



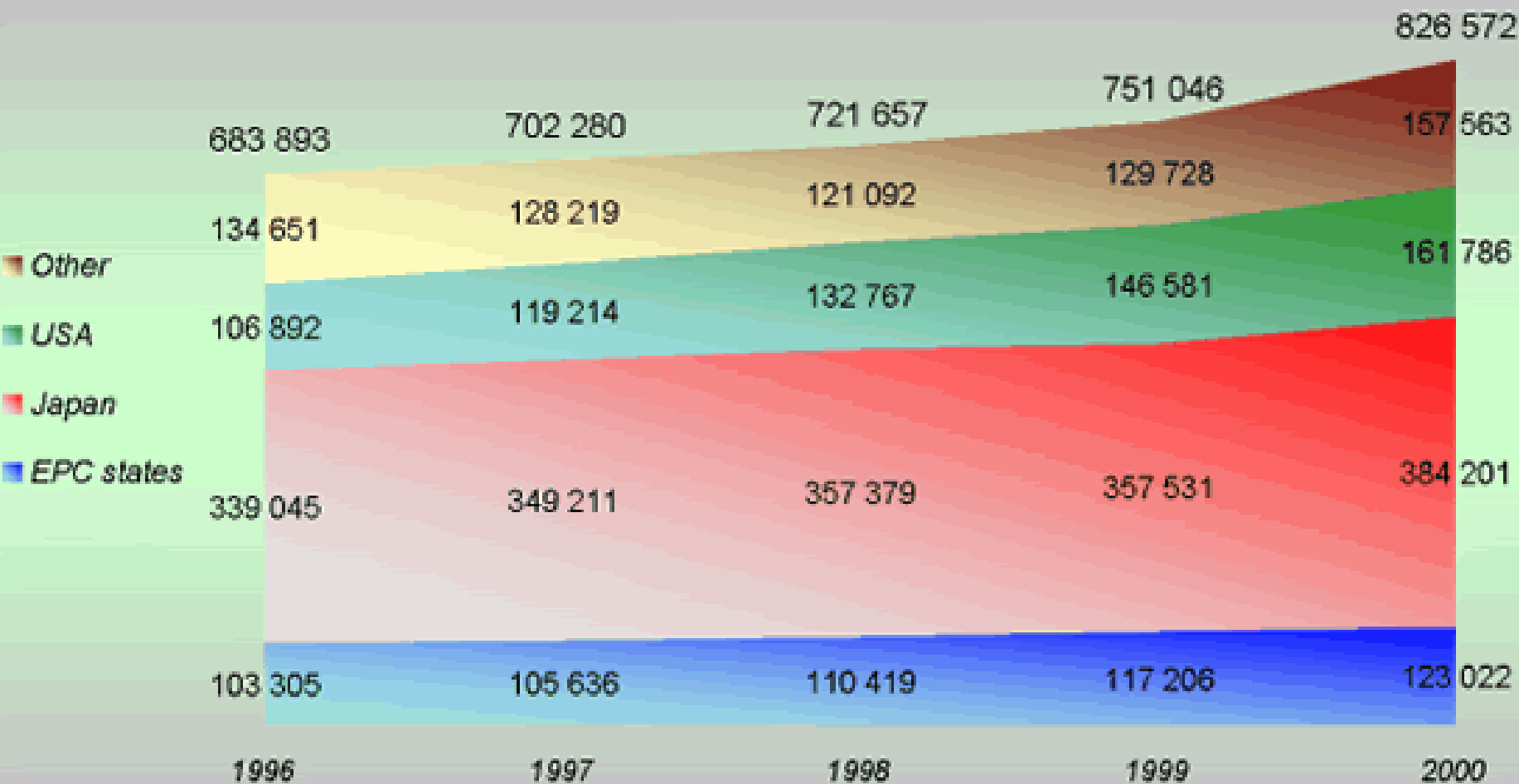
IPR, Innovation and Economic Performance

