A History of BEA's Early Years

Arnold J. Katz*

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Abstract

The Bureau of Economic Analysis (BEA) makes the official estimates of the U.S. National Income and Product Accounts (NIPAs). This paper details BEA's early history through 1969. By then, the conceptual development of the NIPAs was mostly complete and most of BEA's work in other areas had begun. This paper differs from the few other histories of BEA by documenting the important work that was going on at BEA outside of the NIPAs. It tries to avoid using second-hand attributions. It concentrates on what the important players wrote and what can be confirmed regarding who did what. The paper also emphasizes the development of the conceptual ideas behind the NIPAs and BEA's relations with foreign statistical offices.

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* *The author, now retired, was an economist in the National Accounts Research and Analysis at the U.S. Bureau of Economic Analysis (BEA). The views expressed in this paper are solely those of the author and not necessarily those of BEA or the U.S. Department of Commerce.*

1. Introduction

This paper details the early history of the Bureau of Economic Analysis (BEA) through 1969. That is a good year to conclude because the conceptual development of the U. S. National Income and Product Accounts (NIPAs), BEA's central work, was mostly complete by then and most of BEA's work in other areas had begun. There have been other papers on BEA's history including Carson (1975), Duncan and Shelton (1978), and Ruggles (1982). This paper differs from them by documenting the important work that was going on at BEA outside of the NIPAs. The paper tries to avoid using second-hand attributions—it concentrates on what the important players wrote and what can be confirmed regarding who did what. The paper also emphasizes the development of the conceptual ideas behind the NIPAs and BEA's relations with foreign statistical offices.

The paper is organized as follows. The next section discusses BEA's history as an organization and provides a chronological history of BEA's major programs. Here, it first discusses the work on aggregate national income and product and then the work on BEA's many other programs. Section 3 shifts to a discussion of the early conceptual decisions that were required. Section 4 discusses the conceptual basis of the NIPA treatments. Section 5 outlines recommendations made by an important review committee, and section 6 summarizes BEA's collaboration with foreign statistical offices.

2. Organizational History

2.1 BEA as an organization

The offices that are BEA's direct predecessors are difficult to identify because the U.S. Department of Commerce re-organized work in this area several times. Some were essentially sister units to the original National Income Section (NIS). This paper takes a broad view and treats these units as if they were part of BEA's direct predecessors. It uses the term BEA as much as practicable rather than the precise terminology designating the units out of which BEA grew. To do otherwise would lead to confusion because the names of the units changed quite often.

The Office of Business Economics (OBE) was BEA's immediate predecessor. It did not exist before 1945. Earlier, the NIS was located within the Division of Economic Research (DER) of the Bureau of Foreign and Domestic Commerce (BFDC). The NIS was formed in 1933 to continue the work that Simon Kuznets had performed with assistance from BFDC economists. The NIS grew throughout the 1930s but generally consisted of no more than 10 people. At the same time, work on economic statistics was being performed by other units of the BFDC, particularly those dealing with the size distribution of income and the balance of payments. In 1939 the BFDC was expanded and reorganized. The DER was abolished and the NIS became a division. In 1941, the

National Income Division (NID) became the National Income Unit (NIU) within the Research and Statistics Division.

Shortly after the end of World War II, the Commerce Department reorganized its statistical work and formed the OBE. The NIU became a division once more. It was but one of six divisions that became part of OBE within the next few years as the BFDC was progressively dismantled and most of its units were absorbed by OBE.[1] Although OBE was initially formed in 1945, it really came into its own in February 1947 when the *Survey of Current Business*, which had been a publication of the Commerce Department since 1921, was transferred to OBE. By 1953 the dismantling of the BFDC was complete. It was abolished and OBE was designated as a primary office. In 1972 OBE was re-designated as "BEA" and assigned to the newly created Social and Economics Administration. From this point forward, "BEA" will be substituted for "OBE" in the text.

For nearly 38 years BEA was led by two individuals, M. Joseph Meehan and George Jaszi. Meehan became Acting director of BEA in November 1947 and Director of BEA in January 1949, a position that he would continue to hold until his death in March 1963. Jaszi, who was Assistant Director of BEA when Meehan died, became the Director of BEA in June 1963. He would continue as Director until February 1985. Jaszi (1986) notes that his principal goal was the clarification of concepts. Carson (1985) notes that in pursuit of this goal, Jaszi insisted on precise writing and questioned everything: definitions, methodological assumptions, treatments, etc. He insisted that BEA's estimates and methodologies be accessible so that others could question them and helped set the tone for BEA's open, intellectual environment.

Meehan and Jaszi both received the Gold Medal of the Commerce Department, the highest award given by it. In 1974, President Gerald Ford personally presented Jaszi with the Rockefeller Public Service Award for professional accomplishment and leadership at the Woodrow Wilson School of Princeton University. Normally, only one of these awards for "truly outstanding service to the Nation" is presented annually in each of 5 classifications of government service.

2.2 BEA's work on national income

2.2.1 Background

The demand for official statistics of national income in the U.S. grew out of the economic turmoil between the world wars. In 1920-1 the U.S. economy experienced a depression that was

[1] The NID constituted a large share of OBE's total employment. It was about 31 percent of it in 1953-55.

followed by a recovery and then an economic boom. Stock values soared until the bubble burst in 1929. Soon real economic activity declined at alarming rates and unemployment multiplied. There was great uncertainty as to how bad the economic situation was because there were no reliable estimates of short-run changes in the macro economy. There was no shortage of detailed short-run information. Thousands of series were available on details like the number of railroad freight cars of coal that had been shipped. But this data had not been used to compile official estimates of total economic activity.

Prior to 1920 various attempts had been made in the private sector to estimate national income. Someone would make an estimate and then perhaps follow it up with a second estimate 5 or 10 years later. The investigator might use a different methodology each time he made an estimate. No two investigators used the same methodologies or definitions. This made it impossible to make accurate comparisons of changes in overall economic activity over time, especially on a short-run basis.

A major attempt to fill this void in economic information was made by the National Bureau of Economic Research (NBER). It was founded in 1920 with the principal goal of conducting quantitative research to determine facts that are important in dealing with economic policy. Its first study was of the national income from 1909-1919, which was published in Mitchell et al. (1921) and Mitchel (1922). These dealt the magnitude of the national income, its fluctuations, its distribution by size, and its industrial composition. Two alternative estimates of income were presented. The first was called "income by sources of production," which was estimated from industry data. The second was "income by incomes received," which was taken from data on individuals. Because the two estimates were conceptually the same, they could only differ because of statistical problems with the data. To ensure the independence of the two estimates, they were made by two different estimators who were told not to share information until the estimates were near completion.

This was followed up by studies of the distribution of income by states in Knauth (1922) and in Leven (1925). The work on national income was reprised in King (1930). While many disagreed with some details of his methodologies, King's work was highly regarded. Copeland (1932) states that King was chiefly responsible for advancing U.S. income statistics to the point where they were distinctly better than those of other important industrial nations. In 1931 the NBER decided to reconstitute its work on national income and entrusted the project to Simon Kuznets who had joined it in 1928.

