

ESSAYS IN INTERNATIONAL FINANCE

No. 134, September 1979

SOME INSUFFICIENCIES IN THE THEORIES
OF INTERNATIONAL ECONOMIC RELATIONS

BERTIL OHLIN



INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

PRINCETON UNIVERSITY

Princeton, New Jersey

This is the one hundred and thirty-fourth number in the series ESSAYS IN INTERNATIONAL FINANCE, *published from time to time by the International Finance Section of the Department of Economics of Princeton University.*

The author, Bertil Ohlin, was Professor at the Stockholm School of Economics and shared the Nobel Prize in Economics in 1977. He is best known to economists for his book on INTERREGIONAL AND INTERNATIONAL TRADE, first published in 1933 and revised in 1967. But he was also active in public life, serving as a member of the Swedish Parliament from 1938 to 1970 and as leader of the Swedish Liberal Party from 1944 to 1967. In April 1979, he gave the Frank D. Graham Memorial Lecture at Princeton University and, shortly before his death on August 3, sent us the final version that we publish here. Professor William J. Baumol of Princeton, a long-time friend and colleague of Bertil Ohlin, has written a Foreword to the Essay.

The Section sponsors the Essays in this series but takes no further responsibility for the opinions expressed in them. The writers are free to develop their topics as they wish.

PETER B. KENEN, *Director*
International Finance Section

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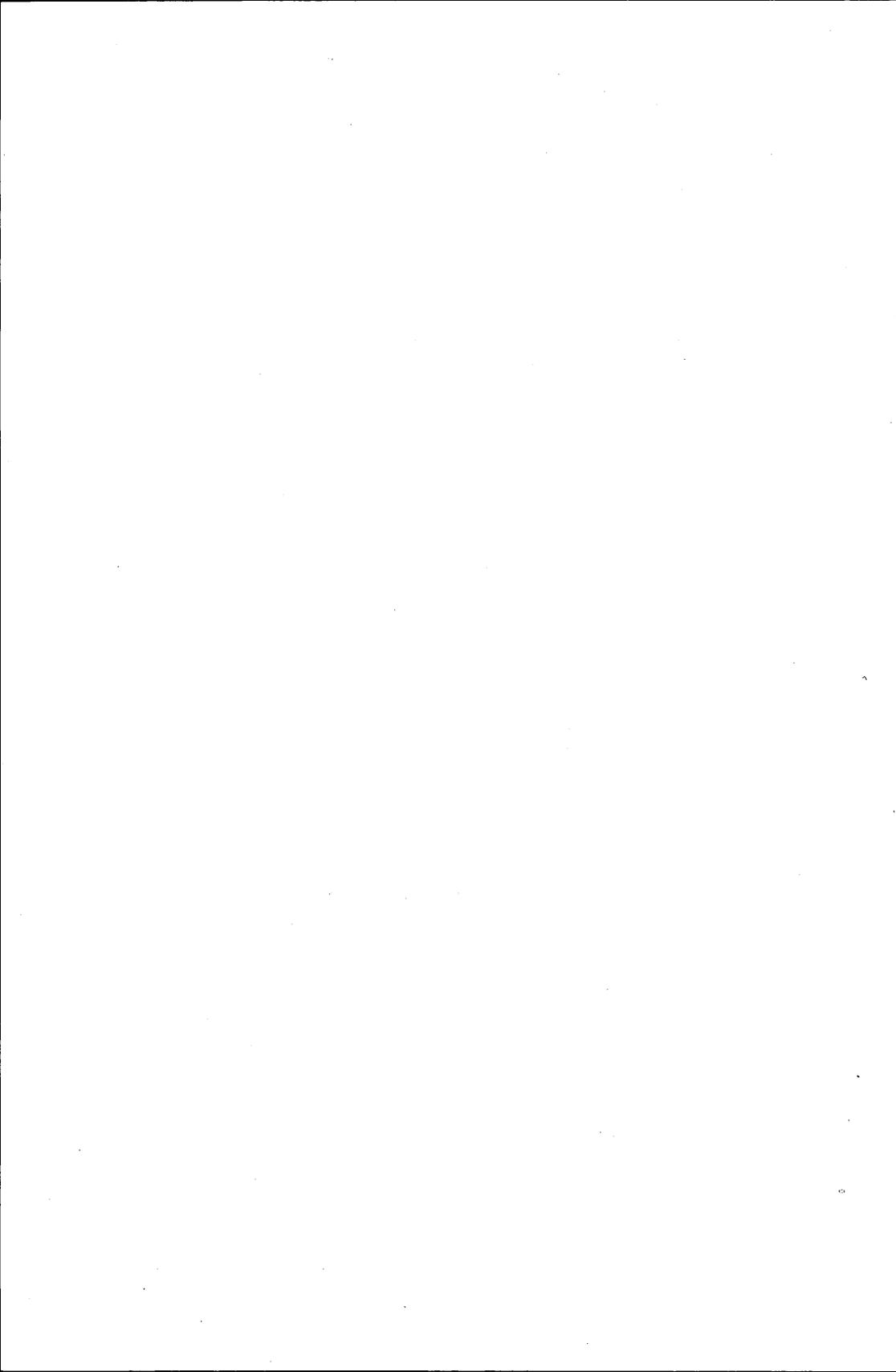
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CONTENTS

