

The FY 2008 R&D Budget Picture

CLEO QELS 2007

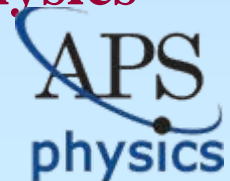


Baltimore, MD

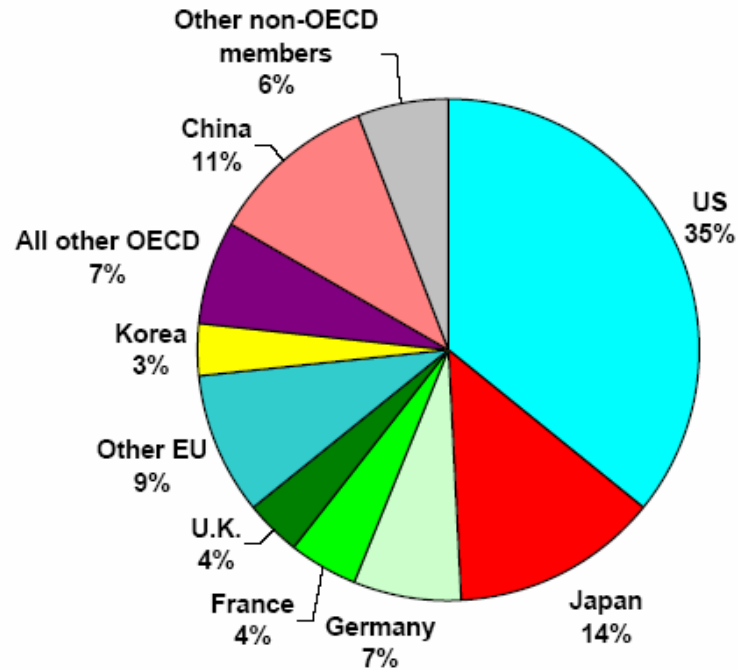
April 13, 2007

Michael S. Lubell

APS Director of Public Affairs & CCNY Professor of Physics



Shares of Total World* R&D, 2004



Total World* R&D =
U.S. \$874 billion**

* World = OECD members plus Argentina, China, Romania, Israel, Russia, Singapore, Slovenia, South Africa, Taiwan

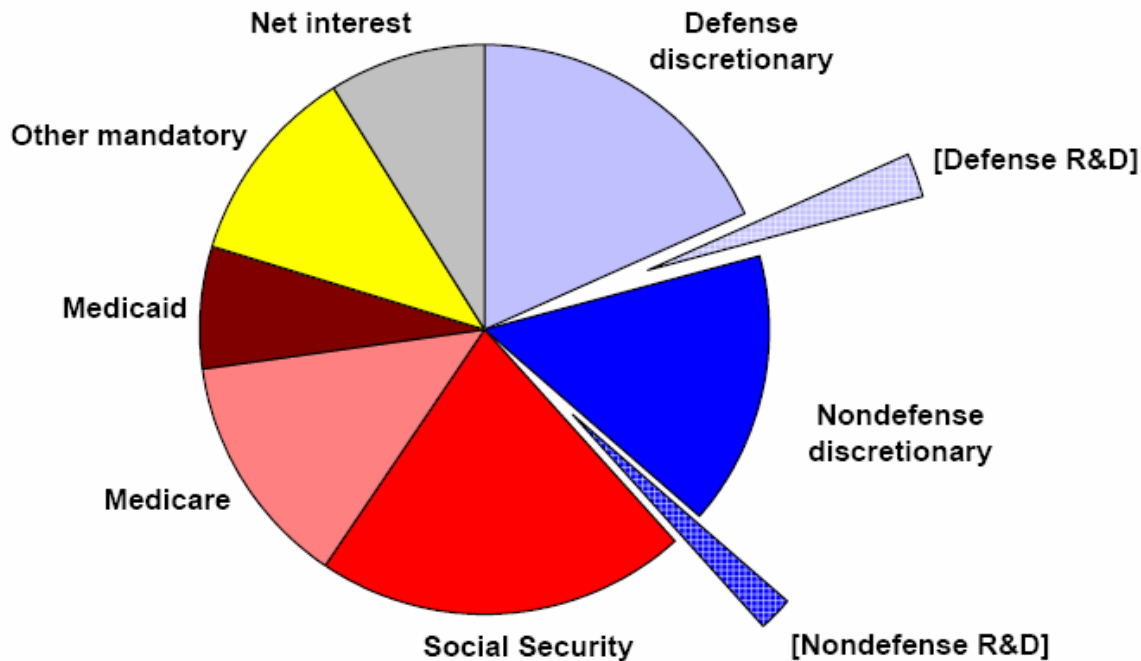
Source: OECD, Main Science and Technology Indicators, 2006. 2004 data or latest year available.

** - calculated using purchasing power parities.

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Composition of the Proposed FY 2008 Budget Total Outlays = \$2.9 trillion



Note: Projected Unified deficit is \$239 billion.

Figures exclude most Iraq and Afghanistan military costs.

