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Volume Author/Editor: Robert E. Baldwin, Robert E. Lipsey and J. David Richards, editors

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Chapter Author: Robert E. Baldwin, Robert E. Lipsey, J. David Richardson

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Introduction

Robert E. Baldwin, Robert E. Lipsey, and
J. David Richardson

Economic accounting can be done in a variety of ways to answer different questions and serve different purposes. One of the distinctions that can be made is between measures of economic activity based on geographical location and measures based on ownership. One of the main purposes of this volume is to raise the question of the degree to which changes in the world economy may have increased the usefulness of international accounts drawn up on an ownership basis relative to those on a geographic basis. Among these changes are the growth of multinational corporations, for which many transactions across geographical borders are internal to the firm; the growth of service industries, for which the geographical location, but not the ownership of production, is ambiguous; and the seeming absence of many of the expected unfavorable consequences of persistent U.S. current account deficits, measured in geographical terms.

The United States for many years used ownership-based measures, such as national income and gross and net national product, as the central totals in its economic accounts. It joined most of the other developed countries in emphasizing geographical totals, such as gross domestic product, in the 1991 revision of the accounts. However, in the accounts for international transactions, the only strictly geographical element is commodity trade, because goods can be observed as they pass over national geographical borders. Most service transactions recorded as international take place entirely within one country and are assigned international transaction status on the basis that one of the transactors

Robert E. Baldwin is professor emeritus of economics at the University of Wisconsin–Madison and a research associate of the National Bureau of Economic Research. Robert E. Lipsey is professor emeritus of economics at Queens College and the Graduate Center of the City University of New York and a research associate and director of the New York office of the National Bureau of Economic Research. J. David Richardson is professor of economics in the Maxwell School at Syracuse University, a research associate of the National Bureau of Economic Research, and a visiting fellow at the Institute for International Economics.

is a “resident” of another country. Foreign residence is a legal characteristic rather than a geographical one. It depends on place of incorporation or legal status, rather than on the physical location of production or consumption.

The choice between geographical and ownership bases for economic accounting was discussed at the Fourth Income and Wealth Conference in 1939, not in connection with international issues, but with respect to the treatment of ownership across state lines within the United States. In the paper “Some Problems Involved in Allocating Income by States” presented at that conference, published in volume 3 of *Studies in Income and Wealth*, Robert R. Nathan concluded that the ownership-based measure was the central one. He asked, “Is there any point in determining the net value of goods and services *derived from* economic activities taking place within the physical confines of North Carolina . . . when this net product is *derived by* residents of other states?” If a choice were necessary, “it would seem more important . . . to allocate the net value of product by states on the basis of such a concept as ‘the net value of product *derived by* residents of a state from their labor and from the services of their property, wherever located,’ rather than on the basis of the concept of ‘the net value of product *derived from* the resources of labor and wealth employed in a state.’” He went on in a way that foreshadowed the later shift in emphasis: “If a person, as a contributor of his capital to production, is the primary force rather than the capital itself, then the *derived by* concept is more significant. On the other hand, if the actual capital equipment is regarded as the primary force, the ‘derived from’ concept predominates.” Thus there is some hint that a physical production function calls for a geographical concept (Conference on Research in Income and Wealth 1939, 401–29).

Simon Kuznets, in commenting on Nathan’s paper, admitted the case for the “derived by” measure but introduced another theme, suggesting that “this inference overlooks the possibility that consciousness of a kind may extend to the productive resources to which a given group applies its labor; that inhabitants of a given state may have a sense of proprietary interest in the total output in whose production they participate.” The point was intended as a justification for a geographical measure but could be applied equally to the aggregation of all the output of a firm, wherever it was produced (Conference on Research in Income and Wealth 1939, 430–34).

The merits of the two approaches appeared quite different to Richard Stone and Kurt Hansen (1953) a little more than a decade later. “The system . . . should . . . contain the distinction between ‘domestic’ and ‘national’ concepts since, to give one reason, the former is more appropriate as a basis for constructing a measure of real product.” The geographical measure, with the idea of an aggregate production function in the background, had gained ascendancy.

When the U.S. Department of Commerce shifted from GNP to GDP as the “featured” total in the national accounts, one reason given was that GDP, since it referred to “production taking place in the United States,” was “the appropriate measure for much of the short-term monitoring and analysis of the U.S.

economy” because it is “consistent in coverage with indicators such as employment, productivity, industry output, and investment in equipment and structures” (1991, 8). Another consideration was that GDP is the central total in the UN System of National Accounts and the use of that total simplifies comparisons with other countries. Still another point was that some of the foreign elements of GNP are not available quarterly, or are available only with considerable delay, or are not available at all. Inventory and capital consumption adjustments are mentioned in this category, and any deflation becomes much more difficult if prices are needed for foreign elements of income and production. GNP remains in the accounts. It is described as “appropriate for analyses related to sources and uses of income.” It is the appropriate denominator for saving rates and “is better for analyses that focus on the availability of resources, such as the Nation’s ability to finance expenditures on education.”

