BEA: IS THE GDP ACCURATELY MEASURING THE U.S. ECONOMY?

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OF THE

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THURSDAY, APRIL 5, 2001

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON THE CENSUS,
COMMITTEE ON GOVERNMENT REFORM,
Washington, DC.

The subcommittee met, pursuant to notice, at 2:02 p.m., in room 2247, Rayburn House Office Building, Hon. Dan Miller (chairman of the subcommittee) presiding.

Present: Representative Miller.

Staff present: Jane Cobb, staff director; Chip Walker, deputy staff director; Michael Miguel, senior data analyst; Erin Yeatman and Andrew Kavaliunas, professional staff members; Daniel Wray, clerk; David McMillen, minority professional staff member; and Teresa Coufal, minority staff assistant.

Mr. MILLER. Good afternoon. The subcommittee will come to order. We will proceed. I will have a brief opening statement and then we will go with our first panel. I called this hearing to examine the function and needs of a relatively small but significant Federal player in providing the policymaker and the public a timely and accurate picture of national and international economic activity. The Bureau of Economic Analysis [BEA], is a statistical agency within the Commerce Department's economic and statistics administration. It has a budget of close to $50 million and employs approximately 445 people. It produces, among other things, one of our Nation's primary economic indicators, the Gross Domestic Product [GDP], something we will be looking at closely today.

BEA also produces estimate of analyses of personal income population and employment for regions, States, metropolitan areas and countries. BEA helps define the international economic picture by producing the U.S. balance of payments. Additionally, it measures U.S. direct investment abroad and foreign direct investment in the United States. In information provided to the subcommittee by BEA, it is clear that BEA's statistics are heavily relied on by government and industry.

For example, the Congressional Budget Office and Office of Management and Budget rely on BEA estimate of economic growth to make Federal budget projections. BEA's regional income and product estimates are used to allocated more than $100 billion annually in Medicaid and other Federal grants to States. Virtually, all States use BEA data in their tax projections infrastructure planning and allocations of State funds to counties. BEA's national, international and regional estimates are essential inputs to private

sector business forecasts and production and investment plan. Business associations use BEA's national and regional data by industry to gauge the economic health of association members. Financial planners use BEA's income and saving data, as well as the growth of GDP and its components, to develop and assess investment and retirement planning strategies.

Today we will examine DEA to give Congress and the public a better understanding of this agency's important functions, with a particular focus on the accuracy of the Gross Domestic Product. We also hope to learn of some of the issues BEA faces in its challenge to produce vivid, accurate and timely snapshots of our rapidly changing economy.

[The prepared statement of Hon. Dan Miller follows:]

SUBCOMMITTEE ON THE CENSUS

The Honorable Dan Miller, Chairman

H1-114 O'Neill House Office Building, Washington, D.C. 20515

Opening Statement
Dan Miller
Chairman
Subcommittee on the Census
April 5, 2001

Good afternoon. I've called this hearing today to examine the function and needs of a relatively small, but significant federal player in providing policy-makers and the public a timely and accurate picture of national and international economic activity.

The Bureau of Economic Analysis, or BEA, is a statistical agency within the Commerce Department's Economic and Statistics Administration. It has a budget of close to $50 million, and employs approximately 445 people. It produces, among other things, one of our nation's primary economic indicators – the Gross Domestic Product -- or GDP – something we will be looking at closely today.

BEA also produces estimates and analyses of personal income, population, and employment for regions, States, metropolitan areas, and counties. BEA helps define the international economic picture by producing the U.S. Balance of Payments. Additionally, it measures U.S. direct investment abroad and foreign direct investment in the United States.

In information provided to the subcommittee by BEA, it is clear that BEA's statistics are heavily relied upon by government and industry. For example:

- The Congressional Budget Office and the Office of Management and Budget rely on BEA estimates of economic growth to make Federal budget projections.

- BEA's regional income and product estimates are used to allocate more than $100 billion annually in Medicaid and other federal grants to States.

- Virtually all States use BEA data in their tax projections, infrastructure planning, and allocations of State funds to counties.

- BEA's national, international, and regional estimates are essential inputs to private sector business forecasts and production and investment plans.

- Business associations use BEA's national and regional data by industry to gauge the economic health of association members.

- Financial planners use BEA's income and saving data, as well as the growth of GDP and its components, to develop and assess investment and retirement planning strategies.

Today we will examine BEA to give Congress and the public a better understanding of this agency's important functions, with a particular focus on the accuracy of the Gross Domestic Product. We also hope to learn of some of the issues BEA faces in its challenge to produce vivid, accurate, and timely snapshots of our rapidly changing economy.

We have invited a number of witnesses to help us look at BEA today. On panel one, we will hear from the Director of the BEA, Mr. Steven Landefeld, and from Mr. Frederick Knickerbocker of the Census Bureau, a key survey-taker and data provider to the BEA. On panel two we will hear from economists and officials in business, government, and academia, who have been asked to speak to BEA's role, the accuracy of the GDP, and the issues they see are important to this agency.

I welcome and thank you all for joining us today and look forward to your testimony.

Mr. MILLER. We have invited a number of witnesses to help us look at BEA today. On panel one we will hear from the Director of BEA, Mr. Steven Landefeld and Mr. Frederick Knickerbocker of the Census Bureau, a key survey taker and data provider to the BEA. On panel two we will hear from economists and officials in business government and academia who have been asked to speak to BEA's role the accuracy of GDP and the issues they see are important to this agency. I welcome and thank you for joining us today and look forward to your testimony, so we will proceed immediately with the first panel.

We are delighted that both of you have joined us here today. We will start with Dr. Landefeld. He is the Director of the Bureau of Economic Analysis. Dr. Landefeld has been the Director of BEA since 1995. Prior to becoming Director, he served as Deputy Director and Associate Director of economics at BEA. Joining Dr. Landefeld on panel one is Frederick Knickerbocker, the Associate Director for economic programs at the Census Bureau. Mr. Knickerbocker became the Associate Director for economic programs in 1995. As such, Mr. Knickerbocker is responsible for approximately 100 economic and business surveys as well as preparation of many of the Nation's principal economic indicators.

Mr. Landefeld.

STATEMENTS OF J. STEVEN LANDEFELD, DIRECTOR, BUREAU OF ECONOMIC ANALYSIS; AND FREDERICK KNICKERBOCKER, ASSOCIATE DIRECTOR FOR ECONOMIC PROGRAMS, BUREAU OF THE CENSUS

Mr. LANDEFELD. Thank you, Mr. Chairman. Also thank you for doing a good part of my testimony today. I was just able to cut out a whole bunch of things I was going to say. But I did want to thank you for the opportunity to appear before you to discuss the Bureau of Economic Analysis. As you and the Census Subcommittee know, and as you indicated, Mr. Chairman, we are the other statistical bureau in the Commerce Department. Although we are small in size relative to our sister agency Census—our staff is about 400 people now, not 450-something—we are, as you noted, one of the Nation's most important statistical agencies. Our signature products are the GDP and the national income and product accounts, which were developed in the late 1930's by the Nobel Laureate, Simon Kuznets, and which are regarded as the mainstay for analyzing the U.S. economy.

Although you reviewed a number of functions, I thought it would be useful to describe how we do what we do, which is, in essence, we are the Nation's economic accountant. That is, we obtain and interpret large volumes of diverse data from both government and private sources, such as the Census Bureau and then organize, combine and transform these data into a consistent and comprehensive set of economic accounts for the Nation as a whole. BEA's accounts provide a full detailed picture of economic activity and include such widely watched statistics as GDP, corporate profits and some of the other series you have noted. These data have a large impact on interest rates, stock prices and exchange rates and are vital ingredients for public policy and business planning

and investment decisions. As a result, they affect every American who runs a business, saves for retirement or takes out a mortgage.

In your wonderful summary, there was one area I noted that was not mentioned—and it certainly does deserve mention, especially as people worry about the new economy,—which is our industry accounts. In addition to our national, regional and international accounts you described, we have industry accounts, which include gross product by industry, which measures the contribution of private industry and government to GDP, and the input-output tables, which show the linkages between industries. These data are important because they provide policymakers and business planners with critical information to assess such issues as the impact of taxes in a particular industry on other industries or the indirect impact of growth in one industry on other industries.

I will now turn to one of the major topics you asked us to discuss today, which is the accuracy of BEA's estimates. Although our estimates of GDP and related measures are regarded among the most accurate and timely in the world, they are not without error. In order to provide timely estimates within 1 month of the end of the quarter, BEA must use partial data and estimate missing source data in inventories, merchandise trade, things of that sort. As more complete and accurate source data become available in the following months, BEA revises the estimates. In general, one finds that BEA's early GDP estimates do a relatively good job of providing a general picture of economic activity. In particular, the estimates can generally tell you if the economy is expanding or contracting, something of relevance right now; if growth is accelerating or decelerating; if growth is high, average or low relative to trend; what components of the U.S. economy are the main sources of growth—consumer spending, investment spending, inventories—or what is going on; what the general trend and patterns are for key variables such as investment, saving rates, or government share of GDP; and the timing of components contributing to recessions and economic expansions. Where the estimates have been subject to greater uncertainty is in the measurement of longer-term growth rates.

Unfortunately in recent years, there has been a persistent difference between growth as measured by production, or GDP, and growth as measured by the incomes earned in production, or gross domestic income. In concept, the two measures should be equal, but in recent years the income measure has been growing at a 4.9 percent annual rate while growth as measured by the product side has grown at a 4½ percent annual rate, a 0.4 percentage point difference.

While there has always been uncertainty about trend growth in the economy, the difference between the two measures is not only larger than in the past, but the impact of such a discrepancy seems to have a larger pocketbook effect. The larger effect is due to the importance of BEA's estimates for long-term budget projections and the reliance on BEA data for the allocation of Federal funds to State and local governments.

The discrepancy also has had a larger effect on the economy because of the increasing impact of BEA's data on financial and foreign exchange markets. The impact of BEA's data on these markets is more widely felt than in the past because almost half of U.S.

households now hold stock in one form or another, an increasing share of loans are indexed, and with the globalization of the U.S. economy, an increasing share of businesses and households are affected by exchange rates.

In my written testimony, I focus on three examples of challenges that BEA confronts in keeping up with the rapidly changing economy. The first example deals with measuring GDP as we move from an industrial economy to the new economy. The second example deals with measuring the balance payments, which as highlighted by the Trade Deficit Review Commission has become increasingly difficult because of rapid changes in size and complexity of international trade and financial transactions. And the third is the need to better explain the sources of the precipitous decline in the U.S. personal saving rate through an integrated statistical treatment that focuses on the impact of changes in the stock market and household finances on personal savings. However, in the interest of time, I will discuss just the first of these examples, the challenges in measuring GDP.

One of the most difficult issues confronting public and private decisionmakers is the uncertainty over the rates of inflation and growth in the U.S. economy over the last 5 years and their likely rates of change over the next 5 to 10 years. BEA has had difficulty in keeping up with the changing economy, and as I noted, errors have been creeping into BEA's measures of trend growth in real GDP, incomes and inflation. Upward visions in estimated tax receipts, or the "tax surprises" seen in recent years, have been, in part, the result of a pattern of upward revisions in BEA estimates. BEA estimates are an important factor in policy decisions that have a lasting impact on the economy. Not only do BEA's estimates form the baseline for the projections, but most long-term projections assume that future growth will resemble the recent trends published by BEA.

As Federal Reserve Board Chairman Alan Greenspan noted in a recent speech, the biggest payoffs in efforts to improve economic forecasts are likely to come from raising the quality of data collected rather than improving forecasting techniques. Small errors in real GDP can have such a large impact on long-term budget projections that they can swamp differences in proposed policy initiatives. Understatement of the growth rate of real GDP associated with a given rate of inflation may lead monetary policy officials to understate the rate of growth that can be sustained without sparking higher inflation. Business planners are also affected as they try to determine whether the performance of the economy over the last 5 years is real and permanent, the so-called "new economy."

BEA has worked hard in recent years to keep up to date with the rapidly changing economy. Using resources made available at BEA by eliminating programs, such as the leading indicators, and utilizing improved data developed by BEA and its source data agencies, the Bureau has been able to make a number of advances. These include new price and output indexes that better measure things such as banking services, cell phones, computer software and the Internet. These accomplishments notwithstanding, scarce resources and gaps in the source data have prevented us from fully keeping up with changes in the economy. The remaining gaps have

a direct impact in the quality of estimates. They include, first, for over 20 percent of real GDP, mainly in services, there are no price indexes to produce inflation-adjusted estimates, and the estimates are based on measures of physical inputs and outputs or cost-based deflators resulting in an understatement of GDP and productivity growth and an overestimate of inflation for these components.

Second, for 20 percent of nominal GDP, also in services, BEA has developed estimates using a broad range of source data that differ significantly in coverage, concept, level of detail, classification and timing. These inconsistencies contribute to our persistent inability to keep up with changes in this rapidly growing sector.

Third, the source data used in BEA's quarterly estimates focus on the old industrial economy and cover only the wages and salaries of production and nonsupervisory workers, thereby missing over 40 percent of compensation in the U.S. BEA must estimate the wages and salaries of these missing supervisory and professional workers and estimate the impact of stock options, in-kind benefits and other new forms of compensation using a patchwork of partial data.

And finally, BEA lacks quality-adjusted price indexes for a number of key products in telecommunications and other IT areas, resulting in an understatement of real GDP and an overstatement of inflation.

In summary, while BEA is doing a good job of measuring today's economy, significant challenges remain. Discussing the problems that new technologies and changes in the structure of output pose for the measurement of GDP, Chairman Greenspan recently noted, "Certainly statistical systems in the United States, both public and private are world class, and indeed, in many respects, set the world standard. But given the rapidly changing economic structure, one could readily argue that more statistical resources need to be applied to understanding the complexities of the newer technologies that confront analysts."

In the current fiscal year, BEA received its first real increase in funding in nearly 8 years. The President's budget blueprint for fiscal year 2002 proposes a $9 million, or 18 percent, increase in BEA's budget to extend the work begun in fiscal year 2001. These funds would enable BEA to begin to fill the gaps in BEA's estimates outlined above by developing new price and output indexes for services and high-tech products, new measures of compensation that measure the stock options and rapidly growing forms of compensation that I mentioned, updated measures of international trade and finance and integrated measures of change in the real and financial economy.

Second and equally important, it would help us to upgrade BEA's IT infrastructure so as to raise the efficiency and accuracy of BEA's estimates, upgrade BEA's ability to disseminate its data to its customers, and introduce electronic reporting to reduce the respondent burden on the 40,000 companies reporting on BEA's surveys.

Thank you, Mr. Chairman, for this opportunity.

[The prepared statement of Mr. Landefeld follows:]

Subcommittee on the Census
Committee on Government Reform

Bureau of Economic Analysis Hearing
April 5, 2001

Testimony by
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. 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."

Paul Samuelson, Nobel Laureate, MIT, and
William Nordhaus, Yale University,
coauthors of *Economics* (16th edition)

I want to thank the Committee for this opportunity to appear before you to discuss the Bureau of Economic Analysis (BEA). As you on the Census Committee may know, we are the "other" statistical Bureau in the Commerce Department. Though small in size -- with a staff that numbers fewer than 450 people -- BEA is one of the Nation's most important statistical agencies. BEA's signature products are Gross Domestic Product (GDP) and the National Income and Product Accounts, which were originally developed in the late 1930s by the Nobel Laureate, Simon Kuznets, and which are regarded as the mainstay for analyzing the U.S. economy.

In essence, BEA serves as the Nation's economic accountant; that is, we obtain and interpret large volumes of diverse data from both government and private sources and then organize, combine, and transform those data into a consistent and comprehensive set of economic accounts for the Nation as a whole. BEA's national, industry, regional, and international accounts provide a full, detailed picture of economic activity and include such widely watched statistics as GDP, corporate profits, State and local personal income, and the balance of payments. BEA data are vital ingredients in major decisions affecting areas such as monetary and fiscal policy, Social Security projections, and business planning and investment decisions. Thus, they affect every American who runs a business, saves for retirement, or takes out a mortgage.

BEA's Statistical Programs: All major industrialized countries produce statistical accounts of their national economic activity, measured according to accepted international conventions, which serve as a foundation for national and international business and policy planning. BEA's economic accounts are organized into a system that covers the major sectors of the economy:

- National accounts provide a quantitative view of the production, distribution, and use of the Nation's output, and they feature one of the most widely known economic measures, GDP. BEA's national accounts also include estimates of personal income and the Nation's stock of tangible wealth.
  - BEA's GDP estimates are critically important in the setting of monetary policy and the projecting of Federal budgets and Social Security trust fund balances. They have a major impact on securities and foreign exchange markets, and the private sector uses them for tracking financial developments, domestic and international business planning, and studies of economic growth and inflation.
- Industry accounts include gross product by industry, which measures the contribution of private industry and government to the GDP, and the input-output tables, which show the linkages between industries.
  - BEA's industry accounts provide policy makers, business planners, and State and local officials with critical information to assess such issues as the impact of taxes in a particular industry on other industries or the indirect impact of growth in one industry on other industries. The estimates also provide critical information on the sources of economic and productivity growth in the "new economy."
- Regional accounts provide estimates and analyses of personal income, population, and employment for regions, States, metropolitan areas, and counties. BEA also produces estimates of gross state product.
  - BEA's regional accounts data are used to allocate more than $128 billion in Federal funds to State and local governments for programs such as Medicaid and other Federal transfer and grant programs; are used by 17 States to set either expenditure or revenue caps; and are used by most States to help project taxes and expenditures.
- International accounts include the international transactions (balance of payments) accounts, the monthly estimates of international trade in services, and the estimates of U.S. investment abroad and foreign investment in the United States.

- BEA's international estimates are key ingredients in international trade, investment, exchange rate, financial market, and monetary policies, as well as international macroeconomic policy coordination. Because the estimates have such a significant impact on exchange and financial markets, they are key inputs into the global risk and operations planning of multinational corporations.

Accuracy of BEA's Estimates: Although BEA's estimates of GDP and related measures are probably among the most accurate and timely such estimates in the world, they are not without error. In order to provide timely GDP estimates that present an accurate general picture of economic activity within one month of the end of a quarter, BEA must use partial data and estimate missing source data. As more complete and more accurate source data become available in the following months, BEA revises the estimates. In general, one finds that BEA's early estimates do a relatively good job of providing a general picture of economic activity. The estimates generally can tell you:

- If the U.S. economy is expanding or contracting.
- If growth is accelerating or decelerating.
- If growth is high, average, or low relative to trend.
- What components of the U.S. economy are the main sources of growth.
- The timing of, and components contributing to, recessions and economic expansions.
- What the general trend and patterns of growth are for key analytic variables, such as investment and saving rates, government expenditures as a share of GDP, export and import shares, real GDP per capita, and productivity.

Where the GDP estimates have been subject to greater uncertainty is in the measurement of longer-term growth rates for real GDP. Small differences in real GDP growth can have major implications for Federal budget projections, monetary policy, and business planning. Unfortunately, in recent years there has been a persistent difference between BEA's estimate of growth as measured by production (GDP) and growth as measured by the incomes earned in production, Gross Domestic Income. In concept the two measures should be equal, but in recent years the income measure has been growing about 0.4 percentage points faster annually than the product measure. (Over the last three years, growth, as measured by income, has grown at a 4.9 percent annual rate, while growth, as measured by product, has grown at a 4.5 percent annual rate).

While there has always been uncertainty about trend growth in real GDP, the difference between the two measures is not only larger than in the past, but the impact of such a discrepancy seems to have a larger pocket book effect. This larger pocket book effect is due to the increasing importance of BEA's estimates for long-term budget and Social Security projections and the increasing reliance on BEA data for the allocation of Federal funds to state and local governments.

In addition, the discrepancy has a larger affect on the economy because of the increasing sophistication of financial markets in this information age and the large impact BEA's data have on financial and foreign exchange markets; the fact that almost half of U.S. households hold stock in one form or another; the increasing use of indexing for loans; and the increasing globalization of the U.S. economy and the impact of changes in exchange rates on everyone from Midwestern farmers to foreign students registering at U.S. colleges.

Rather than review BEA's statistical programs in detail, I will provide three examples of the statistical challenges that confront us in trying to measure the economy, the reasons why getting an accurate measure in each area is important, a review of the progress that we've made in improving the estimates, and the challenges that remain.

Measuring Growth in the Economy, Inflation, and Productivity[1]: Impact on Monetary and Fiscal Policy and on Business Planning -- One of the most difficult issues confronting public and private decision makers is uncertainty over the exact rates of inflation and economic growth in the U.S. economy over the last 5 years and their likely rates of change over the next 5 to 10 years. Despite its best efforts to take into account the changes in the structure of today's economy, BEA has not been able to keep pace with these changes, and errors have increasingly been creeping into BEA's measures of trend growth in real GDP, incomes, inflation and productivity. Upward revisions in estimated tax receipts, or the "tax surprises," seen in recent have been, in part, the result of upward revisions in BEA's statistics.