Meanwhile the U.S. Congress wanted official estimates of the nation's income. One was published in 1926 but this work was terminated.[2] In view of the urgent need for current information on the state of the economy, the Senate passed a resolution in 1932 directing the Secretary of Commerce to prepare a report including estimates of the national income originating in various key industries and occupations as well as the distribution of income by wages, profits, and other types of income.

Because of its lack of experience in this field, the Commerce Department contracted with the NBER to supervise the work and provide guidance and other support. Simon Kuznets was chosen to plan and supervise the work.[3] He was also responsible for the preparation of the final estimates, and the organization and text of the final report. Although he was already a leading statistician, Kuznets was new to this field and initially started by building on King's work. Robert Martin was responsible for the underlying data and the text of the chapter on services. He split the duties of compiling the estimates with Robert Nathan and Arthur Burnstan. Statistical and clerical assistance was provided by other members of the DER and the NBER.

The initial work covered the years 1929-32 and was issued in January 1934 in Senate Document No. 124 of the 73rd Congress. It was notable for its lengthy discussion of sources and methods. The sources of the data for every line item shown in the report were documented. Two principal aggregates were presented: national income paid out and national income produced. The two differed in that business savings were in the latter but not the former. The work featured tables on the national income by distributive shares, i.e., the distribution of national income by functional type such as wages, profits, etc. It also featured tables on the distribution of income by the industry in which it originated.

2.2.2 BEA's work on national income prior to the NIPAs

After the publication of the report supervised by Simon Kuznets, the Commerce Department took over the work of updating and publishing the estimates. The work was done by the NIS, which Robert Martin led for six months before leaving. Robert Nathan was then put in charge. The Commerce Department's early estimates of national income were only published annually and generally in only a few tables. Only one, BFDC (1936), was done in great detail. It had just as much detail as the original study and more of a discussion of the theoretical rationale behind the methods used.

[2] In response to a 1923 Senate resolution, the Federal Trade Commission published an estimate of national income in 1926 but abandoned plans to continue the work on a regular basis after a key staffer left.

[3] In 1971, Kuznets was awarded the Nobel Prize in Economic Sciences for his empirically founded interpretation of economic growth which led to deeper insight into the economic and social structure and process of development.

The NIS became the NID in 1939, after which the NID took over the responsibility for making estimates of capital formation and capital consumption that had been developed at the NBER. The initial estimates of the former had been developed by Kuznets while the latter estimates had been developed by Solomon Fabricant.

After Nathan left the Commerce Department in 1940, Milton Gilbert became the Chief of the NID. He assembled a young team of economists around him and began work on making estimates of GNP and developing a system of national accounts that would feature this concept. One was William Shaw, who worked on improving the commodity flow method of valuing final product. Previously, he had done work on this method under Kuznets at the NBER. Another newcomer was Burton Klein, who developed construction estimates that improved those developed by Kuznets.

2.2.3 Gross national product

The concept of the circular flow of income and product lies at the core of national economic accounting and, indeed, all modern macroeconomic thought. Essentially, the aggregate value of goods produced will equal the aggregate value of all incomes from production. The values of aggregate income and aggregate product are not just conceptually the same. When defined and measured properly, the values of gross national income and gross national product should be statistically the same. This idea was nothing new. As pointed out in Jaszi (1946), Sir William Petty wrote about it in 1665 and it was even mentioned by one William Potter in 1648. Nevertheless, no statistical estimate of the national product was attempted before the mid-1930s. All prior estimates of aggregate economic activity were income measures.

The reasoning behind the strict application of the circular flow concept can be viewed as being circular in itself. National income is defined in terms of income arising from production. On the other hand, production is often defined as any activity that generates income.

The terminology used in the literature on this topic prior to 1945 is confusing. Some writers used the terms “national income” or “social income” to denote the aggregate value of goods produced. Another used the term “national product” to denote the value of aggregate incomes. The first use of the term “gross national product” appears to have been by Warburton (1938) who tried to restrict the use of the term to a physical product and not a sum of values as it was used in Kuznets (1937). By the late 1930s, the use of the term GNP was ubiquitous and the profession was using it as Kuznets had.

Answers to the question of what was the best way to define GNP became clearer in its two principal early uses: developing plans for producing armaments in World War II and measuring the product of the economy during this war. After France fell in June 1940, Robert Nathan left the NID to join the National Defense Advisory Commission, where he was put in

charge of studying military requirements in the event of war. He constructed estimates of what U.S. GNP would be at full employment and used them to project the capacity of the U.S. economy to produce war materials without undermining the civilian economy. By the fall of 1940, Nathan's division was reporting that in order to mount an all-out defense effort, a major expansion of the iron and steel and aluminum industries was needed even though the former was operating at less than 65 percent of capacity. Because of his analyses, the Government put economic incentives (essentially subsidies) in place to obtain the co-operation of the two industries. Nathan (1994) states that the expansion in capacity and stockpiles enabled the U.S. to accelerate arms production at phenomenal rates after the attack on Pearl Harbor.

Kuznets came to Washington in early 1942 and joined Nathan at the War Production Board, where they mapped out secret detailed goals for the production of military equipment. Kuznets and Nathan agreed that the war production goals that President Roosevelt had publicly announced in January 1942 were unrealistically high. Kuznets pointed out that attempting to reach these unachievable goals would result in an unbalanced performance that would be counterproductive and reduce the production of war material. This led to extremely heated debates between Stacy May, Nathan, and Kuznets on one side and General Somervell, Admiral Robinson, and Undersecretary of War Patterson on the other—the latter three being supported by General Marshall, the Army's Chief of Staff. Eventually, the three economists won out and the goals were scaled back. Lacey (2011) notes the military also came to accept the economists' projections that, given the material requirements, the earliest that a successful invasion of Europe could be conducted would be June of 1944. He asserts that the economists' actions were a decisive factor in the U.S. winning World War II.

Meanwhile, Gilbert (1942b) discussed the need to have GNP estimates to examine feasibility of the war plans. Because direct estimates of GNP were not available, the article showed how the published estimates of national income could be converted into estimates of GNP and its major components for the years 1939-41. The war also led to analyses of the "inflationary gap," the gap between the money people had available to make purchases and the amount of civilian goods they could buy." Many Government agencies made estimates of the size of this gap. BEA also discussed the problem in Bangs (1942).

In March 1942 the first official estimates of GNP were published in Gilbert (1942a). At that time, data series on the major components of GNP had not been developed. So, it was impossible to break down GNP into expenditures by major product let alone to construct a system of accounts. During the course of World War II, estimates of GNP's components were introduced piece by piece. New quarterly estimates of capital expenditures for manufacturing plant and equipment were published in March 1941. The first direct estimates of the gross flow of commodities and new construction were published in April 1942. The first quarterly estimates

of corporate profits, which make possible estimates of national income on a quarterly basis, were published in June 1942. The first estimates of real inventory change were published in September 1942. The first monthly estimates of consumer expenditures for major groups of goods and services were published in October 1942. A new series of estimates of monthly dividend payments was published in November 1942. Finally, a new rent series including imputed rents on owner-occupied homes was published in March 1946.

