

R&D Satellite Account Project with NSF
Topics for Discussion
May 13, 2005

BEA signed a Memorandum of Agreement with the National Science Foundation in late May 2004 to produce a set of official BEA/NSF R&D Satellite Accounts. As we begin our research project to produce these accounts, we would like feedback from Advisory Committee members on four sets of issues: basic concepts and scope; priorities for improving parameter estimates; level of detail; and time series.

1. Basic Concepts and Scope

The current version of the BEA R&D Satellite Account (Fraumeni-Okubo 2004 and forthcoming) capitalizes R&D performed by government, business, and nonprofits. Estimates of spillovers from this performed R&D are assumed to accrue only to business. We intend to allocate all spillovers from R&D to businesses. We acknowledge that, in fact, some spillovers accrue to others. For example, some government R&D at NIH has an impact on households and some at EPA and NASA also has an impact on individuals or nonprofits. On the other hand, we intend to include cross-border spillovers and cross-border trade in R&D services. These are the same assumptions used in the earlier BEA work.

Do you agree with those judgments?

2. Priorities for Improving Parameter Estimates

We intend to evaluate alternative rates of return, depreciation rates, and gestation and application lags. On the other hand, we do not intend to spend much time investigating possible output prices and taxes. The earlier BEA research presented alternative scenarios to examine the sensitivity of the results to the rates of return, depreciation rates, lags and output prices chosen. No tax terms were included in the R&D capital service flow (capital input) expression.

Do you agree with these emphases? And, how do you rate the relative importance of evaluating rates of return, depreciation rates, and lags? Do you believe the account will be seriously compromised if we de-emphasize output prices and taxes?

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3. Level of Detail of the Estimates

NSF is providing some funding to investigate the feasibility of producing an industry-level R&D satellite account. An industry-level R&D satellite account is problematic because of limited data availability, particularly for services, and disclosure constraints. We may produce estimates for certain disaggregations, for example, for manufacturing and hi-tech vs. low-tech subaggregates as one means of surmounting the constraints brought by data availability and disclosure limitations.

How important are estimates on an industry basis versus economy-wide estimates? If we find we cannot produce estimates for many or most industries, one-by-one, would estimates for subaggregates such as these be important? If so, what subaggregates of industries do you suggest we investigate?

4. Standards for R&D Time Series

There are several breaks in the NSF R&D expenditures times series, because of the addition of service industries and changes in the surveys or the sample frame. There will be more breaks in the future, because of the switchover to NAICS and the addition of more companies to the sample frame as the result of a joint BEA/Census/NSF project. (Census collects the business R&D data.) In the BEA research papers, no attempt was made to adjust for series breaks. We are considering implementing a strategy of simulating several alternative plausible histories of the R&D series, to test the sensitivity of the estimates to variation within what seem to us to be within the brackets historical experience based on the full range of information available to us.

Have we overlooked an opportunity to adjust the data for breaks? What is your judgment about the analytical effect of those breaks?