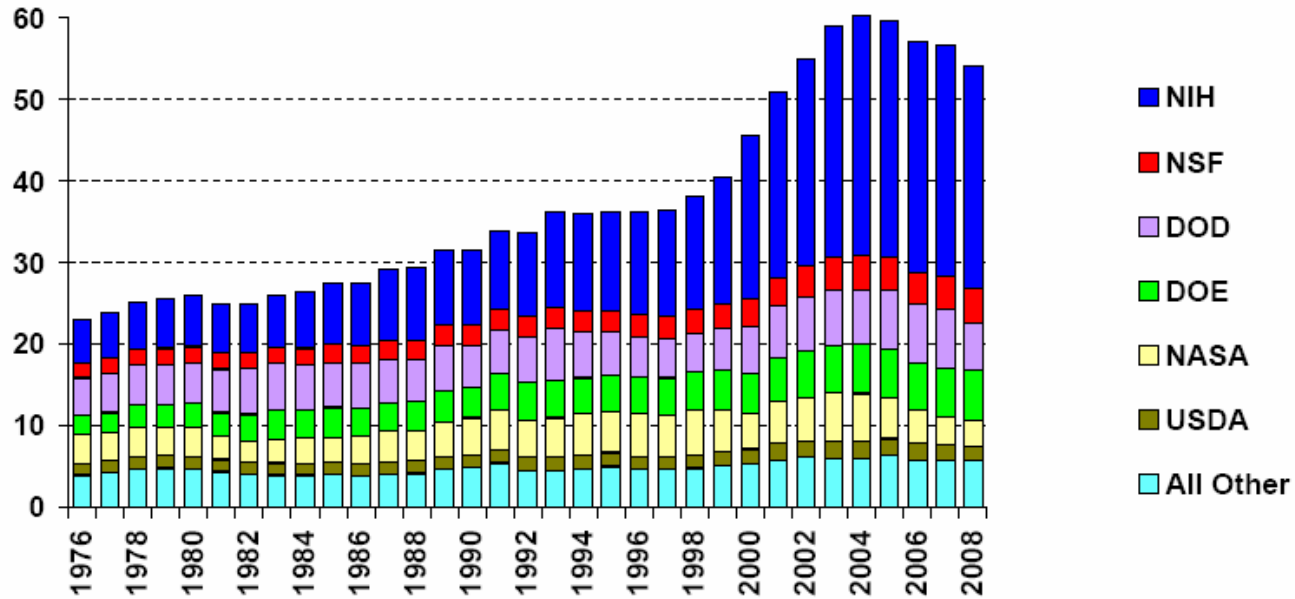
Source: AAAS, based on *Budget of the United States Government FY 2008*.

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Trends in Research by Agency, FY 1976-2008 *

in billions of constant FY 2007 dollars

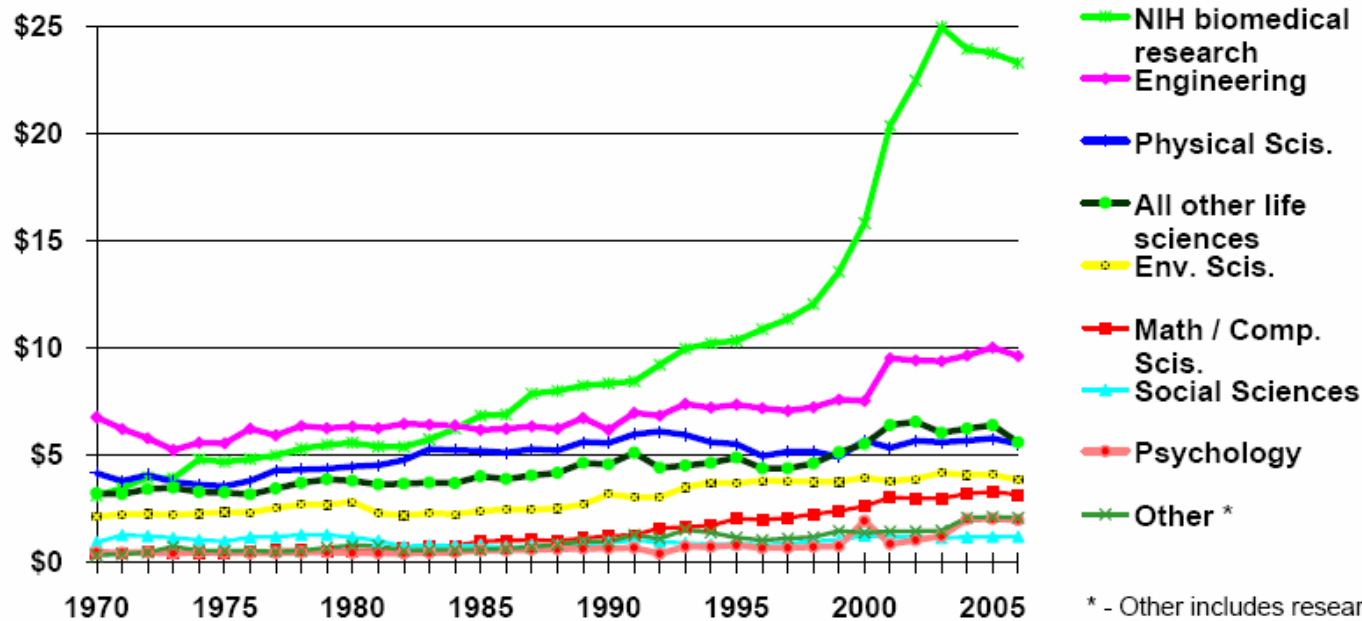


Source: AAAS analyses of R&D in annual AAAS R&D reports.
 * FY 2008 figures are President's request. 2007 figures are latest AAAS estimates of research in 2007 appropriations. Research includes basic research and applied research. 1976-1994 figures are NSF data on obligations in the Federal Funds survey. MARCH '07 REVISED © 2007 AAAS



