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INTRODUCTION

A. OBJECTIVES OF THE STUDY

As the handmaiden of politics, economics has concentrated upon the activities bounded by the control of the sovereign and the resources under its jurisdiction. The main schools of economic doctrine from the mercantilism of the eighteenth century to the neoclassicism of the twentieth, accepting the existence of a social structure and a market economy established under the protection of a political power, have been largely concerned with the consequences of different courses of public policy for the income and wealth of a country's citizenry.

Therefore, the social accounts of the economist are "national" accounts. The national product and income accounts deal with the composition and disposition of domestic (or national) production; money flows and input-output accounts deal with interrelations among sectors of the economy. Economic relations with other states enter these social accounts in lines or sectors for exports of domestically (or nationally) produced goods and services and for imports from other countries received in trade, and the elaboration of foreign trade is made appropriate to the sectoral development of the account. The social account focusing upon the relations between residents (or nationals) of a given country and those of other countries—i.e., the balance-of-payments account—was until recently rarely elaborated by partner area and was usually employed analytically without regard to regional dimensions. With each state concentrating on its own problems, the operation of the economic system of the world as a whole has received insufficient attention, and the social accounting framework has not been developed to illuminate it.

In the post-Napoleonic era, when Britain was the financial and trading center of the modern world,¹ it

¹ Albert H. Imlah, *Economic Elements in the Pax Britannica*, Cambridge, Mass., 1958.

was natural for British writers to deal with external economic relations as though the rest of the world were a unit. The *Pure Theory of Foreign Trade* of Alfred Marshall, for example, treats of the relations between a country and the outside world—a two-country model—as though nothing new would be involved in the trading relations among three or more countries. The world then consisted of Britain, a handful of lesser national states on the Continent, and a scattering of small powers outside Europe; large areas of the Middle East, Asia, and Africa were integrated into the exchange economy of the West only through the European empires. In such circumstances the effect of actions by the big economic power, Britain, spread widely over the whole world, and smaller powers could disregard the effects of their economic actions on the rest of the world. It was, perhaps, sufficient for Britain to be concerned with the impact of her actions on the world as a whole. In such a setting, principles drawn from an analysis of the two-country model may have served, but the conditions of the mid-twentieth century require more elaborate models.²

Today's world is not such a unimodal system of national economies dominated by a single financial and trading center. The largest trading country, the

² There is some question whether the two-area model was adequate even for the era of *Pax Britannica*. R. A. Mundell, in restating "The Pure Theory of International Trade" (*American Economic Review*, March 1960, pp. 67 ff.), finds the results of the two-country model applicable to the multiple-country case only when all foreign exports are *perfect* substitutes for each other. In that special case, foreign countries can be treated as one country—the "rest of the world." When gross complementarity exists among the exports of various countries, the consequences for one country of such events as productivity changes, tariff changes, price changes, and unilateral transfers may differ from those in the two-country cases. From available data it can be seen that exports of different countries are far from perfect substitutes and that complementarity is widespread.

United States, provided a market for 18 per cent of the merchandise exported by other countries in 1959 (and supplied 21 per cent of that imported by other countries). In contrast, Britain in 1860 provided a market for an estimated 31 per cent of all non-British exports.³ The rise of the United States and more recently of a rapidly growing Continental grouping has produced a world in which the unilateral actions of either the United States or the United Kingdom and the concerted actions of the Continental complex impinge importantly upon each other and on different groups of countries outside Europe. Moreover, new constellations of countries are being born, large enough to have a noticeable influence. The Soviet countries—trading largely among themselves, following essentially autarchic trading policies toward non-Soviet countries, and consciously employing trade as a political instrument—came in the years after World War II to form a bloc. Looking ahead we must anticipate that the increased political consciousness and assertiveness of the developing countries may lead to concerted action with a world-wide impact.

In such a world, enlightened national self-interest requires the explicit recognition of interdependence. The health of the economic system of the world is the necessary concern not only of all countries acting in concert in the United Nations but also of regional groupings of countries acting together and of the major economic powers acting individually. A small country can still behave without regard to the effects of its actions on the rest of the world, but the larger countries have, by their very size, lost the possibility of doing so. Just as the United States, in arriving at a position of leadership on the world scene, has been compelled to recognize the direct and indirect effects of its actions on the different parts of the world, so other leading countries or groups of countries must be sensitive to the effect of their behavior on world economic relations.