While the idea of having a national income account reflecting the circular flow was well known in the 1930s, the idea of having an interrelated system of national accounts was not. Duncan and Shelton (1978, p.84) states that Nathan Gilbert was impressed by the system of Meade and Stone and began to think in those terms. The design evolved over the next few years, particularly after the end of the war. The initial design for a system of national income accounts was laid out by the Commerce Department in Gilbert and Jaszi (1944). The design was rudimentary and showed the receipts and disposal of receipts for three sectors: government, business, and individuals. Particularly important was the authors' adoption of what they termed a "bird's-eye viewpoint." It gave a summary view of the economic system in terms of the analytically important types of transactions, such transactions being shown in their interrelation to each other.

In September 1944 officials of the Commerce Department met with their counterparts from Canada and the United Kingdom and reached agreement on some of the major conceptual issues in national income accounting. However, Jaszi (1971) notes that the design of the NIPAs did not crystallize until after the end of World War II.

2.2.4 The National Income and Product Accounts

The NIPAs were first published in OBE (1947). Many people were involved in preparing the estimates including the entire staff of the NID as well as staff in other units of BEA. Nevertheless, the report itself was largely the work of Milton Gilbert and his three principal lieutenants: Edward Denison, George Jaszi, and Charles Schwartz. According to Duncan and Shelton (1978; p. 94), "Denison had a major responsibility on the income side of the accounts as well as on consumer expenditures for services, while Schwartz did much of the work on commodity flow and consumer expenditures for goods as well as on monthly personal income. Jaszi was particularly important on concepts and content as well as on the government account."

The report was surprisingly detailed and comprehensive. An overview was shown in six interrelated summary accounts. The system was articulated in the sense that every transaction shown in the summary accounts appeared twice, once as a debit in the account making payment, and once as a credit in the account receiving payment. Numerous tables provided an extraordinary amount of detail for the aggregates that appeared in the summary accounts. This

design enabled users to drill down to find the details that they needed and place them in their proper context. All told, there were 48 detailed statistical tables that covered the period 1929-46. The table on personal consumption expenditures alone presented estimates for more than 200 line items. Estimates were shown for 21 types of new construction activity and 20 types of producers' durable equipment.

From 1947 until 1958 there was very little change in the NIPAs. Although only four additional statistical tables were added, two were extremely important. They reported the major components of GNP on a "real", i.e., inflation-adjusted, basis and gave the price indexes used to deflate the nominal totals. A major development was that BEA published a comprehensive and detailed documentation of its methodology. It was presented in two reports: OBE (1951a) and OBE (1954). They included a discussion of the conceptual framework of national income statistics, including sections on the detailed structure of the accounts and on the definitions of the underlying concepts and terms. They also included an extremely detailed discussion of the sources and methods used to produce the estimates.

In 1956 and 1957 the NIPAs rose to national prominence with the publication of two reports in which the nation's leading economic statisticians reviewed and commented on BEA's methodologies. The first reported on a meeting of the Conference on Research in Income and Wealth that was exclusively devoted to discussing the NIPAs. The second was a report by the National Accounts Review Committee (NARC). It reviewed, appraised, and made recommendations in a report to the Joint Economic Committee of Congress in 1958, which was also published by the NBER. These two reports are so important to BEA's future path that they are discussed at length later in this paper.

The NIPAs underwent a major expansion in 1958 with the publication of OBE (1958a). At that time the NIPAs were undergoing a comprehensive or benchmark revision. In this revision, the organizational framework of the estimates was changed as a 5-account system was substituted for the 6-account system. This simplified the structure by omitting detail relating to the institutional origins of production, in order to present more clearly the economic flows and relationships that are of key importance for current business analysis. The NIPAs were fully integrated with the balance of payments accounts. The number of tables was more than doubled to 95. GNP and its product components were now shown in constant as well as current dollars and a consolidated saving-investment account was explicitly presented. Government receipts and expenditures were now broken down into Federal and state and local components and national income was broken down by legal form of organization. Government expenditures were also shown by function and object-class.

During the next decade, the NIPAs became increasingly integrated with other parts of the U.S. statistical system. In response to a recommendation by the NARC, in 1964 BEA completed

an input-output table for 1958 and integrated it with the NIPAs. In 1965 the NIPA treatment of foreign transactions was modified to better align them with their treatment in the balance of payments. Thus, the balance of payments accounts were more fully integrated with the NIPAs. Also in 1965, the Federal Reserve Board's Flow of Funds Accounts were modified so that they could be integrated conceptually and statistically with the NIPAs.

2.3 BEA's work in other areas

2.3.1 Personal income

In February 1938, the NIS began publishing a monthly series on income payments to individuals entitled "national income paid out." Eight months after the original series was first published, it was conceptually revised to include transfer payments and to exclude contributions to Social Security and Federal Retirement funds. The revised series was renamed "income paid to individuals" as it was seen as a better measure of "consumer purchasing power." In 1947, when the NIPAs were first published, the series was renamed "personal income." There has been little change in the definition of this measure over the years.

2.3.2 Regional income and product

From its earliest days, BEA has been engaged in estimating statistics on a regional basis. In May 1939, the NIU published a bulletin providing estimates by state of income paid out by major type of income for each year from 1929 through 1937. Thereafter, similar estimates were published in the *Survey of Current Business* on a regular basis.

In 1951, BEA published a supplement on regional trends in the economy in OBE (1951b). This report presented an analysis of two decades of regional economic progress for seven major geographic areas. It presented data on the distribution of industry and population, production, investment, and trade and an analysis of the factors determining the level of per capita income in each region. One table presented a list of the six most important industries in each region and the region's share of the national total in each of them.

An important landmark was reached when personal income was broken down by state in OBE (1956). This supplement to the *Survey of Current Business* provided more than 78 tables of estimates and lengthy discussion of the sources and methods used to produce them. For every year since 1929 the components of each state's personal income were broken down by major source. The volume also provided state breakdowns of income by major industries as well as long-term growth rates on a state-by-state basis.

BEA produced detailed estimates of two major U.S. territories in special supplements to the *Survey of Current Business*. OBE (1953b) is a report by Charles Schwartz entitled "Income of

Hawaii," which was then a U.S. territory. It covered the period 1939-52 and generally dealt with estimates of personal income and its components although there were some estimates of territorial gross product. It contained a detailed statement of the sources and methods used to construct the estimates. Estimates of the income of Alaska, which became a state in 1959, were presented in OBE (1960a). This report was authored by Robert Graham and covered the period 1950-59.

