The BEA/NSF R&D Satellite Project

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Introduction

- R&D is a significant contributor to economic growth.
- NSF (SRS) funding provides multiple opportunities.
- Questions to the committee.

BEA Papers

- Carson, Grimm, and Moylan (1994)
- Fraumeni and Okubo (2004, forthcoming)
- McNeil and Fraumeni (2005)
- Robbins (2005)

Results for 1961-2001 Fraumeni-Okubo (2004)

- The estimated contribution of returns to R&D to GDP growth is significant.
- The adjusted national savings rate is 2 percentage points higher than the current measure.
- Capitalizing R&D:
  - Increases current dollar GDP by 2 percentage points.
  - Increases the real GDP rate of growth by only .1 percentage point.

Changes (Table 1)

- Expenditures for R&D performed and funded by business are added to investment (previously these were intermediate inputs).
- R&D expenditures by nonprofits institutions and general government are transferred from consumption to investment.
- Services of nonprofit institutions and general government R&D capital and other types of general government capital are increased.

NSF Progress Reports

- Frascati Manual to System of National Accounts link - Robbins (1995)

- Methodological improvements - in progress
  - Industry-level feasibility
  - Related to 1994 BEA R&DSA
  - Other

Official BEA/NSF R&DSA's

- Intermediate stage BEA/NSF R&DSA by end of FY 2006
- Final stage BEA/NSF R&DSA by end of FY 2007
- Both with historical annual data and written descriptions

Questions
Basic Concepts and Scope - Domestic

- Current spillover assumptions
  - Spillover returns accrue to business non-performers
  - These returns are already in GDP

Questions
Basic Concepts and Scope - International

- Cross-border trade in R&D services for affiliates available for recent years

- Cross-border spillovers might be included
  - McNeil and Fraumeni (2005) preliminary research
  - Increase in current dollar GDP in 1990 is .3 percentage points based on Xu and Wang (1999)

Fraumeni-Okubo Assumptions & Alternative Scenarios

- Rate of return to business performers

  25%

- NP&GG private and spillover rates

  2/3rds of business rate

- Spillover rate of return to non-performers for business performed R&D

  25%, 12.5%, or varying from 25% to 12.5%

Fraumeni-Okubo Assumptions & Alternative Scenarios

- Output deflator

  1994 BEA/GDP, gross private fixed nonresidential investment, or information processing equipment and software deflator

- Depreciation for rate for business performers

  11%, 20%, or varying from 11% to 20%

- Depreciation rate for NP&GG performers is 11%
- Lags are 1, 3, 5, or 7 years

Questions
Priorities for Improving Parameter Estimates

- Concentrating efforts on evaluating alternative:
  - Rates of return
  - Depreciation rates
  - Gestation and application lags

- Little or no time spent on:
  - Output prices
  - Tax terms

Questions
Level of Detail of the Estimates

- A complete industry-level R&DSA is problematic

- Accounts for some industries might be possible
  - How much time should be spend on industry vs. economy-wide estimates?
  - Which industries should be emphasized?

Questions
Standards for R&D Time Series

- Should any adjustment be made for time series breaks?
  - As alternatives
  - In the base case
- Or should breaks be documented without any attempt to adjust for them?

Continued Input

- As the project unfolds, your advice and the advice of others will continue to be sought
- Vetting already taken place
  - With NSF
  - Bernstein and Sveikauskas visits
  - NBER Winter Productivity Meeting which emphasized trade
  - Canberra II
  - Internal, agency-wide presentations and discussions
  - Other presentations