

## GDP: One of the Great Inventions of the 20th Century

*As the 20th century drew to a close, the U.S. Department of Commerce embarked on a review of its achievements. At the conclusion of this review, the Department named the development of the national income and product accounts as "its achievement of the century." Below is a brief overview of the national accounts that describes their purpose, their development, their impact, and their future; the overview also includes short notes of appreciation on the importance of GDP and the national accounts from prominent economists and officials responsible for U.S. fiscal and monetary policy. The overview is followed by remarks that were made at the press conference on December 7, 1999, that announced the Department's recognition of the national accounts: By the Secretary of Commerce, William M. Daley; the Chair of the Federal Reserve Board, Alan Greenspan; the Chair of the President's Council of Economic Advisers, Martin N. Baily; and Commerce's Under Secretary for Economic Affairs, Robert J. Shapiro.*

*The recognition of the national accounts is a testimony not only to Nobel laureate Simon Kuznets and the other economists who participated in their early development, but also to the staff of BEA and its predecessor organizations, who—working with academics, business persons, policy officials, and others—have continually updated and improved the accounts over the years to make them as accurate, useful, and relevant today as they have been since their creation over 60 years ago.*

*J. Steven Landefeld  
Director, Bureau of Economic Analysis*

*While the GDP and the rest of the national income accounts may seem to be arcane concepts, they are truly among the great inventions of the twentieth century.*

*Paul A. Samuelson and William D. Nordhaus*

### The Gross Domestic Product and the National Income and Product Accounts

**T**HE NATIONAL income and product accounts (NIPA's) are the comprehensive set of accounts that measure the total value of final goods and services (gross domestic product, or GDP) produced by the U.S. economy and the total of incomes earned in producing that output (Gross Domestic Income, or GDI). GDP measures final purchases by households, business, and government by summing consumption, investment, government spending, and net exports. GDI measures total incomes earned by households by summing wages and salaries, rents, profits, interest, and other income. The accounts also provide information on the prices at which the output is sold and measures of real, inflation-adjusted, measures of output and income.

This integrated set of accounts and the detailed sets of international, regional, and industry ac-

counts that support the national accounts allow for comprehensive and integrated analyses of the impact of alternative policy actions, or of external events, on the entire economy as well as on detailed components of final demand, incomes, industries, and regions of the country.

*History of the NIPA's.*—Prior to the development of the NIPA's, policymakers had to guide the economy using limited and fragmentary information about the state of the economy. The Great Depression underlined the problems of incomplete data and led to the development of the national accounts:

*One reads with dismay of Presidents Hoover and then Roosevelt designing policies to combat the Great Depression of the 1930's on the basis of such sketchy data as stock price indices, freight car loadings, and incomplete indices of industrial production. The fact was that comprehensive measures of national income and output did not exist at the time. The Depression, and with it the growing role of government in the economy, emphasized the need for such measures and led to the development of a comprehensive set of national income accounts.*

*Richard T. Froyen*

In response to this need in the 1930's, the Department of Commerce commissioned Nobel laureate Simon Kuznets of the National Bureau of Economic Research to develop a set of national economic accounts.<sup>1</sup> Professor Kuznets headed a small group within the Bureau of Foreign and Domestic Commerce's Division of Economic Research. Professor Kuznets coordinated the work of researchers at the National Bureau of Economic Research in New York and his staff at Commerce. The original set of accounts was presented in a report to Congress in 1937 and in a research report, *National Income, 1929-35*.

Early in 1942, annual estimates of gross national product were introduced to complement the estimates of national income and to facilitate war time planning. Wartime planning needs also helped to stimulate the development of input-output accounts. Nobel laureate Wassily Leontief developed the U.S. input-output accounts that subsequently became an integral part of the NIPA's. In commenting on the usefulness of the national accounts, Wesley C. Mitchell, Director, National Bureau of Economic Research, said: "Only those who had a personal share in the economic mobilization for World War I could realize in how many ways and how much estimates of national income covering 20 years and classified in several ways facilitated the World War II effort."

Over time, in response to policy needs and changes in the economy, the accounts have been expanded to provide quarterly estimates of GDP and monthly estimates of personal income and outlays, regional accounts, wealth accounts, industry accounts, and expanded international accounts. In the past decade, the accounts have been updated by introducing measures of real output and prices that reflect current expenditure patterns; quality-adjusted prices for high-tech goods; and most recently, investment in computer software and a new measure of banking output that recognizes ATMs, electronic funds transfers, and the wide range of other services that banks provide.

