



What Changes in Federal Policy Might Spur Innovation?

Presentation at the Kauffman Foundation Conference on Federal Tax Policy and Entrepreneurship

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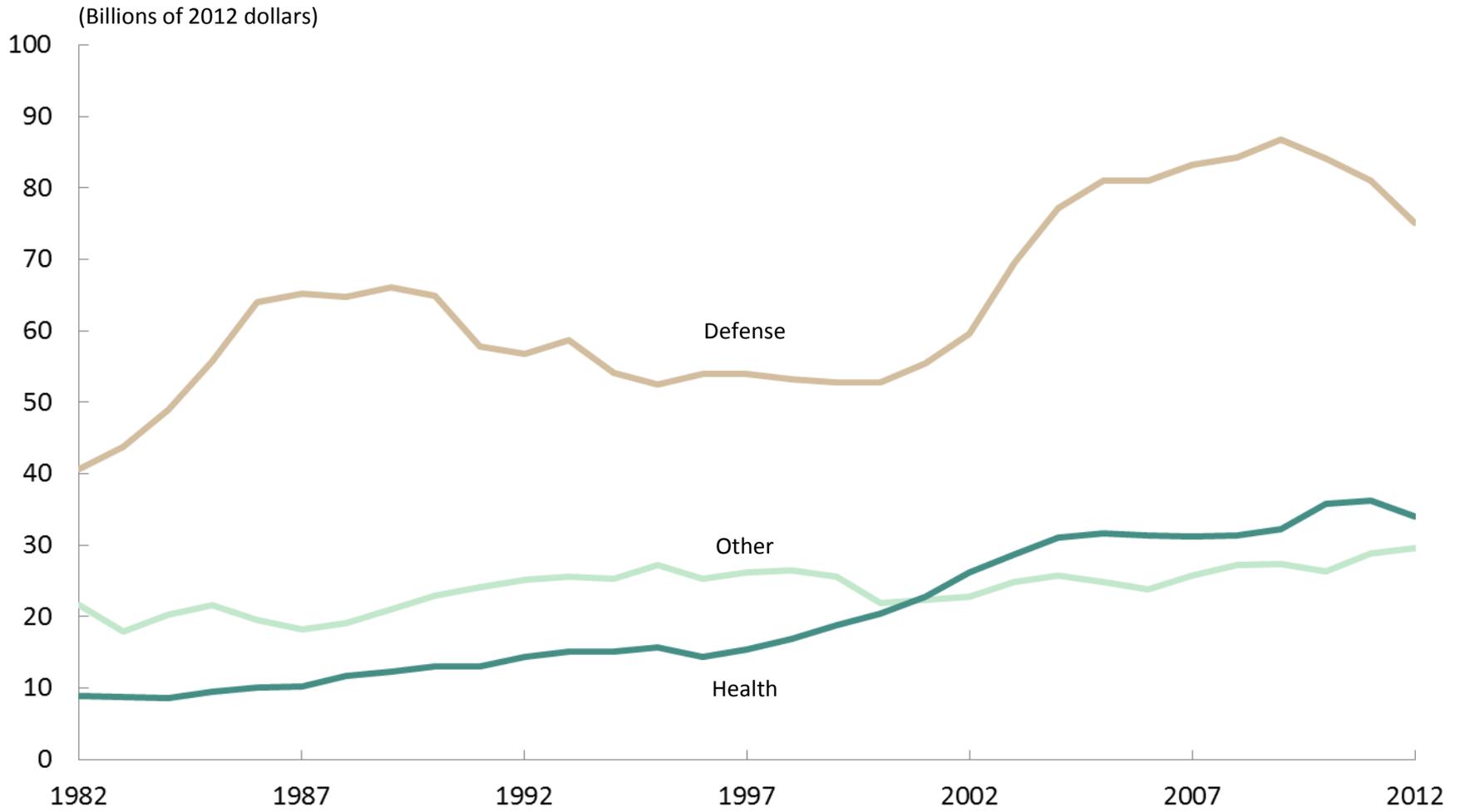
Note: Data in the figures reflect recent revisions by the Bureau of Economic Analysis to estimates of gross domestic product (GDP) in past years and CBO's extrapolation of those revisions to projected future GDP.

Possible Policy Approaches for Increasing Innovation:

- Increase or Redirect Federal Funding for Research and Development
- Increase or Redirect Federal Support for Education
- Change Tax Treatment of Private Investment
- Increase Immigration of Highly Skilled Workers
- Pursue Patent Reform
- Reconsider Regulatory Goals

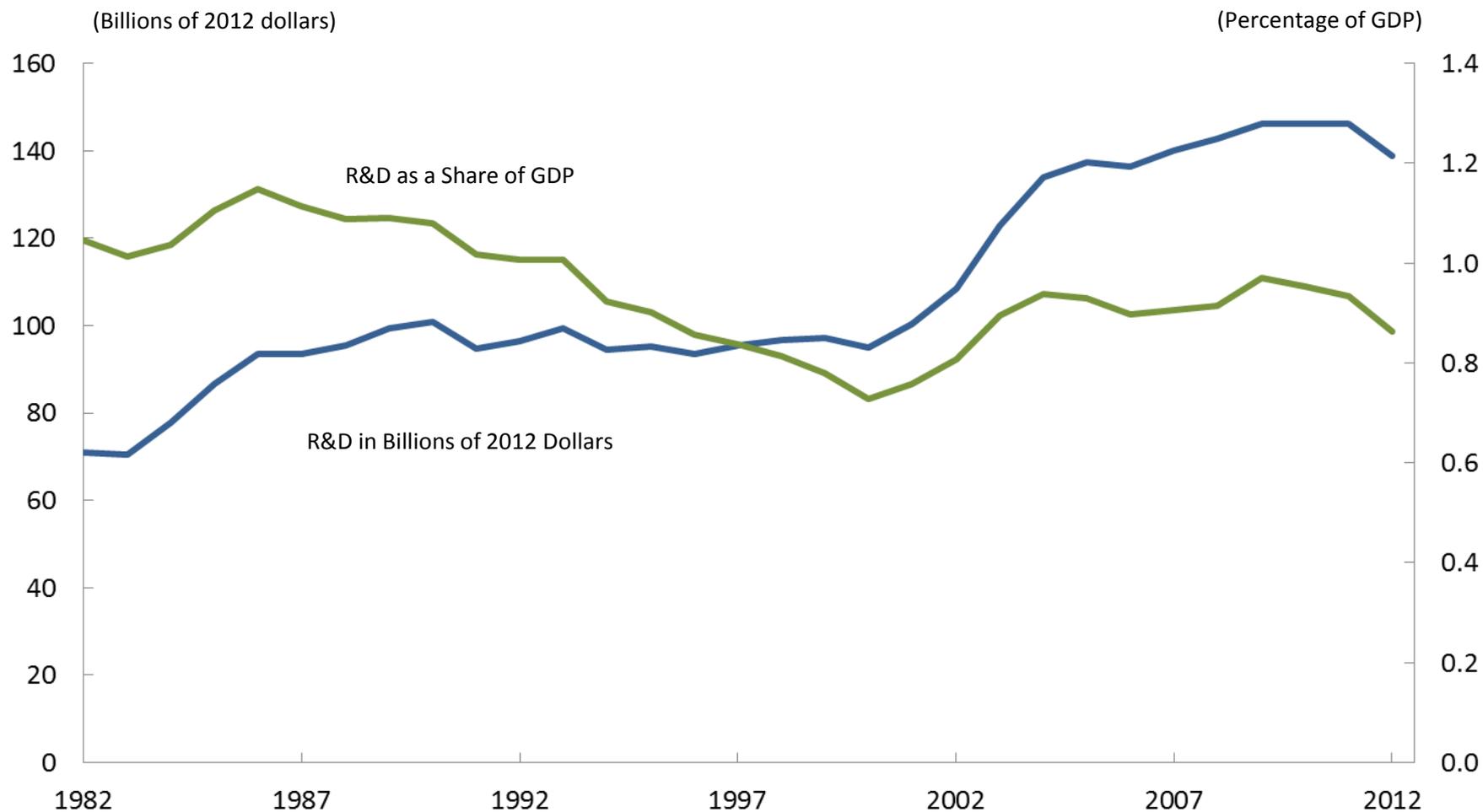
Possible Policy Approach for Increasing Innovation:
Increase or Redirect Federal Funding for Research and
Development

