



## ***Role of Nonprofit R&D in the “National Patterns of R&D” Statistics***

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## ***What is the National Patterns of R&D?***

- U.S. total R&D expenditures and sources of funding (annual, domestic performance)
- Covers all major U.S. R&D performers and sources of funding
- Data timeline: 1953 to current (2012 in latest edition)
- Derives mainly from compiling and combining the published data from the NCSES annual surveys of R&D expenditures by U.S. R&D performers
- Generally comparable to the national R&D totals reported by the other major countries
- Published by NCSES as InfoBrief and Data Update (annual – for the most). Also included as part of NSF’s biennial *Science and Engineering Indicators*



## U.S. 2011 R&D Expenditures

Performing sector	Source of funds (\$millions)						(% distribution)
	Total	Business	Federal gov.	Universities & colleges	Nonfed gov.	Other nonprofits	
R&D	<b>428,626</b>	267,306	129,256	12,965	3,993	<b>15,106</b>	100.0
Business	294,093	262,784	31,309	*	*	*	68.7
Federal government	53,493	*	53,493	*	*	*	12.5
Federal intramural	35,775	*	35,775	*	*	*	8.4
FFRDCs	17,718	*	17,718	*	*	*	4.1
FFRDCs, industry administered	6,956	*	6,956	*	*	*	1.6
FFRDCs, U&C administered	5,246	*	5,246	*	*	*	1.2
FFRDCs, nonprofit administered	5,516	*	5,516	*	*	*	1.3
Nonfederal government	462	*	187	*	275	*	0.1
Universities and colleges	62,457	3,189	37,714	12,965	3,718	4,872	14.6
Other nonprofit organizations	<b>18,120</b>	1,333	6,553	*	*	10,234	<b>4.2</b>
% distribution by source	100.0	62.4	30.1	3.0	0.9	<b>3.5</b>	-



## Main Data Sources for National R&D Totals

Performer/Funding Source	NCSES Survey
Business sector	- Business R&D and Innovation Survey (annual, 2008 forward) - Survey of Industrial R&D (annual, 2007 and earlier)
Federal government	- Survey of Federal Funds for R&D (annual) - Federal Science & Engineering Support Survey (FSS) (R&D obligations to individually identified nonprofit organizations)
FFRDCs	- FFRDC Research and Development Survey (annual since FY 2001; in earlier years, part of other surveys)
Universities and colleges	- Higher Education R&D Survey (annual, FY 2010 forward) - Survey of R&D Expenditures at Universities and Colleges (annual, FY 2009 and earlier)
State agencies	- Survey of State Agency R&D Expenditures (2006, 2007, 2009)
Nonprofit organizations	- Survey of R&D Funding and Performance by Nonprofit Organizations (most recent is for 1996 and 1997) - Survey of Federal Funds for R&D (data on nonprofit organizations R&D funded by federal government; annual)



### Estimating R&D Performance by Nonprofit Organizations

Year	Total ONP R&D (billions of \$)	a) ONP R&D w/federal funding	b) ONP R&D w/business funding	c) ONP R&D w/ONP funding
1997	\$6.62	\$3.01	\$0.81	\$2.80
2000	9.73	4.51	1.02	4.20
2005	14.45	6.55	1.11	6.80
2010	18.40	7.09	1.27	10.04
2011	18.12	6.56	1.33	10.23
	Sum of a), b), c) to right	From Federal Funds survey	Estimated *	Estimated *

\*Based on elasticity ratios from the 1996/97 Survey of R&D Funding and Performance by Non-profit Organizations. ONP R&D funded by business compared to business funding of business R&D. ONP R&D funded by ONP compared to ONP funding for academic R&D.



### Key Data Needs – from the *National Patterns* Perspective

- R&D performance survey vs. funding survey
  - Nonprofit R&D performance is central for *National Patterns*
- Clarity on what comprises nonprofit R&D
  - What activities are consistent with Frascati definitions
  - What parts of the overall nonprofit sector are relevant for inclusion in a U.S. R&D total
- New survey data for a recent year ....
  - Total of U.S. domestic R&D performance by nonprofits
  - Detail of total by sources of funding: from nonprofits themselves, federal government, business sector ... What other sources may be relevant? (e.g., nonfederal government, foreign)
  - Detail of total by character-of-work (basic research, applied research, development)



## Key Data Needs – from the *National Patterns* Perspective (continued)

- For years when data from a new survey round are not available ....
  - A logic and estimation routines to (reasonably) extrapolate the National Patterns nonprofit R&D variables (notably, business-funded and own-funded nonprofit R&D)
  - Identify a set of annual parameters of the general “strength” and availability of funding resources to the nonprofit sector .... Publicly accessible data, outside of NCSES surveys ... That exhibit reasonable correlation with the level(s) of nonprofit R&D
  - Empirical improvements along these lines would fill what has been a longstanding weakness in the *National Patterns* methodology