



Productivity growth in OECD economies: Prospects for recovery?

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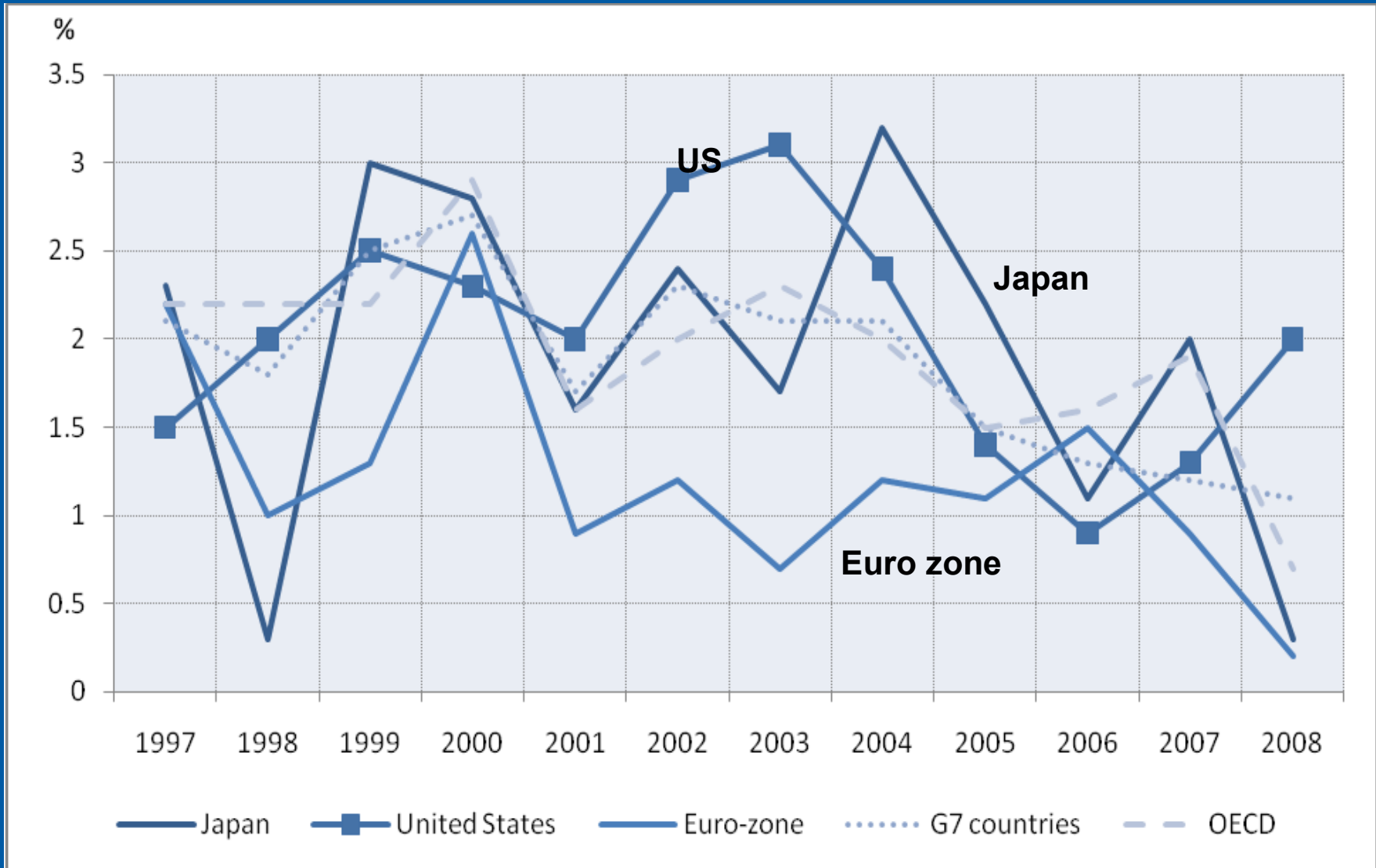
Some references used in this presentation

- Dupont, Guellec and Oliveira Martins (2010), “Productivity gaps across OECD in the 2000s: sectoral effects and innovation”, *OECD Working Paper*
- OECD on Innovation and the Crisis, webpage at oecd.org
- OECD (2009), Policy Responses to the Economic Crisis: Investing in Innovation for Long-term Growth, June 2009
- OECD Innovation Strategy report, 2010
- OECD Measuring Innovation, 2010
- OECD Interim Green Growth Report, 2010

Motivation

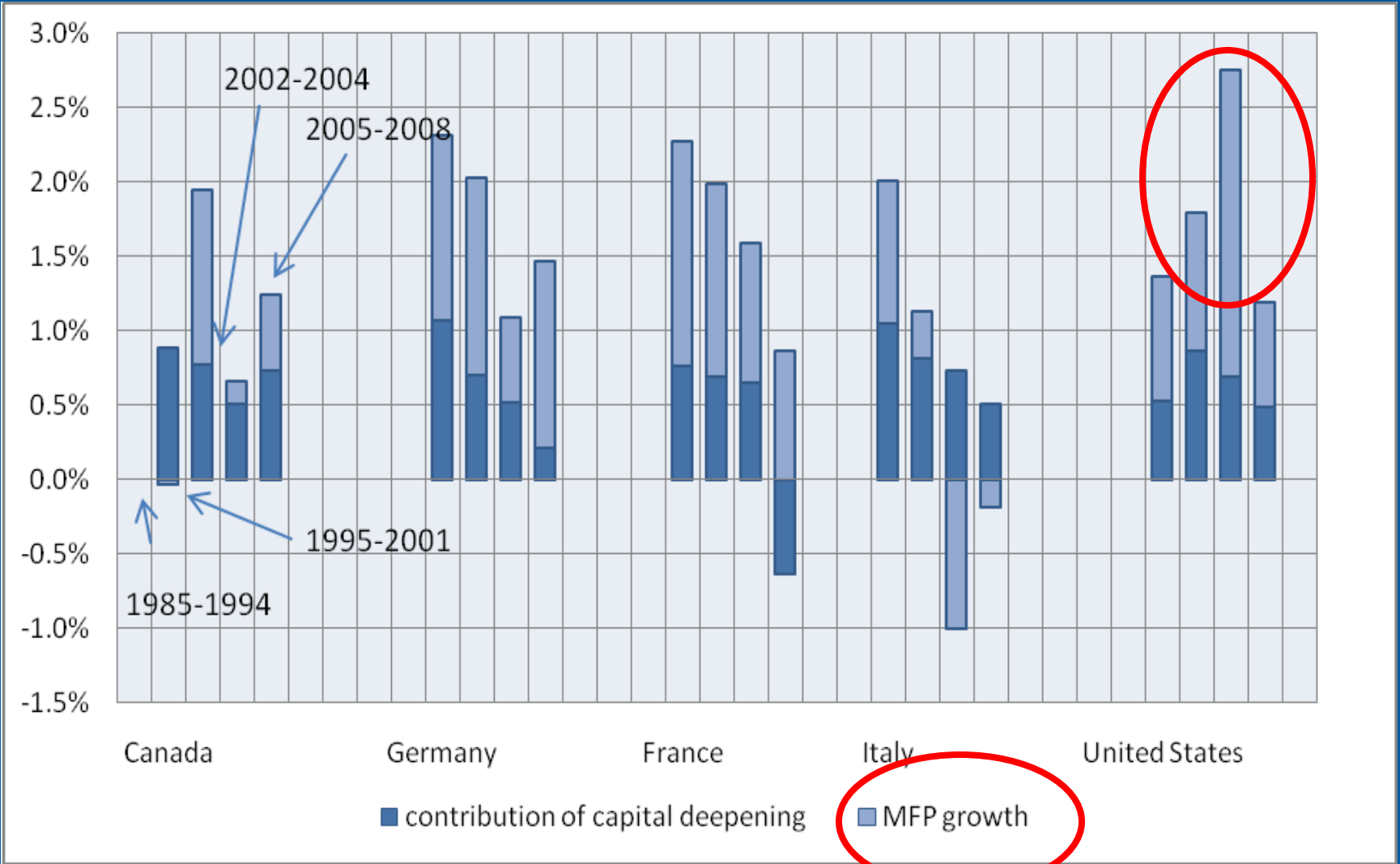
- The causes of divergence in Multi-Factor Productivity (MFP) performance are generally attributed to a gap in terms of structural policies, but the picture become more complicated just before the crisis
- Comparing the main productivity trends in US, EU and Japan since 2000, there is a noticeable decline before the financial crisis
- When and why productivity slowed down?
 - When? Before the crisis, labour productivity converged to the bottom
 - Why? Decline in innovation?
- What prospects for innovation ?

