Introducing the New Higher Education R&D Survey

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Council of Graduate Schools
Education Research & Policy Forum
September 22, 2010

National Science Foundation
Division of Science Resources Statistics
www.nsf.gov/statistics
Presentation Outline

• Academic R&D Survey overview
• Survey redesign
• FY 2009 pilot test
• FY 2010 Higher Education R&D Survey
• Q & A
Academic R&D Survey
Overview

• Has been a census of all universities and colleges with minimum of $150,000 of R&D spending (N = 725 in FY 2009)

• Conducted annually since Fiscal Year (FY) 1972

• Web-based

• Voluntary (response rates regularly over 95%)

• Requests expenditures for all separately budgeted R&D performed at institutions during previous FY

• Detailed statistical tables published at the institution level
Academic R&D Survey
Types of Data Collected

- R&D expenditures at institution level by
  - Source of funds (federal—including individual agencies, state/local government, industry, institution, other)
  - Character of work (what percent is basic research?)
  - Field of science & engineering (S&E)
  - Federal agency sponsor and S&E field
  - Amount expended on research equipment, by S&E field
  - Amount passed through to subrecipients or received as a subrecipient
  - Non-S&E field (data kept separate from S&E R&D totals)
Academic R&D Expenditures, by Source of Funds: FY 2008 ($51.9 Billion)

- **Federal govt.** 60.2% ($31.2 Billion)
- **Universities** 20.1% ($10.4 Billion)
- **Industry** 5.5% ($2.9 Billion)
- **Nonfederal govt.** 6.6% ($3.4 Billion)
- **Other** 7.6% ($4.0 Billion)

Note: Detail may not add to total due to rounding.

Survey Redesign
Background

• National Academies’ Committee on National Statistics (CNSTAT) recommended revisions to the Academic R&D survey in their 2005 report “Measuring Research and Development Expenditures in the US Economy”

• Survey redesign project launched in March 2007

• First broad investigation into new and revised content since survey began

• Existing survey has continued “as is” during redesign
Survey Redesign
2007 Exploratory Activities

- Literature review to determine uses of existing data
- Workshop with over 30 data users to discuss top data needs
- Synthesis of previous cognitive research to determine current content issues
- Methodological review of survey population issues
- Expert panel meeting to determine top priorities for redesign
Survey Redesign
2008 Exploratory Activities

- 16 institution visits to discuss recordkeeping and possible new content areas
- Special survey of respondents to solicit input for updating fields of R&D
- Questionnaire redesign
- Second expert panel meeting to obtain input on new survey items
Survey Redesign
Top Data Needs (1)

• Include non-S&E R&D in the totals for institution rankings
• Capture field detail for each source of funding
• Collect separate data on R&D within medical schools
• Collect campus-level data
• Collect R&D expenditures by detailed cost categories (salaries, equipment, supplies, etc.)
Survey Redesign
Top Data Needs (2)

- Collect patents and licenses by S&E field
- Update list of fields to capture emerging disciplines
- Collect data on collaboration with industry
- Collect data on multi/interdisciplinary R&D
- Collect counts of R&D personnel
Survey Redesign
2009 Testing Activities

• Cognitive testing of new questionnaire with 16 institutions
• Web survey development and usability testing with 15 institutions
• Notice of upcoming changes to all current survey respondents in summer 2009
• FY 2009 pilot test with 40 randomly selected institutions
FY 2009 Pilot Test (1)

• 40 institutions completed pilot instead of FY 2009 Academic R&D survey

• Stratified to provide mix of large, small, public, private, medical schools, etc.

• Collection period: November 2009 – April 2010, 2 hour phone debriefings conducted as surveys were completed

• 100% unit response rate

• Average hours to complete (excluding 2 outliers): 60
FY 2009 Pilot Test (2)

- Tested question expansions:
  - Total R&D by sources of funding: nonprofit organizations and institutional cost sharing added as separate categories
  - Basic research: question now asks for expenditures associated with basic research, applied research, and development
  - Expenditures by field and source: information on expenditures is collected by S&E and non-S&E field of R&D for EACH source of funds
FY 2009 Pilot Test (3)

• Tested new questions on different components of R&D total:
  - Total R&D funded by foreign sources
  - Total R&D by cost elements (salaries, software, equipment, etc.)
  - Medical school R&D expenditures
  - Clinical trial R&D expenditures (human and veterinary)
  - Total R&D funded through contracts vs. grants
  - Total R&D within interdisciplinary research centers
FY 2009 Pilot Test (4)

- Tested questions on counts of personnel and postdocs paid out of R&D accounts
- Tested new questions on proposals and awards
- **No** questions added on commercialization, outcomes, or technology transfer due to problems during cognitive testing phase
FY 2009 Pilot Test Results

- Question expansions worked well
- Needed to provide additional definitions and/or clarifications for several new questions
- Questions on proposals and awards did not work well due to different definitions used across institutions (e.g. differences in how renewals and multi-year awards are tracked)
- Most institutions unable to track interdisciplinary R&D and did not have confidence in their estimates
FY 2010 Higher Education R&D Survey

Changes to Questions

• All fields of R&D (both S&E and non-S&E) are included in all survey items

• Clinical trials and research training grants are now included in the definition of R&D

• Sources of funding: Separate categories have been created for nonprofit organizations and for institutional cost sharing

• Basic research: question now asks for expenditures associated with basic research, applied research, and development

• Expenditures by field and source: information on expenditures is collected by field of R&D for EACH individual source of funds
FY 2010 Higher Education R&D Survey
New Questions (1)

• Total R&D expenditures with funds from foreign sources
• Total R&D expenditures within a medical school
• Total federal and nonfederal human clinical trial R&D expenditures (veterinary not included)
• R&D expenditures by type of funding agreement: contracts vs. grants
• Agency names and R&D expenditures totals for top ten federal agency sources within “Other agencies” category
FY 2010 Higher Education R&D Survey
New Questions (2)

- Total R&D expenditures from ARRA awards
- Specific cost elements of R&D expenditures (salaries, software, equipment, etc)
- Headcounts of personnel and postdocs paid from R&D accounts
- **No** questions on interdisciplinary R&D
- **No** questions on proposals and awards
FY 2010 Higher Education R&D Survey
Methodology Changes

• Separate reporting for all institution campuses headed by a president or chancellor

• Dollar threshold for inclusion in survey now includes both S&E and non-S&E R&D expenditures

• Population screener survey will be sent to over 2,000 4-year and above institutions later this year to identify previously unknown R&D performers now eligible to participate in HERD survey
FY 2010 Higher Education R&D Survey
Next Steps

• Advance copy of survey sent to all institutions – soon!

• HERD survey begins for all institutions in late 2010 (reporting academic FY 2010 data)

• FY 2010 HERD data expected to be released in late 2011

• Work continues on revising taxonomy of S&E and non-S&E fields and effectively measuring interdisciplinary R&D (SRS-wide projects)

• Work continues on developing appropriate commercialization and outcome questions (possibly to be fielded as a separate survey)
Questions?

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