

Presentation to the Council of Scientific Society Presidents

Rob Atkinson

Vice President and Director,
Technology and New Economy Project

Progressive Policy Institute

www.ppionline.org

The Progressive Policy Institute

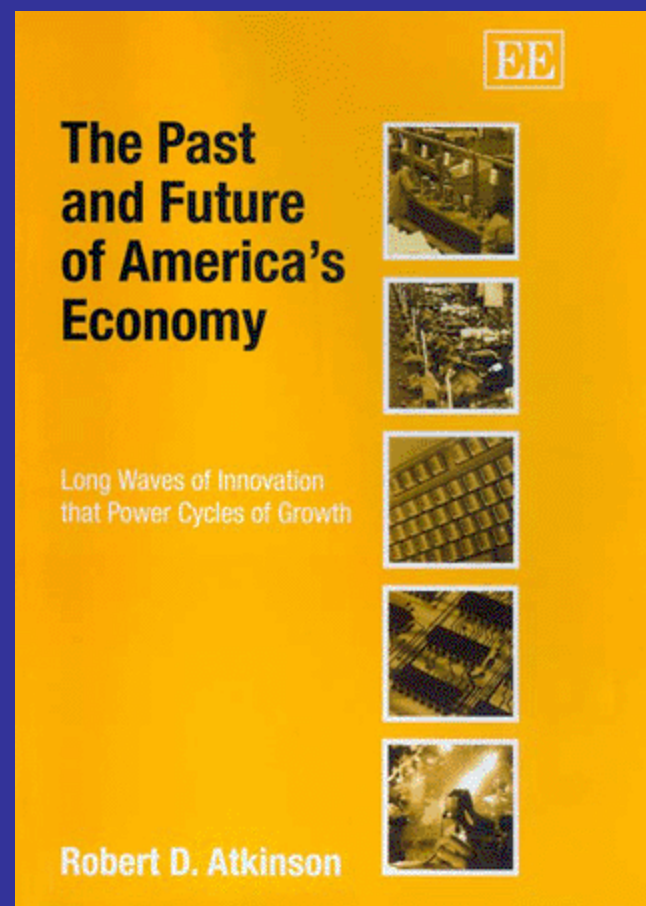
- Founded in 1989 by the Democratic Leadership Council
- 501 (c) (3)
- Mission is to define and promote a 'Third Way' progressive politics for the Information Age
- An alternative to the liberal impulse to defend the bureaucratic status quo and the conservative bid to dismantle government

Waves of Innovation Drive Cycles of Growth & Change

Robert D. Atkinson

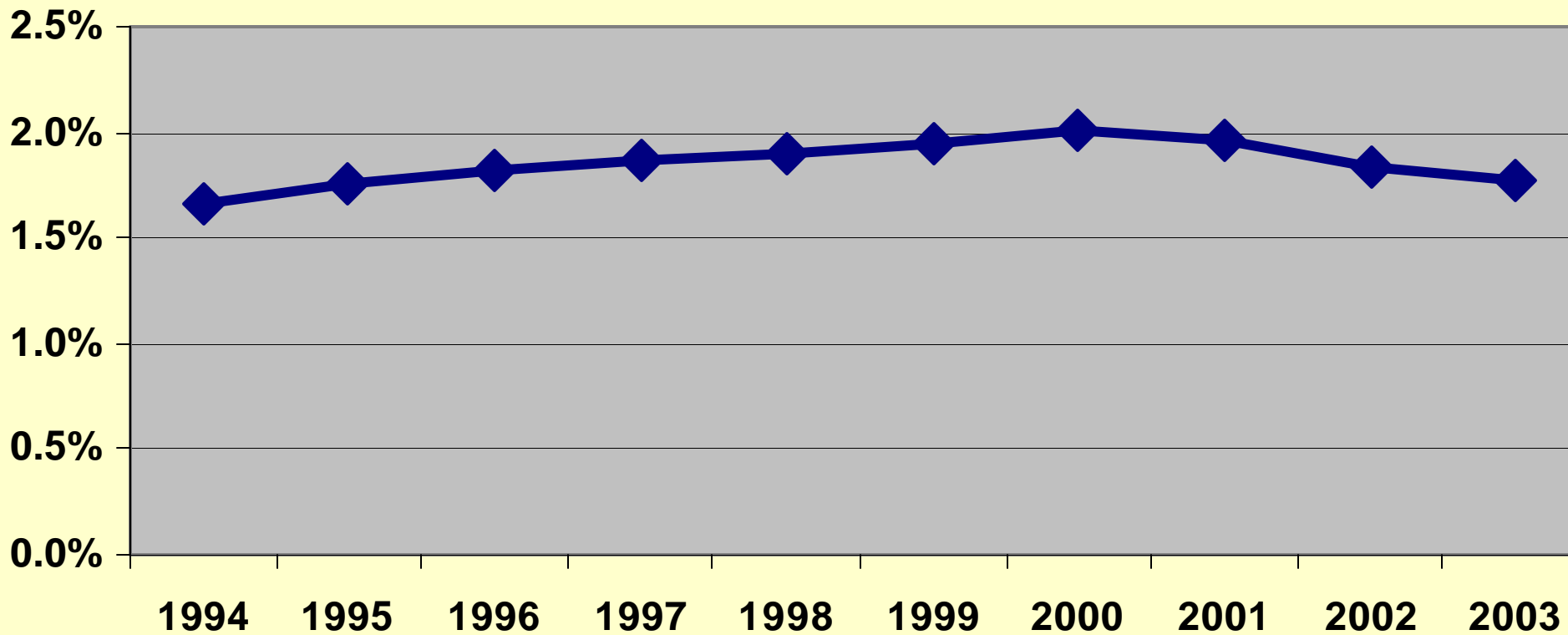
*The Past and Future of America's Economy:
How Waves of Innovation
Drive Cycles of Growth*

(Northampton, MA: Edward Elgar, 2005)