The connection between productivity measurement and a geographical basis for economic accounting is strong if the only important inputs are land, labor, physical capital, and possibly human capital to the extent that it is attached to immobile labor. If, however, technology, organizational skills, patents, or brand names are major determinants of output and productivity, the advantage of the geographical measure disappears because these types of intangible capital reside not in locations but in organizations that may span state and national borders.

One reason for organizing the conference was that it has come to seem that, just as state borders were crossed by multiplant firms many years ago, national borders are now more porous than in the past and strictly geographical measures are in some respects increasingly artificial. With many organizations spanning national borders, many transactions that were once arm’s-length transactions at market prices now take place within firms. The prices and values involved are imputed rather than market values.

Another development that makes geographically based measures less informative is the growth in importance of intangible services. It is relatively simple to know the geographical location of agricultural, mining, manufacturing, and tangible service production, but it is much harder to know the location of the production of banking, insurance, consulting, and other intangible services. For these services, the ownership of the production is clear and is known to the purchaser, even if there is no clear meaning to the location of production. Even in the tangible goods industries, there are parts of the production process, such as invention, engineering, and design, that may not have any identifiable geographical location, but for which the organizational location is clear.

An example of a comparison between geographical and ownership measures on the international level is the series of studies by Kravis and Lipsey (1985, 1987) in which they compared shares in world manufactured exports of firms located in the United States with the export shares of U.S. multinational firms, including both their domestic and overseas operations. One point of the comparison was that the factors that determined the export share of the United

States as a location, such as exchange rates, wage levels, and other prices, are quite different from those that determine the export share of U.S. firms operating in many countries. If U.S. firms had fallen behind those of other countries in technological or management capabilities, as was argued at the time, the effects should have appeared in their worldwide operations, since technology and management are assets of firms. However, although the export share of the United States as a geographical entity declined over the period of the study (1966–83), the export share of U.S. multinationals remained nearly stable.

Revived interest in ownership-based measures was signaled by the 1992 report of the National Academy of Sciences, *Behind the Numbers*, which called for supplementary international transactions accounts, drawing borders around groups of firms classified by nationality of ownership rather than around geographical entities (National Research Council 1992). One suggested accounting format provides a comparable net sales measure of both the cross-border and foreign-affiliate (U.S.-affiliate) activities of U.S. (foreign) firms in supplying goods and services to foreigners (Americans). Another format measures the value-added activities of U.S. (foreign) firms in providing goods and services to foreigners (Americans) through cross-border and affiliate transactions. Other ownership-based accounting formats that provide additional insights into the internationalization of production can also be formulated.

Two of the papers in this volume, by Baldwin and Kimura on the United States and Kimura and Baldwin on Japan, carry out the proposals in *Behind the Numbers* for the international transactions of these countries. Their findings that net sales to foreigners by foreign affiliates of U.S. firms were only 6 percent less than export sales by Americans to foreigners in 1992 and that net purchases of goods and services by Americans from U.S. affiliates of foreign firms were only 12 percent less than imports of goods and services from foreigners in 1992 bring out clearly the extent to which U.S.- and foreign-owned firms supply markets beyond their borders from foreign-based facilities, as well as by exporting domestically produced goods. By reporting only the income earned from affiliate production activities, the traditional balance-of-payments format does not adequately indicate the relative importance of these two ways of supplying foreign markets. The finding that net sales to foreigners by foreign affiliates of Japanese firms in 1992 were 38 percent greater than export sales by the Japanese to foreigners, while net purchases by the Japanese from Japanese affiliates of foreign firms were 40 percent less than Japanese imports from foreigners indicates the significant reliance of Japanese-owned firms on the marketing activities of their foreign affiliates yet the comparatively modest importance of Japanese affiliates of foreign firms as suppliers in Japan's domestic market.

The difference between a country's production measured from a geographical standpoint and a country's firms' production measured from an ownership standpoint is what is called "internationalized production" in the paper by Lip-

sey, Blomström, and Ramstetter. Internationalized production is production in one country by firms based in another country, or, in other words, production arising from foreign direct investment. The paper attempts to assess the extent of such production and the trend in it over time. It estimates, from very incomplete data, that such production grew from about 4.5 percent of the world's total output in 1970 to almost 7 percent in 1990, and something in the neighborhood of 15 percent of production outside the service sectors.

Ramstetter, Low, and Yeung further explore internationalized production by comparing ownership measures based on country of incorporation with measures based on country of ultimate beneficial ownership. They make the comparison for firms in Hong Kong and Singapore, countries in which a significant part of the outward foreign direct investment is from foreign-controlled firms. Their paper points out that the use solely of the ultimate beneficial ownership criterion would wipe out much of the outward direct investment and internationalized production (as defined in the paper by Lipsey, Blomström, and Ramstetter) of Hong Kong and Singapore, even though such investment has become an important policy for governments and firms in these countries.