BEA conducted a couple of regional studies for the Army Corps of Engineers. Graham (1959) summarized the major results of a special economic survey conducted for the corps covering the 49 counties of the Delaware River Service Area. This report contained BEA's first comprehensive estimates for areas smaller than states. Measures of personal income were constructed for selected years of the period since 1929. They were judged as providing the best basis for charting the past and potential economic growth of the area and its eight principal sub-regions.

This was followed by OBE (1961), a study that used similar techniques and the national pattern of growth to project the comparative growth of the U.S. and the Potomac River Service Area in terms of output, employment, and population over the next 50 years. The major findings were derived from an intensive analysis of the economic growth of the Potomac Basin relative to the U.S. economy over the last 30 years and from basic assumptions about the future.

BEA published a series of eight reports, one for each major region of the country in OBE (1965-66), which was authored by Lowell Ashby. The reports provided information on employment changes and their analytical components for regions, states, and counties. The estimates were made using techniques that had been refined in BEA's Regional Economics Division and were largely based on data taken from various Censuses of Population.

Estimates of state personal income were first published in the *Survey of Current Business* on a quarterly basis in December 1966. The regular publication of limited county and multicounty personal income estimates began in May 1967. Reflecting national concern over income disparities between metropolitan and nonmetropolitan regions, the estimates were limited to data for individual SMSAs together with that for the sum of all non-SMSA counties in each region.

2.3.3 International transactions

In 1923 BEA began publishing annual estimates of the balance of international payments of the U.S. They were published intermittently during the 1930s and early 1940s and then regularly beginning in July 1946. The 1923 report dealt only with flows but later reports also dealt with positions (balance sheets). Over the years, the accounts have expanded their coverage and the quality of the estimates has improved. In the 1940s and 1950s, the regular

presentations of the balance of payments were augmented to include quarterly data and data by geographic area.

According to Duncan and Shelton (1978), in 1965 a Review Committee for Balance of Payments Statistics issued recommendations for data improvement that largely supported prior BEA recommendations and helped to obtain funds for them. One upshot of this work was that some definitional changes were made to the NIPAs in 1965 that brought the treatment of foreign transactions into alignment with their treatment in the balance of payments. The balance of payments accounts were also expanded to include regular coverage of investment in foreign countries by private U.S. firms.

BEA also published many special reports that provided extremely detailed and comprehensive data on such topics as: U.S. direct investment in foreign countries, foreign investments in the U.S., international insurance transactions, tourist expenditures, and currency movements. BFDC (1937), which was written by Amos Taylor, presented the first survey of foreign investment in the U.S. Although it contained some information on foreign portfolio investment, BEA began to concentrate its work on foreign direct investment. Its work on international transactions covering the 1940s and early 1950s was published in three book length volumes, OBE (1948), OBE (1950), and OBE (1952a). They contained detailed information that is generally unobtainable today. OBE (1952a) described the contents, methods, and concepts of the balance of payments accounts.

Beginning in 1944, the Clearing Office for Foreign Transactions compiled records of all foreign transactions of the U.S. Government and served as the single source for information on these activities. It issued a regular report on these transactions each quarter. In OBE (1951c), BEA published "Debt Service Projections" as a supplement to the latest report. It was exclusively devoted to projections of debt service on credits (like cash loans) of the U.S. Government to foreign countries and on loans of International Bank for Reconstruction and Development. OBE (1952b) provided a complete history of Government Foreign Aid from the beginning of Lend-Lease until after the Korean invasion. OBE (1953c) presented the results of the fifth periodic census of American direct investment abroad. The report discussed the following aspects of direct investment: their area distribution, their industrial distribution, their structure and ownership, and their income. It also contained a discussion of capital movements.

OBE (1957), which was written by Samuel Pizer and Frederick Cutler, was a comprehensive study of the role of U.S. industry in the developing countries of Latin America. The report presented data on production, foreign exchange, earnings, capital outlays, local expenditures, and employment.

OBE (1958b) was a supplement to the *Survey of Current Business* that dealt exclusively with balance of payments statistics. It was the first supplement to give the background data used in conjunction with the data for the most recent periods given in the *Survey of Current Business*. This was reprised in 1963 with a statistical supplement that presented data for 1870-1961. Other related supplements were also published. OBE (1960b) presented statistics on investments in foreign countries by U.S. business while OBE (1962) presented statistics on investments in the U.S. by foreign businesses.

In Sasscer (1959), BEA published an article that gave statistics on foreign travel. It presented 12 tables on statistics related to travel to and from the U.S. Most of the data was for 1957 and 1958 but some went back to 1929. The information included data on expenditures, the number of travelers, whether U.S. carriers were used, the country visitors came from, the country U.S. travelers went to, the means of transportation, the class of transportation, whether the travelers abroad were U.S. or foreign born, average expenditures per traveler, the length of stay, and the states that U.S. travelers came from.

2.3.4 The size distribution of income

BEA's earliest work on the size distribution of income appeared in Nielsen (1937). It presented preliminary results from a survey of family income conducted in 1936 by the Bureau of Home Economics of the Department of Agriculture and the Bureau of Labor Statistics. The size distributions were broken down by region, city size, and demographic composition of the family. Median family incomes were also broken down by city and occupational group.

In Slifer (1938), BEA reported on the distribution of incomes of independent professional practitioners. The results covered the medical, dentistry, legal, and accounting professions. The report was reprised in a series of six articles: Denison (1943a), Denison (1943b), Denison (1943c), Denison and Slater (1943), Denison (1944a), and Denison (1944b). Larger samples were obtained by BEA's partnering with the American Medical Association. The articles studied incomes in 9 professions: physicians, osteopathic physicians, chiropractors, chiropodists, private duty nurses, dentists, private duty nurses, veterinarians, certified public accountants, and lawyers. The articles went well beyond measuring the distribution of income within each profession. They included information on the variation of incomes by state, city, age of practitioner, and size of firm.

Denison's work on the incomes of lawyers, dentists, and physicians was reprised in Weinfeld (1949), Weinfeld (1950), and Weinfeld (1951). These included tables of the various size distributions of income from 1929 forward.

Shortly after the end of World War II, BEA began work on the general size distribution of income. Apparently, this was the first intensive work in this field by the Commerce Department.

OBE (1953a) is a supplement to the *Survey of Current Business* that reported on this work. The report presented size distributions of income for 1944, 1946, and 1947 as well as size distributions for both before- and after-tax income in 1950. Most of the report consisted of detailed discussions of the sources and methods used to construct the estimates. The work was coordinated by the Interagency Technical Committee on Income Distribution, chaired by the Division of Statistical Standards of the Bureau of the Budget.

Because it was controlled to BEA's estimates of personal income, the BEA size distribution was essentially integrated with the NIPAs. It had the advantage of covering all income, in contrast to the source data which omitted substantial amounts of cash income as well as income in kind. BEA also used a definition of families that differed from that later used by the Census Bureau in that it included sons and daughters living away from home if at school and supported by the parents. The authors of the BEA report reprised their work in Goldsmith et al. (1954).