Federal spending for R&D in real dollars has increased in the past few decades in health and defense but has changed little in all other areas

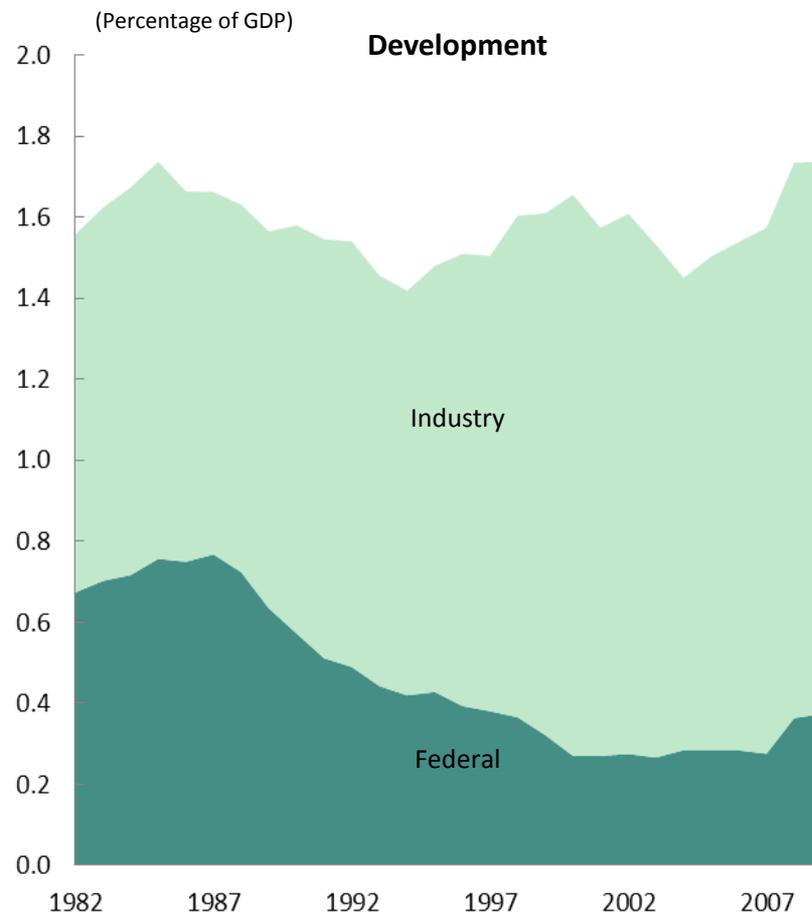
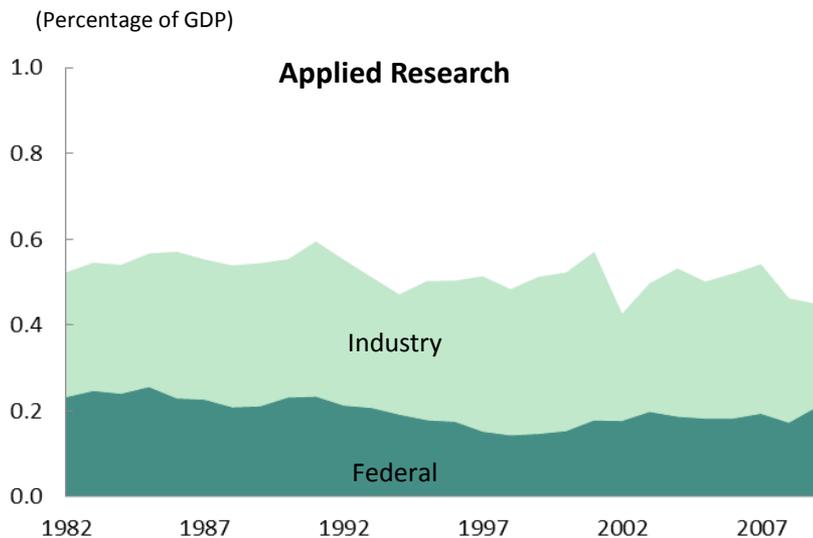
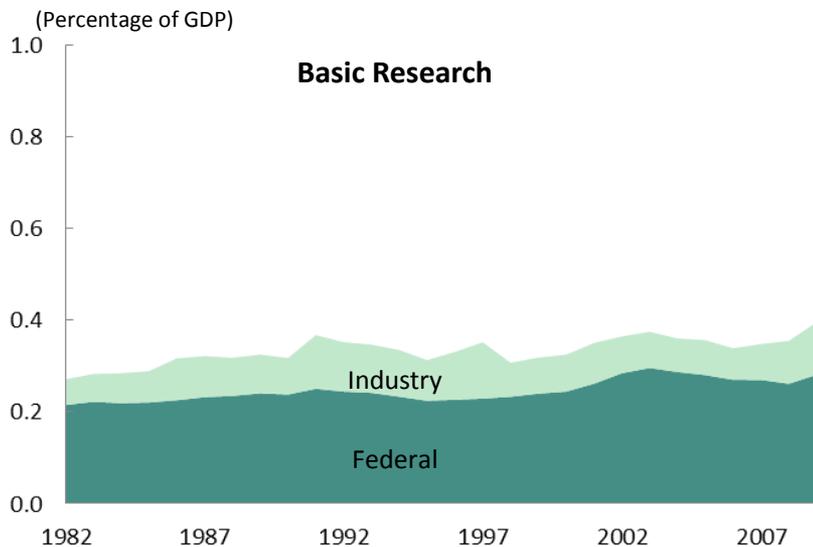


Data from American Association for the Advancement of Science, *Trends in Federal R&D by Function, FY 1949-2013*.