Using China as an example, the more familiar problem of separating ownership components in cross-border trade among countries is studied by K. C. Fung. Although two-thirds of China's exports and one-third of its imports pass through Hong Kong, China did not differentiate these reexports from trade with Hong Kong until recently, thus leading to wide discrepancies between bilateral trade balances reported by China and by its trading partners. For example, according to Chinese statistics, the United States had a trade surplus with China of \$0.3 billion in 1992, whereas U.S. statistics indicated a trade deficit with China of \$20 billion in that year. Other sources of problems with China's trade statistics are the markups that Hong Kong middlemen add to reexports to and from China and the illegal trade between Taiwan and China. The large share of trade controlled by foreign investors is another important feature of the trade of parts of China.

Issues in accounting differences according to geography and ownership exist at disaggregate as well as aggregate levels. Using the United States as an example, the papers by William Zeile and by Mark Doms and J. Bradford Jensen investigate the extent to which domestically based firms owned by foreigners behave in economically different ways from firms that are domestically owned. In comparing the domestic content of production by foreign-owned and domestically owned firms in the United States, Zeile finds that the overall domestic content of the foreign firms is only slightly below that of the domestically owned firms, namely, 89 percent versus 93 percent. However, in five industries (his sample covers 24 industries), which include computer and office equipment, electronic components and accessories, and motor vehicles, the domestic content share of foreign-owned firms is at least 15 percent lower than that of domestically owned firms. Among his other findings are that Japanese- and German-owned firms tend to have low domestic content ratios, whereas

British- and Canadian-owned firms tend to have high ratios. Japanese firms, in contrast to British-owned affiliates, also tend to source a high proportion of their imported intermediate inputs in their home country.

Doms and Jensen compare wage, capital intensity, and productivity levels in domestic and foreign-owned manufacturing establishments in the United States. As did previous investigators, they find that, on average, foreign-owned plants pay higher wages, are more capital intensive, and are more productive than U.S. plants. However, in reclassifying the data so that they are able to compare foreign affiliates with U.S.-owned plants belonging to firms with significant assets outside of the United States, that is, U.S. multinationals, they reach the important conclusion that the key factor influencing these operating characteristics is whether the plant is owned by a multinational, domestic or foreign. Plants of both U.S. multinationals and foreign multinationals pay more, are more capital intensive, and are more productive than either large or small U.S.-owned, domestically oriented firms, with the U.S. multinationals ranking at the top with regard to these characteristics.

As foreign direct investment has become an increasingly important feature of the international economy, the effects of various tax and promotion policies on this form of investment as well as on cross-border trade has become an increasingly important research issue. The papers by John Mutti and Harry Grubert and by Deborah Swenson address particular aspects of this issue. Mutti and Grubert examine how U.S. international tax rules influence the form in which taxable income is reported and the location of economic activity. As they point out, U.S. firms can service foreign customers by supplying goods produced by affiliates abroad, by shipping goods produced domestically, or, sometimes, by exporting a service. The effects of two important provisions of U.S. tax law on the choice of these alternative delivery methods, namely, allowing a portion of export income to be regarded as foreign-source income (sales source rules) and treating royalties as from foreign sources, are analyzed by the authors. Using various assumptions about income and withholding tax rates, tariffs, and the importance of tangible and intangible capital, Mutti and Grubert show how the sales source rules stimulate exports, while the treatment of royalties as foreign-source income encourages foreign production in high-tax locations.

Swenson investigates the impact of changes in the tax and promotion policies of U.S. states on the interstate distribution of employment by foreign-owned firms. She finds that foreign firm employment in manufacturing is sensitive to tax differences—that is, states whose taxes are high appear to deter investment—but that employment in all nonbank foreign firms is not. Employment in nonmanufacturing operations appears to be directed toward sales and service functions, and thus, proximity to final markets tends to dominate the tax variable. Another important finding is that promotional policies other than reduced tax rates do not produce identifiable effects.

Issues in appropriate spatial accounting have a variety of parallels in tempo-

ral accounting. The paper by Eric Fisher extends the concept of generational accounts to open economies and illustrates these accounts using Japanese data. The aggregate generational current account measures the annual change in the expected present value of net foreign assets broadly defined and captures changes over time in the expected present value of the goods and services that a country can import from abroad. A related account presents a generational cross section of the net foreign assets of domestic residents. In calculating the country's generational account, Fisher adjusts Japanese current account data on annual inward and outward flows of long-term capital for changes in domestic and international bond and equity prices as well as for exchange rate changes in order to obtain estimates of the market value of Japan's international investment position. Year-to-year changes in this figure combined with annual estimates of the present value of net transfers from abroad yield the aggregate generational current account. Fisher shows that the present value of Japan's net foreign assets has risen markedly in the past two decades and that the market value of these assets is higher than its more familiar net international investment position measured at historical prices.

While the editors realize that no definitive prescriptions have been provided for the solution of the issues raised here, they hope that the papers will stir renewed discussion of international economic accounting measures. In particular, they hope that the adequacy of the standard measures of the net current balance can be reconsidered in the light of the spread of multinational firms, the increase in the importance of service transactions, and the apparent absence of the expected consequences of persistent U.S. current account deficits.

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