



How do Policies on R&D in Industry Affect Growth and Jobs?

*R. van Bavel, A. Brandsma, P. Moncada Paternò Castello,
A. Tübke, C. Ciupagea, V. Frigyesi, H. Hernández, P. Laget*

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Impact of Industrial R&D

- R&D policy is guided by the assumption that more R&D leads to more growth and jobs...
- ... at a firm level and at the level of the economy



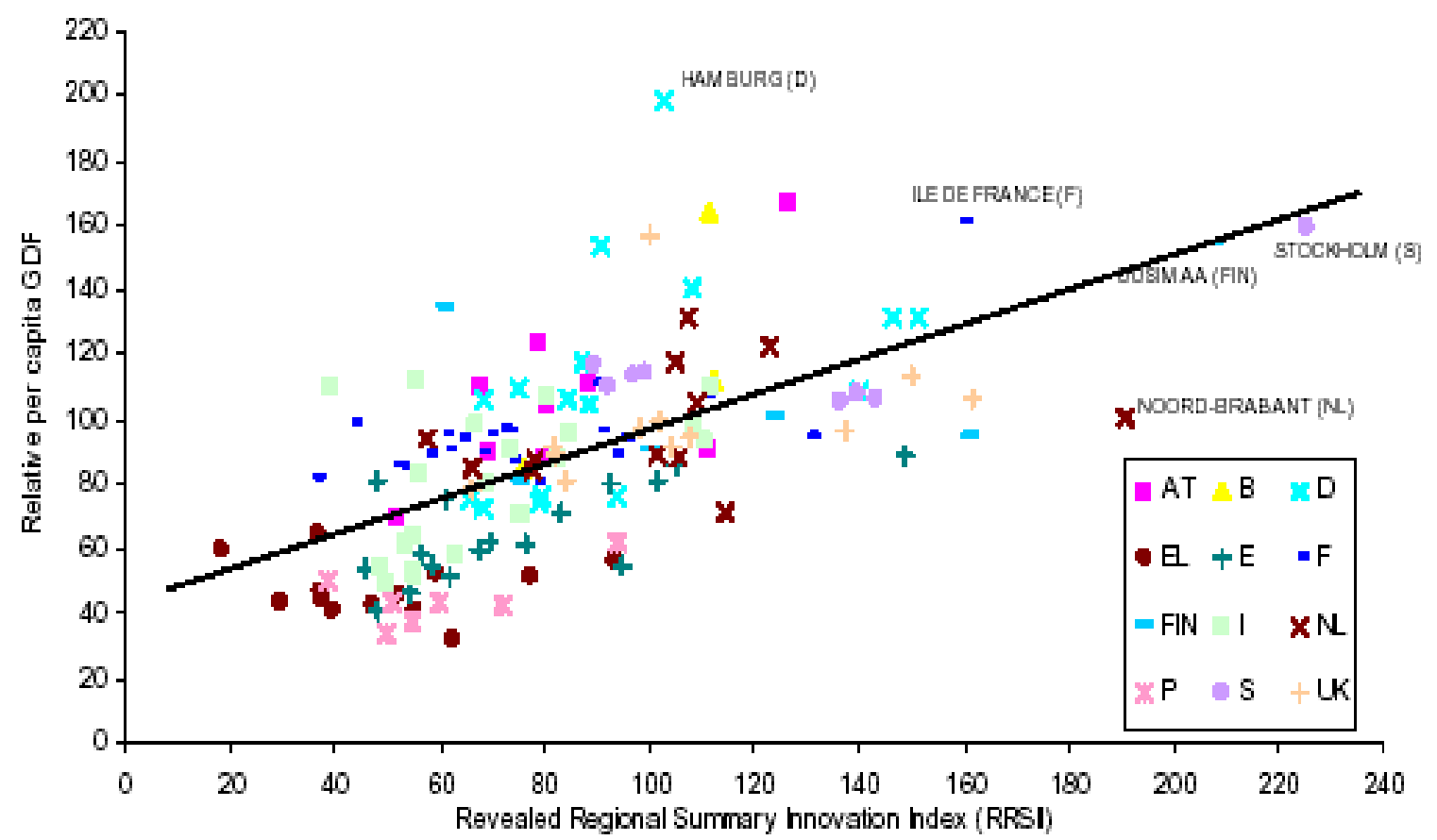
R&D → innovation

Variable	Total sample	R&D sub-sample
Number of firms	2253	855
% of firms performing R&D continuously	37.9	100.0
% firms innovating with products new to the firm** (A)	50.1	89.8
% firms innovating with products new to the market* (B)	28.3	58.0
% firms with process innovation	34.7	57.5
% firms with at least one patent applied for in 1998-2000	32.4	63.5
% firms with at least one valid patent at the end of 2000* (C)	34.6	64.7
Share of new to the firm innovative sales for firms of type (A)	n.r.	14.5
Share of new to the market innovative sales for firms of type (B)	n.r.	7.7
Share of total sales covered by patents for firms of type (C)	9.7	16.7

