

OECD's Growth Project: A New Economy?

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Organisation for Economic Co-
operation and Development

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THE OECD GROWTH PROJECT: 1999 MINISTERIAL MANDATE

- v What are the causes of growth disparities in the OECD?
- v What are the factors and policies that can strengthen growth performance?
- v What is the role of factors such as innovation, knowledge, human and social capital, service industries and start-up firms - i.e. what is new in economic growth?

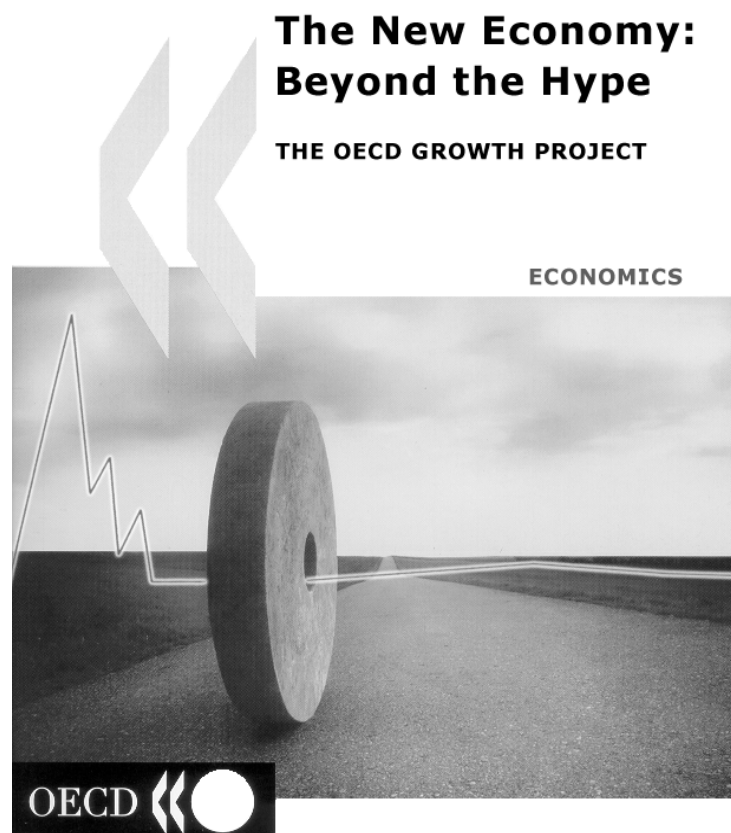
June 1999 Ministerial Communique

“... study the causes of growth disparities, and identify factors and policies (such as rapid technological innovation and the growing impact of the knowledge society ...) which could strengthen long-term growth performance.”

Structure of the Project

- v 2-Year Horizontal / multidisciplinary project
- v Initial findings reported to Ministers in June 2000, Final report May 2001

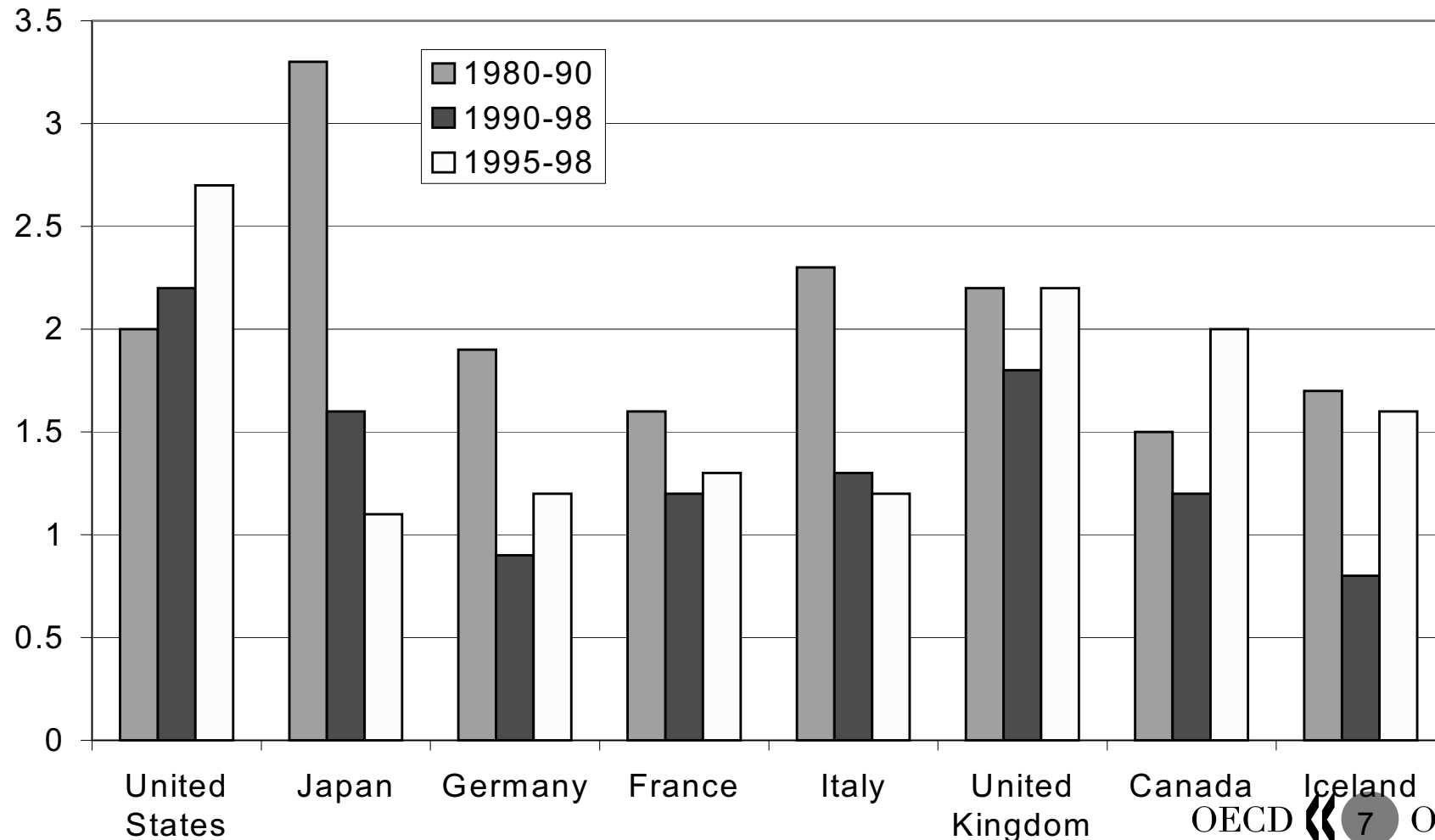
**Some published output to date, see
also: <http://www.oecd.org> growth**



Differences in patterns of growth

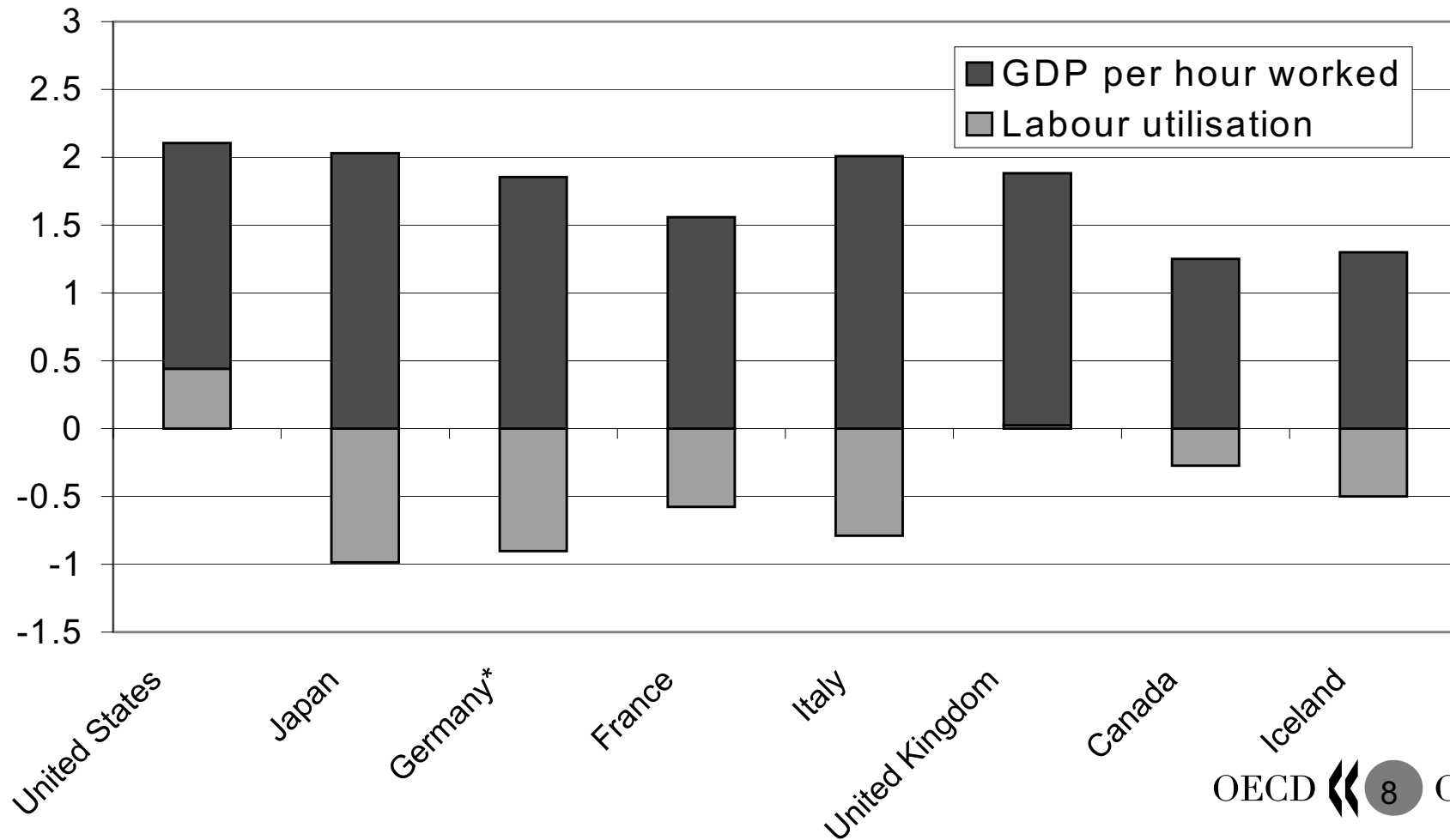
Growth of GDP per capita in the 1990s

Percentage change at annual rate (%), cyclically adjusted



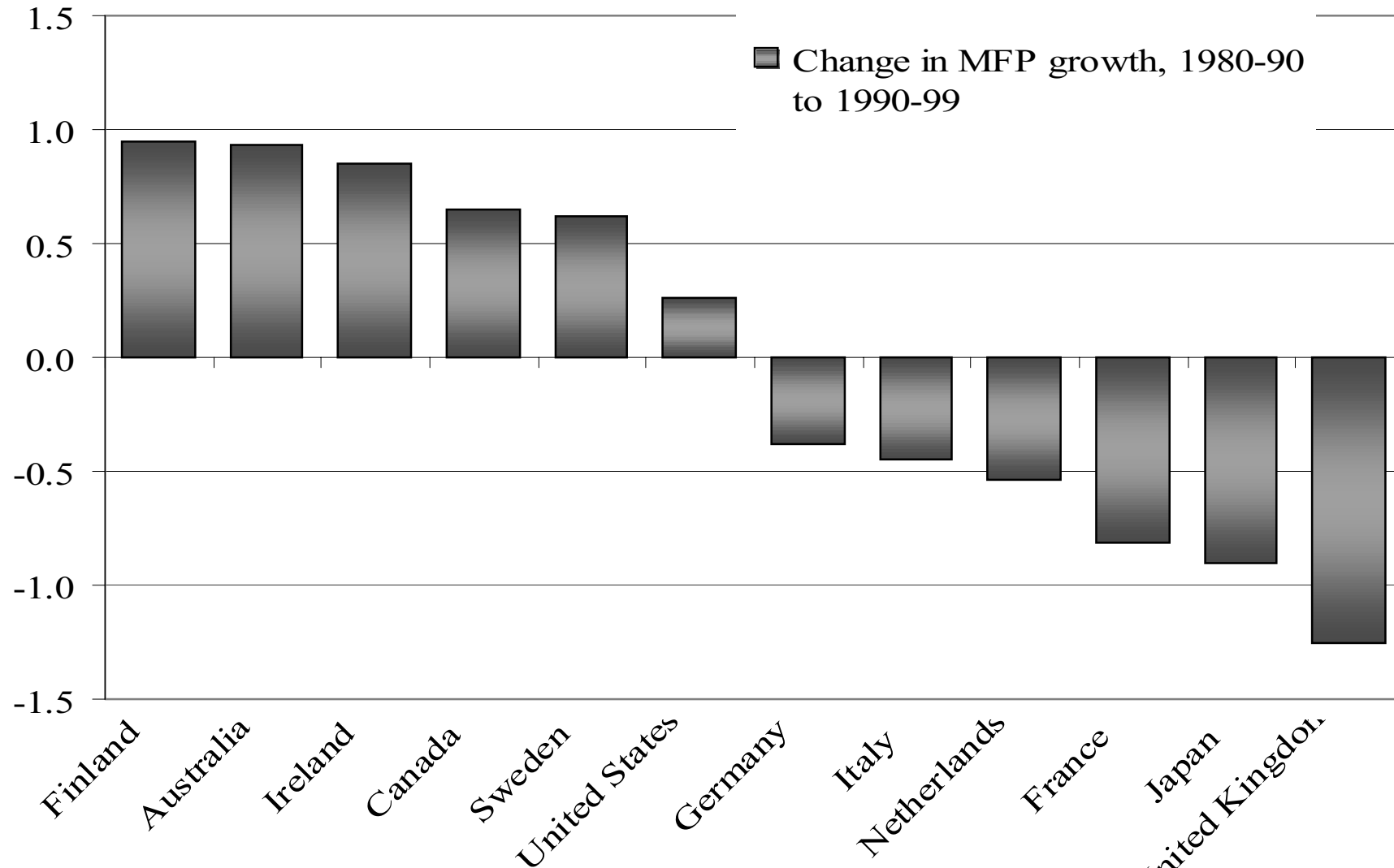
GDP per capita in some countries was supported by increased labour input

Average annual growth rates (%), 1990-98



Trend MFP growth accelerated in some countries

Average annual change (%)



Source: OECD (2001).

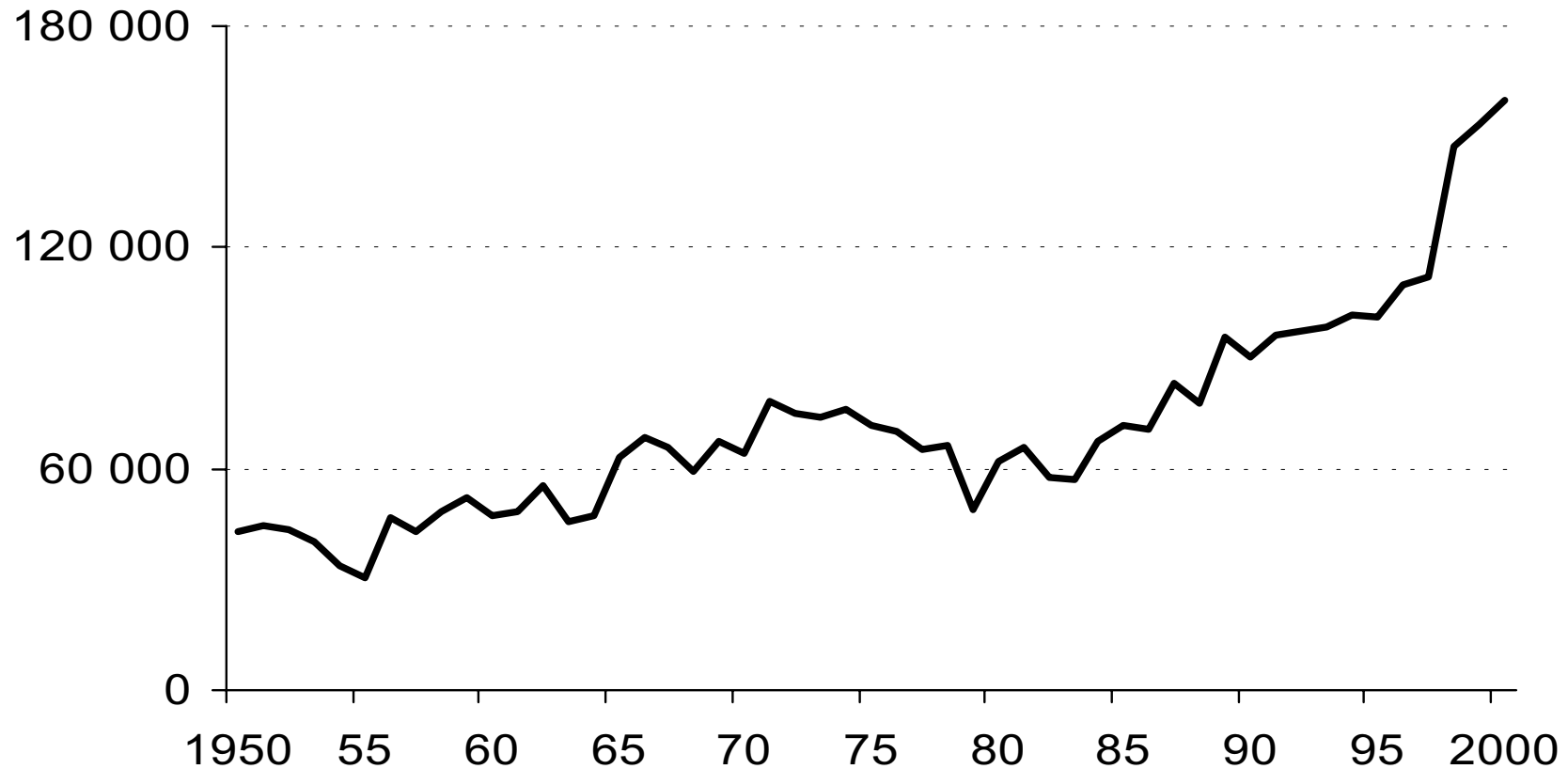
What drives these patterns?