Although federal spending for R&D has increased in real dollars, it has declined slightly relative to GDP

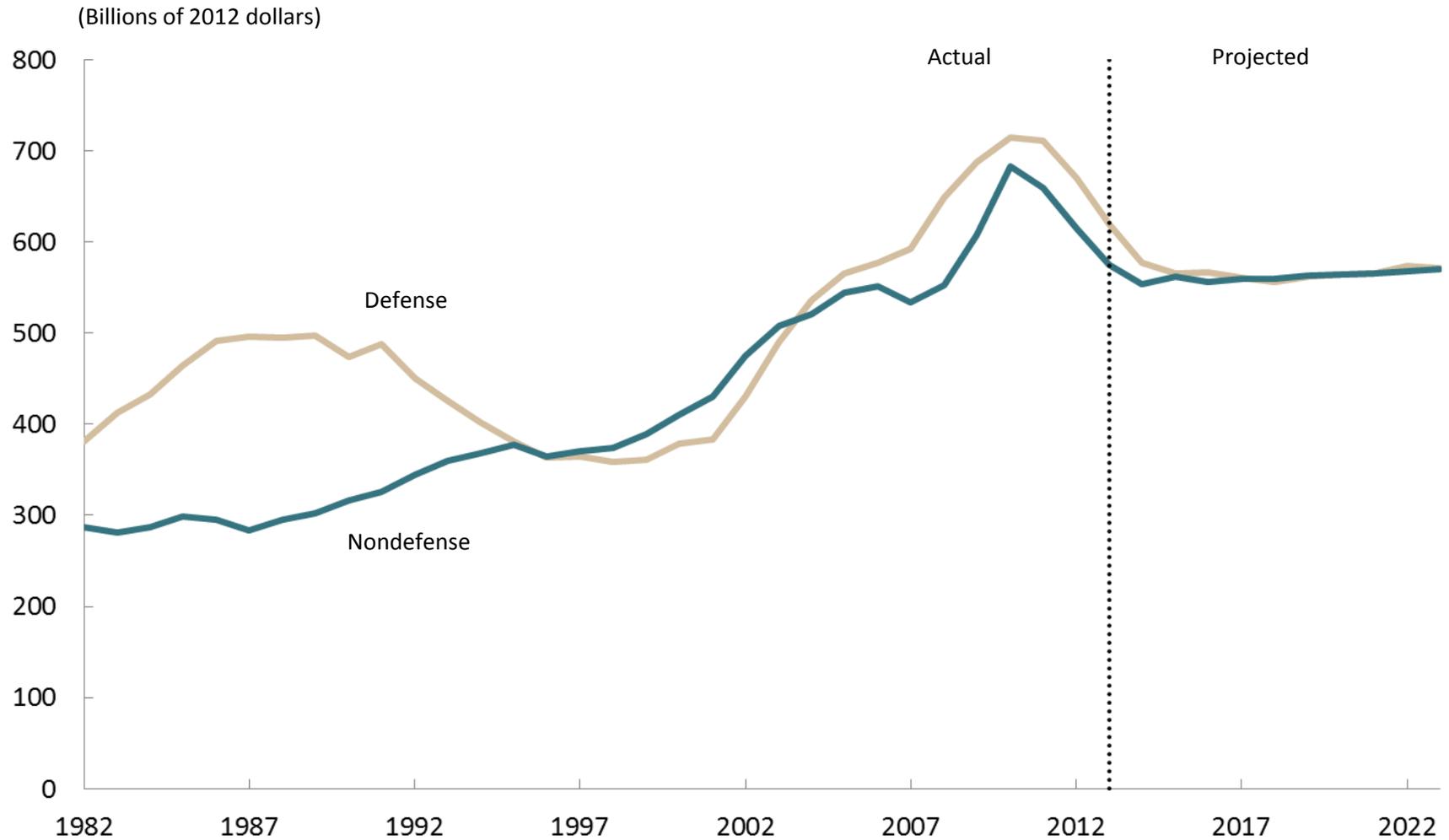


Relative to GDP, federal spending for research has changed little and for development has declined