US vs. EU: convergence and divergence of growth in GDP/hour worked





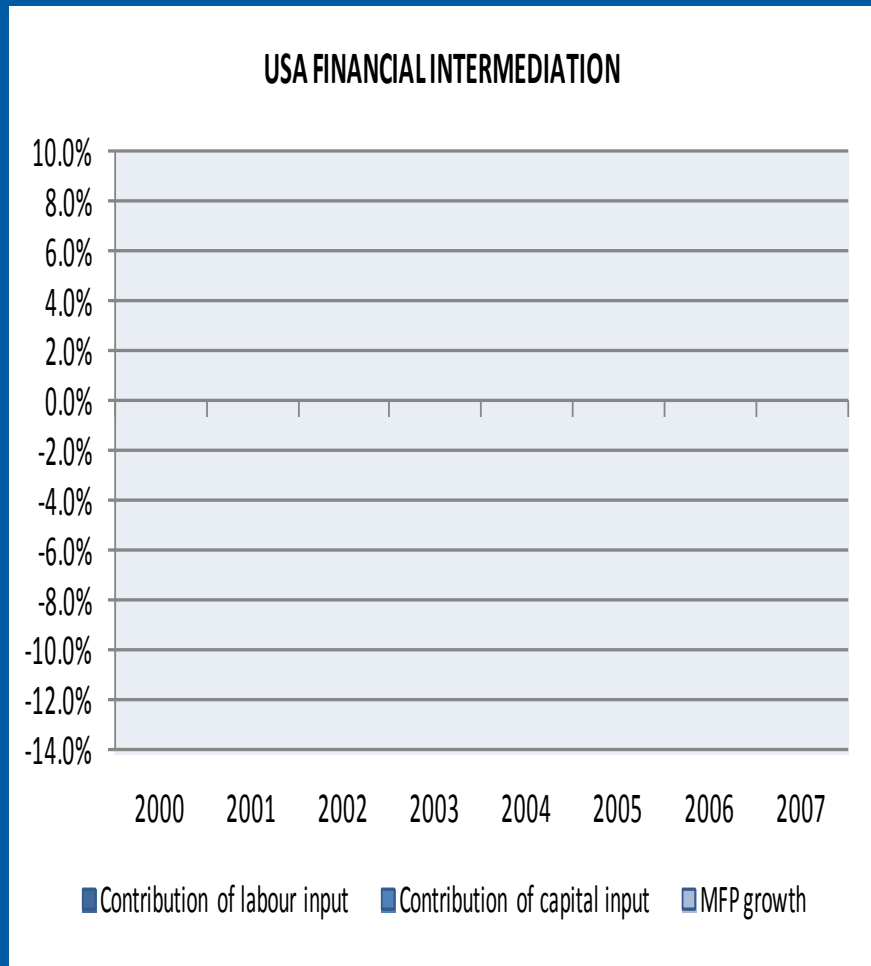
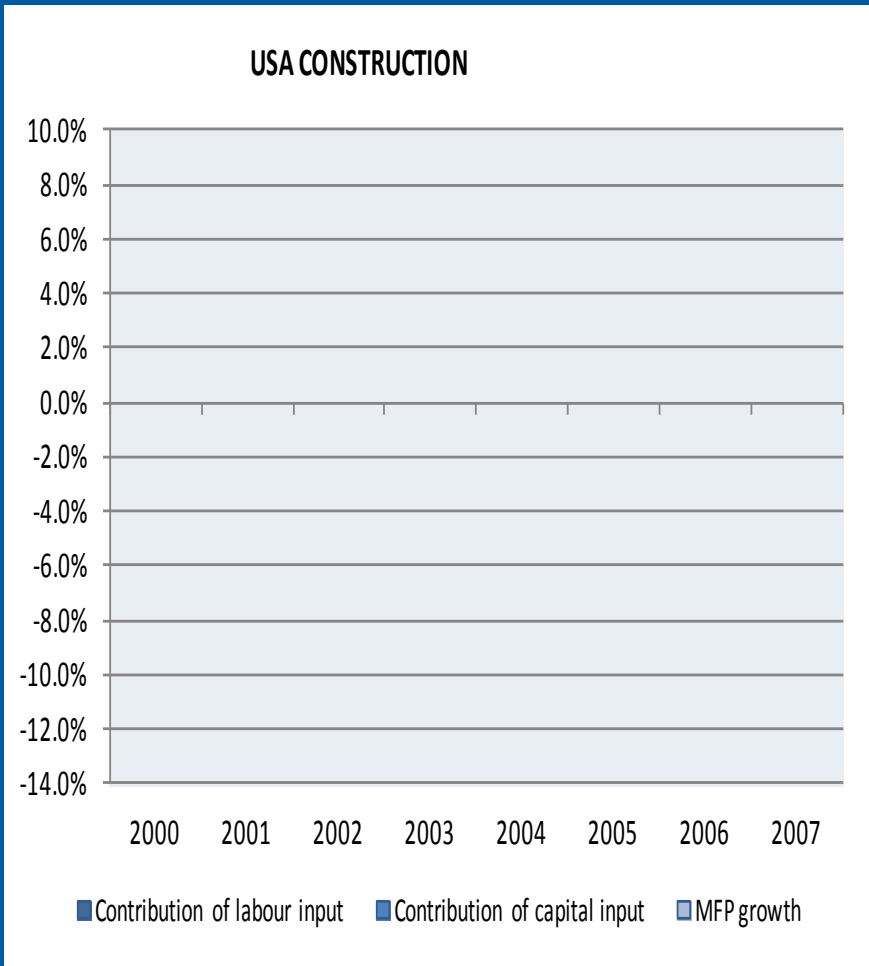
What drove the decline in the GDP/hour growth?