FOREWORD	v
INTRODUCTION	1
ESSENTIAL INTERNAL CIRCUMSTANCES: FACTOR PROPORTIONS IN PRODUCTION	3
SOME TASKS OF THE THEORY OF INTERNATIONAL ECONOMIC RELATIONS	4
SOME HIGHLY RELEVANT INTERNAL CIRCUMSTANCES	5
LOCATION THEORY	6
NONFACTOR PAYMENTS	7
RISK AND SOCIAL INSTITUTIONS	7
SOME ASPECTS OF DEVELOPMENT	8
A BRIEF OBSERVATION ON MULTINATIONALS	10
RISK AGAIN	10
FACTOR QUALITY AND RELATED ISSUES	11
THE CHOICE OF METHODS	11
REFERENCES	13



FOREWORD

Because of Bertil Ohlin's obvious vitality and quickness of mind when he visited Princeton University in April of this year to deliver the Frank D. Graham Memorial Lecture, his death on August 3 came as a surprise and a shock. His capacity for friendship, his warmth, and his gentleness make it difficult to be dispassionate about his place in our profession. Happily, the magnitude of his contributions speaks eloquently for itself.

Bertil Ohlin was the rare political economist who was able to achieve prominence in both academic economics and national affairs. He did his undergraduate work at the University of Lund, where he specialized in mathematics. He then turned to the study of economics at the Stockholm School of Economics, where he was greatly influenced by Eli Heckscher, and later at Stockholm University, where one of his teachers was Gustav Cassel. As a member of the Political Economy Club, he became closely acquainted with Knut Wicksell. Ohlin's autobiography has a fascinating chapter, unfortunately unavailable in English, contrasting these three personalities.

In 1925, at the age of twenty-five, Ohlin was appointed to a chair at the University of Copenhagen. He remained there for five years before returning to the Stockholm School, with which he was associated for the rest of his life.

Ohlin's pathbreaking work on the theory of international trade was produced before 1938, when he became a member of parliament. Perhaps most notable is his *Interregional and International Trade* (Harvard University Press, 1933), from which the literature has drawn the result now generally referred to as the Heckscher-Ohlin theorem. It is fair to say that all modern writings on the theory of international trade are affected by this result, which summarizes a general-equilibrium relationship involving price, output, and employment patterns in countries that trade with one another: Even when capital and labor cannot move freely from country to country, patterns of trade in the products of capital and labor will tend to equalize relative factor prices in different countries. For example, countries with relatively abundant labor will tend to export goods whose production requires a good deal of labor, thus preventing the large labor supply from driving wages down.