OECD Breakfast Series in partnership with NABE

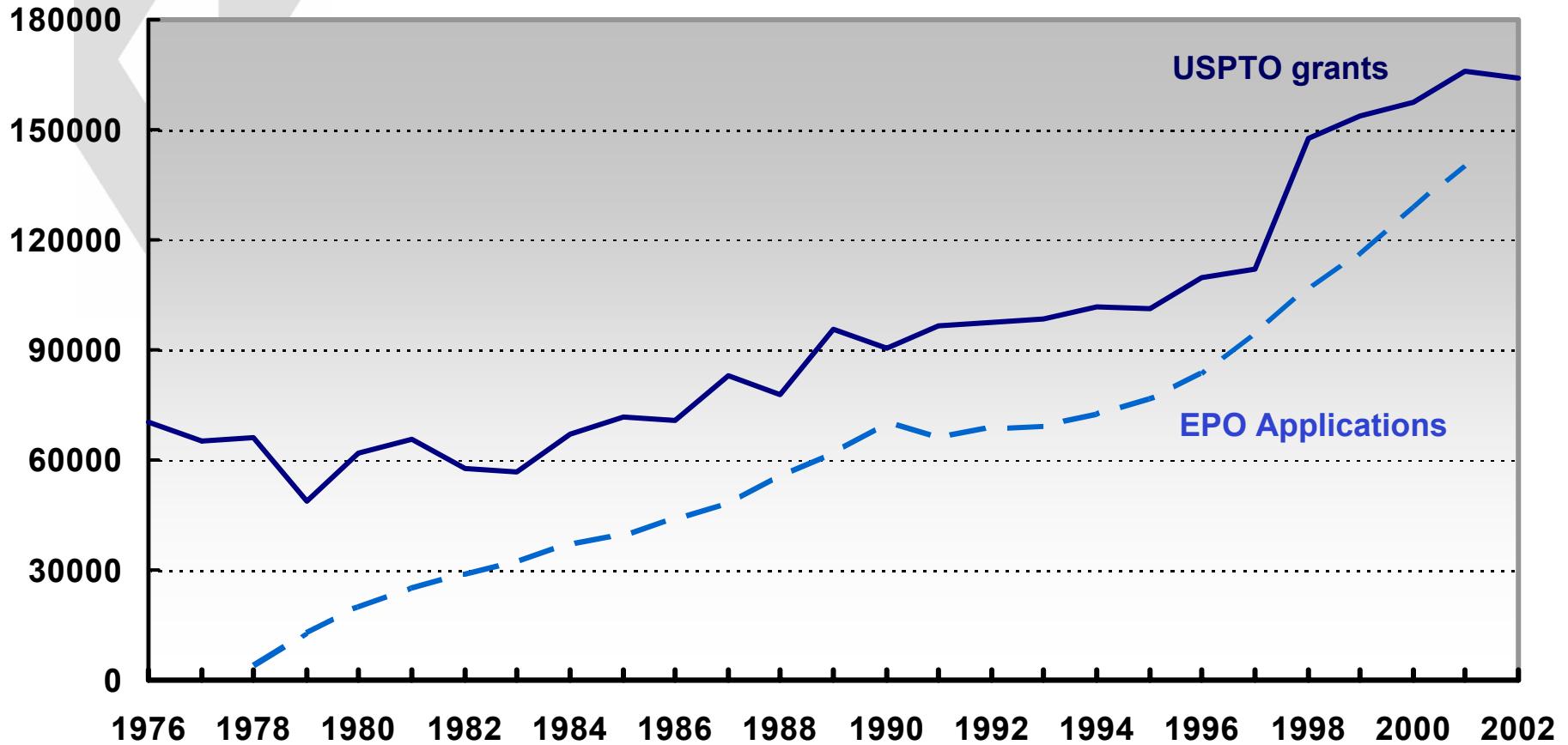
8 April 2003

The large numbers: patenting activity world-wide

Figure 3.3 FIRST FILINGS BY BLOC OF ORIGIN



Patent numbers: grants by the USPTO and applications to the EPO



Patents are increasingly important to the economy...

... and patent-based statistics convey much information on innovative activities:

- Patent counts reflect the innovative performance of the patentee;
- Citations reflect the way an invention feeds in further inventions; the number of citations reflect the value of an invention;
- Co-patenting = technological co-operation;

Drawbacks: not all inventions are patented; not all patents are of the same value etc.

Patent statistics: the OECD project