- v Macro-economic policy continues to matter.
- v Contribution from Human Capital and Labour market reforms
- v The role of innovation and the impact of information and communications technology.

The Changing Role of Innovation

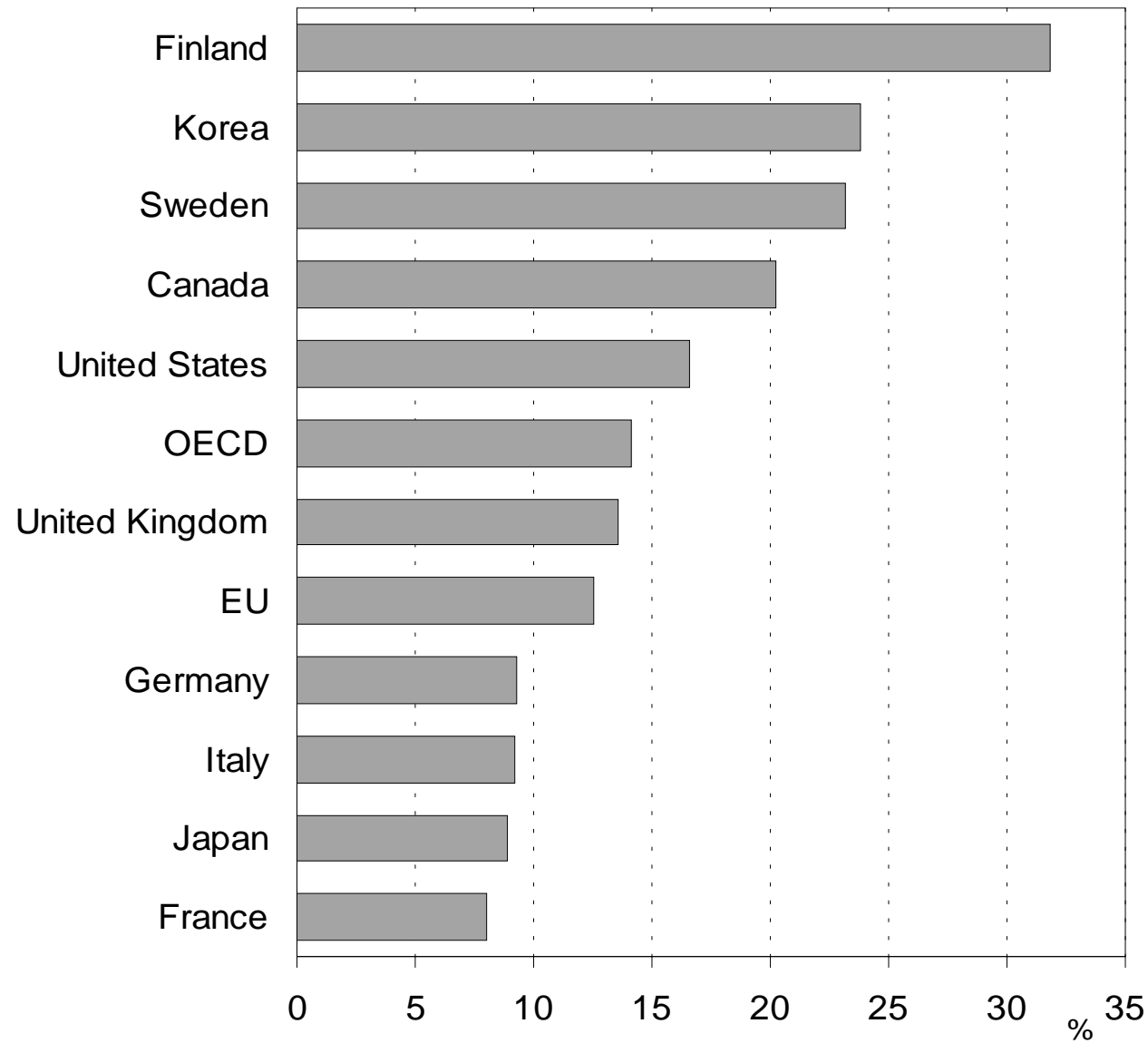
Patenting is increasing rapidly

Number of patents granted in the United States



Note: Patents granted in the US originate from all countries, with around 45% being of non-US origin.

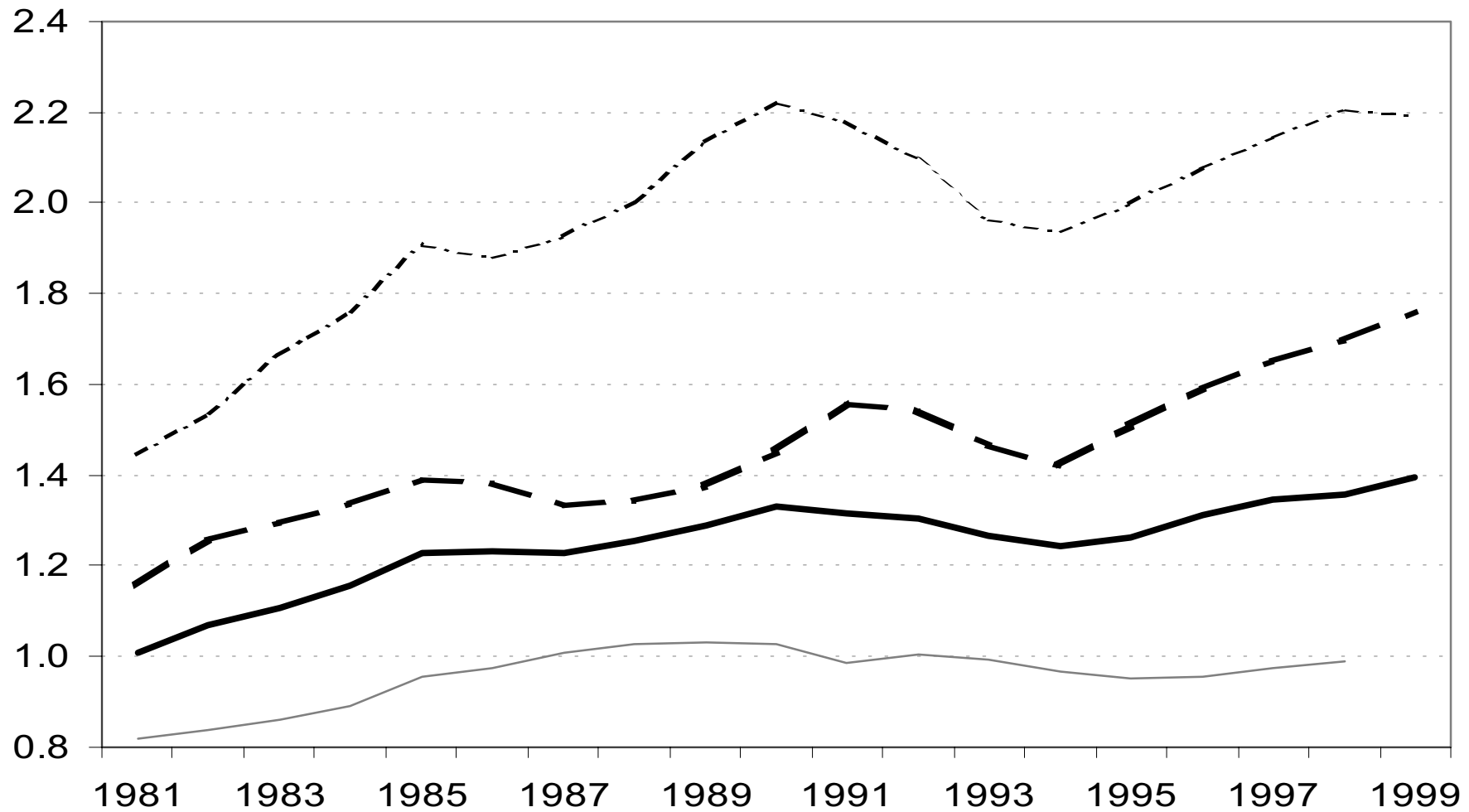
Growth in ICT patenting at USPTO, 1992-99



Market-funding is more important for innovation

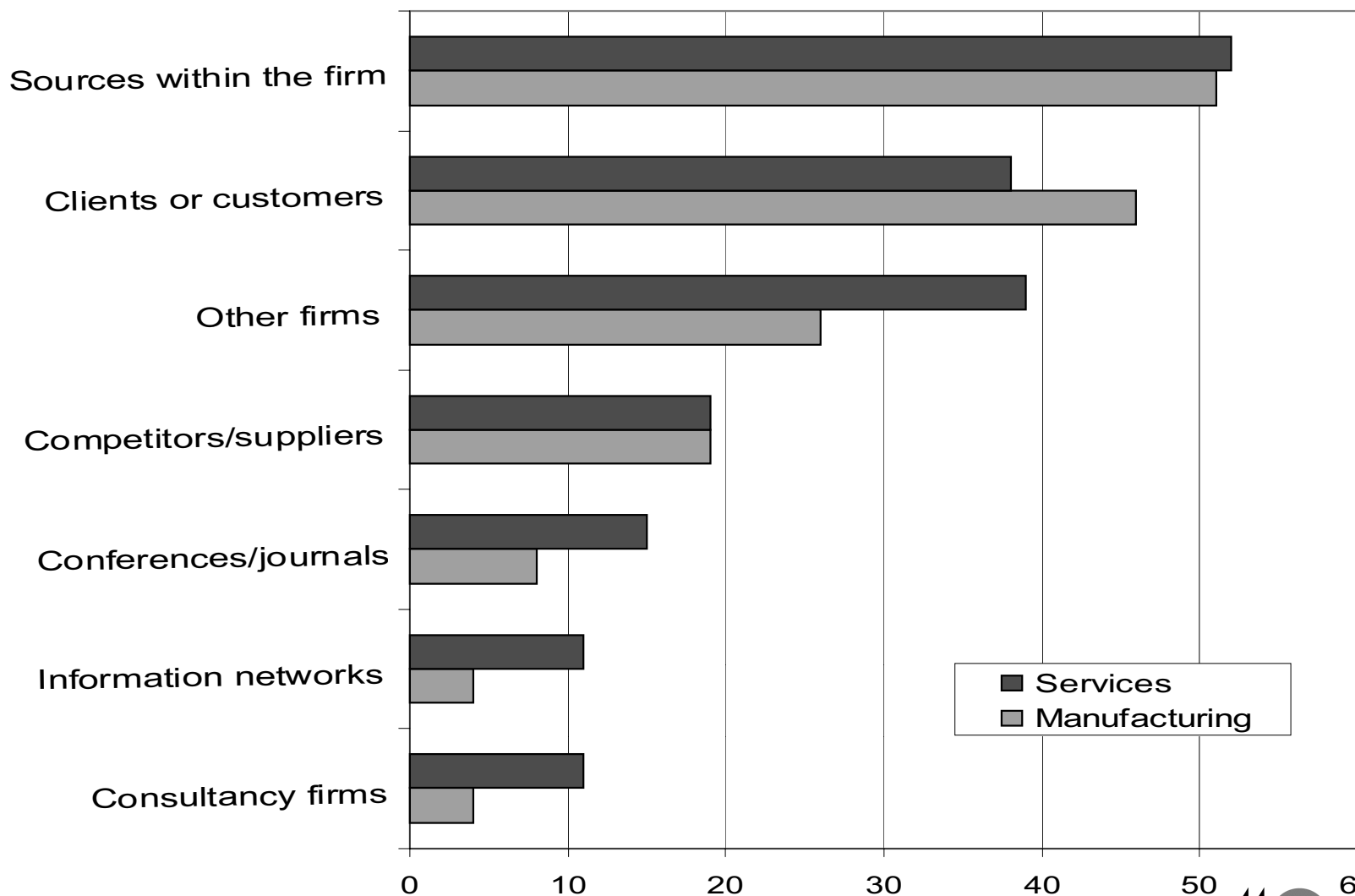
Business-funded R&D as a % of GDP, 1981-99

— United States - - - - Japan — European Union — Total OECD



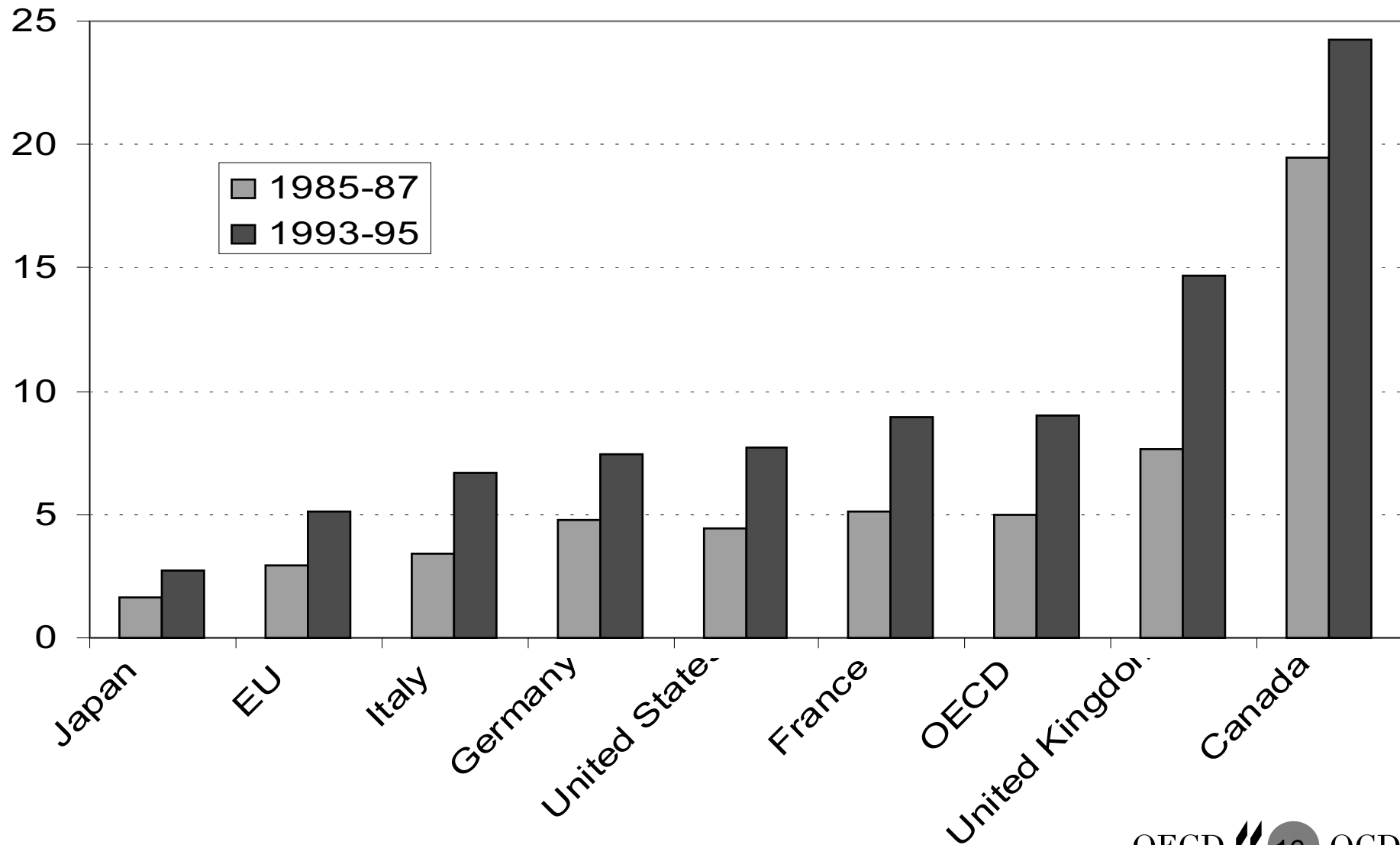
Innovation now draws on many sources, ...