- Lower contribution of capital deepening
- Marked differences of MFP growth across countries

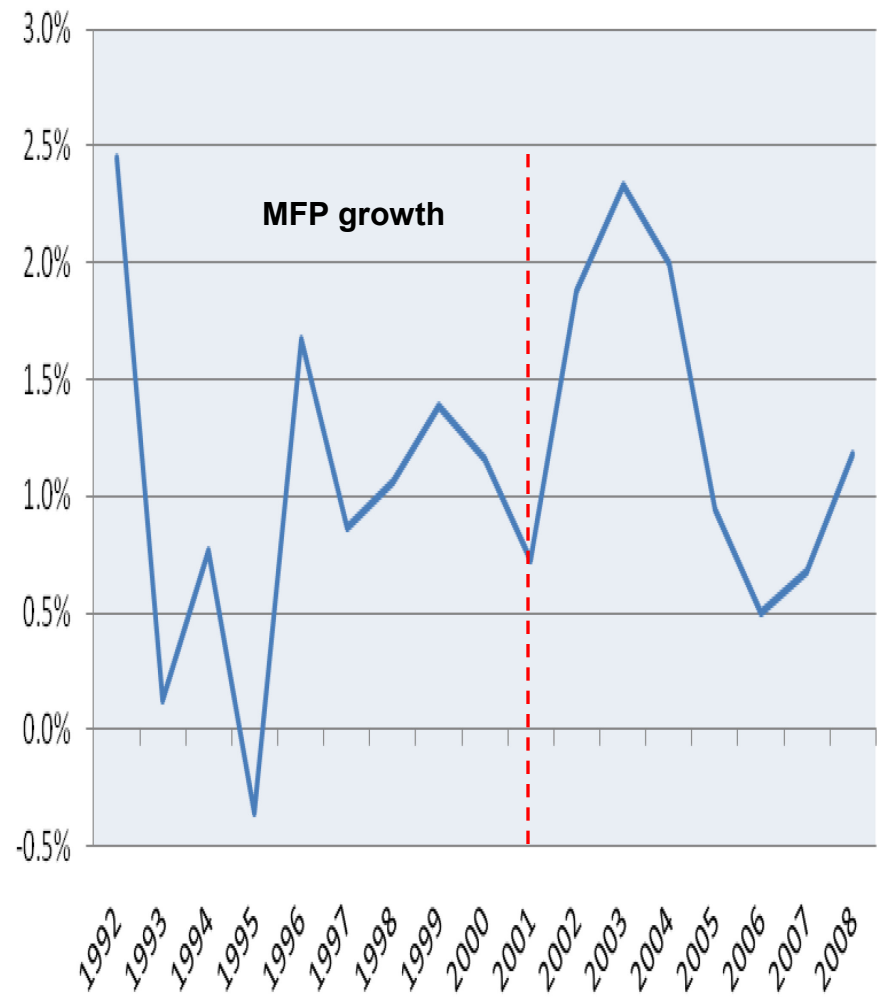
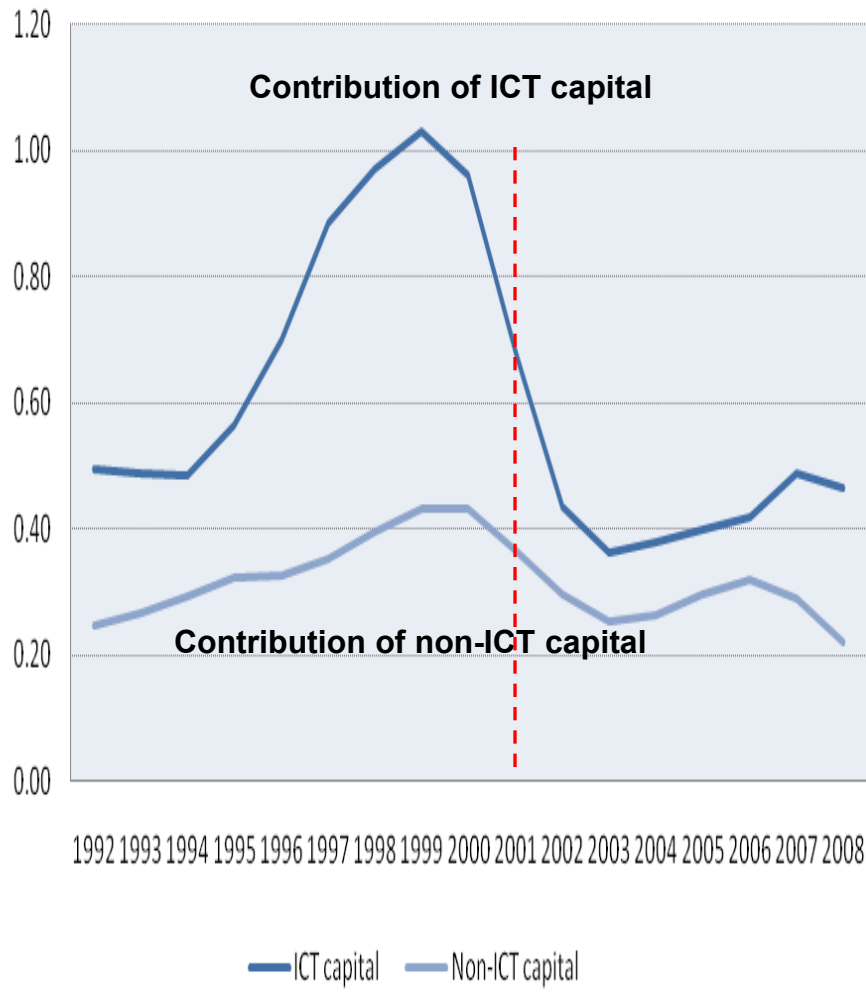