Source: Mairesse and Mohnen (2004)



Innovation → economic growth



Source: RINNO database (2002)



Stimulating industrial R&D investment

- Policy-makers have a range of R&D policy measures to choose from (direct funding, tax incentives, risk capital measures, increasing science/industry links...)
- But industrial R&D investment can also be stimulated by changes in framework conditions (i.e. beyond the realm of R&D policy *per se*)



Stimulating industrial R&D investment

- A disaggregated approach by sectors of economic activity can lead to more effective R&D policies



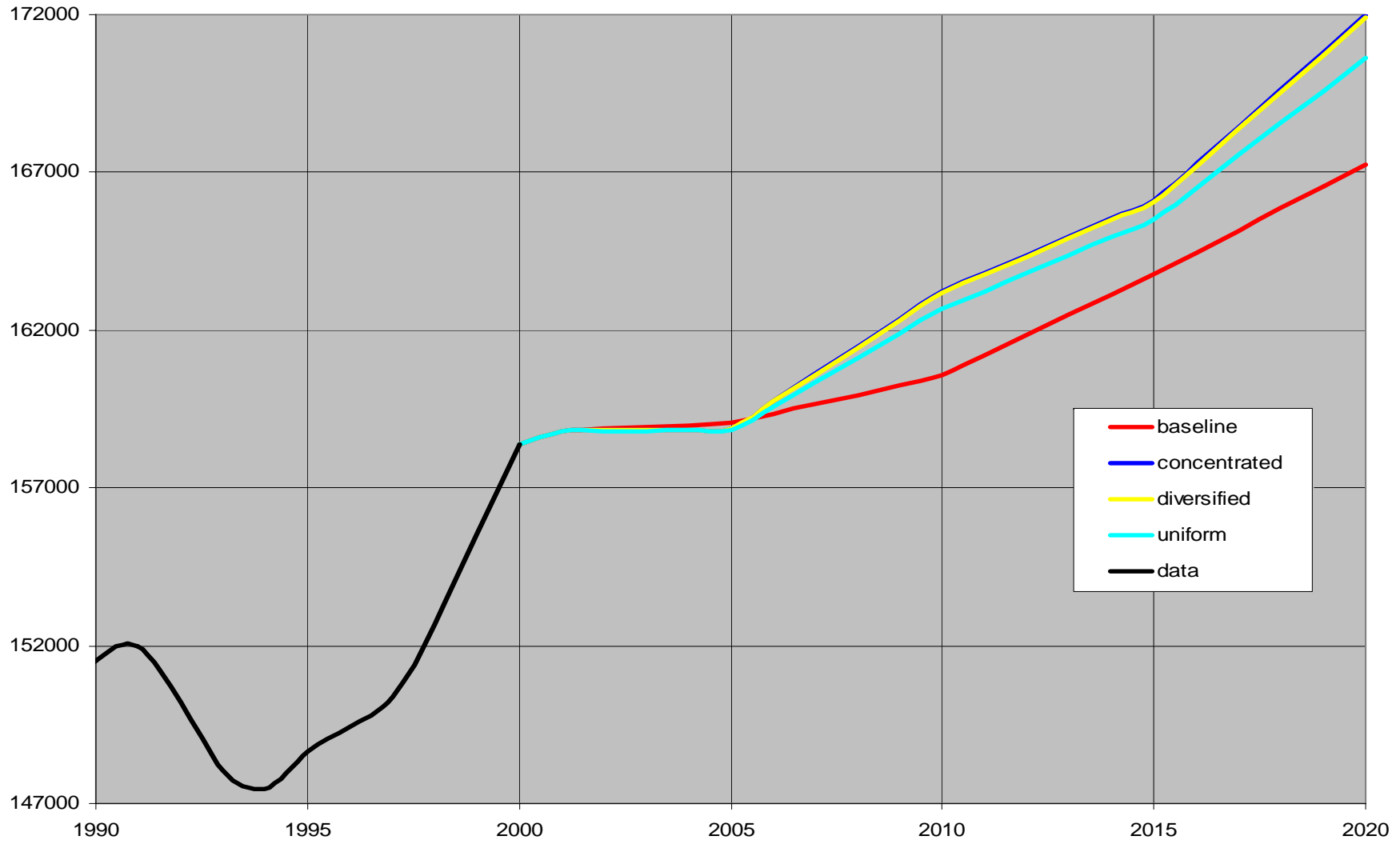
Impact on jobs

- An IPTS study modelled the impact on jobs in the EU of an increase in R&D intensity
- 3 alternative policy scenarios:
 - Uniform
 - Diversified
 - Concentrated

Simulation of growth in labour demand in the EU

Thousands of full-time job equivalents

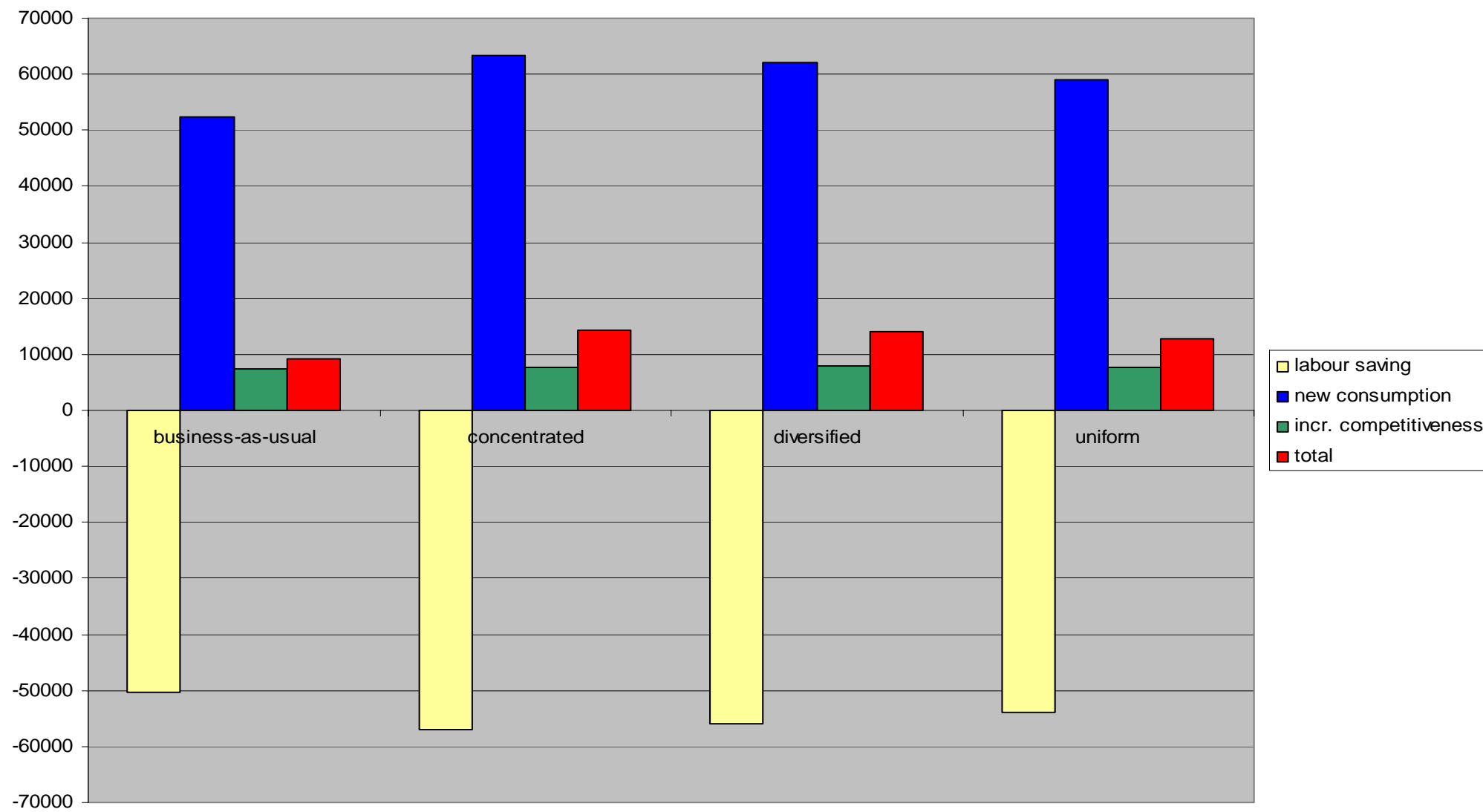
Joint Research Centre



European Commission (2002)