Sources of information considered as very important for innovation



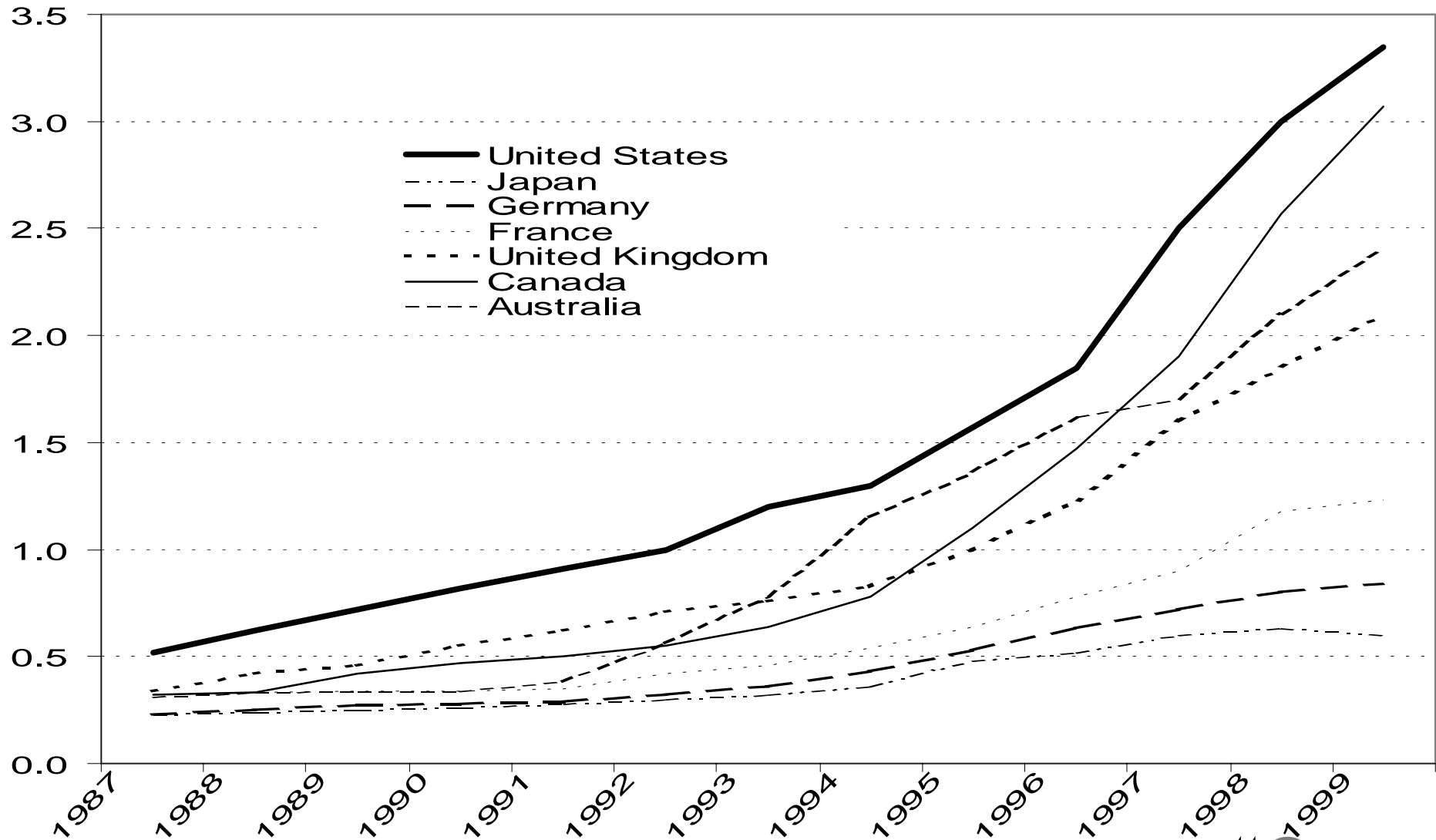
..., many of which are global in nature, ...

Patents invented in collaboration with foreign inventors (%)



.. and links to science are growing

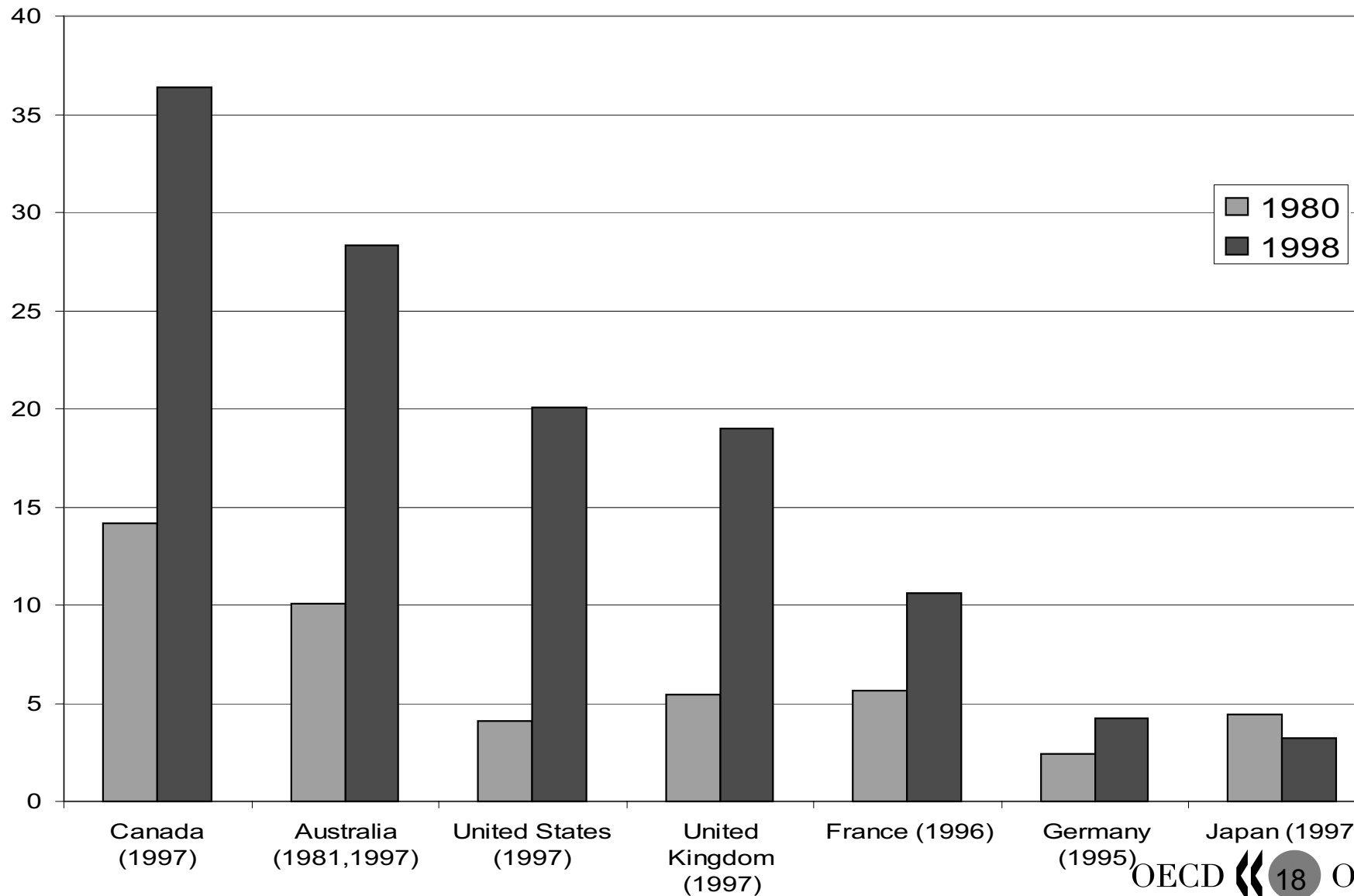
Measured by average number of scientific papers in US patents