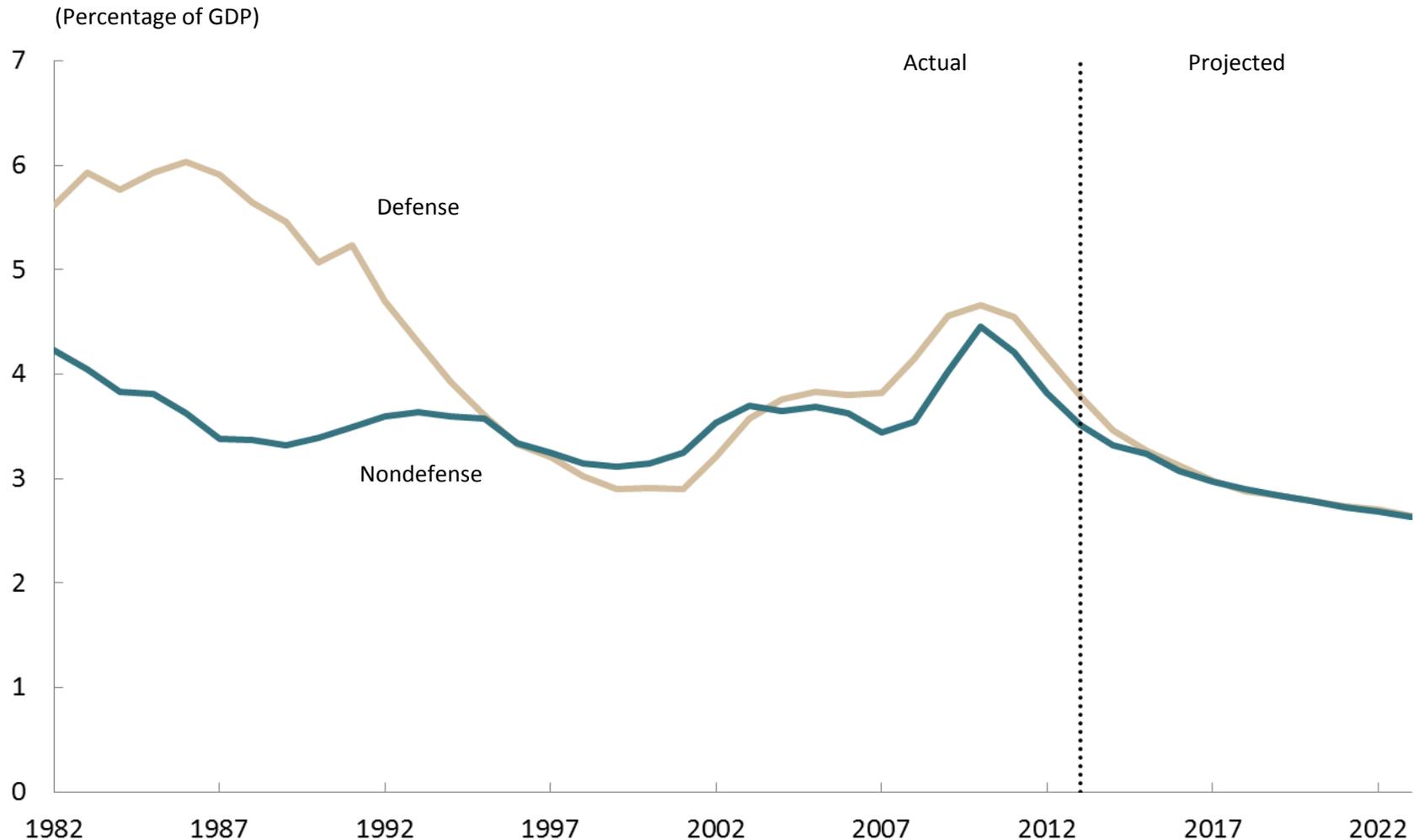


Data from National Science Board, *Science and Engineering Indicators 2012 (2012)*.

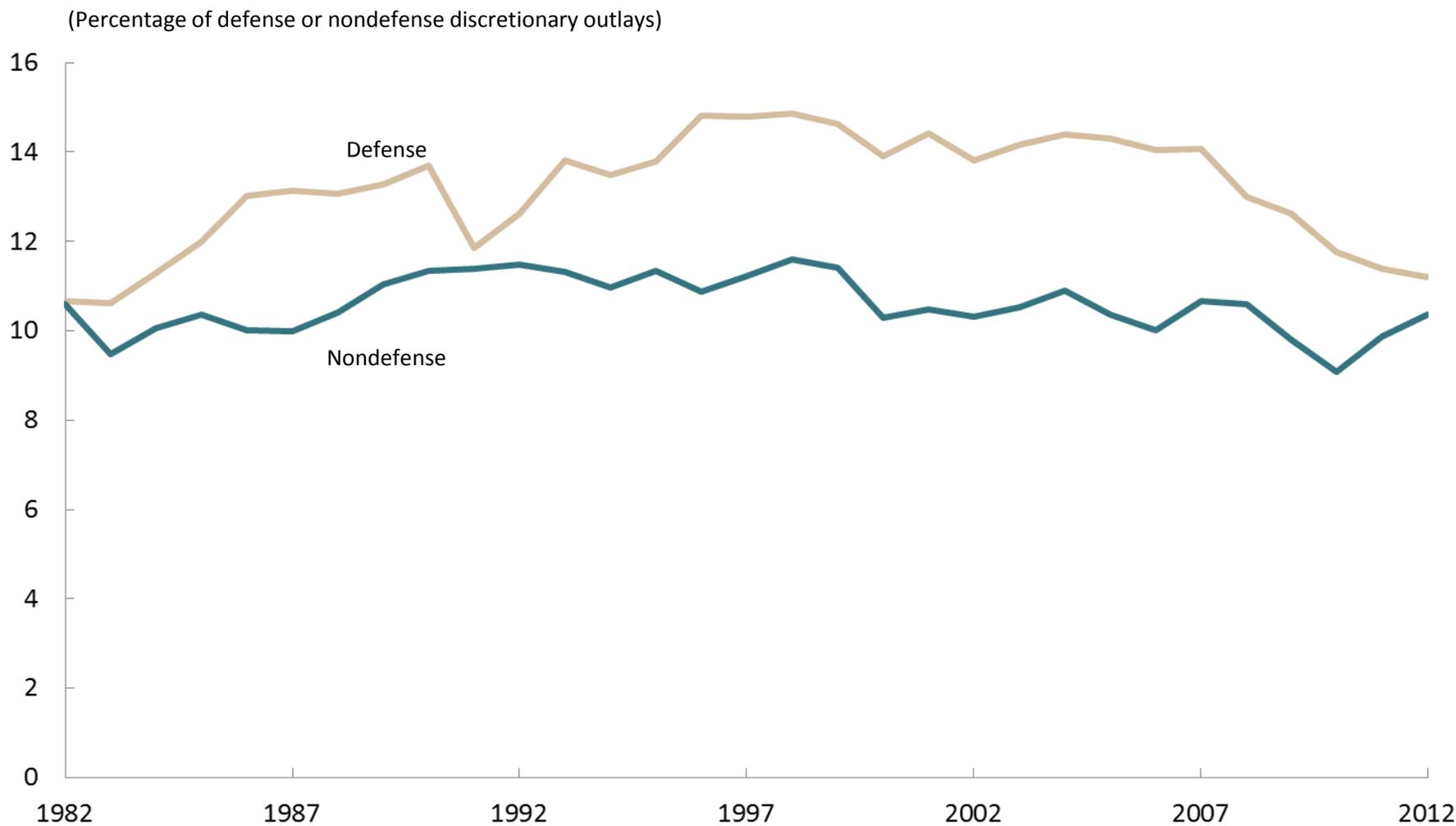
Because of caps on discretionary funding under current law, federal discretionary spending is leveling out in real terms



Because of caps on discretionary funding under current law, federal discretionary spending is declining relative to the size of the economy