The recent and longer term trends in real GDP growth and in inflation are among the most important determinants of fiscal and monetary policy; and relatively small errors in those estimates can swamp differences in proposed policy alternatives. BEA's estimates are important to policies with a lasting impact on the economy because most long-term projections assume that future growth will resemble the recent trends published by BEA. As the *New York Times* reported in an article entitled "Greenspan Calls for Better Data Collection," the Federal Reserve Board Chairman, in recent speech before National Association for Business Economics, noted that, "The biggest payoffs in efforts to improve economic forecasts are likely to come from raising the

[1] BEA's real, or inflation adjusted, GDP estimates are the basis for the numerator in BLS's estimates of labor productivity, so errors and biases in real GDP have a direct impact on productivity measurement.

quality of the data the data collected."[2]

Understatement of the trend rate of growth in real GDP associated with a given rate of inflation may lead monetary policy officials to understate the rate of real GDP growth that can be sustained without sparking higher inflation.[3] Business planners are also affected as they try to determine whether the performance of the economy over the last 5 years (relative to the past and to other countries) is real and permanent (the so called New Economy). The business press, exemplified by the *Economist*, have questioned whether the combination of low inflation and strong growth seen in the United States over the last 5 years is real or is a "statistical mirage." Most economists, however, seems to hold that the improved performance is largely real.

BEA has worked hard in recent years to keep up to date with the rapidly changing U.S. economy. Using resources made available at BEA by eliminating programs such as the leading indicators, regional projections, and detailed state-level foreign direct investment data, and utilizing improved data developed by BEA and its source data agencies – BLS, Census, the Federal Reserve Board, and Treasury – BEA has been able to develop:

- New measures of real GDP and prices that use up-to-date weights that reflect current purchasing patterns and prices. These new indexes address the biases in price and output indexes associated with the old fixed-weighted indexes and they significantly improve the accuracy of estimates of real GDP growth, inflation, and productivity.

- Quality-adjusted price indexes for semiconductors, cell phones, and selected other types of telecommunications equipment that minimize biases in prices and real GDP of the type identified in the Boskin Commission Report to the Senate Finance Committee.

- New price and output indexes that better measure rapidly growing and changing components of the economy such as banking services, cable TV, sport utility vehicles, casino gambling, and the Internet.

- Improved measures of international trade in services and international financial transactions that have made the United States a model for efforts by the U.S. Treasury and

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[2] "Greenspan Calls for Better Data Collection,"*The New York Times*, Wednesday March 28, 2001, p. C2. The full text of Chairman's Greenspan's speech is available on the Federal Reserve Board's Web site (www.federalreserve.gov/s-t.htm) In his speech, the Chairman provided an interesting overview of the challenges that BEA faces in measuring GDP in today's increasingly complex economy.

[3] Revisions to real GDP, such as that BEA introduced for Banking services, both lower the measured rate of inflation and raise real GDP growth; others such as bringing in more comprehensive source data in annual and benchmark revisions tend to raise the measured rate of growth, but have little impact on measured inflation.

the International Monetary Fund to promote greater accuracy, consistency, and transparency in balance of payments accounts around the world.

- Updated, expanded, and more timely industry account estimates that have been the basis for a wide range of studies on the impact and importance of innovation in today's economy.

These accomplishments notwithstanding, scarce resources at BEA and gaps in the source data used in compiling the accounts have prevented the U.S. National Accounts from keeping up with changes in the economy. As a result, the following measurement problems contribute to the uncertainty about trend growth in GDP and prices:

- For over 20 percent of real GDP – mainly in services – there are no price indexes to produce inflation-adjusted estimates. BEA must estimate real GDP using measures of physical inputs and outputs or cost-based deflators, resulting in an understatement of real GDP and productivity growth and an overestimate of inflation for these components.

- For over 20 percent of nominal GDP – also in services – BEA has to estimate these components using a broad range of private and public source data that differ significantly in coverage, concept, level of detail, classification, and timing.

- There are no consistent and timely data on wage and salary income for supervisors and for many professional and other employees who account for over 40% of compensation in the United States. The existing source data used in BEA's quarterly estimates focus on the old industrial economy and cover only the wages and salaries of production and nonsupervisory workers.

  - BEA must estimate the wages and salaries of the missing workers and attempt to measure the impact of stock options, in-kind benefits, and other new forms of compensation using a patchwork of partial data.

- BEA lacks quality-adjusted price indexes for a number of key products in telecommunications and other IT areas. A number of studies have pointed out that the absence of quality-adjusted price indexes for these products may significantly understate real GDP and productivity growth and overstate inflation.

Addressing these problems will require a combination of new conceptual work, the development of new statistical methodologies, and expanded data collections. BEA and its source data agencies, including BLS, Census, and the Federal Reserve Board, have a successful track

record in these areas and have plans for moving forward in them. What is now required are the additional resources to move this work forward. (Attachment 1 outlines BEA plans in these and some of the other areas outlined below).

Measuring International Trade and Finance: Impact on Trade, Financial, and Monetary Policy: One set of problems in measuring GDP, not mentioned above, overlaps with BEA's balance of payments and international trade statistics. Increasing problems in measuring international trade in goods and services and international financial flows not only cause problems for international trade, exchange rate, security market, monetary, and international policies – and international business planning – but also affect domestic policies and business planning through their impact on GDP. These problems and concerns were highlighted in the recent report of the U.S. Trade Deficit Review Commission, which noted[4]:

> *"Accurate data are the basis for understanding the complex role that international trade plays in the U.S. economy. Reductions in government import barriers and technological advances in communications, computing, and transportation have enabled world trade in goods and services to increase in both volume and significance. However, this increase greatly complicates how the statistics are gathered and makes assuring their accuracy more difficult. The growing importance of trade in our economy and the needs of government and businesses for information to be able to make good decisions make it essential that data on international trade in goods and services be relevant, accurate, and timely.*
>
> *The federal statistical system, however, does not provide adequate or timely data on international trade and finance. The system is not gathering all the information needed to understand the evolving economy, nor can the system ensure that all of the data are accurate. Testimony before the Commission and other studies point out major weaknesses in the types of statistics gathered and the accuracy of the information. For example, the Commission heard testimony that the undercount in U.S. exports could overstate the U.S. trade deficit by as much as one-third. Similarly, there are a number of factors that lead to the undercounting of imports."*

Over the last decade, BEA has worked hard to address these problems and improve its international data by:

- Initiating data exchanges with foreign central banks and statistical agencies so as to reduce respondent burden and improve statistical quality.
- Expanding the scope and level of detail for the annual and quarterly estimates of international trade by developing estimates for over 50 types of services.
- Developing monthly estimates of international trade in services that provide a more complete picture of international trade than that provided by the old merchandise trade series alone.

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[4] The U.S. Trade Deficit: Causes, Consequences, and Recommendations for Action, the U.S. Trade Deficit Review Commission, November 14, 2000, Washington D.C.

- Working with the Treasury Department and the Federal Reserve Board to improve the statistics on both international portfolio investments and foreign direct investments.

Despite these efforts, changes in international markets have outpaced upgrades to the statistics. Some of the difficult problems that BEA faces in measuring international trade and finance are:

- The valuation of computer software.
- The rise in low-value exports shipped by express couriers and plants located near the Mexican border that are exempt from reporting requirements.
- The increase in the size and volatility of international trade in services.
- Intra-firm trade and transfer pricing.
- The large increase in the volume and complexity of international financial transactions.
- Difficulties in valuing and capturing derivatives and other new financial instruments. (The absence of comprehensive and consistent data on U.S. international assets and liabilities in derivatives is particularly disturbing in the light of the near collapse and subsequent rescue of a major U.S. hedge fund in 1998.)

The need to address these and other measurement problems has accelerated as the United States has taken on a world leadership role in promoting greater accuracy, consistency, and transparency in balance of payments statistics by serving as a model for less developed economies to follow, in hopes of helping to prevent future global financial disruptions, such as those associated with the Mexican, Russian, and Asian financial crises. BEA has worked closely with the Treasury Department, the Federal Reserve Board, and the International Monetary Fund, to bring the United States into compliance with the IMF's Data Dissemination Standards, which encourage greater accuracy, consistency, and transparency in the preparation and release of economic statistics by all countries. While BEA's efforts have helped the United States to become one of the first countries in full compliance with the IMF's initial set of Standards, substantial additional work and resources will be required to address derivatives and other data outlined in the IMF's forthcoming expansion of the Standards.

The Need for a Comprehensive View of Economic Activity: Impact on Perceptions of the Adequacy of U.S. Savings and the Financial Wealth of Households – One of the most talked about aspects of the economy in recent years has been the precipitous decline in the

personal saving rate, which has fallen from over 10 percent in 1984 to near zero today, a level not seen since the Depression. This decline has prompted concerns about the adequacy of U.S. saving for capital formation, the increasing dependence on borrowing from foreigners, the health of consumer finances, the ability of consumers to afford retirement or to handle unexpected needs, and the ability of U.S. households to maintain the rate of spending growth that has fueled this economic expansion.

In order to better explain the changes in the personal saving rate, BEA and the Federal Reserve Board are currently engaged in a joint project to provide an integrated picture of the "real" and "financial" aspects of personal saving. BEA also hopes to work with the Federal Reserve Board on a longer term project that integrates the real GDP and National Income estimates produced by BEA and the Balance Sheet and Flow of Fund estimates produced by the Federal Reserve Board and provides a comprehensive and integrated picture of all sectors of the U.S. economy.

Conclusion: In summary, while BEA is doing a good job of measuring today's economy, significant challenges remain. In discussing the problems that new technologies and changes in the structure of output pose for the measurement of GDP, Chairman Greenspan recently noted:

"*Certainly, statistical systems in the United States, both public and private, are world class and, indeed, in many respects set the world standard. But given the rapidly changing economic structure, one could readily argue that more statistical resources need to be applied to understanding the complexities of the newer technologies that confront analysts.*"

In the current fiscal year, BEA received its first real increase in funding in nearly eight years. The President's budget blueprint for FY 2002 proposes a $9 million, or 18% increase, in BEA's budget to extend the work begun in FY 2001 in order to "improve key measures used by government and business policy makers." Those funds would enable BEA to begin to:

1) Fill the gaps in BEA's estimates outlined above, by developing: a) new price and output indexes for services and high-tech products; b) new measures of compensation that better measure stock options and rapidly growing forms of compensation, c) updated measures of international trade and finance, and d) integrated measures of changes in the real and financial economy.

2) Upgrade BEA's IT infrastructure so as to raise the efficiency and accuracy of BEA's estimates, upgrade BEA's ability to disseminate its data to its customers, and to introduce electronic reporting to reduce the respondent burden on companies reporting on BEA's surveys.

Mr. MILLER. Thank you. We will proceed with Mr. Knickerbocker. And everybody's written statement will be included in the record. You may proceed.

Mr. KNICKERBOCKER. Mr. Chairman, thank you for the opportunity to participate in today's hearing on the activities of the Bureau of Economic Analysis and the challenges BEA faces. We in the economic programs part of the Census Bureau collaborate with BEA in many different ways and very frequently. While the data we collect are used by practically all Federal agencies and are closely monitored by the Federal Reserve Board, we regard BEA as our most important government customer. A high proportion of all the data we collect serves as source data for BEA. We are the principal source of the data BEA uses to develop its product side estimates of the gross domestic product.

Close collaboration between BEA and the Census Bureau means that the two agencies share a common view of the most promising opportunities for the improvement of economic statistics.

Two examples of how basic data are organized illustrate this point. First, until a few years ago, the Federal statistical system operated with an antiquated industry classification system, the 60-year-old Standard Industrial Classification system. In the last decade, a team established by the Office of Management and Budget of Federal statistical agencies designed a new, up-to-date and flexible industry classification system. The result, it is called the North American Industry Classification System, provides statistics, profiling the American economy as it enters the 21st century, not as it was at the time of World War II. The Census Bureau, in cooperation with BEA and Bureau of Labor Statistics has led the effort to introduce the new classification industry system into Federal economic statistics.

Second, while the updating of the industrial classification system represents a significant step forward, more needs to be done. Firms and manufacturing industries make quite specific products. Firms in service industries deliver quite specific services. To generate the statistics that will support analyses of many economic policy issues, for example, the sources of productivity growth in the economy—data at the detailed product level are required. This is especially true for services where measuring the output of service providers is particularly difficult. The Census Bureau, again, in collaboration of BEA and the Bureau of Labor Statistics, is developing a product classification system that will provide the framework for the collection of substantially more product level data then has been available in the past. The collection task will fall to the Census Bureau. The task of putting the more abundant data to work will fall to BEA.

Of late, officials at BEA has devoted much time to measuring, describing and putting into perspective the new economy. The one feature of the new economy that has attracted much attention is E-business. The Census Bureau has pioneered the collection of official statistics on E-business starting in late 1999 with a collection of quarterly data on retail sales over the Internet. This was followed by collecting annual data on E-commerce activity in the manufacturing, retail, wholesale and services sector. Detailed data on the E-businesses processes used in manufacturing plants were

collected at the same time. The results of these collections have been released in recent weeks with more results scheduled for release in May.

Our efforts at collecting data on E-business are in their early stages. Still, our early efforts will give BEA some baseline statistics from which it can develop its own measures on the role of E-business in the economy. Looking forward, the Census Bureau believes it can contribute to further understanding of E-business by enhancing its collection of data on business purchases of information, technology hardware and software, the infrastructure of E-business.

Currently, the Census Bureau captures much of its data on business expenditures for plant equipment through the Annual Capital Expenditures Survey. Without too much change, we believe this survey can be modified to pick up more specific data on E-business infrastructure, an advance that should help BEA perfect in its own investment statistics, a key element in GDP, and these improvements in investment statistics would certainly be welcomed by private industry.

Another feature of the new economy where BEA and the Census Bureau have a common interest is in the increasing reliance by business on leasing. Once upon a time, companies bought their plants and bought the equipment they put in the plants. Once upon a time, companies hired the workers that worked in the plants. The company, its assets and its work force were all under the same control. That simple world made it relatively easy to collect data for a company and its operations. Now more and more companies are leasing their assets and leasing their employees.

These changes generate questions that make collecting data more difficult. For example, who owns the assets? For example, who is the employer of record for the employee? These and many, many other sorts of questions are those that have to be resolved by the Census Bureau to produce good data. The Census Bureau is devoting substantial attention to developing strategies to cope with leasing in its data collection efforts. To the extent that we are successful, we should be able to give BEA better data to factor this new business practice into its picture of the economy.

At the Census Bureau, we also collect data via information technology, and this approach has direct consequences for the completeness and quality of the data we provide to BEA. For close to a decade, we have collected some data through early stage electronic means, but now we hope to take the next obvious step, that is to say, offering the opportunity to report over the Internet to the 5 million companies that we will contact directly in the 2002 economic Census.

From experience, we know that electronic collection of data pays off. For example, an increasing proportion of the data required to be filed with the government at the time goods are exported is now filed over electronic networks. About 50 percent of the paper documents, the paper documents that were filed at the time of exporting, contained at least one error. Today, the error rate for documents filed electronically runs at 5 percent. The Census Bureau devotes substantial energy to inspecting and correcting incoming data to assure the accuracy of the data we release. Clearly, the cleaner the incoming data we receive, the more we will be able to con-

centrate our efforts to correcting the most troublesome data and the happier our customers, including BEA, will be.

Finally, Mr. Chairman, there are some data projects that the Census Bureau will work on as we gain in the productivity of our programs. The projects would make the data that the Census Bureau provides to BEA more useful. I have in mind improved data on nonmerchant wholesalers, broader coverage of service sector industries, more timely data on capital expenditures by State and local governments, and more accurate valuation of export statistics.

Mr. Chairman, that concludes my testimony. I thank you for this opportunity to appear before you.

[The prepared statement of Mr. Knickerbocker follows:]

Prepared Statement by
Frederick T. Knickerbocker
Associate Director for Economic Programs
Bureau of the Census

Before the Subcommittee on the Census
Committee on Government Reform
U.S. House of Representatives

April 5, 2001

Mr. Chairman, Mr. Clay, and Members of the Subcommittee:

Thank you for the opportunity to participate in today's hearing on the activities of the Bureau of Economic Analysis and the challenges BEA faces. We in the Economic Programs part of the Census Bureau collaborate with BEA in many different ways, and very frequently. While the data we collect are used by practically all federal agencies, and are closely monitored by the Federal Reserve Board, we regard BEA as our most important government customer. A high proportion of all the data we collect serves as source data for BEA. We are the principal source of the data BEA uses to develop its product side estimates of the gross domestic product. To the maximum extent possible, we at the Census Bureau try to make sure that our data gathering programs, and the improvements we make to those programs, accommodate BEA's needs.

Close collaboration between BEA and the Census Bureau means that the two agencies share a common view of the most promising opportunities for the improvement of economic statistics. Two examples of how basic data are organized illustrate this point. First, until a few years ago, the federal statistical system operated with an antiquated industry classification system – the 60-year-old Standard Industrial Classification system. In the last decade, a team established by

the Office of Management and Budget (OMB) of federal statistical agencies, with our counterparts in Canada and Mexico, designed a new, up-to-date, and flexible industry classification system. The result, the North American Industry Classification System, provides statistics profiling the American economy as it enters the twenty-first century, not as it was at the time of World War II. The Census Bureau, in cooperation with BEA and the Bureau of Labor Statistics, has led the effort to introduce the new industry classification system into federal economic statistics.

Second, while the updating of the industrial classification system represents a significant step forward, more needs to be done. Firms in manufacturing industries make specific products; firms in service industries deliver specific services. To generate the statistics that will support analysis of many economic policy issues – for example, the sources of productivity growth in the economy – data at the detailed product level are required. This is especially true for services where measuring the output of service providers is particularly difficult. Under the auspices of OMB, the Census Bureau, again in collaboration with BEA and the Bureau of Labor Statistics, is developing a product classification system that will serve as the framework for the collection of substantially more product level data than has been available in the past. The collection task will fall to the Census Bureau, but the task of putting the more abundant data to work will fall to BEA.

Of late, officials at BEA have devoted much time to measuring, describing, and putting into perspective the New Economy. Here is another area where we and our colleagues at BEA are

trying to make complementary advances in economic measurement. One feature of the new economy that has attracted much attention is E-business. The Census Bureau has pioneered the collection of official statistics on E-business, starting in late 1999 with the collection of quarterly data on retail sales made over the Internet. This was followed by collecting annual data on E-commerce activity in the manufacturing, retail, wholesale, and services sectors as part of our annual survey program. Detailed data on the E-business processes used in manufacturing plants were collected at the same time. The results of these collections have been released in recent weeks, with more results scheduled for release in May.

Our efforts at collecting data on E-business are in their early stages. The data do not illuminate all the ways that our Nation's business is increasingly being conducted via E-business. Still, our early efforts will give BEA some baseline statistics from which it can develop its own measures of the role of E-business in the economy. Looking forward, the Census Bureau believes it can contribute to further understanding of E-business by enhancing its collection of data on business purchases of information technology hardware and software – the infrastructure of E-business. Currently, the Census Bureau captures much of its data on business expenditures for plant and equipment through the Annual Capital Expenditures Survey. Without too much change, we believe this survey can be modified to pick up more specific data on E-business infrastructure, an advance that should help BEA perfect its own investment statistics – a key element in GDP. These improvements in investment statistics would certainly be welcomed by private industry.

Another feature of the new economy where BEA and the Census Bureau have a common interest in improving both the quantity and quality of data is the increasing reliance by business on leasing. Once upon a time, companies bought their plants and bought the equipment they put in the plants. Once upon a time, companies hired the workers that worked in the plants. The company, its assets, and its workforce were all under the same control. That simple world made it relatively easy to collect data about a company and its operations. Now, more and more companies are leasing their assets and leasing their employees. These changes generate questions that make collecting data more difficult. For example, who owns the assets, what are the contractual relationships between lessor and lessee, and who is claiming depreciation on the assets under what accounting rules – all questions the Census Bureau must resolve to produce good data. Who is the ultimate employer of record of a leased employee, where is his or her official place of work, who is really paying for fringe benefits, how do you avoid double counting employees – added questions that must be resolved to produce good data. The Census Bureau is devoting substantial attention to developing strategies to cope with leasing in its data collection efforts. To the extent we are successful, we should be able to give BEA better data to factor this business practice into its picture of the economy.

At the Census Bureau, our economic programs do more than give a high priority to collecting data on the use of information technology; we are employing information technology in our own collection efforts. This approach has direct consequences for the completeness and quality of the data we provide to BEA. For close to a decade we have collected some data through early stage electronic means. For example, in the 1997 Economic Census we collected data from several

hundred large retailing companies by mailing them computerized questionnaires on diskettes, which they completed and mailed back to the Census Bureau. We now hope to take the next obvious step, offering the opportunity to report over the Internet to the five million companies that we will contact directly in the 2002 Economic Census.

But simply establishing secure Internet links between millions of respondents and the Census Bureau is just the first step. Our challenge will be to develop Internet questionnaires that will give respondents high functionality – that is the ability to do lots of things with our questionnaires and to do them easily. For example, companies should be able to import data from their own company spread sheets directly into the Census Bureau Internet questionnaire. Edits should be built into the questionnaire so that respondents are alerted when they enter implausible information, such as the ever present three too many zeros. Further, to tailor our questionnaires to the peculiarities of the industry of the respondent, our plan is to offer 620 different questionnaires in both paper and Internet form.