Some sectors were particularly responsible for the slowdown of productivity in the US



- Growth accounts $Y=A.F(K,L)$

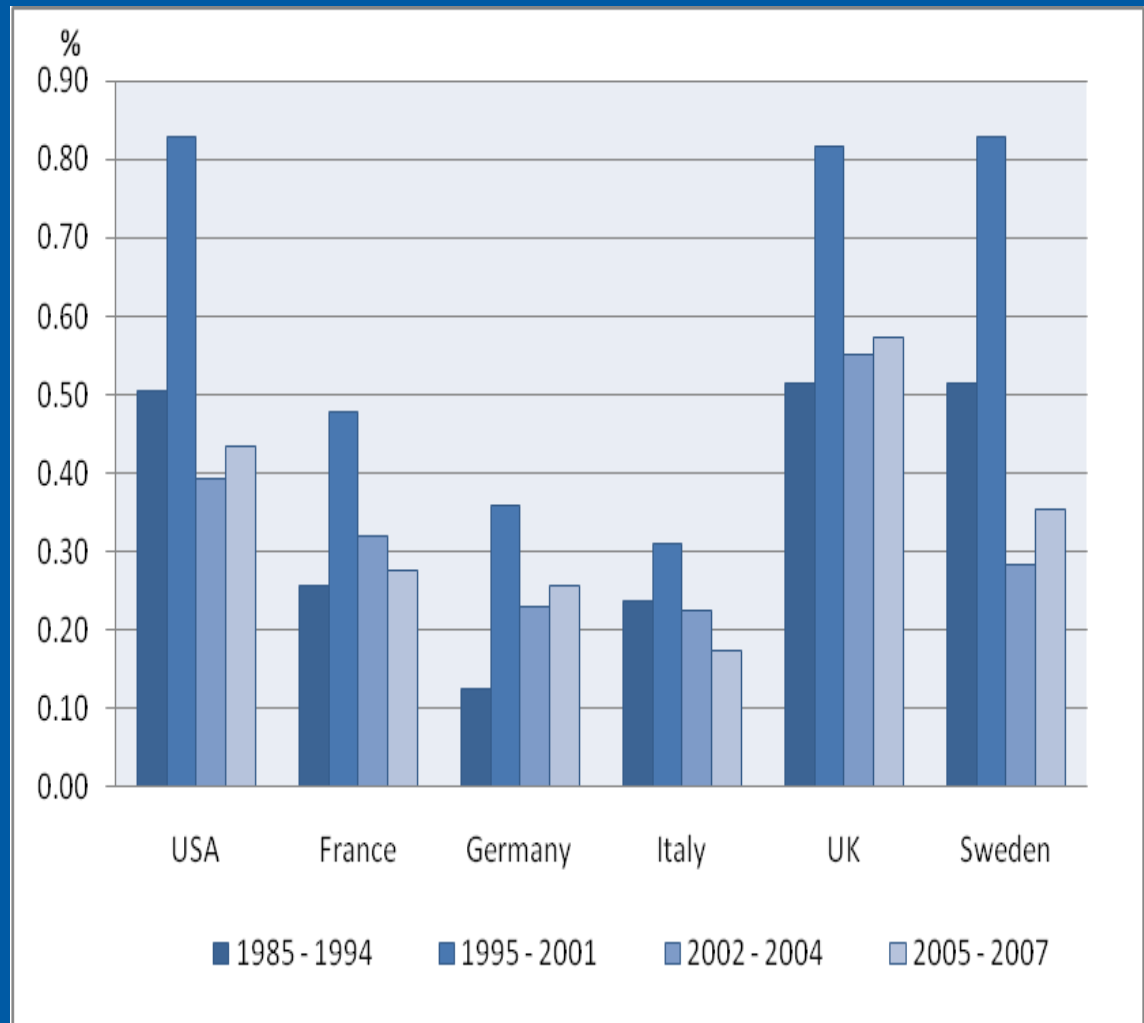
The marked decline in ICT capital contribution to growth and MFP trends in the US



➔ The decline in innovation could explain the slowdown in MFP, which occurred with a certain lag.

The contribution of ICT capital to GDP growth also declined in European countries

- Comparing 1995-01 with 2002-04, the sharp decrease in the contribution of ICT capital is noticeable in all countries, although it was less significant in France, Germany and Italy then in Sweden, the UK or the US

