

The Federal Investment in R&D in FY 2009

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for the American Mathematical Society

AAAS R&D Budget and Policy Program

<http://www.aaas.org/spp/rd>

See the “What’s New” section for the latest updates; see the “Seminars and Presentations” section for copies of this presentation.

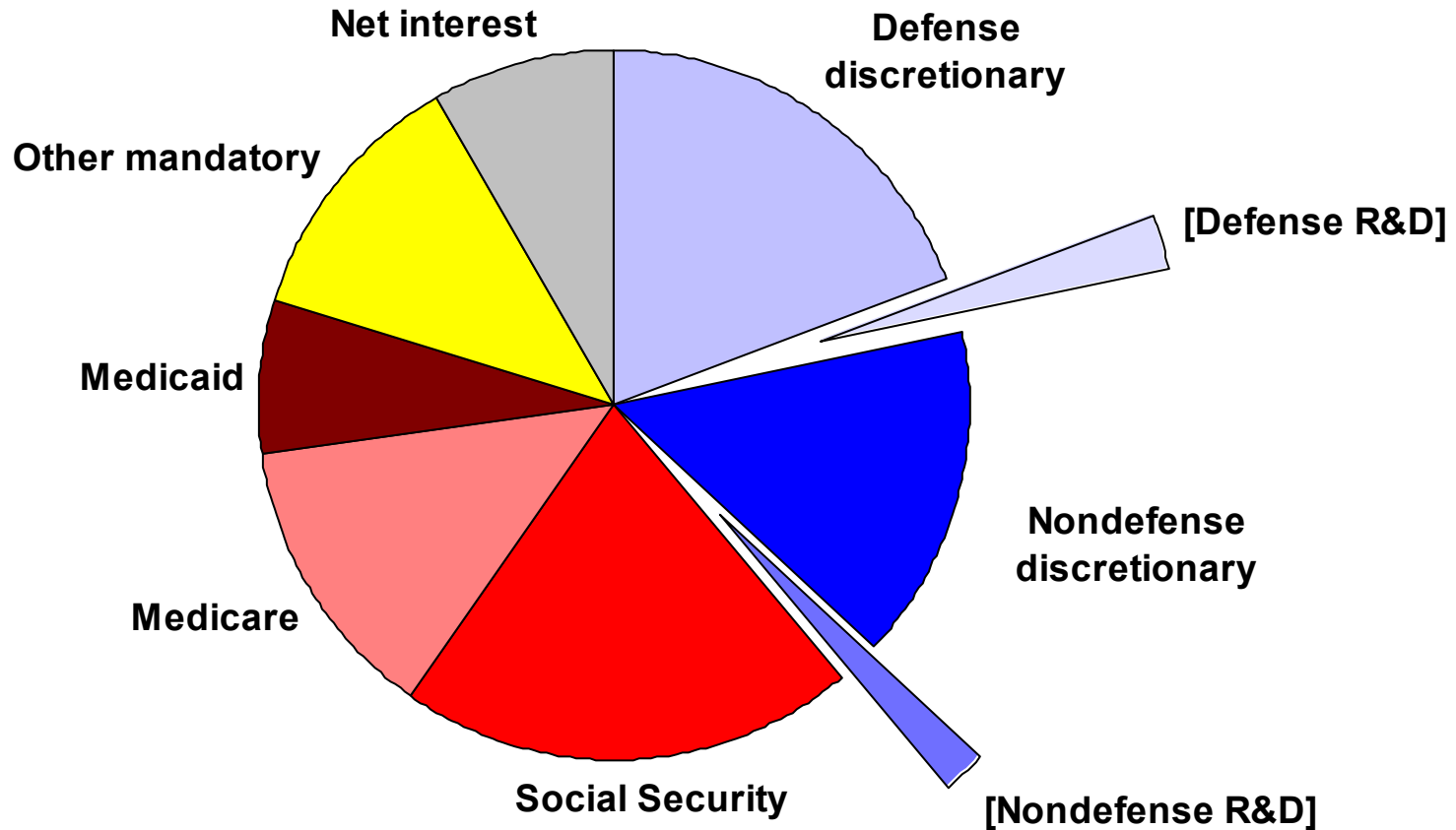


THE 2009 BUDGET

- The President has proposed a \$3.1 trillion budget for FY 2009.
- The budget deficit could approach a record \$500 billion this year and next year.
- To help control the deficit, the President proposes to keep domestic appropriations flat, and leaves war funding out of the budget beyond January 2009.

Composition of the Proposed FY 2009 Budget

Total Outlays = \$3.1 trillion



Note: Projected Unified deficit is \$407 billion.

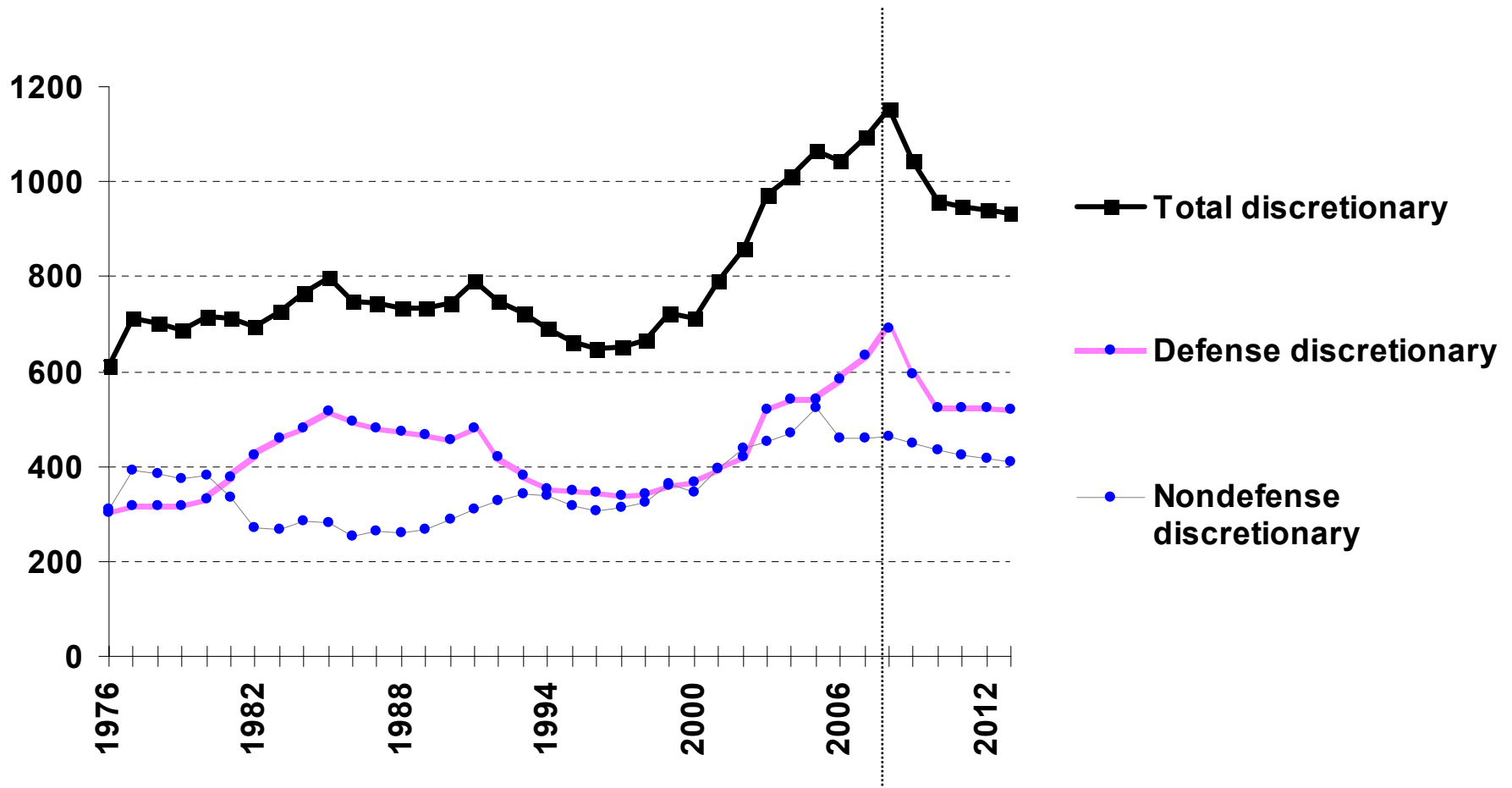
Figures exclude most Iraq and Afghanistan military costs.