From experience we know that the electronic collection of data pays off. For example, an increasing proportion of the data required to be filed with the government at the time goods are exported is now filed over electronic networks, including an Internet network maintained by the Census Bureau. About 50 percent of all the paper documents that were filed at the time of exporting contained at least one error. Today, the error rate for documents filed electronically runs at 5 percent. The Census Bureau devotes substantial energy to inspecting and correcting incoming data to assure the accuracy of the data we release. Clearly, the cleaner the incoming

data we receive, the more we will be able to concentrate our efforts on correcting the most troublesome data and the happier our customers, including BEA, will be.

Finally, Mr. Chairman, there are some data projects that the Census Bureau will work on as we gain in the productivity of our programs. The projects would make the data that the Census Bureau provides to BEA more useful -- improved data on nonmerchant wholesalers, broader coverage of service sector industries, more timely data on capital expenditures by state and local governments, and more accurate valuation of export statistics.

Mr. Chairman, that concludes my testimony and I will be happy to answer questions.

Mr. MILLER. I thank you both for your statements, and I appreciate you being here giving us a chance to talk about this. I'm sorry some of my colleagues—because we adjourned yesterday afternoon—have left town already. Let me start off, first of all, about data collection and the quality of the data. You say you use 5 million, you mention 5 million businesses will be in next year's——

Mr. KNICKERBOCKER. The Economic Census, sir, is conducted every 5 years. It is conducted for the years ending in 2 and 7. At the time of the Economic Census, we collect data from 22 million business locations in the United States. We collect data on between 15 and 16 million business locations basically through extracting certain data from tax records. We also contact firms directly. By "contact directly," we send out questionnaires and/or we will deliver Internet questionnaires to between 5 and 6 million companies. So that was the 5 that I was referring to.

Mr. MILLER. How about small business versus large business as the cooperation and the quality of data. Small business is a significant portion of our economy, of course, and the growth of our economy, too. What is the challenge of small business data collection?

Mr. KNICKERBOCKER. That is one of the reasons that we make such extensive use of tax records. Tax records give us the name, the location, the nature of the activity and the revenue of the business. And then to flesh out detail on small businesses, we send out samples, let us say, of 60,000 firms, in particular categories of small businesses to get the details, like the typical purchase patterns of business, the typical customer, and things like that.

So our first line of activity is basically to send as few questionnaires as possible to small business, to try to use what we refer to as administrative record, tax records, as an alternative source of data simply so that we don't have to pester small business persons. Then we use, as I say, sampling techniques to gather a rich sense of some of the subsidiary details of the small business.

Mr. MILLER. What about the monthly quarterly data? You don't use IRS data for that?

Mr. KNICKERBOCKER. No. Once every 5 years.

Mr. MILLER. Let switch over now to the monthly quarterly annual data, the sources of that data, say, for small business. How do you collect that data?

Mr. KNICKERBOCKER. We do not collect data on small businesses per se. We include small businesses in our samples, for example, our monthly collection of data on manufacturing or retail sales or wholesale, and in those cases, our sample frames are built up to reflect the composition of those industries, the number of small, medium and large size firms incorporated in those sample frames, pro rata in their shares of activity.

Mr. MILLER. How about underground economy? The nonreported income. Is that changing much in this country?

Mr. KNICKERBOCKER. I would have to defer to my colleague to the right because they have, for 10 or 15 years, been the most venturesome in trying to come to grips with that very difficult problem.

Mr. MILLER. Mr. Landefeld.

Mr. LANDEFELD. By the way, I would say one thing about the small businesses. In days gone by, when I first started in statistics,

you know you could collect a lot of dollars for the economy by going to three major auto companies. But when you begin to talk about things like auto repair services and other services, it is much more expensive in terms of number of firms. You have to survey to get that, which I think is one of the reasons why we still lack data, so intensively, as I said, in the services sector. For both the Census and BLS, those tend to be sectors that are hard to measure and part of the reason why they are not in our regular source data.

With respect to the underground economy, what we generally do is try to measure just the portion of it which is not reported to the IRS authorities. That is one of our major data sources. So we use various data to estimate that. For example, proprietors' income, according to the last taxpayer compliance measurement program, which unfortunately is also known as the "tax audits from hell" program, which was abolished by the Congress, but that was our last read on it. For every dollar proprietors reported to the IRS, there was another dollar they did not report.

So we carry forward a lot of those incomes that are underground or simply not reported to the IRS in our estimates. And we currently have no estimate of that, and one would think that with the increasing reporting of everything from video store receipts, etc., that would have some impact on compliance. So that raises a lot——

Mr. MILLER. So those tax audits from hell were a good source of information for you that you are going to be lacking. So that was your source of——

Mr. LANDEFELD. Right. Because the only way you can really find out that information is through a lifestyle audit, that is to find out if the person's receipts were far more than they reported.

Mr. MILLER. Talk about this sharing of data, and I know when we went through the whole issue of the decennial census, and the confidentiality of the data is absolutely crucial, as the Census Bureau believes, for the participation in the decennial. How much data sharing occurs now and how much needs to be made additional, and comment about that. A couple people mentioned data sharing in their statements, and then any impact that would have on the ability to collect accurate data.

Mr. LANDEFELD. Perhaps I can comment first. From our viewpoint, where we are integrating all this data, it would be tremendously important because if you look at the data, for example, from the Bureau of Labor Statistics, which collects its own data and doesn't share it with the Census Bureau, versus the Census for the very same industry, same time period, significant differences in things such as sales and employment occur in those industries. As we try to piece together our picture of the economy, because most of our measures on one side are based on income, the other based on Census type data, we have very large problems in trying to integrate those various data sources, and it would go a long way toward solving many of the problems, including the discrepancies in the growth rate on the two sides and a number of issues we confront.

Mr. MILLER. What sources of data would you want to share? Does the IRS share as much as you want to share? Whether they should or not is another question.

Mr. LANDEFELD. I think the first piece of information we would be interested in having shared would be the Census data and the BLS data, which are integral to our input and output, our national accounts, because we get different reads based on that data. And by looking inside it and seeing how companies are differently classified or what the differences in reporting are, we believe we could fix a lot of problems in our estimates. I mentioned that discrepancy where we have an income measure growing at 4.9 percent and a product-side measure growing at 4½, which causes no end of problems for forecasts. Those are the kind of things we would hope to be able to address. IRS data, we only can look at it selectively for corporate profit returns. Census can look at it more broadly than we can.

Mr. KNICKERBOCKER. We at the Census Bureau have been in support of the concept of data sharing. There have been, as I am sure you know, several bills introduced to effect that in the last several sessions and we have been quite supportive of that. The classic example would be that we at the Census Bureau maintain a business register of essentially every business place, the basic facts on every business place in the United States. At BLS they maintain a business register. Each of these are complicated files of 7 or 8 million firms with are all sorts of data on those. These are two parallel registers. To be sure, they do serve somewhat different purposes. I don't think if we had data sharing we could simply shut down one of the two registers, but I think there is no question but that there could be significant efficiencies gained in terms of how these two registers would go on because there is certainly some proportion of duplication right now.

So I cite that as an obvious example of some of the gains from data sharing. We think that the quality of samples could be improved. That is to simply say by sharing information one could get an additional data point or two incorporated in our data that would help us generate better samples and, vice versa, for the agency to whom we might supply data. We should be able to quit asking companies the same data, the same questions, over and over again. Every questionnaire that goes outs requires the respondent to give us the name of the company, the location of the company, its EIN, plus five or six basic facts. How many times does the company have to keep saying the same thing over and over again? There ought to be one repository in government that has all the basic facts on companies, eliminating repetitive requests for data.

I would make this point, sir. We are very attracted to data sharing. We should, however, mention IRS. Practically all the data that the Census Bureau has—I should say the economic program has on businesses is either directly or indirectly derivative of certain IRS records and/or there is some IRS content in those records. IRS, I think for perfectly understandable reasons, has concerns about sharing, meaning that it takes a much more restrictive view toward the sharing of records than we do.

So here is a consideration should Congress pass data sharing. My point is that Congress is going to have to confront, to find some way to conform IRS regulations to data sharing if data sharing is to be as fruitful as it might otherwise be.

Mr. MILLER. I guess it is also true with Census data that other agencies want to use to project into the future. Did you want to add something else?

Mr. LANDEFELD. I will add an example. Congress once passed a piece of legislation that allowed BEA, BLS and Census to share data on foreign direct investment, and as a result of that sharing we were able to go, using our enterprise and their establishment data sets, from having data by State for 66 industries to over 500 industries, a creation of a huge data set on foreign direct investment with no additional respondent burden, very little cost to the agencies overall. And that is one example of the type of advantage you can get out of sharing this kind of data.

Mr. MILLER. You are familiar with the American Community Survey. If it replaces the long form, it will be done on an annual basis. What impact will that have on your data?

Mr. LANDEFELD. We mainly use that type of information on our regional accounts, and it is our hope that with that regular ongoing surveying that will go on as part of the American Community Survey—I must say I am no expert at all on this subject—but that regular surveying of larger geographic areas, we think we will be able to get much better, up-to-date types of information which we use in allocating data to the regions, States, municipalities in the United States.

Mr. MILLER. One of the things about data is the timeliness of the data, as you know there was a discussion with Mr. Greenspan, about how fast he can react and how accurate the data is and you come up with the best estimates you can and then you revise them. In our next panel I would like to talk about this, as well, is what happened in the 1990 recession period and the data and how the data changed. Would you comment about that? I know we are going through economic times now that Mr. Greenspan wants accurate data.

Mr. LANDEFELD. One hates to extrapolate from that one episode. For most of the postwar period we have done a pretty good job, but that is indeed one of the misses we had in terms of the particular timing of that business cycle. We did show a turndown at that time, a slowdown in economic activity—but not nearly the decline that we had then. And I think that is somewhat worrisome because as I look right now, for example, at the data, one of the most important components of our estimates that is helping to hold up the economy in the current period is investment in computer software. And while the annual data on that are pretty good, I do worry about the quality, and we are working to try to improve the quality of the quarterly estimate. If the slowdown we saw in computers were also reflected in software, we would have seen several tenths at least taken off the real GDP growth rate in the last quarter, which I think psychologically would have been important because it would have put us below 1 percent growth rate in our estimates of the slowdown.

So there are a number of components of that sort and services in many of the industries I have mentioned where we are using very crude extrapolators for a lot of components that are either new economy or in services. And that does worry you because it is only when we get the annual surveys, and in the case of many of

those services only once every 5 years do we get data on all service industries as part of the quinquennial census. So there is an awful lot of extrapolation going on with all kinds of partial data that does worry you in terms of our ability to capture the timing changes in the U.S. economy.

Mr. MILLER. We had the problem with the CPI and the market basket problem and adjusting to that with the new economy, and they are making the adjustments and proceeding. You mention about changes taking place. Are you able to adjust quickly enough to changes in the economy? We are going through this change and I think Mr. Greenspan said we are perhaps 25 percent through this technology revolution. And I don't know whether we are at 50 percent or 10 percent or 75 percent, but obviously there are many changes going on. Are you able to quickly react—I shouldn't say quickly, but react properly to that type of change? As you say, there are new industries new products, everything.

Mr. LANDEFELD. I don't mean to be a two-handed economist, but the answer is yes and no. We were one of the leaders in developing price indices and quantity indices where the weights changed every quarter, eliminating some of the biases that were and are now being addressed in the CPI. So with respect to that the Bureau was one of the leaders, and it actually eliminated a very large bias in real GDP. That was much larger than the bias we all heard about in the Consumer Price Index.

So on that score the answer is yes, but in a very important way the answer is no, because for a lot of high-tech products and services that use high-tech products—insurance, the securities industry, the data we are using are those that I described as input-based or output-based estimates. And as a result, if we count output based on input, we get zero productivity growth by design and understate the rate of growth in real GDP in that industry and also overstate inflation in those industries. So we still have serious problems in keeping up with changes in the economy and high-tech sectors. We don't have quality-adjusted prices for local area networks and all kinds of things of that sort. We are working very hard at developing, as I mentioned in terms of cell phones and others, but an awful lot of work remains. The President of the American Economic Association, Dale Jorgenson, has made this point in a number of his papers in assessing the new economy, that a major part of the problem in assessing the new economy is the fact that there are so many sectors that are major users of IT and also products that are produced that are high-tech that are not appropriately measured, and that tends to bias the results one gets in looking at the, "new economy."

Mr. KNICKERBOCKER. If I could speak to that point. I mentioned in my testimony about e-business. Certainly the concept of the Internet was known throughout all the 1990's, but really the Internet as a way of doing commerce really took off in 1998. By late 1999 we were, as I indicated, gathering at least the first sorts of data on activity over the Internet, retail sales over the Internet. Were we gathering data on day one when it became important to gather data on the Internet? No, but we gathered data on it within a year of the time when it surfaced as an important element in our economy.

So we are in the lead in gathering data, and we are certainly very mindful of the task. We are also aware of changes in business practice and of our obligation to generate some data on them as quickly as possible.

Mr. MILLER. How much of a problem does making adjustments in your data over time cause you? And to the comparability of the data?

Mr. LANDEFELD. That is a major concern as one compares current periods to past periods. We at the BEA have prided ourselves in keeping a nice consistent time series. Every time we do a revision we go back to 1929. But I must say it is getting more and more difficult to do. You can only extend the series back so far. That is a major part of our job. The Bureau of Labor Statistics just introduced a new price index for securities brokers and dealers at our request. Unfortunately, they only gave us 6 months of data because they are in the current process of estimating current prices, and we have got to work to extend those backward. But we are finding increasingly our ability to do so is limited.

Thank goodness, some of these products did not exist in the past so you only have to extend it so far back. But there is the whole question that many academics have pointed out, Bob Gordon in particular of Northwestern, that there were a lot of innovations back then that we may not have fully captured the impact of. So there may be some things we are missing in the past. Some of the examples like computers are so egregious you had to do something with them. And I think that is what we have tried to address, that is the examples where we really absolutely must do something because the rate of decline in both the price per unit of computers and the quality-adjusted price is so large you have to estimate for that. But we are not about to go out trying to adjust every price that is out there.

Mr. MILLER. Looking down the road when you start projecting 5, 10 years in to the future, right now there is a lot of debate about tax cuts 10 years in the future in Congress, as you know, and 10 years ago what was the projection? How far would you have been off 10 years ago, from 1991 to today? Maybe the next panel would be able to answer that.

Mr. LANDEFELD. I really can't tell you. All I can say right now, and I think Dick Berner may address this and certainly Bob Dennis from CBO, but most rules of thumb say over 10-year forecasts about a 0.1 percentage point error in real GDP can produce errors in 10-year projections of $200 billion or more, depending on whose rules of thumb you are using, CBO or OMB. That is the reason the differences in the growth rate are so important. It is just one-tenth of 1 percentage point that has those kind of $200 billion effects over time. That is why we are particularly worried about this 0.4 percentage point discrepancy between our two measures of growth.

Mr. MILLER. One more last question, because we need to go on to the next panel. An area that I have a great interest in is what is going on in biotechnology. How do you plug that into longevity, life expectancy, I mean, revolutionizing—the impact on the economy, on trade?

Mr. LANDEFELD. Gee, I am kind of boggled. We are having enough problems just measuring pharmaceutical prices.

Mr. MILLER. But that is the future.

Mr. LANDEFELD. Clearly that is another form of information technology investment which is becoming increasingly important. Our first crack at this kind of thing was the capitalization of computer software, but it obviously influences the market valuation of firms, that kind of biotechnology. So it is something we can and should be measuring. It is on our long-term agenda. I think there is a recent Brookings study on exactly this issue of what those kinds of things are worth and their market value. I think that study panel urges us to move forward on that, but I must say our current concerns are so large that is a little down the road for us.

Mr. KNICKERBOCKER. If I could add to that, sir. What Steve is saying is what I see is our greatest challenge. It is relatively easy to collect data on physical capital, bricks, buildings, equipment, things like that, but today horsepower is becoming less important and brain power is becoming more important. Human capital, intellectual capital, and how we measure human capital, which is the driving force in business today, explaining human capital and collecting the basic facts on human capital that has got to be the No. 1 challenge that we have before us.

Mr. MILLER. It affects trade data significantly, too, doesn't it? We are a major exporter of that.

Mr. KNICKERBOCKER. If we knew what our exports statistics were to the nearest 7 percent, we would be better off, sir.

Mr. MILLER. Let me thank you all. Do either of you want to make a concluding comment?

Then we will move on to the next panel. It is a huge challenge you all have and you have got a great deal of credibility and respect. And I think the recognition that Congress finally gave you, an increase last year, and certainly my understanding is President Bush's budget will include a generous one next year, shows the recognition that we need to continue to work to improve, and it is an amazing challenge you have. So thank you all very much for being here. I look forward to working with you.

Mr. LANDEFELD. Thank you, Mr. Chairman.

Mr. KNICKERBOCKER. Thank you, Mr. Chairman.

Mr. MILLER. We will take a second to allow you all to move and we will let the next panel have a seat.

Welcome. Our second panel includes representatives of the Congressional Budget Office and industry associations who are active data users and advocates of the Federal statistical system. We have Bob Dennis, who is the Assistant Director of Macroeconomic Analysis of CBO, the primary source of budget information for Congress. Richards Berner is the current president of National Association of Business Economists, whose members have a vested interest in accurate and timely economic statistics. Diane Swonk is the chief economist and senior vice president for Bank One and the immediate past president of the NABE. Gordon Richard is an economist representing the 14,000 member National Association of Manufacturers. And Professor Ernie Berndt joins us from MIT, Sloan School of Management. Professor Berndt also chairs an advisory committee to the Bureau of Economic Analysis, Bureau of Labor Statistics and the Census Bureau.

I thank all of you for being here today. We will start with Mr. Dennis.

STATEMENTS OF BOB DENNIS, CONGRESSIONAL BUDGET OFFICE, ASSISTANT DIRECTOR, MACROECONOMIC ANALYSIS; RICHARD BERNER, PRESIDENT, NABE; DIANE SWONK, CHIEF ECONOMIST, BANK ONE, INC.; GORDON RICHARDS, ECONOMIST, NATIONAL ASSOCIATION OF MANUFACTURERS; AND DR. ERNST R. BERNDT, MIT, CHAIR OF THE FEDERAL ECONOMIC STATISTICS ADVISORY COMMITTEE

Mr. DENNIS. Good afternoon, Mr. Chairman. Mr. Chairman and members of the subcommittee, I am pleased to be here today to discuss some of the major issues affecting the Bureau of Economic Analysis, which is the enormously respected keeper of the national income and product accounts. In my testimony I will focus on the crucial role that those accounts play in shaping public understanding of the U.S. economy and helping the Congressional Budget Office to construct its baseline budget projections. I will also note several ways in which BEA's data might be improved.

It is not too much to say that the national income and product accounts are what make modern empirical macroeconomics possible. Those accounts are the organizing principle that enables us to see how the parts of the economy fit together. The accounts are also the foundation of CBO's economic forecast, which underlies the baseline budget projections that the Congress needs to do its work. We use those accounts both to track what has happened in the past and to ensure that our assumptions for the future are internally consistent.

The economy of course does not stand still but keeps changing its structure. In the past decade, forecasters and analysts have had to cope with the sets of changes that have come to be called the new economy. And as we have heard, those changes have posed special challenges to the statisticians at BEA, who have done an excellent job of meeting them. However, CBO believes that some further progress can be made, and in my testimony I will suggest some areas for improvement. Many of those improvements would require changes in procedures not only at BEA but also at the agencies that provide BEA's source data.

As we have heard, BEA is not by and large a data gathering agency but gets its data from the surveys and economic censuses at the Census Bureau, from the Bureau of Labor Statistics [BLS], from administrative records such as tabulations of the IRS, and from various private sources. Some data improvements may also require additional reporting by businesses. In those cases, of course, it would be necessary to assess any additional burdens that those requirements would impose, and we have not made any such assessments.

Let me first briefly describe how CBO uses BEA data. Those data play a large role in CBO's budget projections because they provide the foundation of the economic projections, which in turn underlie both the revenue and outlay projections. BEA data, along with data from BLS or the Bureau of the Census, are the key supply-side inputs used to explain economic growth.

Besides contributing to CBO's economic projections, BEA data also helps more directly in CBO's projections of revenues. Revenues are sensitive to the distribution of national income between wages and salaries and corporate profits. BEA provides measures of those incomes, and CBO projects those measures forward as part of its overall economic projections. BEA's estimates of the capital stock, moreover, which determine how much corporate income must be assigned to depreciation, also have an important influence on the relationship between output and revenues.

Now let me turn briefly to the challenges of the new economy for forecasters and statisticians. What people mean by the new economy is a complex of developments, particularly over the last decade, including rapidly falling costs for information technology [IT] and consequently for information itself, changes in the organization of production as firms take advantage of the lower cost of information, and the proliferation of new companies doing new things, which are always among the hardest to track.

To understand what is happening, forecasters need a statistical system that can keep pace with the changes in the economy. One of the main tasks of the statistical system is to separate economic growth into the share that reflects price changes and the remaining share, which reflects the real growth of the economy. Developing good price indexes is often difficult, however. The quality of most goods and services changes over time, and price indexes must take those changes into account.