Source: CHI Research

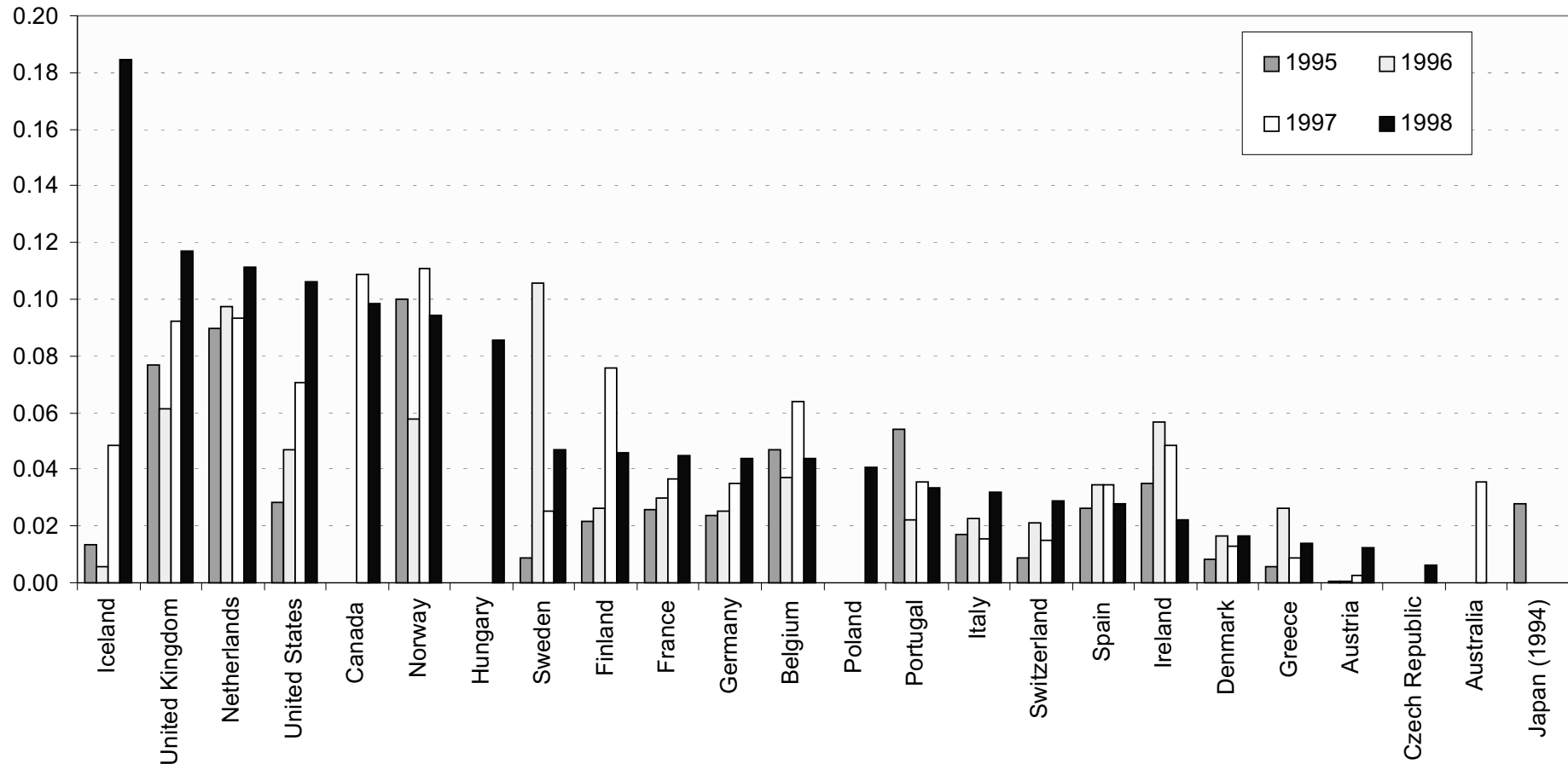
Innovation is also more widespread

Share of services in business R&D, 1980 and 1998

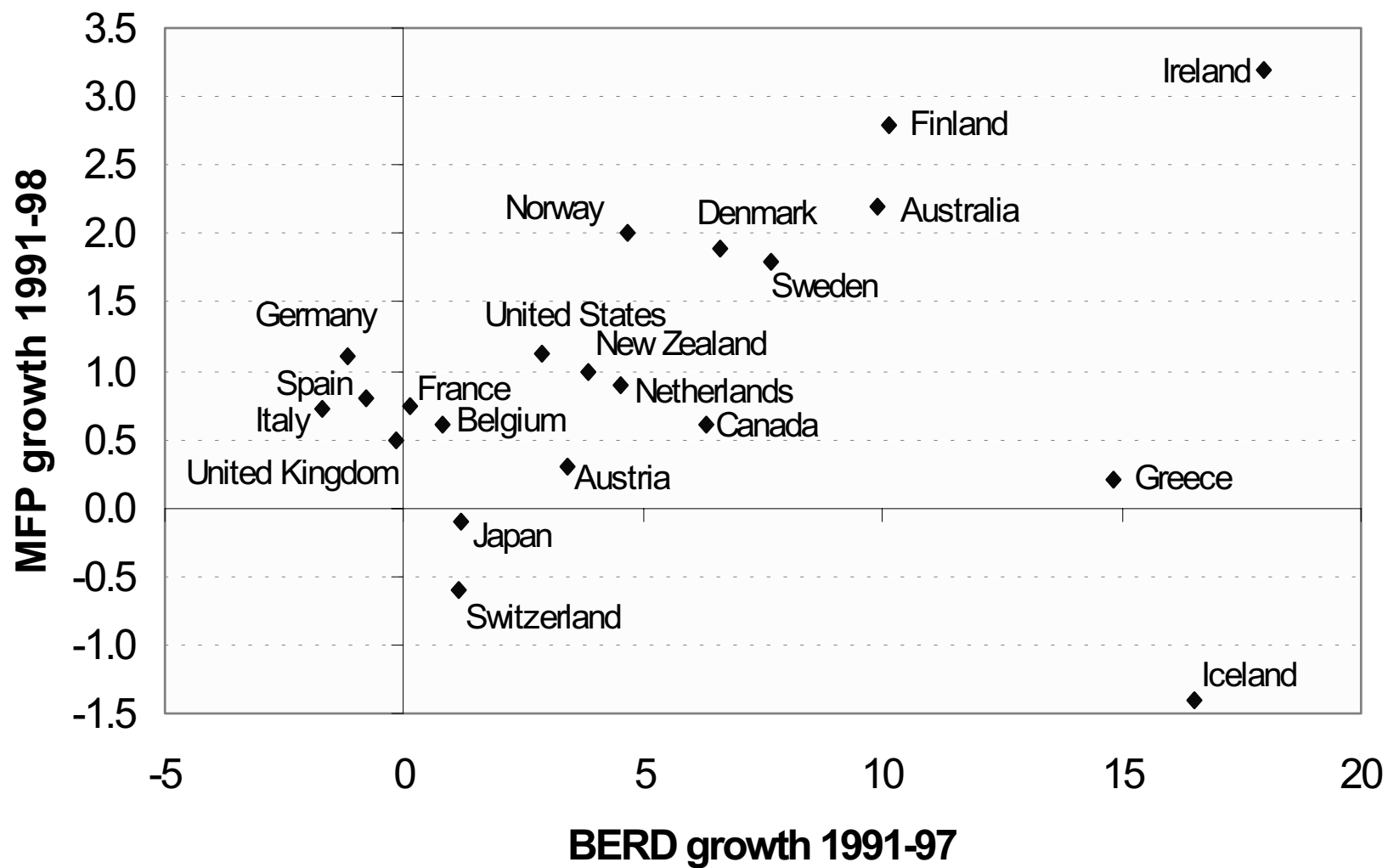


Venture capital investment in early stages and expansion

As a percentage of GDP, 1997

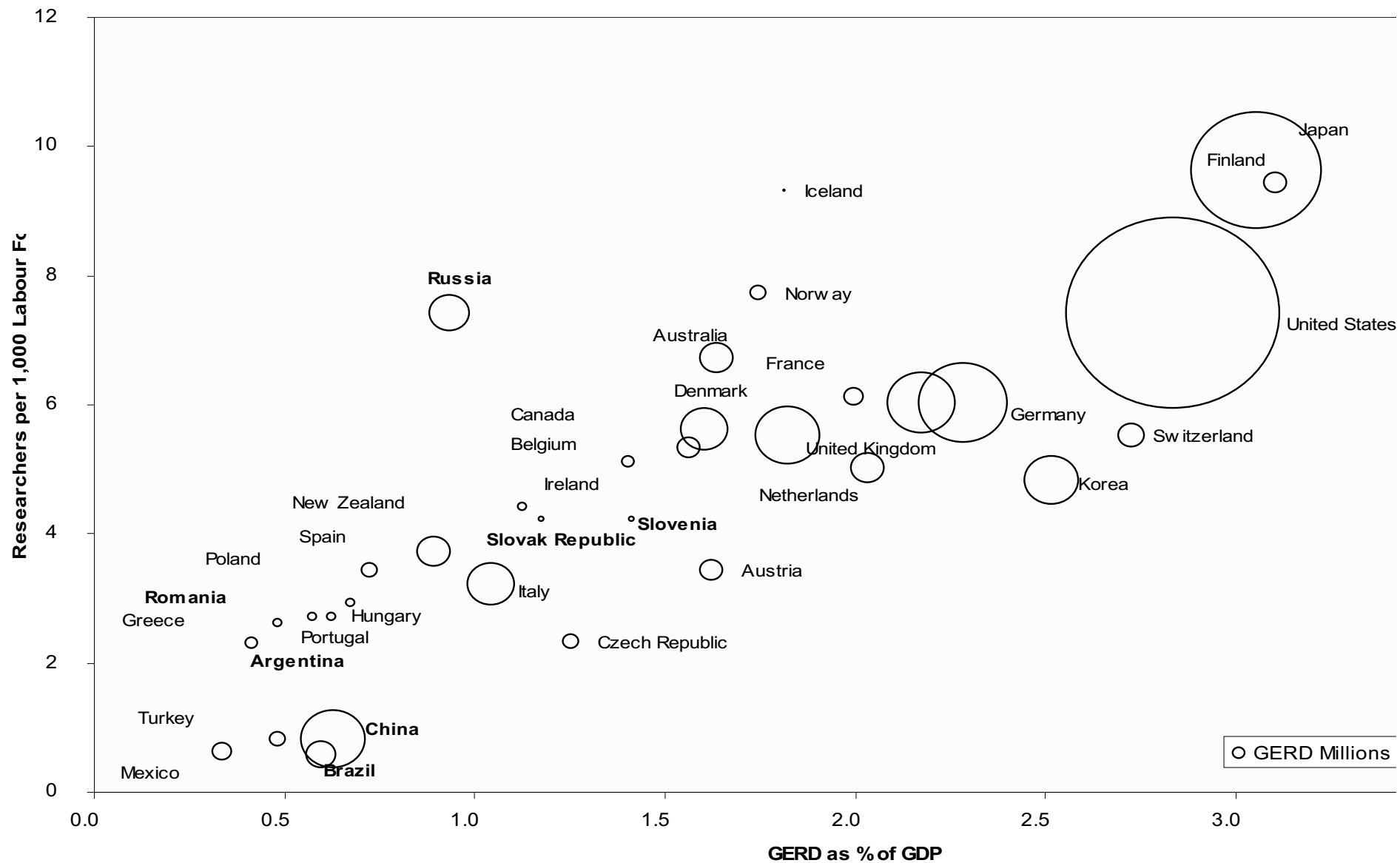


Productivity growth and business expenditures on R&D



Source: OECD calculations.

Intensity and volume of R&D expenditure, 1999



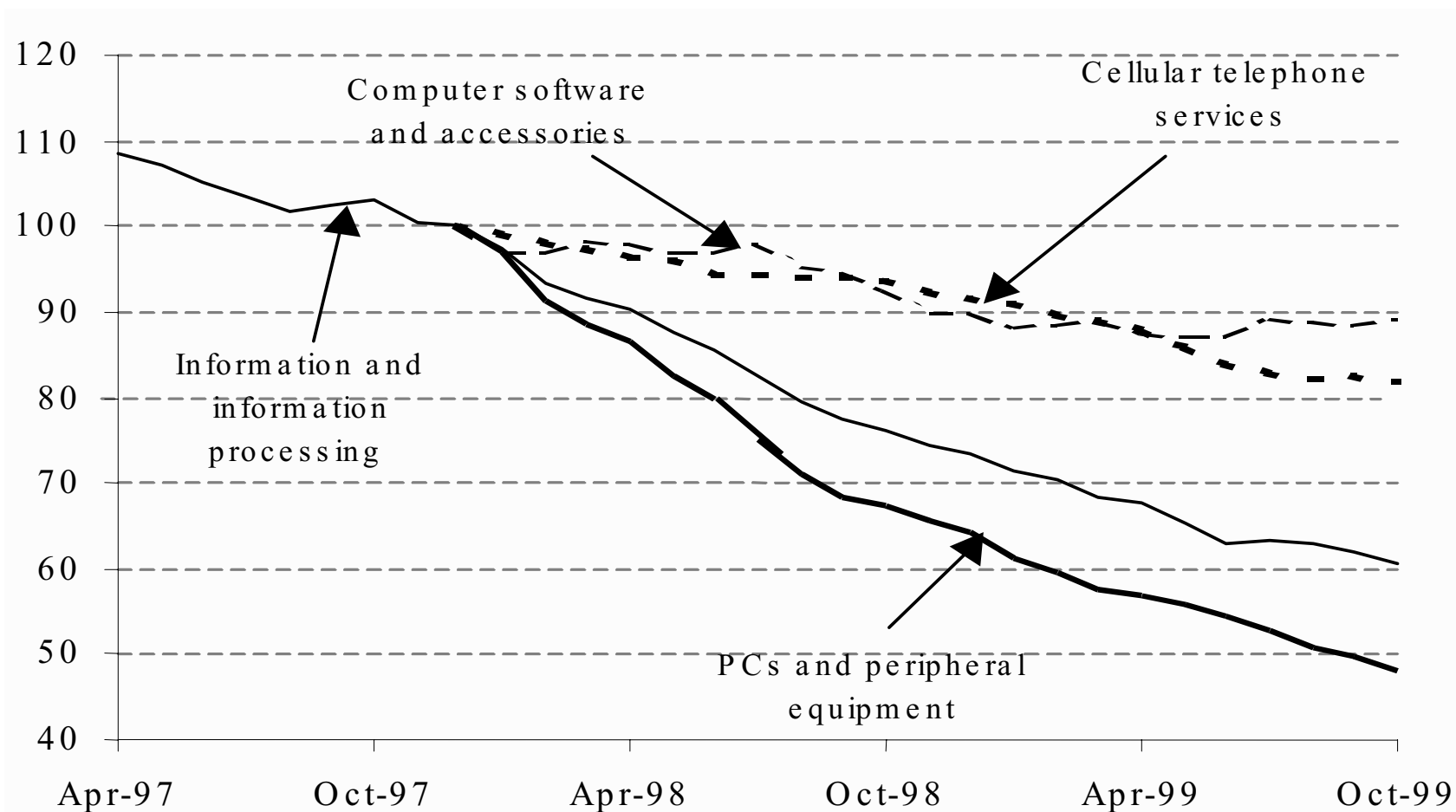
The innovation process has also changed:

- v Markets play a larger role in innovation, e.g. in funding R&D and innovative new firms;
- v High-technology start-up firms play a key role in innovation and growth in new industries.
- v Innovation is more global and builds on many sources - the free flow of knowledge is key.
- v Innovation is widespread - also in services - which broadens the basis for growth.
- v Scientific progress affects innovation more directly, e.g. in biotechnology.
- v ICT is affecting the process of innovation (e.g. mapping the human genome).

ICT as a Source and Driver of Innovation

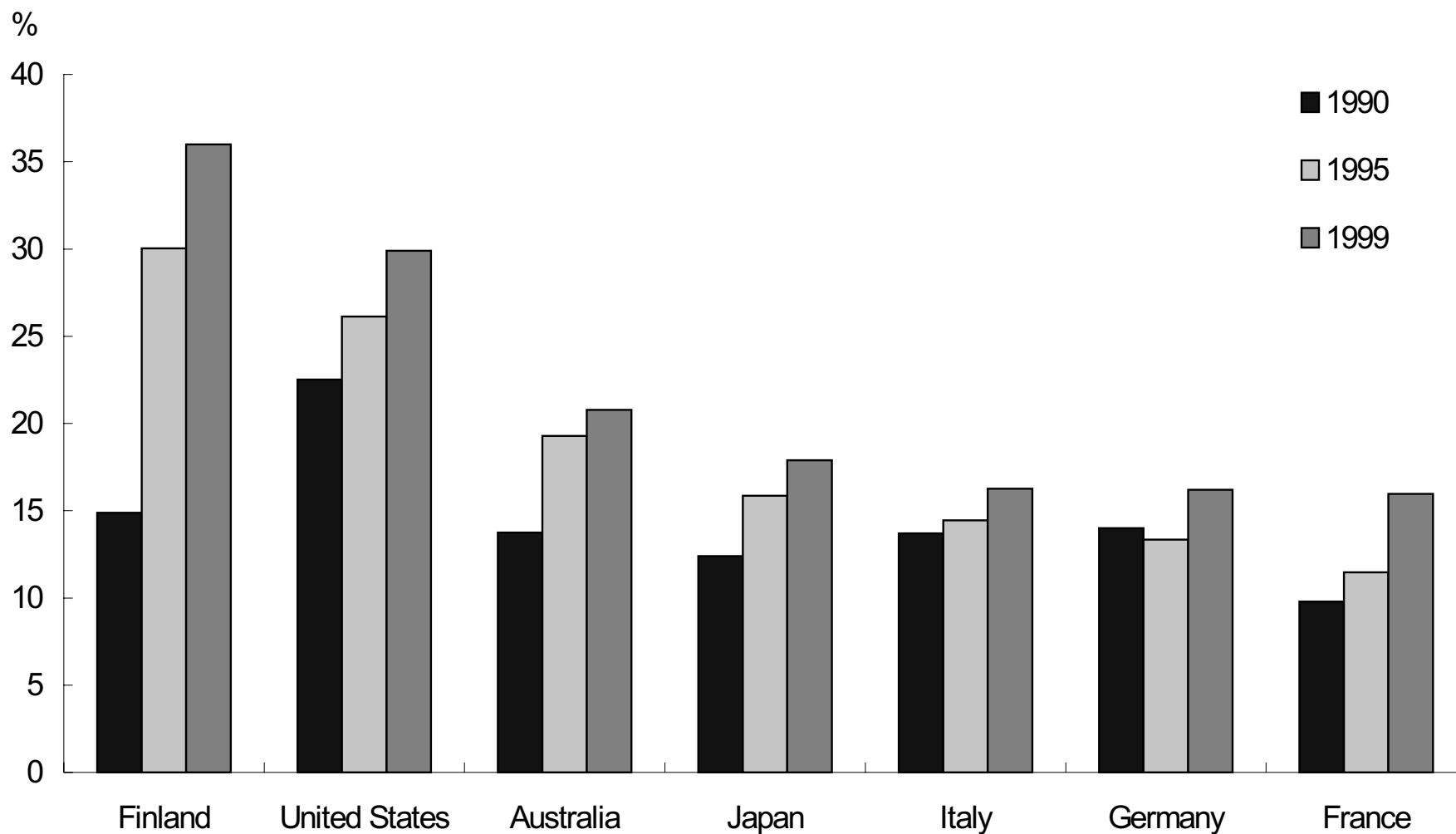
US consumer price index for selected ICT equipment and services

December 1997=100

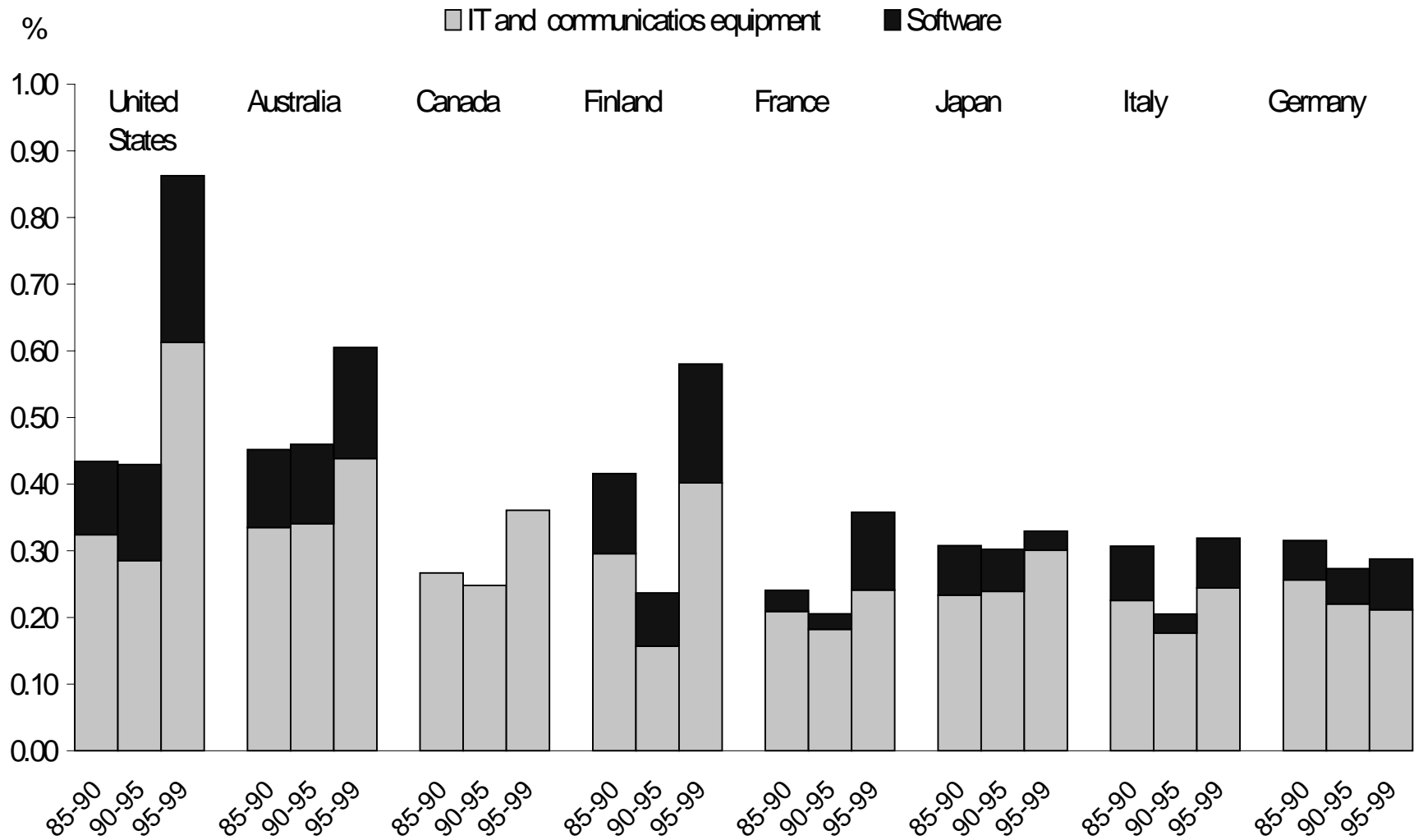


Source: US Bureau of Labor Statistics (BLS), November 1999.

