

Global Economic Crisis – Implications for Finnish Industries and Innovation

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6th Industrial Service Business Day

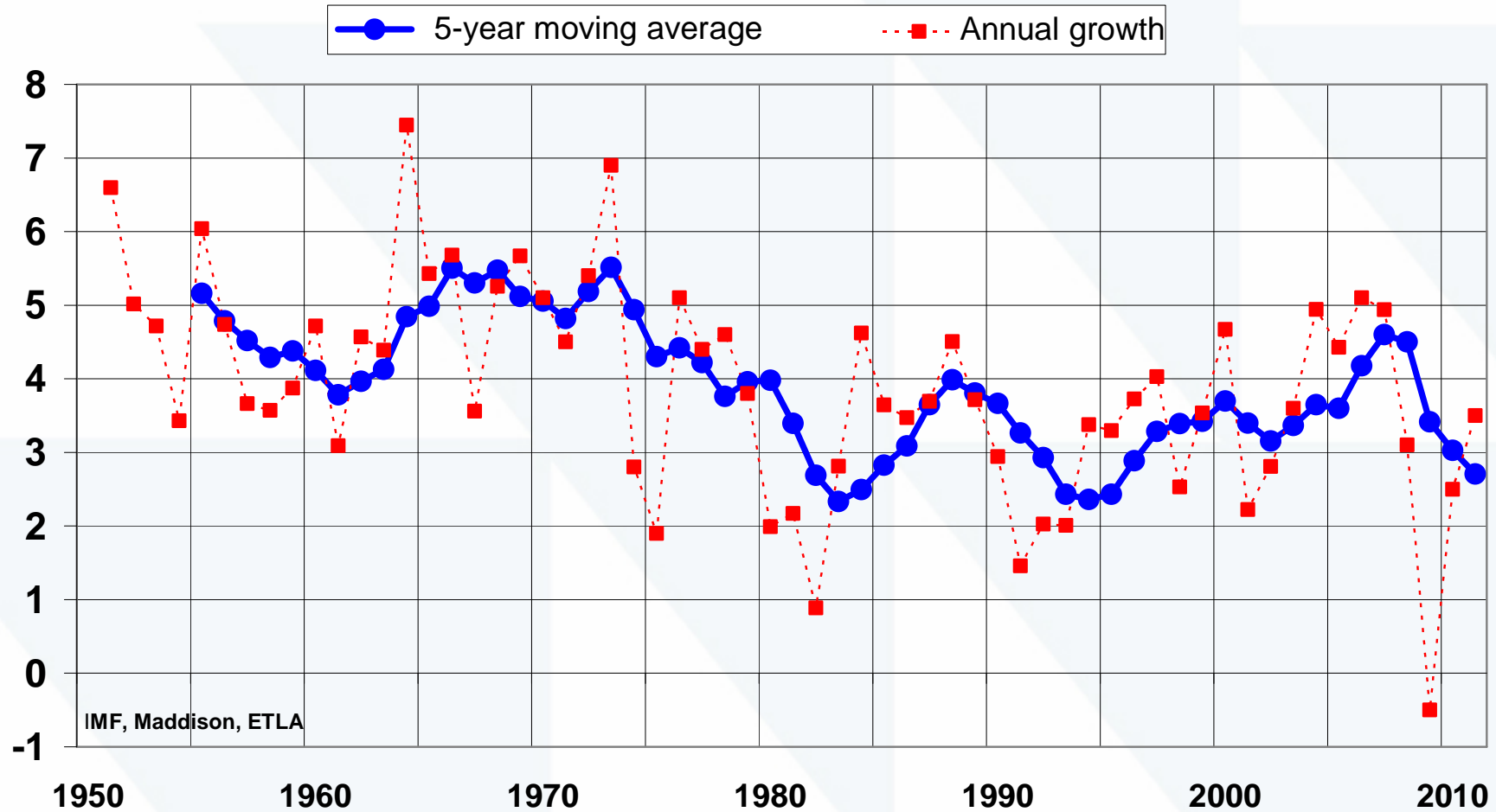
April 21, 2009. Congress Centre Sibelius Hall, Lahti

Outline

- Global Economic Crisis
 - Light in the end of the tunnel?
- Structural change of the global economy continues
 - New division of labor emerging
 - Across countries and regions
- New paradigm globalization
 - "Second unbundling"
 - Specialization in the global market does not (necessarily) take place by industries, but much finer level of disaggregation (functions, tasks)=> new business models
- How the global R&D landscape is changing?
- Future of Finnish industries and innovation
- Concluding remarks
 - Finland - a victim of its own success?
 - Role of service business