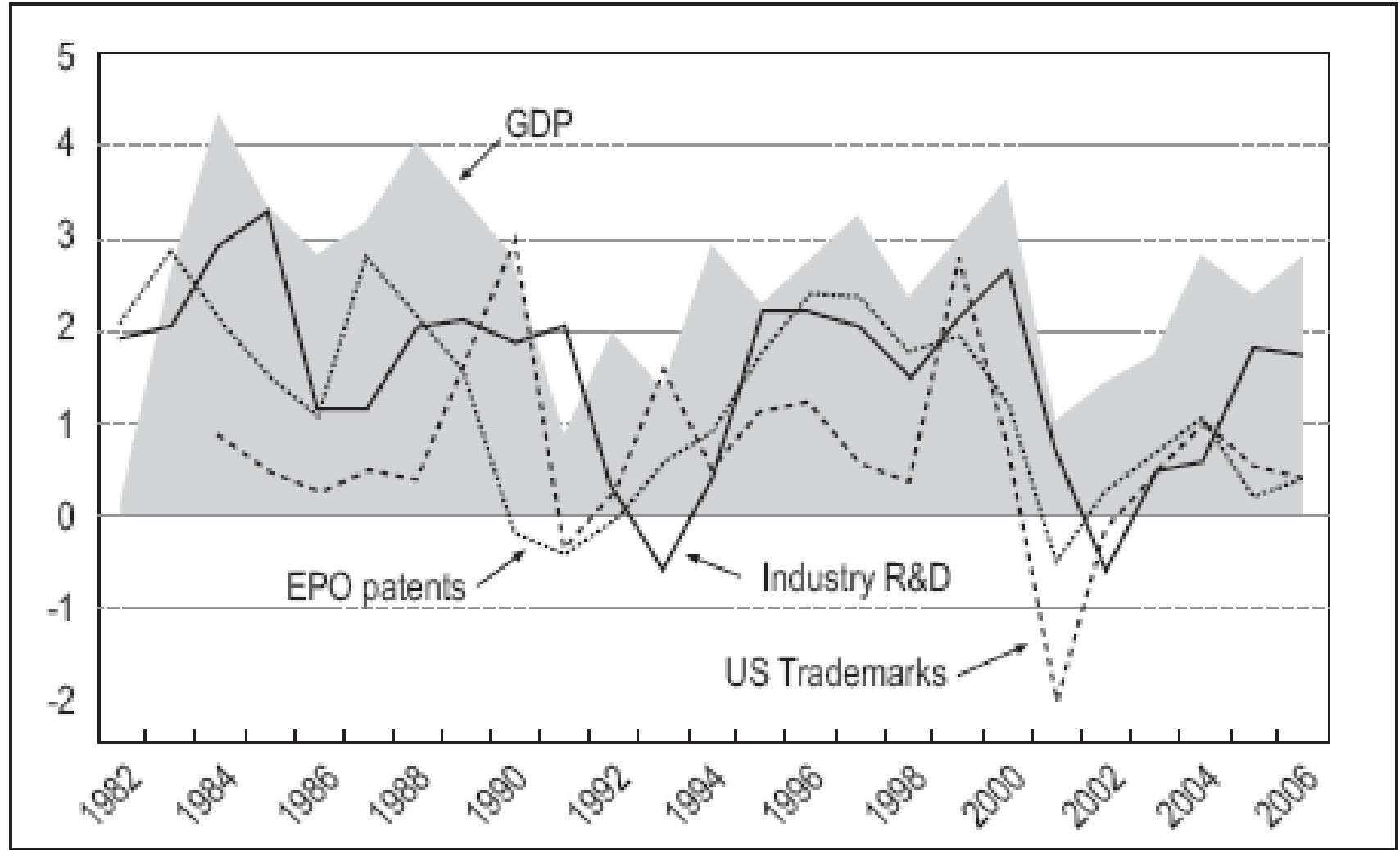


What could explain these changes in productivity?

- Before the crisis, the decline in ICT capital could be associated with a subsequent decline in innovation.
 - During the crisis, the rebound in labour productivity in the US is mainly associated with adjustment of labour inputs and may not be sustainable because innovation is highly pro-cyclical and its effect will take time to resume
 - In the EU the decline in productivity is mainly due to more rigid labour & product market markets
- This pattern should reverse during the recovery, as employment in the US tends to grow faster than the OECD average

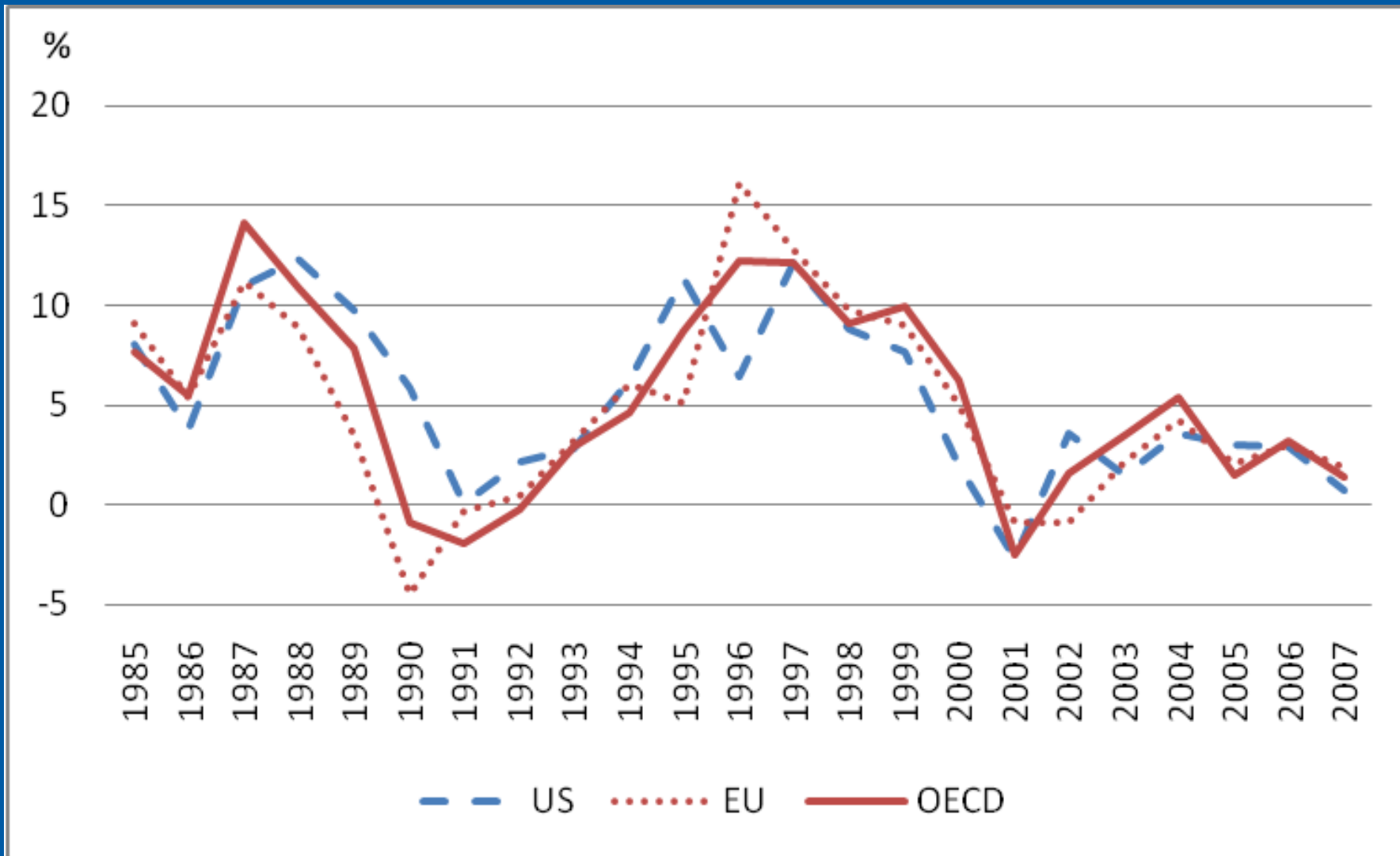
Innovation is highly pro-cyclical...