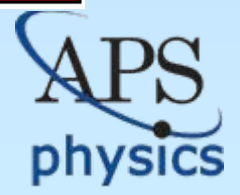
Trends in Federal Research by Discipline, FY 1970-2006

obligations in billions of constant FY 2007 dollars

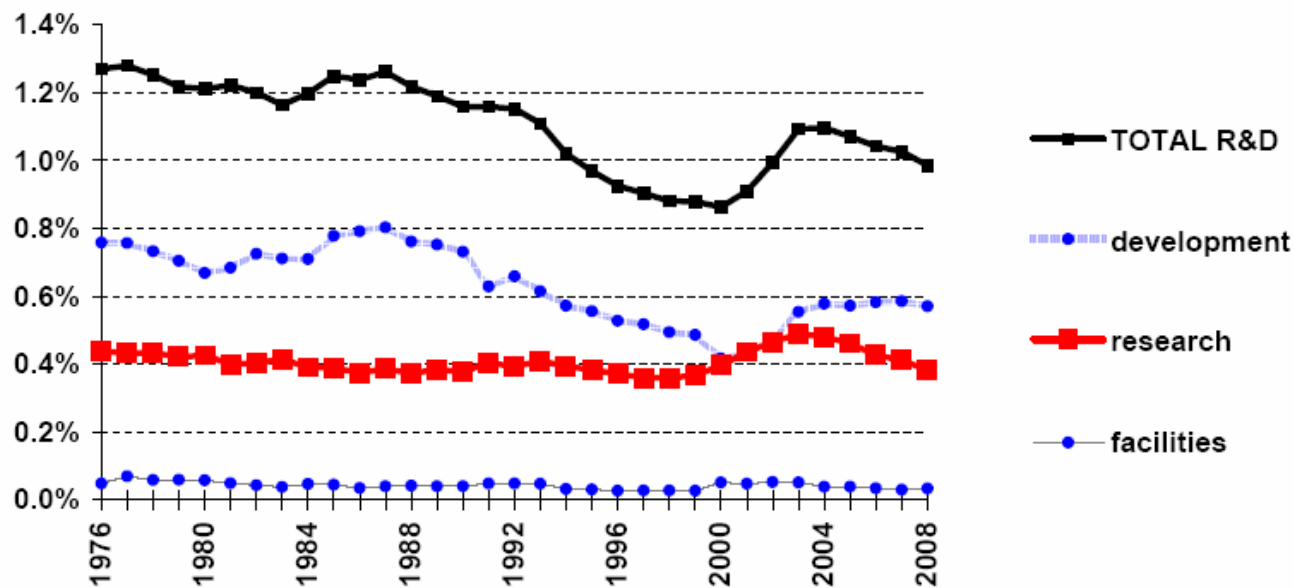


* - Other includes research not classified (includes basic research and applied research; excludes development and R&D facilities)

Life sciences - split into NIH support for biomedical research and all other agencies' support for life sciences.
 Source: National Science Foundation, *Federal Funds for Research and Development FY 2004, 2005, 2006, 2006*. FY 2005 and 2006 data are preliminary. Constant-dollar conversions based on OMB's GDP deflators.
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Trends in Federal R&D as % of GDP, FY 1976-2008