Source: AAAS, based on *Budget of the United States Government FY 2009*.

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Trends in Discretionary Spending, FY 1976-2013

in billions of constant FY 2008 dollars



Data in fiscal years. Source: *Budget of the United States Government, FY 2009*.
FY 2008 data are estimates. FY 2009-2013 data are budget projections. FY 2009-2013 figures exclude Iraq and Afghanistan military costs.

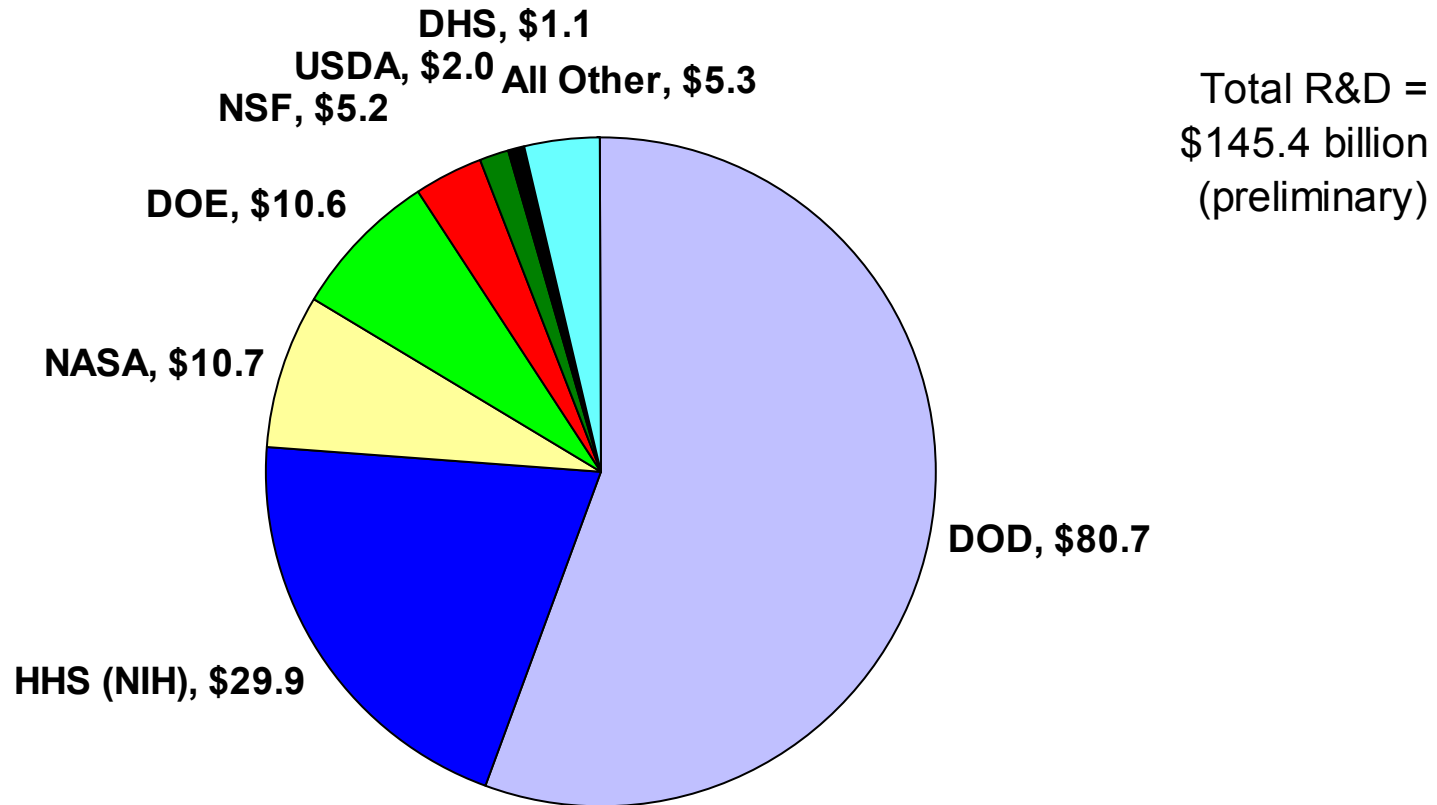
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THE 2009 BUDGET FOR R&D

- The American Competitiveness Initiative (ACI) continues for a third year, with large increases for NSF, DOE Science, and the NIST labs to catch up to a 10-year doubling track after disappointing 2007 and 2008 appropriations.
- Again, there would be large increases for DOD weapons and NASA spacecraft development, but also increases for most R&D programs.
- The NIH budget would be flat, agricultural and environmental R&D agencies would decline.

Total R&D by Agency: FY 2009 Proposed

Budget Authority in billions of dollars

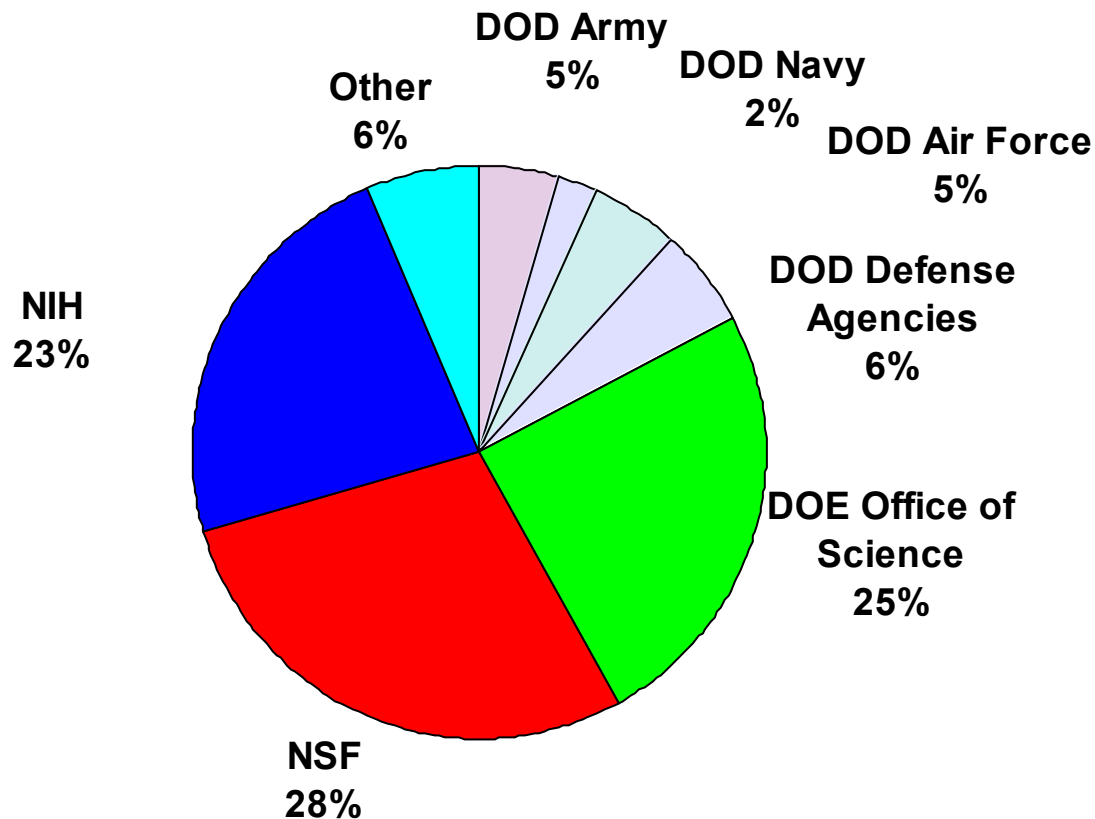


Source: AAAS, based on OMB R&D Budget Data and agency estimates for FY 2009.