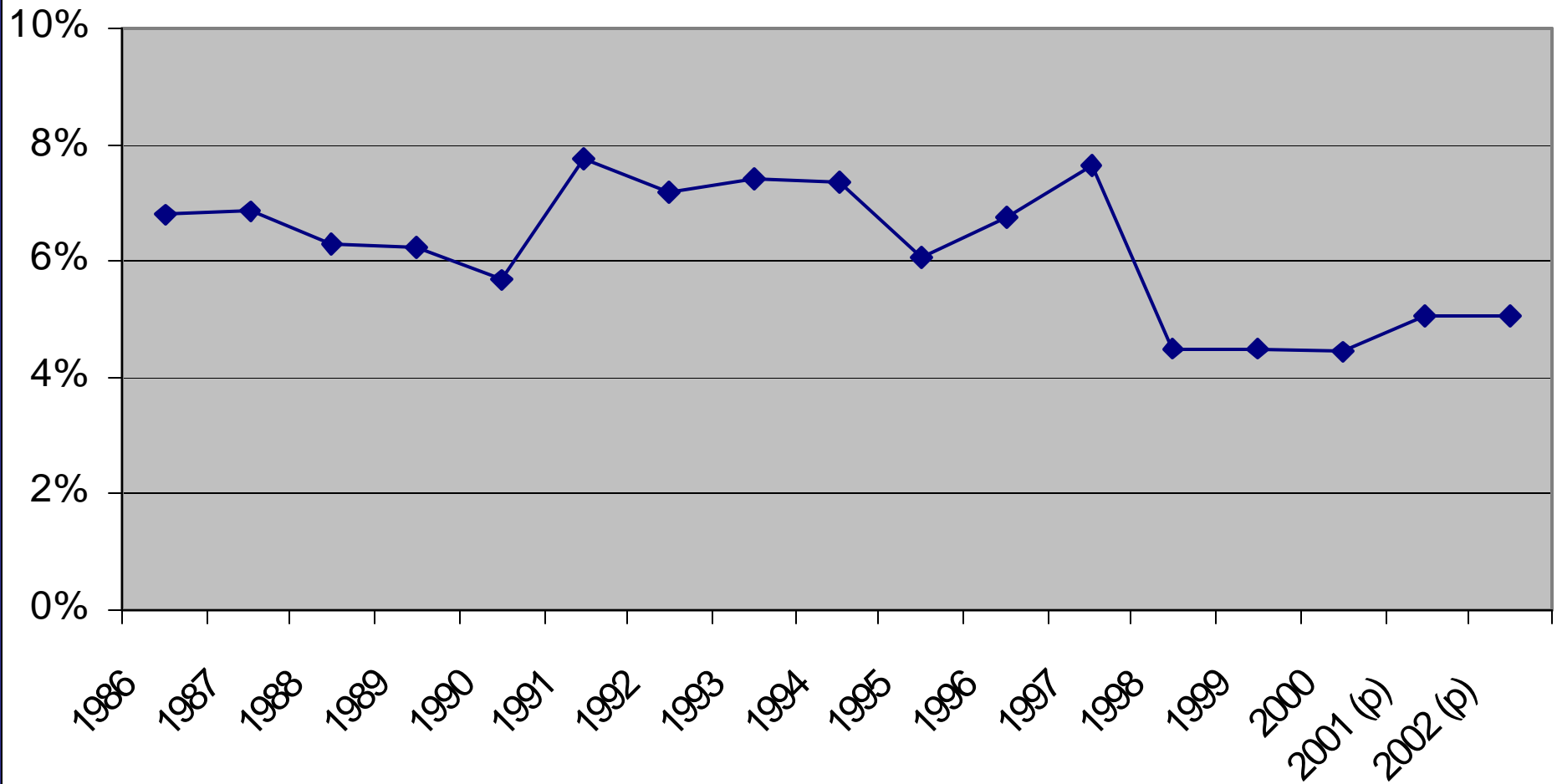


**The US can no longer take our
leadership in the innovation
economy for granted.**

Industry R&D as a Share of GDP

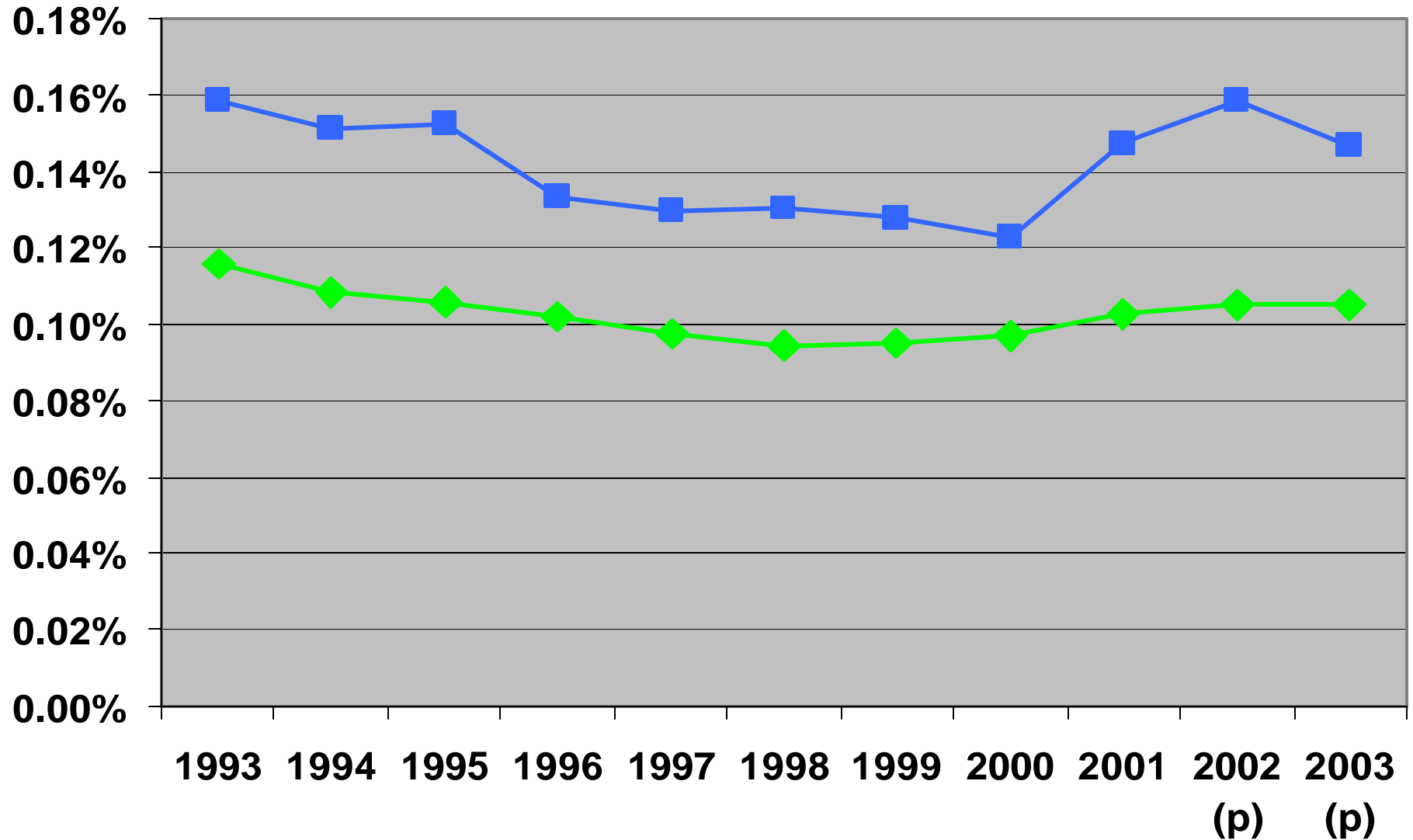


Basic Research as a Share of Total Industry Research

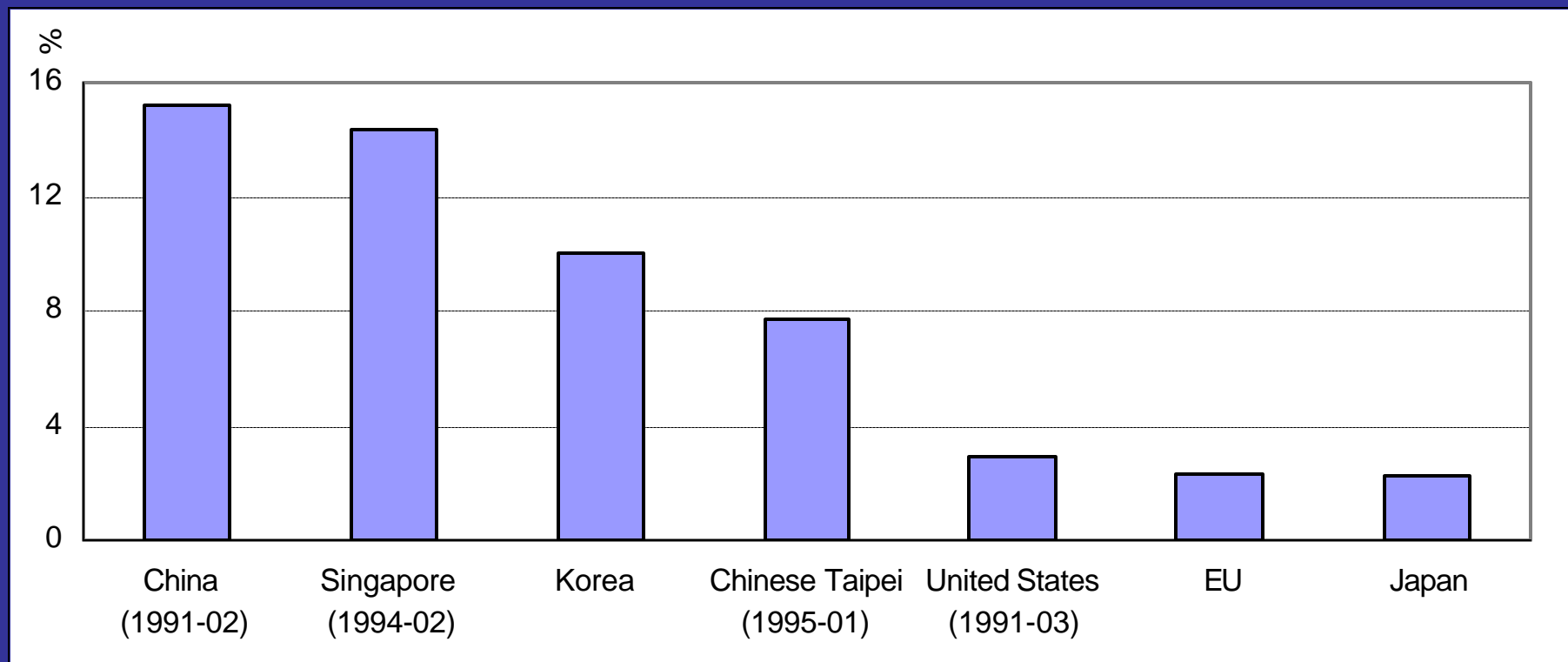


(p) preliminary

Non-NIH Federal Basic and Applied R&D as a Share of GDP, 1993-2003

