The Open Enterprise: Academic Entrepreneurship

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The open society

- What does it mean to an entrepreneur?
  - Regulations transparent
  - Do not favor those with connections
  - Do not favor those willing to pay high fees or bribes
  - IP system strikes a balance between
    - Right to exclude others' from direct imitiation
    - Right to use others' ideas as inputs

Two topics

- Entry regulation from the perspective of a very small IT startup
  - Niche product, growth ultimately limited
  - Nonetheless global (TSP *International*)
  - Some competitors came from my firm
- IP and academic entrepreneurship

Steps to startup in California

1. Choose a firm name; register it with local city by publishing in newspaper (week or two)
2. Obtain a certificate of sales tax exemption from state (tax registration)
3. Obtain a bank account under the firm name (half an hour)

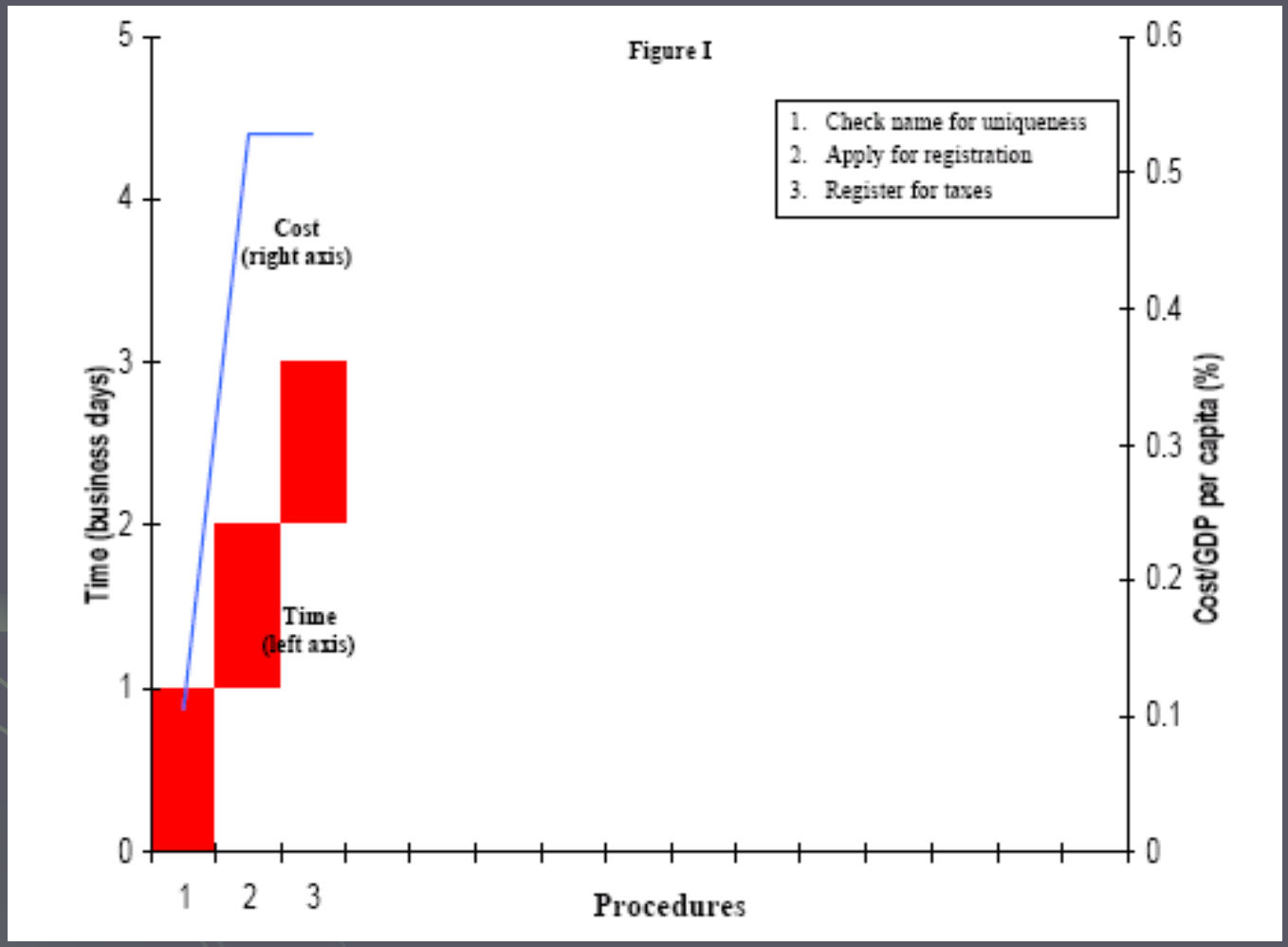
Adding employees

1. Two forms: tax witholding; immigration status
2. Free to hire and fire; hours can be flexible – important for small firms
3. Workman's compensation insurance required (on-the-job injury) – but inexpensive
4. Government tax returns quarterly, more onerous

Djankov et al 2000 (75 countries)

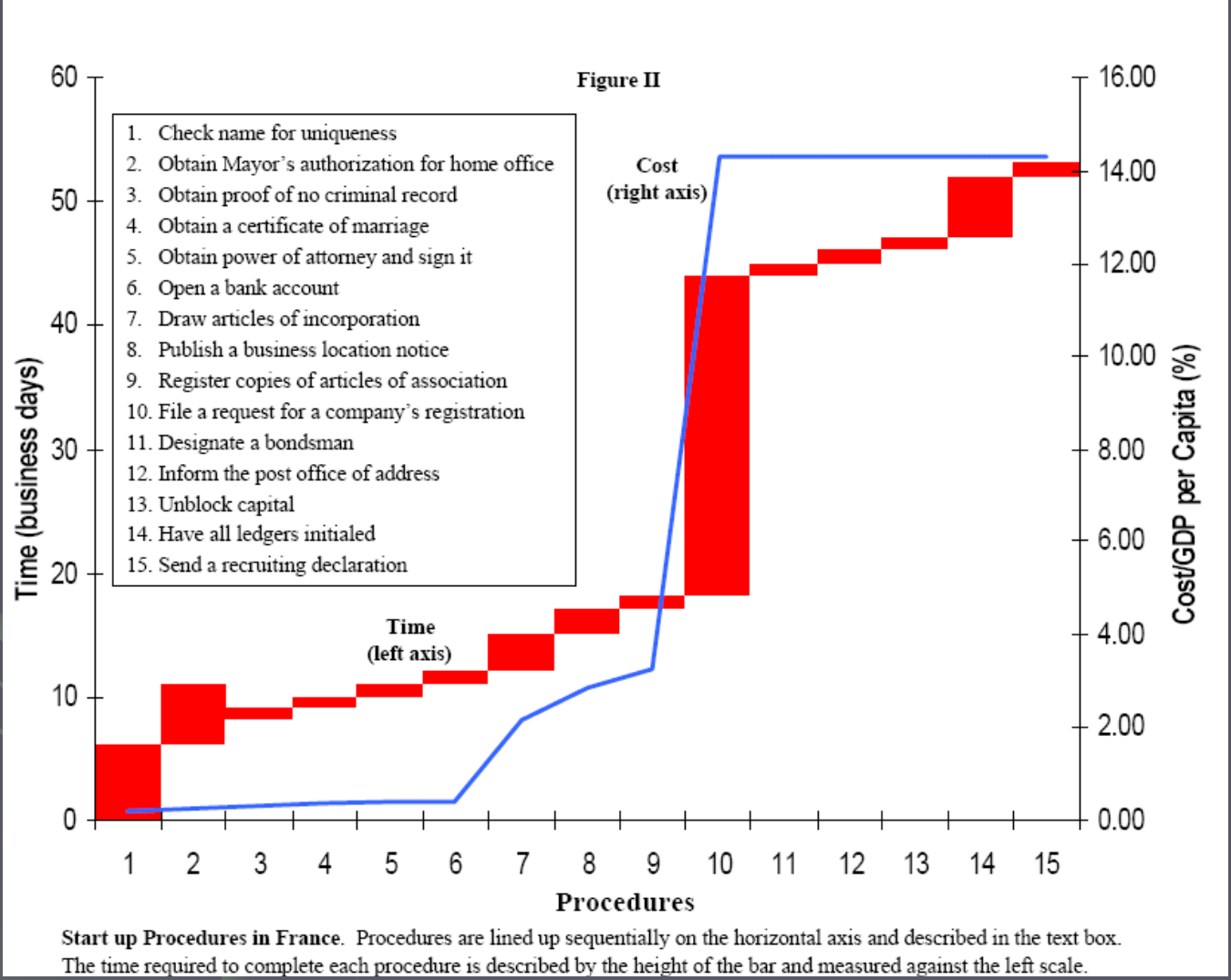
- Considerable variation in startup costs for
  - Limited liability company
  - No foreign trade
  - No special taxation (liquor, etc.)
  - No special environmental regulation
- Cost in terms of GDP per capita:
  - 0.4% (New Zealand) to 260% (Bolivia)
  - 2 (Canada) to 174 (Mozambique) days
- Evidence using these data that it matters