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Mathematics Research in the FY 2005 Budget (obligations)



Total Mathematics Research:
\$687 million
(includes basic research and applied research)

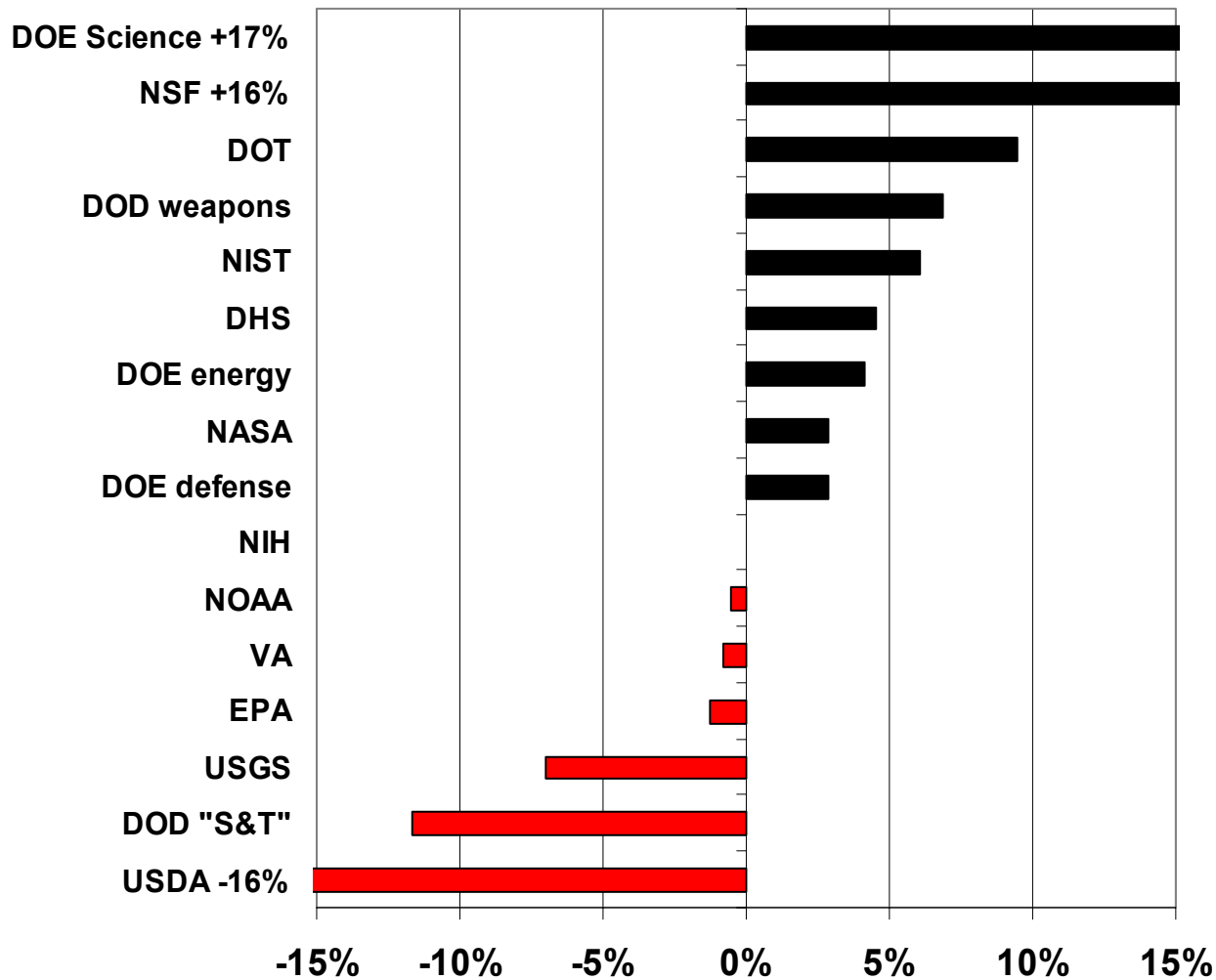
Source: National Science Foundation, *Federal Funds for Research and Development FY 2005, 2006 and 2007, 2008*. Data exclude development and R&D facilities.

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FY 2009 R&D Request (preliminary)

Percent Change from FY 2008

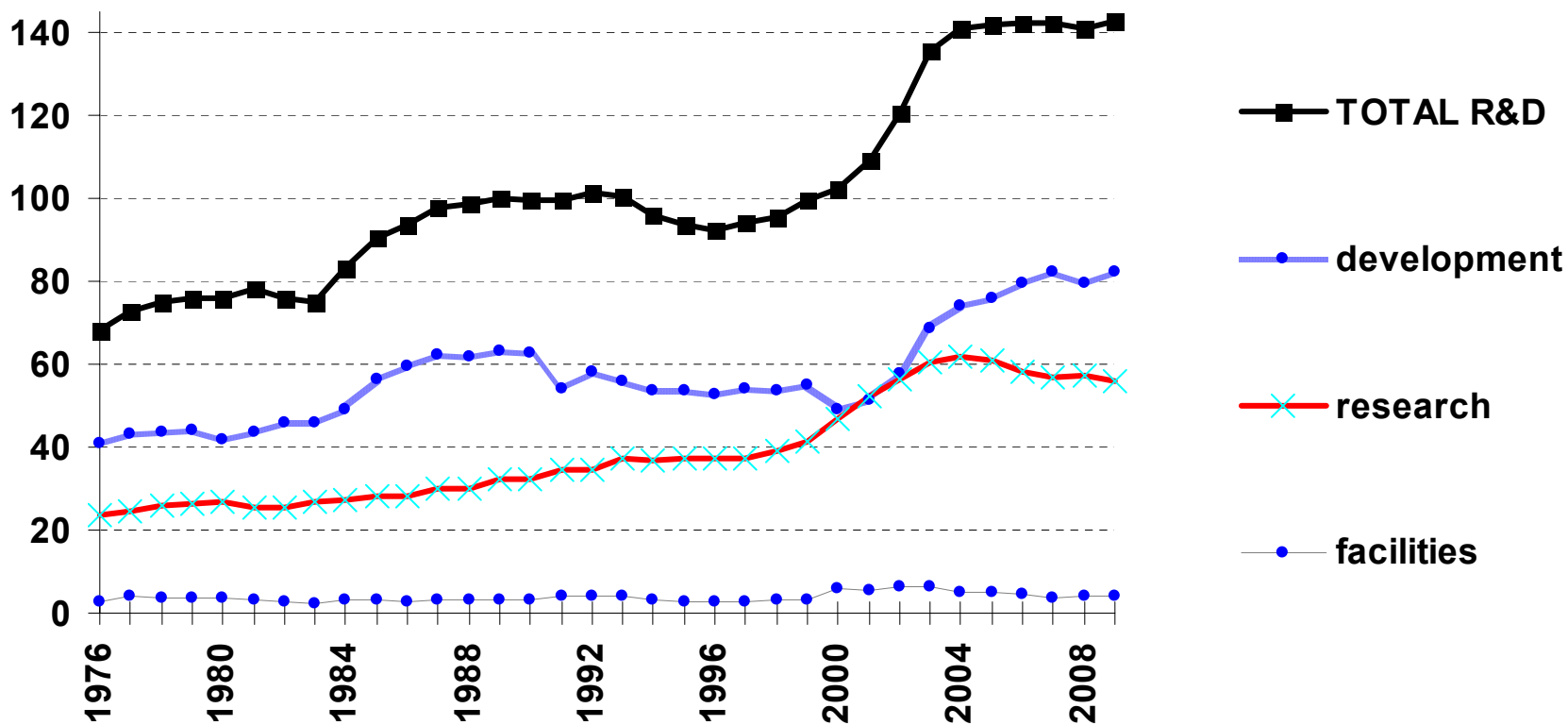


Source: AAAS, based on OMB R&D data and agency estimates for FY 2009.
DOD "S&T" = DOD R&D in "6.1" through "6.3" categories plus medical research.
DOD weapons = DOD R&D in "6.4" and higher categories.
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Trends in Federal R&D, FY 1976-2009 *