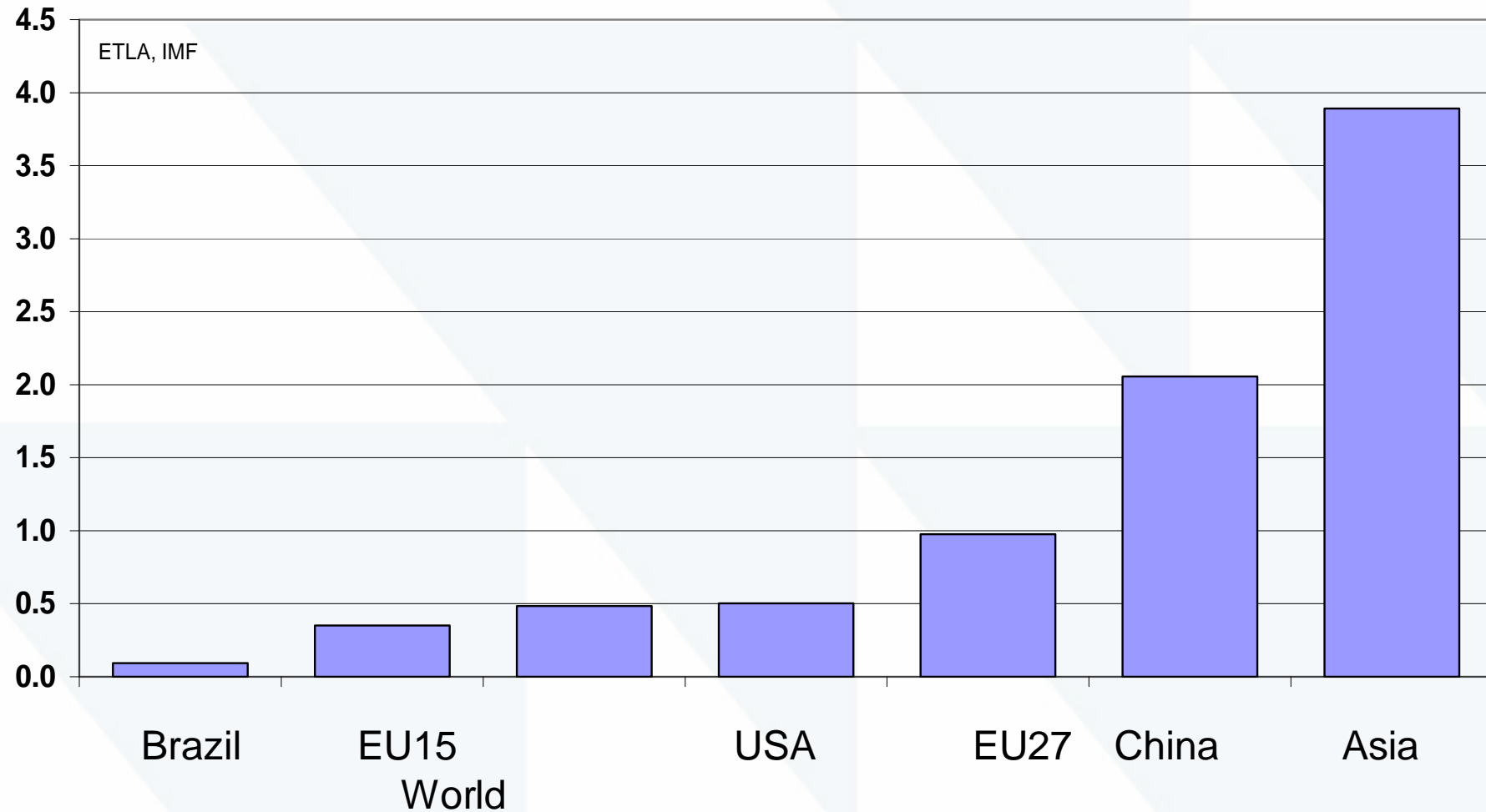
World GDP growth, % 1950-2007/2011

ETLA



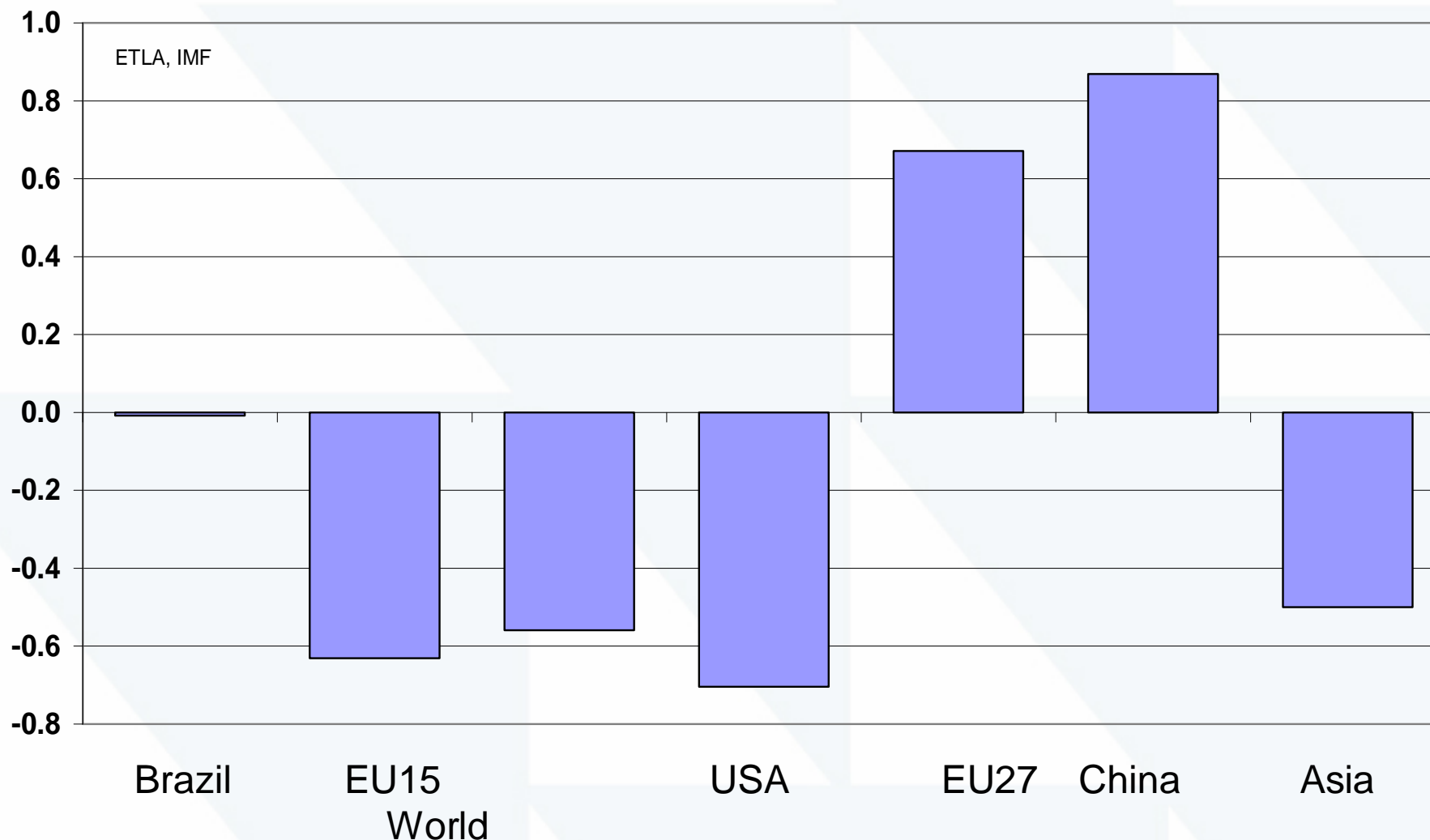
Annual growth contributions in selected regions, 2001-2008

ETLA



Annual growth contributions in selected regions, 2009

ETLA



Is that the case?

NOTIFICATION

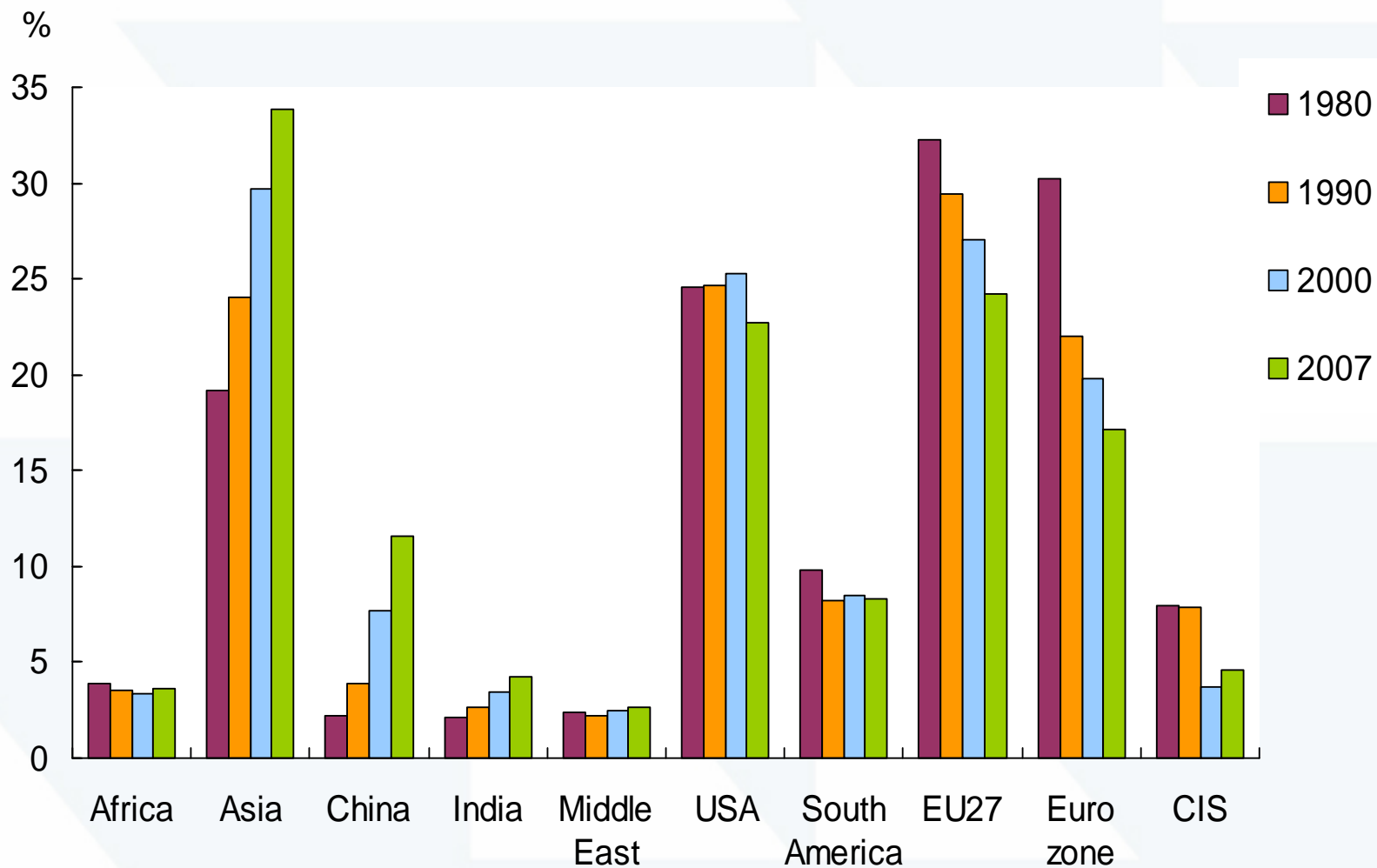
Due to recent budget cuts and the cost of electricity, gas and oil, as well as current market conditions and the continued decline of the U.S. economy, The Light at the End of the Tunnel has been turned off.

We apologize for the inconvenience.

Maybe not...

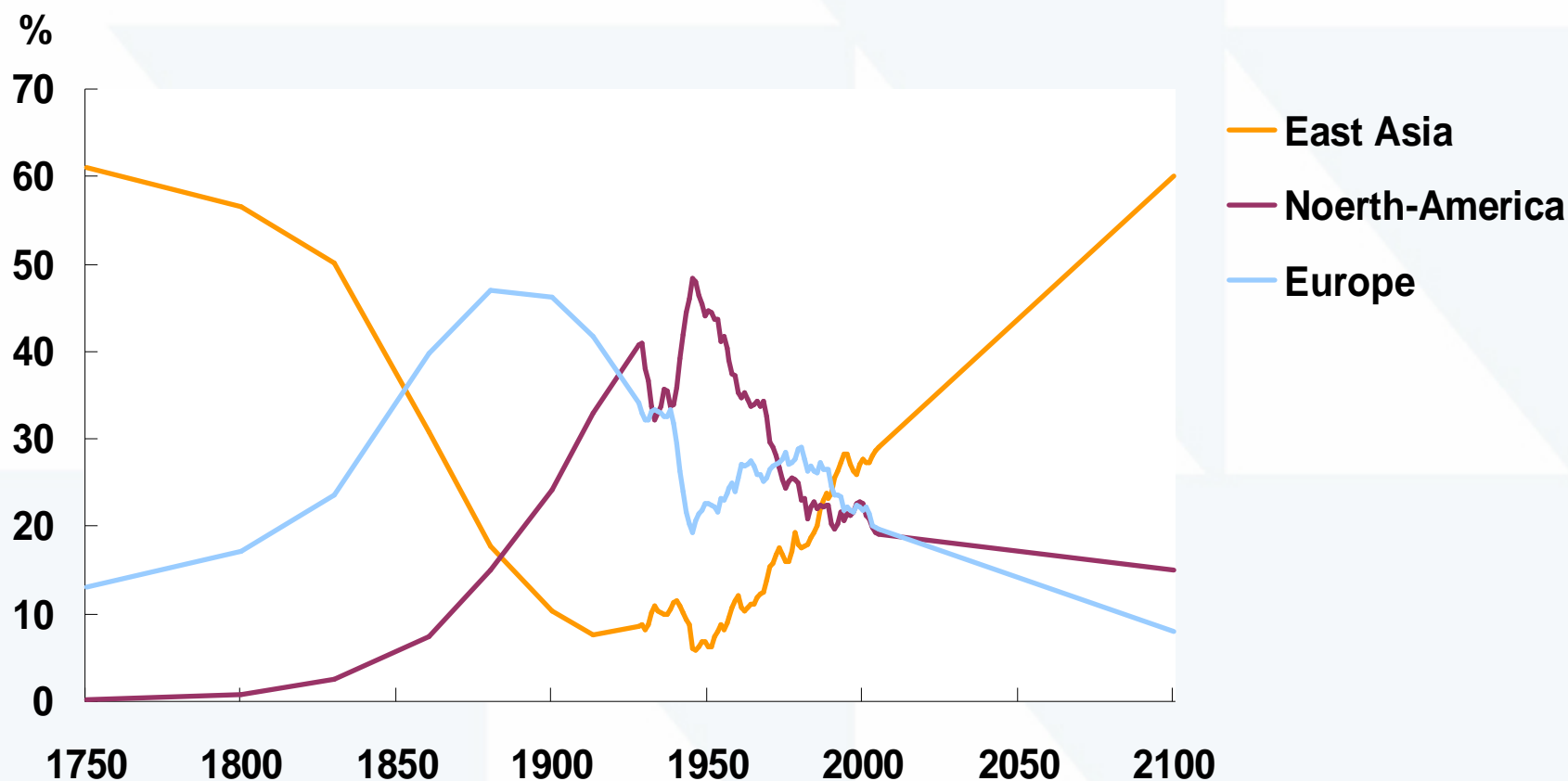
Structural change of the global economy continues

World GDP by regions and countries, percentage shares



Industrial production by regions, % of total

A shift from 'north and west' to 'south and east'