Annual growth rate for the total of OECD countries; divided by standard deviation



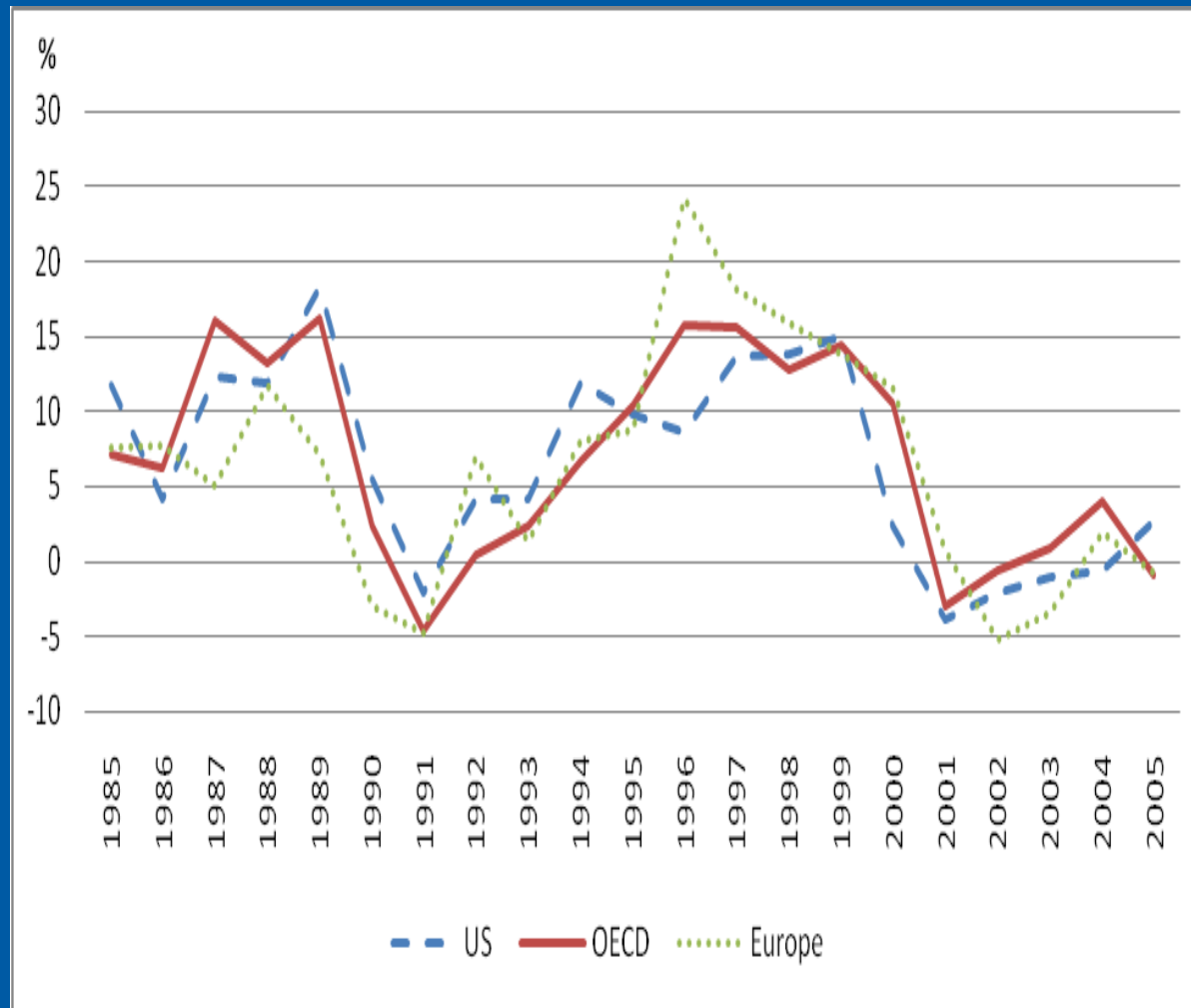


... and patent applications never recovered from the highs of the 1990s (in % growth)