For example, even though a computer now may sell for roughly the same price as a computer last year, few people would be happy to purchase last year's model rather than this year's. The same number of dollars this year buys vastly more computing power than it did last year, and that improvement in quality has to be reflected in the price index. BEA has led the way in improving estimates of the contribution of computers. The estimates are often rough, but they are generally preferable to ignoring all of the available information about changes in quality.

Nevertheless, there are still important areas where further improvements in the measurement of prices and quality could greatly improve our understanding of the new economy. One such area is communications equipment. According to a forthcoming CBO analysis, the lack of good quality adjustments for that same equipment may have resulted in an underestimate of real investment growth of about 0.6 percentage points per year, on average, between 1996 and 2000.

There are also places outside the IT sector where current techniques could represent what is going on in the economy. For example—this has already been mentioned—two Federal Reserve economists found that reported productivity growth in many service industries was persistently negative between 1977 and 1999, even though firms in the industries remained profitable. They found that if they replaced those unexpected negative productivity growth rates for several service industries with an estimate of zero, the overall productivity growth would then be reported about 0.3 percentage points higher. That is overall productivity growth.

Finally, let me mention a couple of ways in which the statistical system could be even more helpful to CBO in doing its economic and revenue projections.

First, we could use better and more current estimates of wages and salaries under withheld income and payroll taxes. Steve Landefeld mentioned the problem of data on supervisory and professional employees. Other problems arise from the exercise of certain stock options, which ought to be part of wages and salaries but which are not currently captured by any government statistics. The lack of data on stock options distorts our understanding both of the growth of wages and of tax trends. We understand that BEA is investigating ways to improve those data, and we look forward to its results.

Second, contemporaneous information on the sources of withheld tax payments would be very helpful to CBO as well as to BEA. Employers are not asked to report contemporaneously on how much of the tax they withhold is due to payroll taxes, even though they have to calculate payroll taxes and income taxes separately in order to know how much to remit. As a result, BEA and tax analysts have to make do for more than a year with estimates of that split, which complicates the tracking of tax credits. Technological advances, however, may have made it cheaper for businesses to give us those data in real time.

I have some additional discussions of these suggestions and others in my written testimony. BEA is already working on most of them, and indeed it has a much better and more comprehensive list than we do.

I would just like finish with the following thought. The new economy poses severe problems for national income statisticians, but it may also offer an opportunity. The IT revolution has lowered the cost of information, and that is having dramatic effects on the way businesses produce and use information. The IT revolution also offers the opportunity for government statisticians to gather more useful data without intruding into or imposing excessive burdens on private business.

Mr. Chairman, I will be glad to answer any questions.

[The prepared statement of Mr. Dennis follows:]

CBO TESTIMONY

Statement of
Robert Dennis
Assistant Director
Macroeconomic Analysis Division

Issues Affecting the Bureau of Economic Analysis

before the
Subcommittee on the Census
Committee on Government Reform
U.S. House of Representatives

April 5, 2001

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Mr Chairman and Members of the Subcommittee, I am pleased to be here today to discuss some of the major issues affecting the Bureau of Economic Analysis (BEA), the enormously respected keeper of the national income and product accounts (NIPAs). In my testimony, I will focus on the crucial role those accounts play in shaping public understanding of the U.S. economy and in helping the Congressional Budget Office (CBO) construct its baseline budget projections. I will also note several ways in which BEA's data might be improved:

- by extending its innovative treatment of computers to other parts of the information sector, and

- by accelerating the publication of some data.

THE IMPORTANCE OF BEA

It is not too much to say that the NIPAs are what make modern empirical macroeconomics possible. Those accounts are the organizing principle that enables us to see how the parts of the economy fit together. On one hand, they help economists track the way in which decisions made about work, consumption, and investment today determine how big the productive capacity of the economy will be next year. On the other hand, they show how those decisions, together with government spending and trade flows, evolve over time to determine the demand for each year's production.

The NIPAs are also the foundation of CBO's economic forecast, which underlies the baseline budget projections that the Congress needs to do its work. We use those accounts both to track what has happened in the past and to ensure that our assumptions for the future are internally consistent.

The economy that BEA describes in the NIPAs does not stand still, but keeps changing its structure. In the past decade, forecasters and analysts have had to cope with a set of changes that have come to be called the "new economy." Those changes have posed special challenges to the statisticians at BEA, who have done an excellent job of meeting them. Among the most important innovations, BEA staff have dealt with the special problems involved in measuring computer prices, have begun to count the intellectual capital in software in the same way as they treat other investment, and have changed the basis of measuring real (inflation-adjusted) gross domestic product (GDP) from a fixed-weight system to a much more stable system of chained weights. Those changes greatly enhance analysts' ability to understand the economy and thus to produce intelligent forecasts.

It remains to be asked, however, whether further improvements in BEA's measurements could make it possible to discern changes in trends more quickly and accurately, lessening the kinds of forecast errors we have seen in the past decade. CBO believes some further progress can be made, and in the remainder of this testimony I will suggest some areas for improvement. Nevertheless, such changes would not have entirely eliminated those forecast errors, because forecasting in a changing world is an inherently difficult task.

Many of the improvements suggested in this testimony would require changes in procedures not only at BEA but also at the agencies that provide BEA's source data. By and large, BEA is not a data-gathering agency. It gets its data from the surveys and economic censuses of the Census Bureau, from the Bureau of Labor Statistics (BLS), from administrative records such as tabulations of the Internal Revenue Service (IRS), and from various private sources. In cases in which improvements in data would require additional reporting by businesses, it would, of course, be necessary to assess any additional burdens that those requirements would impose. We have not made any such assessment.

HOW CBO USES BEA DATA

The largest role that BEA data play in CBO's budget projections is as an input to the economic projections, which in turn underlie both the revenue and outlay projections. CBO projects the level of real GDP—BEA's measure of the total amount of goods and services produced in the U.S. economy—as the basis of its 10-year budget projections. BEA data, along with data from BLS and the Bureau of the Census, are the key supply-side inputs used to explain economic growth.

In broad terms, CBO's economic model explains real GDP as the result of the combination of labor input, capital input, and total factor productivity (sometimes characterized as technical progress) in the nonfarm business sector of the economy. (CBO adds simpler analyses of four other sectors.) Projections of labor input are based on source data from BLS and the Census Bureau. Projections of capital input and total factor productivity (TFP) reflect historical trends in BEA data on national output and incomes and its measures of capital stocks.

BEA reports data for the capital stocks in the economy, and CBO combines those data with information from BLS to construct measures of the flow of capital services in each sector. Future flows of capital services are calculated from that base using projections of net investment (gross investment minus depreciation), which in turn reflect CBO's

projections of private and government saving. The analysis of both investment and saving behavior depends, once again, on BEA's historical data.

The third major input to the projection of real GDP is a projection of the growth in total factor productivity. CBO makes that projection by extrapolating from the trend growth of TFP in recent history. Total factor productivity is measured as that part of the growth in real GDP that cannot be explained by growth in labor or capital input. Hence, its trend reflects the historical data on real GDP as well as on labor and capital inputs, so CBO's projection employs BEA's measures of capital stocks and real GDP.

Besides contributing to CBO's economic projections, BEA data has a further role to play in CBO's projections of revenues. Revenues are sensitive to the distribution of national income among various kinds of income, which are taxed at different effective rates. In particular, for any given projection of real GDP, the projection of revenues will depend on the share of total income that takes the form of wages and salaries or corporate profits. BEA provides measures of wages and salaries and of corporate profits; CBO projects those measures forward as part of its overall economic projections. Measures of the capital stock, which determine how much corporate income can be assigned to depreciation, also have an important influence on the relationship between output and revenues.

CBO's projections of outlays are made within the framework of federal budget concepts, which differ from BEA's measure of the federal sector of the NIPAs. Nevertheless, outlays depend on BEA data through estimates of future price inflation. Historical price deflators produced by BEA are an important input to CBO's projections of outlays. BEA's NIPAs also provide the framework within which CBO can analyze the feedback from the federal sector to the rest of the economy.

THE CHALLENGES OF THE NEW ECONOMY

Developments associated with the "new economy" pose considerable challenges for economic forecasters. Those developments include rapidly falling costs for information technology (IT) and, consequently, for information; changes in the organization of production as firms take advantage of the lower cost of information; and a proliferation of new companies doing new things, which are always among the hardest to track. Of course, the economy is constantly buffeted by structural changes. The latest developments are merely the most recent example of that process. They differ from past examples in some features, such as the dramatic technological change in computers, but they are similar in other features, such as the shifts in the sectoral

composition of GDP. To understand what is happening, forecasters need a statistical system that can keep pace with the changes in the economy.

Different people mean different things when they talk about the new economy. At CBO, we focus on the stunning acceleration in productivity growth during the late 1990s. The growth of labor productivity almost doubled during the second half of the 1990s, rising from an average of 1.5 percent per year between 1974 and 1995 to 2.9 percent per year between 1995 and 2000.

That rise in productivity growth had many causes, but an increase in businesses' investment in computers and related hardware contributed disproportionately to it —causing more than half of the rise, most estimates say. Computers have contributed to productivity growth in two ways. First, investment in computers has helped make companies that use them more productive. Second, increased productivity in the manufacture of computers has added directly to national output and productivity. A very large share of the contribution of computers has come from increased productivity in the computer manufacturing sector, although economists still disagree widely about the exact size of that share.

CBO and other analysts have put a great deal of effort into understanding the contribution that various high-tech goods and services have made to real growth and, of course, the degree to which they have spurred productivity growth. All analyses of that contribution have been made possible by advances in BEA's price indexes and measures of quality improvement. Those advances fall into two categories: measurement of real values to purchasers and measurement at a finer level of detail. Despite those important successes, however, improvement in measuring the output of the IT sector is only beginning.

Measuring Real Values to Purchasers

One of BEA's main tasks is to separate economic growth into the share that reflects price changes and the remaining share, which reflects the real growth of the economy. Developing good price indexes is often difficult, however. Although it is relatively easy to measure the price change for a good (such as Kansas City hard red wheat) that does not vary over the years, the quality of most goods and services changes over time, and price indexes must take those changes into account. For example, even though a computer now may sell for roughly the same price as a computer last year, few people would be happy to purchase last year's model rather than this year's. The same number of dollars this year buys vastly more computing power than it did last year, and

that improvement in quality has to be reflected in the price index. Estimates of such improvement are often rough, but they are generally preferable to ignoring all of the available information about changes in quality.

BEA has led the way in improving estimates of the contribution of computers, by taking into account in its price measures the enormous improvement in the power and speed of computers as well as the lower prices at which computers are sold.[1] The same approach could be extended to other areas, especially software and perhaps computer services. In addition, statisticians do not yet have a good handle on the prices (or, therefore, the real quantities) of peripheral equipment and even some computer components. For example, most mainstream manufacturers of disk drives are located abroad. But BLS's producer price index (PPI) tracks only domestic producers, who tend to be in niche markets where prices do not reflect the mainstream of the industry. BLS's international price index is not complete enough to track the small electronic components that the United States imports in large numbers.

BEA's price indexes for communications equipment are also inadequate, though they will improve in coming years. BEA's estimates rely on the PPI, which BEA then adjusts slightly. Those estimates do not yet capture the advances that have occurred in the speed and power of communications equipment. BLS has begun to improve its measures, using some of the same quality-adjustment techniques that it and BEA pioneered in the case of computers, but it will be years before the treatment of communications equipment has caught up with that of computers. Given the scale of investment in communications equipment—$124 billion in 2000—the lack of good quality adjustments for that equipment results in measurable understatements of output and productivity. That lack, according to a forthcoming CBO analysis, resulted in an underestimate of real investment growth of about 0.6 percentage points per year, on average, between 1996 and 2000.

Although good measures exist of the prices of the semiconductors that computer makers use most—microprocessors and dynamic random access memories (DRAMs) —the estimates of the quality-adjusted prices of other types of advanced integrated circuits are not always so good. Those other integrated circuits underlie the communications revolution of the past few years. BEA currently relies on the PPI for its index

1. BEA and BLS have worked together to create "hedonic" price measures for computers. Hedonic price measures attempt to discern how purchasers value different attributes of a computer (such as its speed, memory, and so forth) and to construct a price index that reflects the improvements in those attributes. For example, if a computer today cost the same as last year's model but was twice as fast and had twice as much memory, the real price of those attributes would have been halved. A hedonic price index would capture that price decline.

of semiconductor prices. The BLS—correctly, in our opinion—has concentrated its resources on the semiconductors that account for the largest share of the market (microprocessors and DRAMs, which make up one-third of world semiconductor production and a slightly larger share of U.S. production). Nevertheless, that concentration means that the dramatic improvement in quality of other semiconductors is still being missed in official measures. That improvement will not be easy to measure, however, because the markets for those other integrated circuits are much more fragmented and thus will take many more resources to survey.

Finally, many of the measurement issues described above also apply to durable goods, such as tools and instruments, that use computer technology but are not usually classified in the IT sector. Microprocessors often permit an unprecedented degree of precision, such as in the plants that manufacture semiconductors. In areas where quality has improved dramatically, such as computerized industrial machinery and scientific instruments, the NIPA price index and the PPI have probably underestimated real price declines, because the current indexes do not incorporate the quality-adjustment methodology now applied to computers. However, for many of the most promising areas, economic studies to determine whether official price indexes have indeed missed systematic quality improvements remain to be done.

Measuring at a Finer Level of Detail

Some of the most useful studies of the new economy are those that perform a growth-accounting exercise at the industry level. Those studies calculate total factor productivity by industry and correlate the industries that have experienced increases in TFP growth with those that have invested heavily in IT goods. That approach (typified by the work of Dale Jorgenson and Kevin Stiroh) is data intensive, requiring information about output, labor input, and capital input by industry. Largely through the efforts of BEA, the data required to calculate the capital input are available, though only with a lag. Calculating the labor input requires more assumptions—thus, it would be useful to have better and more timely estimates of hours worked by sector.

MEASURING REAL PRODUCT AND PRICES IN SERVICE INDUSTRIES

It is generally recognized that the output of many service industries is poorly measured. The basic problem is not the ability to measure the number of transactions in those industries but the ability to define a unit of output and, therefore, a price index for that output. The problem is compounded when the quality of those services is improving over time. For example, the official price indexes for transportation services, insur-

ance, and banking have been criticized on various grounds: for ignoring changes in quality, such as the advent of ATMs or a faster approval process for mortgages; for using list prices or even input prices instead of the prices of actual sales transactions; or for improperly weighting the price index toward services that are being phased out. Those sectors are probably some of the ones in which the productivity benefits of lower information costs would be visible if better data existed.

Of course, BEA is not responsible for producing price data—most are developed by the Bureau of Labor Statistics. However, the usefulness of the NIPAs, which are produced by BEA, is significantly affected by the price data that are available, and thus the adequacy of price data is a concern of this hearing.

The potential impact of improving statistics for the service sector is huge. The possible gains are illustrated by the work of Carol Corrado and Lawrence Slifman of the Federal Reserve Board. In a recent paper, they found that reported productivity growth in many service industries was persistently negative between 1977 and 1997.[2] Since many of those industries had remained profitable during that period, they speculated that problems in measuring prices were the reason for the negative productivity growth. They found that if they replaced the negative productivity growth rates for several service industries with an estimate of zero productivity growth, overall productivity growth was about 0.3 percentage points higher than reported.

One service industry that has long been of concern to CBO is medical care, both for its contribution to the NIPAs and for the potential effects that medical advances have on the demand for services under Medicare and Medicaid. Improved measurement of medical care prices could have a major impact on CBO's view of the economy as well as on our analysis of various policy proposals related to health care. Spending for medical care makes up about 15 percent of total personal consumption expenditures and about 11 percent of GDP. Even the relatively small changes in measuring medical care prices that were made in 1994 and 1996—replacing consumer price indexes with newly developed producer price indexes for some physicians' services and for government hospitals—increased the measured growth of real GDP by about 0.1 percentage point.

A number of recent studies illustrate the need for better information about medical care prices. For example, one study found that HMOs paid about 40 percent less per case

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2. Carol Corrado and Lawrence Slifman, "The Reliability of Aggregate Statistics: Decomposition of Productivity and Unit Costs," *American Economic Review,* vol. 89 (May 1999), pp. 328-332.

than indemnity insurance companies did for treating heart attack patients in Massachusetts in 1993 through 1995. In essence, the indemnity companies paid a list price, whereas the HMOs had negotiated discounts. Thus, a price index that simply tracked list prices would overstate the price of treatments for heart attacks. In addition, better knowledge of how different insurers compensate providers—information that could be gleaned in part from better surveys of medical care prices—would improve the analysis of various policy proposals for government health programs, such as the recent plans for prescription drug coverage for the elderly.

Other recent studies of heart attack treatments highlight the quality-adjustment problem with medical care prices. Between 1975 and 1995, the mortality from heart attacks after 30 days dropped from 22 percent to 12 percent. The studies show that about half of that gain stemmed from better treatment, but the price indexes for medical care do not adjust for that change in outcomes. If such an adjustment were made, the price of heart attack treatment would fall.

In short, the real value of medical care has probably grown much more over the years than official data indicate.

Because price indexes for medical care face a host of special problems, improving those measures will not be easy. It is not even clear what should be measured—the price of individual medical services that make up a specific treatment, the price of the overall treatment, or the price of a cure for a specific ailment. If individual prices (such as a day in a hospital bed) are measured, the price index will not take into account advances in treatment that reduce the number of hospital days required. If the price of the overall treatment (say, the total cost of surgery for ulcers) is measured, the replacement of surgery by a course of drug treatment for ulcers would not be taken into account. However, if statisticians try to measure the cost of a cure for ulcers regardless of the method of treatment, they must determine the value of the medical outcome for the patient, which is a difficult task. (How does one value the benefit of a cure for ulcers?) In addition, the cost of a cure may reflect changes in the severity of patients' initial conditions over time more than changes in the cost of the medical services.

IMPROVING DATA REPORTING

BEA generally produces its estimates quickly after the underlying data become available, though there have occasionally been large delays in completing benchmark revisions. Some changes in BEA's regular reports could help CBO produce its

economic and budget projections. In some cases, however, those changes would require additional data collection and changes in procedures at other agencies.

Data for Revenue Estimates

CBO's revenue projections would benefit from the improved availability of data measuring wages and salaries and withheld income and payroll taxes. However, certain improvements would require a change in the tax-reporting requirements on employers.

First, data on stock option activity are very poor. No government statistics measure the extent to which the exercise of nonqualified options by employees contributes to overall wages and salaries. Income related to the stock market, such as income from options, has different characteristics than other types of income, and those differences could have important implications for CBO's projections. We understand that BEA is investigating ways to improve those data, and we look forward to its results. One way to assist BEA in that endeavor would be to require employers to report stock option activity separately on W-2 forms—a change that the IRS is considering.

Second, contemporaneous information on the sources of withheld tax payments would be very helpful to CBO as well as to BEA. The IRS does not require employers to report immediately how much of the withheld taxes they remit represent payroll taxes and how much income taxes; that information is reported on a quarterly basis. Final numbers do not appear until W-2 reports are processed after the end of the year. As a result, both BEA and tax analysts have to make do for more than a year with estimates of that split, which complicates the tracking of tax trends.

Technological advances, however, have made the real-time availability of those data possible. With most withheld receipts now paid through electronic transfers, the necessary information could be required of employers along with the payments and made immediately available by the IRS to the public in aggregate form. The split between payroll taxes and income taxes is already calculated by employers, so the additional reporting burdens on them might be small. Because withheld receipts result from taxes with different rates and bases, the broken-down data would enable CBO to track more quickly certain shifts in the overall distribution of wage income in the economy, an important determinant of effective tax rates. In addition, BEA could improve the measures of federal taxes in the NIPAs.

Third, BEA could help us by publishing its "not-seasonally-adjusted" estimates of wages and salaries, in addition to the seasonally adjusted data it now provides. That expanded information would enable us to link more directly the information on wages and salaries with the resulting income and payroll taxes. For data covering the past several quarters, BEA generally starts with source data that are already seasonally adjusted, so providing the data before seasonal adjustments would require adding the seasonal movements back in, not necessarily a straightforward task. For data covering earlier periods, however, BEA generally starts with source data that are not seasonally adjusted and then makes the seasonal adjustments, so providing that data would presumably be fairly easy.

Current-Quarter Reports

Sometimes, the state of the economy is highly volatile and its direction is uncertain. At such times, current-quarter analysis—and hence the timeliness of BEA data—is very important in shaping CBO's near-term budget outlook. Given the near-term implications that recessions have for revenues and outlays, there is a premium on information that lets forecasters distinguish an emerging recession from a slowdown. More accurate and more timely information on the development of the inventory cycle would certainly have helped in the formulation of CBO's forecast for 2001.

CBO's projections would therefore benefit from better estimates of the initial jumping-off point of the economy and from an improved reading of the economy's current direction. The quality of the quarterly NIPA estimates could be enhanced if BEA's source data could be collected more rapidly without loss of accuracy, or more accurately without loss of timeliness, or both.