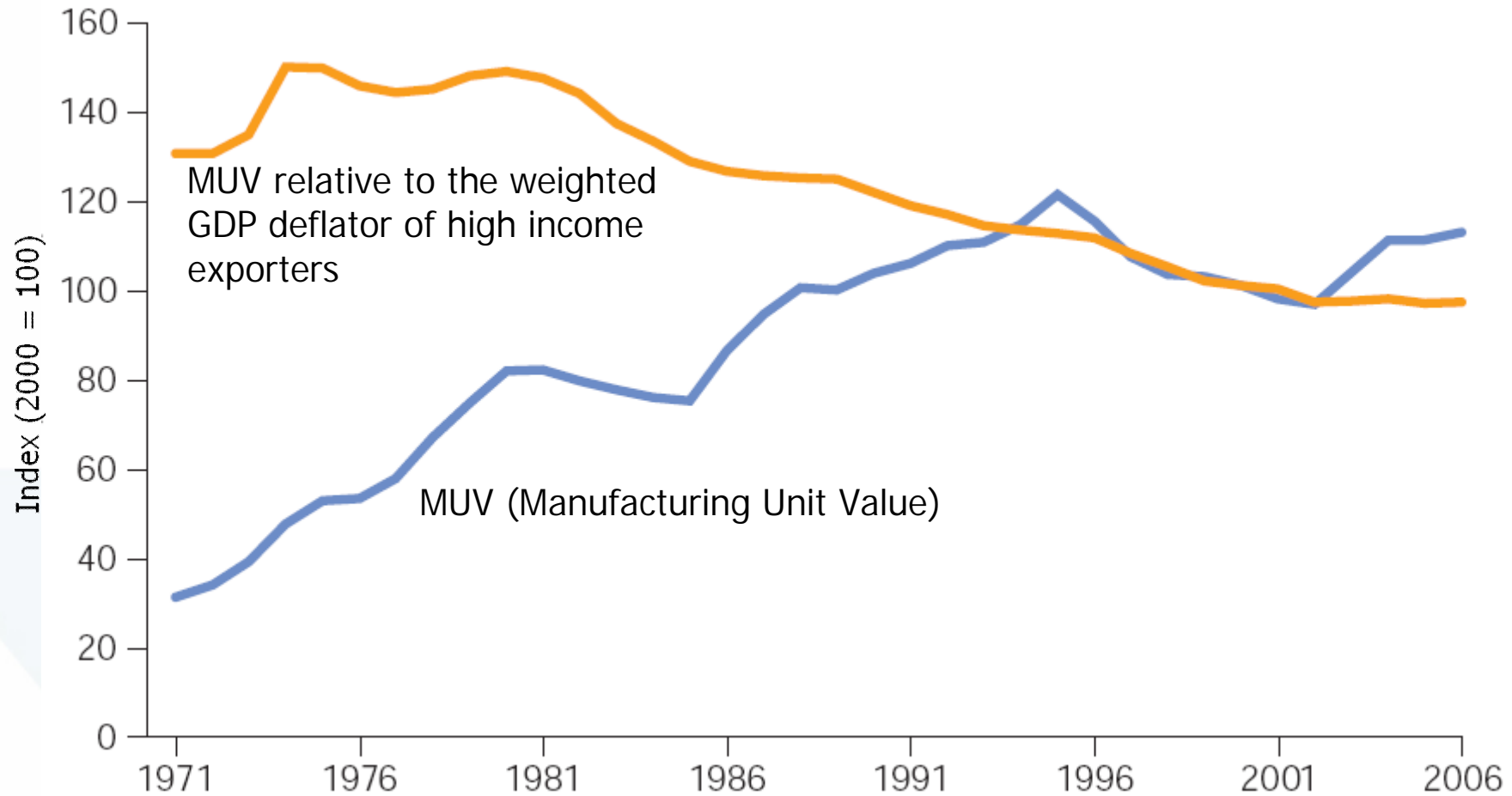


East Asia = China, Japan, India

North America = USA, Canada

Europe = Germany, Great Britain, France, Italy Spain, Sweden, Belgium, Switzerland

Chinese-Led Decline in Manufacturing Prices



Source: Development Economics Prospects Group, World Bank.

New paradigm globalization – Global value-added networks vs. national industrial clusters

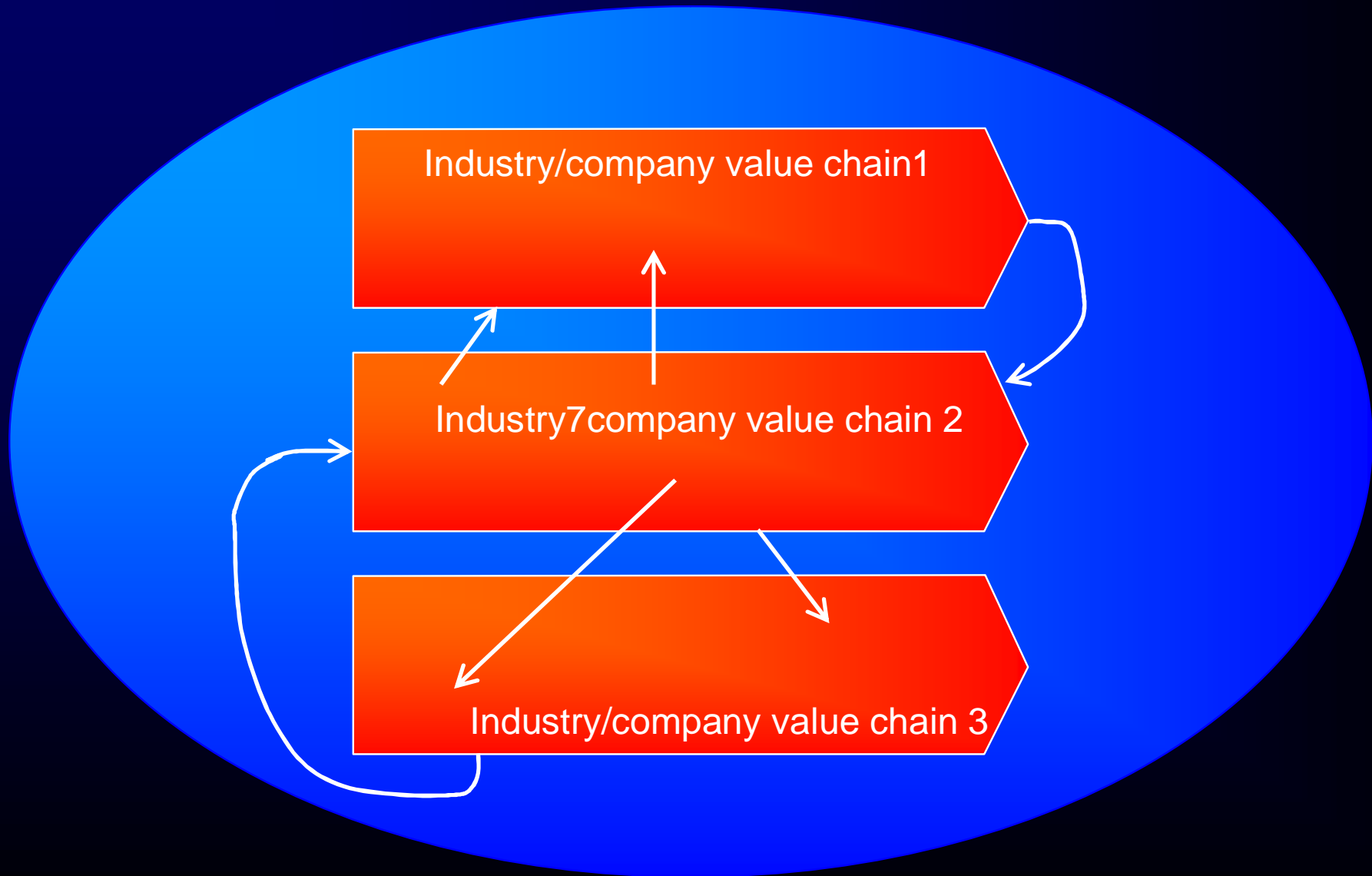
Industries and clusters in transition (1)

- “New-paradigm globalization” = “second unbundling” (Baldwin, 2007)
 - Globalization takes place at very fine level of disaggregation
 - Specialization and competition
 - Not at industry level, not at firm level...
 - But at level of tasks or functions
 - Firms have spilt their value chains - globally
 - From collaborative and integrated national production and manufacturing systems to globally dispersed value chains

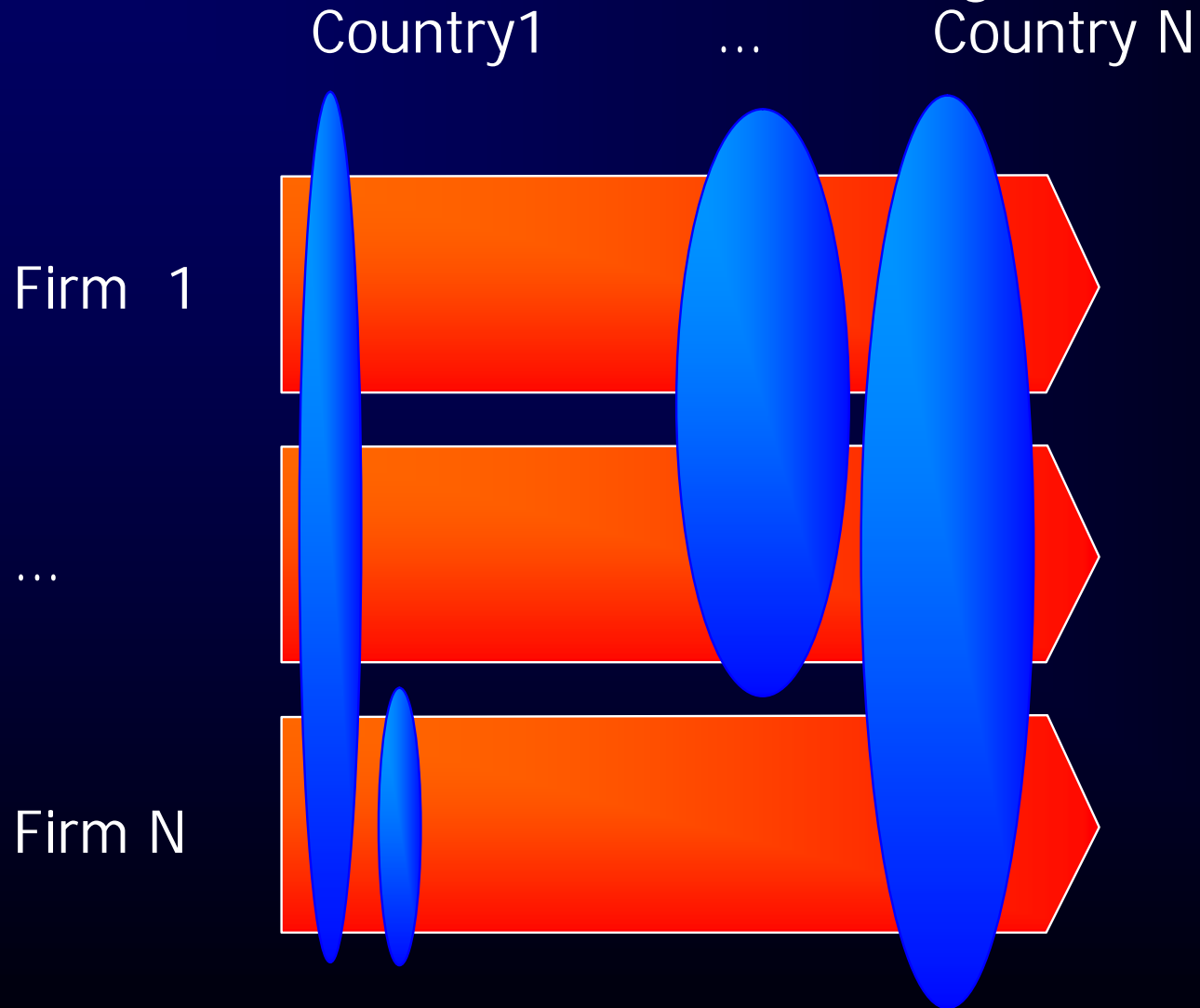
Industries and clusters in transitions (2)