Aims at building an “*international statistical infrastructure*”, including databases and methodologies accessible to all producers and users.

Activity monitored by a task force with patent offices (WIPO, EPO, USPTO, JPO) and users of indicators (NSF, EC).

OECD patents stats: What has been done

- Data bases: patents filed to most patent offices in the world; “patent families”.
- Indicators soon available on the Internet.
- Methodology: how to count patents (country of invention, priority year, PCT), patent families, technology areas.



Counting patents by priority date

Priority date = date of first filing world-wide
= closest to the date of invention.

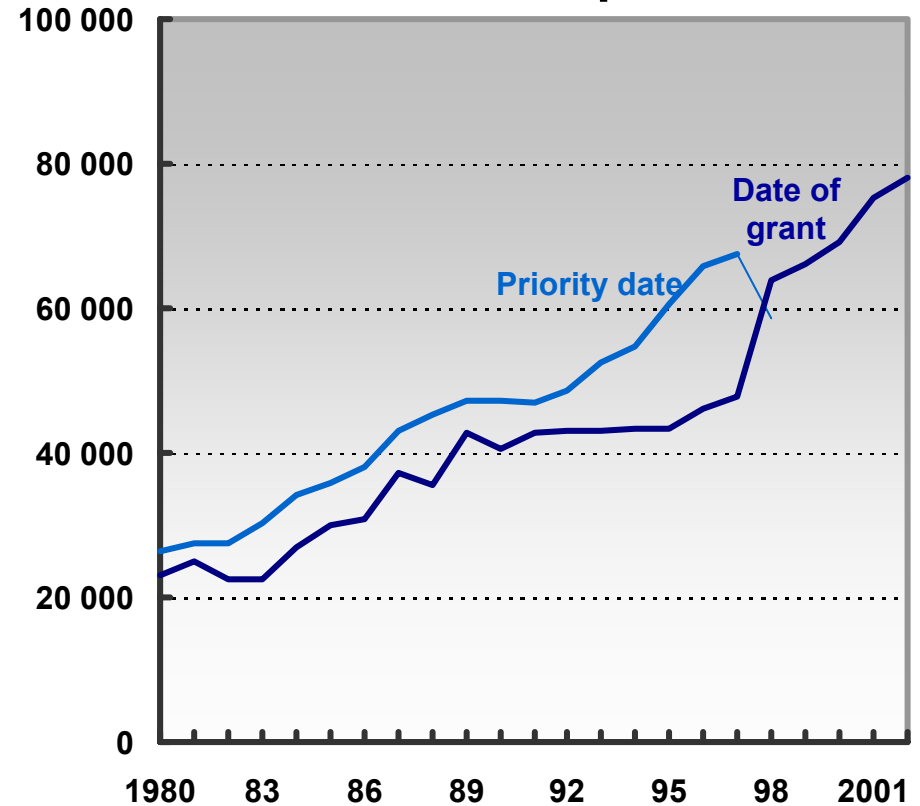
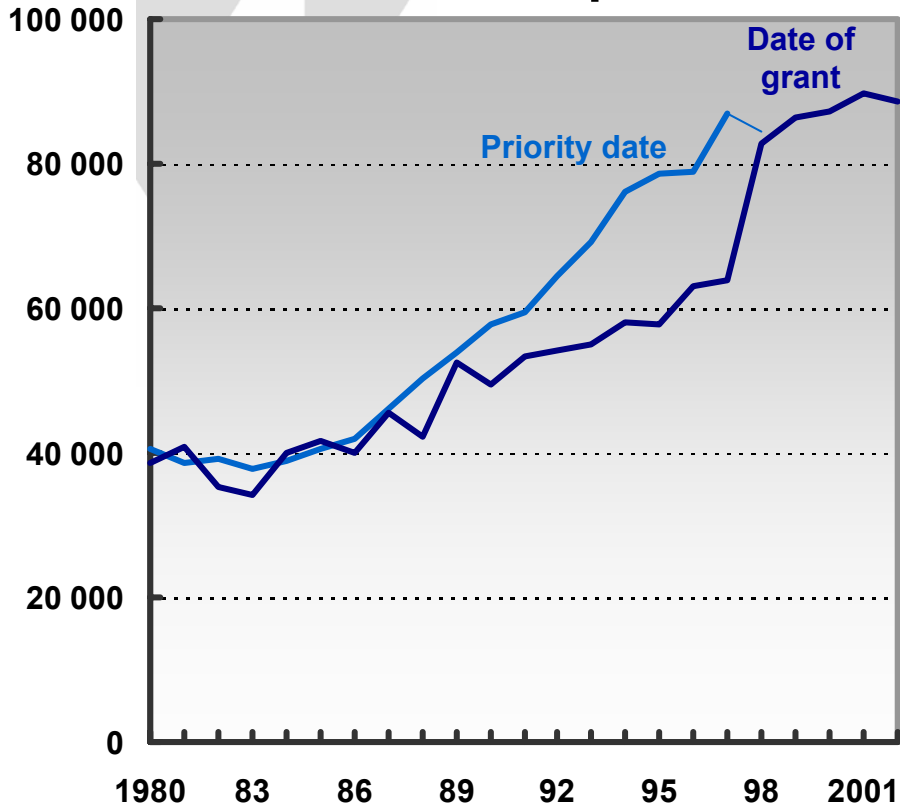
Grant occurs 2 to 5 years after filing (in USPTO).