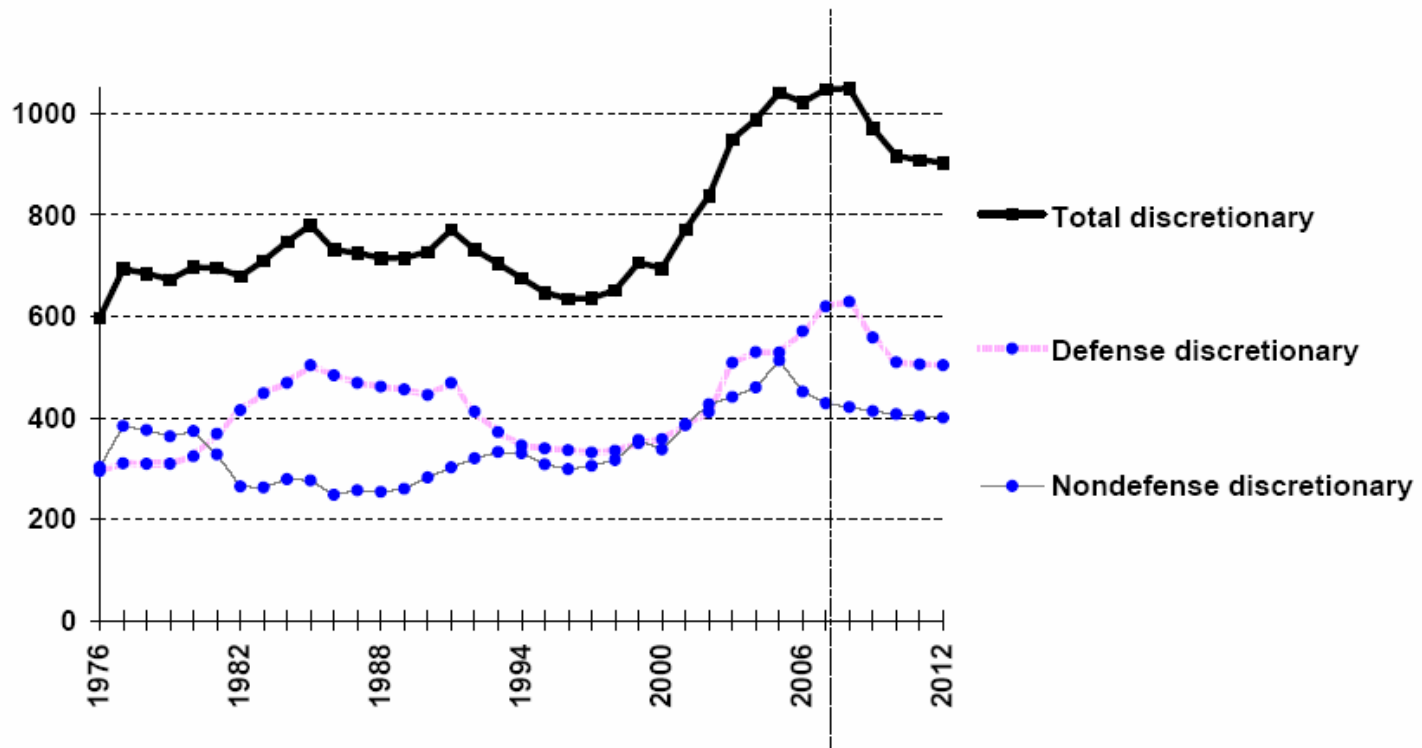


Source: AAAS analyses of R&D in annual AAAS R&D reports.
FY 2008 figures are President's request. R&D includes conduct
of R&D and R&D facilities. Data to 1984 are obligations from
the NSF Federal Funds survey. GDP figures are from OMB,
Budget of the U.S. Government FY 2008.
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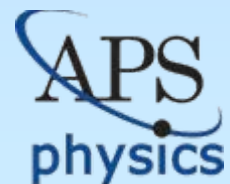
Trends in Discretionary Spending, FY 1976-2012

in billions of constant FY 2007 dollars



Data in fiscal years. Source: *Budget of the United States Government, FY 2008*. FY 2007 data are estimates. FY 2008-2012 data are budget projections. FY 2009 - 2012 figures exclude Iraq and Afghanistan military costs.

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Task Force on the Future of American Innovation

National Press Club Rollout February 16, 2005

THE KNOWLEDGE ECONOMY: IS THE UNITED STATES LOSING IT'S COMPETITIVE EDGE?



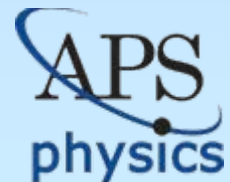
BENCHMARKS OF OUR INNOVATION FUTURE

February 16, 2005

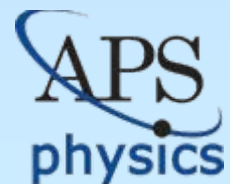
THE REPORT OF THE TASK FORCE
ON THE FUTURE OF AMERICAN INNOVATION

www.futureofinnovation.org

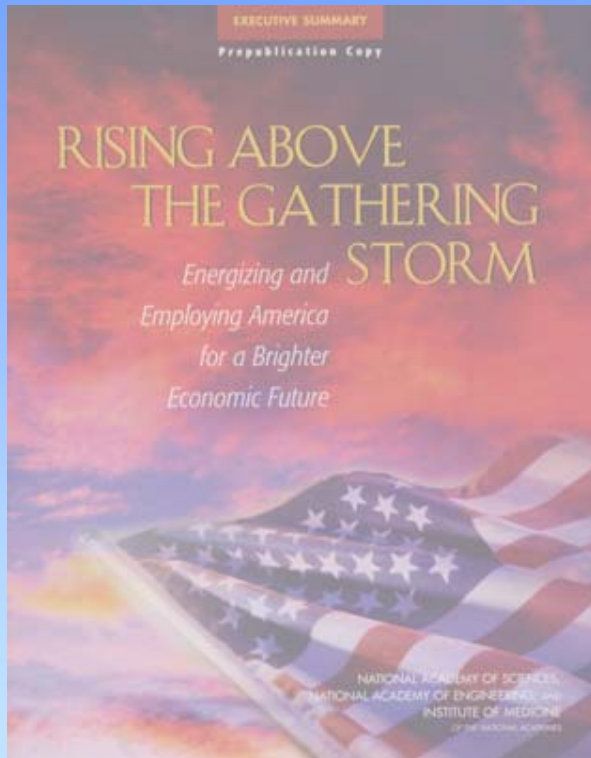
Agilent Technologies, ASTRA, American Chemical Society, American Electronics Association,
American Mathematical Society, American Physical Society, Association of American Universities,
Computing Research Association, Computing Technology Industry Association,
Computing Systems Policy Project, Council on Competitiveness, Hewlett-Packard, Intel, Lucent,
Materials Research Society, Microsoft, National Association of Manufacturers, NASULGC,
The Science Coalition, Semiconductor Industry Association,
Southeastern Universities Research Association, Texas Instruments