in billions of constant FY 2008 dollars

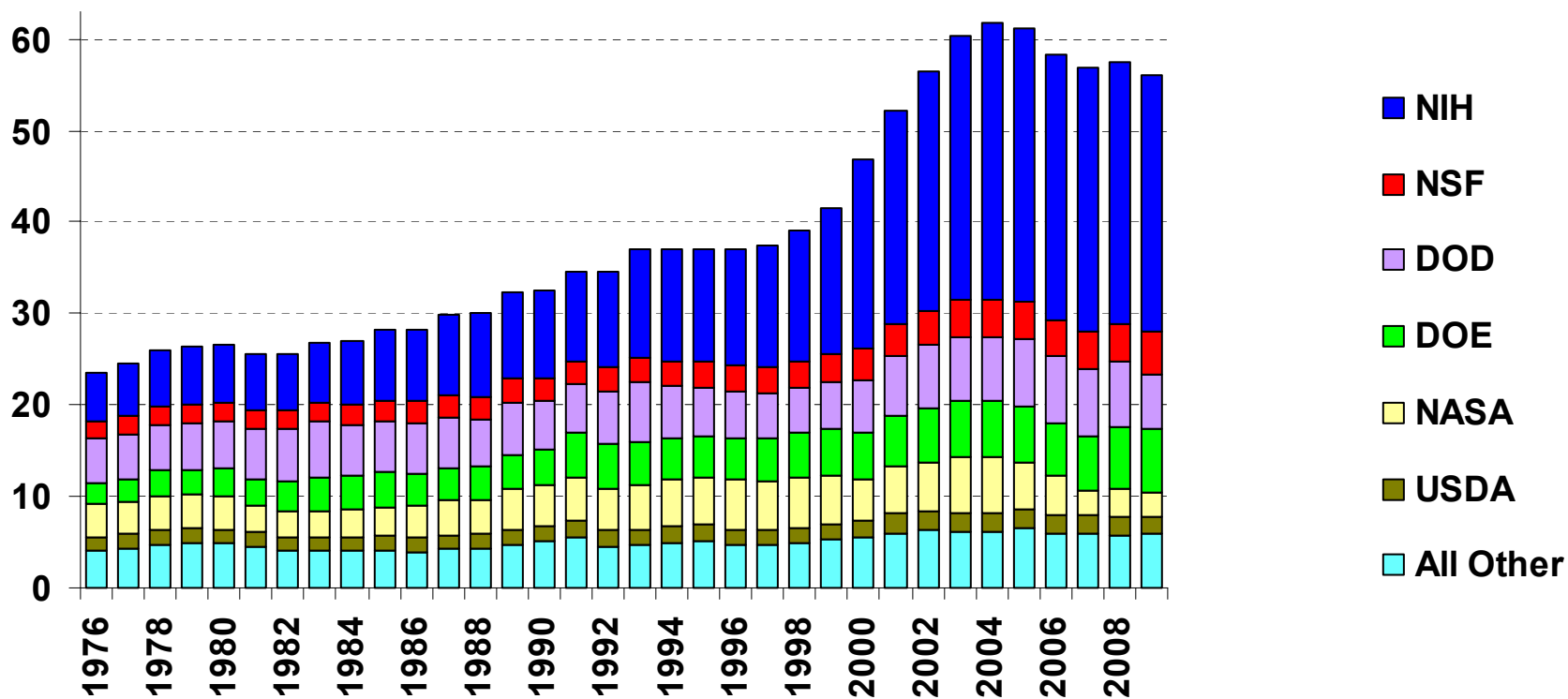


Source: AAAS analyses of R&D in annual AAAS R&D reports. * FY 2009 figures are latest AAAS estimates of FY 2009 request. R&D includes conduct of R&D and R&D facilities. Data to 1984 are obligations from the NSF Federal Funds survey. GDP figures are from OMB, Budget of the U.S. Government FY 2009. FEBRUARY '08 PRELIMINARY © 2008 AAAS



Trends in Research by Agency, FY 1976-2009 *

in billions of constant FY 2008 dollars



Source: AAAS analyses of R&D in annual AAAS R&D reports.

* FY 2009 figures are latest AAAS estimates of FY 2009 request. Research includes basic research and applied research. 1976-1994 figures are NSF data on obligations in the Federal Funds survey.

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AGENCY HIGHLIGHTS

DOD – For the first time in decades, DOD requests an increase for basic research (“6.1”; up 4 percent). Excluding 2008 earmarks, the increase would be 16 percent.

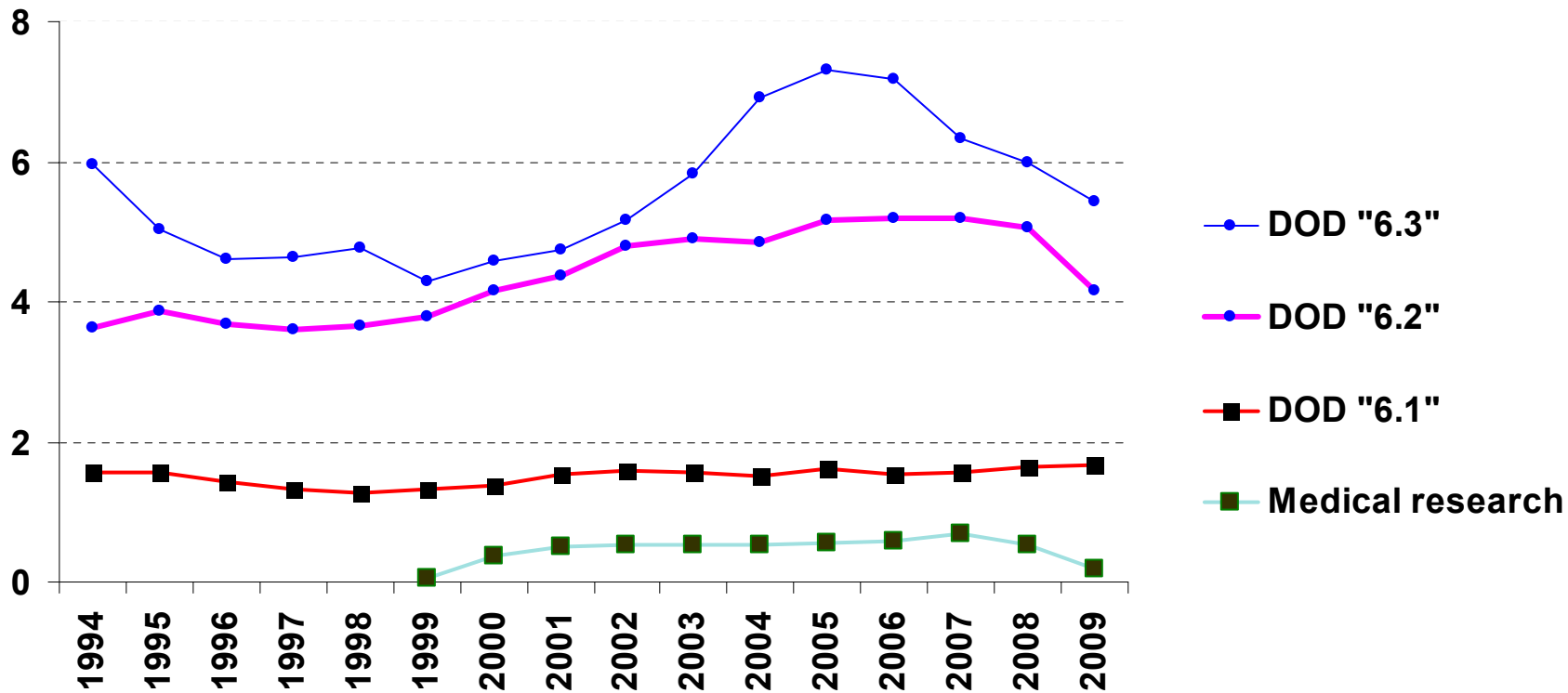
NSF – DMS funding would increase 16% as part of the ACI.