Startup costs in New Zealand



Bottom line: 3 days; 1.7% of annual GDP per capita

Startup costs in France



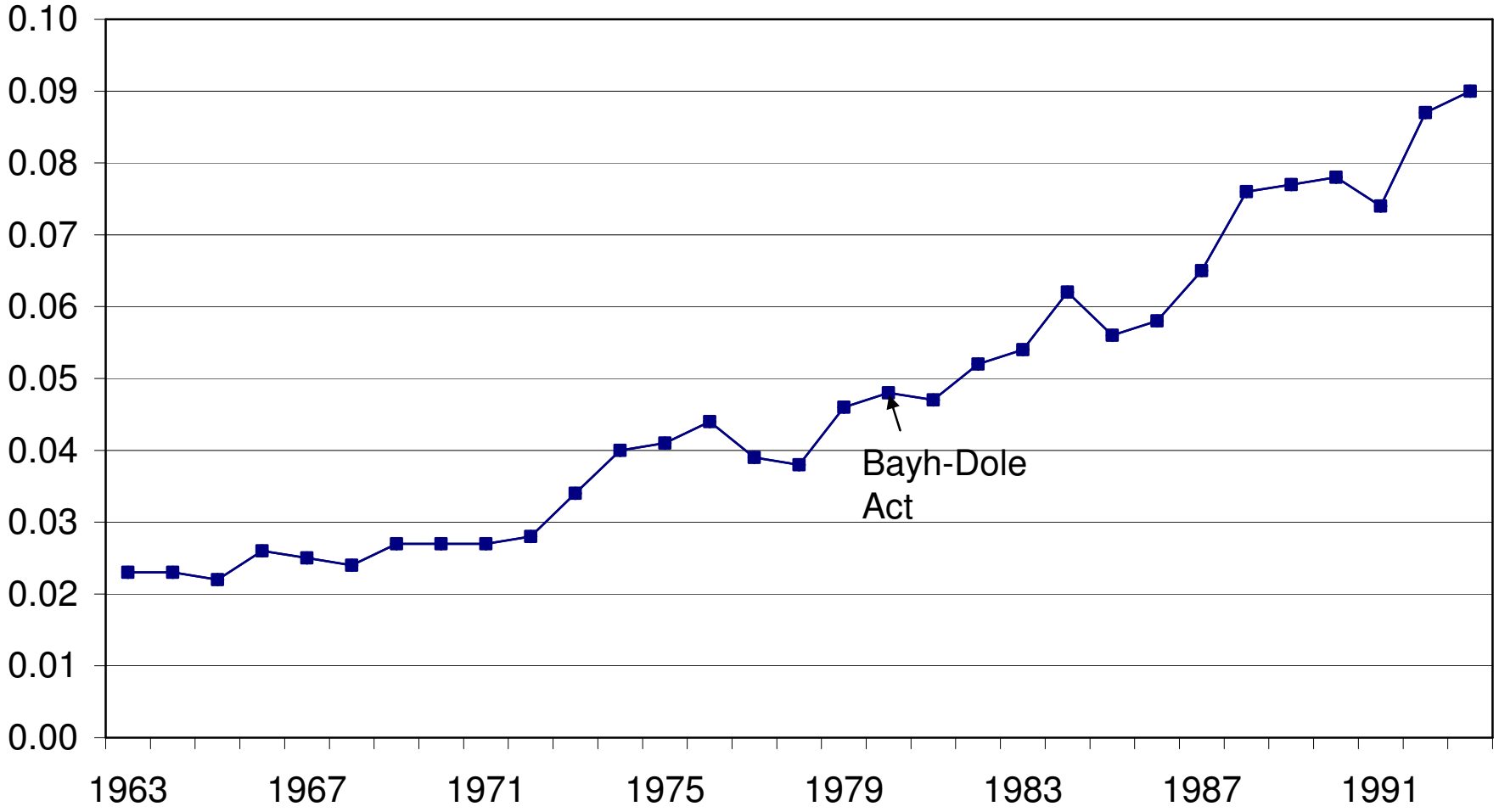
Start up Procedures in France. Procedures are lined up sequentially on the horizontal axis and described in the text box. The time required to complete each procedure is described by the height of the bar and measured against the left scale.