Task Force for the Future of American Innovation



National Academies Report Democratic & Republican Proposals

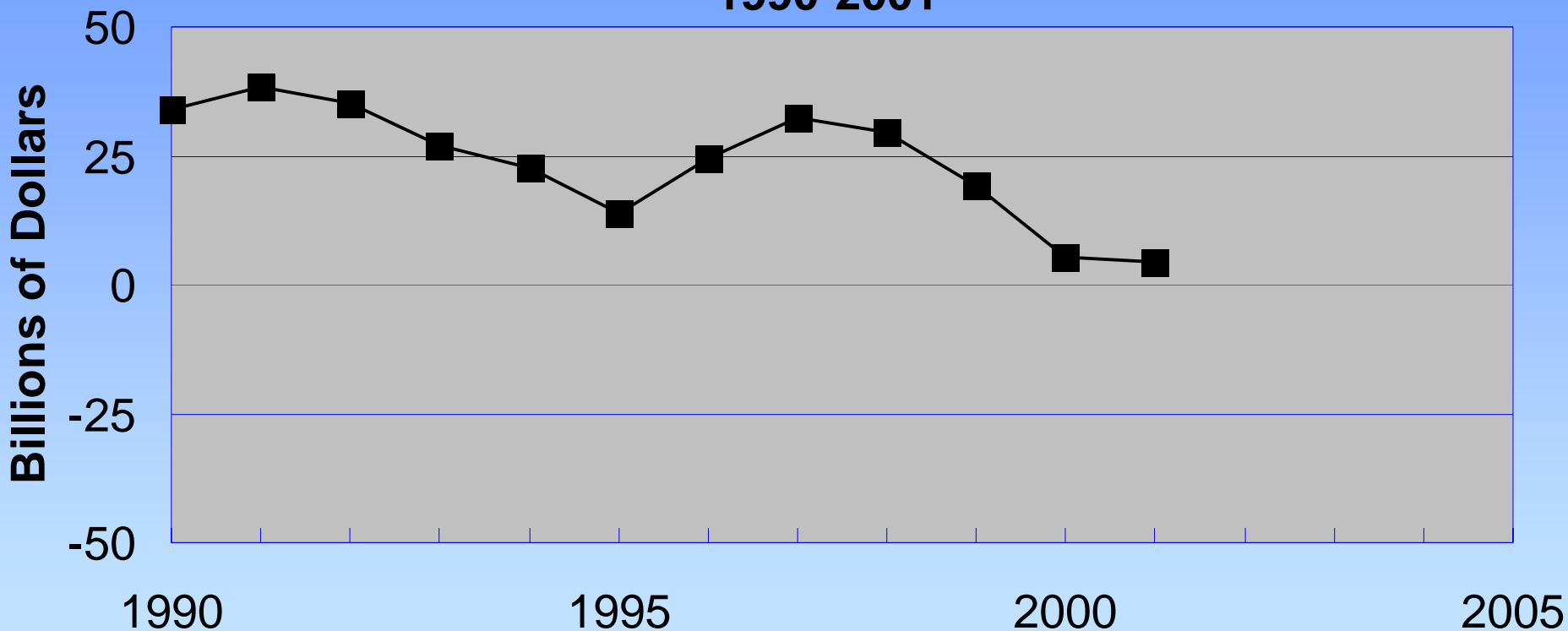


R&D Benchmarks II Report

The Task force on the Future of American Innovation

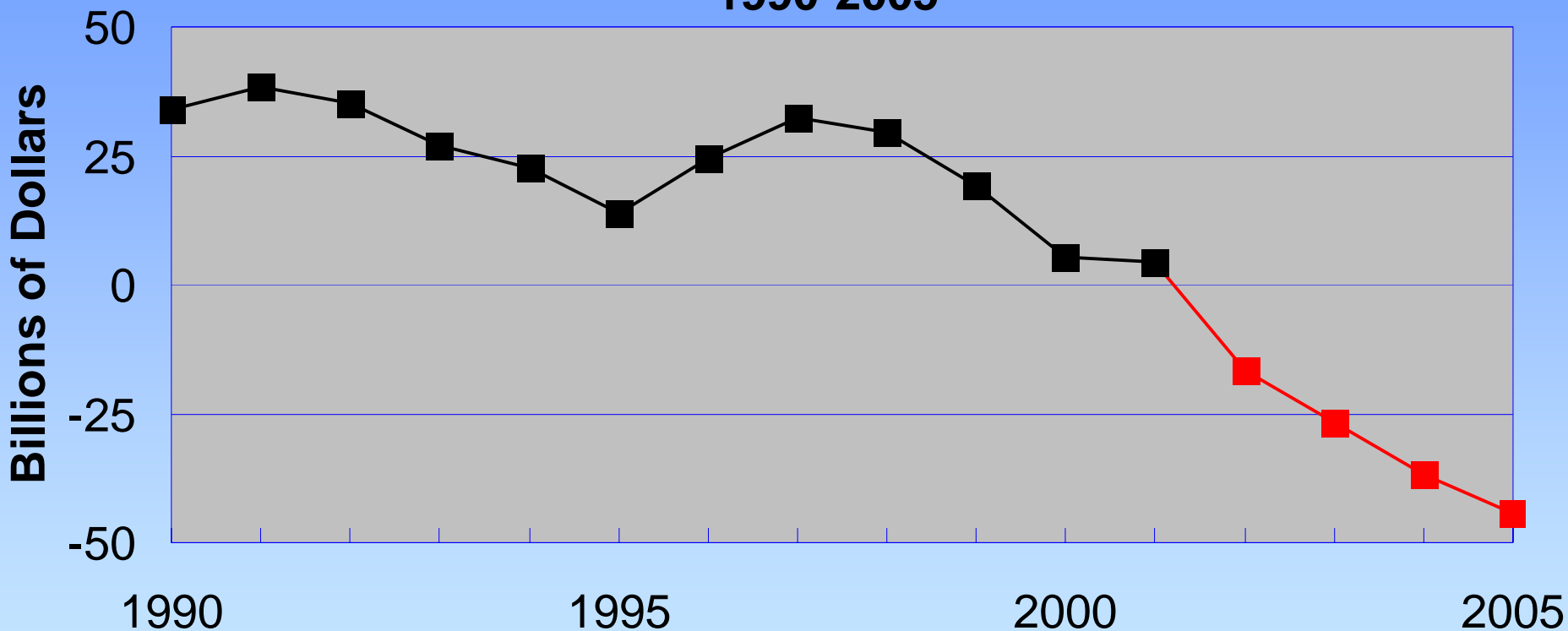


U.S. Trade Balance for Advanced Technology Products 1990-2001



Source: U.S. Census Bureau Foreign Trade Statistics, *U.S. International Trade in Goods and Services*
Compiled by the APS Office of Public Affairs.