DOE – Proposed increase for the Advanced Scientific Computing Research program (+5%) in the Office of Science as part of the ACI, but +13% increase for core research.

NIH – Flat budget overall, with few exceptions.

Trends in DOD "S&T", FY 1994-2009 *

in billions of constant FY 2008 dollars



Source: AAAS analyses of R&D in annual AAAS R&D reports.

* - FY 2009 figures are latest AAAS estimates of FY 2009 request.

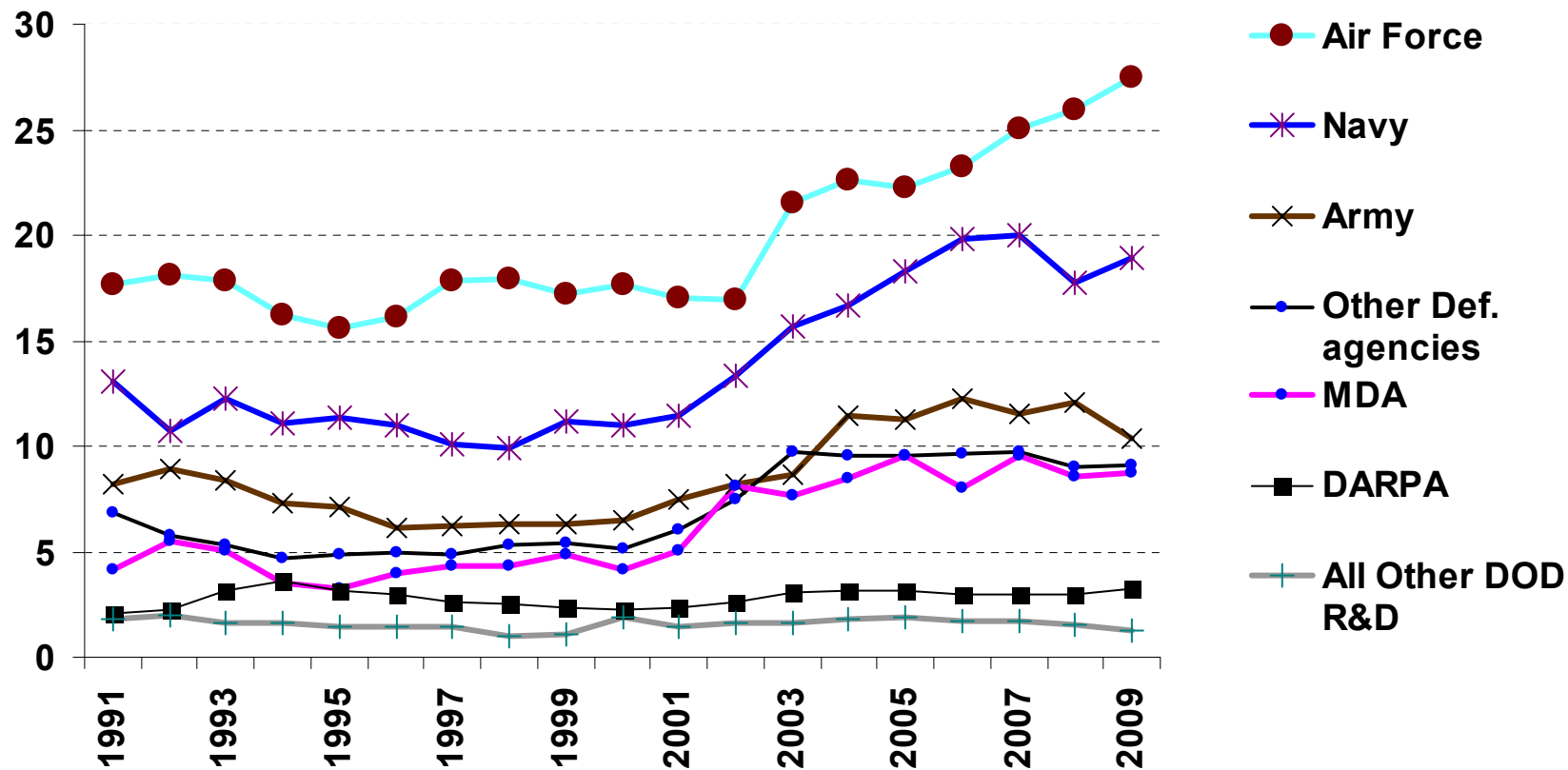
Medical research appropriated outside RDT&E; appropriated in "6.2" accounts before 1999.

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Trends in DOD R&D by Agency, FY 1991-2009 *

in billions of constant FY 2008 dollars

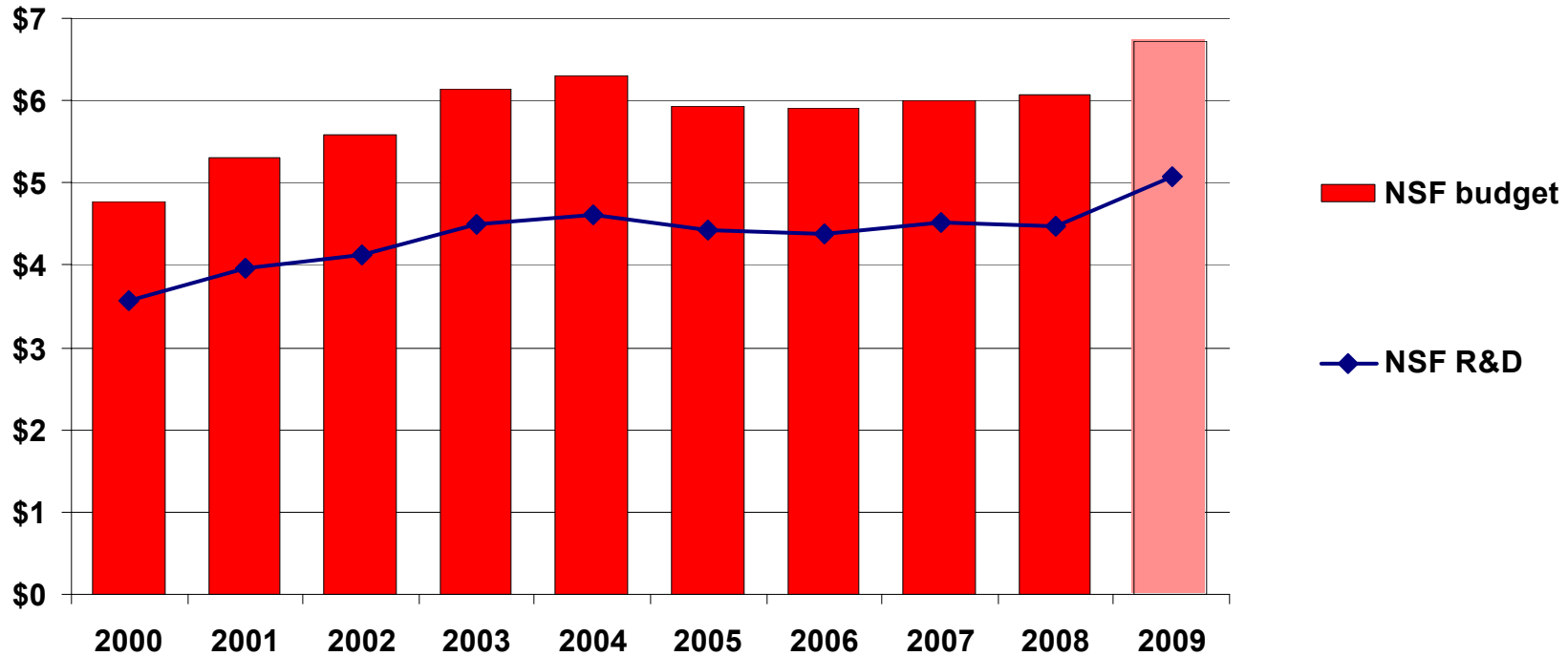


Source: AAAS analyses of R&D in annual AAAS R&D reports.
 * - FY 2009 figures are latest AAAS estimates of FY 2009 request. FY 2008 figures exclude pending supplementals.
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National Science Foundation Budget, FY 2000-2009