Ohlin also made a major contribution to the theory of capital transfers in the debate over the likely effects of German reparations payments after the First World War. He answered Keynes's argument for small reparations, which was based on the view that heavy payments would cause

Germany's terms of trade to turn against it. Ohlin showed that this conclusion overstated matters, because the resulting changes in national income would serve as a corrective. He thereby anticipated some of Keynes's own later views on international trade theory. The two men's paths crossed once again when Ohlin published "The Stockholm Theory of Saving and Investment" (*Economic Journal*, 1937), which described some of the ways in which Swedish writings had anticipated the Keynesian theory of employment.

In 1938 Ohlin became a member of the Swedish Parliament, and by 1944 he had risen to the post of leader of the Liberal Party, the main opposition party, a position he retained for more than two decades. He was Minister of Trade from 1944 to 1945 and came close to attaining the position of Prime Minister.

After he left politics in 1970, he returned to his economic research, and for several years he was chairman of the committee that awards the Nobel Prize in Economics. It was therefore with great reluctance that in 1977, after retirement from this position, he himself accepted the Nobel Prize that he so richly deserved.

It is a great privilege to have known Bertil Ohlin and thus to have discovered his lively and probing intellect, his warmth, and his charm, which were as characteristic of him as the profundity of his ideas. Princeton University was indeed fortunate to have been visited by him this spring and to have been the place where he made his last contribution to our discipline.

WILLIAM J. BAUMOL

Introduction

A dominating idea of the classical theory of international trade was to provide a basis for understanding the usefulness of trade between nations as well as the effects of tariff policy and other aspects of state intervention in such trade. For this purpose, a simplified but highly useful analysis was made of differences in the relative costs of commodities in different countries.

In 1838 Cournot presented a more sweeping mathematical account of the price systems of trading nations. However, he made little use of it to throw light on the economic relationships that the British classical economists had discovered.

Pareto and his followers—above all the Italian mathematical economists—revived Cournot's approach. At first, Pareto expressed his variables in "ophelimité," but later he changed to a reckoning in alternative costs, which amounted to the same thing as "opportunity costs" (Pareto, 1896-97). However, the equations of Pareto and his school¹ were given very little attention by economists in other countries who dealt with international economic relations. It was not understood that the basis of Pareto-type theory was quite different from that of the classical school, which relied on the quantity of labor as the unit of reckoning in cost calculations. In Professor Angell's otherwise very informative history of the doctrine of international economic relations, one can read: "The majority of the Italian economists have taken over the classical theories bodily, premises and conclusions alike" (1926, p. 303).² Evidently, Pareto and his followers failed to make clear the importance of the alternative-cost approach. Furthermore, they presented very few practical conclusions that could be regarded as alternatives to the conclusions reached by the economists who were applying and extending classical theory.

I am ashamed to have to admit that I did not know about the originality of the Pareto-school theory of international economic relations until after reading Angell's book, some time after its publication in 1926. Neither Cassel nor Wicksell, who were "opponents" at my defense of my Ph.D. dissertation in 1924, pointed out the similarity between Pareto's approach and my own price theory, which was based on the Walras-Cassel type of equations and used money as the unit of reckoning.³

¹ A prominent member was Barone (1908 and later works).

² See also Ohlin (1933).

³ My equations for trading nations were reprinted in Ohlin (1933), where Pareto's approach is discussed.

Angell's book (1926, pp. 375-418) contained illuminating analysis of international price relationships for commodities and services that enter into international exchange, although without the use of equations it could not be made quite so clear as it was by Yntema in 1932. Among other things, Angell gave an enlightening account of the indirect relationships between changes in the prices of nontraded goods and changes in the prices of import and export goods. But he paid very little attention to the conditions of production and therefore provided no alternative to the classical labor-cost schedules. I now feel that I did not sufficiently emphasize Angell's achievements when I wrote my own book—published in 1933—where, following Heckscher in one very essential respect, I emphasized the relationships between the prices of commodities and the prices of factors of production in different countries.