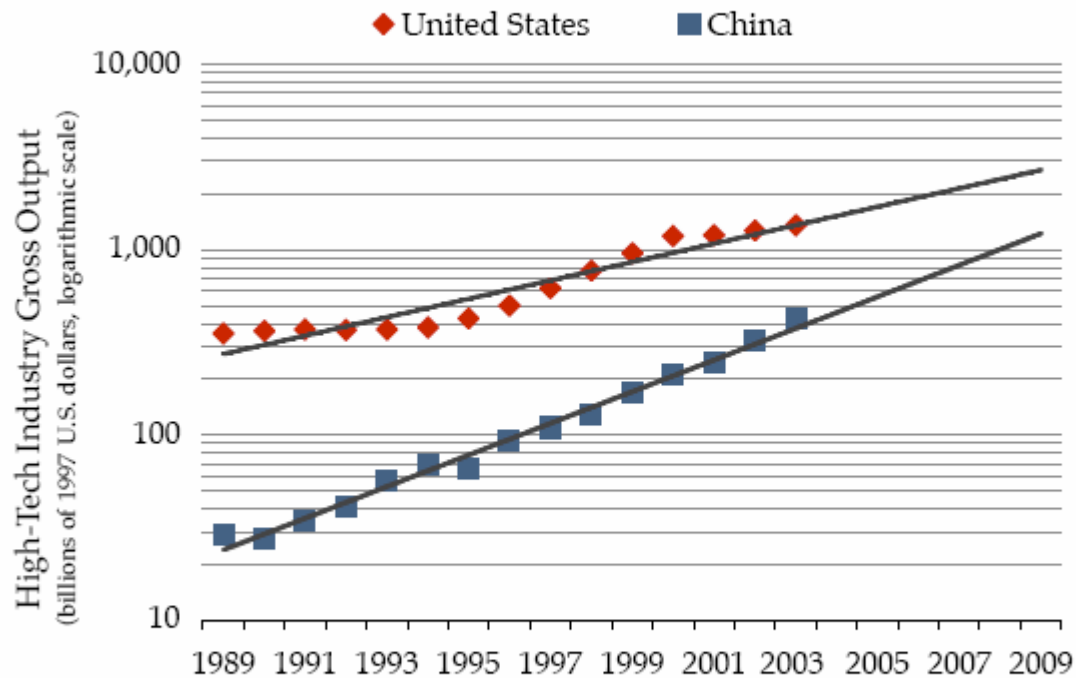
U.S. Trade Balance for Advanced Technology Products 1990-2005



Source: U.S. Census Bureau Foreign Trade Statistics, *U.S. International Trade in Goods and Services*
Compiled by the APS Office of Public Affairs.

High-Tech Economy

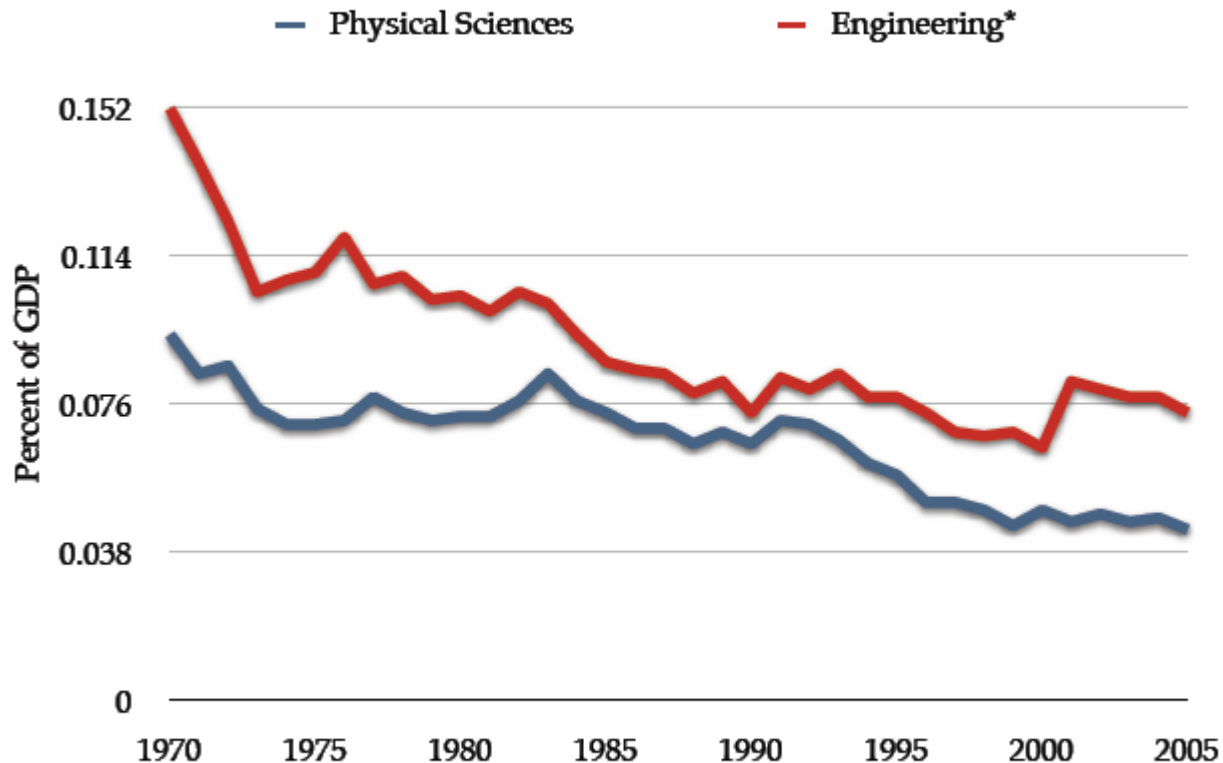
China Gaining Rapidly on U.S. in High-Tech Industry Output



Source: National Science Foundation, Science and Engineering Indicators 2006. Appendix Table 6-2. Compiled by the APS Washington Office.