To find solutions to the problems of one area of the world without intensifying or creating new problems for other areas requires a framework of analysis and a body of data encompassing all the economic activities of the world and expressing the interrelations of national economies. Problems of economic interdependence cannot be assessed without an or-

³ Imlah, *Economic Elements*, p. 191. Percentages for 1959 were calculated from the trade table in *International Financial Statistics* (May 1960), allowing 6 per cent of world imports c.i.f. for freight and insurance. U. S. exports include military aid goods.

ganized and consistent record which can be used as the basis for weighing the consequences of alternative policies and programs or of economic changes originating anywhere in the world for different parts of the world's economy. It was to make a contribution toward developing a technique of description and analysis encompassing the world economy and relating all important phases of international economic life to one another that the present study was undertaken at the National Bureau at the beginning of 1953.

The ideal record would approximate a Walrasian general equilibrium system covering the internal activities of all countries and linking them up, product by product, sector by sector, and encompassing not only current production and exchange but also savings, investment, international capital flows, unilateral transfers, and monetary phenomena.⁴ Preparing such a comprehensive record would have been far beyond the resources available. Hence we set a more limited objective, one which, nonetheless, was comprehensive in focusing on payments relations among all countries. National boundaries (important hindrances to the free play of economic forces around the world) provide a convenient means of delimiting research and analysis. Moreover, there is particular advantage in dealing first with the international economic relations of countries since governmental policies must work toward maintaining a balance in external payments. For most countries,

⁴ Jacob Mozak, in his Cowles Commission Monograph (No. 7) *General Equilibrium Theory in International Trade* (Bloomington, Ind., 1944), outlined such a system in theoretical terms. Hans Neisser and Franco Modigliani, in their quantitative analysis *National Income and International Trade* (Urbana, Ill., 1953), explored an international model in which the merchandise trade of all countries was linked up with their national incomes; J. J. Polak made a similar study, *An International Economic System* (Chicago, 1953). Both of these studies dealt with merchandise trade only and, like the League of Nations study *Network of World Trade* (Geneva, 1942), disregarded other international transactions. Moreover, their empirical data referred to the interwar period. Polak, working with Rudolph R. Rhomberg, has reported some progress in removing these deficiencies. In their article, "Economic Stability in an International Setting" (*American Economic Review*, May 1962, p. 110), they report on a three-area postwar model of the world economy. Rhomberg made further reports on the model at meetings of the Econometric Society in September and December of 1962. A Brookings Institution study (*The United States Balance of Payments in 1968*, by W. S. Salant, et al., Washington, 1963) develops a projection of world merchandise trade and the U. S. balance of payments, using a three-region analytic model of interdependence similar to Rhomberg's.

the ability to buy or lend depends upon success in selling or borrowing. Countries generally have limited reserves of gold or convertible currency and must watch their economic policies to ensure that losses of reserve are quickly stemmed. Conversely, though a gain of reserves is less of a constraint than a loss, few countries would wish to accumulate idle reserves indefinitely. Countries are linked in a network of trade and financial relations which makes one country's credit another's debit. As private and governmental decisions of countries respond to changing international economic circumstances, the effects ramify out through the network of international trade and finance and may return to affect the original country.

Because of its essentially interdependent nature, the network of international transactions is worth studying. This book presents a record of transactions, by main types, between world areas over a particular period of time. The aim has been to comprehend the full range of exchanges entering into the balance of payments—merchandise, services, unilateral transfers, capital and gold movements, and multilateral settlements. In setting out to compile and analyze this record, we hoped to accomplish objectives of three kinds—statistical, descriptive, and analytical.

The statistical objective was to locate data that measured transactions between world areas or that

could be used to make such measurements where the data did not exist, to design a set of accounts which could be fitted together in a reasonably consistent record covering all countries, to construct such a record by compiling, adjusting, and supplementing accounts of different countries, and to assess its limitations and usefulness for different purposes.

The second objective was to study the record to observe the nature of the interrelationships for the period—the nature of international specialization in trade, financial interrelations, and the nature of interdependence. The third and more theoretical objective was to use the record to test hypotheses about the operation of the world economy.

This book will treat primarily the statistical objective, presenting the data prepared on transactions between world areas, namely, two-valued matrixes of transactions of all major types compiled for each of the five years 1950-54. In addition, the book seeks to assess the limitations of the data for descriptive and analytic uses. The accuracy of statistics cannot, of course, be evaluated apart from the uses to which they are put. Insofar as observations about trade and payments relations are made in this book, the data can be assessed in relation to those findings. They can also be related to a number of other questions we have explored and touched upon but do not go into in this book.