Breakdown of impacts on employment

Joint Research Centre



Source: European Commission (2002)

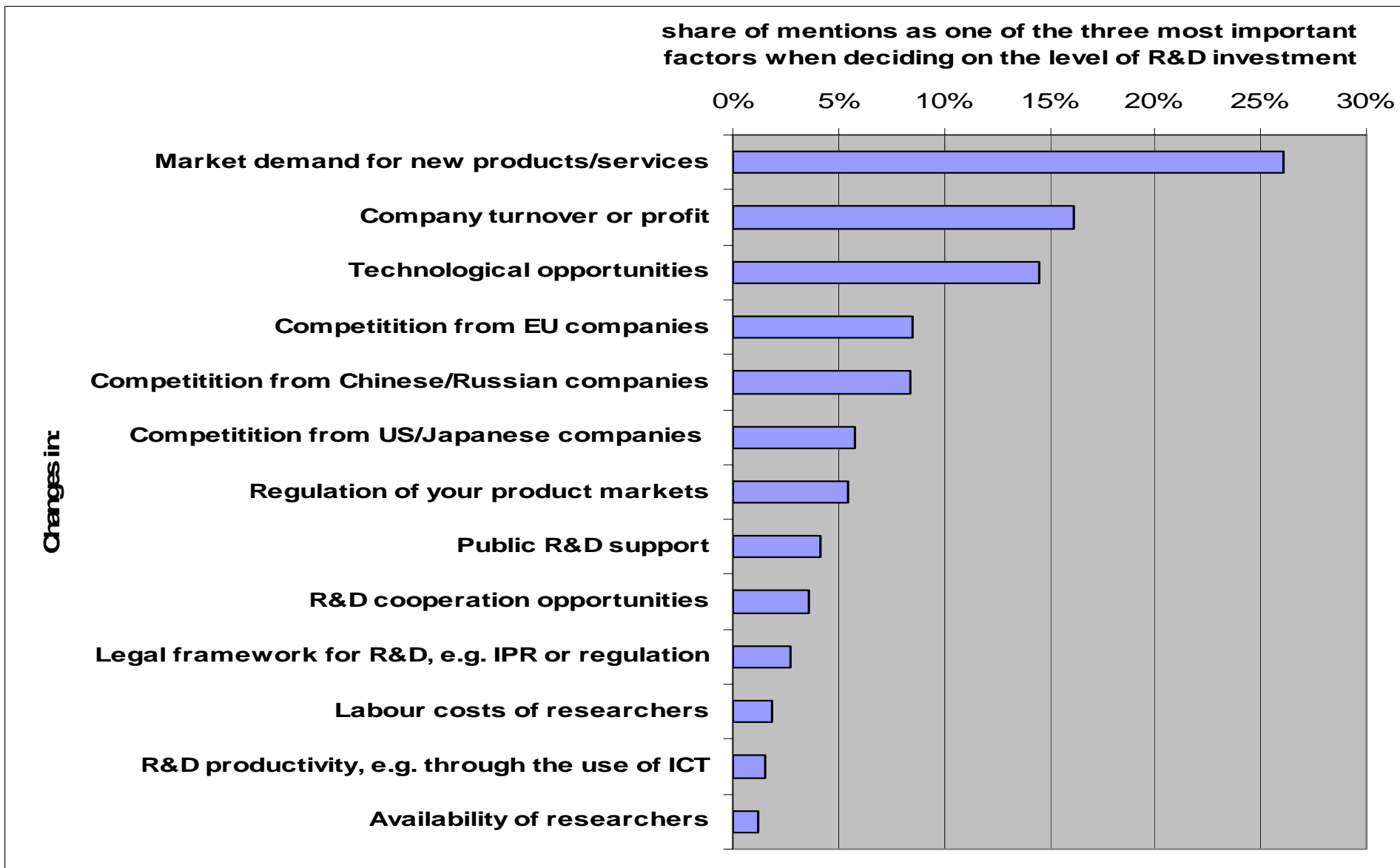


Decision-making on R&D investment

- An IPTS study is looking at the reasons why firms invest in R&D
 - The *Survey on Business Trends in R&D*