My task here, however, is not to trace the development of certain parts of the theory of international economic relations. I leave out altogether the progress that has been made in the study of *monetary* aspects. Nor do I describe the development of location theory after Weber's path-breaking 1909 volume. My emphasis is on the advance in knowledge that has been achieved and can be further obtained by "tying together" the price systems of different countries, although I will not be able to avoid some very brief observations on location aspects.

The concrete conclusion of the Cournot-Pareto approach to the theory of international economic relations—one that was not much studied by them—is that anything which directly or indirectly changes the price of a commodity or a factor of production in one country may exercise an influence on international trade or international factor movements. This became more evident when the reasoning was consistently presented in terms of prices and money costs rather than of alternative or opportunity costs. Haberler, to whom we owe so many important contributions through his skillful application of opportunity-cost theory, saw the intimate connection between commodity prices and factor prices, as well as connections between some internal economic changes and international economic relations.

To sum up: The result of focusing on a consistent mutual-interdependence price theory is to emphasize the effect of changes in *internal* economic circumstances on *international* economic relations. Although this conclusion is generally known nowadays, many of its consequences are in my opinion given too little attention in international economics. I shall try to explain this assertion later in the paper.

Essential Internal Circumstances: Factor Proportions in Production

For a century, the chapters on international trade in textbooks have formed an entirely separate section. The assumption in the classical trade model that factors of production cannot move between countries led to a concentration of interest on trade aspects and an almost complete neglect of international factor movements and their consequences for mutual interdependence. The exception was short-term capital movements, which play a decisive role in the mechanism of international payments. Furthermore, many internal variations in conditions of production that indirectly affect international relations were left out of account altogether.

Once emphasis was placed on mutual interdependence, it was natural to ask which internal aspects of each country's economy exercised an influence on international economic relations. Obviously, increased attention had to be given to internal conditions of production, changes in factor supplies, and variations in demand.

As part of such an analysis, I drew lessons from Heckscher's pioneer paper, *The Effects of Foreign Trade on the Distribution of Income* (published in Swedish in 1919, in English in 1949), where a simple factor-proportions model was presented and analyzed. This model could easily be combined with the price-theory model of communicating international systems so as to emphasize conditions of production in a wide sense. The increased attention to internal conditions focused interest on scale economies, nonfactor costs like taxes and social payments, risk elements, the mutual interdependence of factor and commodity movements and prices, some aspects of location, agglomeration, and short-term movements in conditions of demand (e.g. to study the equilibrating mechanism induced by international capital movements). Other aspects, such as long-run changes in factor supply in each country, were, of course, also given attention. But the influence of technological circumstances was studied only by considering different qualities of "technical labor." A serious limitation, indeed!

The more limited sphere of interest among economists following the classical tradition did not prevent them from doing important work on the theory of international economic relations. Two prominent Princeton economists come to mind: Frank Graham and Jacob Viner. Graham's work contributed chiefly revisions and corrections; Viner's work made additions and presented rediscoveries in improved form. Furthermore,

we must not forget that their work brought very important additions to our knowledge in other fields also—to methodology (Graham) and to the history of doctrines of international economic relations, where Viner long played a dominant role.

In the last three decades, progress in the theory of international economic relations has been striking. A comparison of the well-known textbooks and collections of essays in international economics demonstrates this fact very convincingly. Nevertheless, I intend to make some observations about certain fields of research where, in my opinion, much remains to be done. In some more popular fields, the marginal utility of scientific effort is probably much lower at present. To single out the relevant fields, it is natural to ask: Which internal economic changes in different countries exercise a more important influence on international economic relations than existing theories have so far revealed or explained?