Decades of Neglect

Federal Investment in Physical Sciences and Engineering
as Share of GDP in Significant Decline



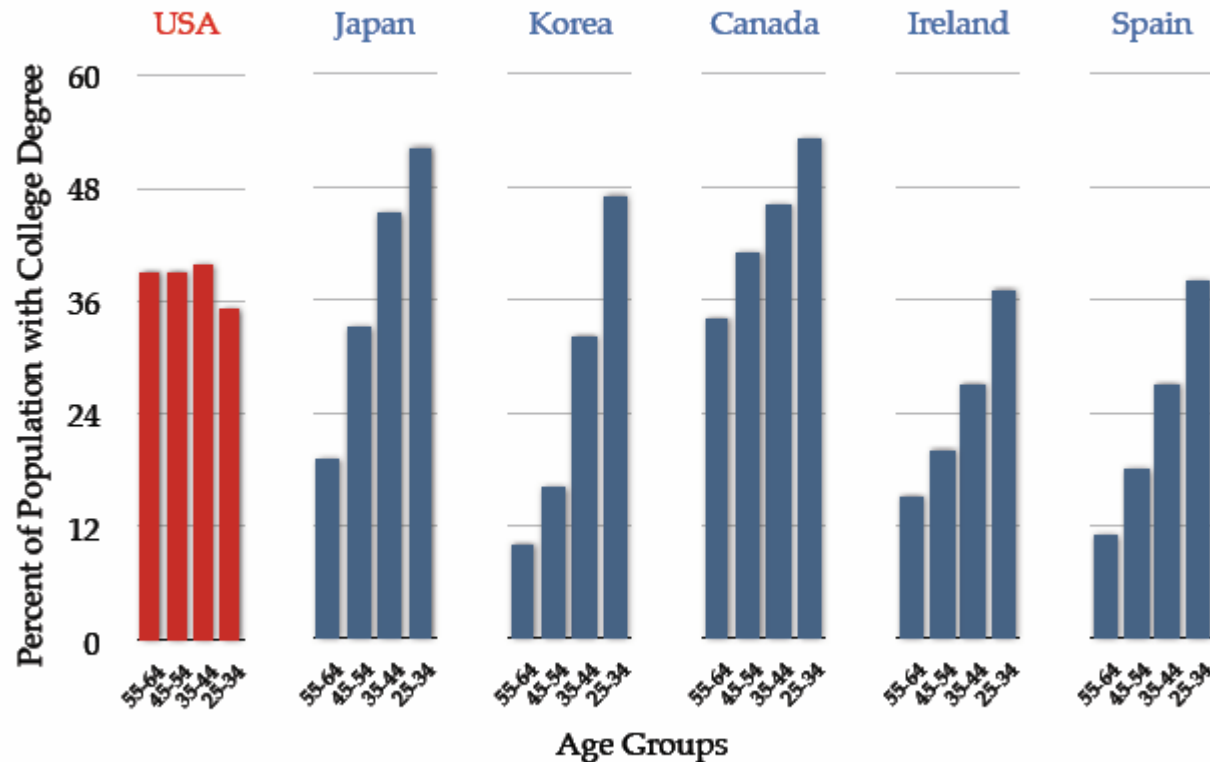
*The 2001 jump in engineering is due to reclassification of funding and is therefore artificial.

Source: American Association for the Advancement of Science. <http://www.aaas.org/spp/rd/guidisc.htm>.

Compiled by the APS Washington Office.

Education

Other Countries Educating Higher Proportion of Younger Generation



Source: Education at a Glance, 2005, OECD.
Compiled by the APS Physics Washington Office



AMERICAN COMPETITIVENESS INITIATIVE

LEADING THE WORLD IN INNOVATION

**DOMESTIC POLICY COUNCIL
OFFICE OF SCIENCE AND TECHNOLOGY POLICY**

FEBRUARY 2000

Civics 101: Budgets

- President
- Office of Management and Budget (OMB)
- Federal Agencies
- House and Senate Leadership
- House & Senate Budget Committees
- House Rules Committee
- House & Senate Authorization Committees
- House and Senate Appropriations Committee

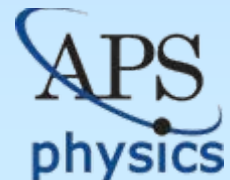
FY 2007 Appropriations

February 15, 2007 Enacted

Account	FY05 (\$B)	FY06 (\$B)	FY07 (\$B)	FY07 Request		Congress			
				(\$B)	% Change	House (\$B)	Senate (\$B)	FY07 CR (\$B)	% Change
DOE Science	3.57	3.47		4.10	+18	4.10	<u>4.17</u>	3.80	9.4
DOE Renewables	1.21	1.16		1.17	+0.8	1.17	<u>1.17</u>	1.46	25.9
NSF	5.48	5.58		6.02	+7.8	6.02	<u>5.99</u>	5.91	5.9
NIST STRS	0.37	0.38		0.47	+18	0.47	<u>0.47</u>	0.43	13.1
NIST ATP	0.11	0.06		0.00		0.00	<u>0.00</u>	0.06	
DOD 6.1	1.49	1.47	1.54	1.42	-3	1.56	1.48		4.5
DOD 6.2	4.79	5.17	5.21	4.48	-13	5.25	4.81		0.7
NASA Science	5.50	5.25		5.33	+1	5.41	<u>5.4</u>	5.25	0.0