As we think about the difficulties that forecasters face in tracking what is going on in the current quarter, many of the deficiencies in data seem intractable. For example, we would very much like to have earlier data on inventory changes and net exports. Those two components are responsible for a large part of the volatility of GDP on a quarterly basis, but they are available only with a two-month lag and are still subject to considerable revision after three months.[3] In November and December of 2000, the

3. Information on a large part of inventories is drawn from monthly Census Bureau surveys of manufacturing, wholesale trade, and retail trade and then converted by BEA to current replacement costs using information from periodic Census Bureau surveys. The advance monthly survey data on manufacturing and trade are published about six weeks after the survey month. Data on exports and imports of goods are based on a mix of paper and electronic filing with the Census Bureau and the Customs Bureau and are available—accompanied by BEA estimates of trade in services that use a mix of judgment and sources—with about a seven-week delay.

economy slowed very rapidly, mainly as a result of an inventory correction in the business sector. The current methods meant that data for inventories in December were not available until mid- to late February; as a result, the advance estimate of fourth-quarter GDP at the end of January had to be based on assumptions rather than measurements of inventory behavior. If there was some way to process those data more quickly, CBO would be better able to understand what was going on in the current quarter. However, earlier estimates would not be useful if those data were significantly less reliable than the ones we get now, and we have no specific suggestions about how the data could be produced more quickly.

BEA could still help forecasters increase their understanding of the current state of the economy even if the published quarterly estimates cannot be improved. Once the "final" estimates of NIPA variables for a given quarter are "locked up" (three months after the end of the quarter), BEA continues to gather information that may subsequently be used in its annual revision, when quarterly estimates are updated. Because BEA's estimates of subsequent quarters are based on the principle of the best estimate of change, the actual level reported for a subsequent quarter will, in that case, be reported with a built-in and known error. If BEA were to report as technical background any information that it had about the "locked" quarters, forecasters such as CBO could use that information to make an informed estimate of the likely subsequent revision to the level of GDP. Such a procedural change would allow our budget projections to more fully reflect the data already being collected. BEA's sister agency, the Bureau of Labor Statistics, already informs its users about what annual revisions it is likely to make to the employment figures that come from its surveys of employers.

THE LIMITS OF GDP MEASURES

Although the NIPAs and their headline number, GDP, are central to understanding what is happening in the economy, it is important to remember that changes in GDP do not correspond closely to changes in people's well-being. GDP is a measure of production and income, not of well-being.

Currently, GDP measures the market economy, covering transactions that involve monetary exchanges. The NIPAs do include some imputations, most notably for rent of owner-occupied housing, but even those imputations reflect market activities (houses are bought and sold in the market, and the imputation of rent is simply a way of valuing that market activity that does not distort the short-term growth of the economy). The

focus on the market economy is particularly useful for revenue estimators, because money transactions generate the incomes on which people are taxed.

A variety of efforts are under way to produce a more comprehensive measure. Those efforts range from attempting to value nonmarket activities such as household production, to valuing extraction of primary resources, to a "green GDP" concept that tries to take into account the losses associated with pollution. Even with those efforts, however, GDP and its expanded measures can never be a complete reflection of human welfare. Most important, it takes work to produce output, and it takes current sacrifice to produce saving and investment. How much work and how much saving it is worthwhile to devote to helping the economy grow will always be a calculation outside the scope of national income and product analysis.

CONCLUSIONS

I have noted various areas in which further improvements in data could be productive. BEA is already working on most of them, and indeed, it has a much better and more comprehensive list than we do. I would just like to finish with the following thought: the new economy poses severe problems for national income statisticians, but it may also offer an opportunity. The IT revolution has lowered the cost of information, and that is having dramatic effects on the way businesses produce and use information. The IT revolution may also offer the opportunity for government statisticians to gather more useful data without intruding into or imposing excessive burdens on private business.

APPENDIX: RELATED CBO PUBLICATIONS

Greening the National Accounts (Paper), March 1994.

Is the Growth of the CPI a Biased Measure of Changes in the Cost of Living? (Paper), October 1994.

Changing the Treatment of Software Expenditures in the National Accounts (Memorandum), April 1998 (available at www.cbo.gov).

Measurement of Employee Benefits in the National Accounts (Memorandum), September 1998 (available at www.cbo.gov).

Current Investments in Innovation in the Information Technology Sector: Statistical Background (Memorandum), April 1999 (available at www.cbo.gov).

"Federal Statistics and Data Collection" in *Budget Options*, February 2001, pp. 89-92 (available at www.cbo.gov).

The Need for Better Price Indexes for Communications Investment (Paper), forthcoming.

Mr. MILLER. Thank you.

Mr. Berner.

Mr. BERNER. Mr. Chairman, thank you for this opportunity to appear before you. Today I am here in my role as president, as you indicated, of the National Association for Business Economics [NABE]. We are a professional organization for people who use economics in their work, and our mission is to provide leadership in the use and understanding of economics.

As you have heard from some of the other people in this room, the national income and products accounts are really critical for evaluating the forecasting and understanding the U.S. economy. And I just want to leave you with the point that from our perspective it is essential that these data faithfully portray the rhythm of economic activity as well as the separate parts of a very complex $10 trillion economy. As Bob Dennis has noted and as Steve Landefeld also noted, these data are essential for your policy deliberations, particularly with regard to the budget. Steve and Bob have talked about some of the improvements that have been made in our Federal statistical infrastructure as they are used by BEA.

I want to emphasize the fact that, as has already been said, our economy is constantly changing. The industrial economy of the past has given way to the very different knowledge-based information economy, and that constant evolution obviously requires both new sources of data and resources for agencies to collect and analyze them. While our statistics remain among the best in the world, lack of investment in our infrastructure has left us with a system that still does a better job of measuring infrastructure activity than information-based output.

The new data initiatives that have already been discussed cover services and high tech industries more comprehensively and more accurately than only 4 years ago, yet major gaps remain. The most important industry in some statistical tables is still the one labeled "all other." While BEA makes every effort to ensure that its four major set of accounts, national, industry, regional and international, tell consistent stories, holes in the data often make that impossible.

Steve did not tell you, I don't think, that statisticians must estimate from a patchwork quilt source data roughly 20 percent of the GDP. Moreover, it has been discussed already that data on prices that enable us to separate inflation from real growth are often lacking. Steve did mention the software investment is one area where he has incomplete data and where he has to make estimates. At my firm, Morgan Stanley, we have surveys of businesses that may tell a somewhat different story from the extrapolations that the BEA has to make.

Now, here is the punch line: More and better data obviously require more funding. And you have heard that before. I want to tell you that business people and policymakers increasingly recognize that funding improved statistics in general, and the GDP accounts in particular will pay huge dividends. My friend to my right, predecessor as NABE president, Diane Swonk, will recount for you in a moment the broad support that these efforts have in the business community.

For his part, Fed Chairman Greenspan also supported that in his comments last week.

You asked a question just a moment ago about biotechnology. Fed Chairman Greenspan indirectly addressed that by asking whether or not when we consider the cost of medical procedures, how we should measure prices of those procedures given the advances in technology that have been made. And that is a question that Director Landefeld, Nick Knickerbocker, and others in our agencies will have to grapple with.

Personally, we agree with Fed Chairman Greenspan that greater payoffs will probably come from better data than from more technique and so does our membership at NABE. Our members recognize the importance of funding constraints on enhanced data gathering. That fits our longstanding support for maintaining fiscal discipline. Our members consistently supported moving to a balanced budget since we began polling them on policy issues 25 years ago. However, we also recognize that the costs of incomplete and inaccurate information far exceed the combined budgets of our major statistical agencies.

In a survey published just last week, 70 percent of NABE respondents favored increasing spending on economics statistics. They ranked such increases first among seven alternatives for increased Federal spending including education and infrastructure. Don't get us wrong, those are important. But these investments will pay huge dividends. That is not surprising. We have long been concerned about improving the quality and timeliness of these data. In 1985, NABE created a statistics committee, chartered to work for the improvement of the national statistical system. Along with Chairman Greenspan, we supported efforts to reduce bias in the consumer price index. And working closely with the Council of Economic Advisors, the committee developed recommendations for data improvement.

I would add, Mr. Chairman, that we would welcome the opportunity to work with you toward that end.

NABE believes that our national data collection efforts should be as efficient as possible. You will hear from me and others that toward that end we believe that Congress should mandate data sharing among the agencies solely for statistical purposes. As you know, confidentiality statutes that permit data to be seen only by the employees of a single agency present a formidable barrier to effective working relationships among the agencies. They virtually guarantee duplication of efforts and inconsistencies among related data sets that you have already heard about. Moreover they deny, in effect, agencies' resources from undertaking new analyses that could improve the information available to policymakers. This is not a cost-effective way to run any business—either public or private.

Federal statistical agencies and others such as the Federal Reserve are already cooperating in several ways to improve our statistical infrastructure. But I believe that permitting data sharing would take that cooperation to a new level. Consequently NABE supports reintroduction of the Statistical Efficiency Act of 1999. It was passed unanimously by the House. This legislation would permit exchange of statistical information under specific statutory controls. In summary, Mr. Chairman, NABE supports enhanced fund-

ing for improved economics statistics; and we also support the efficient use of those funds through data sharing among Federal agencies. I would be happy to answer any questions you may have.

Mr. MILLER. Thank you.

[The prepared statement of Mr. Berner follows:]

Testimony of

Richard B. Berner
President, National Association for Business Economics
and
Managing Director and Chief U.S. Economist, Morgan Stanley Inc.

to the

107th Congress
United States House of Representatives
Subcommittee on the Census
Committee on Government Reform
April 5, 2001

Mr. Chairman and Members of the Committee

Thank you for this opportunity to appear before you. You have asked me to discuss the Bureau of Economic Analysis (BEA) in general, and the importance and accuracy of the Gross Domestic Product (GDP) and related accounts in measuring the U.S. economy. I am here today in my role as President of the National Association for Business Economics (NABE). We are a professional association for people who use economics in their work. Our mission is to provide leadership in the use and understanding of economics.

The National Income and Product or GDP accounts form the key conceptual and empirical framework for understanding, analyzing and forecasting the U.S. economy. As such, these data are critical for making informed decisions, both for people in business and for you who make public policy. It is essential that these data faithfully portray the rhythm of overall economic activity as well as that of the separate parts of a complex, $10 trillion economy.

Your current deliberations on tax and fiscal policy illustrate the importance of accurate and timely statistics on GDP and personal and corporate income. Courtesy of pleasant surprises on economic growth and of fiscal restraint on your part over the past six years, we now enjoy significant and likely persistent budget surpluses. Yet we do not completely understand the sources of those unexpected dividends, in part because data profiling the sources of the recent surge in income is not yet available. And the economic outlook -- both near-term and longer-term -- is uncertain. As you know, the long-term matters a lot. CBO estimates that a mere 0.1 percentage point difference in real growth over ten years would add or take away $244 billion from cumulative projected surpluses. Sensible policy decisions require a range of forecasts or scenarios. Sensible policy decisions also must start from knowledge of the facts, and if the data on which we base those forecasts are faulty, so too will be the forecasts. And that could have grave consequences for our future prosperity.

Since their inception, statisticians have endeavored to improve the quality and accuracy of these statistics. Yet our economy is constantly changing: The industrial economy of the past has given way to a very different, knowledge-based information economy. That constant evolution -- some would say revolution -- requires both new sources of data and the resources for our statistical agencies to collect and analyze them. While U.S. economic statistics remain among the best in the world, lack of investment in our statistical infrastructure has left us with a system that still does a better job of measuring industrial activity than information-based output.

New data initiatives cover services and high-tech industries more comprehensively and more accurately than only four years ago. Yet major gaps remain. The most important industry in some statistical tables is still the one labeled "all other". While BEA makes every effort to ensure that its four major sets of accounts -- national, industry, regional and international -- tell consistent stories, holes in the data often make that impossible. Statisticians must estimate from a patchwork quilt of source data roughly 20% of GDP. Moreover, data on prices that enable us to separate inflation from real growth are often lacking.

More and better data will require funding. Budgets for statistical agencies, especially BEA, barely cover mandated wage escalations. Funds for research and development are sorely needed to expand the scope and improve the quality of our statistics so they remain relevant in a rapidly changing economy.

Businesspeople and policymakers increasingly recognize that funding improved statistics in general and the GDP accounts in particular will pay huge dividends. My friend and predecessor as NABE president Diane Swonk will recount for you in a moment the broad support that these efforts have in the business community. For his part, Fed Chairman Greenspan -- himself another past president of our association -- last week spoke at our Washington Policy Conference on this very subject. He asked:

> "Should we endeavor to continue to refine our techniques of deriving maximum information from an existing body of data? Or should we find ways to augment our data library to gain better insight into how our economy is functioning? Obviously, we should do both, but I suspect greater payoffs will come from more data than from more technique."

Personally, Mr. Chairman, I agree with Alan Greenspan. And so does our membership.

NABE members recognize the importance of funding constraints on enhanced data gathering. It fits our long-standing support for maintaining fiscal discipline. Our members consistently supported moving to a balanced budget since we began polling them on policy issues twenty five years ago. However, we also recognize that the costs of incomplete and inaccurate information far exceed the combined budgets of our major statistical agencies. In a survey published just last week, 70% of NABE respondents favored increasing spending on economic statistics. They ranked such increases first among seven alternatives including education and infrastructure.

That's not surprising. We have long been concerned about improving the quality and timeliness of these data. In 1985 NABE created a Statistics Committee with the charter to work for the improvement of our national statistical system. Along with Chairman Greenspan, we supported efforts to reduce the bias in the Consumer Price Index. And, working closely with the Council of Economic Advisers, the Committee developed recommendations for data improvement.

NABE believes that our national data collection efforts should be as efficient as possible. To that end, we believe that Congress should mandate "data sharing" among the agencies, solely for statistical purposes. Confidentiality statutes that permit data to be seen only by the employees of a single agency (e.g., Title 13 -- Census Bureau and Title 15 -- Bureau of Economic Analysis) present a formidable barrier to effective working relationships among statistical agencies. They virtually guarantee duplication of effort and inconsistencies among related data sets collected by the affected agencies. Moreover, they prevent agencies from undertaking new analyses that could improve the information available to policy makers. This is not a cost-effective way to run any business -- either public or private.

Federal statistical agencies and others such as the Federal Reserve are cooperating in several ways to improve our statistical infrastructure. But permitting data sharing would take that cooperation to a new level. Consequently, NABE supports reintroduction of the Statistical Efficiency Act of 1999 that was passed unanimously by the House. This legislation would permit exchange of statistical information under specific statutory controls.

In summary, Mr. Chairman, NABE supports enhanced funding for improved economic statistics. We also support the efficient use of those funds through "data sharing" among Federal agencies.

I will be happy to answer any questions you may have. Thank you.

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Mr. MILLER. Diane Swonk, please.

Ms. SWONK. Thank you for allowing me to speak on something that is so close and dear to my heart given the work that both Dick and I did last year to try to get people to recognize the issue on the U.S. statistical agencies and the funding that they need. I commend their efforts to try to improve the data in what was a harsh funding environment for so long. I am just going to provide some summary comments from my remarks as you already have them on file. And I am dyslexic so I am really bad at reading them any ways. Dyslexic economists are kind of dangerous since we flip numbers around as well.

I would like to start with my view that economics is at its very heart the study of collective human behavior, one of the hardest concepts for us to even imagine measuring. I think, to paraphrase Chairman Greenspan, which all of us are doing since he gave such a timely speech last week at NABE meeting, he did talk about an economy that is increasingly dominated by ideas instead of material inputs or manual labor, as one that is putting significant stresses on our ability to—on our statistical systems. With that said the U.S. economic statistics many times represent our only true light in what is becoming an increasingly dense forest of global economic information. Business leaders and the press have already begun to recognize the magnitude of the issue and they realize that statistics shape everything from our own strategic risk assessment at the banks, strategic planning, to portfolio management. And just the rumor of one of these statistics being out of kilter from where many are expecting, we know can move billions of dollars around the world in a split second now.

Moreover the gap left by what has been taken away in terms of what is now faulty or incomplete data provided by the U.S. statistical agencies has left many of us to rely on private-sector information. Dick pointed out that his firm now does its own surveys which are commendable but there are many a survey that provide a sliver of information in what is really only a piece of a much larger, more complex puzzle. I think of things like the National Association of Purchasing Managers index—which before the last Fed meeting just because it happened to come out before the January 3rd surprise inter-meeting Fed meeting, people all now think that is what moves the Fed which is utterly ridiculous that one number would move the Fed to do an inter-meeting move like that. Especially one number that is not held accountable to the same kind of accountability our U.S. statistical agencies are held accountable for.

There is also today the Challenger, Gray & Christmas survey was released recording lay offs. These surveys never state when the lay offs are going to occur, whether they are due to attrition, how much they are going to show up in the unemployment statistics, and really tell us much more about structural change in the large corporate sector rather than, as you pointed out earlier, what is so importantly going on in the small business sector. Small businesses don't have to name how many people they hire or how many people they are able to hire now after complaining in other surveys they have not been able to hire for years and now finally have some workers to hire. So I find that an important point to make as well.

At worse, some of these issues, in terms of these private surveys that are now becoming so popular, 15 years ago nobody even paid attention to some of these surveys, I might add, that are out there. They give a distorted, inaccurate view of the macro economy. It is not to say that they were put in unscrupulous private sectors hands. I represent the private sector, and I know incentives well. And knowing that your statistic might happen to move a market is an incredible temptation to take a position on before it actually comes out. That is one reason why I believe in the U.S. statistical agencies and that the data should come from the government. I don't believe a lot of things should from the government, but I believe in fiscal discipline but certainly with prudence funding the statistical agencies.

In response to all these issues, businesses have taken things into their own hands investing in extraordinary information technologies. My own company, Bank One Corp., is now looking to increase its investment in the Intranet and Internet to be able to know real-time information on anything that is going on in any 1 of our 14 states of dominance in any one of our business lines. That is very important to us, but severely compromised now is our ability to be able to forecast some of the trends that helped shape the strategy of the bank when I first started.

My first forecast that I ever made was in 1986 for the renaissance in the Midwest economy trying to get the bank focused on looking to the Midwest rather than New York to be a bank and looking at its own comparative advantage. I am not sure I can make that same forecast today given the lack of regional data and the lack of quality in the regional data that is now available, because as the statistical agencies have had to make cutbacks in their priorities, prioritize what they do cover, regional has often gotten short shifted. We do not know retail sales in any State in the country, your State, we do not know the retail sales in your State. It seems so utterly ridiculous when you are thinking about I helped many a State and local government try to forecast revenues and understand their economic environment with fewer and fewer economic information on that front is—I think is a huge problem.

Also I think why shouldn't the statistical agencies have the same ability that we have given the private sector to automate and aggregate data that is now being collected in the private sector. This would far increase efficiencies and sometimes inaccuracies filled out by the wrong people by surveys in the private sector. I am very much in support of increased investment in infrastructure in the statistical agencies. This goes far beyond just supporting data collection and quality data. It is talking about really raising the bar on the kind of information we can collect in a new information world. And if we don't make those kinds of investments, the kind of data we are going to be getting is yesterday's data at best rather than today's data which is so critical to policymaking and other issues.

I have already talked about some of the issues that we face. I think underscoring the risks, I think you referred to it a bit earlier, of faulty or lagging economic information you noted the 1990 situation where as late as October 1990 Chairman Greenspan was try-

ing on record to reassure an increasingly skeptical public based on data that said we were still in a slow but economic expansion, not a recession. It wasn't until 2 years later upon the revision of that data in 1992, that we actually saw in the data a recession acknowledged. A recession that actually began 2 months before Greenspan was making comments on record that he thought the economy was still expanding given the economic data.

We don't know what history would have changed if that information had been available, but clearly it points out the need and the need for continual increases in the accuracy of the data.

I also note the importance of the 1997 and 1998 financial crises that rocked global markets around the world certainly required the Fed and the Treasury to intervene in 1998 to stabilize what had been a liquidity freeze in our own financial markets in the United States because of, in part, faulty information around the world. The information that we see in the United States is the best in the world, is the most transparent, and the most accountable. Other countries that do not have or are not as well funded as we are even with our needs for funding have far less credible data and the transparency issues are clearly not there. People were making investments without clear information of what those investments were assuming they had the same kind of information that we had here and we got caught very hard by that issue.

Also as has been already mentioned is the budget debate and how important the source data that goes into the debate is. Just having that data—know that it is going to be revised in and of itself makes this question the outlook. We could spend all day debating the assumptions on the forecast, but I think we would all agree at the end of the day that having the best source data possible is the only way to possibly get to any kind of a close and accurate end point in the data.

I will return to where I started to some extent and say that efforts to improve the quality of U.S. statistics are commendable but still fall far short in catching what I think is a moving target: A rapidly evolving information-based economy.

The statistical agencies have suffered from neglect and a lack of advocates. I noted in my comment that the word "data" appears to be the most uninteresting four-letter word in the human vocabulary, not attracting much attention out there. NABE has certainly, I hope, changed that. It was our goal when Dick and I sat down last year, our goal starting back in the mid-1980's to make this a more national debate on statistics to underscore the importance. And I think we have raised the volume if nothing else.

Dick pointed out how our diverse multinational membership, 70 percent, agree. Do you know how hard it is to get 70 percent of economists to agree on anything? That is a really remarkable thing when—and it has been the same every year. The overwhelming majority of our members choosing that as their most important objective.