(budget authority in billions of constant FY 2008 dollars)

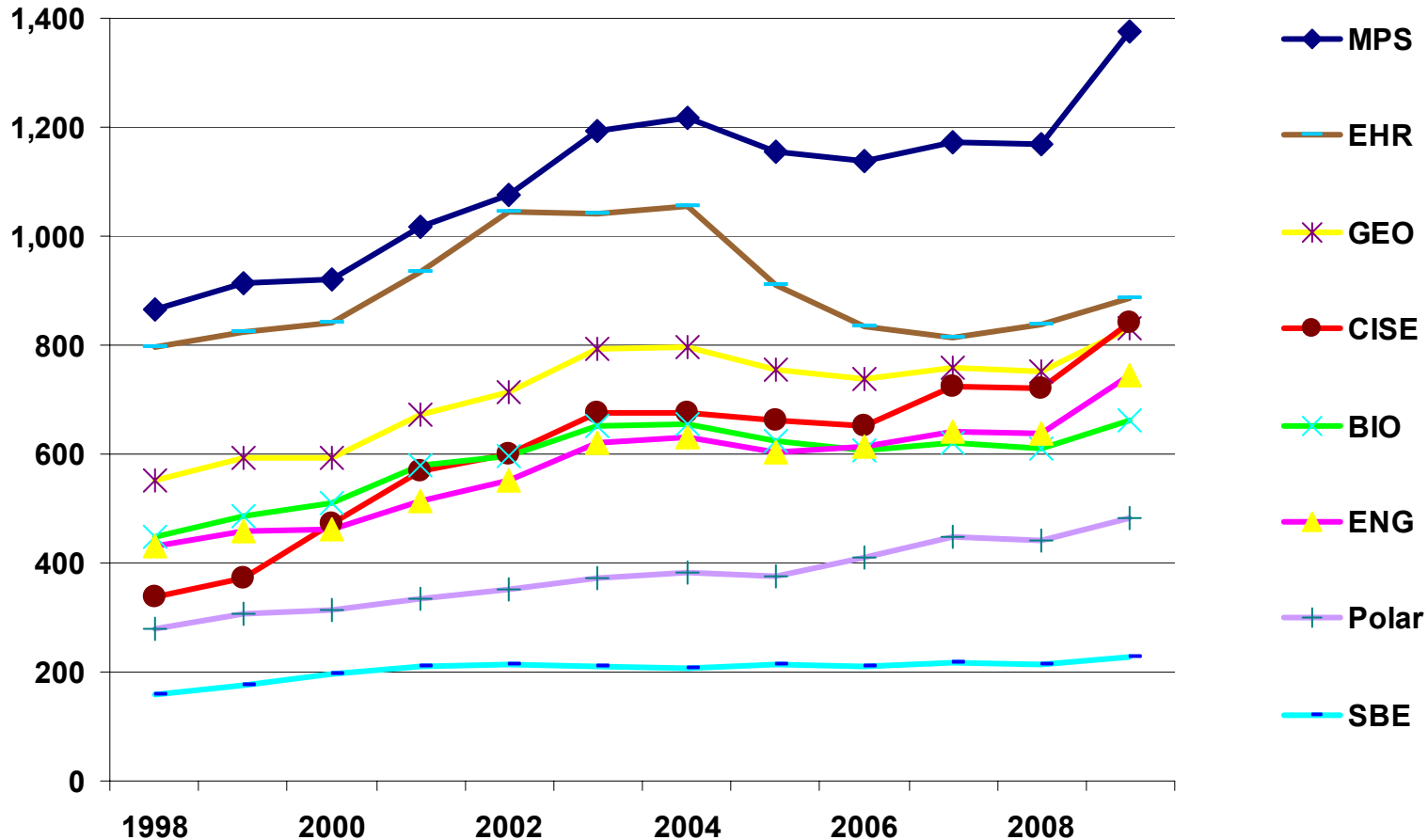


Source: National Science Foundation, and latest AAAS estimates of FY 2009 budget. FY 2009 is budget request.
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NSF Budget by Directorate, FY 1998-2009

(budget authority in millions of constant FY 2008 dollars)



Source: National Science Foundation data. FY 2009 figures are President's request.

CISE includes new Office of Cyberinfrastructure.

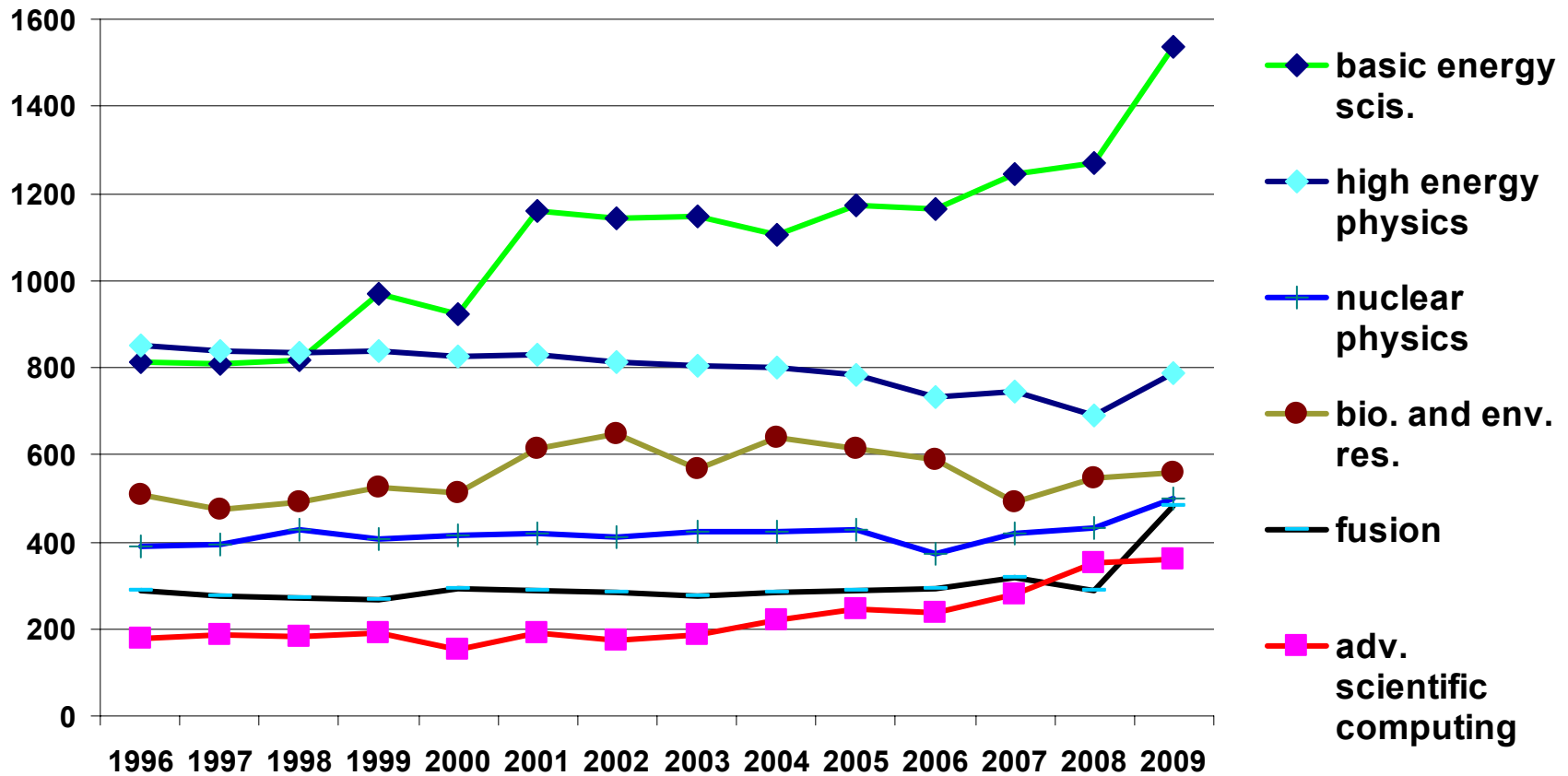
R&D and non-R&D components included in directorate budgets.