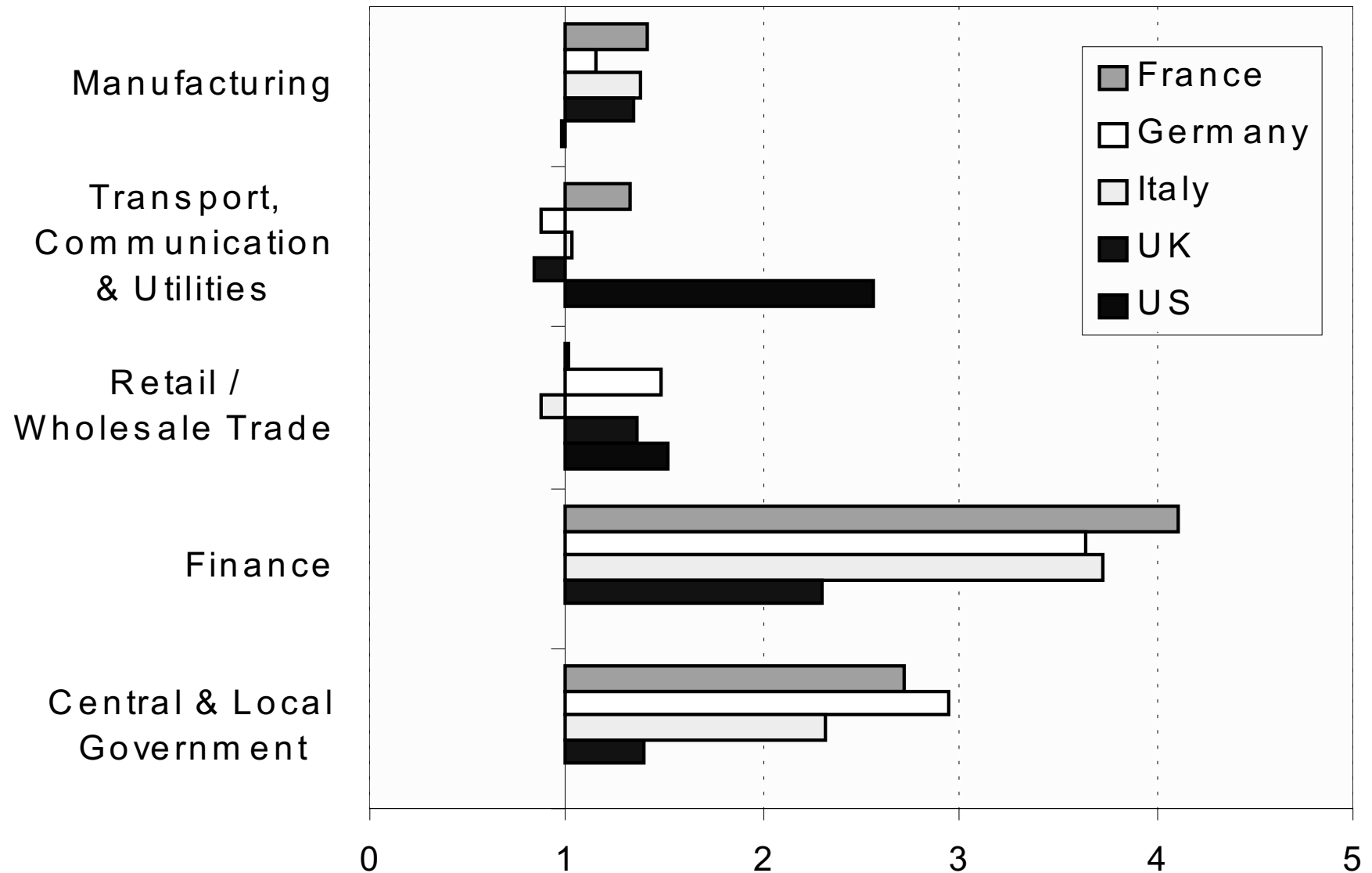
Share of ICT equipment and software in GFCF



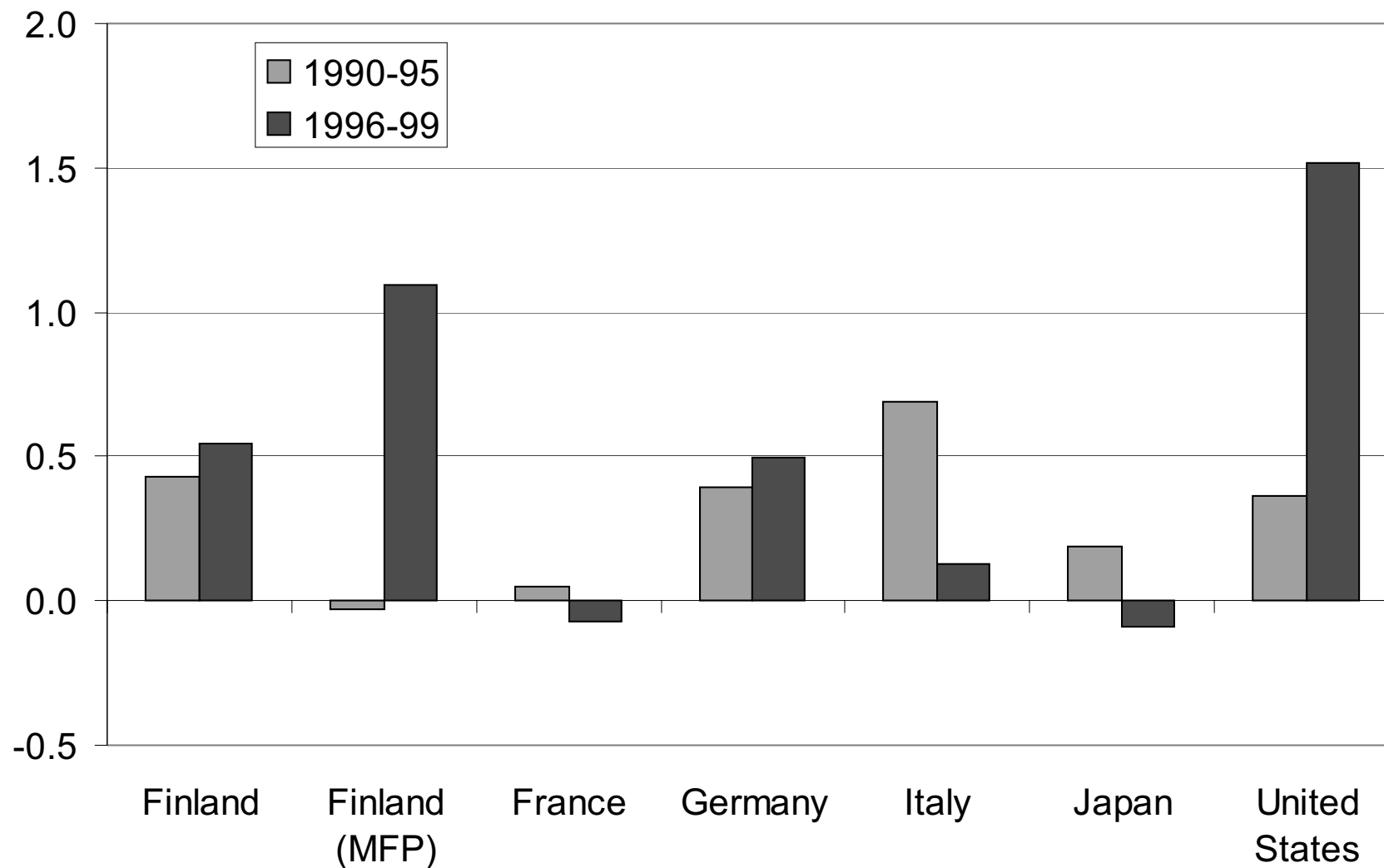
ICT contribution to output growth



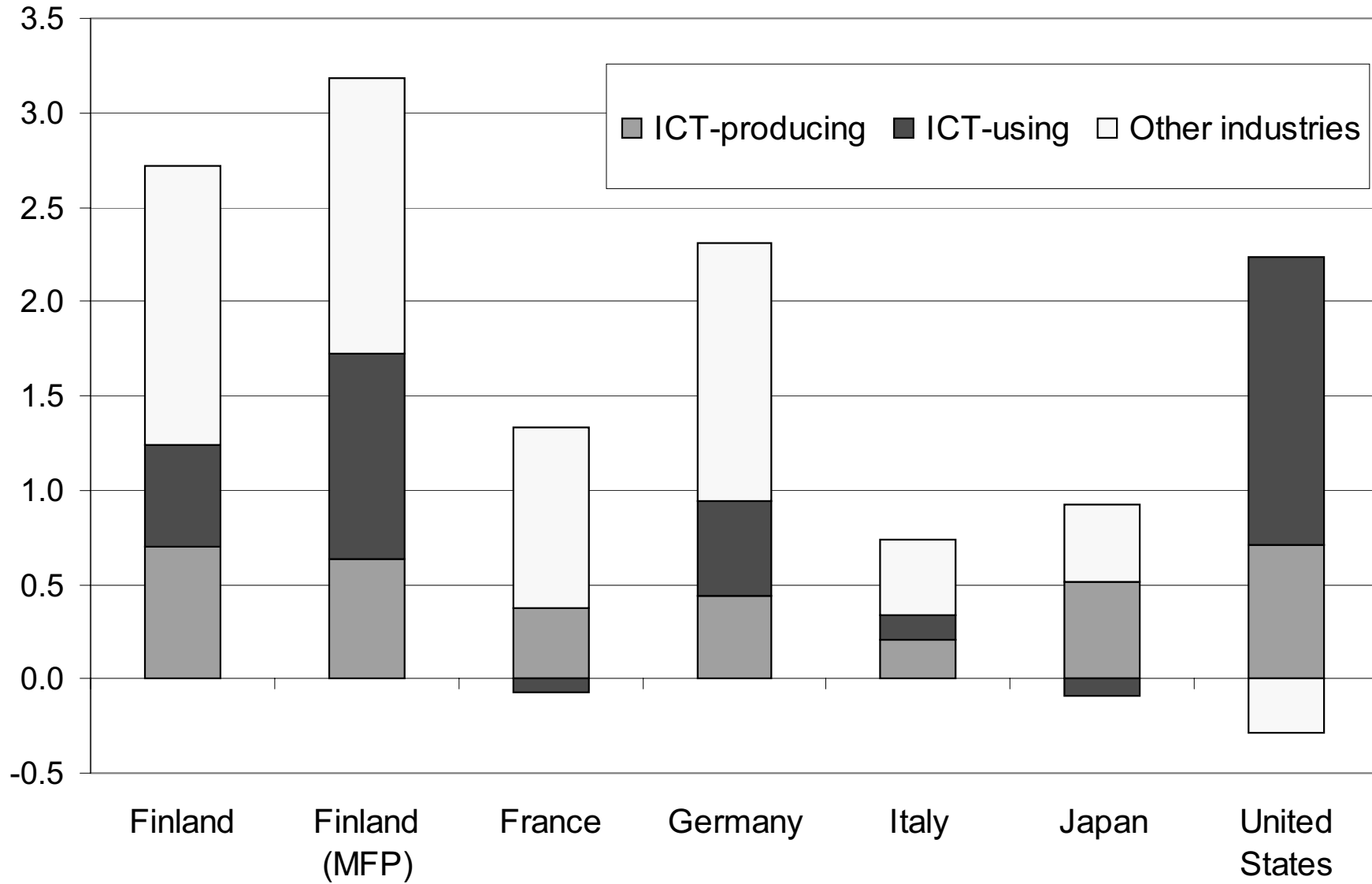
Purchased ICT equipment in manufacturing and services, 1995



Contribution of ICT-using services to productivity growth (% point)

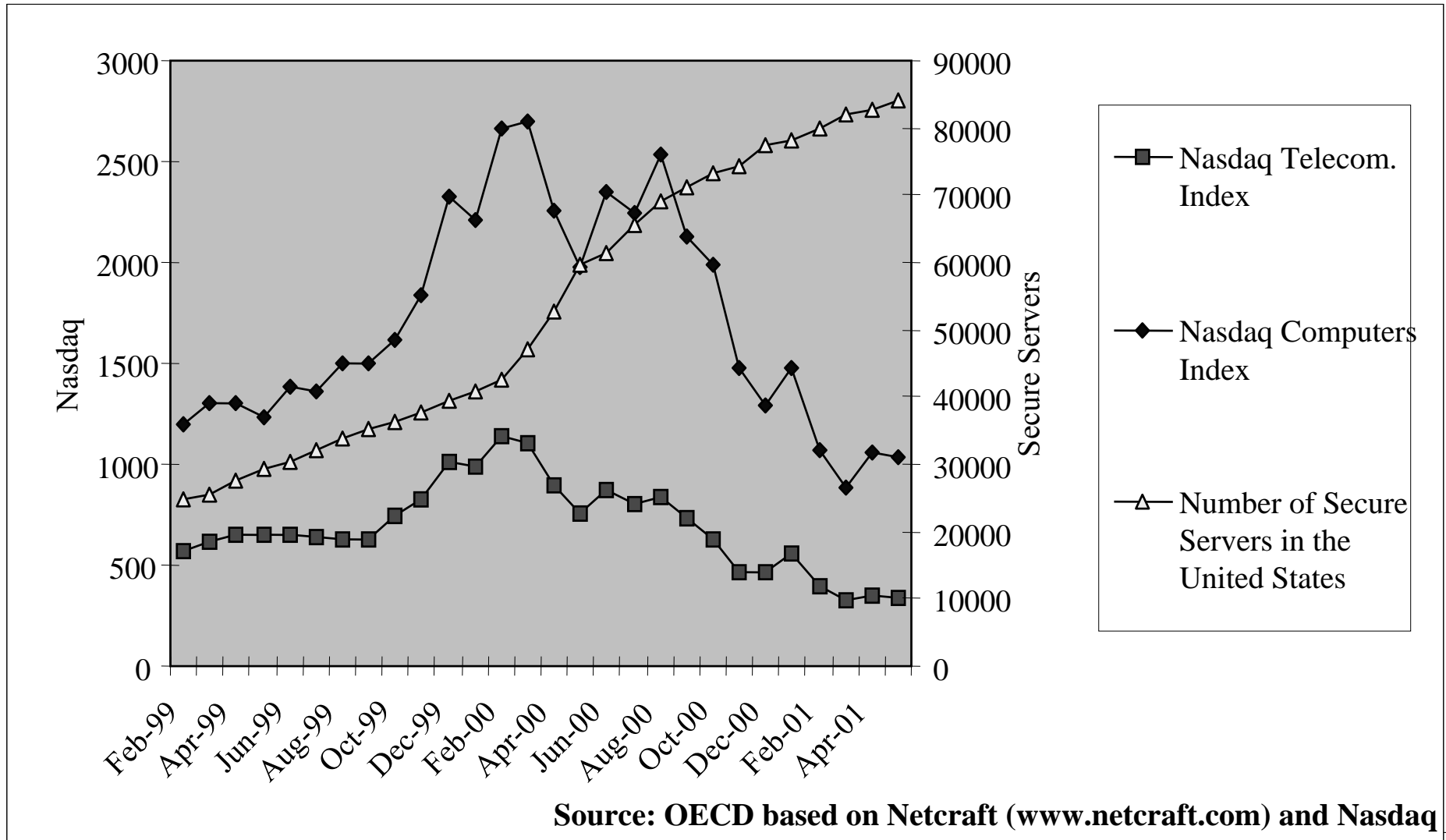


Breakdown of labour productivity growth, 1996-99 (%)