Moreover I think what I have been stunned by is our allies in every corner. I mention in my comments, last year when I was working on the lobbying effort to increase funding for statistical agencies, actually had one CEO return a call from his vacation because he thought it was so important to get back to me to be in-

cluded on a list of people writing letters in support of statistical funding. It spans party lines. I have a list that I started—actually I couldn't finish in time to get here because of my travel schedule but just in 1 day I was able to get seven CEOs that I called around and actually got a hold of personally to say please include me on the list, Diane.

Every single person we have approached has come back to us with, of course, we support you. And many of these CEOs have also gone to great lengths to write many a letter to many a Congressperson in order to keep that support out there. I think that is really important. Our only—there are no enemies in this game of the statistics. There are no people out there against us. We are an advocate, but we don't have enemies.

Our only true enemy is complacency. I urge—and this is certainly following after some of the things that you have heard from other people, but funding on quality and timeliness of the economic statistics really includes everything from funding for infrastructure to funding for competitive pay packages in this economy. Despite the slowdown, I was just out yesterday at a customer in Springfield, IL, who is paying $700,000 a month to temporary workers, double the wages of their existing workers, just to fill positions. This is very important to continue to have quality people to be able to work and fund in the funding of these agencies.

I also encourage investments in infrastructure. Why shouldn't we share data between agencies? And investments in infrastructure could make the sharing of that data much more rapid, much more efficient, and much more accurate, frankly. Also I think it would also make—investments in infrastructure could make the collection of data much more accurate.

Finally, I think it is important to point out funding for research techniques as well. One of the things that we do in this country better than others is we actually know how to survey for statistical information better. And not only do we need to continue to improve upon that, especially in an idea-based economy, I think we also have a responsibility for ourselves that would payoff not only for the United States but for the global economy for many decades to come to continue to invest in the quality of research on statistics and export that technique abroad so that other economies we deal with are playing in the same playing field we are. This would mean enormous returns for our own financial markets and could add much stability where we have seen instability in the recent past.

I guess my last quote from Chairman Greenspan, which has been quoted very much today because of his support on this, he said about a little over a year ago in a question asked of him to a Senate panel, that when it comes to statistical funding, I am extraordinarily reluctant to advocate any increase in spending so it has to be either very small and/or very formidable argument that is involved. He said, and I find in this case, regarding U.S. statistical agencies, both conditions are more than met.

And I think that sums up our membership and certainly those of us who have to deal with this on a daily basis, and also every

CEO I talk to feels it is very important to their business lines and their conduct of business not only in this country but abroad. Thank you.

Mr. MILLER. Thank you.

[The prepared statement of Ms. Swonk follows:]

Subcommittee on the Census
Committee on Government Reform
April 5, 2001

Diane C. Swonk, Senior Vice President
Chief Economist, Bank One Corporation
Past President of the National Association for Business Economics

For years, the statistical agencies have struggled and simultaneously made improvements in the way U.S. data are calculated, despite widespread budget cuts and outright neglect. They pushed for new and better ways to capture inflation when it finally hit Congressional radar screens in the 1990s, and more recently, developed better measurements of the contribution being made by the often intangible information and technology sectors. Until recently, however, complaints of the compromises that these agencies were having to make due to antiquated equipment, noncompetitive pay packages, and the elimination of less key (but still valuable) data series, fell on deaf ears. Recent efforts to reverse the process are commendable, but still represent only a small step in catching a rapidly moving target.

Economics is, at its very heart, the study of collective human behavior, and as such, one of the hardest concepts to measure in a meaningful way. Perhaps Chairman Greenspan summed up the dilemma best in his speech of March 27, "...during the last decade or two, an ever-increasing share of GDP has reflected the value of ideas more than the material substance or manual labor input. This ongoing development is posing significant stress on our statistical systems."

More importantly, if the BEA and the Census do not get funding to make critical infrastructure investments and increase research on the best techniques to collect data, then the very relevance of the U.S. data system itself will come increasingly into question. Improvements to incorporate the impact of e-commerce and the advent of the Internet, in particular, will not be completed. Can you imagine a measurement of GDP that does not accurately track one of the fastest and far-reaching technologies to hit the global economy in decades?

Business leaders and financial reporters have begun to understand the magnitude of the problem, as they deal and report on the impact that these data have on financial markets everyday. Statistics on the macro economy shape everything from business strategy to portfolio management. The mere rumor of a surprise in one of these critical figures can move billions around the world in an instant. Businesses have also taken the matter into their own hands by investing aggressively in the ability to increase the flow of information internally, so that at the very least, they have real time information on their own operations. Why shouldn't the statistical agencies be doing the same to aggregate the data, and speed the flow of information to the public before it becomes yesterday's knowledge?

Moreover, the gap left by faulty or incomplete data has left policymakers and business leaders alike relying on private sector reports that are more questionable in quality and reliability than those produced by our own statistical agencies. The private sector reports which we see moving markets today, such as the Purchasing Managers Index, chain store sales and, in the extreme, the Challenger, Christmas, and Gray survey of corporate layoffs, provide only small pieces of a much larger and more complex puzzle. At worst, they represent a micro and slanted view of the economy, which can lead to downright wrong conclusions about the course of the economy at any point in time. This is nothing to say of the hazards associated with data that moves financial markets in the hands of what could be unscrupulous private sector players, seeking to benefit from advanced knowledge of such information.

Economists have also underscored their concern of the dangers of faulty and incomplete data. Recent studies suggest that the 1990 recession might have been avoided had accurate information on the U.S. economy been available. Data at the time was showing that the U.S. was still in an expansion as late as October. Chairman Greenspan himself was on record trying to reassure an increasingly skeptical public that the economy was still moving forward during that period. It was not until two years later, however, when the 1992 revisions to that data actually acknowledged that the economy was already in recession in the fourth quarter of 1990. Indeed, the economy actually hit its peak in August.

One can only imagine how the Fed would have acted if it had known sooner. Would history have been permanently altered? The inputs into the process are far too complex to guess the answers to those questions, but the point is nonetheless well taken, the quality of economic data has the potential to not only shape the decisions of business, but in some cases, the fates of nations.

More recent examples of the importance of good data (and the risks of bad data) include the emerging market crises of 1997 and 1998. Nobody knew the severity of the situation abroad until it was too late to act. The result was widespread capital flight, first from emerging Asia, and later from Latin America, deep recessions, and broad-based financial market turmoil. Do we want to run the same risk with our own economy in the U.S? Instead, with research on better data gathering techniques, we could export our knowledge of sound and transparent data procedures to nations with fewer resources, which may help prevent such crises in the future.

Finally, data quality is critical to the current debate over the magnitude of Federal Government surpluses. One could take a whole day to debate the validity and accuracy of current estimates, and not come to agreement. At the end of the day, however, I think that all of us would agree that the assumptions that we make about the future are largely irrelevant if we do not start with the best base data possible. There is no way to come to an accurate end-point, if your starting point is compromised by incomplete source data.

Now, I will return to where I started. Recent efforts to raise the bar on our national statistics are commendable, but still fall far short of capturing a rapidly moving target. In

the past, these agencies suffered for lack of advocates and were neglected. (The word "data" appears to be among the most uninteresting and least provocative four-letter words in the English language.) I am here to tell you today that that is no longer the case. The National Association for Business Economics (NABE), the largest association of economists, policymakers, and strategists of its sort in the world, has turned up the volume on the debate for quality and timely data. The push for quality and timely statistical data is the one force that unifies an increasingly diverse and multinational membership.

Moreover, we have found allies in almost every industry and association we have approached. During our efforts to lobby support for the quality and timeliness of government statistics in September, one corporate leader even responded from his vacation to lend his support. Indeed, finding enemies in this debate is difficult.

I fear that complacency is our only true enemy. I urge Congress and the Administration to support the statistical agencies so that they may not only provide quality and timely data, but also make the investments in infrastructure and research necessary to export that knowledge of data collection to less fortunate places of the world. The return on such a small investment will be felt worldwide, and most importantly, in our own backyard for years to come.

Chairman Greenspan, a former president of the association, summed the sentiment of NABE well. When commenting on funding for the statistical agencies to a Senate panel last year, he said, "I am extraordinarily reluctant to advocate any increase in spending. So it's got to be either a very small amount or a very formidable argument that is involved. And I find, in this case, that both conditions are met."

Mr. MILLER. Mr. Richards.

Mr. RICHARDS. Thank you, Mr. Chairman. As a professional statistician, I think that the BEA has done an excellent job; and as a statistician in the business world, we really put our money where our mouth is. We get inquiries from the manufacturing sector all the time as to what statistics they should be looking at, what time series they should be using for particular problems. And I always refer them to the government agencies.

It is not always the BEA, as sometimes we think they should look more at the index of industrial production compiled by the Federal Reserve or the shipments data compiled by the Census Bureau, but I invariably tell them to rely on the government data. I get quite a few inquiries about some of the private-sector surveys. I wasn't going to put this in my written statement, but I think many of the private-sector surveys provide misleading and inaccurate information. The government agencies have made much more of an effort to make the data accurate, reliable, and it is actually quite user friendly. The problem for the private sector is getting enough non-economists out there to be aware of the data sources and to give them some guidance as how to use that. In fact, this is one area in which the government data is vastly superior to most of the alternatives.

As far as what I think the BEA has been doing right for the last 10 years, let me cite three examples. First of all is the adoption of chain-weighting in GDP, which is a major innovation. And we certainly see this in terms of say the relative difference between growth and inflation, that is, the share of nominal output that is compromised by growth and compromised by inflation. If we hadn't had chain-weighting we would be reporting a higher rate of inflation at a lower rate of growth. This has very clear policy implications for the Federal Government because transfer payments were indexed to the Consumer Price Index. As a result, the Federal Government ended up spending more than was absolutely necessary on these income transfers.

The second big innovation the BEA has made is the redefinition of GDP to include software. And as any computer programmer can tell you, software should not be treated as an intermediate input such as raw material. It is a valuable productive tool which in turn can be used to generate value added.

The third major innovation that the BEA has engaged in, which again we agree with completely, is the imputation of quality improvement to the computer sector. The way that they have done this is to take a weighted average of computer processing and capacity and add that to the real value of computers. If you do not do this quality imputation, which has been somewhat controversial, you end up with extremely low estimates for the rate of growth; and this, in turn, has very significant implications for policy decisions. Of those three innovations, I think the two most significant are the quality imputation to computers and the redefinition of GDP to include software.

Throughout the 1990's, there has been a debate in which we have participated as to how fast the economy can grow at a stable inflation rate. For a long time, we had this situation in which the growth rates that were being reported were relatively low but the

inflation rate was continuing to decline and national income was growing faster than national product.

Now, the increase in income relative to product suggests that the cause might be hidden productivity. It was a paradox that was resolved when the BEA adopted these innovations and we discovered that the missing output wasn't missing at all. Rather it was the output that was being generated by the quality of computers and by the inclusion of software in the national income accounts.

We have also done our own production function studies on this issue, and what we find is that using reasonable measures of technology, a theme I would like to return to in just a moment, we get estimates suggesting that the productivity trend in the United States could be sustained at something like 3 percent per year over the next 10 years. There is quite a debate going on right now as to whether or not the increase in productivity that we have had since the mid-1990's is just a one-time event or is sustainable in the long term. And the econometric models that we have developed and in some instances had published in the journals clearly indicate that this is a long-term development. The BEA's innovations in compiling better GDP data were instrumental in deriving these estimates that indicate the trend in productivity is sustainable.

One issue that has come up recently and certainly in this hearing is the difficulty involved in measuring intellectual capital. So I would like to suggest one possible approach to this. This is more a suggestion than anything else. I think it is going to need to be debated. Right now there is very unusual discrepancy in the national income accounts. Research and development spending is counted in GDP if it is done by the government, it falls under government purchases, but if it is done by private industry, R&D is counted as an intermediate input and netted out.

In my view, R&D can be taken as one measure of the increasing intellectual capital that is becoming increasingly important in the economy. In fact, if you add R&D spending into GDP and you also put R&D in as a production function you can explain an additional 0.6 percentage points per year of productivity growth. And of course that is quite an important issue from our point of view because productivity or output per hour we know has to come from physical capital and technology but the technology, component is poorly measured.

So one thing that BEA should probably consider doing is redefining output to include R&D under business-fixed investment.

Finally, I would like to conclude with one comment about the recent debate on income versus product and how serious the current economic slowdown is. The problem—the discrepancy between income and product during the mid-1990's was really resolved in favor of higher output. We saw income rising faster than product and it turned out that we were growing much more rapidly than we expected.

Now, however, we have a situation in which the product side is reporting a pretty serious slowdown, growth is 1 percent in the most recent quarters, it will probably come in about 1 percent when BEA releases it, and yet national income has been rising by more than $70 billion faster than national product for the last 2 years. So we are seeing again some indication that there may be

hidden productivity out there, that there may, in fact, be higher out there.

We don't know the source of the output. But there is clearly an indication that the American economy has a good deal of resiliency. There may be additional technical advance, additional productivity that isn't being measured in the product-side but is showing up on the income-side. That in turn suggests that once we are out of the current slowdown, we see a recovery in demand, that we can actually sustain the current expansion for a long period of time.

Thank you, Mr. Chairman. I will be happy to answer any questions.

Mr. MILLER. Thank you very much.

[The prepared statement of Mr. Richards follows:]

NAM National Association of Manufacturers

Testimony

Of Gordon R. Richards

On behalf of the National Association of Manufacturers

Before the Subcommittee on the Census

Committee on Government Reform, U.S. House of Representatives

On the quality of GDP data, and the Bureau of Economic Analysis

April 5, 2001.

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Manufacturing: The Key to Economic Growth

- The United States was rated number one in global competitiveness by the Switzerland-based Institute for Management Development by a wide margin — almost 20 percent above its closest competition, Singapore and nearly twice as high as traditional economic rivals, Germany and Japan.
- U.S. manufacturing productivity growth averaged more than 4 percent during 1996 and 1997 — roughly one-third higher than the trend since the early 1980s and nearly three times as great as the rest of the economy.
- U.S. manufacturing's direct share of the Gross Domestic Product (GDP) has remained remarkably stable at 20 percent to 23 percent since World War II. Manufacturing's share of total economic production (GDP plus intermediate activity) is nearly one-third.
- Manufacturing is responsible for two-thirds of the increase in U.S. exports, which have grown to 12.9 percent up from 11.4 percent in 1986.
- No sector of the economy, including the government, provides health care insurance coverage to a greater percentage of its employees. Average total compensation is almost 20 percent higher in manufacturing than in the rest of the economy.
- Technological advance accounts for as much as one-third of the growth in private-sector output, and as much as two-thirds of growth in productivity. The lion's share of this comes from the manufacturing sector, which accounts for more than 70 percent of the nation's total for research and development.

Testimony of

Gordon R. Richards,

National Association of Manufacturers

Before the

Subcommittee on the Census
Committee on Government Reform
U.S. House of Representatives

On
The quality of GDP data, and the Bureau of Economic Analysis

I am Gordon Richards, testifying on behalf of the National Association of Manufacturers (NAM). The NAM represents 14,000 companies, 10,000 of which are small businesses. The topic of this hearing is the quality of our estimates of Gross Domestic Product, and the performance of the Bureau of Economic Analysis (BEA) in general.

First, we agree that GDP is the single most important indicator of our economic well-being. It is not the only indicator of interest to manufacturing executives. We also make considerable use of the Federal Reserve's index of industrial production, the Census Bureau's data on shipments, inventories and orders, and the Bureau of Labor Statistics' series on manufacturing productivity, as well as other indicators. We commend the BEA for the excellent job that it has done in compiling the GDP data. The United States now possesses some of the most advanced national income accounts (hereafter, NIA) in the world. Our methods for estimating GDP are arguably better than those in most of the other industrial countries, and in fact are being widely copied overseas. The BEA spearheaded these innovations.

Issues in Measuring GDP

The BEA has in the past 10 years carried out several major innovations in national income accounting. First, the BEA was instrumental in instituting chain-weighting in the early 1990s. Previously, GDP was calculated by basing the weights on a given year, and calculating output in constant dollars using these weights. The problem was that as the mix of spending changed, the weights in the base year became increasingly obsolete. As a result, the estimates of GDP became steadily less accurate as distance from the base year increased. The BEA's new chain weighting scheme completely corrected this problem. What chain weighting does is change the weights each period, based on the mix of spending, and then link the weights of adjacent periods. The result is a much more sophisticated and more accurate set of GDP estimates than the previous system.

One interesting finding from chain weighting is that this generally shows higher long-term growth and lower inflation. Stated another way, prior to chain-weighting, the BEA was mis-measuring GDP downward and mis-measuring prices upward. This in turn has two key implications for policy.

First, the measures of prices produced by the chain-weighted deflators show lower inflation rates than the more widely used Consumer Price Index (CPI) compiled by the Bureau of Labor Statistics (BLS). The reason for this is primarily chain weighting. The CPI has historically been based on a sample of consumer purchases with weights fixed in the 1980s (althoughthe BLS is currently correcting this). For instance, for the period 1980-99, the CPI shows an increase in prices of 102.1 percent, while the chain-weighted

deflator for personal consumption expenditures shows an increase of 89.9 percent, more than 10 percent less. However, payments of Social Security benefits and other federal transfer payments were indexed to the CPI starting in the mid-1970s. This means that the federal government has spent more than it had to in order to protect beneficiaries of transfer payments from inflation.

Second, there has been a long-standing debate over potential output – how fast the economy can grow at a stable inflation rate. This debate has been central to decisions on interest rates by the Federal Reserve. Chain-weighting was one of the contributing factors to the upward revision in real output. The higher real output and lower inflation numbers demonstrate that the economy's potential has been higher than some analysts previously thought.

Chain weighting, however, was not the main factor. Two other innovations by BEA were critical to determining that real growth was higher than previously estimated, particularly in the 1990s. One of these was the decision in October 1999 to include software under business fixed investment. Prior to this time, software was classified as an intermediate input, similar to a raw material, and excluded from GDP. Users of computer programs, however, have long recognized that software is a productive asset that generates real output. The decision to include software under investment raised estimated GDP growth by as much as 0.4 percentage points per year in the 1990s.

The second innovation was imputing the quality of computers to the real output of computers. The intuition behind this is that the speed and capacity of computers increases very rapidly – currently, computer quality is increasing about 13 percent per year. Computer quality generates increases in real output. If a production system is

computerized and computer quality is increasing, then each time a new computer is added, or replaces an obsolete one, the system can produce more. This is conceptually true for nearly any kind of production system – for instance, processing of retail transactions, airline reservations, electronic banking, or computer control of automated production lines in manufacturing. If these quality improvements are not measured as part of computer output, then real computer output will be understated. For instance, in 2000, nominal investments in computers rose by $19.8 billion dollars, an increase of 20.8 percent. However, the real value of computer investment rose by $86.4 billion. The real rate of change was 39.7 percent, nearly twice as large as the nominal rate of change of 20.8 percent.

The redefinition of computer output was a crucial factor in driving the manufacturing revival of the late 1990s. The manufacturing share of GDP grew during the late 1990s, and the main reason was the measured real increase in output of computers and peripherals. For instance, in 1989, the peak of the previous business cycle expansion, manufacturing accounted for 16.8 percent of GDP. In 1999, the peak of the current expansion, this share had risen to 17.2 percent. Without the quality imputations to the real value of computers, this increase in the manufacturing share would not have been measured.

We would argue, however, that the true share of manufacturing in GDP is higher than the official numbers indicate. The reason is that some sectors such as publishing have recently been excluded from manufacturing, although historically they have been considered part of the manufacturing sector. A second reason is that we believe that software should be reclassified under manufacturing, because it meets one of the key

definitions of a manufacturing industry. It involves the physical transformation of an object, in this instance by writing code to a hard disk. Further, the final sale is generally an object. If software and publishing are reclassified as manufacturing activities, the share of manufacturing in GDP jumps to more than 22 percent. This is consistent with earlier BEA data, which showed that manufacturing historically accounted for 21 to 23 percent of GDP. Further, the contribution of manufacturing to growth through the production function – i.e., its contribution through inputs of labor, physical capital and technology – is also about 23 percent. The fact that these numbers match so closely argues that software should be included in manufacturing.

It is reasonable to ask here why we can be confident that these innovations are actually resulting in more accurate estimates. The main reason is a well-known relationship in economics, which states that national product and national income have to balance. It is clear why they should. National product is measured as a weighted average of final sales. National income is the income received from these transactions. If there are persistent discrepancies between income and product, this implies that one of them is being mis-measured.

Throughout the early 1990s, national income consistently ran ahead of national product. The old GDP measures showed relatively slow growth in the mid-1990s, but national income data suggested that growth was much faster. Other items of evidence supported this. Studies of productivity at the firm level indicated that technological innovations were raising output per hour very rapidly. A significant amount of real output seemed to have "gone missing". In fact, the missing output was no mystery. It was being generated by increasing purchases of software, and by the increasing quality of

computers. Since the inclusion of these two factors in GDP, national income and national product have been in much closer alignment during the mid-1990s.

Notably, however, national income again began to surge ahead of national product in 1999 and 2000. For instance, in the second half of 2000 when output is measured as having slowed down, national income was running roughly $100 billion ahead of national product. Again, this suggests that real output may currently be stronger than measured.