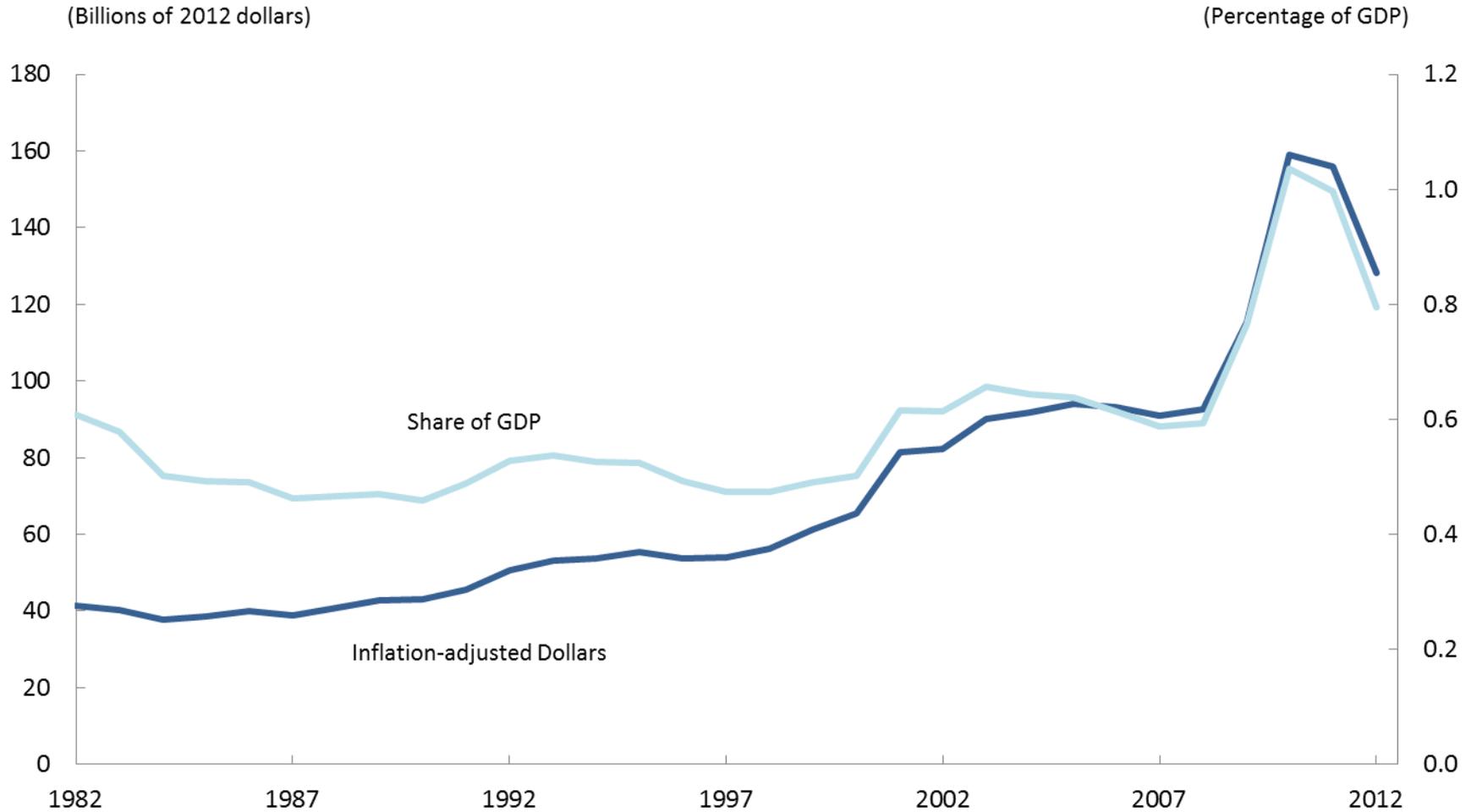


Defense and nondefense R&D have represented fairly stable shares of the respective discretionary spending



Possible Policy Approach for Increasing Innovation:
Increase or Redirect Federal Support for Education

Federal spending for education and training increased with ARRA and an expansion of Pell grants



A mismatch between the supply and demand for STEM (science, technology, engineering, and math) skills contributes to job vacancies in manufacturing

About one-quarter of manufacturing businesses report vacancies of 3 months or more

- A lack of math and computer skills among job applicants is a leading reason—and demand for those skills is growing
- However, employers' wage and hiring practices also play a role

Such long-term job vacancies vary by size and type of business

- Larger establishments are more likely to have vacancies, but smaller ones tend to suffer more when they occur
- Irrespective of size, low-tech establishments experience vacancies more often than high-tech ones

Federal support for education could be increased in several ways

STEM (science, technology, engineering, and math) education

- Increase funding for academic research in STEM fields
- Provide more scholarships for STEM students
- Train math and science teachers to be more effective
- Develop innovative approaches to math and science education

General education

- Hold down interest rates on student loans
- Provide more generous Pell grants for lower-income students

Possible Policy Approach for Increasing Innovation:
Change Tax Treatment of Private Investment

The federal tax treatment of private investment could be improved in several ways

Enhance the R&D tax credit:

- Make it permanent (at the end of this year, it will expire for the 16th time in 32 years)
- Increase the credit for newer or merged firms from its current 14% to the 20% that older firms get
- Include other types of investment, such as software developed for internal use

Lower the tax rates paid by U.S. multinational corporations

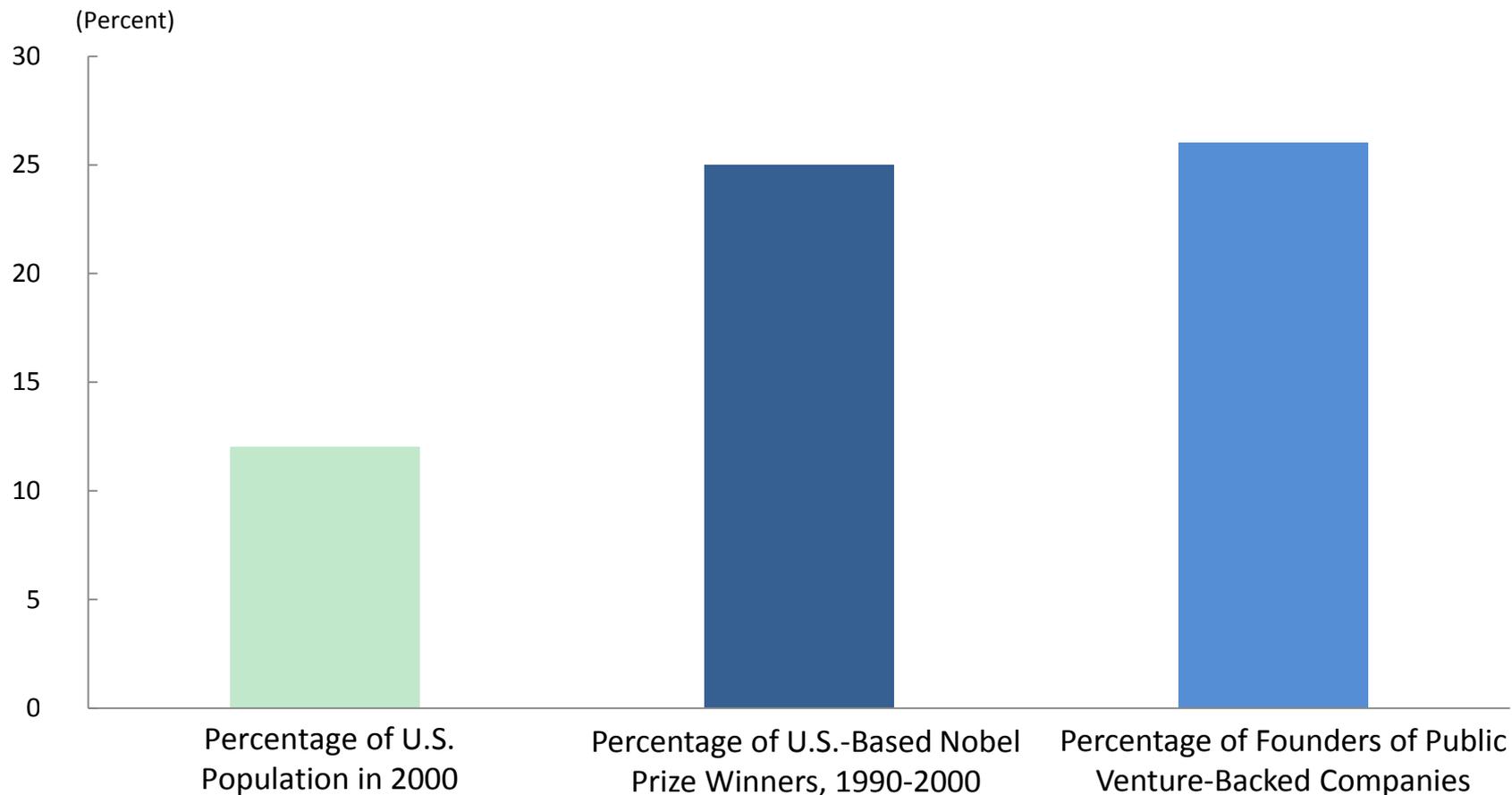
- Unclear if such a change would spur innovation