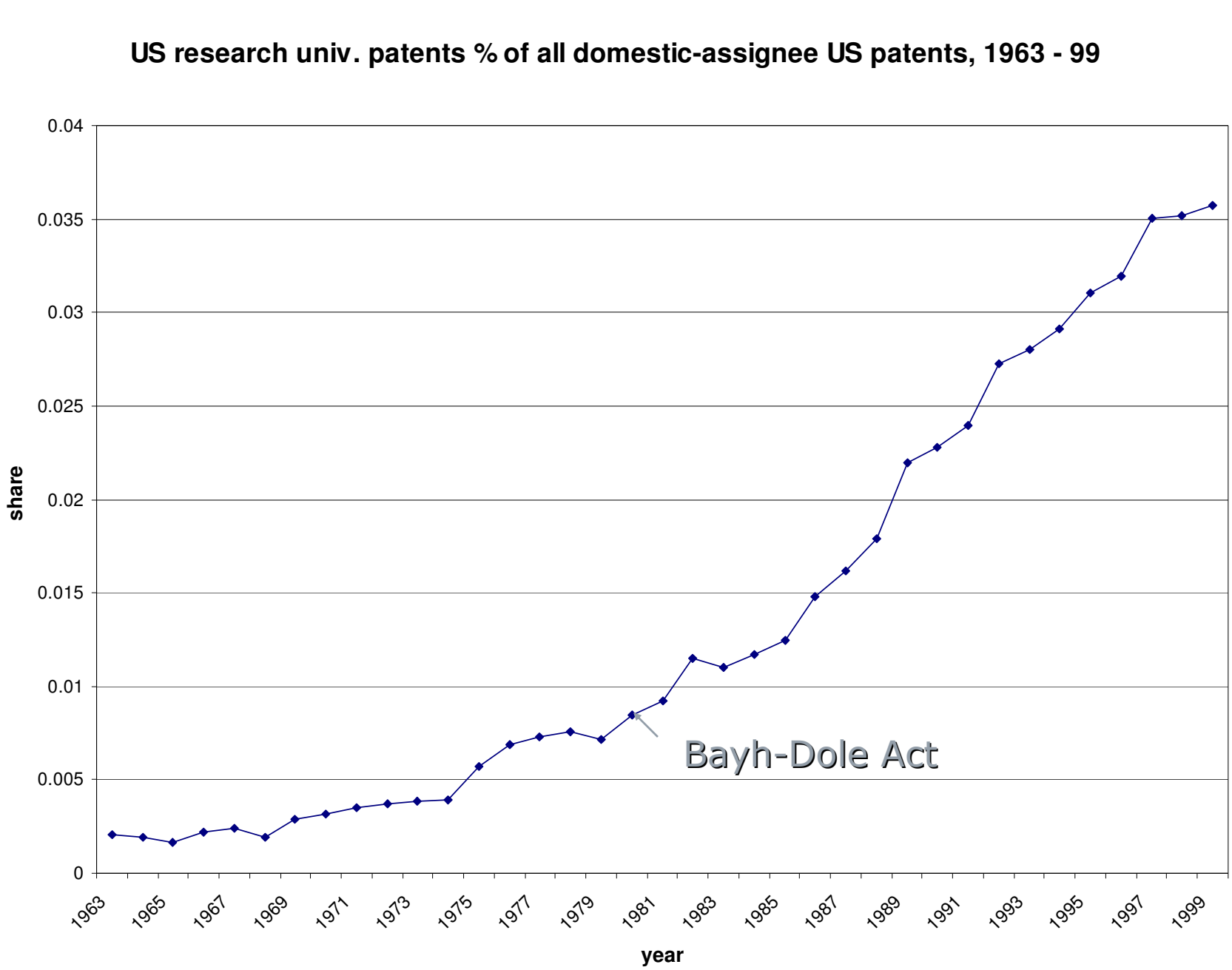
Bottom line: 53 days; 14% of annual GDP per capita