Some Tasks of the Theory of International Economic Relations

Let me begin by asking a more basic question: What are the main reasons for the theoretical analysis of international economic relations? What is the use of such theories?

One reason is obviously to assist the work of economic historians. Economic and social history is a useful branch of knowledge in itself and a road to better understanding of present and future economic life. It helps economists to find out which institutions must receive special attention in the construction of theoretical models.

As far as I can judge, however, the main object of such theories is to provide instruments and knowledge that can make it easier to construct economic and social policies—internal and external—that will bring a nation or a group of nations closer to accepted goals. In some cases, the connections between the internal and external aspects are very close and direct; in other cases, they are more indirect and therefore often more difficult to explain.

Some of the policy goals are economic growth, stable growth of employment and output, lower levels of inflation than most countries have experienced in recent years, influence on the distribution of income, influence on the development of trade with certain countries in accordance with official trade agreements, and increased military strength through security of supply of certain commodities. To handle these and similar questions we need both a general knowledge of international and internal economic relations and special analysis of important policy problems.

In the scientific literature, much attention has been given to trade policy in a wide sense—to import tariffs, transport costs between countries, export duties, trade subsidies, quantitative import or export restrictions, direct public purchases or sales abroad, etc. The body of analysis dealing with these questions and, above all, with international monetary economics is very impressive and growing. An important field of research has to do with disequilibria in the economic system and the difficulties created thereby, as well as with methods of restoring a more balanced position. Maladjustments in international cost relations and foreign-exchange rates are, perhaps, the most important case. These aspects will receive no further comment in this paper, which concentrates on matters that have received insufficient attention or have been analyzed chiefly with the aid of oversimplified models.

Some Highly Relevant Internal Circumstances

Like factor proportions, many internal conditions influence the division of production and trade between countries, as well as the international movements of the productive factors. The character of legislation and regulations about social rules of behavior, e.g. hours of work per week, exercises an influence on factor proportions. Highly important also are the systems of taxation and subsidies—their features and levels—as well as the system of social-insurance payments. More work is needed to illuminate the development of the supply of factors of production in each country, not only their movements between countries. This is true also of the internal costs of transportation for commodities, services, and productive factors. Legislation imposing restrictions on migration and international capital movements naturally exercises an influence on economic development at home and abroad.

This brief enumeration gives an indication of the kind of positive theory of international economic relations which, in my opinion, has to be expanded as a basis for better normative theory. It is an incomplete enumeration but should suffice to indicate that, in spite of the great progress that has been made, particularly in the last decades, the theoretical analysis is still insufficient in some essential respects. And there are other fields that require further development if future internal and external economic policy is to receive the assistance it needs.⁴ I hope that my readers will excuse some limited repetition.

⁴ Meade's 1951 work gave us a better understanding of the many-sided connections between national economic systems. The emphasis, however, was on the macroeconomic aspects and on international economic policy matters, although the international effects of different *internal* national policies were dealt with in some cases.

Location Theory

As was already mentioned, emphasis has long been too much concentrated on international trade itself and on trade policy; the conditions of production in different countries are the *basis* of trade and their development needs a great deal of attention. The simple factor-proportions model with two or three factors, two countries, and two or three commodities has been used with great skill and has brought interesting results, for example in the illumination of the influence of differences in technology. But I welcome the attention that is nowadays often given to the existence of a "specific factor" in each country as well as one or two common types of factors. It is my impression that the marginal utility of scientific effort using the old $2 \times 2 \times 2$ model is declining.

It would be instructive if the basic theory dealt more with special aspects of the conditions of production, for example, the geographical spread of natural resources inside large countries and internal transport costs, which are affected by rivers, canals, and mountains (see an important paper by Kenen, 1965). Attention must be given to the incomplete internal mobility of labor, to the influence of agglomerations inside each country, and to the expensive internal transportation of certain commodities. Fortunately, scientific work in this direction has expanded greatly, chiefly in so-called "regional analysis." But economic geographers and economists would draw mutual benefits from greater utilization of location theory, which has not yet—it seems to me—been explored nearly so fully as the more conventional theory of international trade.