When counted by priority date instead of grant date,
patent counts offer a different picture of the recent
wave of new technologies:

Number of USPTO patents granted to

US residents patentees

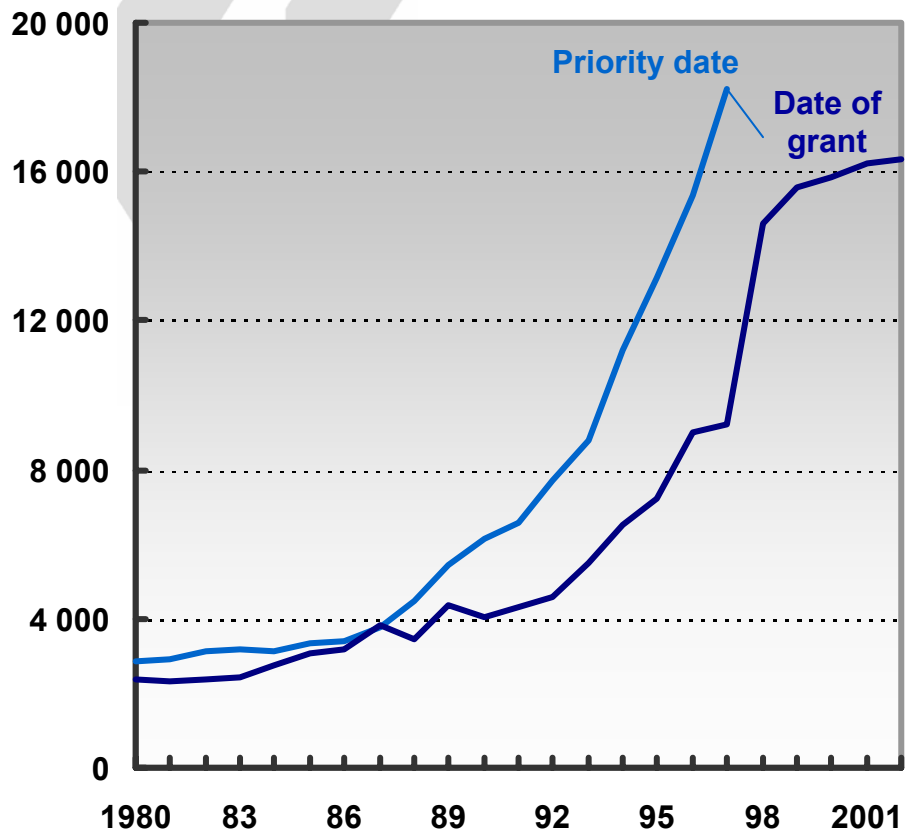
Non-US residents patentees



Source: OECD, 2003

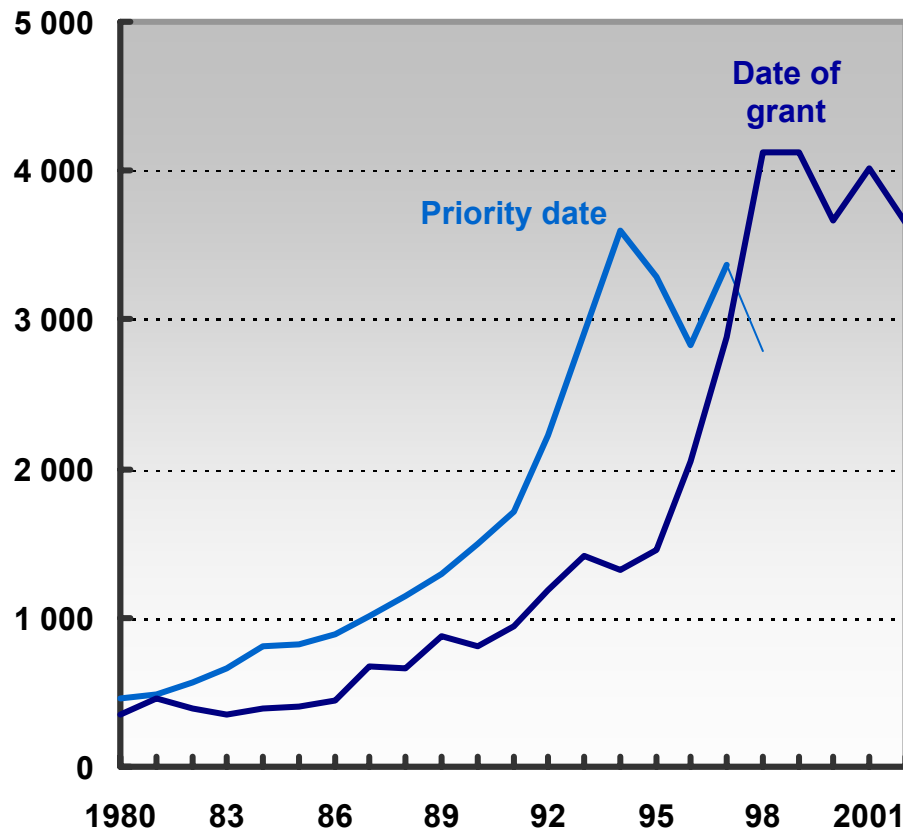
Number of USPTO grants to US patentees

Patents in ICT*



* IPC Classes : G06, G11 and H04

Patents in Biotechnology**



** USPC Class : 435

Source: OECD, 2003

“Triadic “ patent families

A triadic family is a set of patents applied to EPO and JPO and granted by USPTO protecting the same invention.

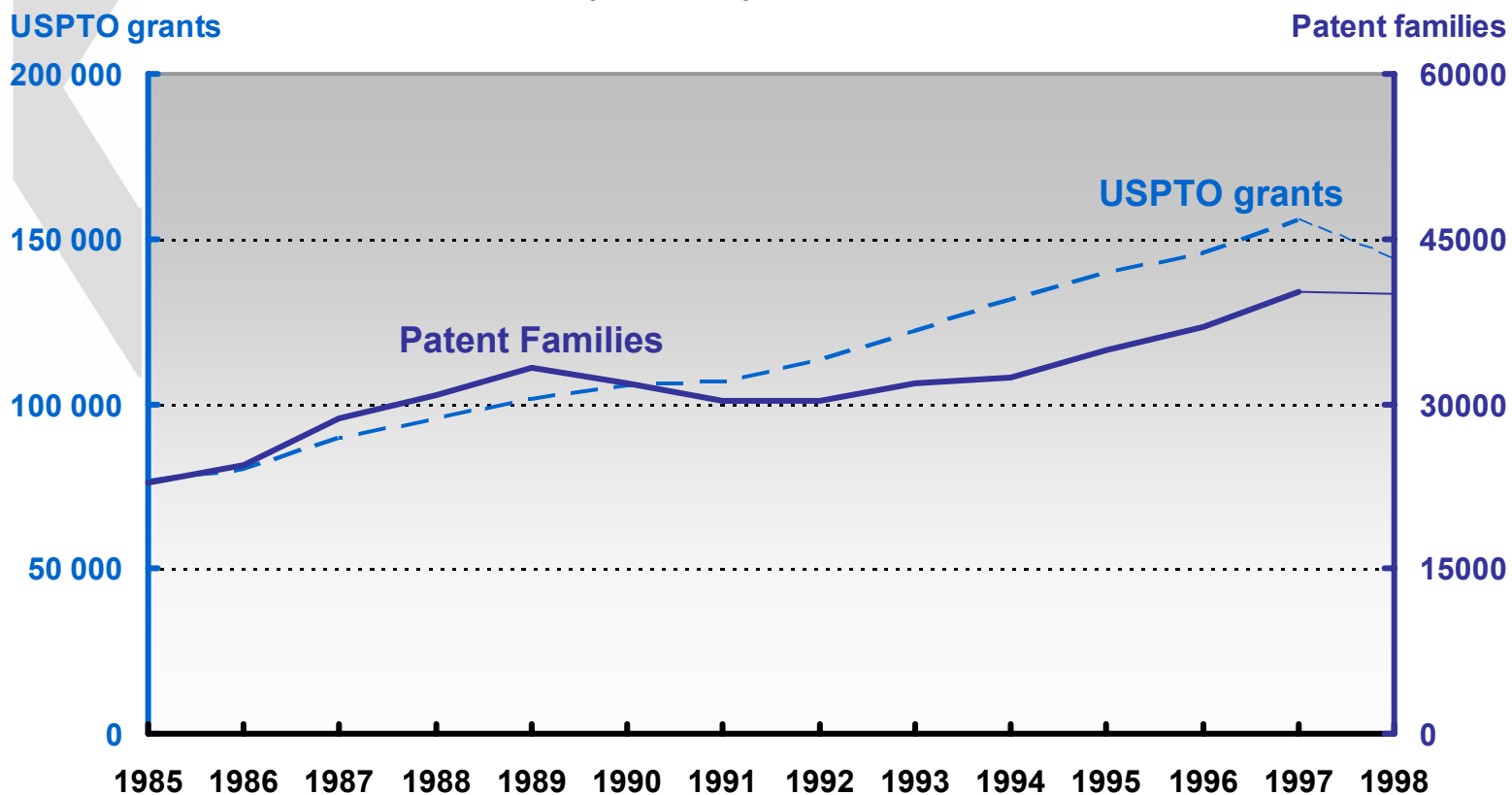
Advantages (for statistics) over single country patents: less subject to changes in law occurring in a single country, select inventions of higher value, little cross country bias (no home advantage).