- How – then – do national or regional clusters look like in the era of “new paradigm globalization”?
- Globalization breaks down traditional cluster structures?
- *Hubs of regional specialization* rather than clusters?
 - Need for redefining competitive cluster?
- Risk of promoting defensive clusters?

Local value-added networks– National mega clusters in global competition

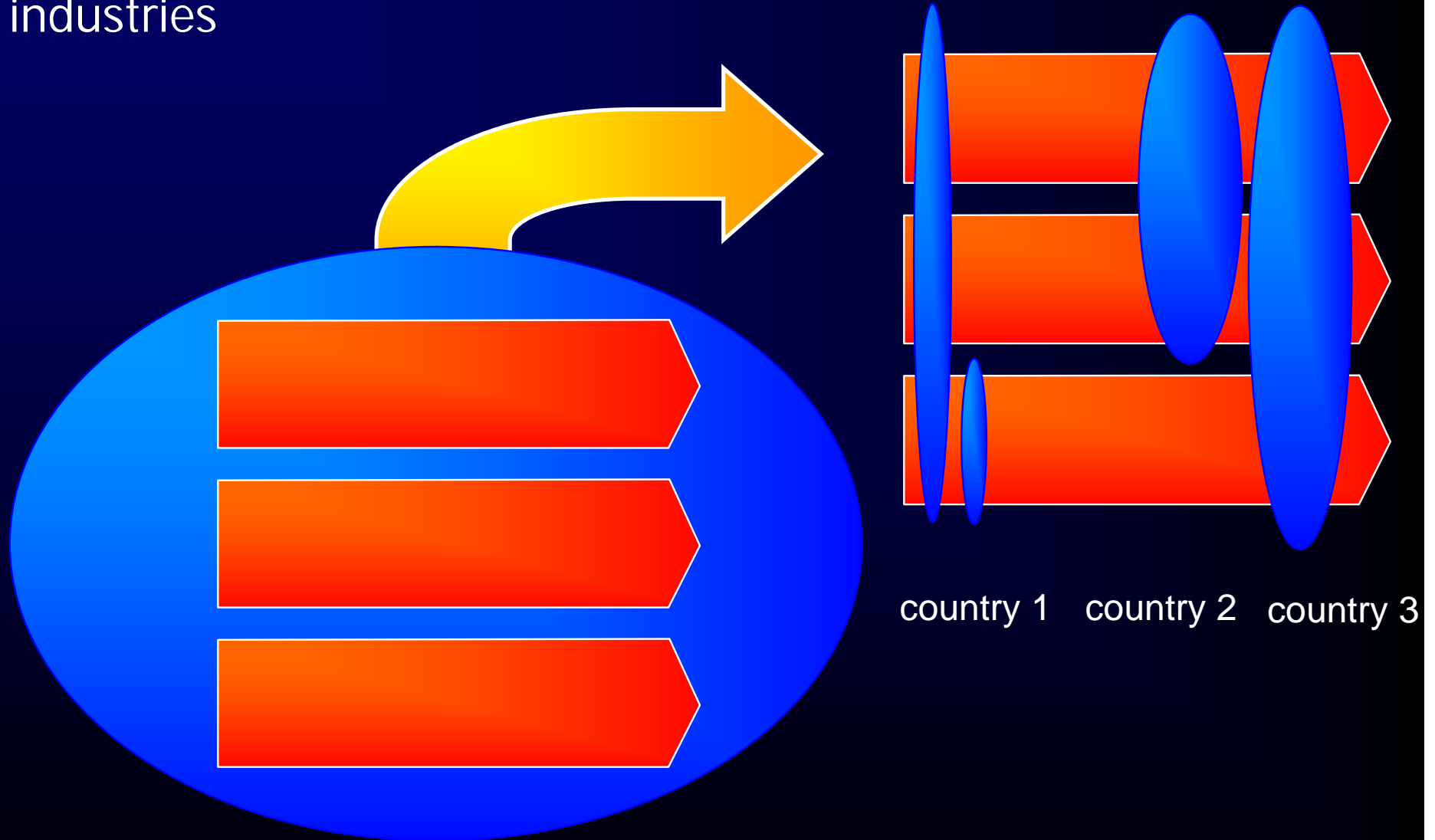


Regions/countries specialize by tasks and functions rather than by industries



Globalization breaks down clusters?!

Countries/regions specialize by tasks/functions – not by industries



Hubs of specialization in the global value chains – How the value is created?

Breakdown of \$299 retail price
of a 30Gb Video iPod® in 2005

Manufacturing (assembly) \$7

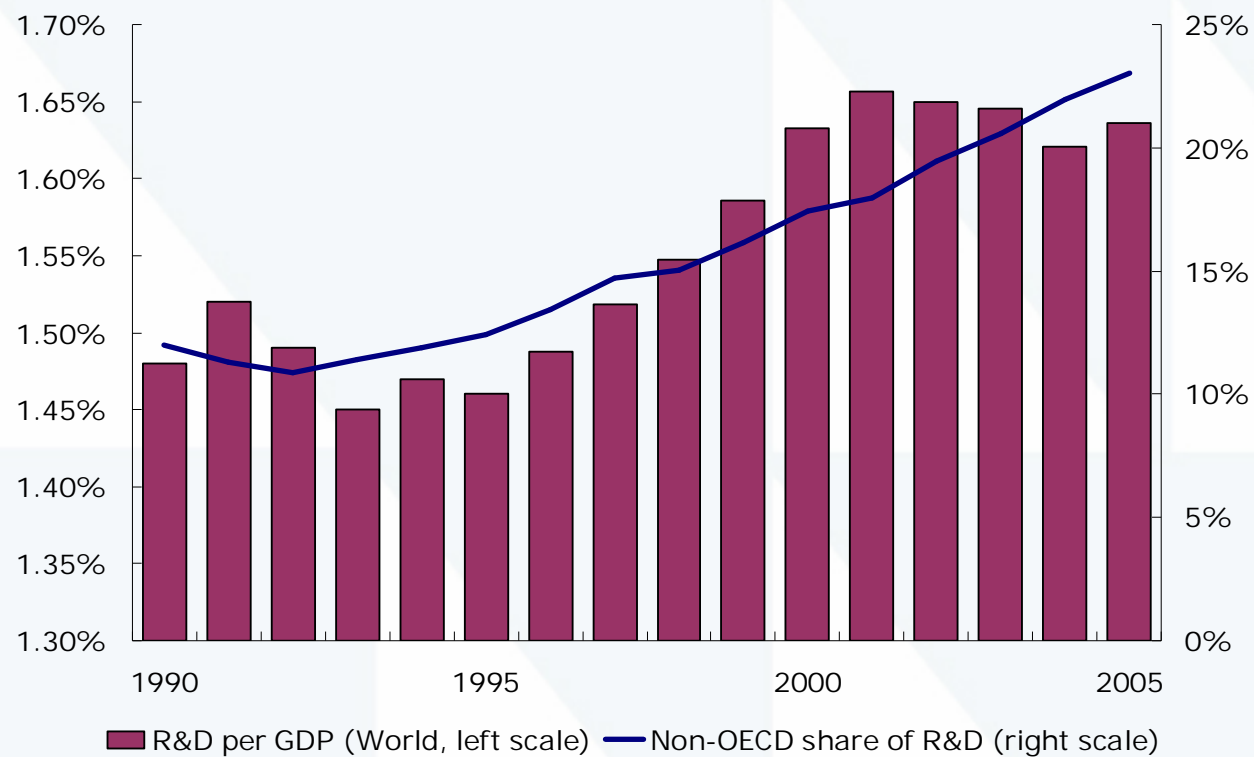
Gross margin	\$76
Retailer	\$45
Distributor	\$30
Parts: Storage	\$74
Parts: Display	\$24
Parts: Chips	\$18
Parts: Others	\$25

Data source: Dedrick,
Kraemer, Linden,
UC Irvine (PCIC),
mimeo, Sep. 2007.