I made an attempt to use the location and regional approach to the analysis of international commodity and factor movements in the book I published in 1933 and am happy that some prominent economists have made much further progress. Important works on location theory include Palander (1935), Hoover (1937 and 1948), Lösch (1940), and Isard (1956). An outline of a general space analysis was presented by Samuelson in 1952 and a survey paper by Isard and Peck in 1954. However, no one has yet made a serious attempt to build a general location theory and introduce national borders and their effects as modifications in order to illuminate international economic relations and their development by a method other than conventional trade theory. (Some steps in this direction were taken by Lösch and Hoover, and later in "regional analysis.") In view of the progress that has been made in location theory, partly of the agglomeration-theory type, since Alfred Weber set the ball rolling at the beginning of the century (1909, 1911, 1923), it is strange that it has not had more influence on the theory of the international allocation of resources.

Nonfactor Payments

Among the somewhat neglected fields of research, I want particularly to stress the influence of nonfactor payments such as internal taxation, subsidies, and social contributions by producers, particularly if the contributions are not proportional to wage and salary payments. The natural approach is to start with ordinary business cost accounts in terms of money and thereby take the often neglected nonfactor expenditures into consideration. Nonfactor expenditure levels will affect the competitiveness of different countries producing the same type of commodity. In view of the fact that import tariffs and some subsidies have been the focus of attention for almost two hundred years, it is surprising that so little attention has been given to other nonfactor expenditures. Internal taxation and social payments in a country play a growing role in total costs—differently for different products—and hence in the competitiveness of a country in various product lines.

This is obviously a very complicated matter. Large changes in the tax system—in income taxes, for example—will affect the relative and absolute prices of the factors of production. But this is true also of tariff changes. Since the mutual interdependence of the parts of the pricing system always creates analytical difficulties, it is hardly a sufficient excuse for neglecting an important influence on the costs of output and the competitiveness of different nations. Internal wage taxes, payable by business firms, are high in some countries but low in others. To what extent are they borne by the firms or shifted to the workers through a relative reduction of wage levels? An important problem! Fortunately, the last decade has seen some valuable pioneering work in this field.

Risk and Social Institutions

Somewhat less complicated, perhaps, yet very essential is the role of risk in production, development, and hence trade between countries. Direct foreign investment in new facilities in a country with a relatively inefficient and not quite honest administration is less attractive than in a country where there is less risk of arbitrary or "negative" intervention by the administration. To some extent, similar risks hold back domestic investment and often lead to a flight of capital to other countries. The slow industrialization of some less developed countries, such as Argentina, where natural conditions for production are in several respects relatively favorable, is generally said to be partly due to risks of a political kind, and perhaps also to personal risks due to internal strife and violence.

Legislation in less developed countries restricting the repatriation of

profits from foreign investment will exercise a negative influence on the influx of capital—an influx normally accompanied by technical and administrative knowledge and skilled labor. The prospect of such legislation may have the same negative influence. Legislation that is more favorable to foreign capitalists and more stable will stimulate the influx of capital, skilled labor, and initiative.

These considerations bring to the fore the influence of social institutions in general. A “young” country where respect for business contracts is high and the attitude of the trade unions is similar to that of well-balanced unions in old industrial countries will attract foreign investment and industry much more than another young country with less stable institutions and greater risk. This will be so even if external commercial policy is the same in both countries.

To a large extent, the analysis of such problems can be grouped together with the influence of other kinds of risk. Factor movements, technological progress, and trade will all be affected by the existence of such risks. Although increasing attention has been given to such matters in individual cases, as by international organizations like the World Bank, the important subject of the influence of risk on international economic relations, apart from its effects on capital movements, is still a relatively neglected field of research compared to the amount of work that has been done with simple theoretical models and factor costs, work that has long dominated the theoretical sections of textbooks in international economics. I shall return to the behavior of institutions toward the end of my paper.

