The BEA/NSF R&D Satellite Project

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Bureau of Economic Analysis

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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

• 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 spent 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