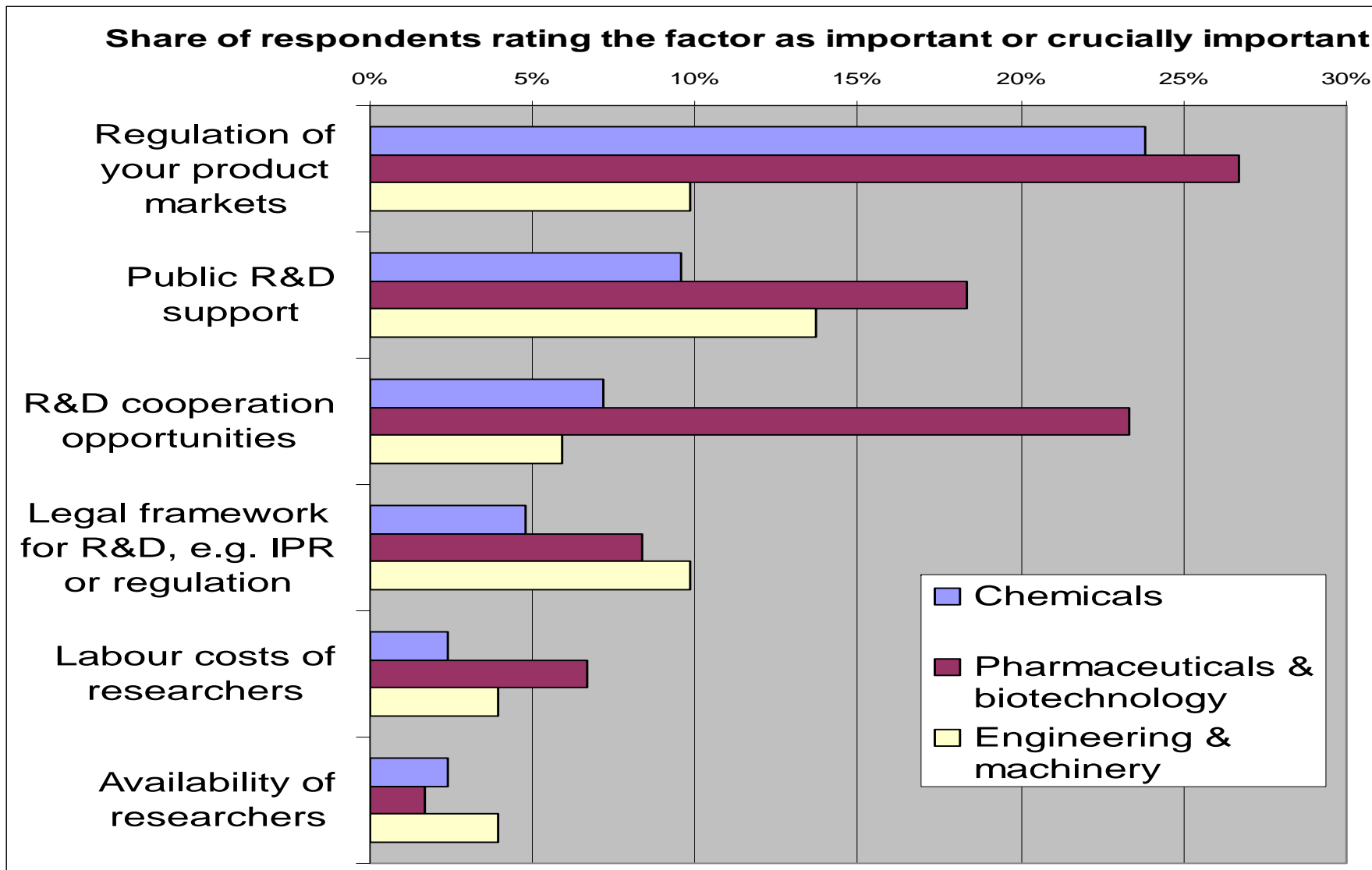


Importance of reasons for investing in R&D





Importance of reasons for investing in R&D by sector



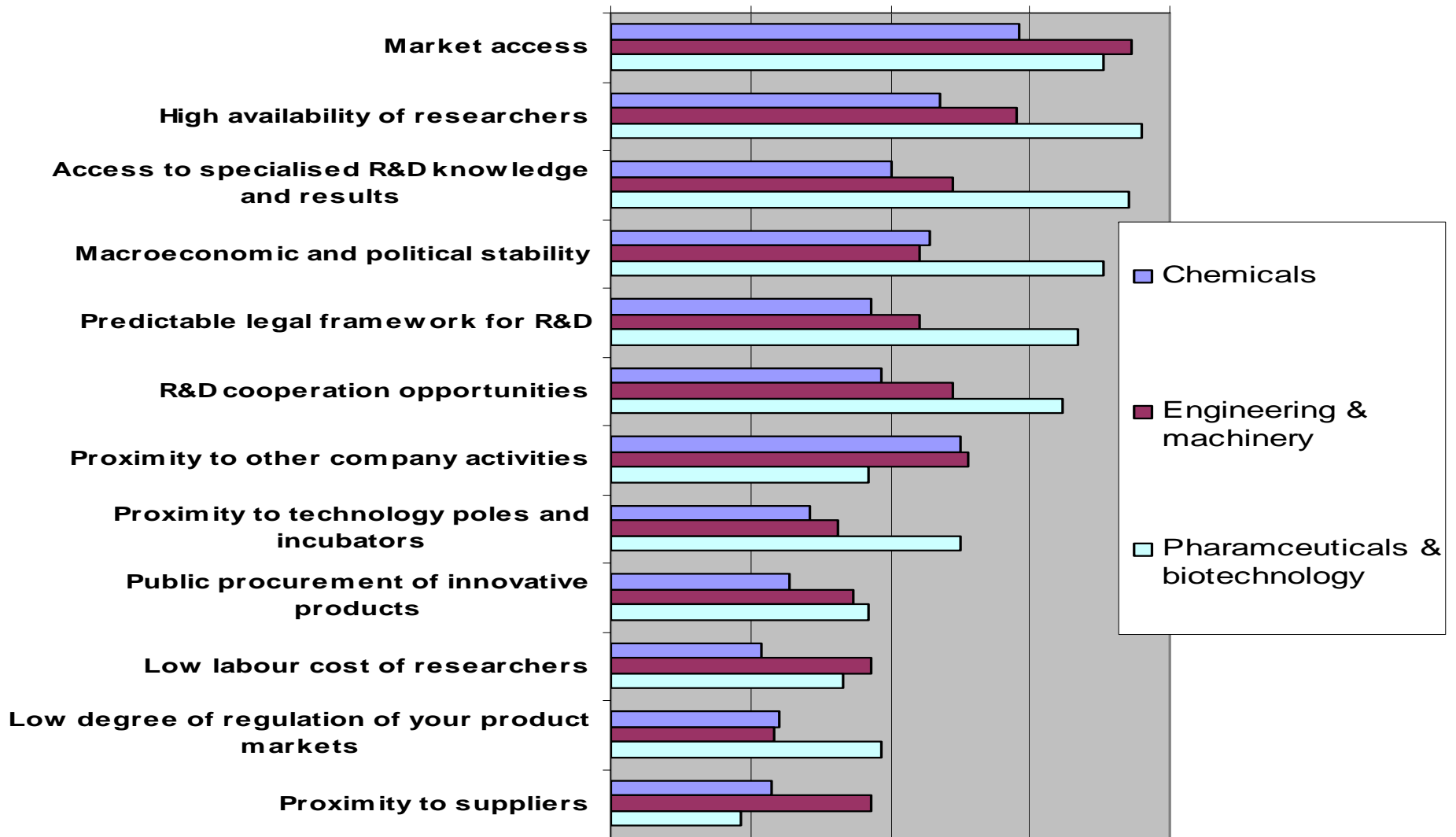


Importance of location factors

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share of respondents rating the factor as very or crucially important

0% 20% 40% 60% 80%



Source: EU Survey of Business Trends in R&D Investment (2006)



Looking at R&D intensity in sectors

- Another IPTS study: the *EU Scoreboard of Industrial R&D Investment*
- Gap in R&D intensity between EU and its competitors can be explained by structural differences