Another area in which quality imputations were significant was electronic banking. Banking is a sector where output is notoriously difficult to measure. In fact, this is true of many types of services, where output is not measured directly, and real values have to be imputed. Previously, the output of the banking sector was imputed using inputs of labor. But this meant that the average productivity of the banking sector worked out to zero. Again, firm-level studies of banks in the 1990s showed significant increases in productivity, for instance in the increased use of ATM machines, and the speeding up of transactions by electronic means. Starting in October 1999, the BEA has imputed quality improvements to banking. This has resulted in a higher estimated level of GDP, and a higher value for the rate of productivity growth.

Further Issues in Calculating GDP

As noted here, for the past two years national income has been growing faster than national product. The most likely explanation for this is hidden productivity, resulting from technological advances that are difficult to measure directly. We are

confident, however, that the BEA will be able to resolve this discrepancy fairly fast, and that the result will be an upward revision in the growth rate.

One issue relating to the measurement of technology is the peculiar inconsistency in the NIA. Government spending on research and development (R&D) is counted in GDP, under government purchases. However, private sector spending on R&D is not counted. Instead, R&D investments by private industry are treated as intermediate inputs, and excluded. It is possible that when these issues are resolved that R&D, like software, will eventually be included under business fixed investment. If it is, it would actually account for most of the missing output in 1999-2000, although in prior years, it would create the opposite problem: real output would be measured as having been higher than income.

If R&D is not counted under business fixed investment, however, the technological advances generated by this research are still a contributing factor to the increased income visible over the past two years. The output implied by this income – currently not measured – will probably be found in sectors where it has been difficult to measure quality improvements.

Conclusions

In sum, the BEA has done a fine job in measuring GDP. It has stayed abreast of the debates in economic theory and statistical measurement. It has paid close attention to the issues associated with the emergence of new types of products and services, particularly in high-technology sectors. It has also been sensitive to the problems caused

by discrepancies between national income and national product. It has been responsive to these problems when they have arisen. The BEA has generally not allowed discrepancies or inconsistencies in measurement to persist. Rather, it has sought to correct the problems, and to derive more accurate measures. The BEA is to be commended on its excellent performance, given the limited resources that it has to work with.

Mr. MILLER. And finally, Professor Berndt.

Mr. BERNDT. Thank you. I thank the Chair for inviting me to appear today. Although I currently serve as chair of the Federal Economic Statistics Advisory Committee, called FESAC for short, I have not had the opportunity to share these remarks with them; and so my remarks today should be interpreted as my own and not necessarily those of my fellow FESAC members.

As we all know, the last few decades have been marked by dramatic technological and economic changes. To make important decisions wisely within such a speedily changing environment, businesses, government policymakers, employees, retirees, students, homemakers, and even academic researchers rely very critically on data and information provided by our statistical agencies. A major challenge facing these agencies, as a number of speakers have already emphasized, is to track this moving target of current economic activity reliably, efficiently, and promptly.

Let me begin with FESAC and the role FESAC plays in this. FESAC is an interagency advisory committee to three economic statistical agencies: BLS, the BEA, and Census. FESAC's mandate is to analyze issues involved in collecting, tabulating, and publishing Federal economic statistics, but particularly those issues that cut across the three statistical agencies and that could benefit from enhanced interagency cooperation and coordination.

A goal of FESAC, therefore, is to foster greater efficiency within the Federal statistical system and thereby enable it to provide higher quality statistics in support of more informed economic and social decisionmaking.

Let me now turn to the BEA which is the focus of today's hearing. Although probably best known for publishing our Nation's GDP data, the BEA is, in fact, a key provider of a wide variety of national, industry, regional, and international economic data on income, production, prices and international trade. In carrying out its mission, as a number of speakers have emphasized, the BEA relies on data from the Census and the BLS and, in turn, provides the BLS with data it needs in fulfilling its own responsibilities.

In my brief remarks today, I would like to discuss with you several important issues facing the BEA. But I want to focus on issues that involve not just the BEA but also the Census and the BLS. Since my time is short, to illustrate the points I want to make, I want to focus on a measurement of but one important and widely observed economic indicator, labor productivity. And being an academic, I naturally had to put something on a blackboard exhibit.

As can be seen in this exhibit, labor productivity is a simple ratio. In the numerator, we have inflation adjusted, or a real measure of output; and in the denominator on the bottom we have some measure of hours of labor input. BEA publishes the numerator and BLS publishes the denominator. And BLS computes the ratio and publishes the ratio as well. So you can think of it as BEA over BLS. Let's look at the numerator and denominator a little more carefully.

First on the numerator, in producing its measure of real output, the BEA relies on Census to provide output figures in current dollars. In turn, Census collects sales data from a representative sample of establishments which it identifies utilizing a comprehensive

register listing of establishments that serves as a sampling frame for all of the Census Bureau's business surveys. As an aside, what an establishment is, in a digital economy with increasing e-commerce, presents ever more complex issues. But we leave that for another day.

To convert the Census sales figures in nominal dollars into real inflation-adjusted output data, which is what we need in that numerator, the BEA deflates them using a combination of price indexes provided by the BLS and in some cases those that it has constructed on its own. I might add that BEA was a pioneer in developing deflators for computers in collaboration with private-sector firms such as IBM, and more recently for software, in collaboration with a variety of academic and private-sector vendors.

So in summary and referring still to the numerator, how one constructs reliable deflators and thereby measures real output for diverse industries such as banking, consulting, tax preparation, investment advice, and health care raises very challenging issues for all three agencies. FESAC is focusing considerable attention on such output measurement challenges.

Let's briefly turn to the bottom to the denominator of labor productivity, the measures of hours worked by employees and by the self-employed. Like the Census, BLS has a list of establishments from which it selects those asked to provide essential economic data. Unfortunately, the universe list of establishments at the BLS and at the Census do not match precisely; and currently, data sharing is not permitted. More on that in a minute. Although BLS measures of hours worked by production and nonsupervisory workers are likely to be very reliable, those types of production workers are now a minority. A very distinct minority in our changing economy.

Hours worked by others such as entrepreneurs and Internet startups, by telecommuting consultants, by sales reps and office workers using cell phones while driving to and from work and utilizing fax and modems at home are very difficult to measure reliably. Currently the BEA and BLS are both expending considerable efforts on creating better measures of hours worked and on how individuals allocate their time. These topics will be addressed in detail at our next FESAC meeting. A related set of issues on how one measures, and values, labor compensation when you have stock options, other deferred compensation and important non-wage benefits such as health insurance, are also of great concern to all three agencies and to FESAC.

This simple example of this ratio of output over labor input illustrates, I think, some of the complexity involved in putting together the Nation's economic statistics. Clearly, constructing and publishing a measure such as labor productivity involves a great deal of coordination across our Federal statistical agencies. By and large Mr. Chairman, I believe this coordination works quite well. Each of the three principal economic statistical agencies has a reasonably well-defined set of responsibilities. And each is committed to working collaboratively with the others to address issues of mutual interest such as those I have identified above. At the same time, I believe current arrangements do seem occasionally to involve some needless duplication and burden on the public.

So let me conclude with an unabashed and blatant plea to this subcommittee. Current U.S. laws restrict agencies' ability to share information with one another even for only statistical purposes. These data-sharing restrictions and especially the inability of the agencies to share their business register lists with each other are very costly to our economy. Both Census and the BLS have universe lists of establishments, but these do not always agree, particularly in the context of a very rapidly changing economy when even the notion of what is an establishment can be called into question.

BEA relies on both Census and BLS establishment data and must make refereeing choices when these data do not appear to agree with each other. I believe the sharing of universe lists and other data among appropriate Federal statistical agencies would not only achieve budget savings, greater efficiency, and increased accuracy, but that this would also reduce the reporting burden on the public and in small business in particular. Moreover the data sharing could be carried out in ways that protected the important confidentiality interests of those providing information.

I strongly urge this subcommittee to support passage of legislation enabling the appropriate sharing of information among statistical agencies for statistical purposes. A good basis for such legislation would be the Statistical Efficiency Act of 1999 which was passed by the House in the last Congress as H.R. 2885 but was not considered by the Senate. Passage of such legislation would be an important good government victory in my view. Thank you.

[The prepared statement of Mr. Berndt follows:]

SUBCOMMITTEE ON THE CENSUS
COMMITTEE ON GOVERNMENT REFORM

BUREAU OF ECONOMIC ANALYSIS HEARING
APRIL 5, 2001

WRITTEN TESTIMONY FOR THE RECORD BY
ERNST R. BERNDT, ALFRED B. SELEY PROFESSOR OF APPLIED ECONOMICS
MIT SLOAN SCHOOL OF MANAGEMENT
AND DIRECTOR, NATIONAL BUREAU OF ECONOMIC RESEARCH
PROGRAM ON TECHNOLOGICAL PROGRESS AND PRODUCTIVITY MEASUREMENT

I thank the Committee for inviting me to appear today. Although currently I serve as Chair of the Federal Economic Statistics Advisory Committee ("FESAC"), I have not had the opportunity to share these remarks with other FESAC members, and thus my comments today should be interpreted as reflecting my own views, and not necessarily those of FESAC members.

As we all know, the last few decades have been marked by dramatic technological and economic changes. To make important decisions wisely within such a speedily changing economic environment, businesses, government policy makers, employees, retirees, students, homemakers and even academic researchers all rely critically on data and information provided by our federal statistical agencies. A major challenge facing those agencies is to track the moving target of current economic activity reliably, efficiently and promptly.

FESAC is an interagency advisory committee to three economic statistics agencies -- the Bureau of Labor Statistics ("BLS"), the Census Bureau ("Census"), and the Bureau of Economic Analysis ("BEA"). FESAC's mandate is to analyze issues involved in collecting, tabulating and publishing federal economic statistics, particularly those issues that cut across these three statistical agencies and that could benefit from enhanced interagency coordination. A goal of FESAC is to foster greater efficiency within the Federal statistical system, and thereby enable it to provide higher quality statistics in support of more informed economic and social policy decision-making. FESAC serves as a sounding board for alternative approaches for data collection and reporting. It offers technical input drawing on the multi-disciplinary expertise of

its members, as well as that of other outside experts in academia and in the private and public sectors.

Let me now turn to the BEA. Although probably best known for publishing our nation's Gross Domestic Product ("GDP") data, the BEA is a key provider of a wide variety of national, industry, regional and international economic data on income, production, prices and balance of payments. In carrying out its mission, the BEA relies on data from both Census and BLS, and in turn provides BLS with data it needs in fulfilling its own responsibilities.

In my brief remarks today, I would like to discuss with you several important issues and opportunities facing the BEA, but issues that also involve Census and the BLS. Since my time is short, to illustrate the points I want to make I will focus on the measurement of but one important and widely observed economic indicator -- labor productivity, also called output per hour. Let's look at Exhibit 1.

As can be seen in this Exhibit, labor productivity is a simple ratio – a measure of inflation-adjusted or real output appears in the numerator, while a measure of hours worked appears in the denominator. BEA publishes the numerator, BLS the denominator; BLS also publishes the ratio. One might think of labor productivity as BEA over BLS.

But let's look at the numerator and denominator separately, and a bit more closely. Focusing first on the numerator, in producing its measure of real output, the BEA relies on Census to provide output figures in current dollars. Census collects sales data from a representative set of establishments, which it identifies utilizing a comprehensive listing of establishments that serves as the sampling frame for all of the Census Bureau's business surveys. (As an aside, what an establishment is in a digital economy with increasing e-commerce presents ever more complex issues, but that is a subject for another day.) To convert the Census sales figures into real, inflation-adjusted output data, the BEA deflates them, using a combination of price indexes provided by the BLS and those that it has constructed on its own. (BEA was a pioneer in developing deflators for computers, in collaboration with private sector firms such as IBM, and for software, in collaboration with a variety of academics and private sector vendors.)

How one constructs reliable deflators for diverse service industries such as banking, consulting, tax preparation, investment advice, and health care raises very challenging issues for all three agencies. FESAC is focusing considerable attention on such output measurement challenges.

Let's briefly turn to the denominator of labor productivity -- the measure of hours worked by employees and the self-employed. Like Census, BLS has a list of establishments from which it selects those asked to provide essential economic data. (Unfortunately, the universe lists of establishments at the BLS and Census do not match precisely, and currently data sharing is not permitted -- more on this shortly.) Although BLS measures of hours worked by production workers in various manufacturing industries are likely to be very reliable, those types of workers are now a distinct minority in our changing economy. Hours worked by entrepreneurs in internet startups, by telecommuting consultants, by sales representatives and office workers using cell phones while driving to and from work and fax machines at home, are very difficult to measure reliably. Currently the BEA and BLS are both expending considerable efforts on creating better measures of hours worked and of how individuals allocate their time -- topics that will be discussed in detail at our next FESAC meeting in June. A related set of issues, how one measures labor compensation incorporating stock options and non-wage benefits such as health insurance, is also of great concern to FESAC.

This simple example illustrates some of the complexity involved in putting together the nation's economic statistics. Clearly, constructing and publishing a measure such as labor productivity involves a great deal of coordination across our federal economic statistical agencies. By and large, this coordination works well: each of the three principal economic statistics agencies has a reasonably well-defined set of responsibilities and each is committed to working collaboratively with the others to address issues of mutual interest, such as those I have identified above. At the same time, current arrangements do seem to involve some needless duplication and burden on the public.

Let me conclude, then, with an unabashed plea to this sub-committee. Current US laws restrict agencies' ability to share information with one another, even for statistical purposes.

These data sharing restrictions, and especially the inability of the agencies to share business list information, are very costly. Both Census and the BLS have universe lists of establishments, but these do not always agree, particularly in the context of a rapidly changing economic environment. BEA relies on both Census and BLS establishment data, and must make adjustments when these data do not appear to emerge from a consistent establishment basis. I believe the sharing of universe lists and other data among appropriate Federal statistical agencies would not only achieve budget savings, greater efficiency and increased accuracy, but that it would also reduce the reporting burden on the public. Moreover, this data sharing could be carried out in ways that protected the important confidentiality interests of those providing information.

I strongly urge this sub-committee to support passage of legislation enabling the appropriate sharing of information among statistical agencies for statistical purposes. A good basis for such legislation would be The Statistical Efficiency Act of 1999, which was passed by the House in the last Congress as H.R. 2885, but was not considered by the Senate. Passage of such legislation would be an important "good government" victory.

I thank you for giving me this opportunity to meet with you.

Attachment

Highlights of BEA FY 2001 and FY 2002 Statistical and IT Initiatives:

In FY 2001, BEA (which is included in the ESA budget request) received a $4.1 million increase in base funding, from $43.8 million to $47.9 million.[1] Part of that increase will pay for mandatory cost-of-living adjustments, leaving approximately $2.5 million for the following initiatives:

- **Updated measures of growth, inflation, and productivity for high-tech goods and key services.** A new research branch being formed in the national accounts area will begin work on phase I of a program to develop new price and output indexes for selected telecommunications equipment and services, such as LAN's, routers, and bandwidth; selected insurance services, such as life insurance; key financial services, such as security brokers; and selected areas of health care, such as pharmaceuticals and nonprofit hospitals. These new indexes will begin to address the downward bias in real GDP and productivity in these areas that is associated with errors in existing price and output indexes.

  - BEA hopes to be able to build on this work in FY 2002 by expanding into a second stage that would include the development of indexes for other telecommunications goods and services, so that all major areas in telecommunications are accurately measured. Parallel extensions in insurance, financial, and health services would include new price and output indexes for casualty insurance, investment advice and portfolio management services, and selected medical equipment and medical services. Work would also begin on educational services.

- **New measures of income that better account for new forms of employee compensation.** Initial research will focus on developing new measures of the most important form of stock options (so-called non-qualified stock options). Phase II work would focus on other forms of variable and fixed compensation (and pensions) of importance today, including a significant increase in the accuracy of estimates for bonuses and for the wages and salaries of supervisory and nonproduction workers, who now account for almost half of wages and salaries in the U.S. economy. These new measures should contribute to a substantial reduction in the "tax surprises" that we have seen in recent years.

- **New measures of international trade and finance; saving, investment, and wealth; and nonprofit institutions.** Phase I work will be limited and will focus on developing more accurate measures of international trade in computer software and its impact on the U.S. trade balance. Phase II funding would allow a significant expansion in the following

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[1]Overall base funding for ESA increased from $49.3 million in FY 2000 to $53.6 million in FY 2001. In addition, BEA received $0.2 million in no-year funding for travel and tourism satellite accounts.

areas: Expanded surveys of international trade in services and new measures of derivatives and other financial transactions required by the IMF's Special Data Dissemination Standard; comprehensive income and wealth accounts that integrate the Federal Reserve Board's financial accounts with BEA's economic accounts; and new estimates of economic activity in the increasingly important nonprofit sector of the U.S. economy.

- **A new GDP production system.** This urgently needed redesign will bring new estimation and data-handling software to a system that has not been upgraded for many years and has become increasingly inefficient and unreliable. The first phase of a complete evaluation and redesign of that system is already underway. Phase II would provide funding for complete implementation of the new system within the national accounts, as well as integration of the system with the production systems for the international, industry, and regional accounts that supply data to and use data from the national accounts.

- **More downloadable data available on the BEA Web site.** In the past month and a half, the first three sets of national accounts data have been made available in an interactive easily downloadable form. Selected data from the other economic accounts will be made available in that form throughout the rest of FY 2001. In FY 2002, with funding for further interactive Web site design work, all of the accounts will be made available.

- **Provide Electronic Reporting to Business.** This initiative to develop, test, and implement electronic reporting would reduce the reporting burden for the 40,000 multinational companies and their subsidiaries reporting on BEA's international investment surveys.

BEA Statistical Initiatives for FY 2001 and FY 2002	
Under FY 2001 funding ($1.5 million)	**Under FY 2002 initiative**
Updated output and price measures:	***Updated output and price measures:***
• Selected telecommunications equipment and services (LAN's, routers, bandwidth)	• Other telecommunications goods and services
• Life insurance	• Casualty insurance
• Security brokers	• Investment advice and portfolio management
• Pharmaceuticals	• Selected medical equipment and medical services
• Nonprofit hospitals	• Educational services
New forms of employee compensation:	***New forms of employee compensation:***
• Non-qualified stock options	• Wages and salaries of supervisory and nonproduction workers, including bonuses
	• Pensions
Other:	***Other:***
• Trade in computer software	• Expanded surveys of international trade in services
	• New measures of financial derivatives
	• Integration of BEA economic accounts data with the Federal Reserve Board financial accounts
	• New estimates of economic activity in the nonprofit sector

BEA Information Technology Initiatives for FY 2001 and FY 2002	
Beginning under FY 2001 funding ($1.0 M)	**Under FY 2002 initiative**
Replace outdated GDP-production software:	***Replace outdated GDP-production software:***
• specify functional requirements for GDP-production system (contract in place, work underway)	• implement new GDP core processing system
• design and implement new GDP-production processing system. Phase 1: core-account processing system	• create/enhance centralized GDP database: develop integrated international, regional, and industry databases
• replace time-series processing software used for GDP (Phase 1)	• design and implement new processing systems for component GDP, international, regional, industry accounts
	• convert component GDP account systems to new time-series software
Improve data-user access to BEA economic data via the Internet:	***Improve data-user access to BEA economic data via the Internet:***
• develop and implement user-friendly database query access to GDP data tables (First two components of Phase 1 in place: NIPA and regional.)	• develop/enhance user-friendly database query access to GDP component tables - capital stock and industry data
• develop user-friendly database query access to international data tables (Phase 1)	• implement user-friendly database query access to international data tables
Provide electronic reporting by businesses:	***Provide electronic reporting by businesses:***
• develop/test/implement electronic reporting for 2 quarterly multinational corporation investment surveys	• develop/test/implement electronic reporting for annual and benchmark multinational corporation investment surveys
Bring infrastructure up to task:	***Bring infrastructure up to task:***
• improve workstations	• increase/upgrade LAN hubs and cabling infrastructure
• provide desktop software upgrades	• improve data backup/restore capabilities

The New York Times, **March 28, 2001**

Greenspan Calls for Better Data Collection

WASHINGTON, March 27 (AP) — The biggest payoffs in efforts to improve economic forecasts are likely to come from raising the quality of the data collected, Alan Greenspan, the chairman of the Federal Reserve, said today.

Mr. Greenspan said that economists needed to put more emphasis on ways to better analyze the output of an increasingly complex society.

He said this effort was likely to yield more benefits than building ever-more-complex computer models that try to predict where the economy is headed.

"I suspect greater payoffs will come from more data than from more technique," Mr. Greenspan said in remarks delivered to the National Association for Business Economics.

He said that in the 1960's, economists were "increasingly mesmerized by the possibilities of econometric models as a crystal ball for the future."

But it became apparent, he said, that even the most sophisticated models had drawbacks.

"We soon learned that the economic structure did not hold still long enough to capture its key relationships," he said.

Mr. Greenspan told members of the association, which represents economists working for businesses and government agencies in the United States, that while the Federal Reserve had found economic models useful, he thought that greater benefits in forecasting would come from devoting resources to improving the data that was collected.

He said this effort was critical, given that the economy is now much more greatly influenced by fields like computer technology and medical services that are hard to measure in terms of the gross domestic product.