Increase support for manufacturing

- Unclear if such a change would spur innovation

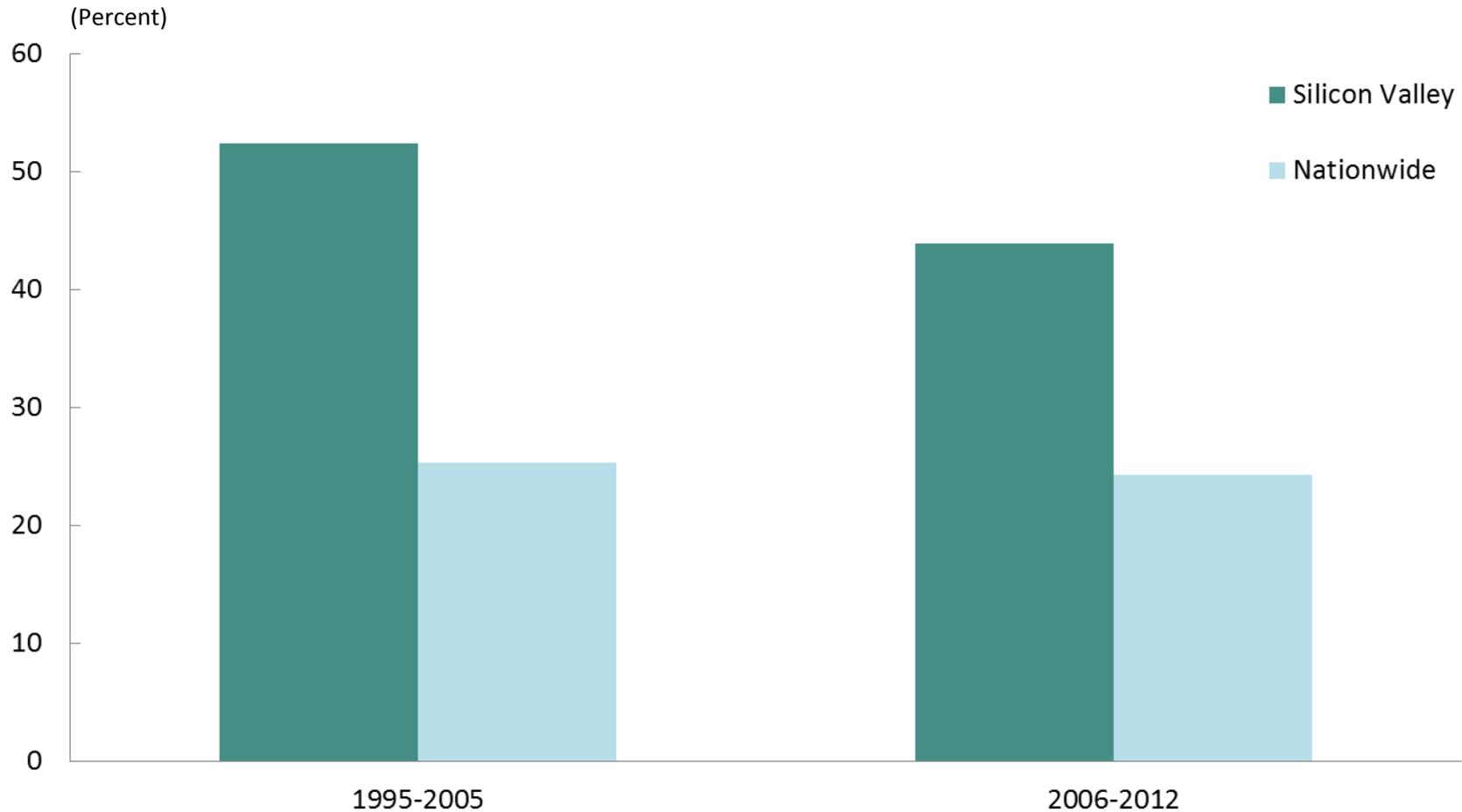
Possible Policy Approach for Increasing Innovation:
Increase Immigration of Highly Skilled Workers

Immigrants represent larger shares of Nobel Prize winners and founders of public venture-backed companies than of the U.S. population



