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Working Party on National Accounts

**TRAINING IN NATIONAL ACCOUNTS AND DOCUMENTATION FOR USERS:
EXPERIENCES OF THE U.S. BUREAU OF ECONOMIC ANALYSIS**

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**TRAINING IN NATIONAL ACCOUNTS AND DOCUMENTATION FOR USERS:
EXPERIENCES OF THE U.S. BUREAU OF ECONOMIC ANALYSIS¹**

1. Among the strategic objectives featured in the strategic plan of the U.S. Bureau of Economic Analysis (BEA) are “meeting the needs of customers” and “developing a highly qualified workforce.”² This paper focuses on two activities that contribute toward achieving these strategic objectives. In order to develop its employees and maintain the high quality of the accounts, BEA has recognized the need to develop specialized training in national accounts. And in order to provide data users with the information they need to interpret the economic accounts, BEA provides several forms of documentation of concepts, sources, and methods. Meeting the needs of our customers and our employees in these two areas is certainly challenging, and our hopes are not always realized. This paper will discuss some of our successes and failures. We will need to continue efforts in both areas.

Training in National Accounts

2. In early 2005, BEA established a team to develop formalized training on national income and product accounting for its staff. The team began by asking what knowledge entry-level analysts tend to bring with them when they begin their careers. Most analysts at BEA start their careers with a bachelor’s degree in economics or in a related field. The knowledge they bring with them is typically a basic understanding of macroeconomics. They know that concepts such as unemployment, inflation, output, income, saving, and productivity are part of an economist’s “tool kit” for studying economic performance and policy. With respect to national accounts, their knowledge may be limited to having learned the final expenditure equation for calculating gross domestic product (GDP). Discussion of national income and output in macroeconomic textbooks is typically limited to at most a single chapter, and often is just a half day’s lecture in a class (including a brief discussion of the circular flow of income).
3. As a result, most analysts begin their careers with minimal knowledge of the economic concepts that are fundamental to national accounting. Many are not aware of how all the various concepts come together to provide a consistent, integrated picture of economy activity. In addition, students with backgrounds in economics often are not familiar with the basic concepts of business accounting that are related to national accounting. As a result, they are not aware of the linkages between business accounting and national accounting concepts.

¹ This paper was written by Brent R. Moulton and Shelly Smith, Bureau of Economic Analysis, U.S. Department of Commerce.

² The BEA’s strategic objectives are: “(1) Customers. Make BEA’s economic accounts and services more responsive to the needs of its customers and partners. (2) Employees. Attract, develop, and retain a highly qualified diverse workforce prepared to innovate and improve BEA’s statistics. (3) Management. Upgrade resource management to support BEA’s mission. (4) Statistics. Upgrade BEA’s economic statistics by improving statistical methodologies and source data and by using new technologies.” See Bureau of Economic Analysis, *Final Strategic Plan for FY 2006–FY2010*, available on the Web at http://www.bea.gov/bea/about/StrategicPlan2006_2010.pdf.

- Thinking about what junior analysts know and don't know, the goal of BEA's training development team was to "fill in the gaps" and provide staff with the knowledge and expertise that they did not learn from university coursework. The work of a junior analyst at BEA typically focuses on a relatively narrow and specialized component of the economic accounts (for example, an analyst might be responsible for estimating production of motor vehicles or for estimating the change in inventories based on survey data). Consequently, it is important to develop training that shows how each analyst's estimate relates to the overall economic picture. In addition, BEA faces a special challenge because the U.S. statistical system is decentralized, meaning that the source data needed to develop a complete sequence of accounts for the economy come from different statistical agencies. The team was faced with explaining not only what a comprehensive sequence of accounts is comprised of, but also the roles of BEA and other statistical agencies in producing the economic measures needed for the full set of accounts.