Some Aspects of Development

Analyses of the conditions of economic progress have given a lot of attention to the potential contribution of international trade. However, measures to stimulate long-run growth might well take advantage more than is common today of opportunities to affect the supply of skilled labor, capital, and technology. A general theory of international factor movements and their interactions can probably be of practical use for the construction of a “factor policy” parallel to trade policy. Such a factor policy has certainly not been completely neglected, but it has been given much less attention than trade policy even in the less developed countries.

Space does not suffice for further discussion of the connections between international movements of different factors of production and of

different goods and factors.⁵ In theory, but not in descriptive accounts, factor movements were long regarded as interesting chiefly as part of the explanation of commodity movements. Among the cases that were subjected to many-sided and skillful analysis was the development of economic relations between Great Britain and its dominions and colonies in the last half-century before the First World War. British exports of capital and labor and the development of raw-materials production in parts of the Empire had an obvious connection with the expansion of British manufacturing industry and its importation of raw materials, and thus with exports of manufactures to the dominions and colonies as well as to many other countries. One should perhaps count British political administration as one of the important "factors of production" exported to the colonies—an export that provided relatively favorable conditions for economic development. We economists have perhaps used an unduly narrow definition of the factors of production and failed to distinguish between the different qualities of labor that are required for economic development.

The rapid and often fairly one-sided economic development of some less developed countries has not seldom brought disturbances in their trade relations with the industrial countries. To solve the ensuing problems by means of trade policy is hardly possible in all cases. Here again, more attention to the evolution of production—agreements to undertake the mutual adaptations implied by long-term development schemes—might be a natural way to mitigate some of the disturbances and internal dislocations.

The less developed countries are often told that they can count on positive effects from industrialization by pursuing a protectionist policy, which will lead to a greater influx of active foreign capital and technology. However, the probability of such a result depends on many aspects of policy and administration. The size of the domestic market is also important, not only for the realization of scale economies but also for bargaining power. The smaller developing countries, in particular, deserve better advice from economists than encouragement to use protection. To imitate the policies of large countries like Brazil is in many cases unwise for such countries. The report of the symposium organized by the International Economic Association contains much analysis and material

⁵ See several papers in Ohlin, Hesselborn, and Wijkman, eds. (1977). In the same volume there is a final survey by Max Corden and Ronald Findlay, as well as a discussion of the important question of whether the theory of international economic relations is "operational" or not.

useful for an understanding of the problems of many less developed countries (Robinson, ed., 1960; see, e.g., the papers by Leduc, Weiller, and Verdoorn).

Tariff unions or more far-reaching economic unions may be one way to augment the chances for industrial progress. Such unions have been the subject of skillful analysis. The theory of regional cooperation might render additional useful service, as it pays attention to transport costs and the local distribution of natural resources.

The literature on the economic development of the European Economic Community since it became an economic union contains much valuable analysis, but it would carry us too far afield to discuss it here.

A Brief Observation on Multinationals

The growth of multinational business corporations is a good illustration of the need for analysis that starts from ordinary business cost accounts. There is hardly any other road for scientists and politicians than to follow business leaders in this respect. We can study the growth and migration of production only by examining the facts that are important to the corporations themselves. The same thing can be said about the study and planning of official trade and development policies, which have as much to do with production, factor movements, and the training of labor as with the conditions of international trade. Hence it is essential to pay close attention to internal conditions of production and to the possibilities of affecting them. It does not seem helpful to use a highly simplified model if one wants to reach realistic conclusions about the development of multinationals.