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DOE Office of Science Programs, FY 1996-2009

(budget authority in millions of constant FY 2008 dollars)

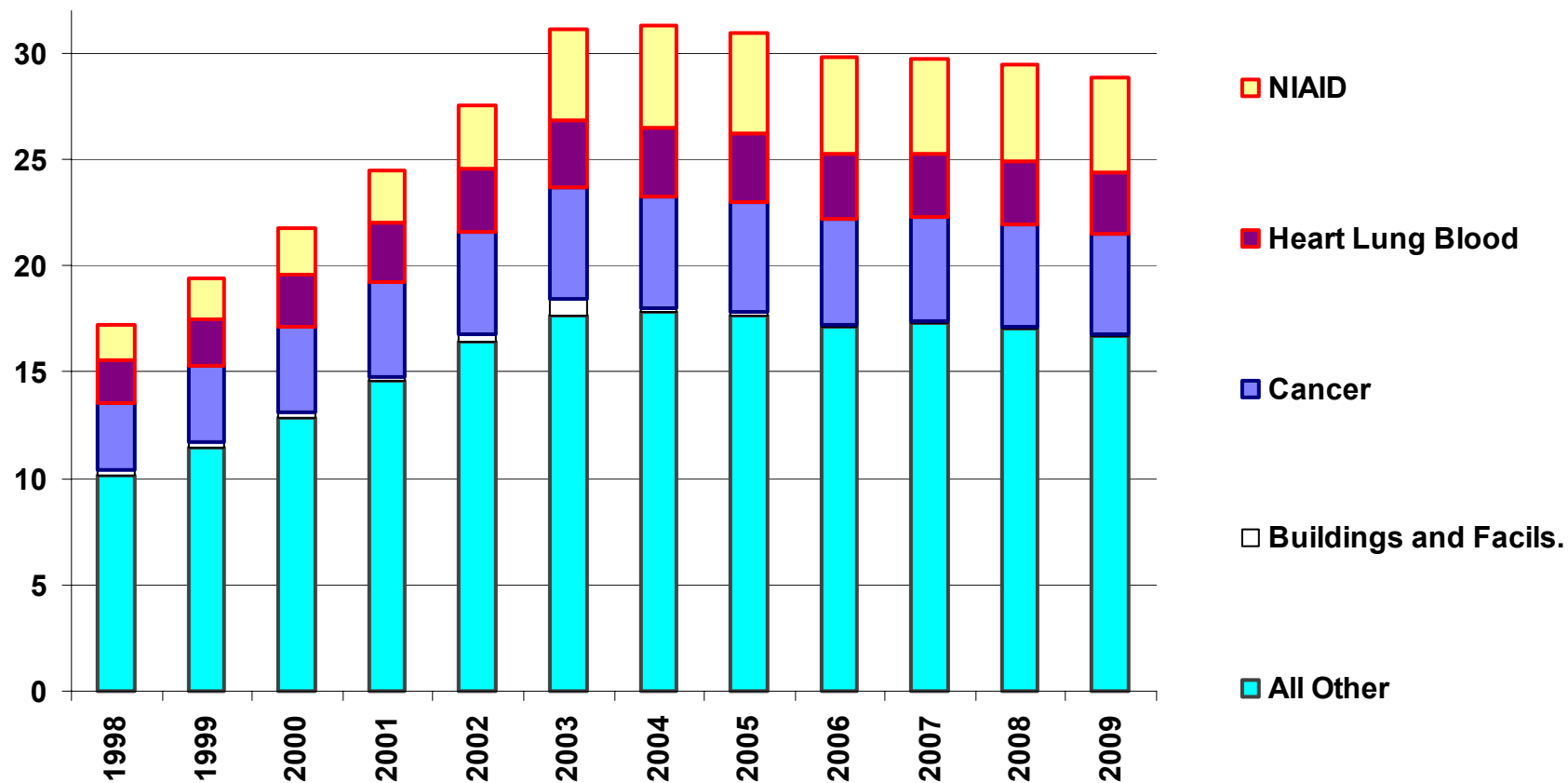


Source: AAAS Reports on R&D, various years, and DOE historical budget documents. Adjusted for inflation using OMB's GDP deflators. BES includes Spallation Neutron Source funds. BER includes earmarks for most years (not 2007 through 2009). FY 2009 figures are the budget request.



National Institutes of Health Budget by Institute, 1998-2009 *

(budget authority in billions of constant FY 2008 dollars)

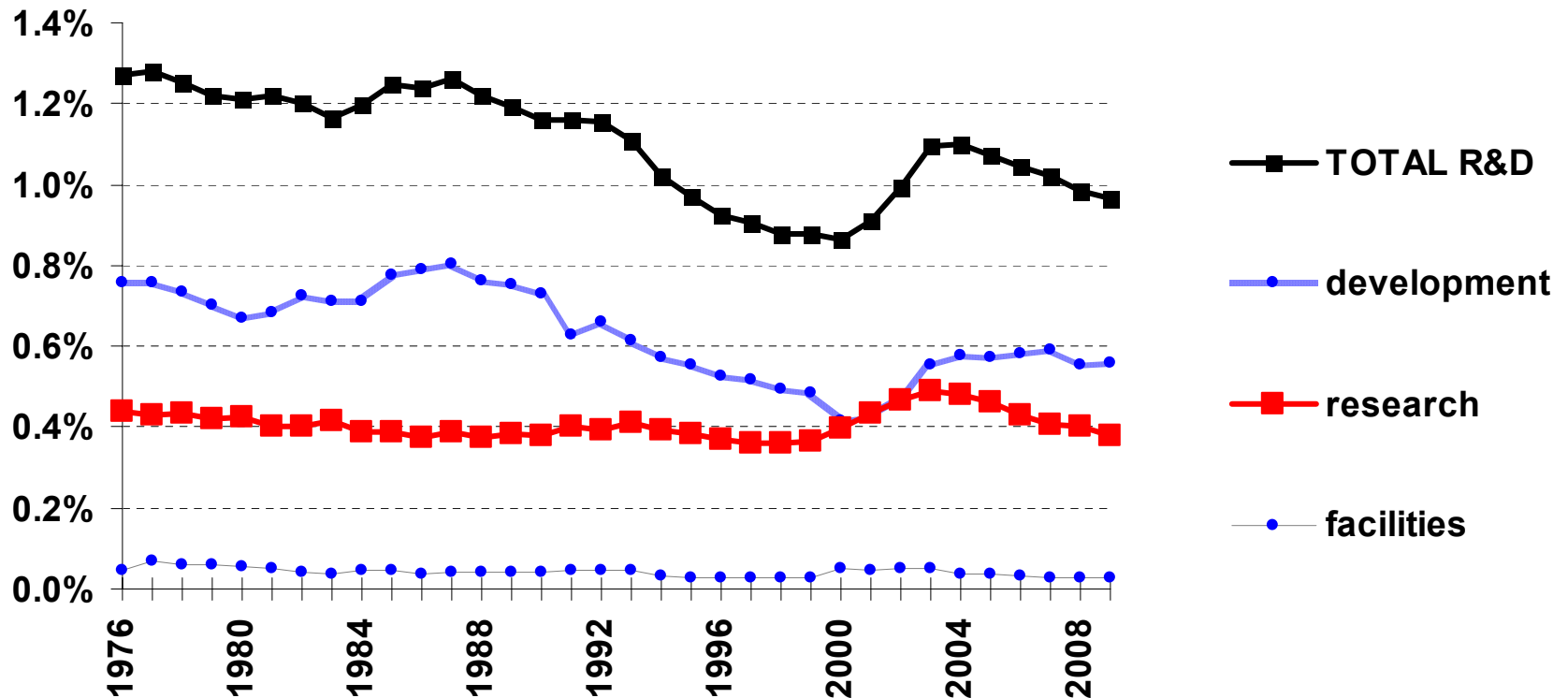


Source: AAAS R&D reports from NIH budget documents 1998-2009. * 2009 is latest AAAS estimates of FY 2009 request. Adjusted for inflation using OMB's GDP deflators.