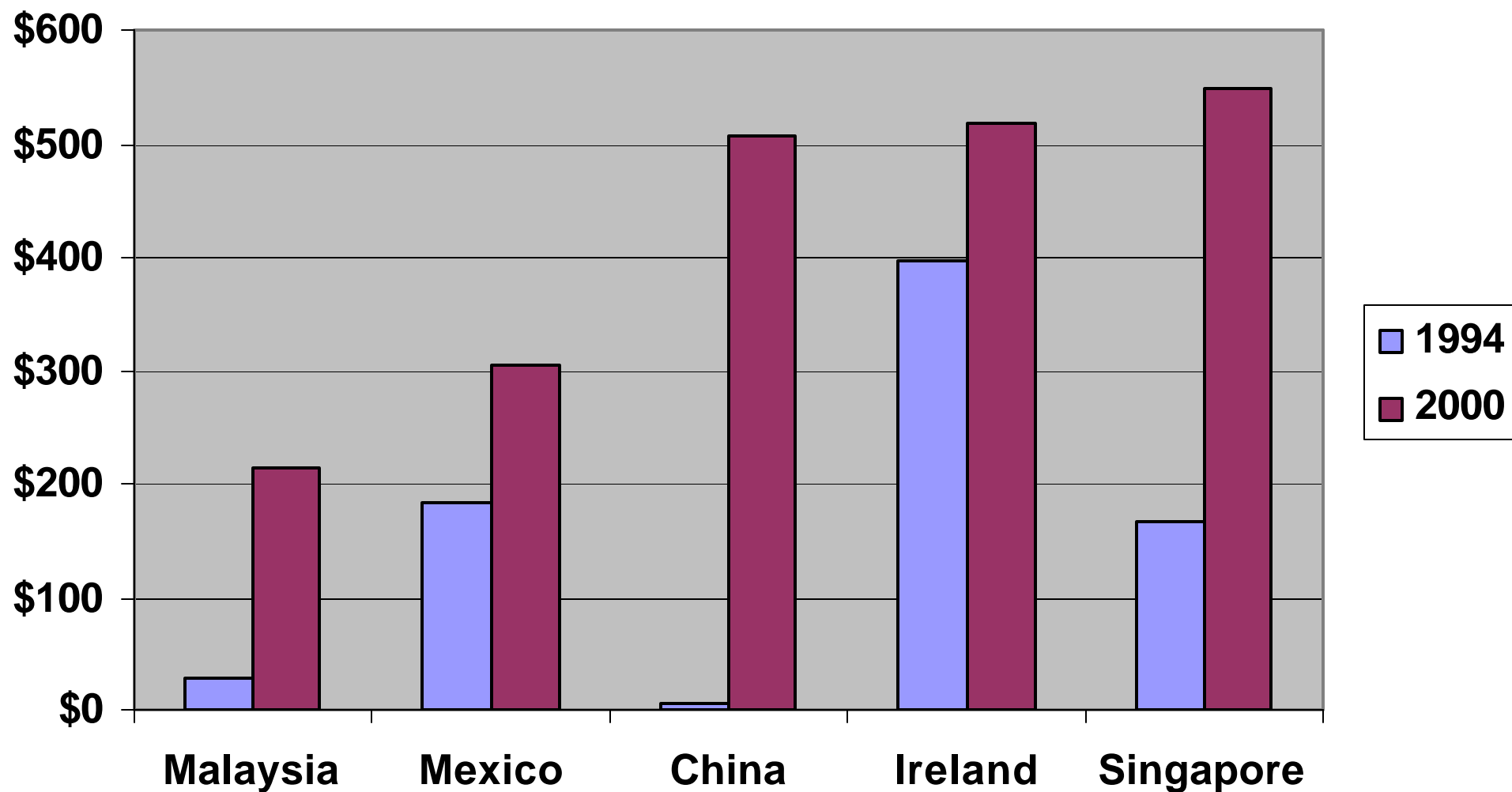


Growth of R&D expenditures, annual growth rate 1991-2001 (based on national currencies in constant prices)



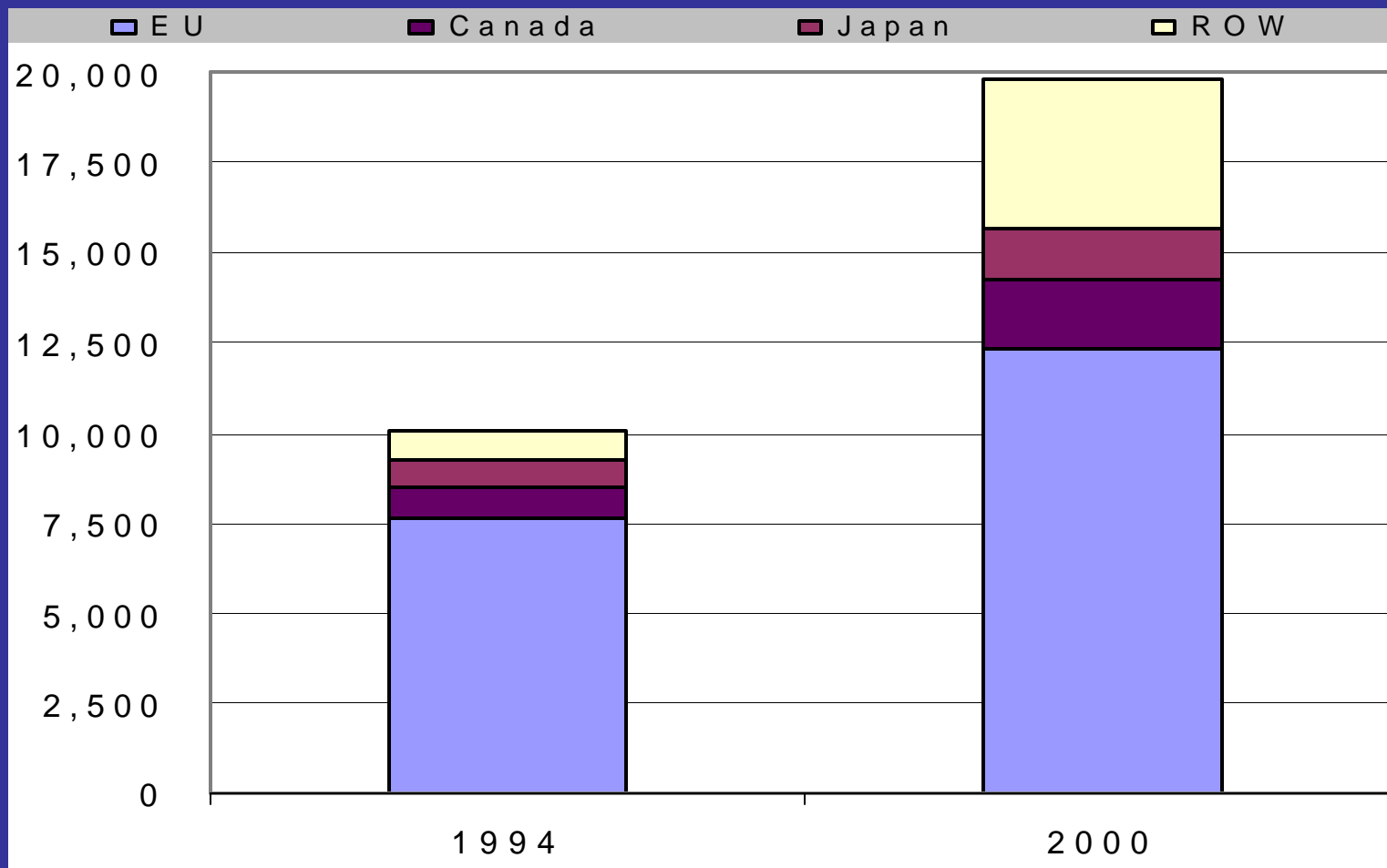
Source: Andy Wyckoff: OECD

R&D Performed Overseas by Majority-Owned Foreign Affiliates of U.S. Companies, 1994 & 2000 (in Millions)