Risk Again

The risk of severe labor conflicts that cause delay in deliveries of export goods is an important matter, as demonstrated by British experience, for example. Another aspect of labor relations—wage policy—affects competitive power differently in different countries, which is one reason why cost levels move more erratically in some countries than in others. If foreign-exchange rates fail to adapt to relative money costs, international trade will be affected and, in many cases, interest-rate levels and capital movements as well. These questions were much discussed in the 1920s. Even now, many books continue to concentrate on the foreign-exchange aspects and pass quickly over the role that trade unions can play and often do play in affecting investment risks and the development of production and international trade.

In a discussion of anti-inflation policy, with indirect consequences for international trade, it may be necessary to consider the likelihood that an increase in taxation to achieve general economic balance in the economy will lead to extra wage demands by the trade unions. In some cases, these will be granted by the employers. In others, they will be refused, and a labor conflict may ensue. In one way or another, the behavior of institutions like trade unions may exercise an important influence on costs and trade.

The importance of the behavior patterns of individuals and institutions such as trade unions and business firms is obvious. Under some conditions—as Herbert Simon has demonstrated—the latter may not aim at maximizing profit but may be content to aim at “a satisfactory profit,” perhaps feeling that in the long run the latter will prove to be more lucrative. In the analysis of international economic relations, such questions have not yet been given much attention except in connection with multinational corporations.

Factor Quality and Related Issues

As I have dealt in this paper with the intensive use of simple models, I must touch upon “the Leontief paradox,” which indicates that trade between the United States and other countries does not follow the pattern that the factor-proportions model leads one to expect, when applied in its most simplified form. One part of the explanation may lie in differences in the quality of labor. In the United States in the 1950s, many workers were used to a more rigorous regime than the average worker elsewhere. They may have had more education than the average worker abroad, less strict rules about night work, double shifts, more advanced technology, greater economies of scale, or longer experience in the production of some expensive products. Other circumstances, like lower double taxation of company profits, may also have helped to alter the pattern of trade and production that the factor-proportions model would indicate as natural. Supplies of certain specific factors, like soil and climate, may have kept down American capital requirements and costs in some industries. A larger market in the United States for some “new products” may have been important.

The Choice of Methods

In my opinion, all this goes to show that highly simplified models, which may be useful as pedagogic aids, can seldom reflect reality unless, as a second stage, modifications are made in unrealistic assumptions.

Some of the problems I have indicated as calling for a great deal of new attention may not lend themselves to simple, rigid, and precise models. This may be one reason why their analysis has been less popular than analyses of other problems where formal precision is more easily attainable. It goes without saying that the selection of problems to be analyzed cannot be made on the basis of their suitability for analysis by simple models. If the problems are important, an analysis cannot be avoided, even if their treatment takes on the flavor of "essay writing."

The parallel use of different methods, including the important quantitative input-output surveys originated by Leontief and the multinational econometric system, Link, a result of international cooperation under the leadership of L. R. Klein, will probably add much to our understanding in the long run. Input-output analysis makes it possible to marshal several kinds of facts more effectively than would otherwise be feasible. The Link project will, I hope and trust, yield very important results in the long run. It fulfills several of the conditions I have stressed; above all, it considers many internal facts that have a bearing on international economic relations.

Fortunately, recent progress in the theoretical analysis of growth and development seems to guarantee that increased attention will be given to *internal* conditions and their influence on international economic relations. A consistent investigation into business cost accounts and nonfactor costs might prove to have greater marginal utility than the same quantity of scientific energy spent on more old-fashioned models.

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121. Marina v. N. Whitman, *Sustaining the International Economic System: Issues for U.S. Policy*. (June 1977)
122. Otmar Emminger, *The D-Mark in the Conflict between Internal and External Equilibrium, 1948-75*. (June 1977)
123. Robert M. Stern, Charles F. Schwartz, Robert Triffin, Edward M. Bernstein, and Walther Lederer, *The Presentation of the Balance of Payments: A Symposium*. (Aug. 1977)
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