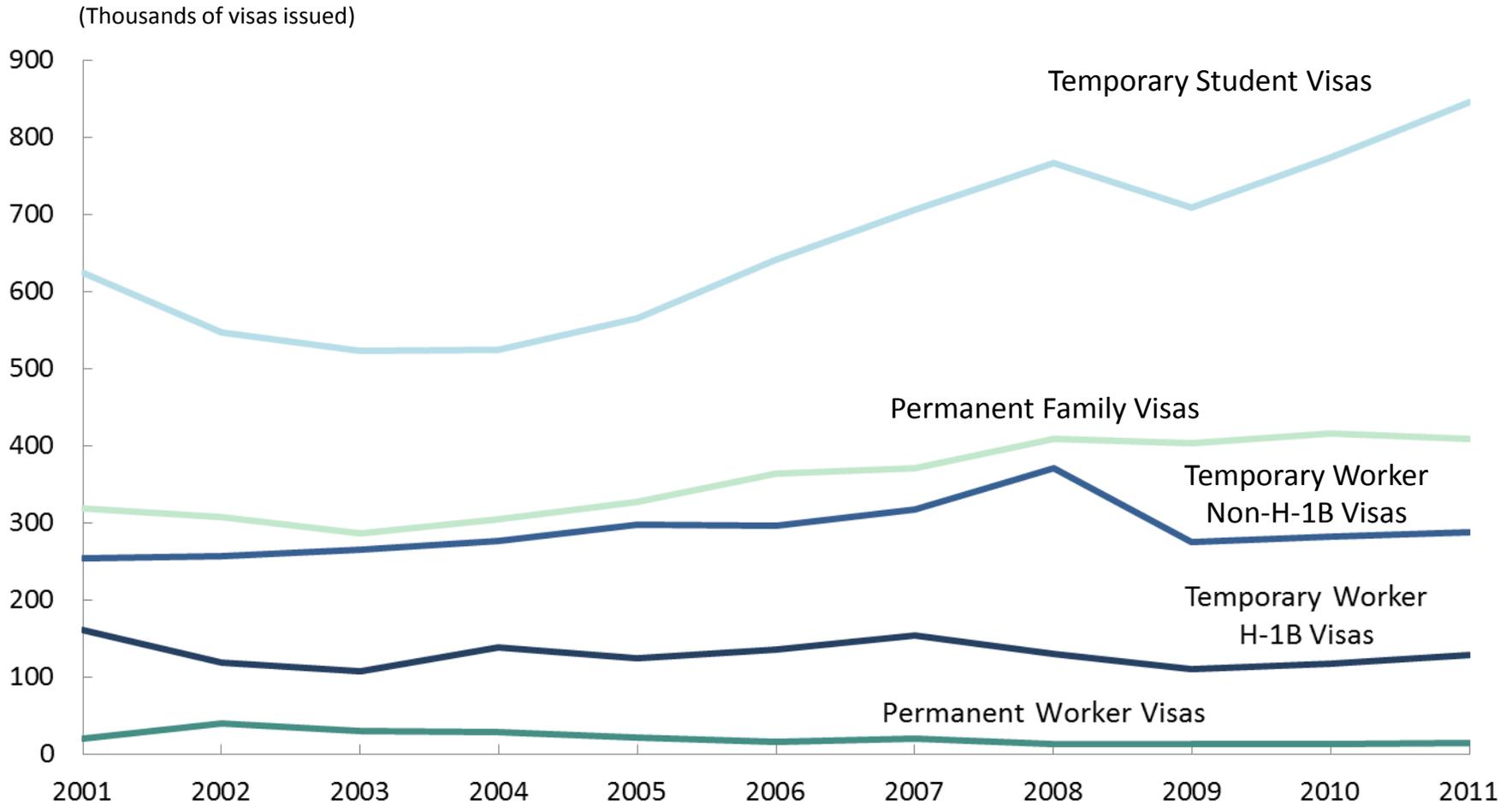
Data from Giovanni Peri, "Higher Education, Innovation, and Growth," In Giorgio Brunello, Pietro Garibaldi, and Etienne Wasmer, eds., *Education and Training in Europe* (Oxford: Oxford University Press, 2007); Stuart Anderson and Michaela Platzer (2006), *American Made: The Impacts of Immigrant Entrepreneurs and Professionals on U.S. Competitiveness*, National Venture Capital Association (2006), www.nvca.org/index.php?option=com_content&view=article&id=254&Itemid=103.

In the engineering and technology industries, immigrant-founded startups are especially prevalent in Silicon Valley



Data from Vivek Wadhwa, AnnaLee Saxenian, and F. Daniel Siciliano, "Then and Now: American's New Immigrant Entrepreneurs, Part VII," The Kauffman Foundation (October 2012), p. 27.

A small share of visas goes to workers because of their skills



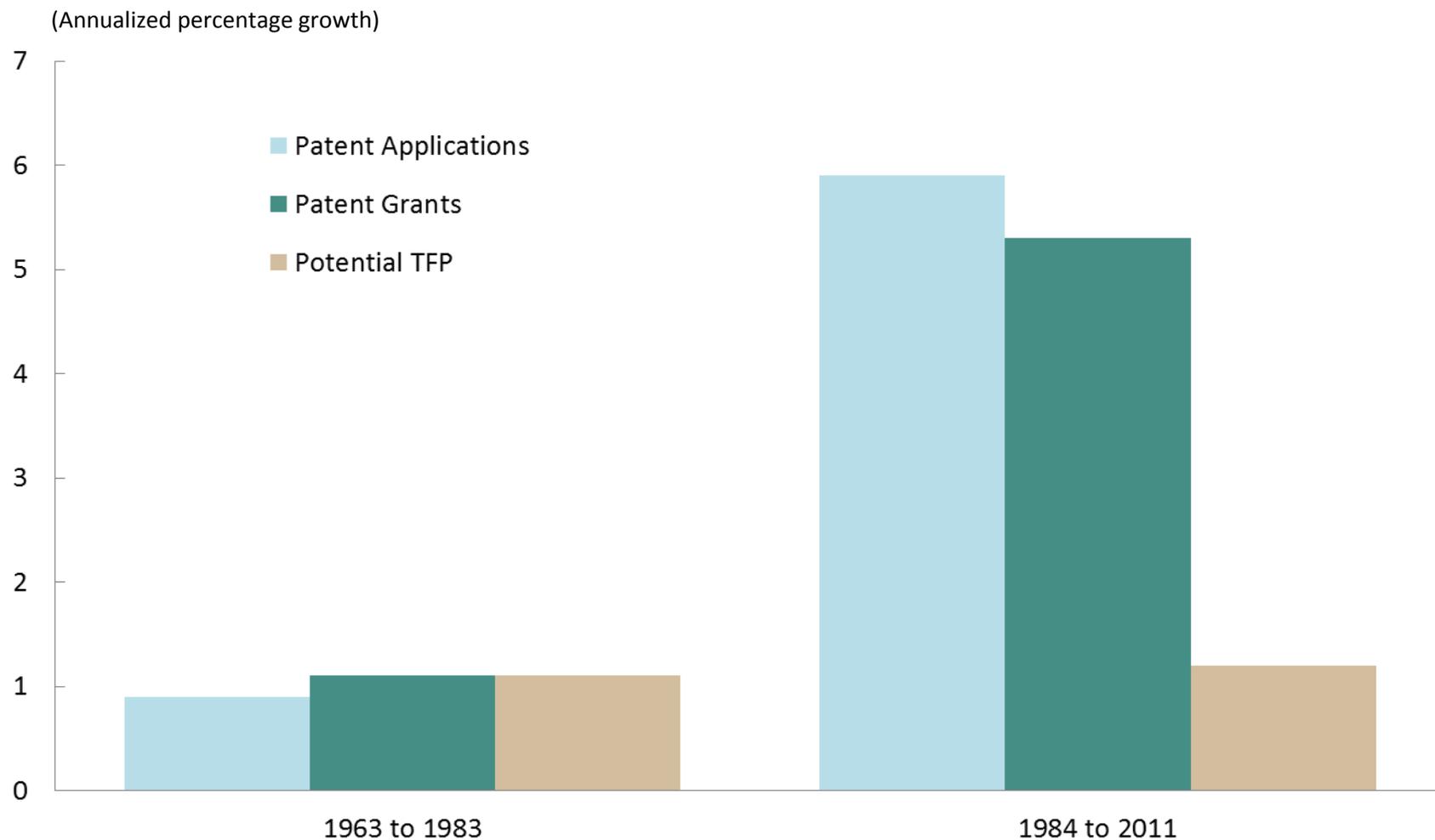
Data from U.S. Department of State, *Immigrant and Nonimmigrant Visa Statistics, 2001-2011*.