“Triadic “ patent families

The difference it makes as compared with USPTO patents:

- The surge in patenting over the 1990s is less impressive;
- The respective contribution of countries to technical change is more balanced.

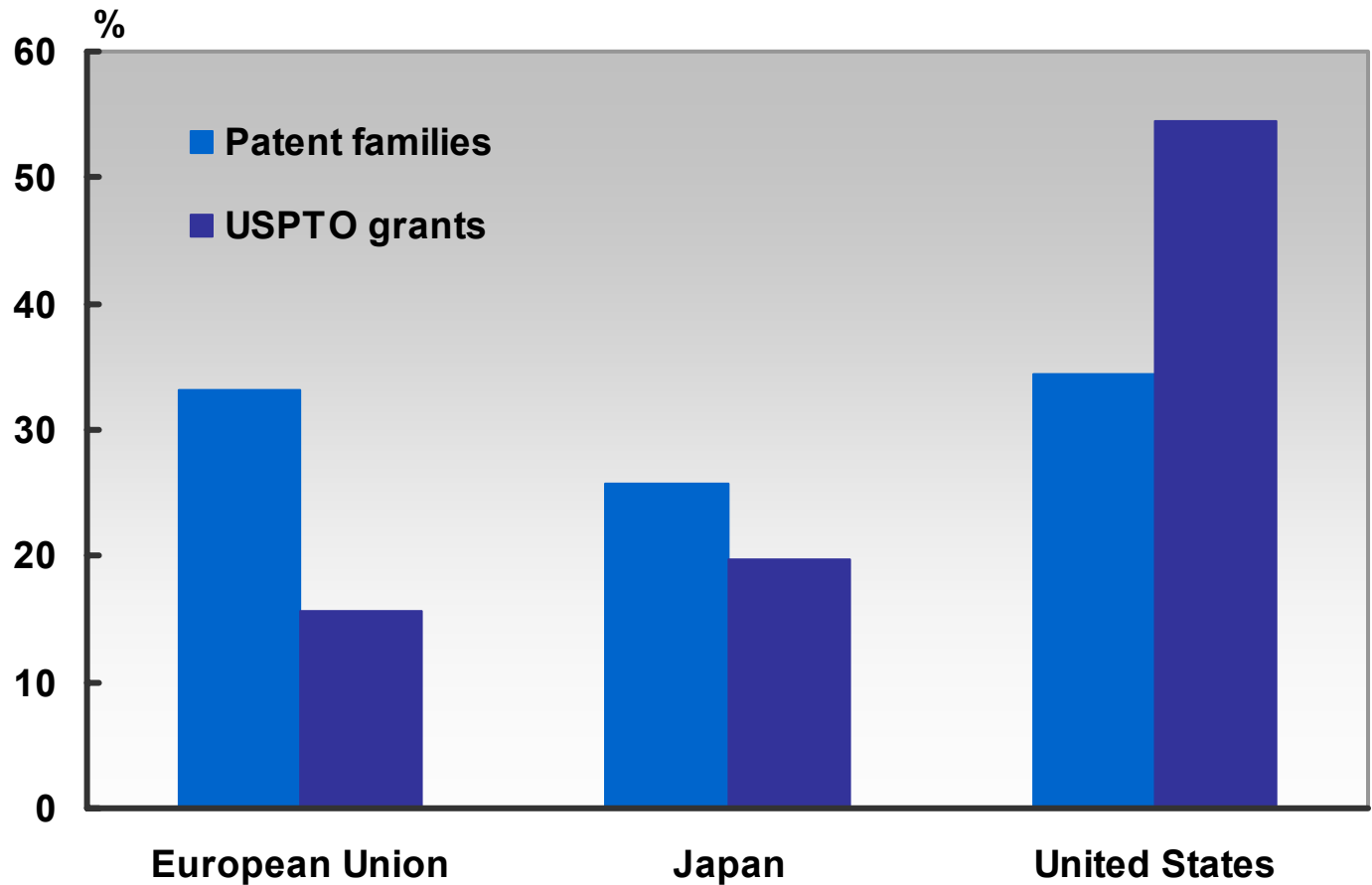
USPTO Patents and Triadic Patent families* by priority date



* USPTO-EPO-JPO
Source: OECD, 2003

Patent Families and USPTO grants

country shares, priority date 1997



Source: OECD, 2003

IPR, innovation and economic performance

Aim of the project: Provide policy-makers with factual evidence and analysis that shed light on the policy debates, and sets out implications for the development of IPR regimes that contribute more efficiently to innovation and economic performance.

Six complementary modules:

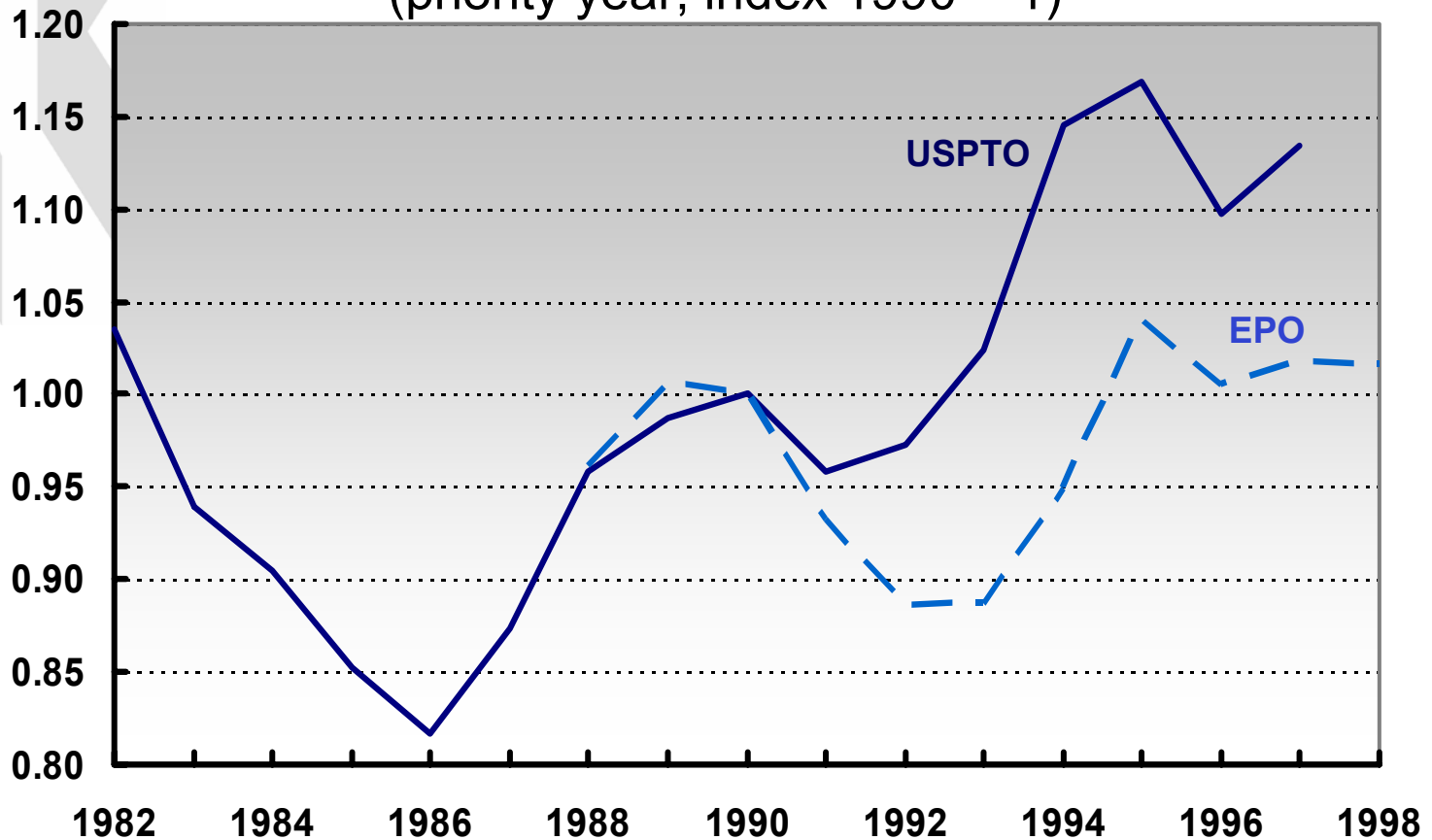
- New conditions for knowledge appropriation and diffusion
- Public Research Organisations and basic science
- Biotechnology
- IPR for software and services
- Impact of IPR on invention, diffusion and economic performance
- Policy implications

Recent legal changes in patent regimes

- Over the past two decades there have been broad changes in patent regimes in all countries and at an international level.
- The general direction, world-wide, is towards **strengthening of patents**, meaning an extension of the patentability subject matter and enhanced rights for patent holders.

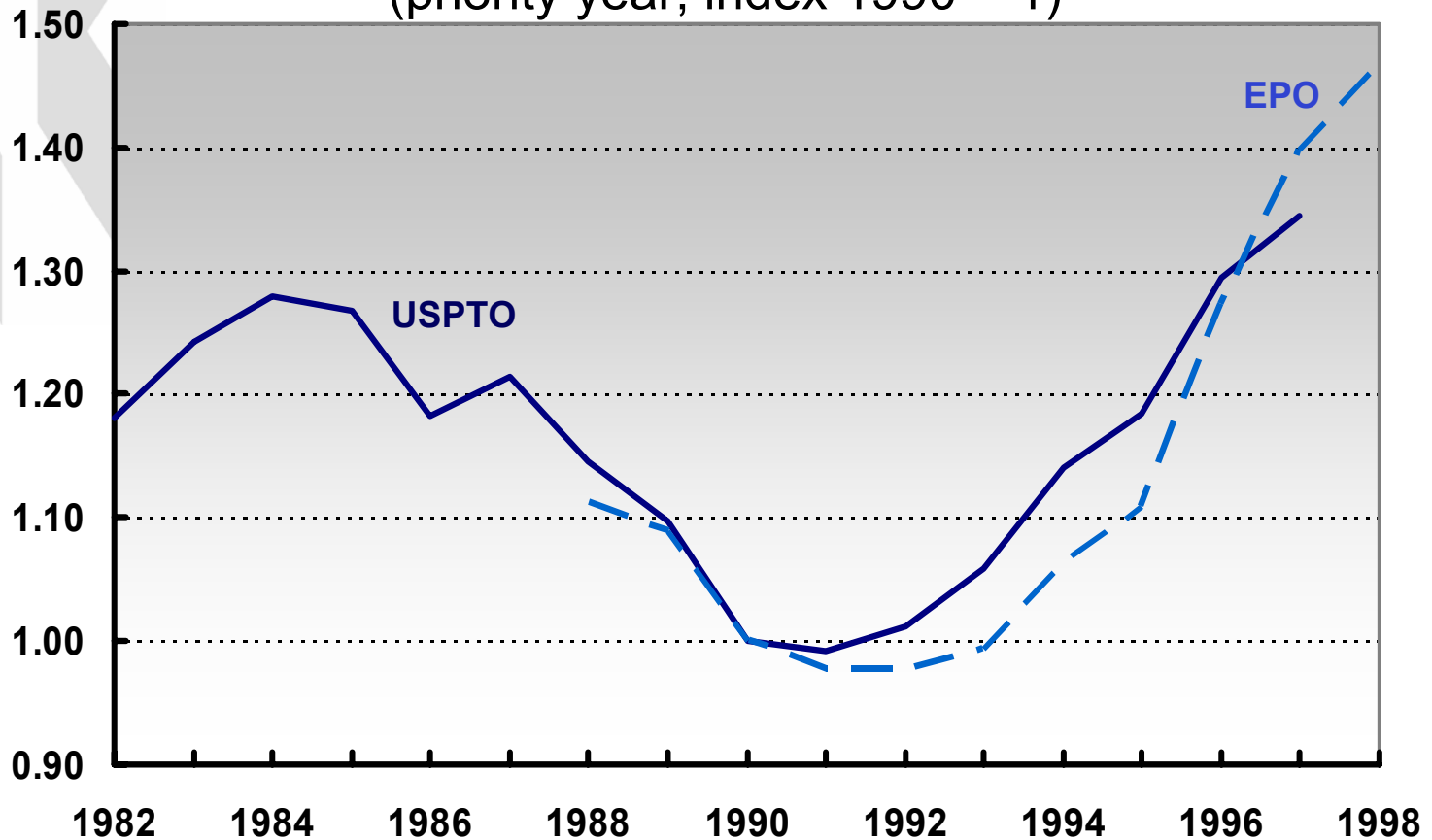
Are legal changes the reason for the « patent explosion »? (1)