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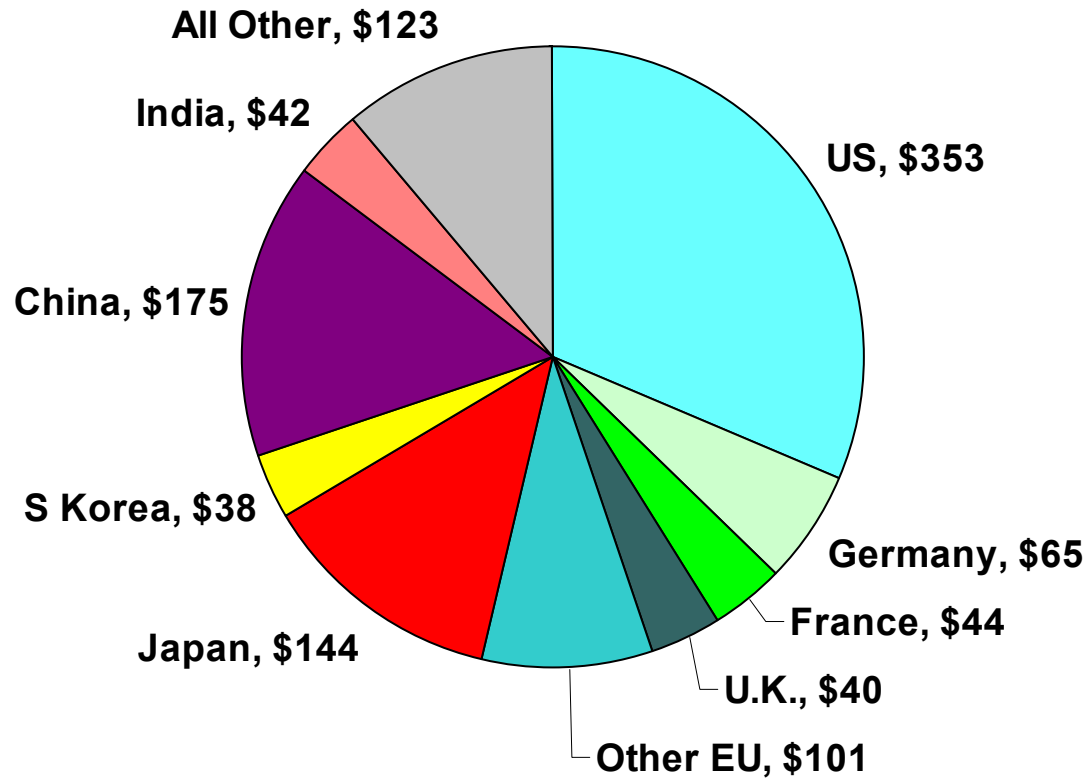


Trends in Federal R&D as % of GDP, FY 1976-2009 *



Source: AAAS analyses of R&D in annual AAAS R&D reports. * FY 2009 figures are latest AAAS estimates of FY 2009 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 2009. FEBRUARY '08 PRELIMINARY © 2008 AAAS

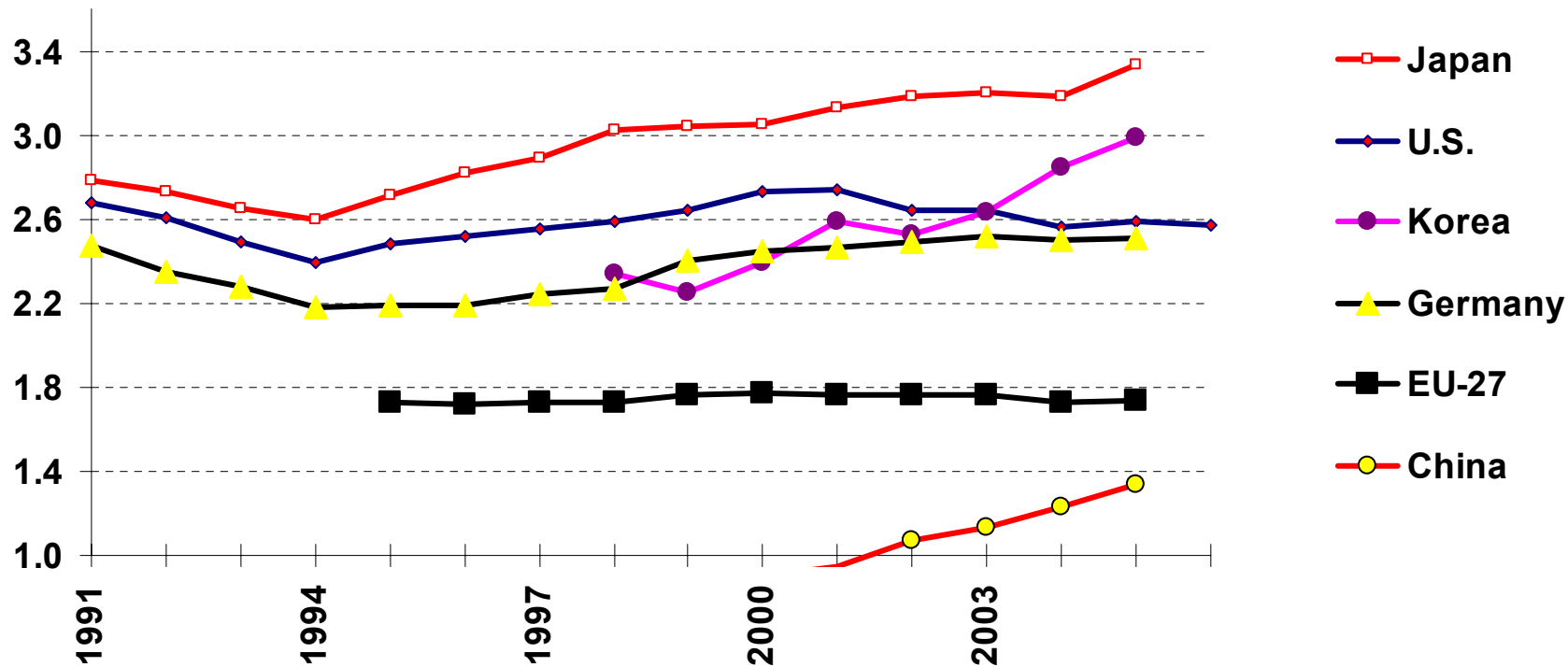
Shares of Total World R&D, 2007



**Total World R&D =
U.S. \$1,124 billion****

Source: Battelle, Global R&D Report, 2007, from Battelle, OECD, and R&D Magazine data. Projections for 2007, by performer nation. * *- calculated using purchasing power parities, in millions of dollars.
DECEMBER '07 © 2007 AAAS

Total National R&D as % of GDP, 1991-2006



Source: National Science Foundation, National Patterns of R&D Resources and OECD, Main Science and Technology Indicators. Data not available for all nations for all years. DECEMBER '07 © 2007 AAAS

WHAT'S NEXT?

- Congress began work this week on a 2009 budget resolution with discretionary spending targets that determine totals for later appropriations actions.
- Soon, Congress will consider a \$102+ billion 2008 war supplemental, which MIGHT contain 2008 science funding (NSF, DOE Science).
- If Congress doesn't have win more overall money for appropriations, Congress will trim ACI and other R&D increases to restore funding to health, training, education, law enforcement, and grants programs the President would eliminate or cut.
- The Appropriations Committees will try to write and pass 12 2009 appropriations bills, but Congress may delay some or all of them until the next President takes office.

FOR MORE INFORMATION...

The AAAS R&D web site is
www.aaas.org/spp/rd

The AAAS Forum on
Science and Technology
Policy is 8-9 May 2008
in Washington, DC

AAAS REPORT XXXII

Research & Development FY 2008

Intersociety Working Group