After 1954, size distributions of income were reported on a regular basis in the *Survey of Current Business*. During the period 1955-64, distributions were reported each year except 1957 and 1962. The last article reported distributions for 1929 each year from 1947 through 1963. This type of work was temporarily discontinued in 1963 because of lack of funds, but additional work was performed at BEA in the 1970's.

2.3.5 Capital stocks

Grosse and Berman (1957) reported that, in a program sponsored by the Air Force, BEA made estimates of depreciation, retirements, and stocks of durable equipment purchased by businesses. These were published in Nassimbene and Wooden (1953) and Nassimbene and Wooden (1954). Both studies made use of the perpetual inventory method (PIM), in which net stocks and depreciation are essentially complicated weighted averages of past investment.[4] The second of the BEA studies was done more carefully and used a distribution of service lives. The two studies were apparently regarded by BEA as being exploratory. It would be roughly two decades before estimates of depreciation derived using the PIM replaced the estimates of depreciation from business income tax returns that were used in the NIPAs although they were recognized as being conceptually inferior.

As part of an interdepartmental study of economic growth conducted during the early 1960s, BEA performed a comprehensive study of the PIM. The results were summarized in Jaszi, Wasson, and Grose (1962) and in Grose, Rottenberg, and Wasson (1966). The first article highlighted the major results of the study. Estimates were made using a shortcut PIM in which fewer distinctly different service lives were used and all goods of a specific type were assumed

[4] This method was pioneered and published in Goldsmith (1951).

to have a life equal to the mean for that type. The second article detailed the unabridged methodology and the information that is available in the full report on the project. Estimates were published for various combinations of service lives, retirement patterns (including the Winfrey S-3), and depreciations methods (including straight-line and geometric depreciation). With this plethora of data, analysts could see how sensitive the estimates were to the various assumptions. This eventually led to decisions about which assumptions to make in official estimates.

As part of the interdepartmental study, BEA also made estimates of the stock of automobiles for the period 1946-64 that were published in Friedman (1965). Gross stocks were constructed from registration data. Alternative net stocks were estimated using straight-line depreciation, three different geometric rates, and used car prices. The various estimates of net stocks and depreciation were clearly experimental. But BEA was inching towards picking a variant of them to underlie the NIPA estimates of depreciation.

2.3.6 Prospective measures of economic conditions

2.3.6.1 Plant and equipment survey

BEA has always recognized that economic planners in business and government may be more interested in forward-looking measures of economic conditions than in measures of past economic history. One of BEA's first attempts at prospective measurement was the Plant and Equipment Survey. According to Friend and Paradiso (1946), this survey was initially conducted in 1946 as a joint project of BEA and the Securities and Exchange Commission (SEC). Shortly after the end of each quarter, data was published on actual capital expenditures for that quarter and on anticipated expenditures for the next two quarters. Basic data for the survey was obtained from reports submitted quarterly by most corporations registered with the SEC and by a large sample of unregistered companies. Initially, about 3,200 companies were submitting reports to this survey. The reporting companies accounted for about 50 percent of plant and equipment expenditures in manufacturing, over 50 percent in railroads and other utilities, and 25 percent for commercial and miscellaneous companies. Subsequently, information was collected on the expected sales of manufacturers and on whether planned investment was for replacement or expansion. The survey was taken over by the Census Bureau after the second quarter of 1988 and was discontinued after June 1994.

2.3.6.2 Survey of manufacturers' inventory and sales expectations

In the fall of 1957, BEA initiated an exploratory survey of manufacturers' inventory and sales expectations. As reported in Foss (1961), a major purpose was to determine if the survey approach could yield reasonably accurate short-run forecasts of changes in inventories. The initial results were found to be biased downwards and a corrective adjustment was developed

from supplementary information on the condition of inventories relative to sales and unfilled orders. Beginning in October 1961, "corrected" estimates were reported quarterly on both a seasonally adjusted and on an unadjusted basis.

2.3.6.3 Quarterly econometric model

In the 1960s BEA began the development of a quarterly econometric model of the U.S. economy that would eventually be used to produce economic forecasts that would be disseminated within the executive branch of the government. Essentially the model would predict what the basic tables of the NIPAs would look like in future quarters. It was the first model of this kind developed within the federal government. Jaszi (1971) states that BEA's econometric models benefitted from being fed unpublished data of the highest quality by NIPA estimators. Meanwhile the NIPAs benefitted from the model's analytical work because it helped BEA to develop a user-orientated attitude that saved it from being detached from the world of economic problem-solving. The article also noted that realistic economic analysis is the fulfilling purpose of producing economic statistics.

A progress report on the model's development was published in Liebenberg, Hirsch, and Popkin (1966). The model, which had started as a 34-equation variant of one developed by Professor Lawrence Klein of the University of Pennsylvania's Wharton School, had been expanded to 49 equations and subjected to extensive tests. The report gave a complete description of the model and an analysis of its performance. The model's stochastic equations were estimated using two-stage least squares. Future versions would be estimated using ordinary (single-stage) least squares.

2.3.6.4. Long-term econometric model

As part of its work with the Interagency Growth Study, BEA helped develop a model that could provide long-range projections of the U.S. economy as an aid in the formulation of fiscal policies. The model was developed by Professor Lester Thurow of Harvard University. The model and the results of simulations over a 20-year period were published in Thurow (1969). In this article, BEA announced its plans to use the model in its future analytical work and to improve and develop it further.

2.3.7 Industry accounts

BEA started work to develop input-output accounts largely because the NARC recommended that an I-O table for 1958 be prepared within the NIPA framework. Congress appropriated funds for the project and Morris Goldman was put in charge of it in 1959. The results were initially published in a series of six articles in the *Survey of Current Business*, the first in November 1964 and the last in April 1966. The articles respectively dealt with a summary and

overview of the project, the transactions table and revised total requirements data, construction activity, personal consumption expenditures, and additional industry detail. In November 1966, a study was published in the *Survey of Current Business* that used the I-O data to estimate the industrial impact of the housing and commercial building decline.

2.3.8 Federal budget on national income and product account

During the late 1940s and early 1950s BEA developed and refined the Federal Budget on National Income and Product Account, i.e., the NIPA federal budget. The NIPA federal budget differs from traditional statements of the budget in five main respects.[5] First, it is comprehensive. In addition to the regular government departments, it covers government enterprises and trust funds. Second, it concerns netting and consolidation. Some items that are traditionally reported on a gross basis are reported on a net basis and vice versa. Third, the NIPA budget classifies transactions into NIPA concepts including: purchases of goods and services, transfer payments, personal taxes, corporate profits taxes, indirect business taxes, social insurance contributions, etc. Fourth, the government's transactions with the business sector are reported on an accrual rather than a cash basis. Fifth, transactions in financial assets and liabilities are excluded from the NIPA budget.