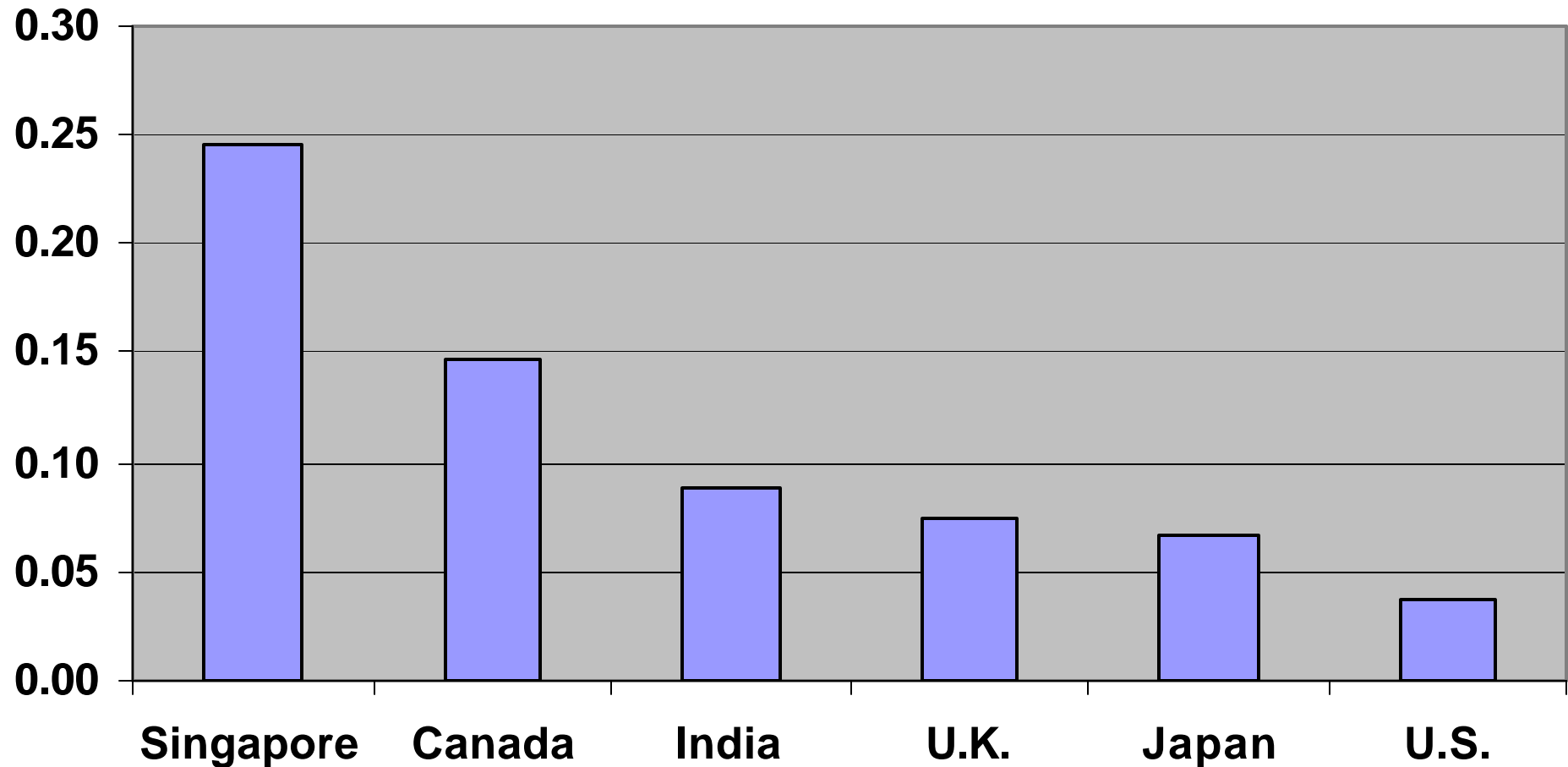
Source: U.S. Bureau of Economic Analysis

Changing regional balance of US outward R&D investments (US\$ millions)



Source: Andy Wyckoff, OECD (OECD, AFA database and Secretariat estimates, January 2004)

