade, and the Distribution of National Income," *Journal of Political Economy*, Vol. 57 (Aug. 1949), pp. 345-351.
- *91. Metzler, L. A., "The Theory of International Trade," in Ellis, H. S. (ed.), *A Survey of Contemporary Economics*. (Philadelphia: Blakiston, 1949), pp. 210-254.
92. Michaely, M., *Concentration in World Trade* (Contributions to Economic Analysis, No. 28). (Amsterdam: North-Holland Publishing Co., 1962.)
93. Minhas, B. S., *An International Comparison of Factor Costs and Factor Use* (Contributions to Economic Analysis, No. 31). (Amsterdam: North-Holland Publishing Co., 1963.)
94. Mishan, E. J., "A Survey of Welfare Economics, 1939-1959," *Economic Journal*, Vol. 70 (June 1960), pp. 197-265.
95. Mookerjee, S., *Factor Endowments and International Trade*. (New Delhi: Asia Publishing House, 1958.)
96. Morgan, E. V., "The Theory of Flexible Exchange Rates," *American Economic Review*, Vol. 45 (June 1955), pp. 279-295.
97. Mundell, R. A., "International Trade and Factor Mobility," *American Economic Review*, Vol. 47 (June 1957), pp. 321-337.
98. Mundell, R. A., "The Pure Theory of International Trade," *American Economic Review*, Vol. 50 (March 1960), pp. 67-110.
99. Mundell, R. A., "The Monetary Dynamics of International Adjustment Under Fixed and Flexible Exchange Rates," *Quarterly Journal of Economics*, Vol. 74 (May 1960), pp. 227-257.

100. Mundell, R. A., "A Theory of Optimum Currency Areas," *American Economic Review*, Vol. 51 (Sept. 1961), pp. 657-665.
101. Mundell, R. A., "The Appropriate Use of Monetary and Fiscal Policy for Internal and External Stability," *IMF Staff Papers*, Vol. 9 (March 1962), pp. 70-79.
102. Myint, H., "The Gains from Trade and the Backward Countries," *Review of Economic Studies*, Vol. 22 (June 1955), pp. 129-142.
103. Myint, H., "The Classical Theory of International Trade and the Underdeveloped Countries," *Economic Journal*, Vol. 68 (June 1958), pp. 317-337.
- *104. Myint, H., "Protection and Economic Development," In Harrod, R. and Hague, D. C. (eds.), *International Trade Theory in a Developing World*. (London: Macmillan, 1963.)
105. Myrdal, G., *An International Economy: Problems and Prospects*. (London: Routledge and Kegan Paul, 1956.)
106. Nurkse, R., "Domestic and International Equilibrium," in Harris, S. E. (ed.), *The New Economics: Keynes' Influence on Theory and Public Policy*. (New York: Knopf, 1947.)
- *107. Nurkse, R., *Problems of Capital Formation in Underdeveloped Countries*. (Oxford: Blackwell, 1953.)
108. Nurkse, R., "The Relation between Home Investment and External Balance in the Light of British Experience, 1945-1955," *Review of Economics and Statistics*, Vol. 38 (May 1956), pp. 121-154.
- *109. Ohlin, B., *Interregional and International Trade*. (Cambridge [Mass.]: Harvard University Press, 1935.)
110. Pearce, I. F., "The Factor Price Equalisation Myth," *Review of Economic Studies*, Vol. 19 (1951-2), pp. 110-120.
111. Pearce, I. F., "The Problem of the Balance of Payments," *International Economic Review*, Vol. 2 (Jan. 1961), pp. 1-28.
112. Posner, M. V., "International Trade and Technical Change," *Oxford Economic Papers*, Vol. 13 (Oct. 1961), pp. 323-341.
113. Prebisch, R., "Commercial Policy in Underdeveloped Countries," *American Economic Review, Proceedings*, Vol. 49 (May 1959), pp. 251-273.
- *114. Robinson, J., "The Foreign Exchanges," in *Essays in the Theory of Employment*. (London: Macmillan, 1937.) Re-

- printed in Ellis, H. S. and Metzler, L. A. (eds.), *Readings in the Theory of International Trade*. (Philadelphia: Blakiston, 1949.)
115. Rybczynski, T. M., "Factor Endowment and Relative Commodity Prices," *Economica*, N.S. Vol. 22 (Nov. 1955), pp. 336-341.
 - *116. Samuelson, P. A., "International Trade and the Equalisation of Factor Prices," *Economic Journal*, Vol. 58 (June 1948), pp. 163-184.
 117. Samuelson, P. A., "International Factor-Price Equalisation Once Again," *Economic Journal*, Vol. 59 (June 1949), pp. 181-197.
 118. Savosnick, K. M., "The Box Diagram and the Production Possibility Curve," *Ekonomisk Tidskrift*, Vol. 60 (Nov. 1958), pp. 183-197.
 119. Scitovsky, T., "Two Concepts of External Economies," *Journal of Political Economy*, Vol. 62 (April 1954), pp. 143-151.
 120. Sheahan, J., "International Specialisation and the Concept of Balanced Growth," *Quarterly Journal of Economics*, Vol. 72 (May 1958), pp. 183-197.
 121. Sohmen, E., *Flexible Exchange Rates*. (Chicago: University of Chicago Press, 1961.)
 122. Stern, R. M., "The U. S. Tariff and the Efficiency of the U. S. Economy," *American Economic Review, Proceedings*, Vol. 54 (May 1964), pp. 459-470.
 - *123. Stolper, W. and Samuelson, P. A., "Protection and Real Wages," *Review of Economic Studies*, Vol. 9 (Nov. 1941), pp. 58-73. Reprinted in Ellis, H. S. and Metzler, L. A. (eds.), *Readings in the Theory of International Trade*. (Philadelphia: Blakiston, 1949), pp. 333-357.
 124. Swan, T. W., "Longer-Run Problems of the Balance of Payments," in Arndt, H. W. and Corden, W. M. (eds.), *The Australian Economy*. (Melbourne: Cheshire, 1963.)
 125. Tinbergen, J., *On the Theory of Economic Policy*. (Amsterdam: North-Holland Publishing Co., 1952.)
 126. Tsiang, S. C., "The Role of Money in Trade-Balance Stability," *American Economic Review*, Vol. 51 (Dec. 1961), pp. 912-936.
 127. Vanek, J., *International Trade: Theory and Economic Policy*. (Homewood [Ill.]: Irwin, 1963.)
 128. Vanek, J., "Unilateral Trade Liberalization and Global World

- Income," *Quarterly Journal of Economics*, Vol. 78 (Feb. 1964), pp. 139-147.
- *129. Viner, J., *The Customs Union Issue*. (New York: Carnegie Endowment for International Peace, 1950.)
130. Viner, J., "Stability and Progress: The Poorer Countries' Problem," in Hague, D. C. (ed.), *Stability and Progress in the World Economy*. (London: Macmillan, 1958.)
131. Wemelsfelder, J., "The Short-term Effect of the Lowering of Import Duties in Germany," *Economic Journal*, Vol. 70 (March 1960), pp. 94-104.

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