B. NATURE OF THE RECORD AND PLAN OF THE BOOK

Table 1 illustrates the kind of record considered in this book. It is a summary set of matrix tables showing transactions for the single year 1954 between four parts of the world—Western Europe, Other Eastern Hemisphere countries, the United States, and Other Western Hemisphere countries.⁵ The table is divided into four parts. Part I gives gross goods and services transactions, with line A for the export of the area in the stub matching, on line B, the comparable measure of the same transaction carried in

the account of the importing area in the caption.⁶ Part II gives net goods and services transactions between the four world areas; Part III gives net unilateral transfers, capital and gold transactions; and Part IV gives the residual, balancing matrix of net multilateral settlements and error. In each case the

⁵ Table 1 is a consolidation of the more elaborate matrixes in Appendix B. Western Europe (WE) is the sum of United Kingdom (UK) and the Continental countries of the Organization for European Economic Cooperation (Cont. OEEC), and also includes the European Payments Union (EPU). Other Eastern Hemisphere (OEH) is the sum of the Rest of the Sterling Area (RSA), Continental Overseas Territories (Cont. OT's), and Other Countries. Other Western Hemisphere (OWH) is the sum of Canada, Latin America, and International Organizations (IO). These and other abbreviations used in this book are explained in the glossary.

⁶ In all of the matrix tables of the book (i.e., tables showing transactions of a given type between world areas) the exporting area, or area credited, is listed in the stub and the importing area, or area debited, is given in the caption. Where two values are shown, as in the tables of Appendix A, line A denotes the record of the area credited and line B denotes the record of the area debited. Where the two entries of the record are not paired off on lines A and B, as in the tables of Appendix B, the area of report is the area in the stub unless it is clear from the language used in the table headings that it is otherwise. (E.g., in the case of Table B-1 on goods and services credits, the figures shown are as carried in accounts for the exporting area in the stub; in the case of Table B-2 on goods and services debits, the figures shown are the transactions of the importing area in the caption; but in the case of Table B-3 on net goods and services, the figures are the balances in accounts of the area in the stub.)

MEASURING TRANSACTIONS BETWEEN WORLD AREAS

TABLE 1
Transactions Between Four World Areas, 1954
(million U.S. dollar equivalents)

| Area Credited \ Area Debited | All Areas | Unallo- cated | Western Europe | Other Eastern Hemisphere | United States | Other Western Hemisphere |
|--|-----------|------------------|-------------------|--------------------------------|------------------|--------------------------------|
| I. GROSS GOODS AND SERVICES | | | | | | |
| All areas | A 100,902 | 1,332 | 40,304 | 29,037 | 15,551 | 14,678 |
| | B 100,810 | — | 39,667 | 28,948 | 16,346 | 15,849 |
| Unallocated | A — | — | — | — | — | — |
| | B 1,389 | — | 455 | 506 | — | 428 |
| Western Europe | A 41,454 | 534 | 18,871 | 14,189 | 4,724 | 3,136 |
| | B 41,071 | — | 18,316 | 14,369 | 4,897 | 3,489 |
| Other Eastern Hemisphere | A 26,080 | 491 | 12,972 | 7,798 | 3,644 | 1,175 |
| | B 25,932 | — | 13,042 | 7,586 | 4,098 | 1,206 |
| United States | A 18,550 | — | 4,802 | 4,845 | — | 8,903 |
| | B 18,249 | — | 4,515 | 4,503 | — | 9,231 |
| Other Western Hemisphere | A 14,818 | 307 | 3,659 | 2,205 | 7,183 | 1,464 |
| | B 14,169 | — | 3,339 | 1,984 | 7,351 | 1,495 |
| II. NET GOODS AND SERVICES | | | | | | |
| All areas | 92 | -57 | -767 | 3,105 | -2,698 | 509 |
| Unallocated | — | — | — | — | — | — |
| Western Europe | 1,787 | 79 | 555 | 1,147 | 209 | -203 |
| Other Eastern Hemisphere | -2,868 | -15 | -1,397 | 212 | -859 | -809 |
| United States | 2,204 | — | -95 | 747 | — | 1,552 |
| Other Western Hemisphere | -1,031 | -121 | 170 | 999 | -2,048 | -31 |
| III. NET UNILATERAL TRANSFERS, CAPITAL, AND GOLD | | | | | | |
| All areas | 113 | 688 | 1,735 | -2,440 | 1,394 | -1,264 |
| Unallocated | — | — | — | — | — | — |
| Western Europe | -1,188 | 320 | 93 | -684 | -640 | -277 |
| Other Eastern Hemisphere | 2,308 | 321 | 844 | -18 | 1,035 | 126 |
| United States | -2,382 | — | 251 | -1,536 | — | -1,097 |
| Other Western Hemisphere | 1,375 | 47 | 547 | -202 | 999 | -16 |
| IV. NET MULTILATERAL SETTLEMENTS | | | | | | |
| All areas | -205 | -631 | -968 | -665 | 1,304 | 755 |
| Unallocated | — | — | — | — | — | — |
| Western Europe | -599 | -399 | -648 | -463 | 431 | 480 |
| Other Eastern Hemisphere | 560 | -306 | 553 | -194 | -176 | 683 |
| United States | 178 | — | -156 | 789 | — | -455 |
| Other Western Hemisphere | -344 | 74 | -717 | -797 | 1,049 | 47 |

SOURCE: Appendix B.