"Over time, and particularly during the last decade or two, an ever-increasing share of G.D.P.," Mr. Greenspan said, "has reflected the value of ideas more than material substance or manual labor input."

In an age of the microprocessor, fiber optics and the laser, he added, the problem of precisely measuring output has grown more complex.

He said the Fed and other agencies were devoting more resources to improving methods of measuring the economy, and adding, "I am encouraged by the progress that economists and economic statisticians have been making to date in tackling the daunting task of measuring real output and prices in a rapidly changing economy."

Mr. MILLER. I thank all of you for being here today and especially those who came from out of town. I appreciate it. I found all your statements very interesting.

Let me start off, it has been such a dramatic change, historic change in our economy during the past decade. How do you rate the quality of the data you are getting today, many of you all have been doing this for a few years I know, to 10 years ago or even 20 years ago? Especially as you know this economy is expecting—going through this technological revolution, whatever you want to call it, do you feel the data is as good today or is it better today than 10 years ago or 20 years ago?

Mr. BERNER. Mr. Chairman, why don't I start. I think that the data today really suffers from fact that, as I mentioned in my prepared remarks, we do have a big hole in the data; 20 percent are based on estimates, and unfortunately that 20 percent often comes from the area that is most dynamic and most rapidly changing. We talked about software a little bit and talked a little bit about the surveys that not only my firm but others do in the private arena to try to get a better understanding of what is happening in that area.

Just to mention it, 43 cents of every IT spending-dollar is now, according to Steve Landefeld's statistics, accounted for by software and it has been growing like a weed. So it is a very important component of capital spending. And it is a very important innovation to include that in our data.

Having better data on software outlays, particularly in the wake of what we have seen with the preparation for Y2K and its aftermath and other areas would be very important. So that the challenge is not that the quality of the data have deteriorated, the challenge comes from the things that we have all talked about, namely that the economy is changing far more rapidly today and requires a much more flexible statistical infrastructure in order to deal with it.

Mr. MILLER. You mentioned 20 percent is estimated. Is that what it was 10, 20 years ago and has that 20 percent changed?

Mr. BERNER. Well Steve Landefeld can talk about that, but let me answer the second question. The composition of the 20 percent has really changed. But there is an important area besides software, obviously that is critical, and that is in the service arena. And BEA and the other two major statistical agencies and the Federal Reserve have made major efforts to expand their coverage of services and to develop new concepts and new metrics for gauging what is going on in services and to try to improve the measurement of productivity in that arena.

But it is a constant challenge because services are broad, diverse, and certainly cannot be lumped into any one category; and that diversity obviously has to be dealt with in coming up with these, both concepts and metrics, in measuring this part of our economy.

Ms. SWONK. I would like to add to that. I certainly echo the issue that services are one of the areas where we are not measuring things as we could. And it has always been a problem. I was talking to you before about the size of my economics department and its shrinkage and how much we still produce relative to its prior size. So obviously we have had some major productivity gains with-

in our department and certainly within our bank we now handle more assets with fewer people than ever before and do it effectively, I hope, depending on which day you look at my stock price.

With that said, one of the things that is my concern is as much as there were faults in a lot of regional data, and my hat originally before being just the chief economist at Bank One was being the regional economist at Bank One, is the gaps that are left because of priority choices that had to be made. And there is a lot of data that is not being collected now. And for all of its faults it was all we had. It was not perfect by any means.

And I know that priority decisions had to be made given the budget cuts. But to not be able to as a large regional firm that crosses many regions in this country, to not be able to assess the characteristics of the consumer or business climate in an accuracy level that you feel confident with that we are now turning to our own information which is, frankly, faster and more real-time information than I can get from the government, that is a real problem.

And it also means that I can't share all of my analysis as I want to with some of the policymakers that I talk to because much of it is private, our own private analysis of our own economic information inside the bank. And that is just not the direction we want these things to go. It has really left many people at the regional level scrambling for ways to figure out what their revenues are going to be, what you know retail sales revenues are going to be.

Many have tried to make up different kinds of measurements, many of the regional Feds have tried to make up different measurements of retail sales. I am using that as one example. But clearly we have lost some things in the mix. I won't even begin to go into the mortgage data and how important that has become. Here we are in the mist of another mortgage refinancing boom and our group has done significant work on mortgage refinancing and its contribution to the U.S. economy which is not included in income but, boy, it is spent. The mortgage data is very compromised at this point in time because of priority decisions that had to be made earlier on.

Mr. BERNER. Mr. Chairman, if I could, let me just mention one other area and that is the international arena. Nick Knickerbocker mentioned as an aside that if we knew how to measure our exports to within the tolerance of 7 percent we would be much better off.

You can imagine what the discrepancies are in the service areas of our international accounts which are perhaps even more compelling at this point in time. And that is because not only does our economy have a more global look to it but obviously the huge wave of foreign investment in the United States in the last several years has made the sharing of data and the sharing of information about the income exchanges from that direct investment much more important.

It now appears, for example, that the European economies are slowing down much more rapidly than most people had anticipated. One reason for that may be that European corporations are responding to the slowdown and the results that they are seeing in the United States and that is having an impact on their business.

If we had better data on foreign direct investment on the reported income flows associated with those, and the BEA and other

agencies make every effort to improve those data, then we would be able to analyze that better. And I think that points to one other issue which is data sharing perhaps at least cooperation across borders. And as I am sure you know, both Steve and Nick and Cathy Abraham at BLS are making every effort to do that and to cooperate. But obviously more resources would permit them to cooperate more effectively with their counterparts overseas.

Ms. SWONK. I wanted to add one extra point too and that is one of the things that we have seen is because of gaps left in the data this reliance on more private sector unreliable data. And I am rather stunned. I have been on many a talking head show where an economist or economic analyst, whatever they may title themselves, tries to analyze data that they don't understand.

Not only do they not understand it because they haven't researched it, and haven't been taught it because we have lost much of that, but also it is private-sector data that doesn't have the same accountability. If you really want to understand the flaws and the gaps in the U.S. statistical agency's data, you can understand that. They provide that for you. They tell you. They are accountable. So you could say this could be a seasonal factor. This could be because it snowed last month. They tell you that information.

Where on the private-sector data that is coming to dominate some of the financial market moves, there is no accountability whatsoever. I really fear that some of the gaps that are left are being filled by the private sector. As much as I believe in the private sector, this is just not one place they belong. They don't have the same incentives. They can discontinue data series if they go out of business. There are all kinds of areas where there are some real severe problems.

Mr. MILLER. What competition is there for BEA? I mean you mentioned the private sector. Is there potential for someone to offer competing data?

Ms. SWONK. I don't think there is any way that a private sector could get the kind of confidential information that a U.S. Government agency could get to provide overall economic data. But I am stunned in the last decade to see how many reports come by or people trying to sell me their information of their particular survey on the world and what the information—trying to tell me what that information provides. I look at it and realize it doesn't provide what they are telling me it provides. So I don't think there is any real competition in the sense that I don't think any private-sector firm would be trusted with the kind of, you know, intimate data that corporations provide and small businesses provide to the U.S. Government under confidentiality agreements.

However, it is amazing how much is even worse in terms of the private-sector data that is coming out, how much is being pedaled out there in terms of more economic information to try to fill in this picture of the economy that is increasingly finding gaps in it.

Mr. RICHARDS. I would like to pick up on something that Diane said about the unreliability about private-sector data. A lot of the data that is being held up as competitive with BEA's data is not very reliable.

Here is an example: In November and December, consumer confidence as measured by some surveys dropped by about 17 percent

which seemed to imply that consumer spending was poised for a major slowdown but what we actually observed in January was a significant rebound in consumer spending. So that not only did the consumer confidence data give a false reading it could not even call the direction of change correctly. Nonetheless, it is clear that the stock markets were reacting to the consumer confidence numbers.

There are many other examples of private sector surveys that are poorly put together and contain false and misleading information, but unfortunately that false and misleading information is moving the markets in a significant way.

Mr. BERNDT. Let me just add to that, if I may disagree slightly with some of my colleagues. I think there are some industries that have much deeper coverage from private-sector sources than the government, because of the govdernment's sampling procedures. Let me take an area that I know particularly well, which is health care. And there are a number of—for example pharmaceutical industry data sources which have samples of products that are in the hundreds of thousands each month whereas the BLS's sampling procedures can only be about 500 products a month. So it varies, I think. But certainly there is nothing in the private sector that can rival the comprehensiveness that the accounts from the BEA and BLS and Census Bureau provide.

Mr. MILLER. Don't individual States—a lot of times the State universities—I remember when I was back in graduate school, they would have their own departments generating that type of information. For those individual States, talking about Florida and Louisiana, two of the States where I went to school. But it seems like they still crank out the data. How reliable is that State-type of data?

Ms. SWONK. It is interesting because, on a regional basis, I rely more and more on those kinds of departments to get a feel for—Florida is a big State for us, for Bank One. I rely more and more on that information and what the Federal Reserve puts out to get a feel for economic information.

The problem is even there much of that State, the business departments or the business research groups, they base their information off of employment data coming out by the State or by the Federal Government and I have seen gaps in their data sources as well. So they are now having to make assumptions on top of assumptions to get to those conclusions.

And again there is no consistency across States. You are getting to issues—I mean I want to compare data that is in Florida produced for Florida that compares to data in Michigan prepared for Michigan. And when you get to the individual research institutions, although they are extremely valuable and I rely on them very heavily when I do regional analysis, there is not the—they are not always comparable in terms of what it is they are analyzing, what their purposes are. Some of them have more purposes to advise State government, some of them have purposes to attract more investment to the State. So the inconsistencies there just again make the problem more complex in terms of what the information is actually telling us.

Mr. MILLER. You mentioned about the BLS and BEA and census and you talked about the funding. You know this is an authorizing

committee not an appropriation committee. I happen to sit on both. Actually I sit on both appropriation committees that fund BLS and Census Bureau and BEA. It is hard always to explain how the government operates in a way because I sit on the Labor HHS subcommittee which is where BLS is funded. But I happen to sit on the Commerce, Justice, State, and the Judiciary appropriation subcommittee which is where the Census Bureau, BEA is.

And you mention about—there has always been the question of consolidation of statistical agencies. We are not here to discuss that, debate that issue specifically. But there is—when you have different appropriations subcommittees, you have different authorizing committees, and yet there is competition between agencies collecting data. I think you—Mr. Berndt, you mentioned the problems of not sharing the data. But yet, there is somehow the advantage of having competing sources of data are there? And what would you recommend? Do you think—that is—I am interested. I was not fully aware that there is an advisory committee that represents that cross of all of the agencies between departments and how that operates too.

Mr. BERNDT. Let me start to answer that. But you open up a wide topic on which we could have hearings for some time. There are historical reasons why we have the different agencies. I think in general I agree with you that having some competition among agencies is, in some sense, a good thing. I think, however, in quite a few instances, there really is actual duplication and replication. I think we could proceed quite wisely and prudently by defining, identifying some of those areas and without getting into a big argument of whether we want to have a statistics United States like Statistics Canada, but rather are there opportunities where we can efficiently share data and avoid duplication and use our public-sector dollars more prudently. That would be important first steps to take. There are those opportunities now, particularly as we have the information technology revolution where we have common standards of collecting and reporting data, and it makes it much easier now to do that. So I want to shy away from your big question.

Mr. MILLER. I really don't even want to bring that one up either, I guess. But——

Mr. BERNDT. I would like to suggest I think there are enormous numbers of small steps that together could improve our interagency coordination and make our public-sector dollars for data collection spent more wisely.

Mr. MILLER. One of the concerns has been about confidentiality of data, whether it is just basic census data or financial information. We are in an age where with the technology revolution going on that access to data but then confidentiality of it and being able to—what impact that has on participation and supplying data. What is the challenge there about the—I mean, one of things—I am a former businessman. I remember getting forms in the mail. The University of Florida would send me something or the State. And you know I was a relatively small business back home; we didn't have an economics department certainly.

Ms. SWONK. We hardly do too.

Mr. MILLER. So how do you complete that data? Of course when I was in the business we—technology has made it a little easier to generate that data. But this whole issue of confidentiality and willingness to participate on small business is a real challenge, I think. How do you overcome all that?

Ms. SWONK. You know I agree 100 percent with that. My husband is actually a small business owner and just completed one of the forms that he had to complete for a survey actually. I asked him if he did complete it himself because he is the CEO of his small firm, and he said he did. I said good for you because often it is passed down to someone's secretary, and that is where a lot of the problems are. He didn't find the questions that intrusive. He thought there could have been more questions. Of course, he has got a little bias in his background given his marriage to me.

But I think one of the things he did say, he said why isn't this automated. I could have just e-mailed it back. Why couldn't I have done this? Or why couldn't I have done that? We do have small business surveys out there like the National Federation of Independent Business, another one of our former presidents, Bill Dunkelberg, heads up that survey. And small businesses are very willing to share information when they—when it is very narrowly defined and also when they see a benefit that it could help them. And I think again, making this, data, the least interesting word in English language and making more people aware of how important that is to policy would help.

Education is one of the key issues here in terms of the small business sector. And there are many organizations that represent small business that can be friends to the statistical agencies to try to then help them, I think, in that arena. You are right, the ease with which these forms can be filled out even in a large corporation, I am appalled at some times some of the stuff that comes in. We were asked to be part of something that the Fed was encouraging our organization to become a part of and they called and asked me should we do this. I said, are you kidding? Of course, we should do this. And then they were going to try to put it on a low level person. I said no it has to be by someone at a high enough level that knows the information. These are always challenges and the more that we can make these automated and easier and simpler and blind, more of a feeling of blindness in terms of aggregating the data back to the government I think the more participation you will have.

Mr. MILLER. Let me go back to my first question as we conclude here. That is the quality of the data you get today and the ability to do forecasting versus 10 years ago. Have we improved?

Mr. RICHARDS. Mr. Chairman, I think that we have improved in very significant ways. Ten years ago we did not have chain-weighting in the national income accounts. Ten years ago we were not including software. Ten years ago we did not have quality imputations for computers. So it is a question of is the glass half full or half empty. I think it is half full. But there are still some improvements that we have to make. It is not so much the manufacturing sector which I represent which is covered very well, it is in the service sector where, in many cases, industries like banking finance and real estate there is no direct measure of output. So the

BEA has no choice except to develop some kind of imputation. And that is very difficult to do.

And I think you know there clearly is room for quality improvement. I have been critical of the private-sector data but some of data that is collected directly by the private sector such as transactions conducted at ATM machines which, of course, are recorded by banks could be given to government agencies which could then develop better measures of what the service sector is doing. I think the data has improved significantly, but there is room for further improvement.

Ms. SWONK. I would echo that. We are chasing a moving target. So no matter how much you improve the data you have to improve it more to catch this moving target. The clear issue that I leave is with catching that moving target some pieces of data have been left behind.

Mr. MILLER. One question for Professor Berndt about the cooperation between the three agencies that you work with. How often does your advisory committee meet?

Mr. BERNDT. Our advisory committee was formed last year. We meet twice a year.

Mr. MILLER. So it is fairly new, then, the creation of it. Have you seen any improvement because of the short time you have been existence? Or has there been a problem? Is that the reason it was created between the agencies?

Mr. BERNDT. Each of the agencies had their own advisory committees in the past. I believe this was recognized: there were significant opportunities for coordinating better, and it was under that sort of a rationale that this particular committee was created.

Mr. MILLER. OMB do you—is OMB involved in this loop? She is nodding yes. Were they the impetus that created this?

Mr. BERNDT. They were part of the impetus, yes. But it was the agencies themselves that also recognized that it is time to do this.

Mr. MILLER. What is the objective of this?

Mr. BERNDT. The objective, I think, is to find some issues on which all three agencies need better data and can work together on putting together survey forms that match their common needs better, that reduces their reporting burden on the public, that reduces the duplication. And that what some of the folks here have talked about utilize some of the state-of-the-art thinking in how do you measure some of these difficult concepts, like how do you measure output in our health care sector where we have improved outcomes and extended life spans. So it is issues like that that cut across the various agencies that this subcommittee or this advisory committee is trying to address. We will be happy to report back to you in the future.

Mr. BERNER. If I could, I think one of the things we are learning here is not only do we endorse data sharing among our statistical agencies but perhaps we should have data sharing among the panels who advise and oversee them in their work. So, you know, Professor Berndt and I will probably get together after this meeting and talk about ways that we can cooperate because we have a statistics committee at our organization that obviously has provided advice in the agencies in the past and will continue to do so in the

future. And to the extent that we overlap, we can make a much more efficient set of recommendations to the agencies.

Mr. MILLER. All right. Let me once again thank you all for participating here today. I find it very informative and enlightening to have this. As I mentioned earlier, I am delighted that the administration's budget proposal—I assume that is coming from the work of Kathy Wallman over there—allowed for the increase that was—you know, shows the attention and interest and now the commitment of government to that. This information is very valuable for the future of our country.

So I thank you very much for your contribution and your support for it and the information provided here today. So on behalf of the subcommittee, I say thank you for appearing here today.

I ask unanimous consent that all Members and witnesses that have written opening statements be included in the record. And without objection so ordered.

[The prepared statement of Hon. Wm. Lacy Clay follows:]

STATEMENT OF THE HONORABLE
WILLIAM LACY CLAY
FOR THE
SUBCOMMITTEE ON THE CENSUS

APRIL 5, 2001

Thank you Mr. Chairman for holding this hearing on the Bureau of Economic Analysis, and on the quality of our economic statistics. We are repeatedly confronted with headlines and television and radio stories on the movement of the markets. These stories tell of the dot-com world and the new economy. Occasionally, the stories are interrupted with news of the latest round of economic indicators – the gross domestic product, the producer price index, the unemployment rate, and many others I make no pretense to fully understand. What they don't tell us is the day to day stories of people losing their job or people struggling to pay their bills as they search for a new job.

These stories about the national economy are about the tides that raise and lower all boats. In general, an expanding economy is good for everyone, and a contracting economy causes everyone pain. It the Midwest, the ebb and flow of the national economy is not always so apparent. It is often the case that the recovery after a recession comes more slowly in the Midwest. Unfortunately, we hear much less often about those parts of the nation being left behind in the new economy.

I raise this concern, not to say that I do not care about the quality of our national indicators, but to voice the caution that these concerns do not go far enough. As we improve our measurement and understanding of the national or global economic system, we must also pay attention to how the parts of that system work. For me, one of those parts that is important to understand is the regional differences in economic activity.

Let me turn now to the issue at hand, the Bureau of Economic Analysis. Over the past six years, Congress has been indifferent to the fortunes of this agency. Funding has been flat, with the exception for modernizing a computer system that seemed to run on vacuum tubes. In fact, in real dollars the funding has gone down. In 1995 the BEA appropriations was $42.2. Five years later, Congress appropriated $43.8 million for the BEA for fiscal year 2000. While Congress poured $7 billion into a census that was suppose to cost $4 to $5 billion, we spent nothing on BEA. Every year, the Clinton Administration requested increases in funding for BEA, and every year, the Congress rejected those increases. Morale in the agency sunk lower and lower, and the administers searched for ways to cut current activities to fund the research they were painfully aware was needed.

I am pleased that the Bush Administration has endorsed the $9 million increase that the Clinton Administration put in place. I hope this hearing increases the likelihood that Congress will accept that increase.

This hearing addresses two topics: the accuracy of the gross domestic product; and the need for interagency cooperation in calculating the myriad of economic statistics produced by the government. I will address my remaining comments to the issue of interagency cooperation.

The Chairman is to be congratulated for his efforts to pass legislation which would allow statistical agencies to share data for statistical purposes. When this legislation was first forwarded to Congress by the Clinton Administration in 1995, Chairman Horn introduced it in the House. It wasn't until 1999 that this legislation passed the House. It then died in the Senate at the end of the 106th Congress. I hope the Chairman will again introduce the Statistical Efficiency Act, and I pledge to do whatever I can to see that the bill once again passes in the House.

Congress has jumped on just about every e-government bandwagon that has passed by the House. It seems odd to me, then, that we should have such a difficult time enacting into law the Statistical Efficiency Act. This bill is designed to give statistical agencies the ability to use the most modern electronic technology to operate more efficiently and to reduce the reporting burden on the public. In this case, the burden is generally on the business community.

As Dr. Ernst will illustrate in his testimony today, many of our economic statistics are compiled from information spread across several agencies – in his example, it is the Census Bureau, the Bureau of Labor Statistics, and the Bureau of Economic Analysis. Current law makes cooperation on such calculations as difficult as possible.

The Bureau of Economic Analysis is an unfortunate example of how we treat statistical agencies. We starve them economically, refusing budget increases even when desperately needed, and we refuse to pass legislation that would make the work more efficient. Then, when a recession comes along and we have to make cuts in federal spending, the statistical agencies are the first to get cut.

Again, I commend the Chairman for bringing this issue to light, and I thank the witnesses for their contributions today.

Mr. MILLER. In case there are additional questions Members may have for our witnesses, I ask unanimous consent that the record remain open for 2 weeks for Members to submit questions for the record and that witnesses submit written answers as soon as practicable. Without objection so ordered.

Thank you all very much for being here today. We stand adjourned.

[Whereupon, at 3:59 p.m., the subcommittee was adjourned.]

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