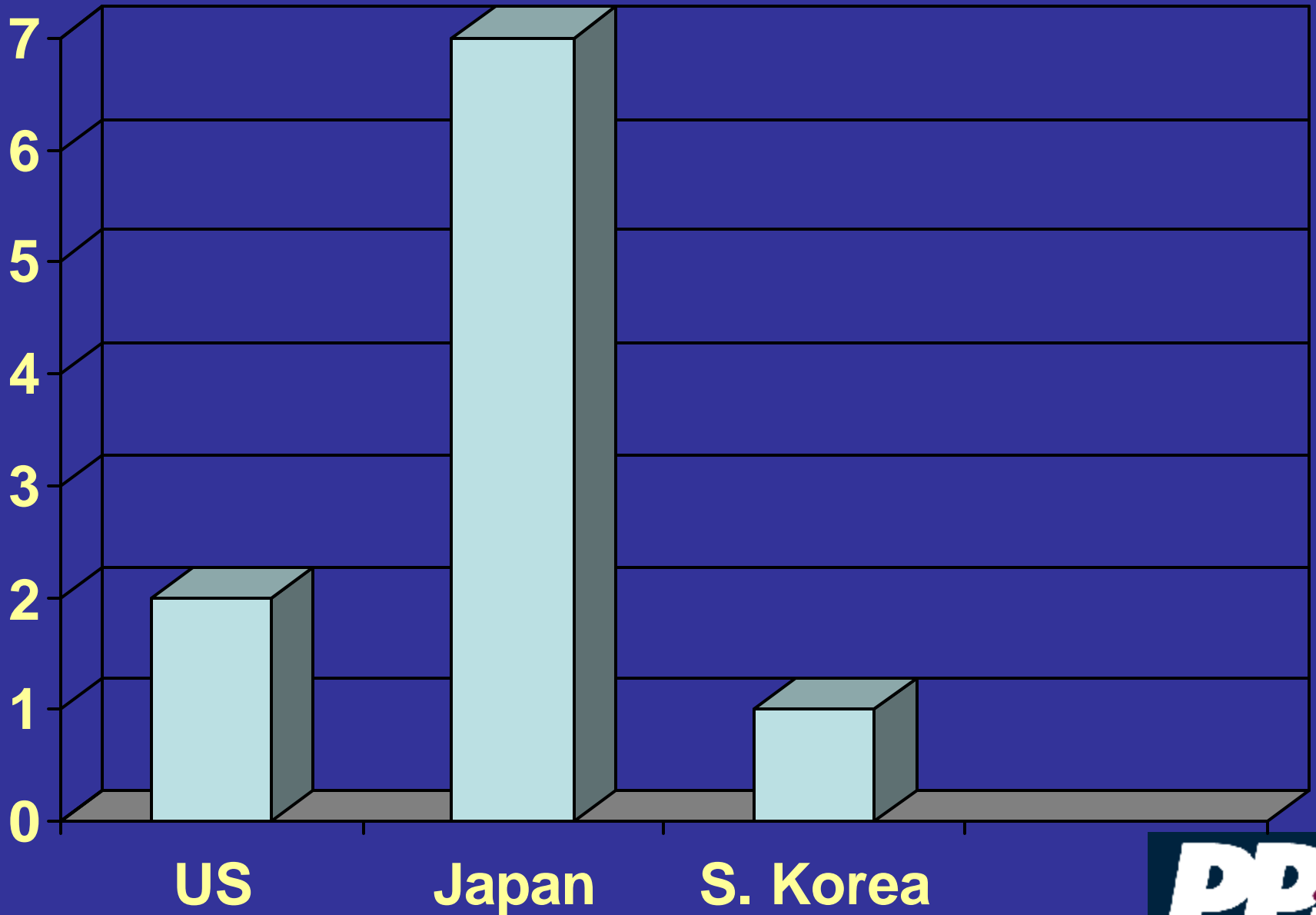
Simulated Rates of R&D Credit



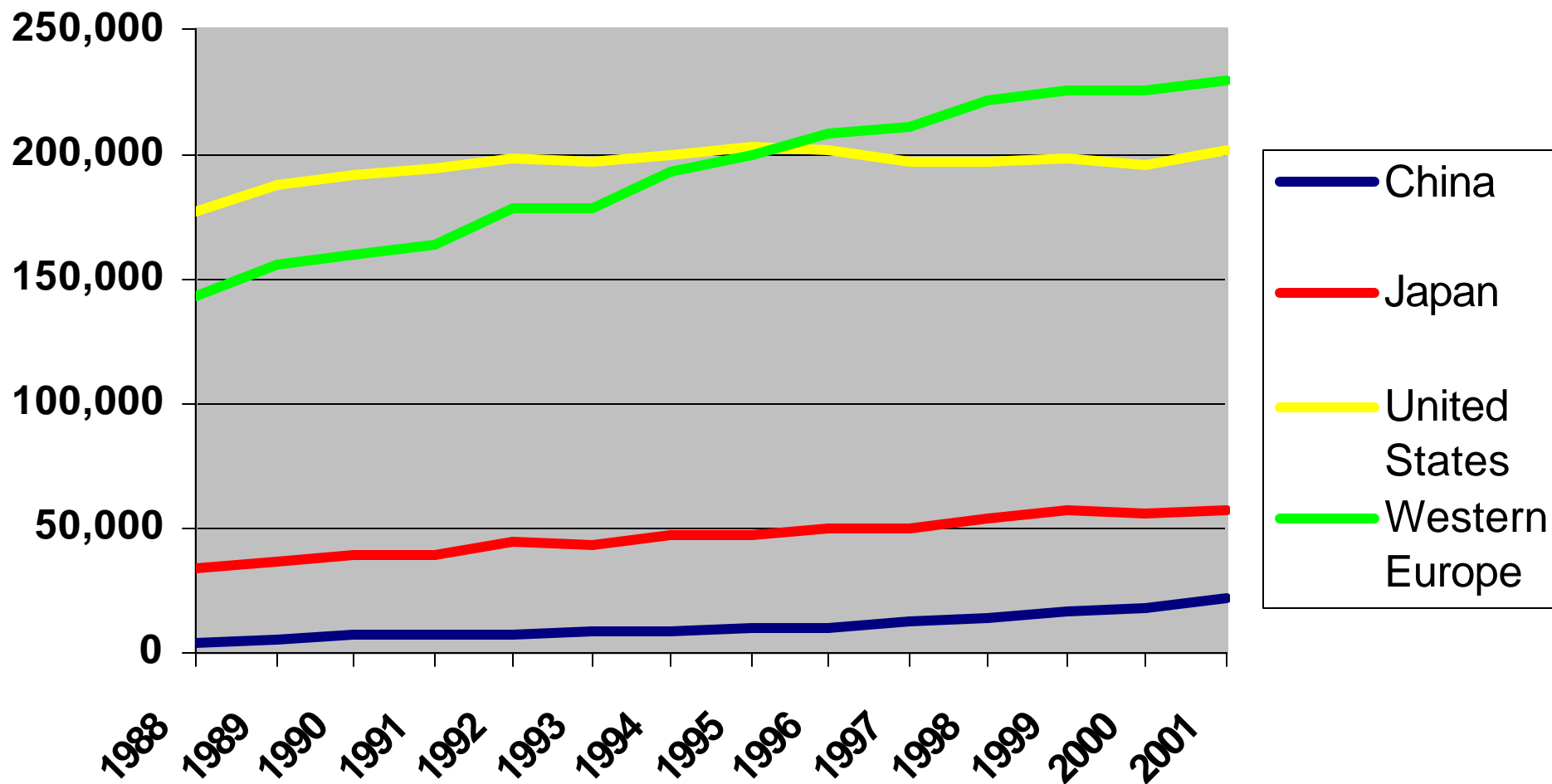
Source: "Are U.S. tax incentives for corporate R&D likely to motivate American firms to perform research abroad?" by B. Anthony Billings, Tax Executive, July-August 2003, p. 291-315