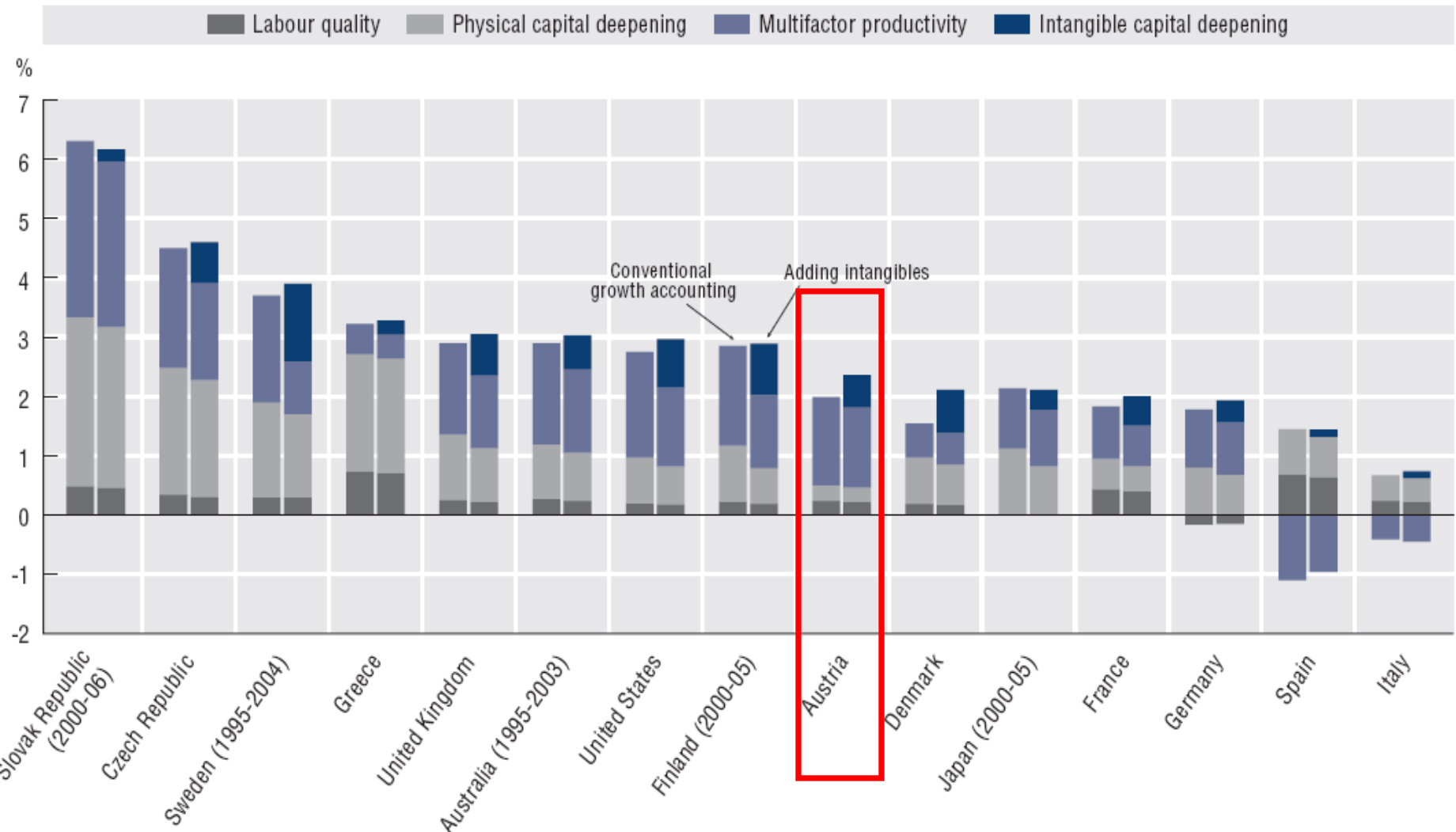
...in particular ICT-related patents

- ICT Patents represent more 1/3 of all applications
- For the OECD, they increased by around 15% a year in the second half of the 1990s, but were down to about 0-5% in the 2000s



Caveat: Intangible assets

Labour productivity growth: adding the contribution of intangible assets, 1995-2006



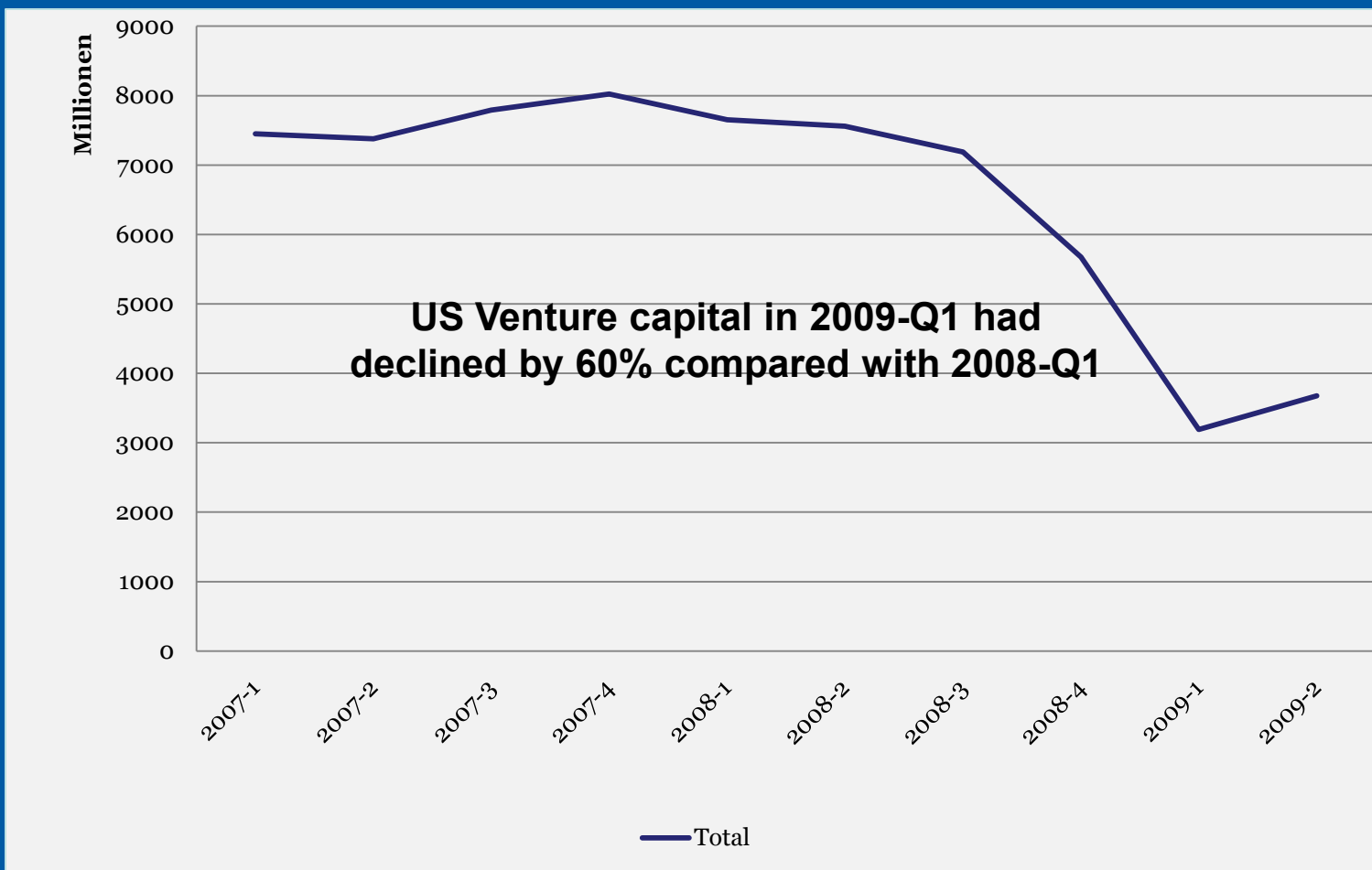
**RATHER THAN THE DETERIORATION IN THE REAL
ECONOMY BEING ONLY CAUSED BY THE
FINANCIAL CRISIS, THE PRODUCTIVITY DATA
SUPPORT MORE A COMPLEX RELATIONSHIP**

WHAT NEXT?

Investment in innovation may continue to suffer

- As private investment in innovation is highly pro-cyclical its impact is likely to be biased against firms that are more dependent on external financing (e.g. SMES & start-ups) and against Product innovation, as opposed to cost-cutting measures
- Risk of negative feedbacks on public research
- Reduced propensity to invest in ICTs and human capital and lower incentives to innovate for a greener economy

Sharp decline in Venture capital



Source: OECD calculations, based on PricewaterhouseCoopers/National Venture Capital Association MoneyTree™ Report.