Patents over BERD financed by industry, US
(priority year, index 1990 = 1)



Are legal changes the reason for the « patent explosion »? (2)

Patents over BERD financed by industry, EU
(priority year, index 1990 = 1)



Are legal changes the reason for the « patent explosion »? (3)

- The primary reason is probably an increase in the number of inventions connected with the growth in R&D expenditure...
- ... But the number of patents per R&D dollar has increased over the 1990s, reversing a several decades-long trend. There is room for other explaining factors, such as changes in market structure, emergence of new technologies... and changes in patent legal regimes.
- What are the major changes in legal regimes across OECD?

Governance structure of the patent system

Bodies in charge of managing the patent system have been reinforced:

- US: Creation of the **CAFC** (1980)
- Europe: **EPO** (created in 1978; grants stronger patent than national ones)
- World-wide: **WTO** is in charge of enforcing the TRIPs agreements (1995) = upward harmonisation of patent law, enforcement power.

Expansion of the subject matter

- Software: could be patented in the US and Japan with no restriction; in Europe software “as such” is not patentable (only if it has a “technical effect”).
- Business methods: can be patented in the US with no restriction; to a large extent in Japan (if the invention makes some “technical contribution to the art”); not patentable in Europe: but 40% of class 705 grants in the US have been applied in Europe, and the grant rate there is similar to other categories.

Expansion of the subject matter (2)

- Biotechnology: DNA strings (notably ESTs) can be patented; often broad patents (covering not yet identified applications), esp. in the US. EPO seems to avoid broad patents: see the Viagra case.

Courts have not yet issued a clear message regarding the validity of such broad patents in the US (esp. granted prior to 2001) = legal uncertainty.

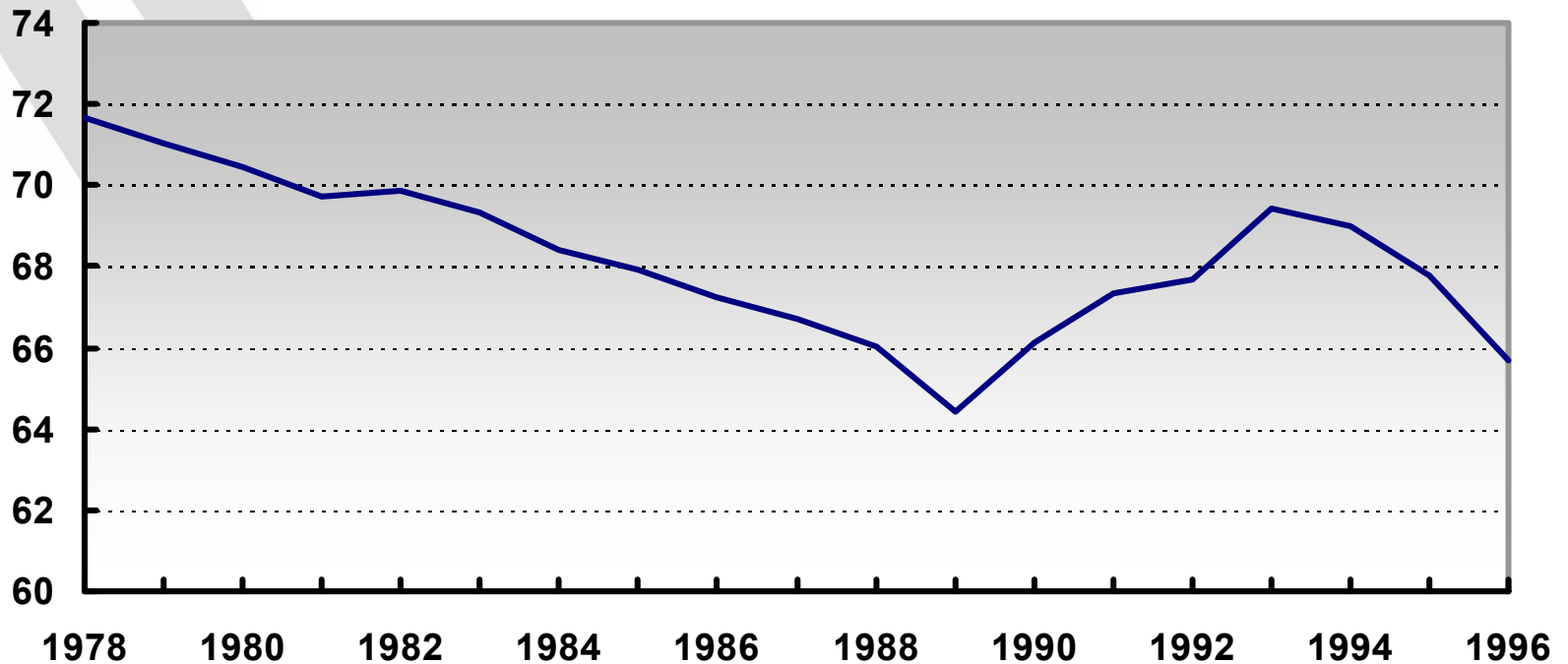
A weakening of patenting requirement?