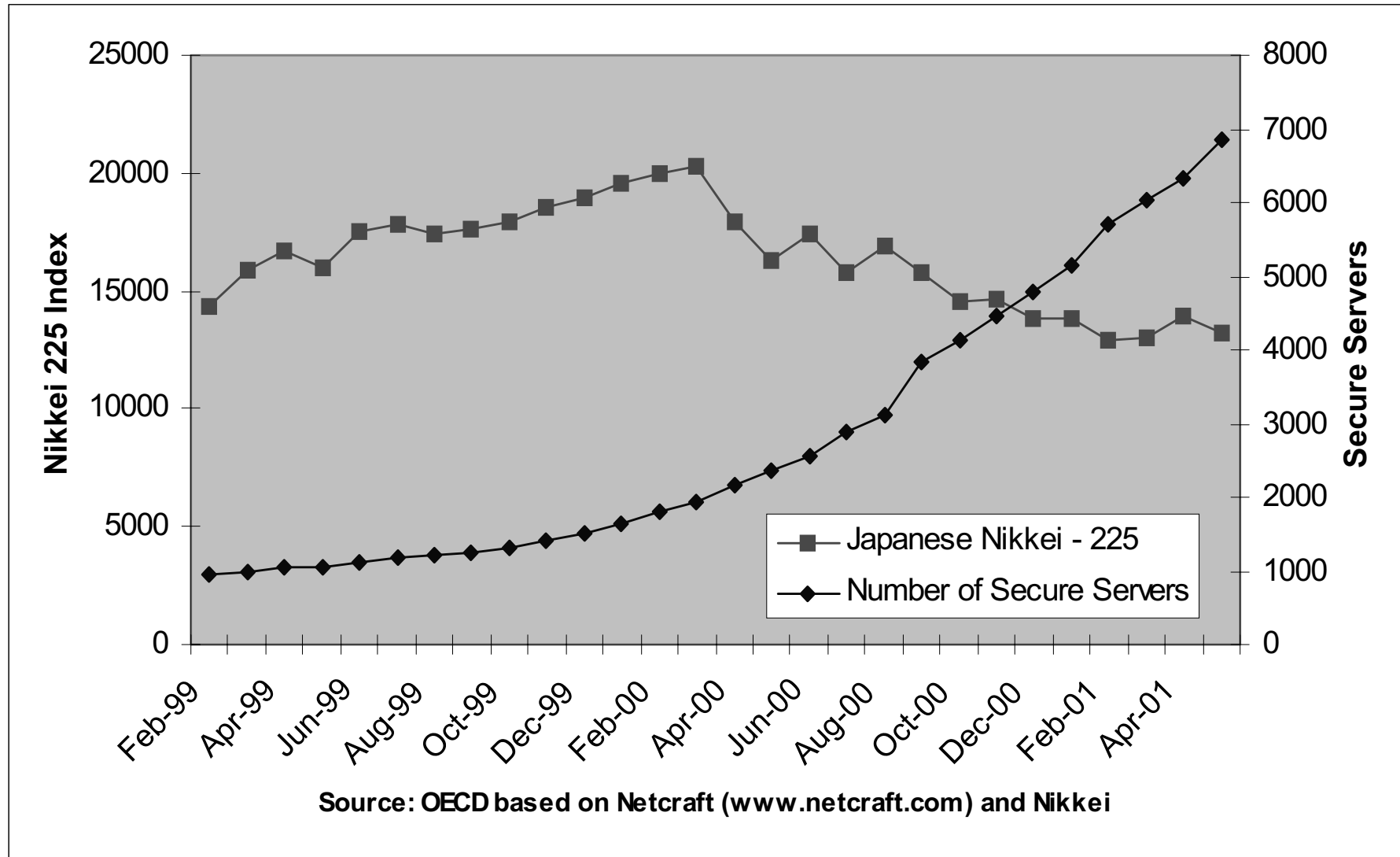




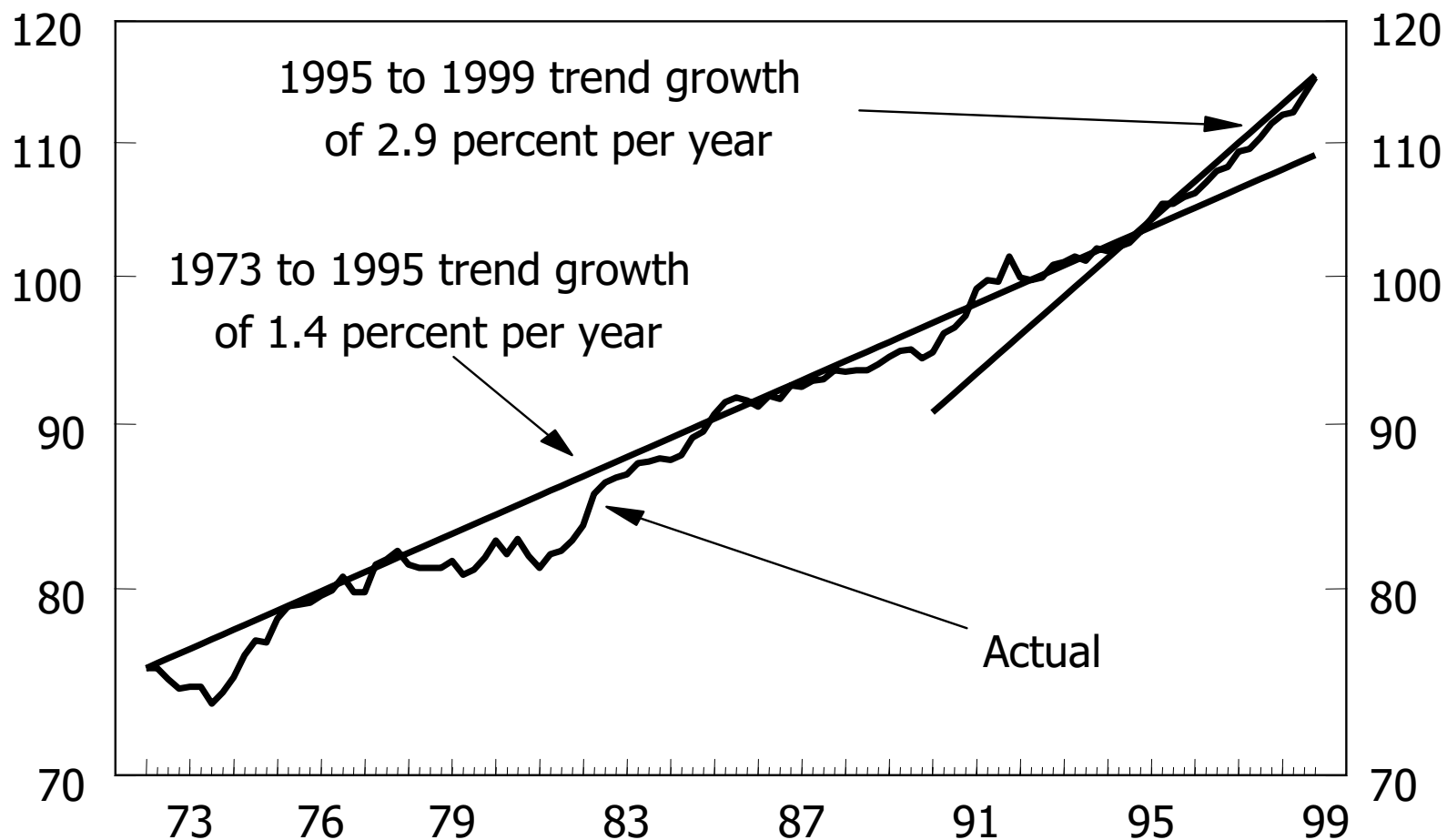
NASDAQ and US Secure Servers



Nikkei-225 Index and Secure Servers in Japan



US Productivity in Nonfarm Business Sector (Index 1992=100)

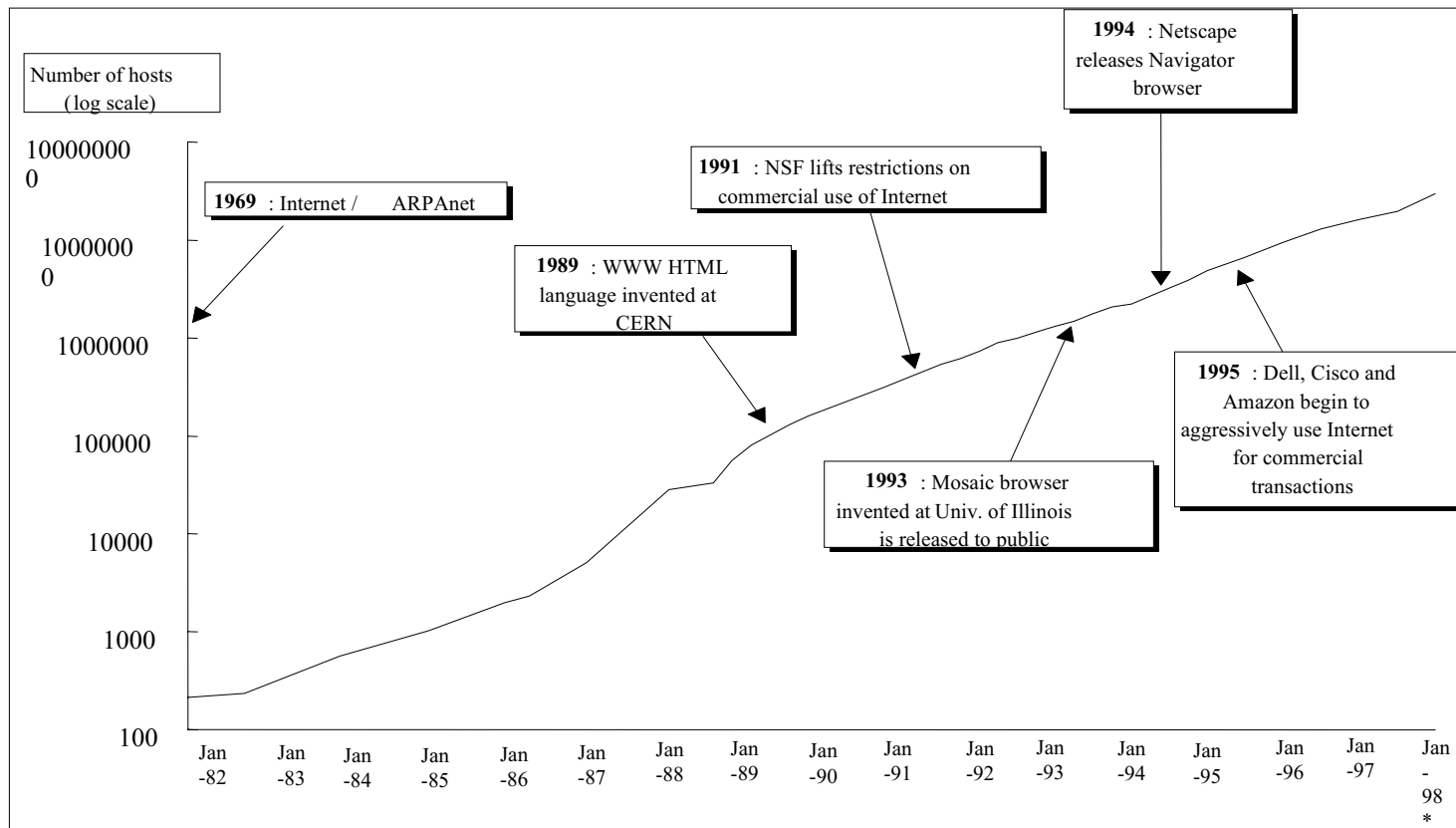


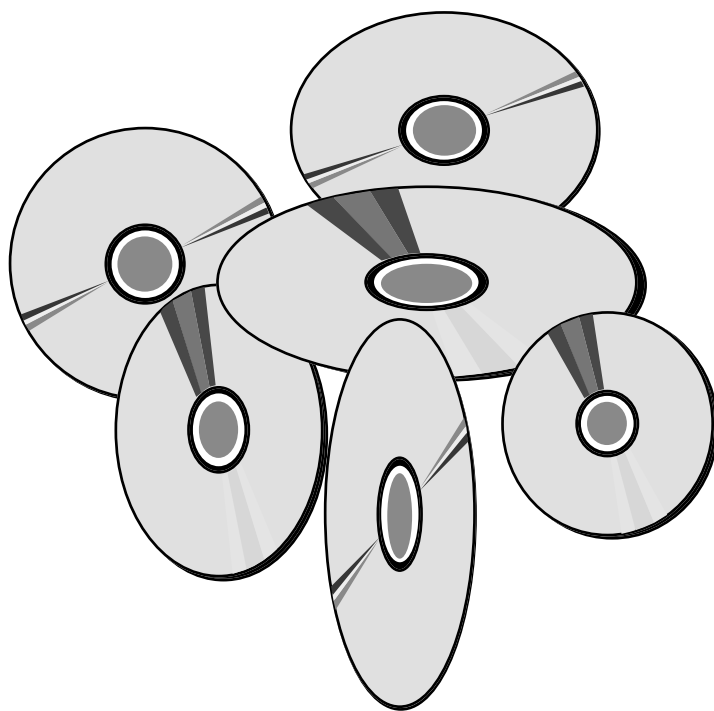
Source: OECD

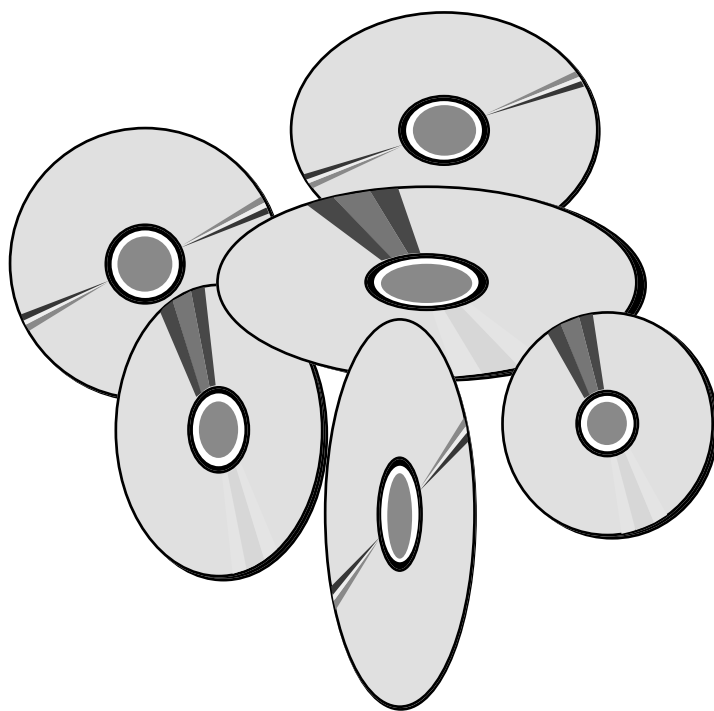
Explanations for the pick-up in US productivity in the mid-1990s

- v Series of Favourable Shocks (Bosworth & Triplett)
- v Sufficient Organisational Adaptation (David)
- v Price declines leading to capital deepening (Sichel, Jorgensson)
- v Rapid Production (Gordon)