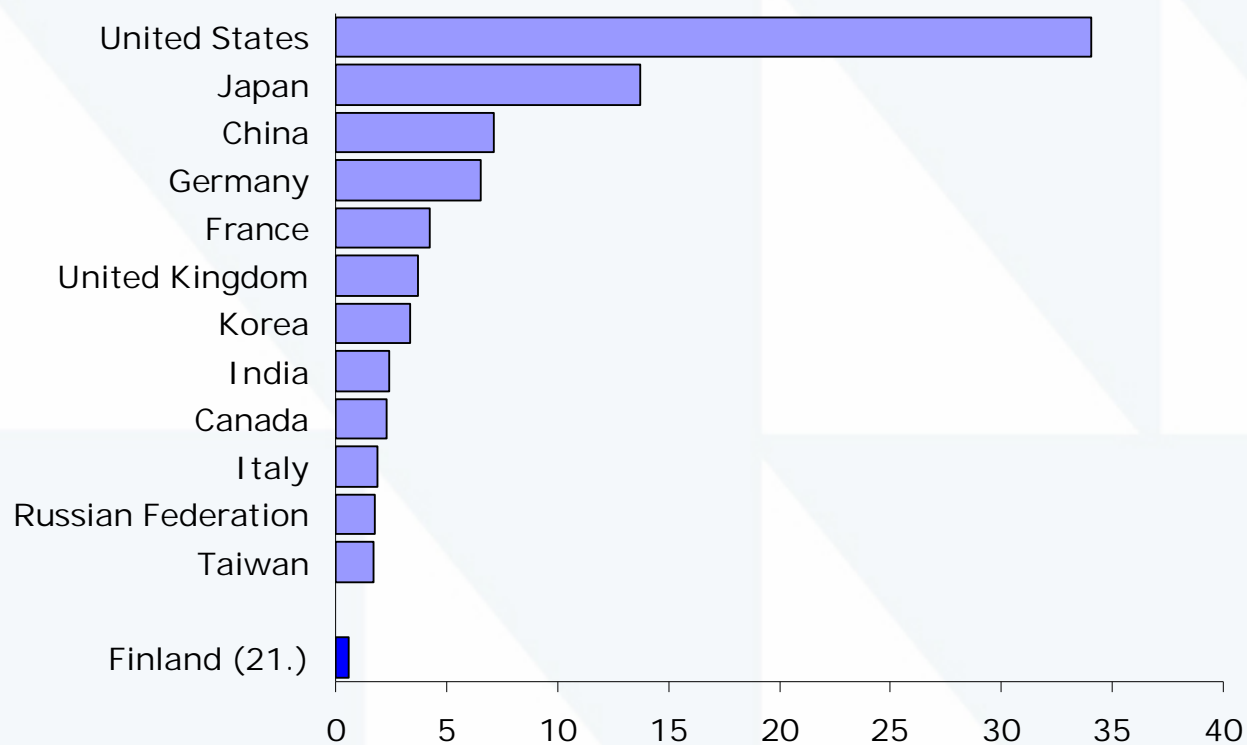
How the global R&D landscape is changing?

World R&D intensity and the non-OECD share of R&D



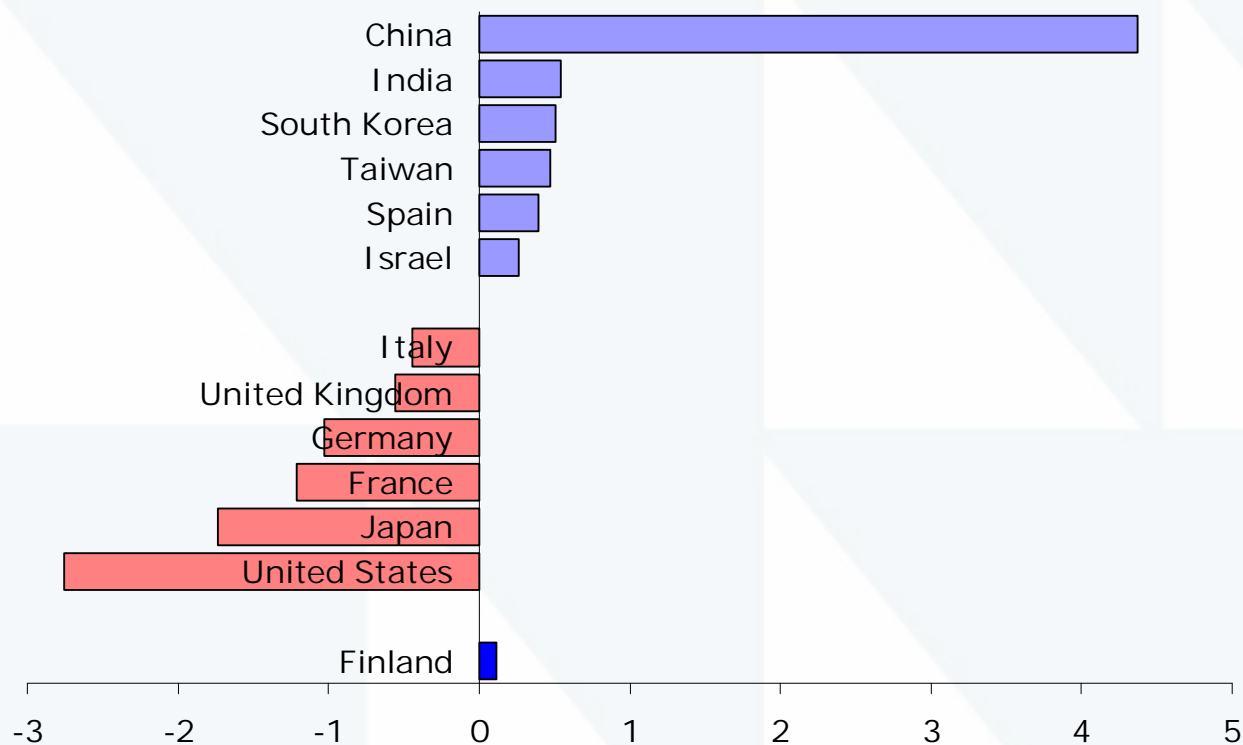
Source: Etila/Maury.

The largest countries in terms of R&D in 2005 (as % of total world R&D)



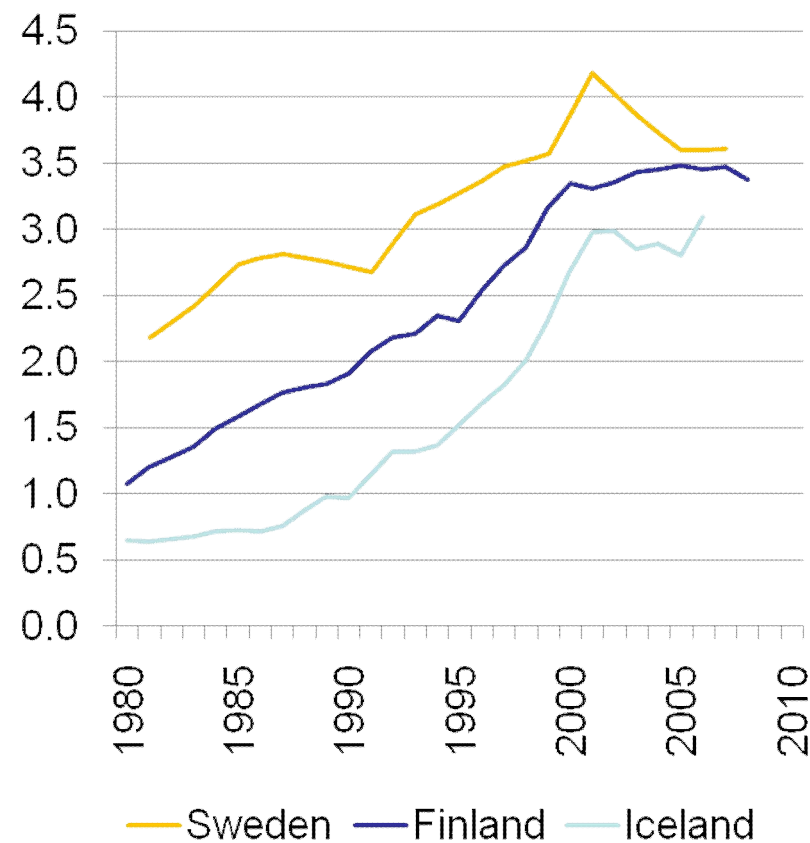
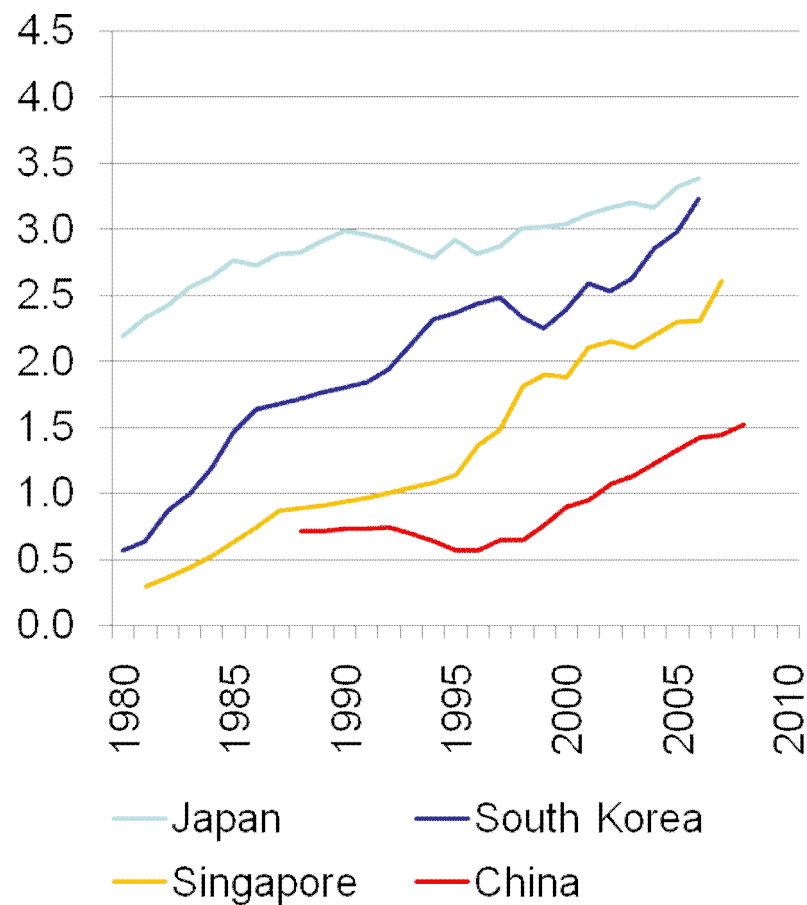
Source: Etila/Maury.

Changes in the shares of the world R&D (1996-2005, percentage points)



Source: ETLA/Maury.