- Problem raised in the US:
 - Many examples of low quality patents granted in the US (e.g. “Swinging on a swing”, 2002)
 - Quillen and Webster : grant rate at USPTO between 87 and 97% in the US
- Grant rate in EPO seems to be stable over time, around two thirds.

Grant rate, EPO and USPTO?

EPO grant rate

(percentage of patent applications to the EPO resulting in a grant, by year of application)



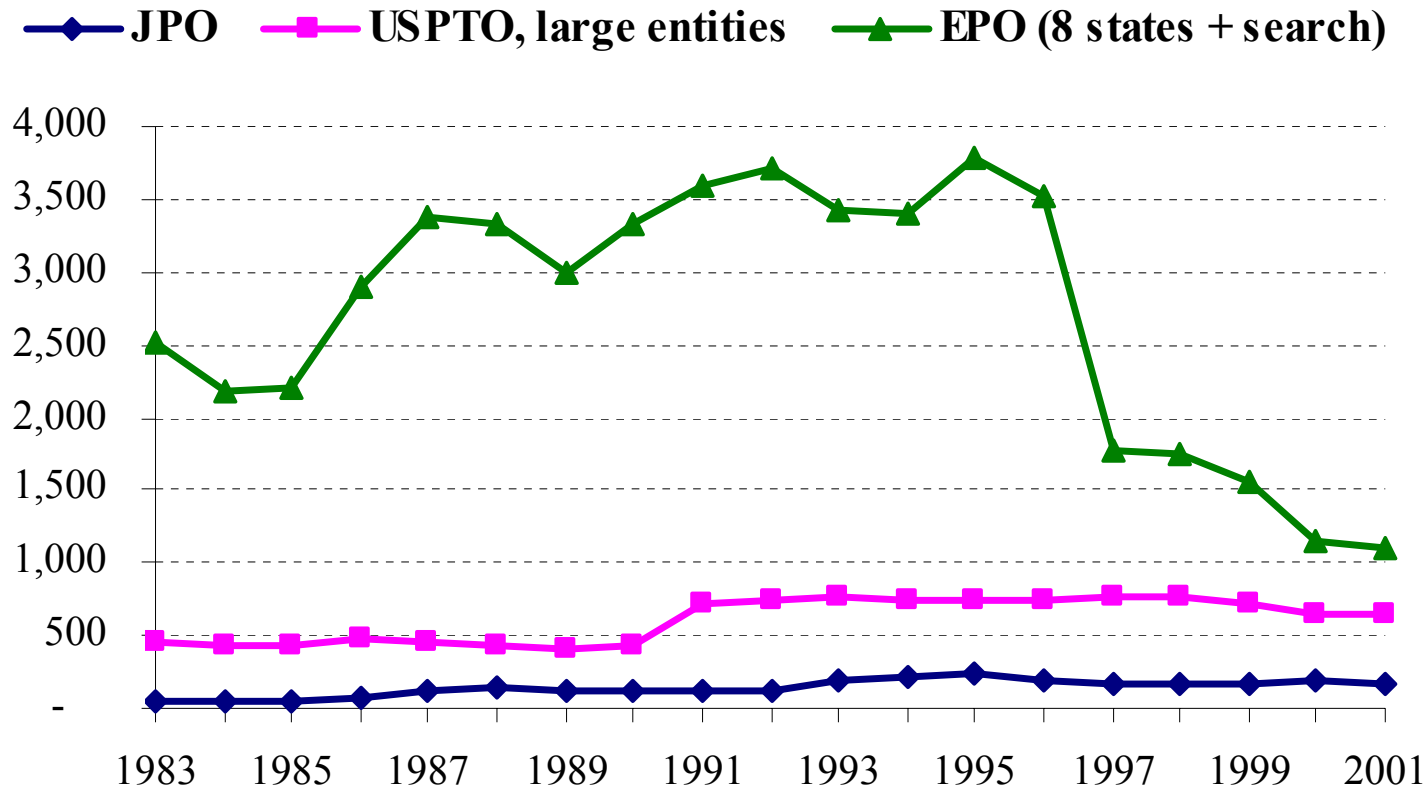
Scope of protection

- Well publicised cases of patents covering major components of the Internet; problems also with DNA patents.
- The problem is raised especially in new areas (software, BM, biotech).

Exemptions for research use

- Never explicitly allowed – but “tolerance” for universities.
- US CAFC ruling, 2002: No exemption for research, except if conducted for the sake of curiosity or philosophical reasons.
- Europe: such exemption is mentioned in the preamble to the EPC, but not in the text itself: the legal status is uncertain...

Application Fees in EPO, JPO and USPTO (USD, 1996 prices)



More flexibility in patenting procedures

- PCT: gives 30 months more (in addition to the one year priority) before deciding whether to apply or not at an international level.
- USPTO provisional application, 1995.
- Examination deferrals introduced in the US
- Shortened (from 7 to 3 years) in Japan
- Petty patents introduced in 25 countries since 1990.

Conclusions

Patent regimes have experienced in-depth changes over the past two decades that reveal a common trend towards

strengthening patent protection:

- expanded domain of patentability
- enhanced rights of patent holders

The trend continues:

- Final agreement on the Community patent (March 2003)
- Substantive Patent Law Treaty under discussion at WIPO
- Recent statements at PTOs reflecting pro-patent stance and objectives