A time line of the major innovations introduced in the accounts in the last 50 years would include the following:

- In the 1930's, in response to the information gap revealed by the Great Depression, Simon Kuznets developed a set of national income accounts.
- In the 1940's, World War II planning needs were the impetus for the development of product or expenditure estimates (gross national product); by the mid-1940's, the accounts had evolved into a consolidated set of income and product accounts, providing an integrated birds-eye view of the economy.
- In the late 1950's and early 1960's, interest in stimulating economic growth and in the sources of growth led to the development of official input-output tables, capital stock estimates, and more detailed and timely State and local personal income estimates.
- In the late 1960's and 1970's, accelerating inflation prompted the development of improved measures of prices and inflation-adjusted output.
- In the 1980's, the internationalization of trade in services led to an expansion of the estimates of international trade in services in the NIPA's.
- In the 1980's, BEA did pioneering work with IBM in the development of quality-adjusted price and output measures for computers.
- In the 1990's, BEA introduced more accurate measures of prices and inflation-adjusted output, developed estimates of investments in computer software, and incorporated updated measures of high tech products and banking output.

*The contribution of the NIPA's to stability and economic growth.*—The importance of the national accounts is well summarized by Nobel laureate Paul Samuelson and his coauthor William Nordhaus in the 15th edition of their textbook, *Economics*:

*Much like a satellite in space can survey the weather across an entire continent so can the GDP give an overall picture of the state of the economy. It enables the President, Congress, and the Federal Reserve to judge whether the economy is contracting or expanding, whether the economy needs a boost or should be reined in a bit, and whether a severe recession or inflation threatens.*

*Without measures of economic aggregates like GDP, policymakers would be adrift in a sea of unorganized data. The GDP and related data are like beacons that help policymakers steer the economy toward the key economic objectives.*

1. Although Simon Kuznets is often best remembered for his creation of the U.S. national accounts, his Nobel Prize was awarded for his "empirically founded interpretation of economic growth which has led to new and deepened insight into the economic and social structure and process of development." Professor Kuznets shares credit in developing economic accounts with Sir Richard Stone of the United Kingdom, who subsequently won the Nobel Prize for "having made fundamental contributions to the development of systems of national accounts and hence greatly improved the basis for empirical economic analysis."

The national accounts have become the mainstay of modern macroeconomic analysis, allowing policymakers, economists, and the business community to analyze the impact of different tax and spending plans, the impact of oil and other price shocks, and the impact of monetary policy on the economy as a whole and on specific components of final demand, incomes, industries, and regions.

The national accounts, in combination with better informed policies and institutions, have contributed to a reduction in the severity of business cycles and a post-war era of strong economic growth. Prior to World War II, the business cycle was much more severe and more frequent. There were 6 severe depressions between 1854 and 1945 with an average duration of nearly 3 years. Including recessions as well as depressions, the average downturn between 1854 and 1945 was 21 months, with a contraction occurring on average once every 4 years. During the postwar era the length of the average downturn has been halved to 11 months, with a contraction occurring on average once every 5 years.


The post-World War II era stands out as a period of unprecedented growth for the United States. Real GDP per capita and real wealth has more than doubled since 1948. This period of economic prosperity has not only dramatically improved standards of living but has contributed to large improvements in social conditions, cutting poverty in half, raising life expectancy, and adding to leisure time.

The bank runs, financial panics, and depressions that were recurring problems before World War II became a thing of the past. The business cycle was not eliminated, but its severity was curtailed. This post-war success was based on a more stable economic environment that was due in significant part to the timely, comprehensive and accurate data on the economy provided by the national accounts.

*BEA and the GDP of the next century.*—In the next century, the needs of the information age will only get larger, and if the national accounts and the rest of the U.S. statistical system is to meet that challenge, several things must happen. First, the Bureau of Economic Analysis, the Bureau of the Census, and the rest of the U.S. statistical system must take a strong leadership role

in the harmonization of economic and financial standards in the United States and abroad. The U.S. statistical agencies will also need to continue their work with business and government to increase the use of electronic data collections and administrative records. This will require not only harmonization of financial and accounting standards, but also the adoption of common product and industry codes, the sharing of data between statistical agencies, strong assurances of confidentiality, improvements in administrative records, and an information technology system in the U.S. statistical agencies that is equipped to handle the information needs of the 21st century.