R&D expenditure by country, % of GDP



Sources: OECD, national statistical offices; EtlA/Maury.

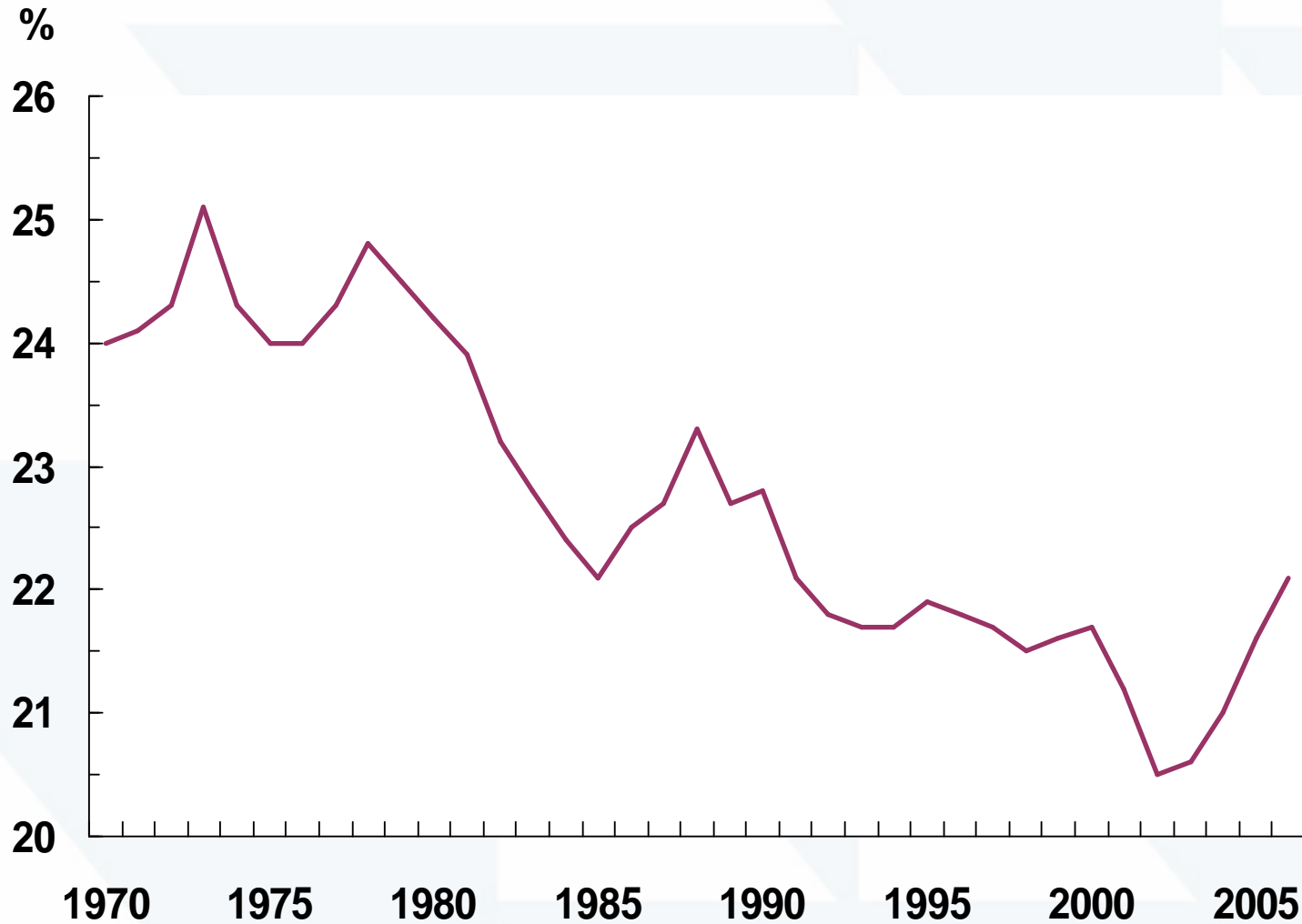
Future of Finnish industries and innovation

Key industrial clusters in turmoil

- Forest based industries in profitability crisis
 - Demand in traditional market declining
 - Overcapacity, falling trend in (real) prices
- Mechanical engineering loosing ground – investment declining in Asia
- ICT cluster – supplier network shrinking, growth contribution to GDP fading away

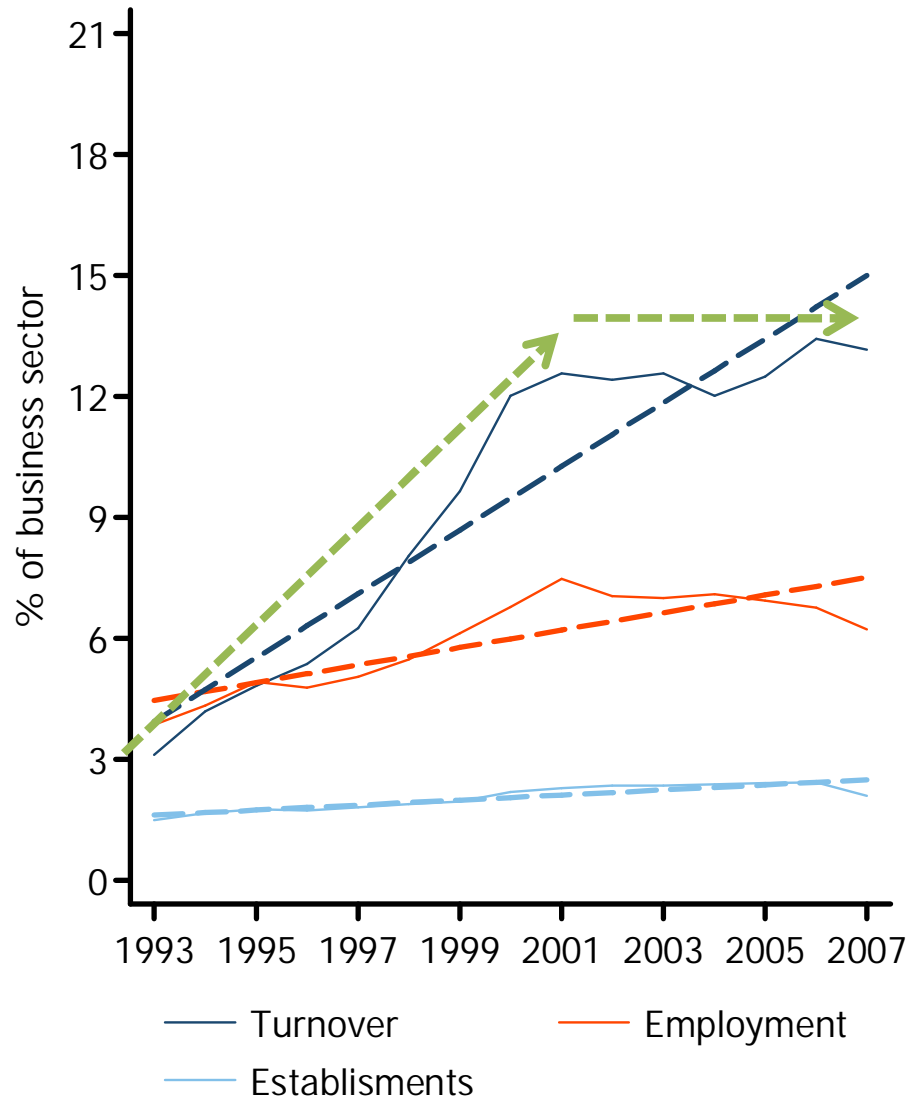
Global investment rate (global fixed investment in relation to GDP)