Growth in Internet host computers and major software developments



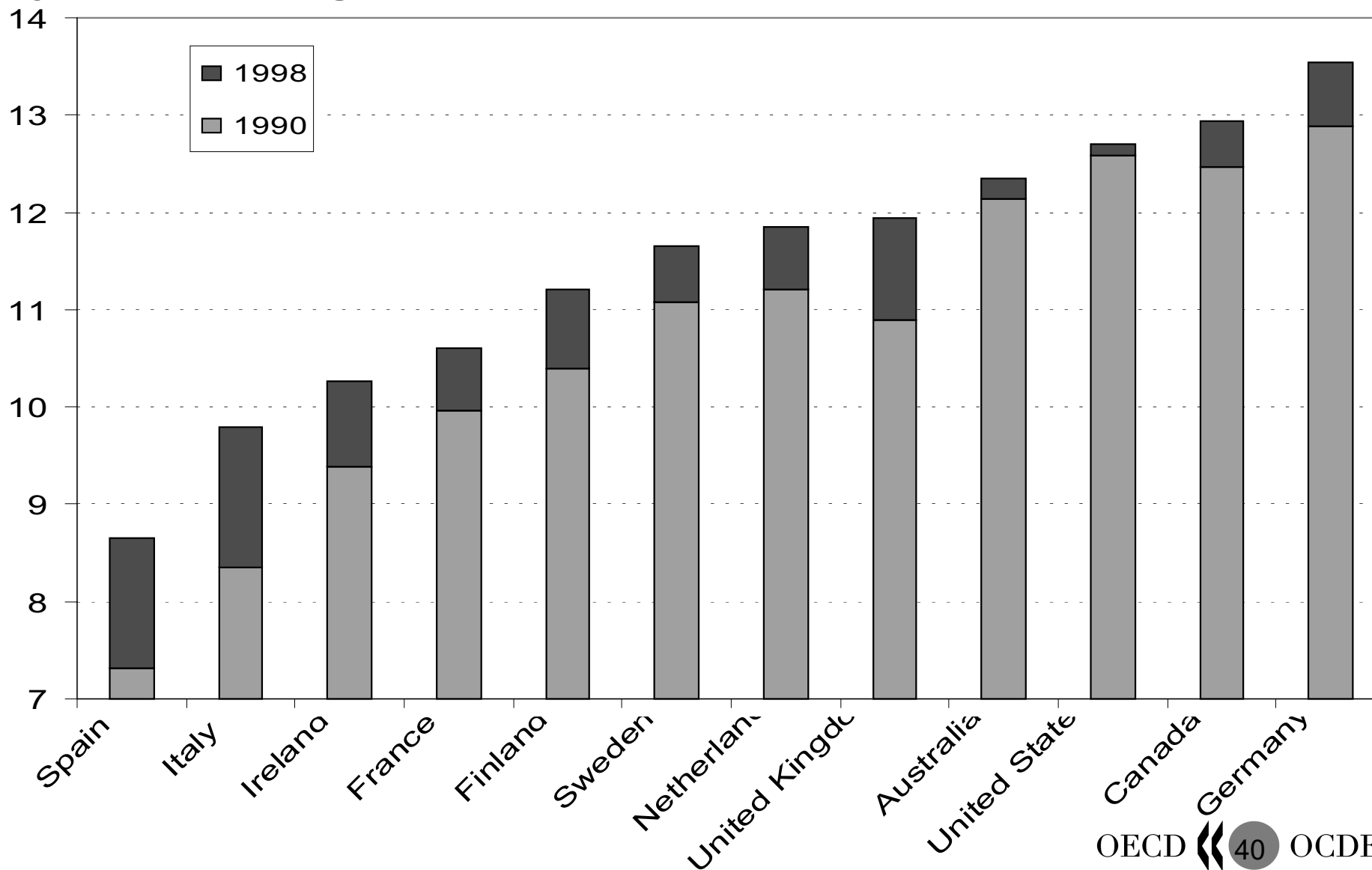




The Changing Role of Human Capital

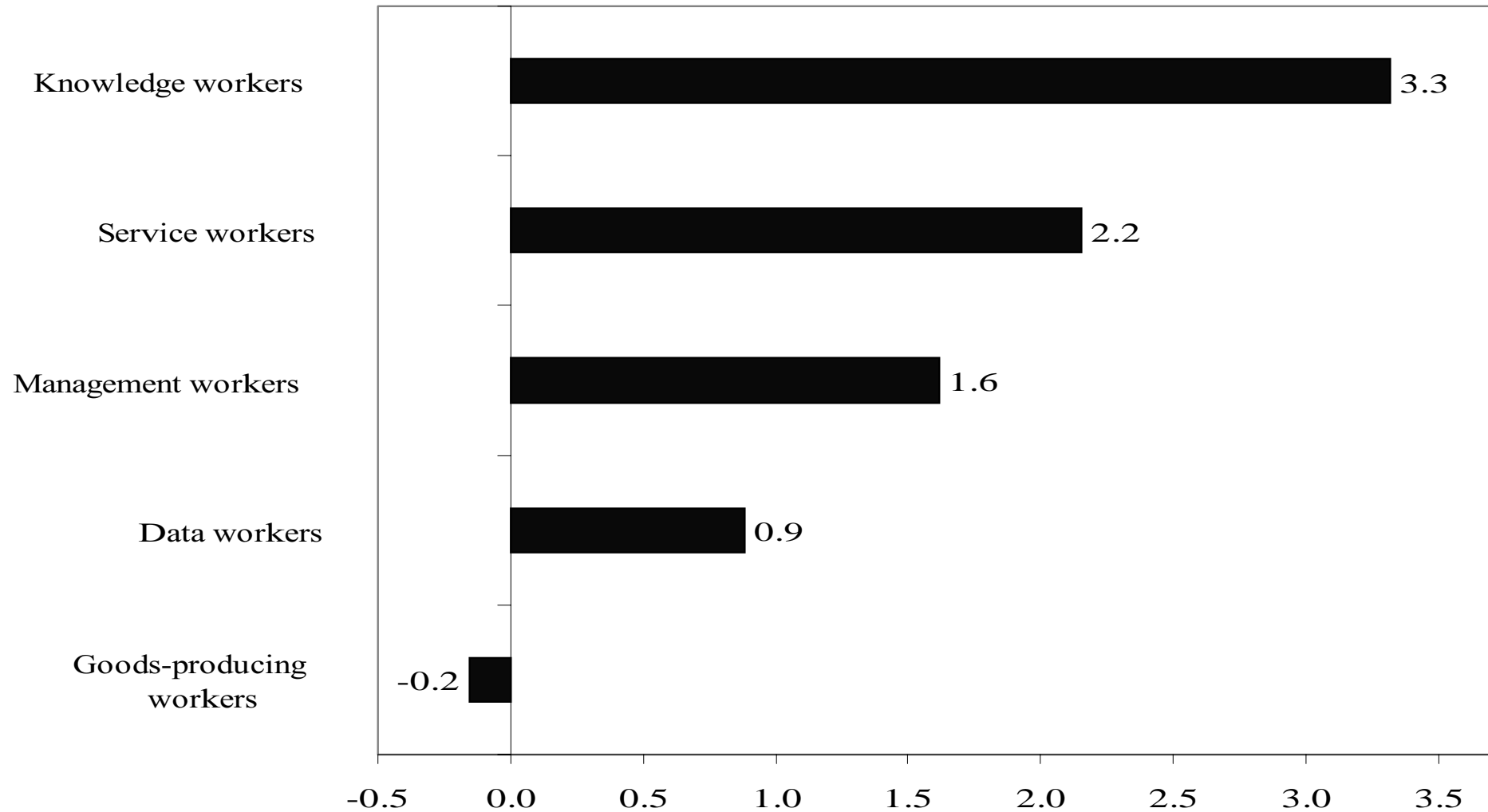
The quality of labour is improving across the OECD

Index of average years of schooling



... and knowledge workers are more important

Employment growth by group of occupations, 1992-99, annual % change

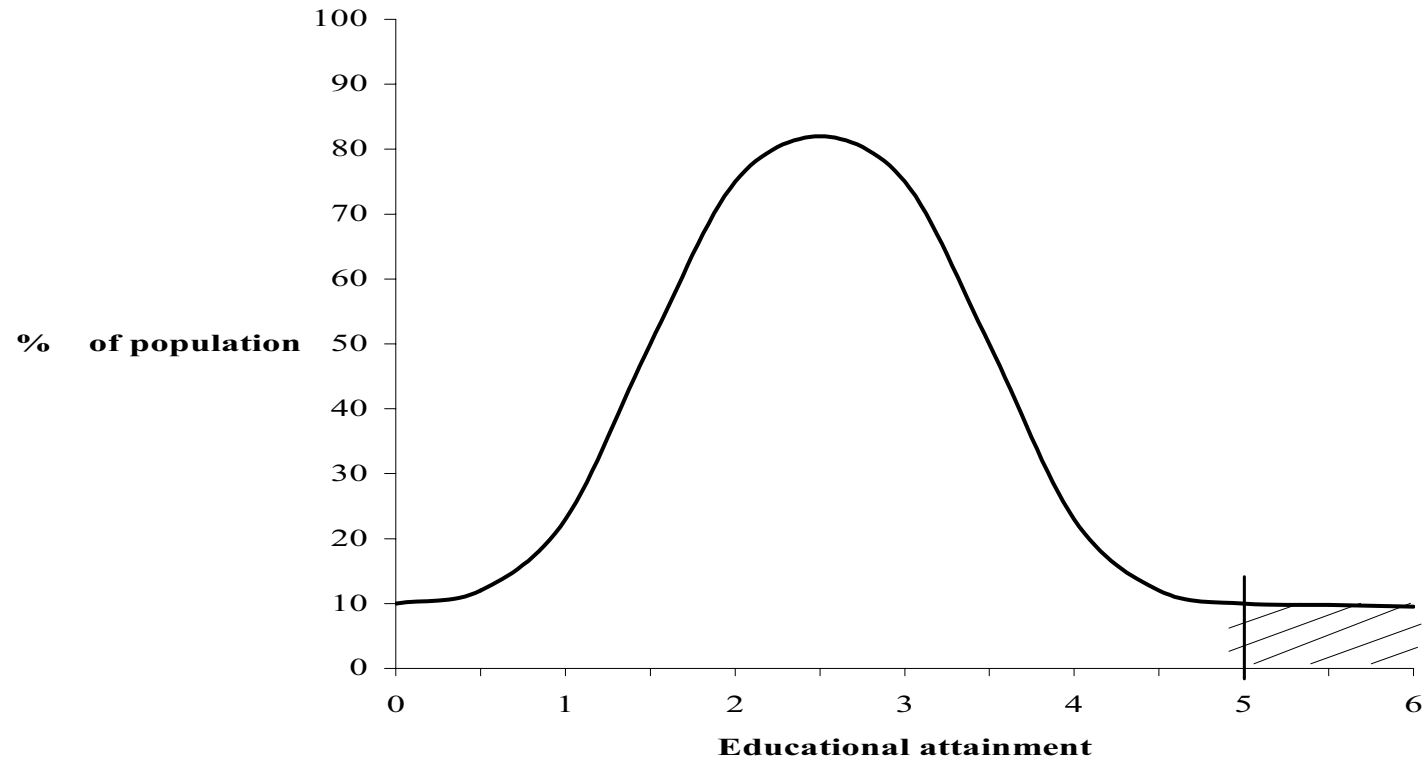


Note: Data cover US and EU countries.

Human capital is of growing importance in the new economy

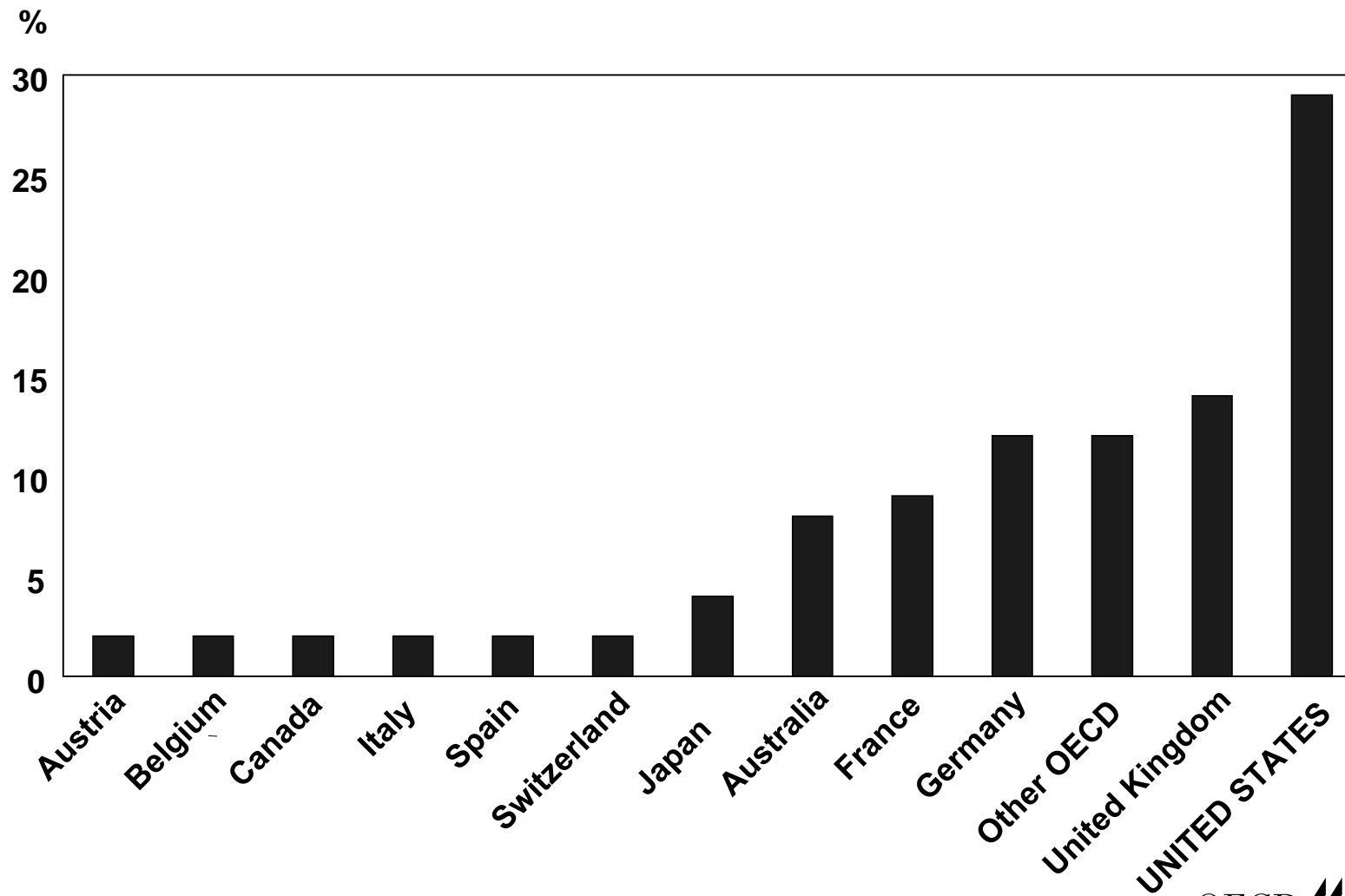
- v Education and training are the pillars of economic growth and of innovation - lack of skills is often the main constraint on innovation and ICT use.
- v A high level of skills creates an environment that is favourable to new technologies and innovation.
- v New skills may be needed, e.g. ICT and team work.
- v But changes in labour markets may be needed, notably as regards work organisation.

Humps and Tails of Human Capital

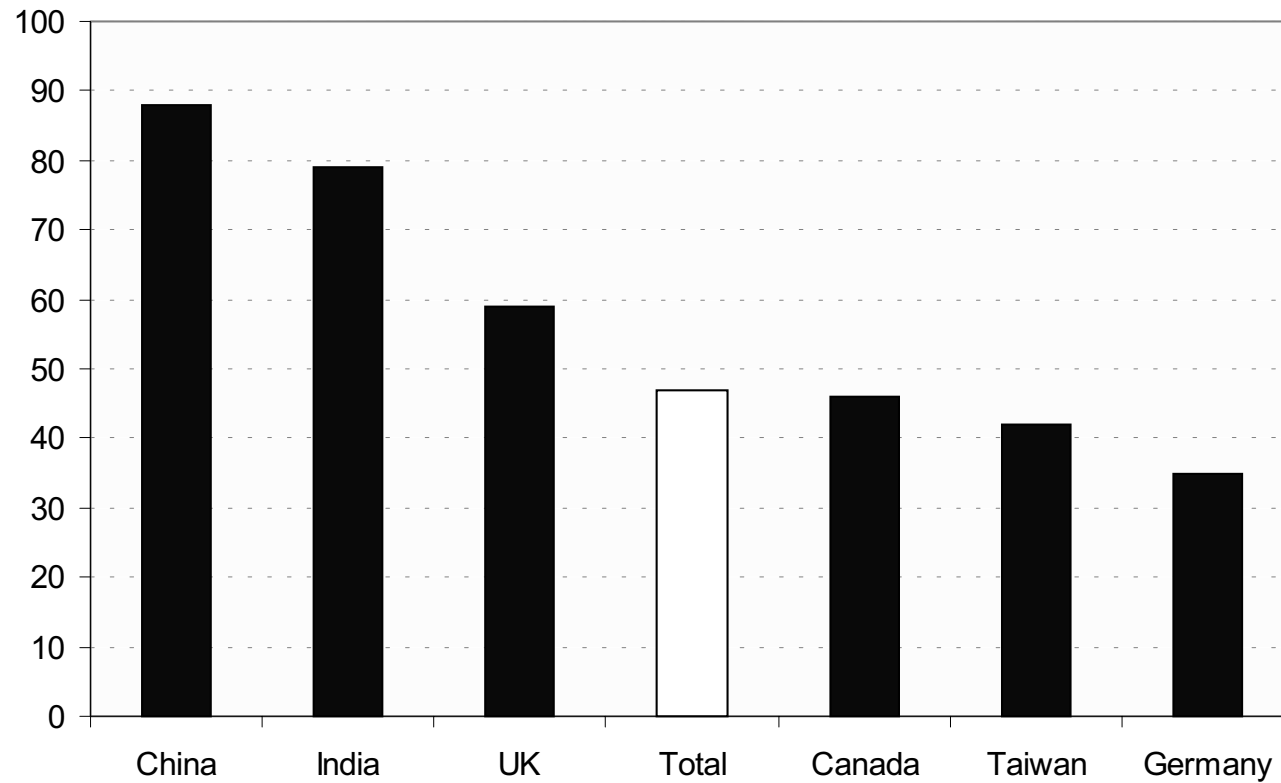


KNOWLEDGE is more "mobile"

Distribution of foreign students in OECD by host country, 1999

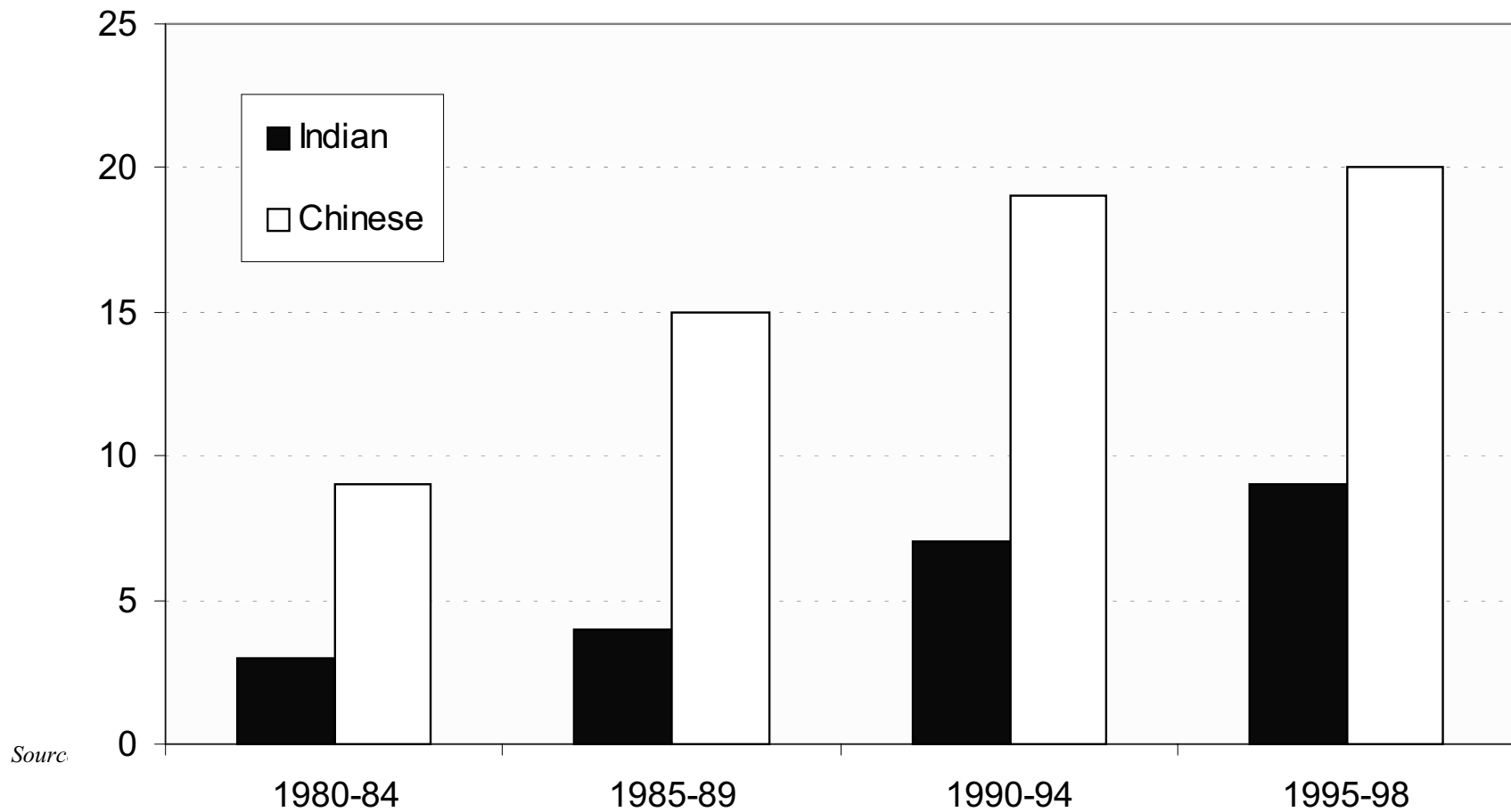


1990-91 foreign S&E US degree recipients working in the US in 1995



Source:..