Adjusted for earmarks

Action by Appropriations Committee only



Timeline for the FY 2008 Budget

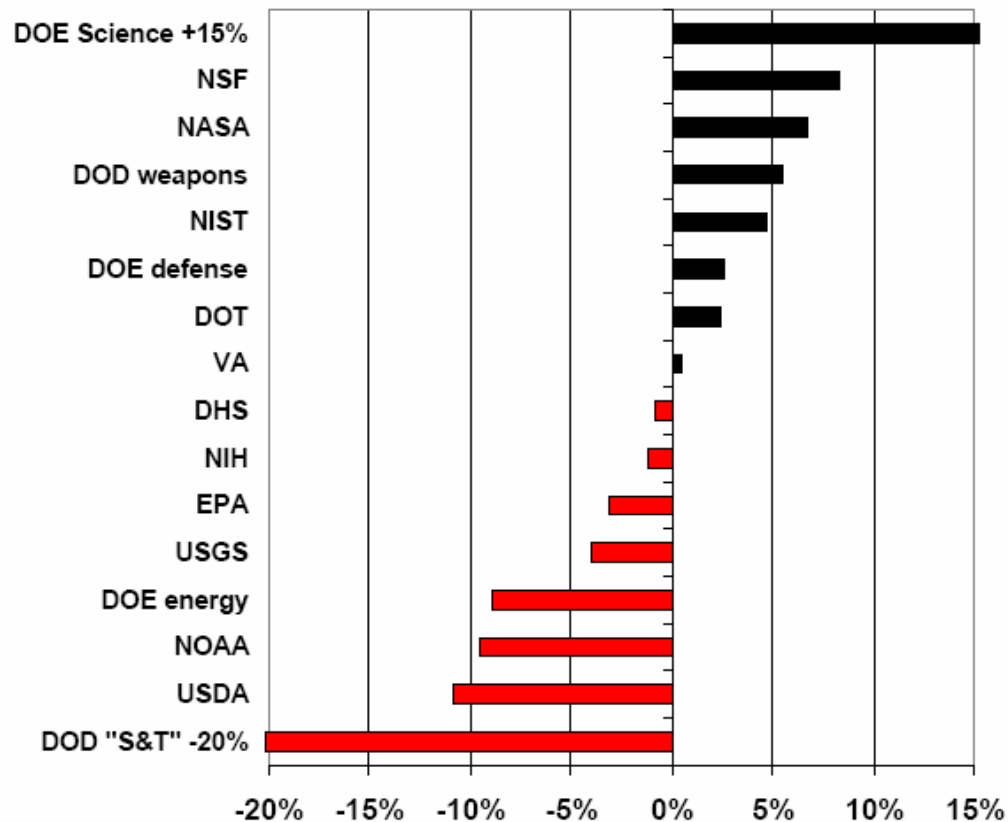
- **Spring 2006: OMB Guidance to Agencies**
- **Summer 2006: Agency Planning**
- **Sept. 2006: Agency Requests Submitted to OMB**
- **Thanksgiving 2006: OMB “Pass Backs” Sent to Agencies**
- **Jan. 2007: Presidential Request Finalized**
- **Monday, Feb. 5, 2007: Presidential Budget Submitted to Congress**
- **April 15, 2007: Budget Resolution Passed by Congress – Or Not!**
- **Spring and Summer 2007: 11 Appropriations Bills Passed by House**
- **Spring and Summer 2007: 11 Appropriations Bills Passed by Senate**
- **Summer 2007: 11 Appropriations Bills Conferenced**
- **Sept. 30, 2007: 11 Appropriations Bills Passed and Signed into Law**
- **Oct. 1, 2007: Start of FY 2008**

Authorization Bills

- Senate S. 761 America COMPETES Act
- House H.R. 362 SET Education
- House H.R. 363 Early Career Investigators
- House H.R. 1867 NSF Authorization
- House H.R. 1868 NIST Authorization

FY 2008 R&D Request (revised)

Percent Change from FY 2007



Source: AAAS, based on OMB R&D data and agency estimates for FY 2008.

DOD "S&T" = DOD R&D in "6.1" through "6.3" categories plus medical research.

DOD weapons = DOD R&D in "6.4" and higher categories. FY 2007 and 2008 figures include requested supplementals. FY 2007 = latest estimates of final appropriations.

MARCH '07 REVISED © 2007 AAAS



Status of FY 2008 Appropriations

Account	FY05 (\$B)	FY06 (\$B)	FY07 (\$B)	FY08 Request		Congress			
				(\$B)	% Change				
DOE Science	3.57	3.47	3.80	4.40	+15.8				
DOE Renewables		1.16	1.46	1.23	-15.6				
NSF	5.48	5.58	5.91	6.43	+8.8				
NIST STRS	0.38	0.40	0.43	0.50	+17.2				
NIST ATP		0.06	0.06	0.00	-100				
DOD 6.1	1.49	1.47	1.54	1.42	-7.8				
DOD 6.2	4.79	5.17	5.21	4.36	-16.3				
NASA Science	5.50	5.25	5.25	5.52	NA				

Adjusted for earmarks

NASA Science accounting changed in FY 08