Training for junior analysts

- For junior staff, the team developed a two-week training course that explains the conceptual foundation of national accounts, provides an overview of financial accounting, illustrates the links between business accounting and national accounting, explains BEA's specific role in the formulation of a complete set of U.S. economic accounts, and addresses technical questions concerned with the construction of the accounts.
- The course begins by reviewing the circular flow of income and expenditure, and linking it directly to the measures featured in the U.S. national income and product accounts (NIPAs). This process of highlighting how the accounts feature economic flows provides an important link to their university training in macroeconomics. In addition, time is spent examining the production boundary, with detailed discussions on non-market production by governments and by nonprofit institutions serving households and on the role of imputations (such as for owner-occupied housing services) in defining national output. The course also discusses the role of satellite accounts in augmenting the standard accounts and featuring particular types of production.
- A large portion of the course is devoted to explaining the links between business accounting and national accounting. This segment is the backbone of the course and is the area in which staff needs the most explanation and guidance. It begins by describing the purposes of the two types of accounting: Business accounting provides stakeholders with information on the structure and performance of a corporation, while national accounting relays information on the structure and performance of an economy. Among the features common to both types of accounting are the use of double-entry bookkeeping and accrual accounting. Differences between the two types of accounting are also covered, such as the valuation of assets at historical cost for business accounts, in contrast to the valuation at current cost for national accounts.
- The different components of a corporation's financial statements are defined: The balance sheet, the statement of income, the statement of cash flows, and the statement of retained earnings. Elements of these financial statements were then used to derive a set of economic accounts for a sample corporation. This derivation links the financial statements to the corresponding national economic accounts that display production, distribution and use of income, capital accumulation, financial, and balance sheets. Particular attention is given to the production, income, and capital accumulation accounts, because they correspond directly to the U.S. national income and product accounts.

Financial and balance sheet information for the United States are part of the Federal Reserve's flow of funds accounts.³

9. Building from a single corporation easily lends itself to the derivation of a set of accounts for corporations, with a few adjustments, such as replacing a corporation's depreciation measure with the economic concept of consumption of fixed capital used in national accounting, and adjusting a corporation's recording of inventory change from an historical-cost basis to a current-cost basis.
10. Following the derivation of a set of accounts for corporations, accounts for households, nonprofit institutions serving households, and general government are developed. Finally, a set of accounts for the "rest of the world" are developed.
11. The remainder of the training course is devoted to the compilation and uses of the estimates featured in the national accounts. The course includes lectures on index number theory (with a particular emphasis on chain-type indexes), on the source data used in compiling the estimates, and on the revision process and publication schedule of the NIPAs. Finally, there is a session identifying the numerous types of users of the accounts and providing examples of how the accounts are used for forecasting or policy analysis.

From theory to practice: "advanced" training

12. National accounting training should not end with a detailed explanation of the theory and concepts. Training is only useful if staff can apply these concepts to their work. In a paper in the June 2004 *Review of Income and Wealth*, Harry H. Postner comments that "a competent (certified) national economic accountant not only knows the current treatments, but also the alternative treatments."⁴ In this spirit, BEA also set up a series of sessions that encourages analysts to gain a deeper understanding of the debates and questions that led to the development of the concepts embedded in the national accounts.
13. To develop this in-depth knowledge and understanding of national accounts, BEA sponsors a series of seminars that introduce issues related to the concepts that underlie national accounting and encourage debate among the participants to reach an understanding of these issues. Examples of issues discussed include the composition and valuation of production and the composition of capital. Such discussion groups are led by BEA's own national accounts experts and national accounts experts from other countries. In addition, BEA offers a week-long seminar in which its staff examine unresolved issues of the 1993 *System of National Accounts* (SNA), and evaluate forthcoming changes that will be part of the SNA update.

Documentation for Users

14. The exchange of information and ideas is not limited to fellow national accountants. BEA's national accounts are closely followed by thousands of government and business economists. BEA has an obligation to its users to provide transparency regarding the concepts, sources, and methods that are used in the accounts. Communication with data users takes many forms. BEA has an advisory committee, which provides expertise and input to BEA on matters related to the development and improvement of BEA's accounts. Members of the advisory committee include many distinguished

³ For a detailed explanation of the differences between the full sequence of national economic accounts and the U.S. national income and product accounts, see Charles Ian Mead, Karin E. Moses, and Brent R. Moulton, "The NIPAs and the System of National Accounts," *Survey of Current Business* 84 (December 2004): 17-32.

⁴ Postner, Harry H., "Introducing a Certified Economic Accountant (CEA) Degree or Diploma Program: Would Nancy and Richard Ruggles Approve?" *The Review of Income and Wealth*, 50, 153-165, June 2004.

experts on economic data and come from academia and business. BEA also provides regular briefings to representatives from government agencies that conduct macroeconomic policy. For most users, however, the primary form of communication is through the information posted on BEA's Web site.