Immigration of highly skilled workers could be increased in several ways

- Raise or eliminate quotas for temporary workers with H-1B visas
- Increase visas for permanent workers
- Allow foreign students in STEM fields to stay in the country after graduation, either temporarily or permanently

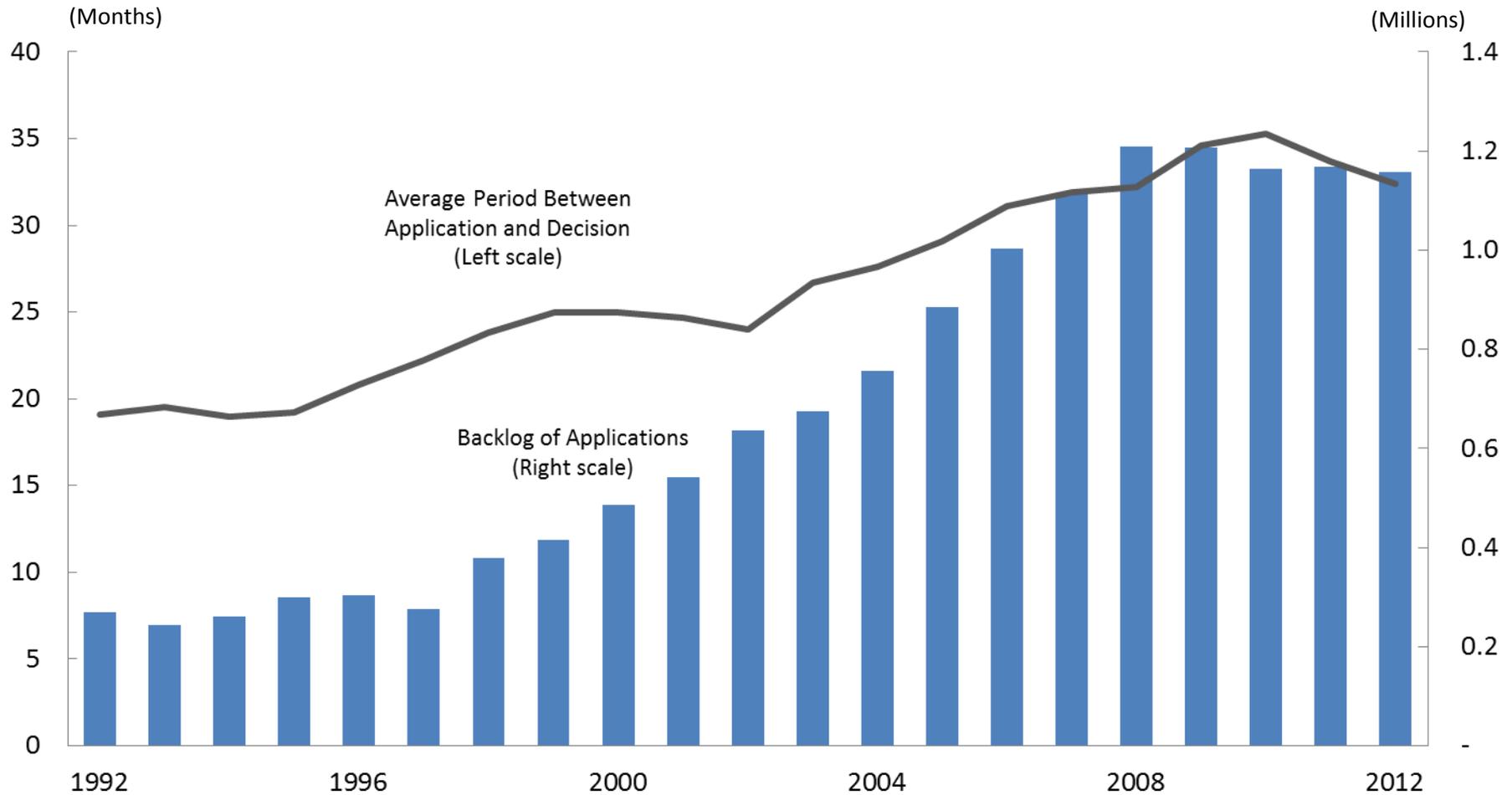
Possible Policy Approach for Increasing Innovation:
Pursue Patent Reform

Faster growth in patents does not necessarily raise productivity growth



Data from U.S. Patent and Trademark Office and Congressional Budget Office.

Patent processing has become more delayed



Data from U.S. Patent and Trademark Office, *Performance and Accountability Report* (various years) and, in particular, *Performance and Accountability Report Fiscal Year 2012*, Table 3: Patent Applications Pending Prior to Allowance (FY1991 - FY2012), p. 177.

Possible Policy Approach for Increasing Innovation: Reconsider Regulatory Goals

Policymakers balance innovation against other regulatory goals

Innovation is balanced against safety, fairness, privacy, government cost, and other considerations.

Areas of regulation where the encouragement of innovation has received attention in the past and might receive greater attention in the future include regulation of medical devices, auctions of wireless spectrum, and oversight of e-commerce, among others.

Conclusion

A wide array of federal policy approaches could be pursued to spur innovation, including increased spending on research and development, increased support for education (especially in science), lower taxes on private investment, greater immigration of skilled workers, patent reform, and adjustments to regulatory policies.

However, those approaches would necessitate a redirection of federal money from other purposes or compromises on other national goals, which would require that spurring innovation be an important national priority.