Some myths about US tech transfer

- Myth 1: Bayh-Dole caused an upsurge in patenting by US universities
- Reality:
  - Patenting per R&D dollar by universities was already growing (about 4% per annum) -- there was no increase in the rate of growth
  - Slight increase in the rate of growth of university patenting as a share of all patenting
  - And it did increase the rate of growth of the share of universities with tech transfer offices

US university patenting per R&D
(lagged one year, millions of constant dollars)




US research univ. patents % of all domestic-assignee US patents, 1963 - 99
share
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
year
Bayh-Dole Act

Some myths about US tech transfer

- Myth 2: tech transfer is an important source of income for universities in the US
- Reality:
  - licenses do not cover the costs of most tech transfer offices
  - Most patents earn little revenue
  - OTTs are a small piece of the action
    - UC system OTT profits = $16M/year in 1991-2003
    - One year industry contribution to UC research in 2003 was $235M (15 times as much)

Some myths about US tech transfer

- Myth 3: tech transfer via license is an essential way to transfer knowledge from university to industry
- Reality: other methods such as publications, informal contacts, and conferences are much more important (survey evidence)

Importance to industrial R&D of public R&D sources of information

Information source	% of respondents rating source as important
Publications	41.2
Informal contact	35.6
Meetings/conferences	35.1
Consulting	31.8
Contract research	20.9
Recent hires	19.6
Cooperative research	17.9
Patents	17.5
Licenses	9.5
Personnel exchange	5.8

Some myths about US tech transfer

- Myth 4: university research is essential to innovation in all sectors
- Reality:
  - primary areas where it was important in mid-1980s were food, agriculture, wood and paper, drugs, and some electronics products (15 out of 50 sectors surveyed)
  - In mid-1990s, add nonferrous metals and specialized industrial machinery
  - Over half of university patenting is in the biomedical sector

Industries rating university research as important to technical advance

Fluid milk & dairy products	Logging and sawmills
Canned specialties	Pulp, paper, and paperboard mills
Grain mill products	Millwork, veneer, & plywood
Animal feed	Semiconductors & related devices
Processed fruits and vegetables	Engineering & scientific instruments, incl. optical
Pesticides and agric chemicals	Synthetic rubber
Farm mach & eq	Drugs

Sources: Yale (1987) and Carnegie-Mellon (2002) surveys of R&D in industry