Other adverse effects of the crisis

- Corporate quarterly reports in many cases show a decline or slower growth in R&D spending and Surveys indicate that most businesses expected to spend less on a R&D
- At the same time, banks, markets and investors have become more risk averse.
- Business R&D is being re-oriented towards short-term innovations, while high risk innovation ones are being cut.
- Consolidation leading to less competition and increased risk aversion
- Unemployment depreciates human capital

But the crisis also offers opportunities

- Can magnify the competitive advantage of R&D-intensive firms, reinforcing market leadership through increased spending on innovation (Microsoft or Nokia were born or transformed in the “creative destruction” of economic downturns)
- The crisis is a game-changer and activates “creative destruction”

➔ *Policies could help these changes*

- Stimulus packages may stimulate innovation
- Next-generation broadband, smart grid, digital healthcare records, etc.
- Green technologies

Fostering a networked recovery

- Invest in broadband networks: such networks lower the barriers to entrepreneurial activities
- Provide means to deliver important social services (training, education)
- These investments are needed for making “smarter” other investment (green buildings, the grid, etc.)
- But governments should seek to maintain a competitive environment, so as to minimise cost and maximise benefits: notably in terms of accessibility (non discriminatory basis for access)

Knowledge & networks

- Knowledge has the characteristics of a public good and is increasingly produced in a decentralised way in social networks
- This generates complementarities between economic efficiency and social dimensions
- An important role for social and open innovation (e.g. wiki-model)

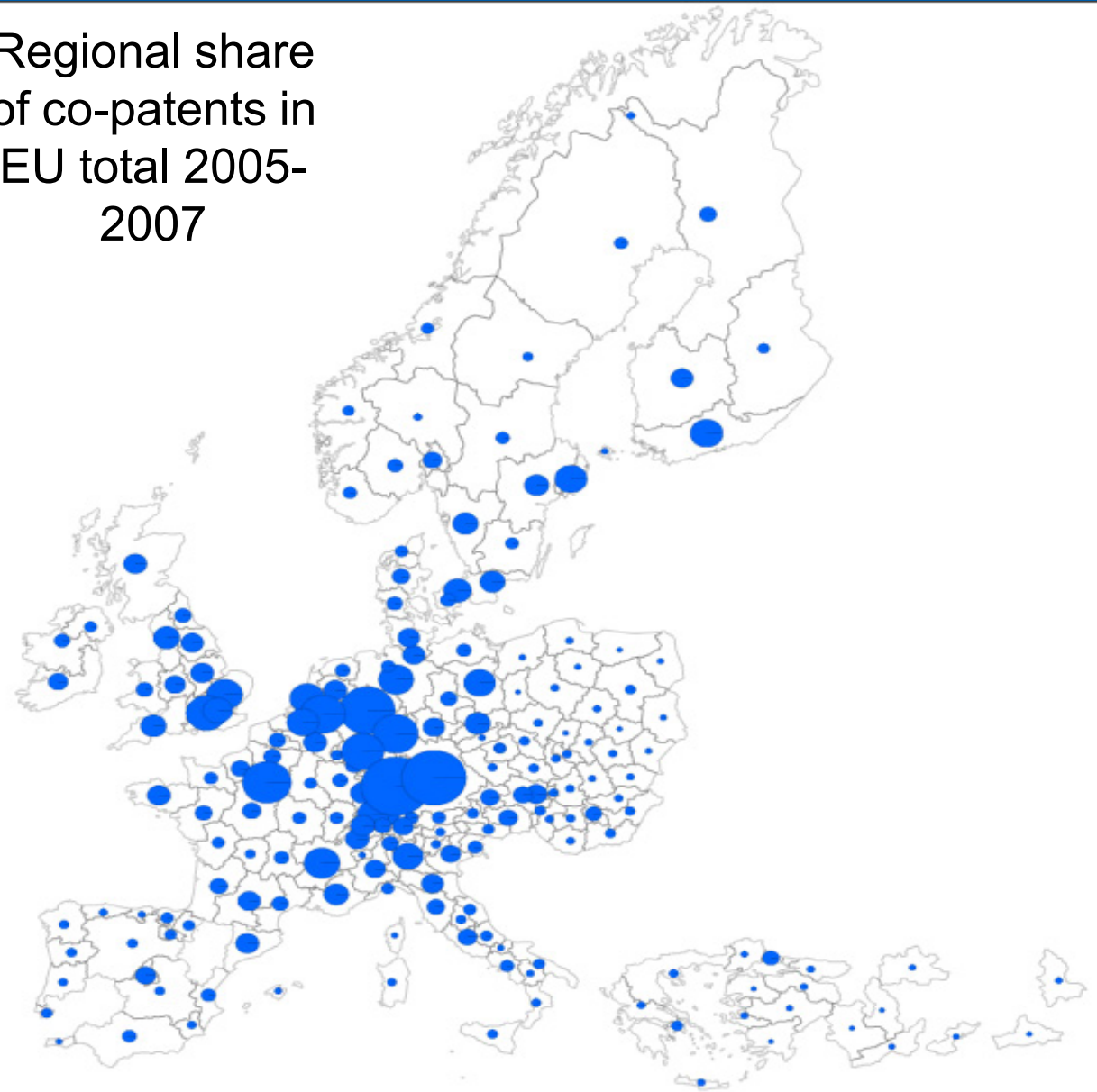
Green technologies & Energy-efficiency

- Important to re-introduce some realism (what is the green economy?) into debate and assess and monitor environmental impacts
- **Infrastructure or R&D-related spending**
 - Great emphasis on energy-efficiency of buildings
 - Carbon capture technologies, next-generation solar power
- Loan and tax incentive measures
- Or focus on automobile or other sectors – tying aid & bail-outs to conditions
- Non-regulatory measures - *e.g.* performance requirements for products, standards

A Role for Regional innovation systems

- Regions are closer to the actors reducing the information gap for managing innovation support instruments
- Regional innovation systems help make translate these expectations into concrete returns
 - The probability that a patent had a co-inventor from the same region (39% of patents) is higher than another domestic region (35%) or a foreign region (19%).
- Striking regional variations in innovation-related assets, investments, and modalities requires differentiation
 - More than half of R&D spending in the OECD area is performed by about 10% of its regions.
 - The top 10% of OECD regions generate on average about 280 patents per million inhabitants, while 40% produce fewer than 20.

Regional share of co-patents in EU total 2005- 2007



EU co-
inventions
by region

The OECD Innovation Strategy

1. Innovation today involves the interaction of a system of actors, institutions and geographic locations
 - *Policies need to reflect that innovation is a system*
2. The mix of actors is changing
 - *Rethink the governance of innovation policy*
3. The innovation imperative extends to global and social challenges
 - *Need long-term horizon, basic research, problem-focused, demand-led and challenge-driven with multi-disciplinar approach*

OECD: *For a stronger, cleaner, fairer world economy*
 Europe 2020: *Smart, sustainable and inclusive growth*

	E fficiency	E quity	E nvironmental Sustainability
Economic Policies	Sustained growth	Economic reforms may increase equity	Green growth may improve sustainability
Social policies	Social policies may increase efficiency <small>(knowledge, trust)</small>	Social cohesion	Environmentally sustainable social policies
Environmental policies	Green economy may boost innovation	Poor people are the most hurt by environmental degradation	Sustainable Environment

Thank you!