ETLA

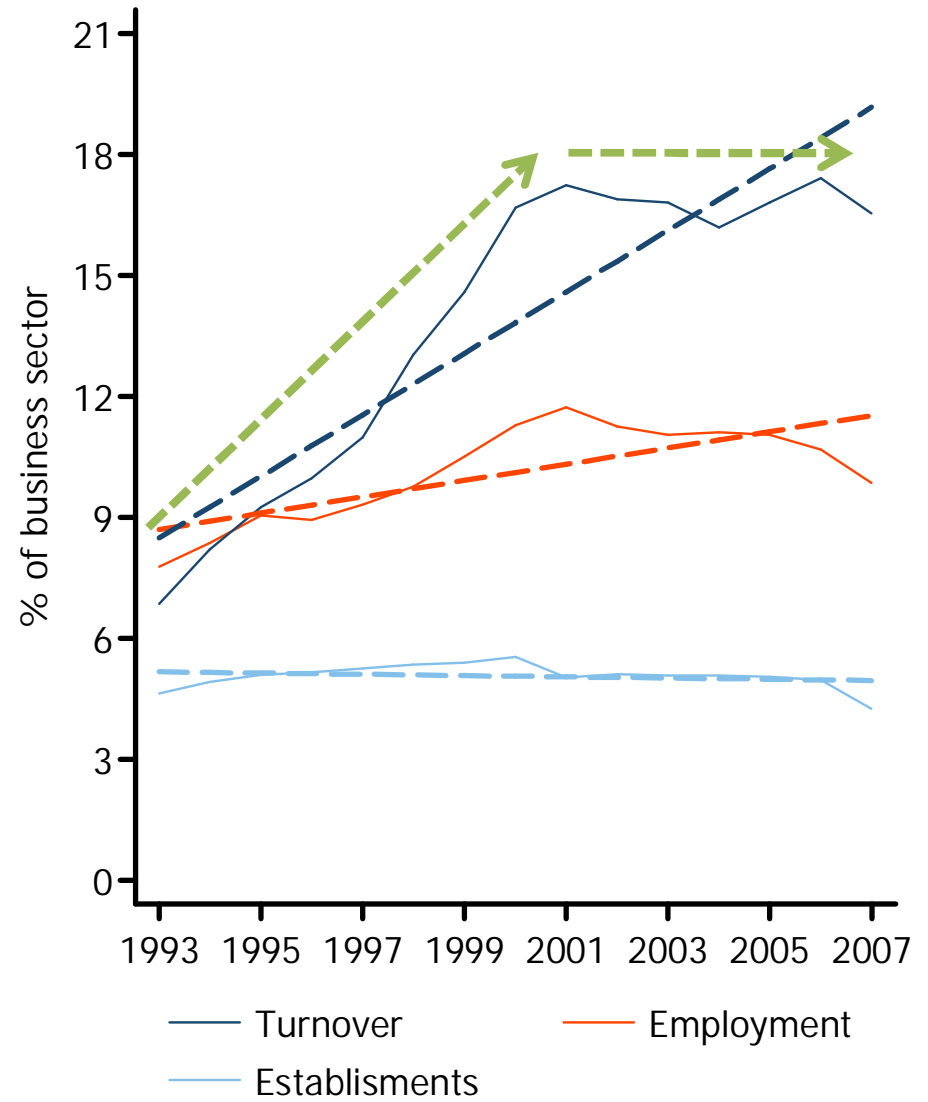


ICT cluster's share of business sector activities

Core industries



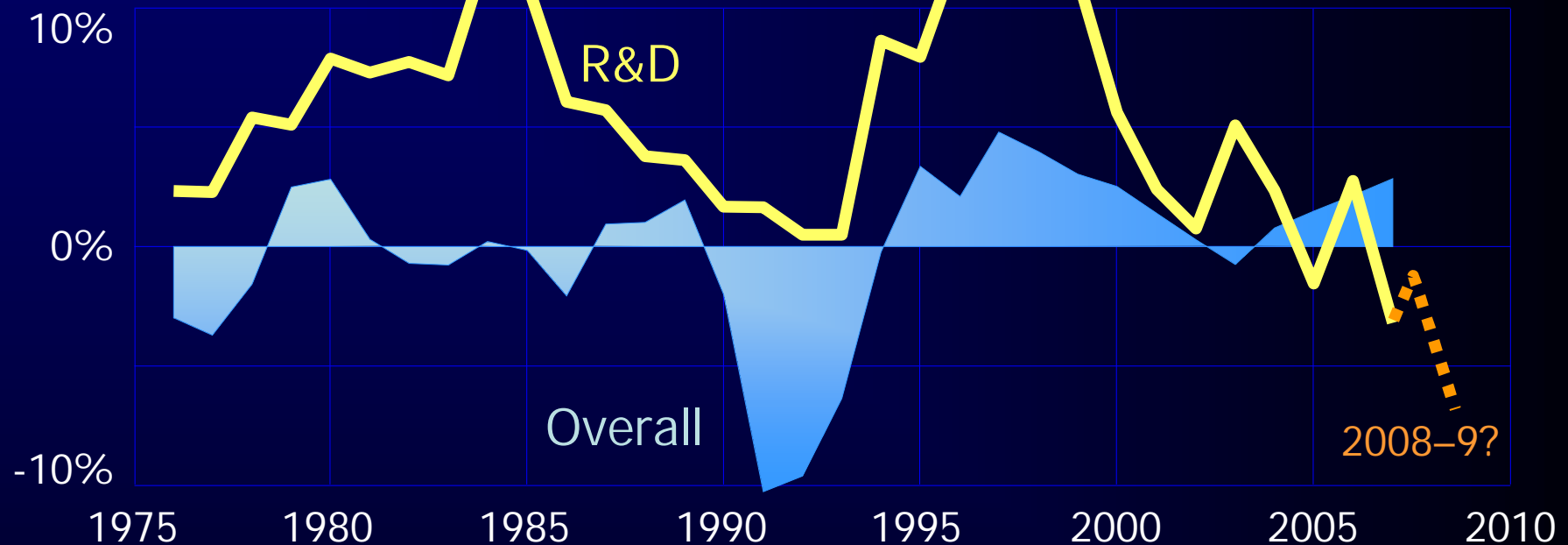
Broad definition



Data source: Statistics Finland

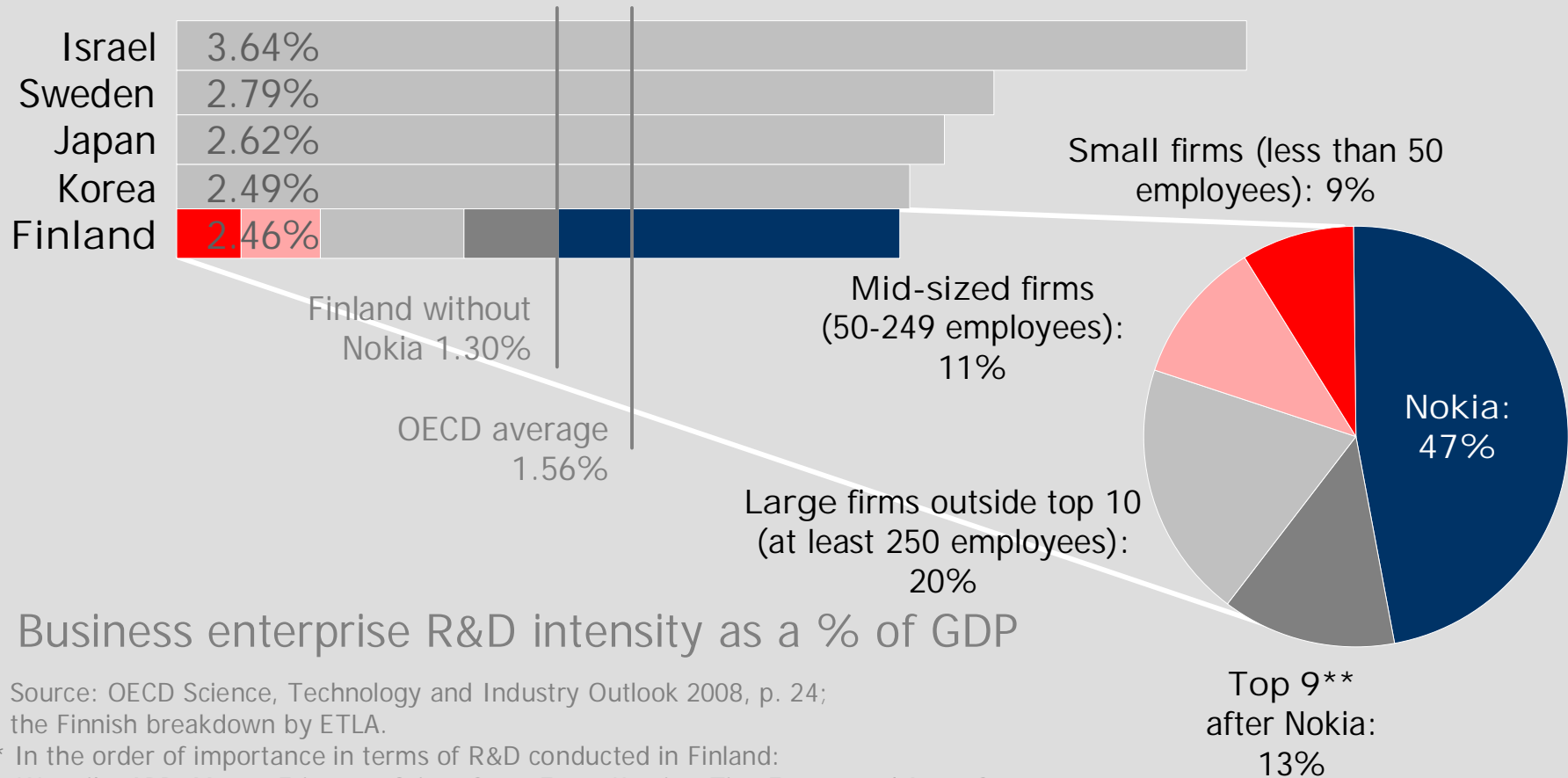
Annual Change in Finnish Business Sector Working Hours – Overall and R&D

Data: Statistics Finland
Calculations/Design: ETLA



- R&D effort grew even in the Finnish great depression of the 1990s
- ... but reduced in the still-booming years of the new millennium.
- A structural crisis was already unfolding before the financial one.
- Fear: Destruction now not compensated by creation later.

Nokia conducts nearly half of business R&D in Finland*



* Business enterprise R&D intensity as a % of GDP

Source: OECD Science, Technology and Industry Outlook 2008, p. 24; the Finnish breakdown by ETLA.

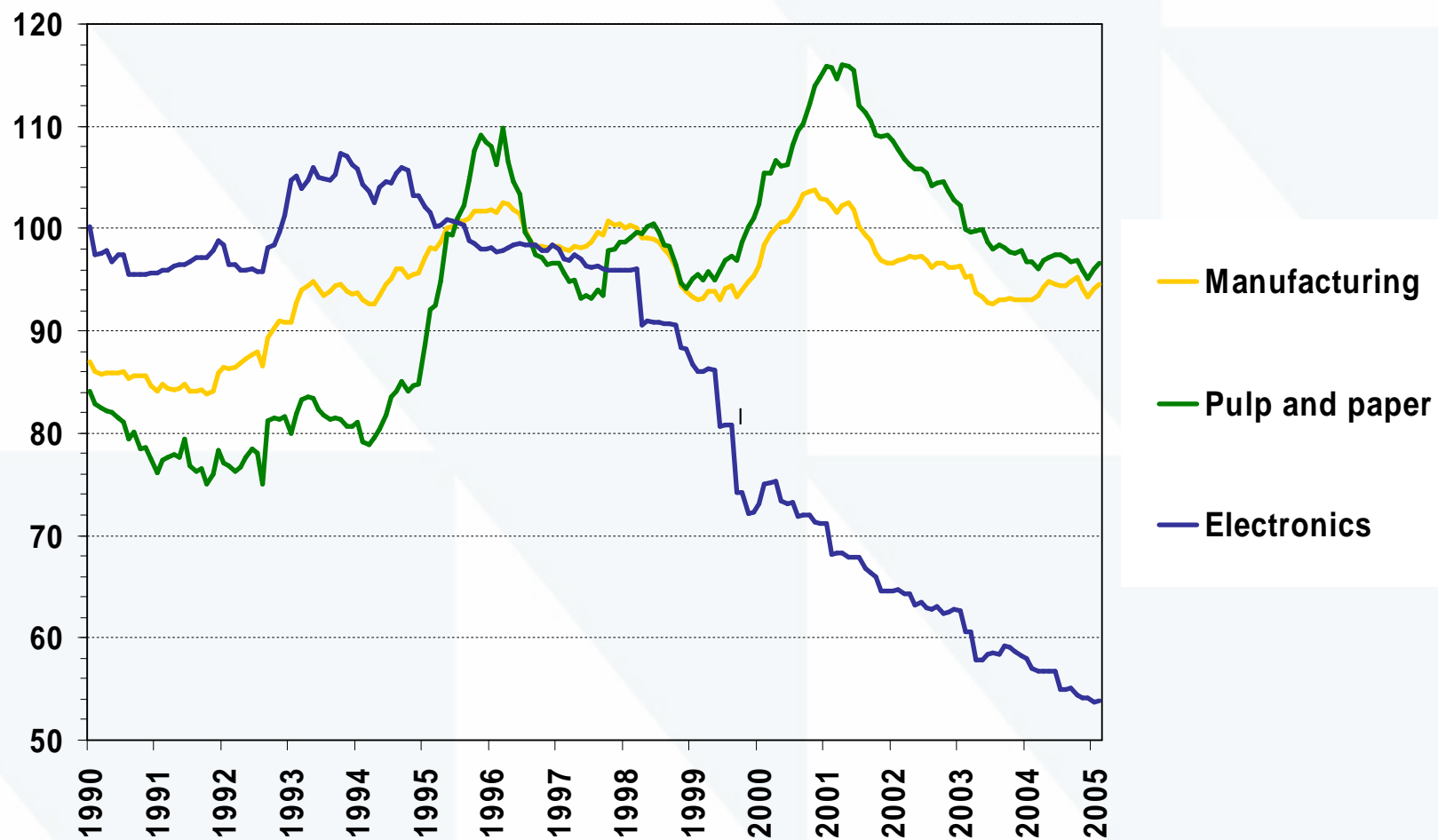
** In the order of importance in terms of R&D conducted in Finland: Wärtsilä, ABB, Metso, Ericsson, Orion, Stora Enso, Kemira, TietoEnator and Amer Sports.