Top 10 Patenting Companies in US



Number of S&E Articles, 1988-2001

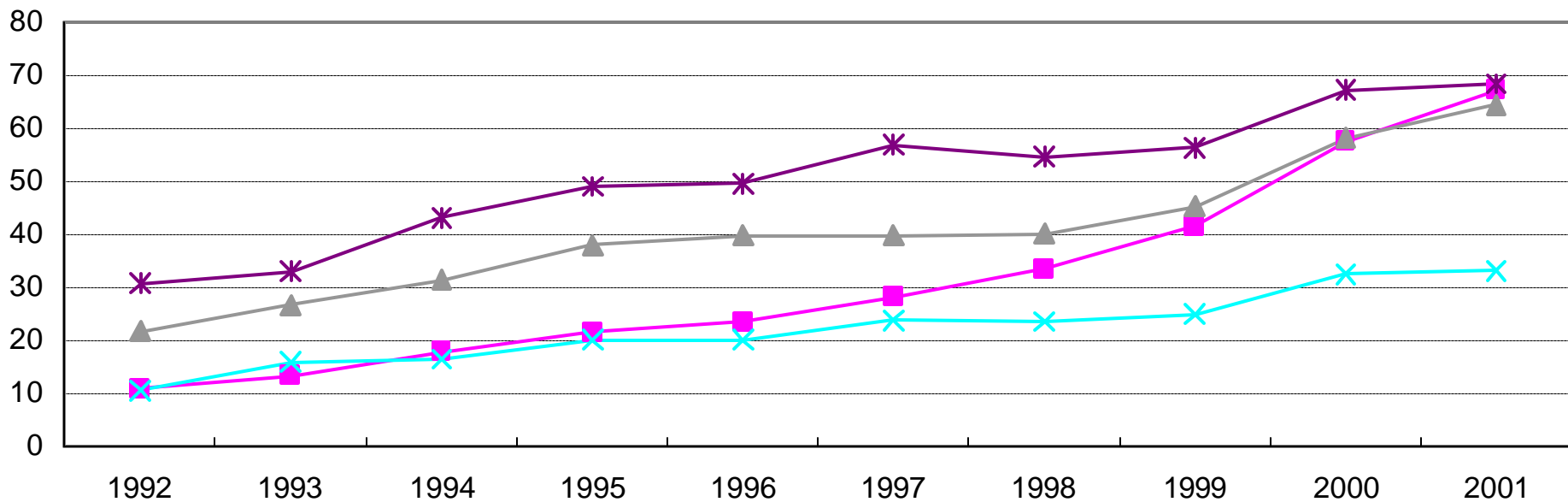


Source: NSF, *Science and Engineering Indicators 2004*

Chinese Trade by Technological Intensity

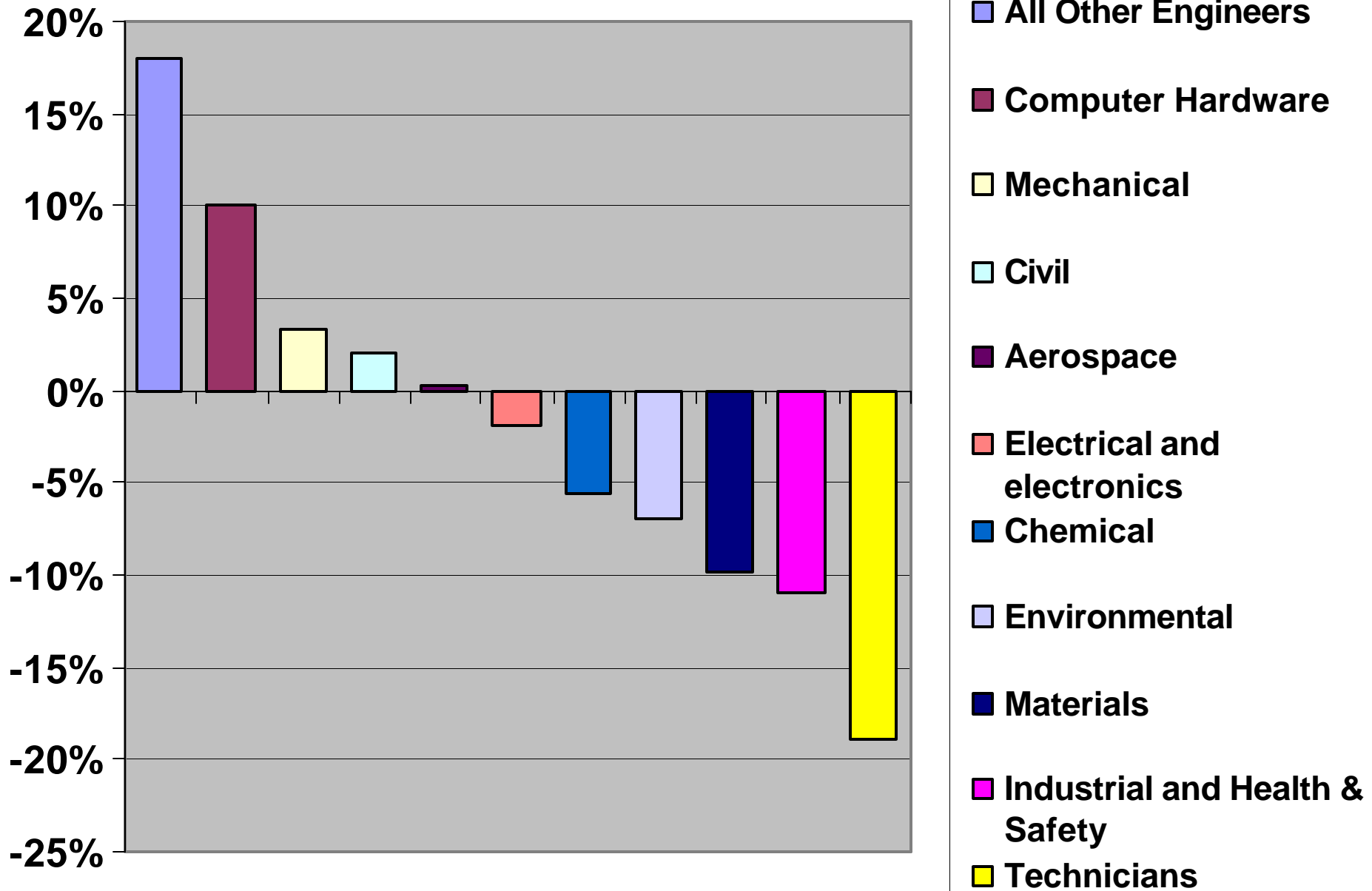
(\$US current prices)

■ High-technology ▲ Medium-high-technology ✕ Medium-low-technology * Low-technology

