

The Bureau of Economic Analysis- National Science Foundation R&D Satellite Account: Preliminary Estimates

Carol A. Robbins

U.S. Department of Commerce

Bureau of Economic Analysis

Teleconference Presentation

National Association for Business Economics

October 20, 2006

Measuring the Nation's Economy.



BEA and NSF's Collaboration on R&D

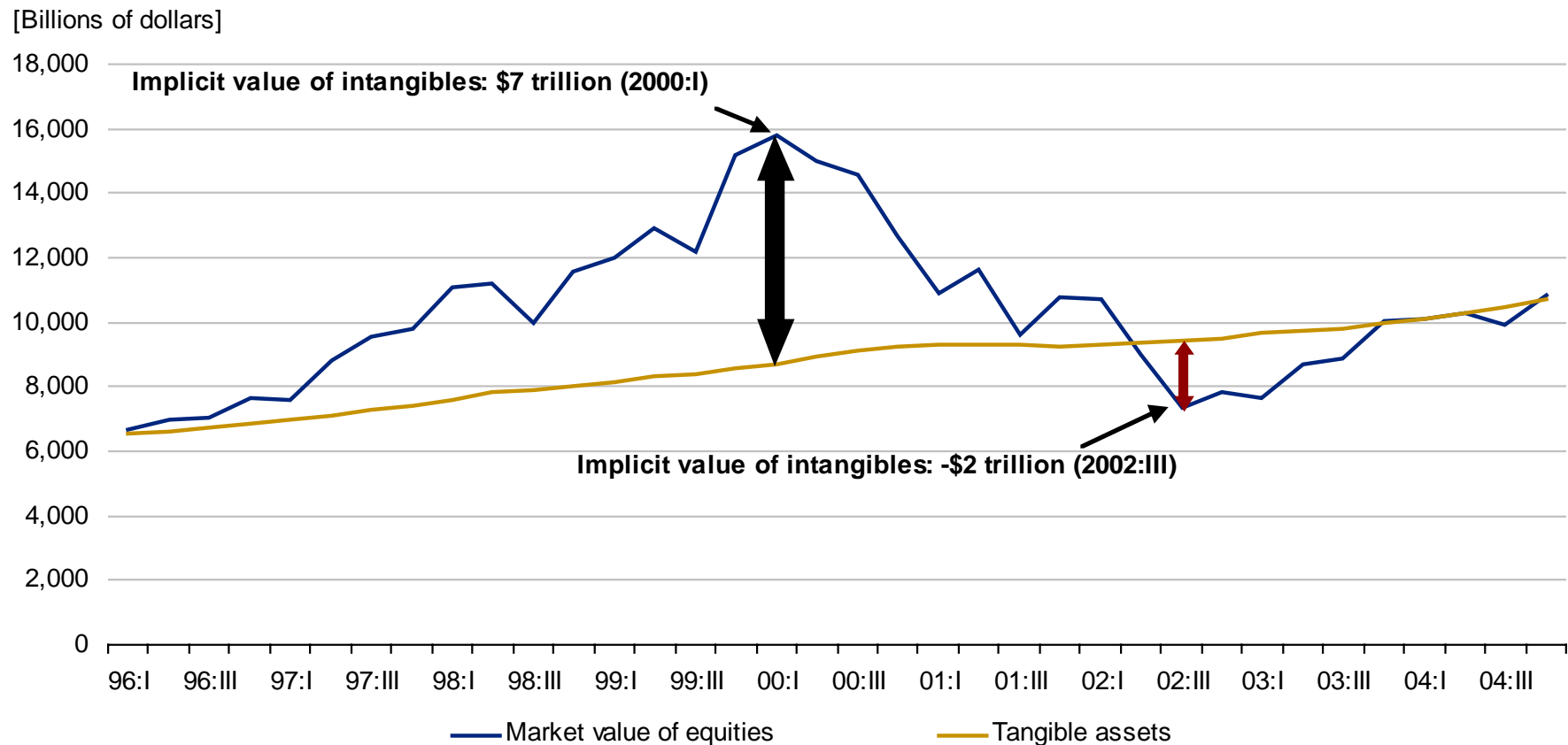
- Bureau of Economic Analysis
 - National Accounts: Gross Domestic Product
 - Regional, Industry, and International Accounts
- Improving measurement of intangibles and the knowledge economy
 - Software: 1999
 - R&D, Education, Health Care
 - R&D into core accounts around 2013
- BEA and NSF Satellite Account for R&D
 - More than 50 years of NSF data make it possible
 - BEA is using NSF data for economic measurement
 - NSF expertise and funding

Why Recognize R&D as Investment?