Finland - a victim of its own success?

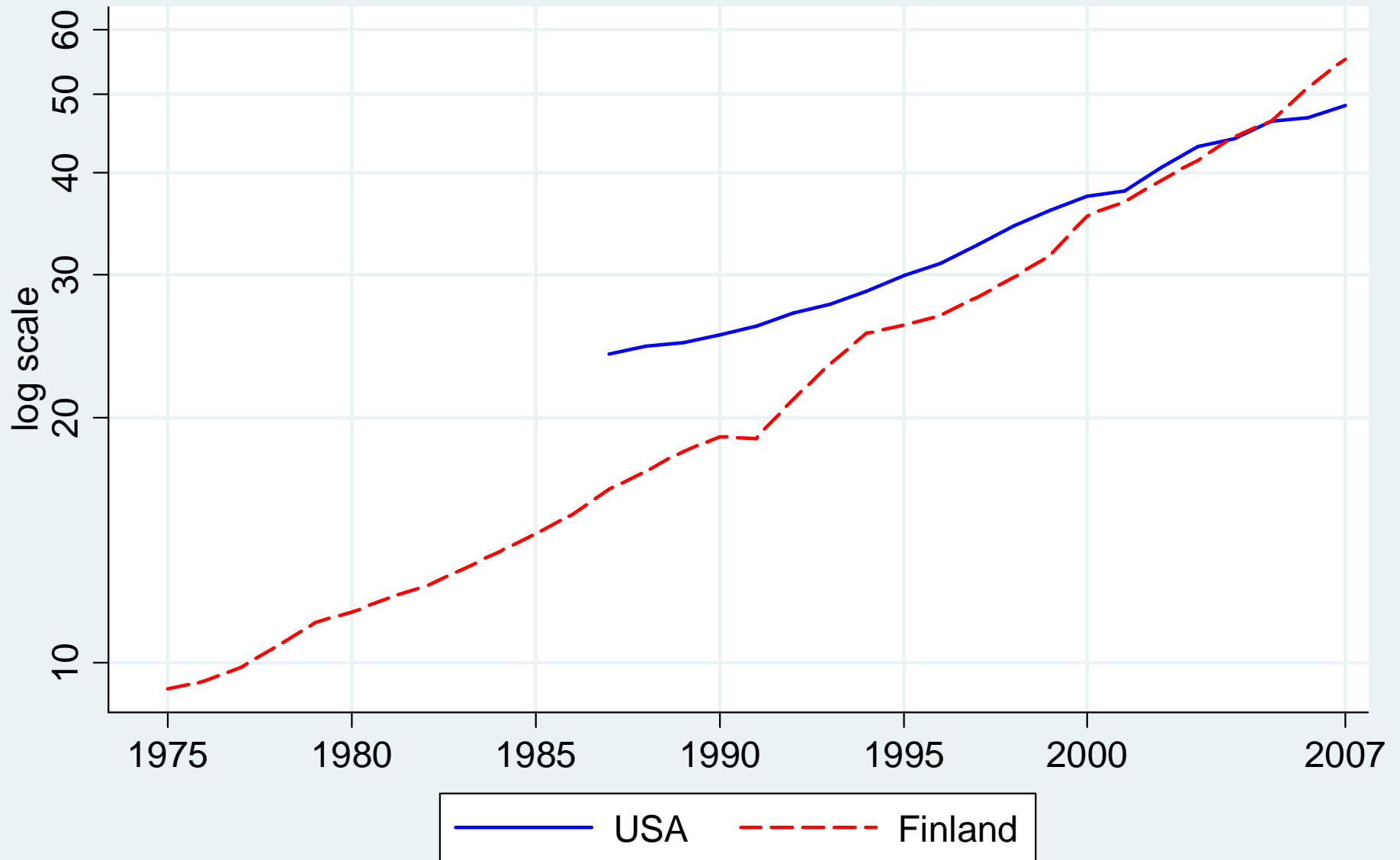
Suffering from its own success?

- Key industries/clusters have developed their processes to the global frontier → improving (manufacturing) productivity difficult
- Current technological pathways have met their limits?
- Declining (real) export prices

Export prices by industry (1995 = 100)

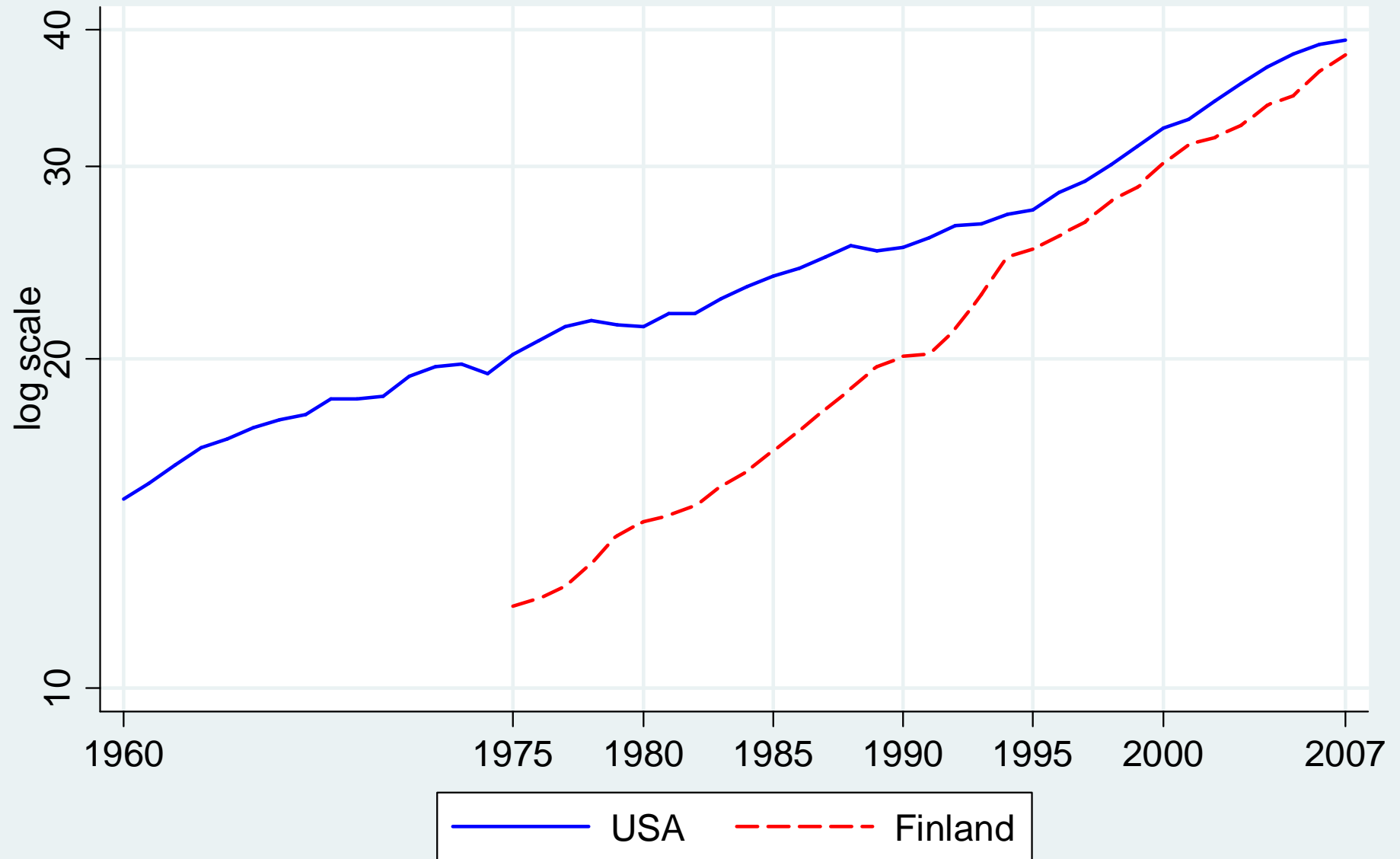


Labor productivity, manufacturing, in 2004 euros



Source: National Accounts, Bureau of Labor Statistics and Nevalainen-Maliranta 2009

Labor productivity, non-financial corporations, in 2004 euros



Source: National Accounts, Bureau of Labor Statistics and Nevalainen-Maliranta 2009

Concluding remarks

- The global crisis is not yet over – impacts on real economy still ahead
- Global transformation is likely to continue
 - Asia's (relative) role likely to strengthen
 - India, China towards knowledge-based growth and development
 - new/stronger competitors in the global market place
- Finland facing a new structural transformation
 - Key industries close to the global productivity and technology frontier – current technological pathways met their limits?
 - Key manufacturing sectors in turmoil (paper, mechanical engineering, ICT...) - declining export prices, shrinking global market shares...
 - Industrial services, new technological platforms