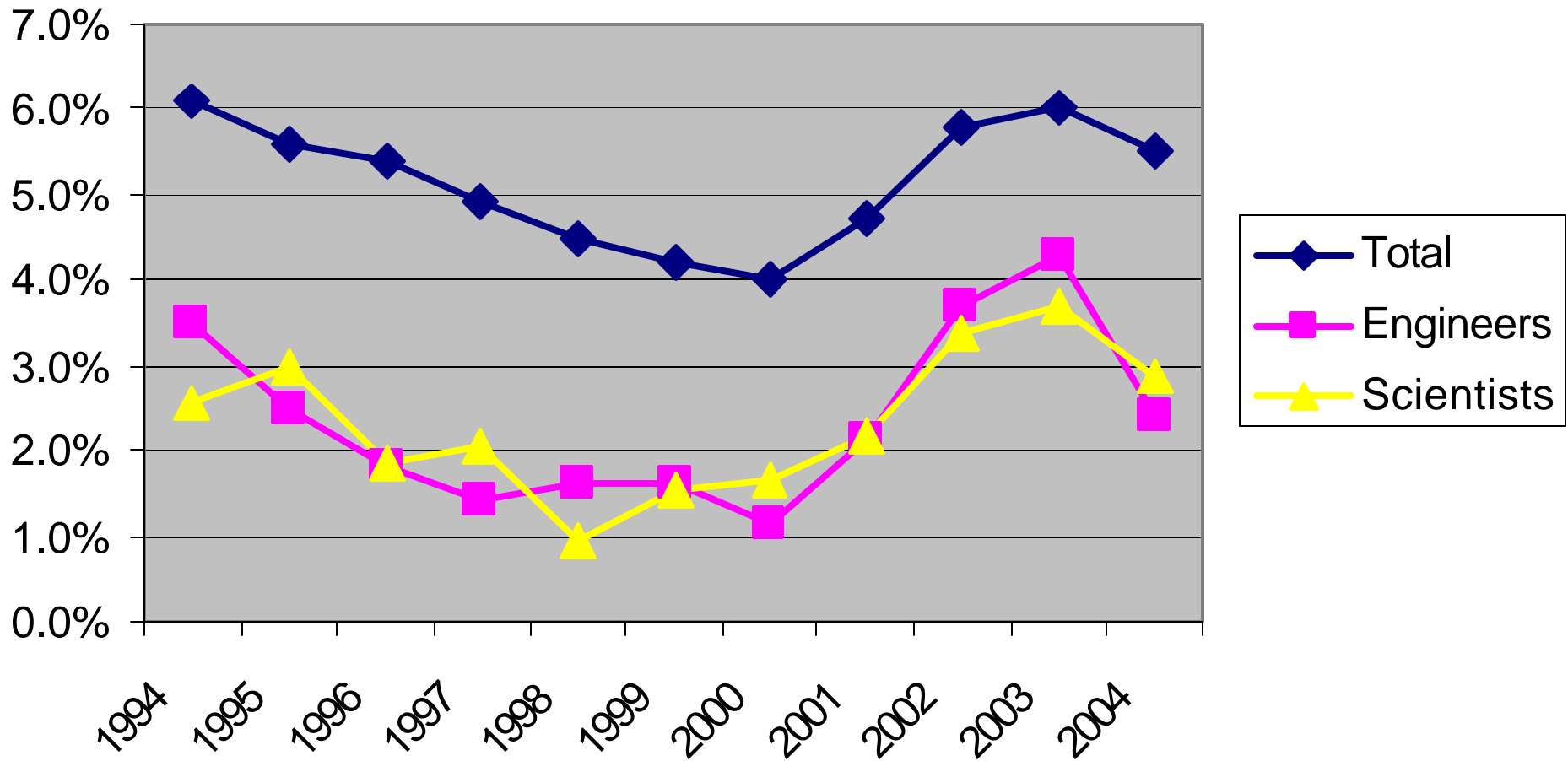


Source: Andy Wyckoff: OECD

Change in Engineering Jobs, 2000-2003

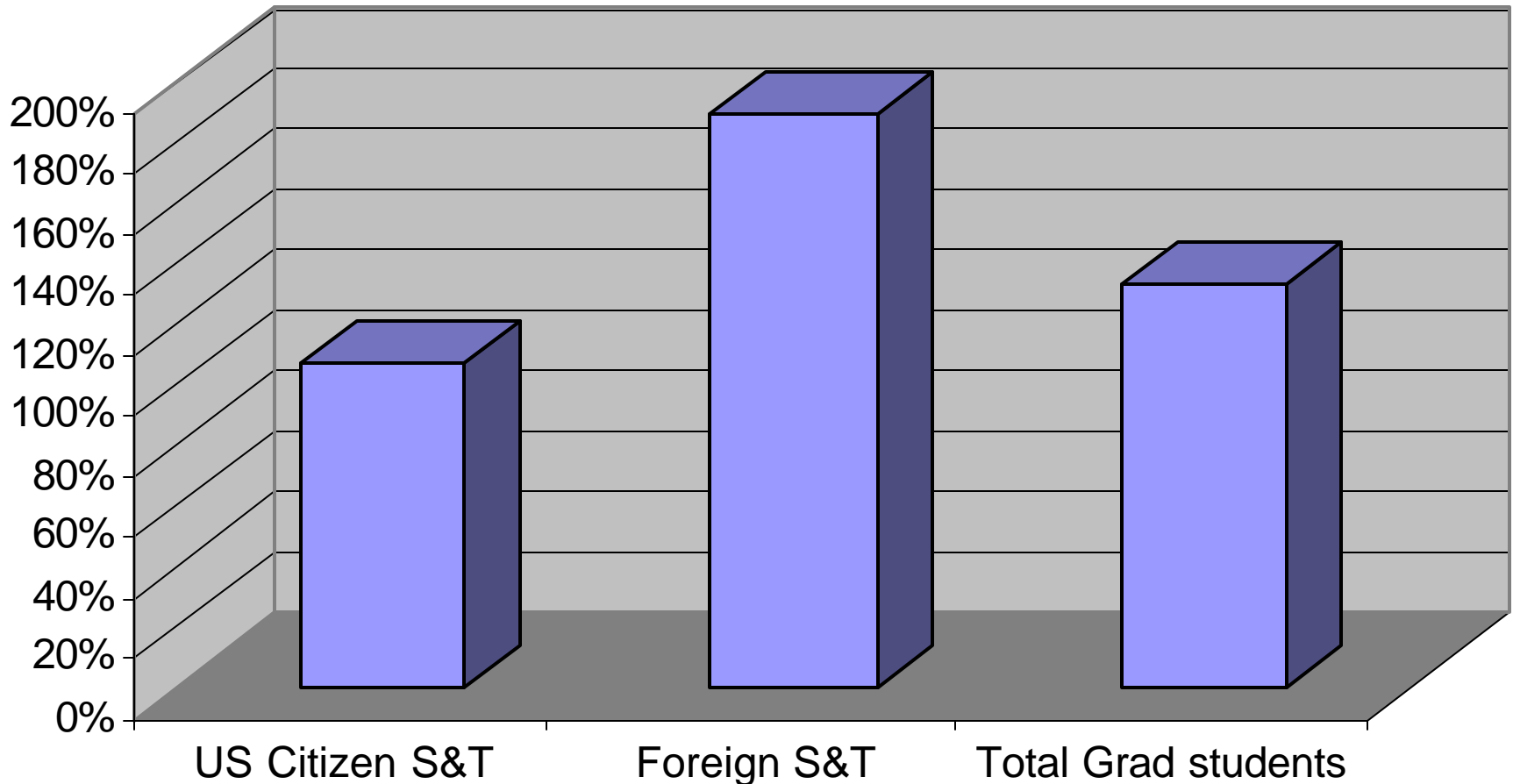


Unemployment Rates 1994-2004: Engineers, Scientists and Total

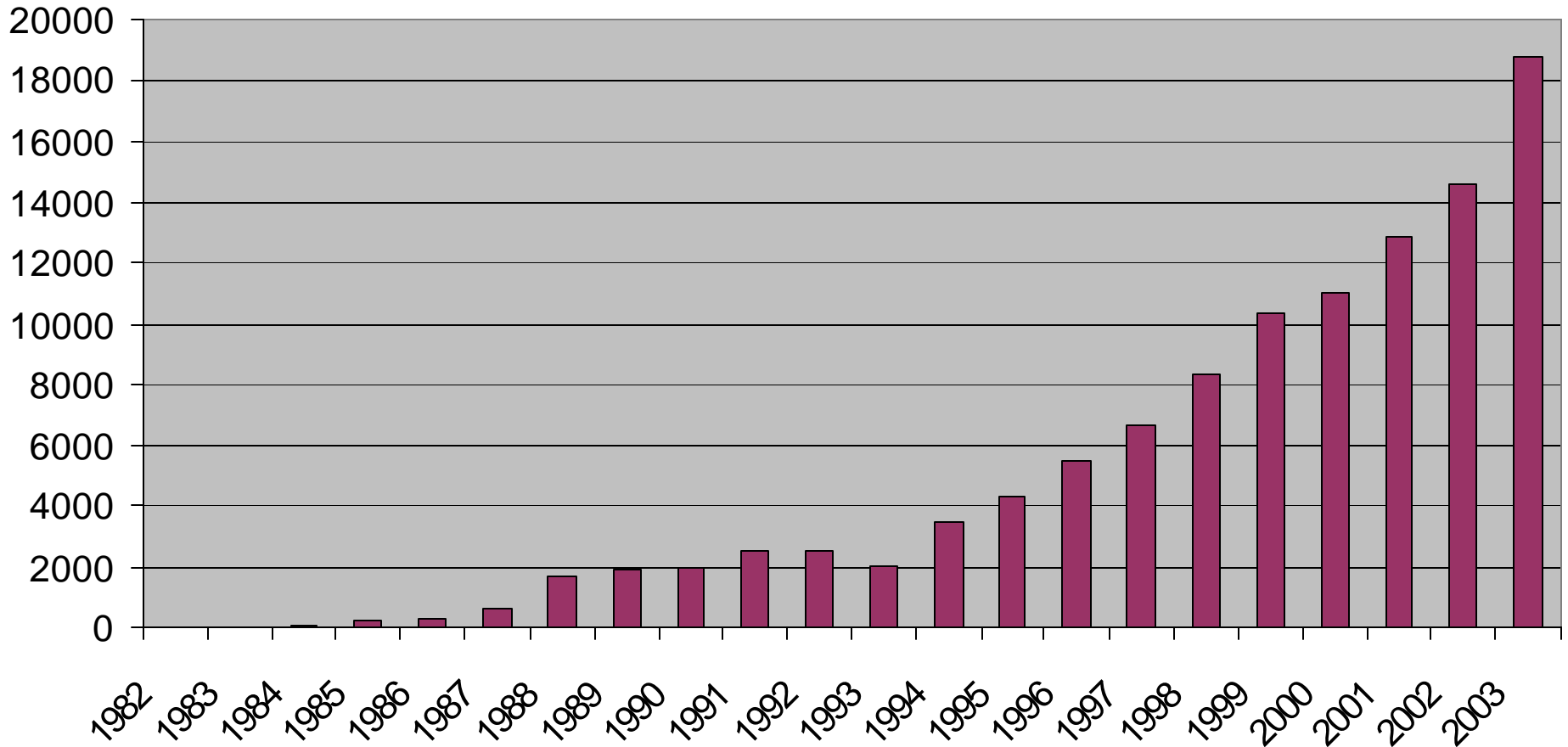


Source: Bureau of Labor Statistics, Current Population Survey

Growth in S&E Graduate Degrees (% change 1983-2001)