- Economic theory:
 - Expenditures on tangible and intangible products that reduce current consumption in order to increase future output should be treated as investment
- National Accounting Consistency:
 - Appropriable R&D has the qualities of a produced asset
- Improved measurement of R&D important for:
 - Identifying sources of economic growth
 - Monetary, tax, regulatory and other policies through improving the accuracy of GDP estimates



Measuring Intangibles: Problems in Using Imputations Rather Than Direct Measures



Source: FRB Flow of Funds (L.102 and B.102) release March 9, 2006. Data based on nonfarm nonfinancial corporate business.

Note: A number of analysts attributed the large difference between equity values and the replacement value of plant and equipment to intangibles during the market run-up in the late 1990s.

Overview of Estimation Method for R&D Stocks

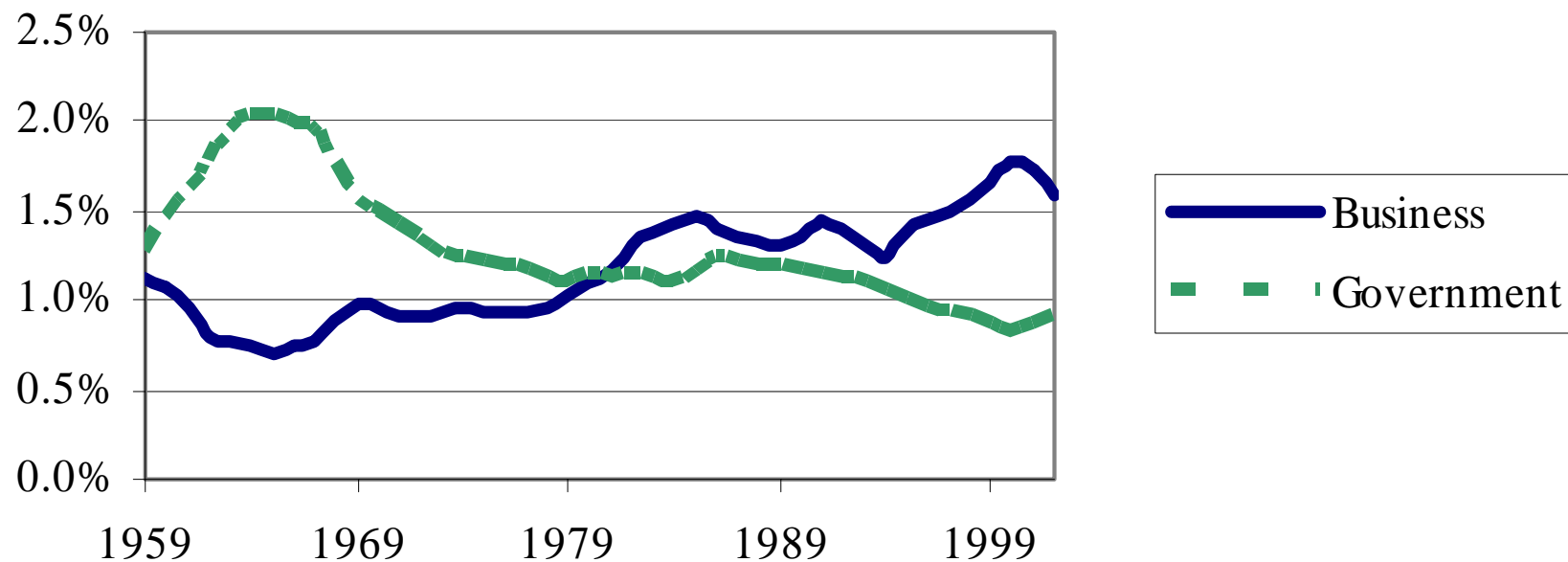
- Sum input costs from NSF survey data
- Include a charge for depreciation of fixed assets
- Deflate nominal investment
- Create capital stocks with perpetual inventory method
- Estimate return to R&D for government and non-profit institutions
- Recalculate GDP and other macroeconomic variables

Results of Preliminary R&D Satellite Account: 1959-2002

- Capitalizing R&D increases:
 - Current dollar GDP by 2 ½ percent,
 - Real GDP growth by 0.1 percentage point.
- R&D investment accounted for 4 ½ percent of growth in real GDP between 1959-2002, and accounted for 6 ½ percent between 1995-2002.
- Gross private domestic investment (in current dollars) is 11 percent higher in 2002.
- Adjusted national savings rate is 16 percent, instead of 14 percent, in 2002.

R&D Funders: Business and Government

Figure 2. Nominal R&D Investment as a Percent of GDP, funded by Business and Government



Agenda for R&D Satellite Accounts

- Work with business and academic experts to improve and expand these first year estimates:
 - Apply more refined economic estimation concepts and methods
- Develop industry-based estimates of the impact of recognizing R&D as investment
- Extend the satellite account methodology to BEA's international and regional accounts
- Incorporate into the core accounts around 2013



For more information

- Full report of satellite account at BEA
- <http://www.bea.gov/bea/newsrelarchive/2006/rdspend06.htm>
Carol.Robbins@bea.gov
- Detailed R&D data at National Science Foundation
- <http://www.nsf.gov/statistics/>