NOTE: For Part I, entries on line A are from the accounts of the area credited (in the stub) and entries on line B are from the accounts of the area debited (in the caption); for Parts II-IV, the entries are from the accounts of the

area in the stub and the comparable partner record is given (with opposite sign) on the partner area's line in the appropriate column.

For a definition of the areas included here, see footnote 5 and the glossary.

record is two-valued but lines A and B have not been entered in the net transactions matrixes of the table (Parts II-IV) since the balances as shown by each partner can be readily identified and compared (e.g., Western Europe's balance with the United States should be the same as the U.S. balance with Western Europe but with the opposite sign).⁷

Each dimension of Table 1 is elaborated in the basic record given in Appendix B. The geographic scheme of recording transactions between world areas is elaborated into eight country groupings and three special accounts; the items are elaborated into merchandise, five different types of services, and separate accounts for unilateral transfers, capital, and gold; the time dimension is elaborated by adding more years. Altogether twenty-eight matrix tables are presented in Appendix B for each of five years, 140 in all, and in general for each interarea transaction there are two entries to be compared.

This mass of data can be viewed from many different angles. Taking the time dimension, one can look at experience over the whole five years, year-to-year changes, or changes from 1950 to 1954. From the viewpoint of items, one can look at the record for each type of transaction in turn over these periods of time and make comparisons between different types of transactions. The regional breakdown of transactions invites the study of each area's account in turn, examining its item composition vertically for different time periods and comparing it with other areas' accounts. We have not undertaken here any of these systematic reviews of the material, but have followed each approach to some extent in focusing on certain aspects of the record of particular significance.

Before the record is presented, Chapter 2 describes the method of developing the two-valued matrixes for 1950-54. Following this explanation, Chapter 3 examines the over-all totals of all countries with all countries, carried in the corner box of the matrix tables for each type of transaction (e.g., figures like the \$100,902 million of goods and services credits and \$100,810 million of debits traded between countries in 1954 and the -\$205 million net over-all error in the multilateral settlements account shown in Table 1). These totals are important as measures of the magnitude of world trade in merchandise and the several types of services for which data on gross transactions are available. They also show the over-

all divergence between credit and debit records of world trade, which, conceptually, should be equal. For net transactions matrixes, of course, *world* totals should be zero, and the entries in the corner box of the net transactions matrixes provide insight into the systematic nature of errors in the whole set of accounts. Chapter 3 also reviews the country composition of the over-all balance of all countries with all countries in the residual matrix of multilateral settlements and error. This review shows the extent of offsetting errors in the set of country accounts and focuses on the country accounts with the largest (net) errors and omissions.

The next two chapters consider the interarea record of goods and services transactions (Chapter 4) and the record of net financial flows (Chapter 5). In each chapter, first the patterns given by the record for the whole five years are examined and then the annual matrixes.

The main conclusions from this study of world trade and payments are given in Chapter 6, which also includes some reflections on the usefulness of this type of record. The use of five-year totals in analyses of experience over the whole five years is, of course, equivalent to working with average annual experience, the average being weighted by each year's transactions.

Appendix A gives consolidated figures for the whole five-year period showing the gross and net goods and services matrixes (Tables A-1, A-2, and A-3) and the net transactions of each account from merchandise to net multilateral settlements and error (Table A-4). The matrixes in Appendix A differ from the basic annual matrixes in Appendix B in that the former have been adjusted to allocate all transactions and in certain other ways explained in Chapter 2.

Appendixes C and D elaborate some points discussed in the text, notably the effect on the set of matrixes of redirecting petroleum trade transactions and the divergence in the goods and services matrix.

Appendixes E and F are concerned with two problems encountered in adjusting payments accounts that warrant further explanation, namely, valuing merchandise imports f.o.b. and estimating sales of marine bunkers.

Notes on the adjustment or preparation of the seventy-eight country accounts underlying the matrix tables are on file on microfilm at the National Bureau.

⁷ See note to Table 1.