Many of the features of the NIPA budget were eventually adopted for use in the government's official budget. This occurred slowly during the 1950s. The NIPA budget was discussed at length in hearings before the Joint Economic Committee of Congress in 1963. A number of its features were adopted into the official one in 1969 after they were recommended by the President's Commission on Budget Concepts. Specifically, the official budget was put on a "unified" basis in which the social security trust funds were consolidated with other government programs.

3. Early Conceptual Disputes in the Measurement of National Income and Product

3.1 The scope of the estimates

One of the earliest disputes in the measurement of national income and product concerns the scope of the estimates. Much of that is discussed in modern times in terms of the "boundary of production." Willford King, Simon Kuznets predecessor at the NBER, had a broader concept of national income and product than Kuznets. King included estimates of the rental value of owner-occupied dwellings as well as the rental value (imputed interest) on consumer durables. He even published "conjectural" estimates of the value of the services provided by housewives at home, although he noted that because these could be subject to large errors, they should not be included in national totals of income. Kuznets rejected all of these and did not include them in

[5] For a fuller discussion, see Jaszi (1962).

his 1934 report for the Commerce Department. Kuznets also advocated a much broader concept of intermediate product than BEA, which we will shortly discuss, which again served to narrow his measure of final product. By 1938 Kuznets had changed his mind regarding the services of owner-occupied homes and subsequently included them in all of his estimates. BEA, however, did not get around to restoring the imputation to its estimates of national income until March 1946.

3.2 Factor cost versus market value

Another widely discussed controversy during the early 1940s was whether national product should be measured at market prices or at factor cost. The discussions were neither simple nor straight-forward. Many participated in the debate on both sides of the Atlantic Ocean. They differed not only about the importance of factor costs but also about what elements of expense should be regarded as factor costs. Their arguments were often intertwined with their views on the proper treatment of government product, revenues, and expenditures.

The starting point for much of the debate was how one could compare national product during World War II with national product during peacetime. Much of this debate on the topic was between U.S. and U.K economists during World War II.

3.3 The measurement of government product

Another controversial area concerned how to measure government product. The most important issue was whether any part of it was intermediate. This issue was exceptionally difficult and many people weighed in on it. Simon Kuznets felt that a large part, if not most, of government product was intermediate. Kuznets (1948, p. 154) states, "At all times a major portion of government activity is devoted not to the provision of services to ultimate consumers (education, health, etc.) but either to services to business (all types of economic legislation, administration, and adjudication) or to the maintenance of internal peace or external security. The latter is not a direct service to consumers: it is rather an antecedent and dispensable cost of maintaining society at large – a *condition* of economic production rather than an activity directly yielding final economic goods."

Means, Currie, and Nathan (1938) disagreed with the Kuznets approach to the valuation of government output. Kuznets (1937) advocated measuring government services by the taxes paid to finance them as this was the closest analogue to the prices paid for privately produced services. These authors took issue with that position and advocated measuring government services at their cost of production.

Jaszi (1946) was devoted to the problem of how to account for government output in measures of national income. It argued that it was essential to distinguish between final and

intermediate products because only the former are included in national income. However, it was impossible to construct a clear operational definition of what a final product was. The only way to distinguish between final and intermediate products was to adopt the convention that all output produced by government was final as were all purchases made by consumers. It explained that various definitions advanced by Kuznets (1933) were not suitable for objective operational work because they were vague and unclear. They could only lead to estimates based on subjective decisions by the practitioners.

There were many other issues in the measurement of government product. The treatment of various forms of government taxes, government payments of interest, and returns to government capital were widely debated. While the economic statisticians were trying to develop a consensus on how these issues should be handled, there was no clear resolution of the underlying theoretical issues.

3.4 Usefulness of the accounting approach to measuring national income and product

Another area of dispute was whether having a system of national accounts was useful. In 1947 the first NIPAs were published and the League of Nations Committee of Statistical Experts issued a report recommending that national income be estimated within the context of a system of social accounts. This development was not universally lauded. In particular, Kuznets (1948) forcefully opposed the idea of having a system of national accounts, especially the one found in the NIPAs.

4. The Conceptual Basis of the National Income and Product Accounts

Since its earliest days, BEA has documented its work in exceptional detail. The volumes on national income written by Simon Kuznets and then Robert Nathan each detailed the sources of the data used to make the estimates and methodologies that were employed. While the major categories of income were defined, relatively little explanation was given to explaining the various conceptual problems that lurked beneath the estimates. When the first set of NIPAs was published in 1947, there was not enough time to include a thorough documentation. Explanatory material was provided to describe the new aggregates and how they related to each other, but there was no documentation of the data sources and methodologies nor was there much of a conceptual discussion. This situation was not remedied until the publication of the national income supplement for 1951. It provided detailed documentation on the sources and methods used and a discussion of the conceptual framework. This documentation was updated and improved in the national income supplement for 1954. Nevertheless, there was little official or quasi-official documentation of why the NIPAs were designed the way they were. This changed in 1956.

In 1956 the Conference on Research in Income and Wealth held its first conference entirely devoted to a systematic and critical analysis of the NIPAs. Jaszi's (1958a) paper on the conceptual basis of the accounts was the lead paper at the conference and is the most important paper for those who wish to understand why the NIPAs were set up the way they were and why other treatments, some of which have shown up in various editions of the *System of National Accounts*, were not adopted. The remainder of the conference volume was taken up by 19 papers critical of the NIPAs. The volume is colorfully reviewed in Boulding (1959).

Jaszi (1958a) states that there are two major purposes of national income measurement: (1) the objective appraisal of economic results and (2) the study of economic behavior. Because it does not seem possible to build separate sets of accounts for each of these purposes, both must be accommodated in a single set of accounts by the provision of detailed breakdowns, alternative variants, and a healthy amount of compromise.

Jaszi (1958a) describes the essence of the accounting approach as involving the division of the economy into groups of transactors and the depiction of the economic process in terms of their transactions. The approach probably has to be organized around the concept of production, although it will include much more than the transactions directly relevant to its measurement. There should be some distinction between current and capital transactions. Finally, in some sense the incomings and outgoings of each transactor must be equal. Whether these points are embodied in a set of accounts containing debits and credits, in equations, in matrices, in source-and-uses-of-funds tables, or in any other intelligible device, is a matter of secondary importance. The main advantage of the accounting approach is that it shows how the component stocks and flows are related to one another by definition.

Deleted: If one returned to only measuring aggregate output and its components, many useful variables would not be estimated. On the other hand, one has to guard against systematically elaborating the accounting structure for its own sake, without regard to the intrinsic importance of the information gains.

Jaszi (1958a) notes that conventionally sectors are said to be drawn up along 'institutional' lines (businesses, households, and government) with a set of accounts established for each of them along 'functional' lines (production, consumption, and investment). One could almost substitute the word functional for institutional without changing much. The main purpose of BEA's sectoring is to facilitate the analysis of economic behavior. BEA aims to group together the economic transactors who behave similarly, summarizing their transactions by a comprehensive set of accounts.