If all this comes to pass, one can imagine a Bureau of Economic Analysis in the future that will obtain its national accounts data from coordinated electronic data collection systems. These systems will use existing electronic data from business accounts, administrative records, and financial clearance systems. The trend toward harmonization of business and economic accounting standards will have reached the point where the data can be used interchangeably. Standardized business, financial, and administrative codes will become so commonplace, and electronic confidentiality protections so secure, that economists and statisticians at BEA, the Census Bureau, and elsewhere in the U.S. statistical system will be able to simply “sample” data plucked from the existing stream of business, financial, and administrative transactions.

Not only will respondent burden be substantially reduced, but the timeliness, accuracy, and quality of the national accounts will also be dramatically improved. Data will be available on a continuous flow basis, and new firms and firms going out of business will be instantly identified. Given the universal use of common scanner, billing, and Internet order codes, the level of detail available from the accounts will exceed anything imagined today. Finally, the internationalization of markets and the need to coordinate government policy will mean that this same type of data will be available globally, as well as nationally. Such a system will produce a quantum leap in the quality and efficiency of the information infrastructure available for marketing, for business, household, and government transactions, for planning, and for decision making. 

### Notable Quotes

*Information is fundamental to understanding all human endeavor. The national income accounts, and the data they use and produce, are our core economic information. While they can—and with adequate human, financial, and organizational resources, will—be continually improved; without them we would be in economic dark ages.*

Michael J. Boskin  
T.M. Friedman Professor of Economics, Stanford University  
Senior Fellow, Hoover Institution  
Former Chair, Council of Economic Advisors

*The ability to measure our economy accurately is absolutely critical in the formulation of the federal budget. Indeed, it would be difficult for government to function today without the excellent information provided by the Commerce Department's GDP series.*

U.S. Senator Pete V. Domenici  
Chair, Committee on the Budget

*[The national income and product accounts are] among the major contributions of this century to economic knowledge.*

Robert Eisner  
Former President, American Economic Association

*BEA has the largest macroeconomic job in the entire statistical system. BEA is responsible for measuring the nation's income and product accounts. . . Using the national income accounts framework developed by Simon Kuznets a half century ago, BEA has become the keeper of the nation's economic accounts.*

Janet L. Norwood  
Senior Fellow, The Urban Institute  
Former Commissioner, Bureau of Labor Statistics

*In an era when it is fashionable to criticize government or minimize its contributions, the development of the GDP measure by the Department of Commerce is a powerful reminder of the important things that government can and does do to make the private economy stronger and our individual lives better.*

Robert E. Rubin  
Director, Citigroup, Inc.  
Former Secretary, U.S. Department of the Treasury

*The GDP accounts provide Congress and the rest of government with vital signs on our economy's health. We are making better economic*

*policy today because the GDP accounts give us a better understanding of what policies work. We should devote more resources for modernizing the GDP accounts to keep our statistical infrastructure in step with our rapidly evolving economy.*

U.S. Senator Paul Sarbanes  
Ranking Member, Committee on Banking, Housing  
and Urban Affairs

*GDP! The right concept of economy-wide output, accurately measured. The U.S. and the world rely on it to tell where we are in the business cycle and to estimate long-run growth. It is the centerpiece of an elaborate and indispensable system of social accounting, the national income and product accounts. This is surely the signal innovative achievement of the Commerce Department in the 20th century. I was fortunate to become an economist in the 1930's when Kuznets, Nathan, Gilbert, and Jaszi were creating this most important set of economic time series. In economic theory, macroeconomics was just beginning at the same time. Complementary, these two innovations deserve much credit for the improved performance of the economy in the second half of the century.*

James Tobin  
Nobel laureate  
Yale University Professor Emeritus of Economics

*The quality of business decisions depends on information—more information means less uncertainty and better decisions. The U.S. national income accounts provide business leaders with critical information about the trends shaping their market opportunities and challenges. These accounts are a critical component of the institutional infrastructure on which the health of our market economy depends.*

Laura D'Andrea Tyson  
Dean, School of Business, University of California at Berkeley  
Former Chair, Council of Economic Advisors

*For decades, the Department of Commerce, in maintaining the statistics, has also nurtured and protected a group of statisticians/economists that have made an enormous contribution to independent, authoritative, and timely analysis. It is of great benefit to the United States and unmatched in the world.*

Paul A. Volcker  
North American Chairman of the Trilateral Commission  
Former Chair, Federal Reserve Board