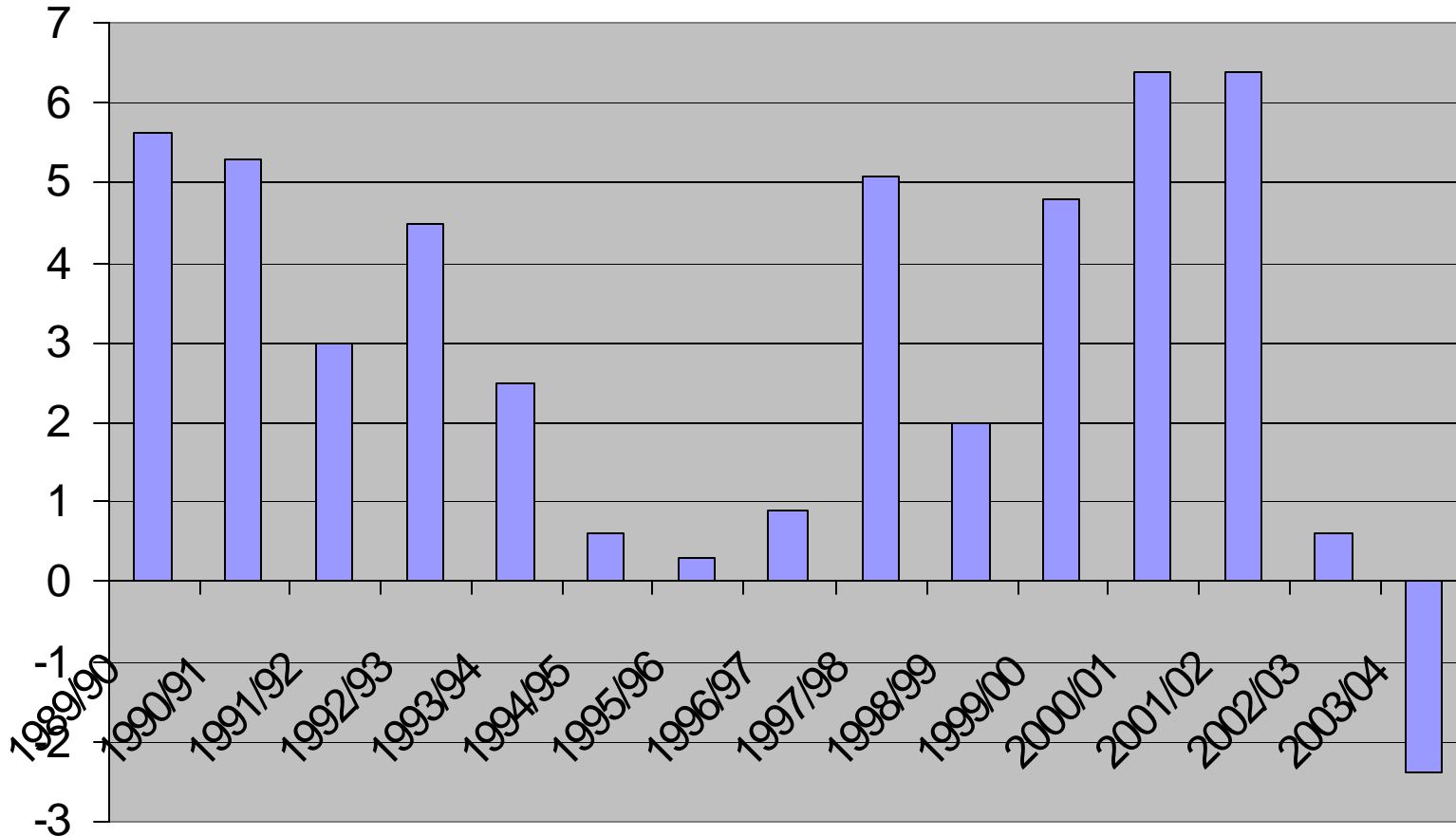


Doctoral Degrees Awarded in China



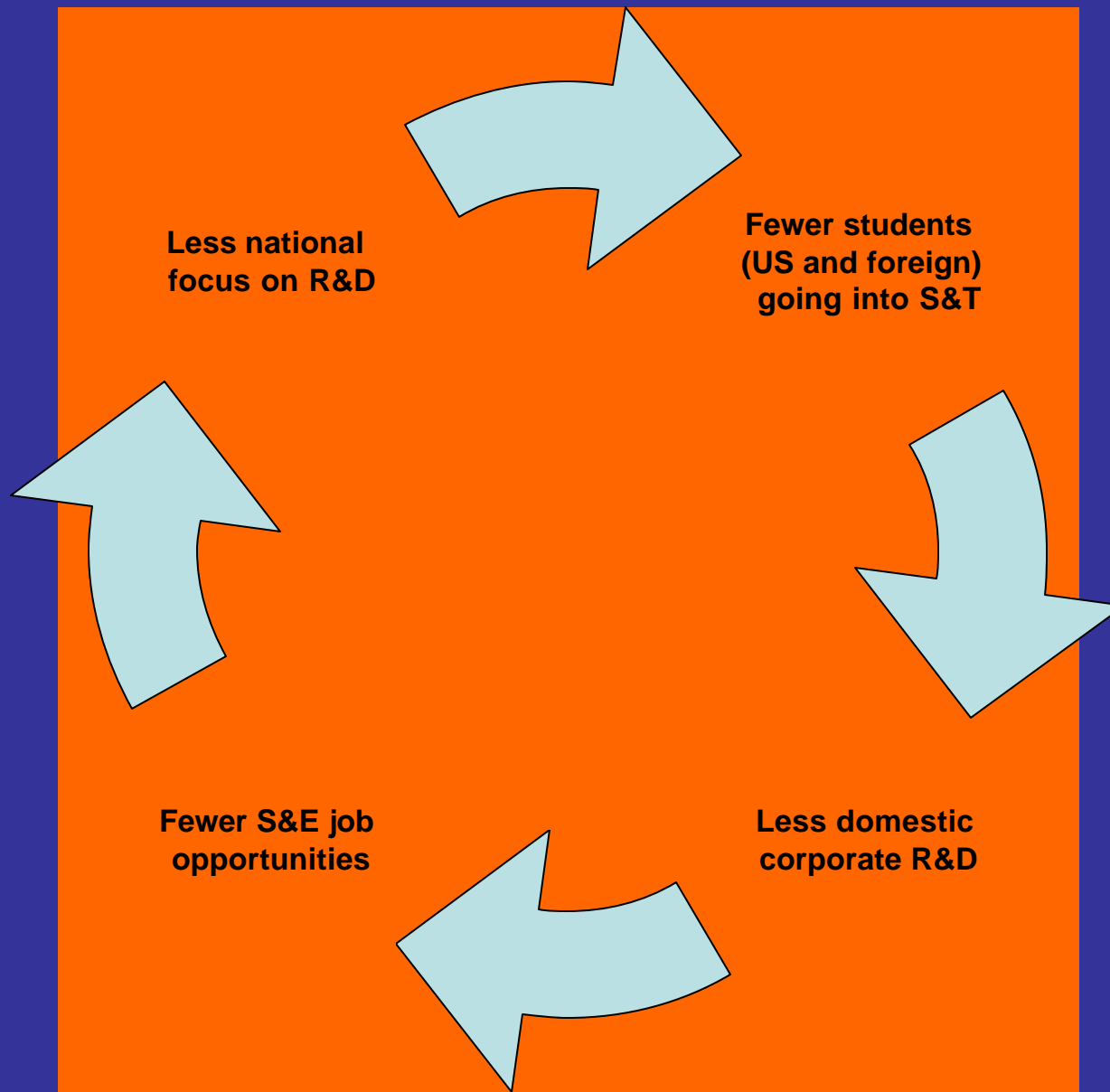
Source: Weiguo and Zhaohui, 2004

Annual Percent Change of International Student Enrollment in US Higher-education Institutions



Source: Andy Wyckoff, OECD (IIE (2004), "Open Doors Report,"
<http://opendoors.iienetwork.org/>)

A downward innovation cycle?



Why Innovation is Critical to Growth and Competitiveness

- The societal rates of return to R&D are at least twice the estimated private returns.
- The private return to R&D is 7% while the societal RoR is 30% suggesting that the optimal level of R&D investment in the US economy is between two to four times larger than the total current level of private investment. (Jones and Williams, 2000)
- Every 1% increase in investment in research increased productivity by 0.23 percent (Coe and Helpman, 1995)
- At least two-thirds of increase in per-capita GDP is attributable to innovation.

What Should Washington Do?

What Should Washington Do?

1) Create an American Ingenuity Foundation

- ***Quasi-public corporation (model is Tekes in Finland)***
- ***Fund: 100 American Ingenuity industry-university research centers; university-based infrastructure; and national priorities such as robotics, nano-technology, optics, etc..***
- ***\$20 billion annual budget, folding in the National Telecommunications Information Administration, Technology Administration, including NIST, and NSF.***

What Should Washington Do?

- 1) Create an American Ingenuity Foundation
- 2) Reform and Expand the R&D tax credit

- *Boost the R&D tax credit to 30% from 20%.*
- *Provide a flat, 30% credit for industry expenditures in research consortia and partnerships between industry and universities or federal laboratories.*
- *Liberalize definitions of corporate R&D for tax purposes.*

What Should Washington Do?

- 1) Create an American Ingenuity Foundation
- 2) Reform and Expand the R&D tax credit.
- 3) Address the S&T Skills Issue

Boost domestic S&T grads, but recognize that we'll probably have to continue to rely on foreign immigrants.

- Create a system of science and tech charter high schools.
- Expand the “Tech Talent” program.
- Make it easier for foreign S&T graduate school graduates to stay in the U.S.
- Streamline foreign student visa process.

Paying for it All

- Cut agricultural subsidies in half and invest in R&D (would regain to the Fed R&D/GDP ratio of the early 1990s).
- Re-program the \$5.3 billion Man to Mars money.
- Base-closing-style commission to close corporate welfare provisions on both the spending and tax sides of the ledger.
- Slow down entitlement growth.

What Should CSSP Do?

- Develop a “Vannevar Bush” for the New Economy.

The United States has been operating under a model developed by Vannevar Bush in his 1945 report to the President entitled Science: the Endless Frontier... With the collapse of the Soviet Union, and the de facto end of the Cold War, the Vannevar Bush approach is no longer valid. (Newt Gingrich, 1997)

What Should CSSP Do?

- Make Common Cause with Innovation-Based U.S. Companies.
- Find Budget-Neutral Ways to Boost Effective S&T Funding.

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