Jaszi (1958a) explains how the various sector accounts can be combined and consolidated to yield a system of five summary accounts consisting of a gross product account, a personal account, a government account, an external account, and a saving-investment account. The 5-account system was completely articulated in the sense that every transaction appearing in it can be shown twice, once as a debit and once as a credit. This property does not really stem from the consolidation of accounts that are based on the double-entry method of bookkeeping. While it is useful from a heuristic point of view and from that of practical analysis, it has the

disadvantage that information of little intrinsic value may receive undue emphasis because it is needed to make the system articulate.

Jaszi (1958a) staunchly defends the need to define national income as the sum of factor costs. Yet, he states that in practice a market price measure of total output is more convenient because it can be broken down into product as well as income components. He attacks proposals to reduce measured government output by removing certain expenditures that were judged to be intermediate or "duplicative" because they did not directly increase consumers' economic welfare. While Jaszi (1958a) expressed optimism about being able to measure economic depreciation on government property, he was more skeptical about being able to estimate a rate of return on it that was genuinely comparable with the variable profit-type return that is used to measure the services of business capital.

Finally, Jaszi (1958a) states that because capital gains and losses on financial assets did not reflect production, from the point of view of the nation as a whole, they could not reflect income, consumption, investment, or saving. Nevertheless, they were clearly economically significant variables, and it would be important to have a record of them in the national accounts.

5. The National Accounts Review Committee

The viewpoint that the NIPAs should serve as the basic framework for all economic statistics was greatly boosted by the report of the NARC to Congress. According to Duncan and Shelton (1978), Raymond Bowman, the newly appointed Assistant Director for Statistical Standards of the Bureau of the Budget, was able to convince the NBER to set up the NARC and to have its report submitted to the Subcommittee on Economic Statistics of the Joint Economic Committee of the U.S. Congress to accompany hearings held in 1957. The NARC made dozens of detailed specific recommendations. Only the most important are cited in this paper.

In 1957 there were five sets of "national accounts," i.e., the national income and product accounts, the international balance of payments accounts, the flow-of-funds accounts, input-output accounts, and the national balance sheet. The NARC's chief recommendation was that all five sets should be "integrated." The NARC was not recommending that they should all be estimated by a single government agency. Rather, they were recommending that all five should use the same definitions, concepts, and classifications. Furthermore, they recommended that the NIPAs provide the general framework for the integrated system of accounts.

The NARC recommended the publication of data that is more accurate, timely, and detailed. They noted that most important gaps in the basic data occur in the areas of small (unincorporated) business and of capital expenditures, both public and private. They recommended that the income and expenditures of the various parts of the household sector should be shown separately: nonfarm households, farm households, nonprofit organizations and

labor unions, private pension, health and welfare funds, personal trust funds and owners of unincorporated nonfarm business. Separate and more detailed figures should also be shown for the Federal government, for state governments, for local governments, and for government enterprises. The estimates should provide a reconciliation with published government budget data. Figures should be provided to permit users to treat purchases of consumer durables and government outlays for structures as capital.

The NARC recommended the development of estimates of realized capital gains and losses for each sector, distinguishing the main types of assets on which such gains and losses arise, i.e., primarily corporate stock, real estate, and inventories. Attempts should also be made to develop estimates of unrealized capital gains and losses, possibly by the organization that will prepare the national balance sheets.

The NARC disagreed with the NIPA treatment of government interest. Interest on government debt should be treated more like interest in the private sector. In particular, national income should include that part of Federal interest payments that could be regarded as reflecting the services of Federal assets and an imputed interest payment for those state and local assets, on the basis of the interest rate actually paid for the assets that have been financed by borrowing.

The NARC was agnostic about whether some part of government product should be treated as "intermediate" and recommended that an attempt to work out this problem should be made by a private research organization.

In a statement included in the report, George Jaszi called for outsiders to assist BEA in two specific areas. He said that the determination of which government expenditures were intermediate was not one for the NID—it should be done by the NBER because it seemed to have the most vocal supporters of this project. He also asked for assistance in showing the saving of unincorporated enterprise separately from other personal saving, which could require the splitting of the saving of entrepreneurial families into business and personal components.

6. International Cooperation

American academic economists cooperated with their foreign counterparts throughout the 1930s (particularly with those from the United Kingdom). Apparently, however, cooperation between officials of BEA and its foreign counterparts did not begin until the 1940s. Stone (1942) attempted to put BEA's estimates of major economic aggregates in a form directly comparable with the British white paper estimates. Gilbert (1943) commented on these estimates. In particular, Gilbert (1943) favored measuring net national income at market prices while Stone (1942) favored measuring it at factor cost. Also, Gilbert (1943) favored including interest payments on government debt in national income while Stone (1942) did not.

6.1 Tripartite discussions on national income measurement

Formal meetings between BEA staff and those of their foreign counterparts occurred towards the end of World War II. According to Denison (1947) in September 1944 representatives of the agencies preparing the official estimates of national income for the United Kingdom, Canada, and the United States met in Washington to exchange views on the more difficult problems of national income estimation and, if possible, to bring about uniformity in terminology and in the treatment of controversial items.

Agreement was reached on the general form of the national accounts and the definitions of the key concepts that were to be measured. There would be six or seven basic accounts or sets of tables. These would include a gross national product and national income account, an income and expenditure account for individuals, a consolidated profit and loss account for private industry, a government account, a savings account, a foreign account, and possibly an account for financial institutions.

Agreement was also reached on many difficult details. Compensation in kind was to be included in national income and product provided that it "clearly represented income to the recipient." Also, all items of imputed income that were included in national income would also be included in personal income. However, government transfer payments that were made in kind would not be included in personal income. Agreement was also reached on the treatment of social insurance and pension funds.

No agreement was reached on the treatment of consumer interest. More importantly, there was substantial disagreement on the treatment of government payments of interest that was papered over by an agreement not to impute the services of government capital because it was regarded as statistically impossible to prepare an acceptable estimate. Canada appeared ready to treat interest paid on debt used to finance government assets as a current payment for their productive services. There was also a related disagreement over whether any treatment accorded the federal debt had to be followed in treating state and local debt.

As a result of the meetings, BEA made a number of important changes that affected its measures of national income, GNP, and income payments to individuals. Interest payments on government debt were eliminated from these measures. Imputed net rent on owner-occupied dwellings was added. Government contributions to dependency allowances and to insurance funds for the armed forces, and income in kind to members of the armed forces were added. Compensation of foreigners employed abroad by the government was eliminated. The treatment of financial intermediaries was changed.

Other changes affected only some of the main aggregates. National income but not GNP was affected by the addition of taxes on corporate profits and depletion charges and the

substitution of employer contributions to private pension plans for benefit payments made under such plans. GNP but not national income was affected by the elimination of subsidies paid to private enterprise. Finally, income payments to individuals were affected by the addition of business transfer payments.