Share of total Silicon Valley start-ups by ethnicity (%)



Source

Policies for an international market for the highly-skilled

- v Migration Policies: facilitating temporary residence; targeting specific skills (ICT); mutual recognition of certification, etc.
- v S&T “pull” factors: student flows; centres of excellence (Univ.); ease of entrepreneurship;
- v S&T “push” factors: rigid fiefdoms; hampering regulations; away from the cutting edge; advancement on seniority not performance.

What is the role of government?

1. Get the fundamentals right.

- v Macroeconomic policy matters: sound public finances and low inflation are needed to foster investment.
- v Openness to trade, investment, technology, ideas and people is fundamental to innovation and growth.
- v Countries with improved growth performance have been strong reformers of labour and product markets.
- v Reform of markets can instil greater competition, more flexibility, and implies that countries are ready when new opportunities for growth emerge.
- v Good fundamentals can help address the distributive consequences of change.

What is the role of government?

2. Foster innovation for future growth

- v Ensure sufficient funding for the creation of basic knowledge - as the seed for future innovation. ICT and biotechnology are not manna from heaven.
- v Make government support for innovation more effective - competitive mechanisms, public-private partnerships and regular evaluation can help.
- v Increase interaction between firms, universities and research institutes. Barriers to interaction, such as constraints on labour mobility, are still important.
- v Address new issues related to intellectual property rights, e.g. demands for IPR on basic knowledge.

What is the role of government?

3. Facilitate the diffusion of ICT

- v Competition forces firms to enhance efficiency, lowers the costs of new technologies and enhances diffusion.
- v Still low competition in many OECD countries, trade and investment barriers related to ICT, and slow development of competition in telecommunications markets.
- v Flexible regulatory frameworks are needed to increase confidence in the use of ICT, and address concerns on privacy, security, reliability.
- v Electronic government can increase government efficiency, helps to strengthen network effects and can build confidence.

What is the role of government?

4. Invest in human capital

- v Invest in early education and child care: this is often more cost-effective than later interventions to remedy drop-outs.
- v Raise school completion and improve its quality. In many countries, this implies addressing teacher shortages.
- v Improve the school-work transition and strengthen the links between higher education and the labour market.
- v Provide wider training opportunities for adults - people will need to acquire new skills over their working life.
- v Reduce obstacles to workplace changes and give workers a greater voice in such changes.

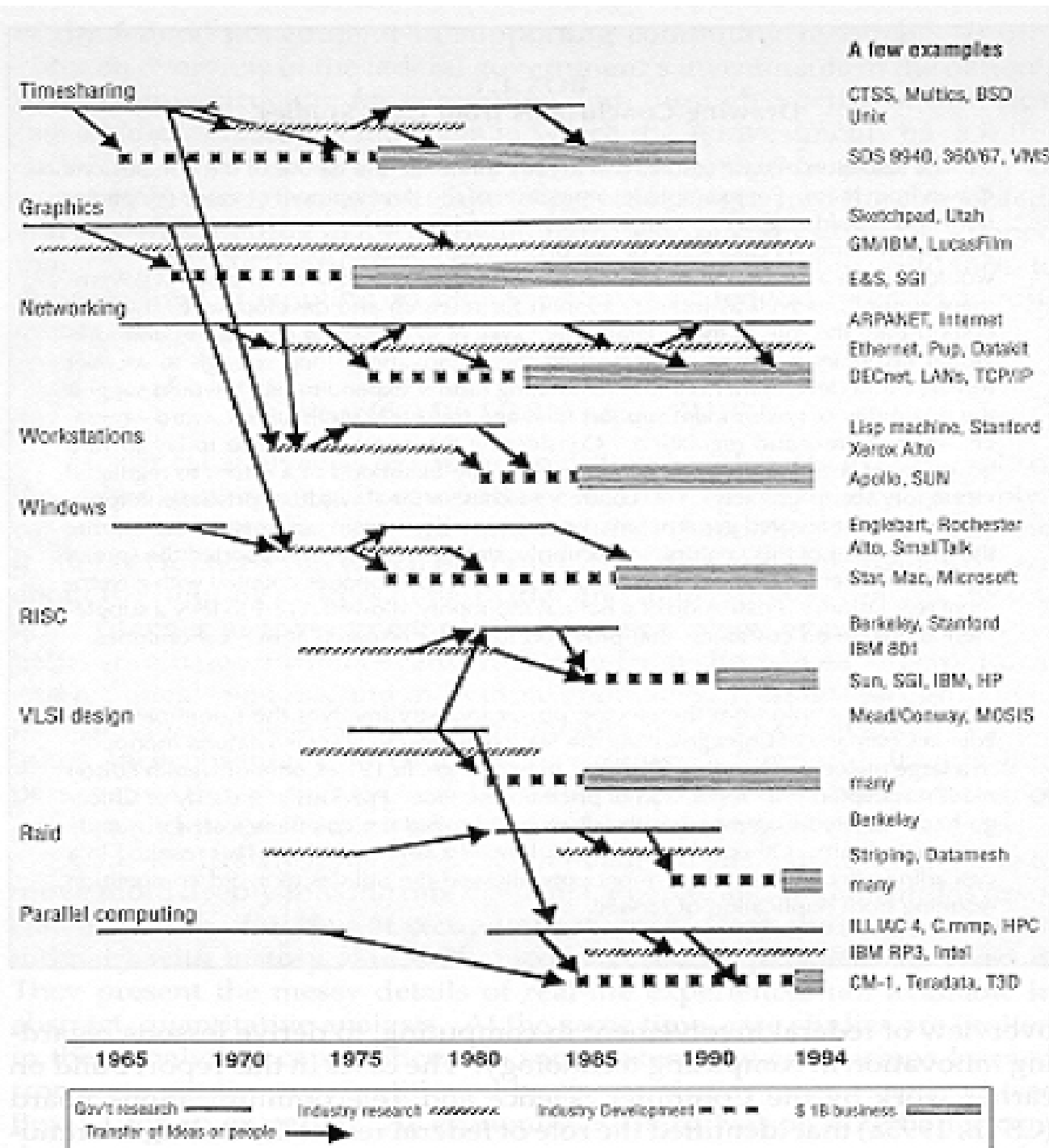
What is the role of government?

5. Improve the conditions for entrepreneurs

- v Reform regulations that slow down the development of venture capital markets and secondary markets to enhance the supply of finance to innovative projects.
- v Remove or reform barriers, such as red tape, that hinder the creation of new firms, or the exit of unprofitable businesses - bankruptcy laws in many OECD countries do not allow entrepreneurs a second chance, for example.
- v Make government programmes, e.g. one-stop shops for administrative formalities, more effective.
- v Encourage a more entrepreneurial spirit in society - education is often insufficiently geared towards entrepreneurship.

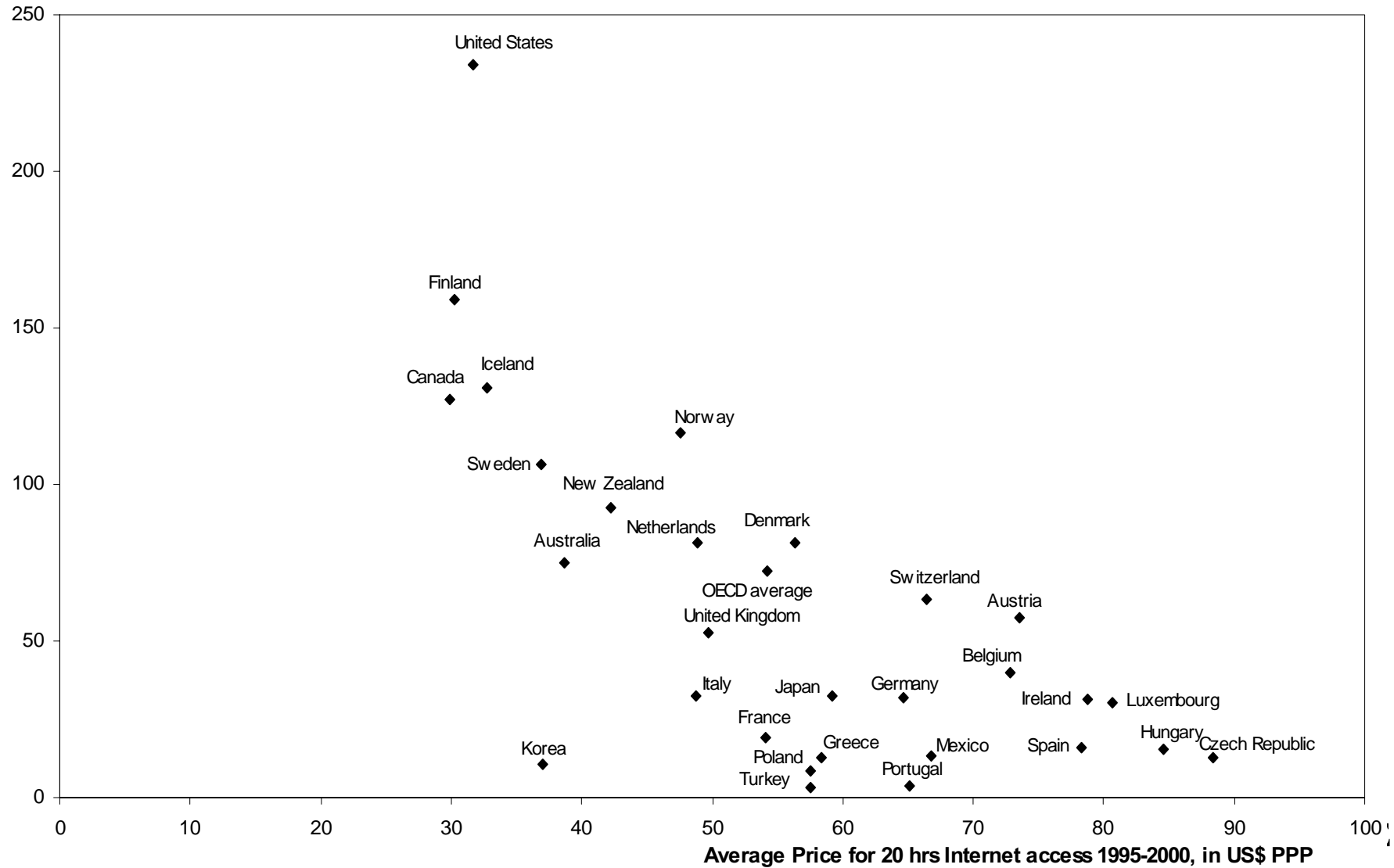
Concluding remarks

- v There are “new” factors in economic growth, but old economic laws still work.
- v Governments **do** have a role in innovation: rapid innovation and strong growth performance in some OECD countries was partly the result of effective policies.
- v Lagging countries have often not yet implemented the reforms that are needed for stronger growth.
- v Improving growth performance will take time.
- v It is uncertain how important ICT will be: the trick is to remain open to innovation and new sources of growth.
- v Governments will need to manage adjustment to keep the costs of change low.

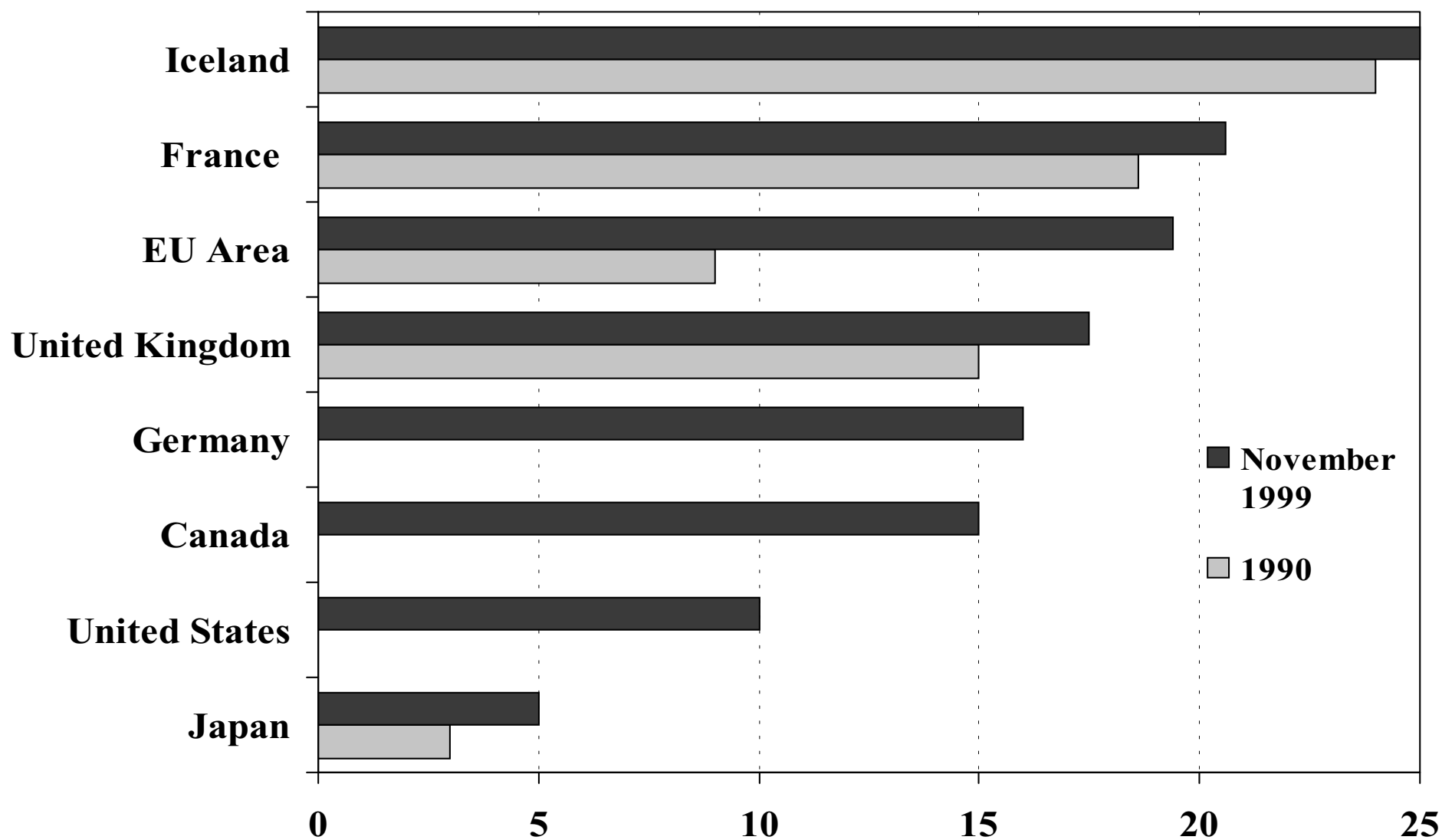


Internet Development and Pricing

Internet Hosts (October 2000)



Tax Rate on Local Telecommunication Services



Liberalisation is leading to lower bandwidth prices across Europe