Timely communication

15. In addition to providing the public with the measures of economic activity, BEA has an obligation to assist the public in understanding how to interpret and use the measures it publishes. Users are diverse and varied, ranging from a beginning student of economics to a government economist helping to formulate economic policy to an academic researcher at a university. As a result, information provided to the public must address the needs and levels of knowledge of all these types of users.
16. The Internet allows BEA to provide an ever increasing amount of information on the concepts underlying the accounts, the methodologies and statistical conventions used to prepare the estimates, and any special factors affecting the data. Accompanying each GDP news release, BEA prepares a "Technical note" that presents the key assumptions regarding missing source data that must be made for the early or "advance" GDP estimates and the sources of revisions for the subsequent estimates.
17. One popular feature of BEA's Web site is the "Frequently Asked Questions" (FAQ) database. Through its FAQs, BEA is able to provide short responses (typically one to two paragraphs in length) that answer questions commonly asked by users regarding the statistical conventions used in the accounts (e.g., inflation-adjusted estimates or seasonally adjusted estimates). In addition, BEA is able to provide answers on current topics that are of interest to users. A recent example includes a series of FAQs on the effects of natural disasters such as Hurricane Katrina on national accounts measures. Using the Web to respond to current topics allows BEA to provide information quickly to a wide audience. The FAQs have also been used to anticipate special factors that affect the accounts, and thereby reduce confusion on the day of the news release. For example, FAQs and other information were prepared prior to the release of data reflecting a new prescription drug benefit administered by the U.S. social security system, and prior to releasing estimates that included a large special dividend paid by Microsoft Corporation (a payment that was large enough to significantly affect the nation's household disposable income).

Detailed documentation

18. More complex questions about the national accounts cannot be addressed in one or two paragraphs. Each year, BEA publishes an article "Summary NIPA Methodologies" that describes the source data and methods currently used in developing the estimates for each component of the accounts.⁵ This annual update also includes information on the prices used for deflation or for volume estimation in the constant-price estimates. This document provides the information that is most requested by forecasters and other users, pointing to the source data that affect each estimate. Another article, "A Guide to the National Income and Product Accounts," provides a definition and description of the measures found in the accounts, general information on the methods used in constructing the estimates, and a history of the national accounts.⁶
19. In addition, BEA publishes a monthly journal, *The Survey of Current Business*. The *Survey* presents articles that feature the estimates produced by BEA (including not only national accounts data but also information on the balance of payments accounts, the use of goods and services by domestic

⁵ Available on BEA's Web site at http://www.bea.gov/bea/ARTICLES/2005/11November/1105_NIPAMeth.pdf.

⁶ Available on BEA's Web site at <http://www.bea.gov/bea/an/nipaguid.pdf>.

industries, and regional estimates), describe forthcoming changes in the derivation and definition of the estimates, and define the role of BEA's estimates within the U.S. Federal statistical system. Through articles in the *Survey*, BEA is able to discuss sources of revisions to its estimates, present brief descriptions of methodologies, and highlight topics of general interest. The articles accompanying each annual revision include a description and explanation of any changes in source data or methods.

20. BEA's most difficult challenge for documentation has been preparing detailed methodology papers describing the sources and methods for the full period covered by the time series in the accounts. During the 1980s and early 1990s, BEA prepared several lengthy methodology papers that provided this level of coverage, but they were difficult to prepare, rapidly became obsolete as methodologies were improved, and never completely covered the accounts, because several draft methodology papers were never completed. More recently, a couple of these methodology papers have been updated, but developing and maintaining documentation at this level of detail has proven to be too large a task for an agency with limited resources and competing priorities. BEA is currently exploring an alternative approach that will develop a document that will provide most of the information that users need, but at a level of detail that is manageable in scope, and in a format that can be maintained in the future. We will be working with a contractor to develop this type of document.

Conclusion

21. Over the past several years, BEA has greatly expanded the amount of material and training available for its staff of national accountants. By helping the staff understand the theory and methods used in the accounts, BEA is working to develop a future generation of national accountants. By providing users with documentation, and by facilitating the sharing of that knowledge, BEA has helped the public better understand the role economic statistics play in today's society.