6.2 The League of Nations' report

For four days in December 1945, the Sub-Committee on National Income Statistics of the League of Nations Committee of Statistical Experts met in Princeton, New Jersey. Richard Stone chaired the Sub-Committee and represented the United Kingdom. Members from eight other countries participated. The Sub-Committee's report was published in United Nation's (1947) soon after the first edition of the NIPAs was published. The report recommended nine specific tables. An appendix by Richard Stone laid out the framework for a complete set of accounts. It included suggested definitions, sectors, accounts, line items, and methodological treatments. The report specifically cited six countries as currently publishing official statistics along the lines recommended in the report. The six were: Australia, Canada, Ireland, the Netherlands, the United Kingdom, and the United States.

According to Reich (2000), in 1947 Richard and Nancy Ruggles of the United States went to Cambridge, England to persuade Richard Stone to set up a "National Accounts Research Unit" with funding from the Economic Cooperation Administration in Paris. Because Stone's system was highly theoretical and too demanding in terms of the data that was needed to implement it, they simplified it. This led to the "Simplified System of National Accounts" of the OEEC and later to the first *System of National Accounts*.

6.3 The 1953 *System of National Accounts*

The first *System of National Accounts* (*SNA*) was published in United Nations (1953). It describes itself as a "report prepared by a group of national income experts appointed by the Secretary-General." According to Richard Ruggles (1982, p. 29), "This first version of *SNA* bore a strong resemblance to the five-account system adopted by the United States in 1958. The most obvious difference was that in the *SNA*, instead of a single national income and product account, there were two accounts, one of which derived gross domestic product and the second national income….One other difference between the U.S. and U.N. systems was that the *SNA* made provision for rudimentary capital reconciliation accounts for each sector, whereas the U.S. accounts employed only a consolidated gross saving and investment account for all sectors."

Apparently, there was very little pressure from outside of BEA to fully adopt the *SNA*. The majority view among U.S. experts was that the NIPAs were superior to the 1953 *SNA*. Even though Richard Ruggles was a member of the NARC, it did not endorse having the U.S. adopt all of the *SNA*'s standards. At the time of the first *SNA*, very few countries outside of the U.S. were

constructing extensive sets of national accounts. This situation was to change very much over the next decade. NARC (1958) noted that in terms of a conceptual framework, several foreign countries may have drawn ahead of the U.S. by having developed an integrated system of national income and product and money flow accounts with substantial sectoring. Nevertheless, the NARC wrote that statistical experts who had knowledge of both the U.S. and foreign sets of accounts felt that the detail and quality of the U.S. estimates was second to none.

The NARC stated that while international comparability was an important goal, there are areas where the principle of international comparability may have to be given up. It specifically disagreed with the *SNA* treatment of interest paid by the government to abroad and interest received from foreign governments and said it should not be adopted.

During this period, BEA was contributing to the international transmission of knowledge of the details of national income by providing training courses for foreign personnel. OBE (1958a, p. 49) states that during the prior 10 years these courses had graduated about 175 technicians from more than 50 countries.

6.4 The 1968 *System of National Accounts*

BEA's relations with its European counterparts appeared to have soured with the publication of the revised *SNA* in 1968. According to Ruggles (1982) the 1968 *SNA* was substantially and radically different from both the 1953 *SNA* and the NIPAs. Its originators viewed it as providing a comprehensive framework for all economic accounting, and it stressed the integration of the national accounts with input-output, financial transactions, capital stocks, and balance sheets.

The revised *SNA* cast the accounting system into the form of a matrix, in which each row and column pair represented the two sides of an account. Richard Ruggles did not have a favorable view of the new system. Ruggles (1982, p. 30) states, "Thus, although the matrix approach was quite general and did achieve the integration of all of the different forms of economic accounting into a single system, it did so at the cost of considerable complexity. The simple overview of the system was lost, and certain types of information, such as corporate profits by industry, or wages by legal form of organization, were eliminated from the system. The multiplicity of accounts, and the many minor flows given prominence in them, resulted in a system of gothic elaboration, in which the relation between the U.N. National Accounts Questionnaire and the basic *SNA* structure was not readily apparent to the user."

Before the revised *SNA* was officially published, U.S. experts voiced considerable unhappiness with the direction that the *SNA* was taking. The Conference on Research in Income and Wealth held a series of meetings in 1966 to provide comments that could be transmitted to the United Nations in time for consideration by the U.N. Statistical Commission. Some of the

participants felt that the time was not ripe to proceed on integrating the various accounts. According to Tice (1967), which was a report on the meetings, everyone felt that the new system suffered considerably from the unevenness of the treatment given to the various accounting systems being integrated. Some suggested that the integration was a matter of form than of substance. There was strong and general dissatisfaction with the omission of information on income by type. One participant cited the U.S. table on national income by legal form and by type of income as a minimum amount of information and noted that not only does the new system not provide this, it does not even provide as much as the old *SNA*.

Extreme unhappiness was voiced over the innovative presentation of the accounts in the system in the form of a matrix. Most participants were dismayed to find that it was the matrix rather than the three sets of accounts that seemed to provide the organizing framework of the new system. This seemed to be the cause of the rather confusing nature of the accounts.

Although he was a member of the expert group that drafted the proposals for the new *SNA*, George Jaszi was one of its harshest critics. In his view, not only did the new system fail to improve the major deficiencies of the old system, it was a retrogression. The old system burdened the accounts by placing information in the summary accounts that would have been more appropriately shown in supporting tables. This was even truer of the new system. The informational priorities were strange as some small and unimportant items were in the summary accounts while some important items were completely missing from the system.

Given the lack of support among U.S. economists for the revised *SNA*, it is not surprising that BEA did little to implement its recommendations. The U.S. was not alone in this regard, as international implementation of the new system was exceedingly slow. Ruggles (1982) notes that while a great many countries had adopted part of the 1968 *SNA*, almost none had adopted it in its entirety.

7. Concluding Remarks

BEA is more than just the NIPAs. A large part of its work has always been analytical. In BEA's earliest days, it often took the form of developing new and useful surveys, the size distribution of income, foreign trade, and sub-national areas. Later it took the form of work in measuring wealth, government budgets and finances, input-output, and forecasting with econometric models. Interest in these various areas has waxed and waned over time, but they have helped BEA's core work. By getting involved in them, BEA staffers became better informed about what kinds of economic statistics their users needed.

Nevertheless, the NIPAs have always been central to BEA's work. In fact, they became the central organizing principle for all federal macro-economic statistics. It took about 15 years from when a handful of BEA staffers made the first official estimates of national income in 1933

until the first set of NIPAs was produced. During this period there was a tremendous amount of controversy over the best way to measure growth in the economy. It took about another two decades for the NIPAs to expand into the dozens of detailed accounts that underlie the present system. Yet, even though the economy has changed mightily over the past six decades, there has been little change in the definitions, concepts, and structure that underlie the accounts.

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