R&D intensity of EU sectors

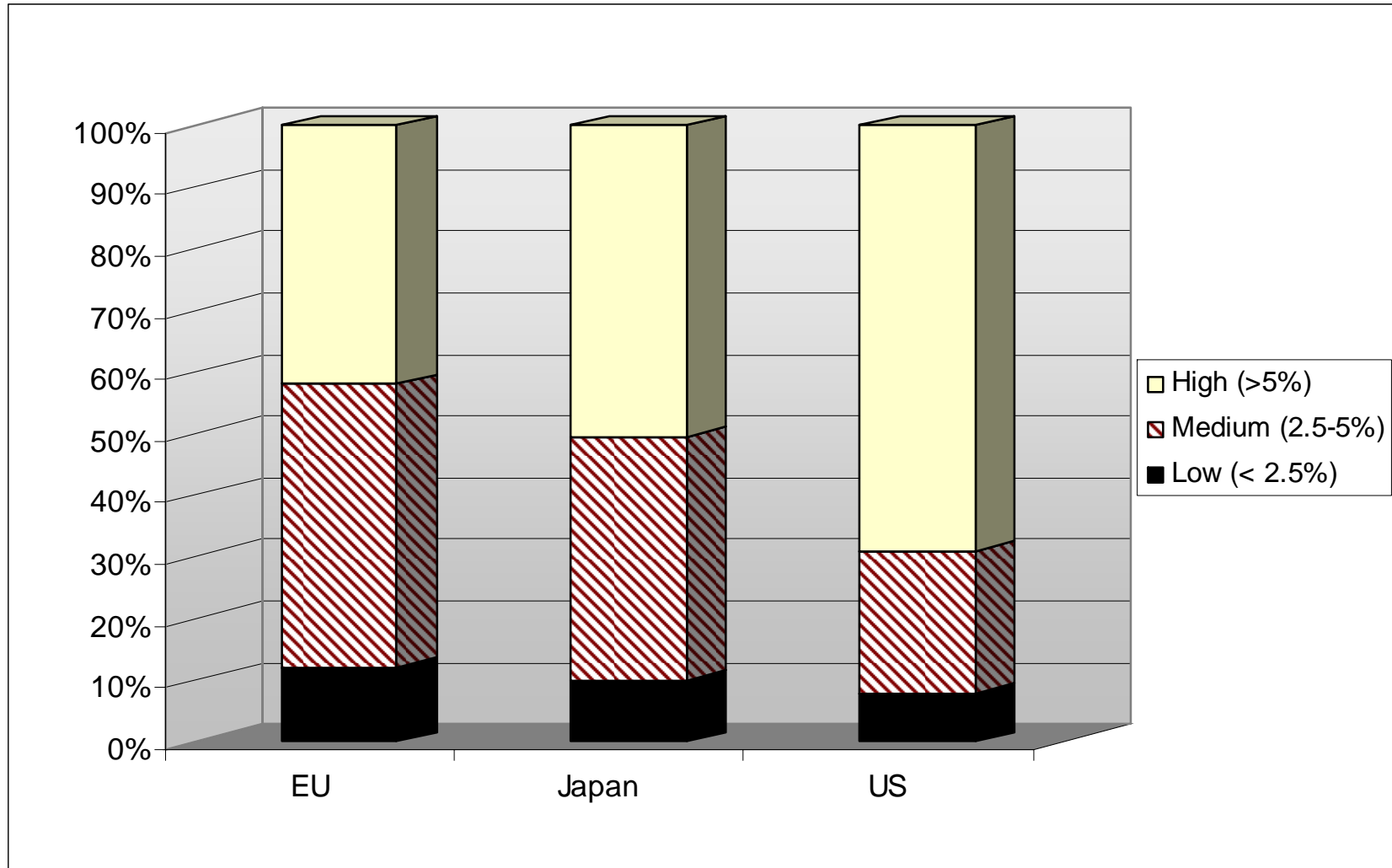
Top EU vs. non-EU R&D-investing companies

Factor	EU-500	Non-EU 500
Pharma & biotech sector		
R&D Investment (€ million)	17109	36199
Net Sales (€ million)	112634	239681
R&D Investment per Employee (k€)	37	46
R&D / Sales Ratio (%)	15.2%	15.1%
ICT sectors		
R&D Investment (€ million)	15130	60126
Net Sales (€ million)	100758	671966
R&D Investment per Employee (k€)	33	22
R&D / Sales Ratio (%)	15.0%	8.9%

Source: EU Industrial R&D Investment Scoreboard (2004)



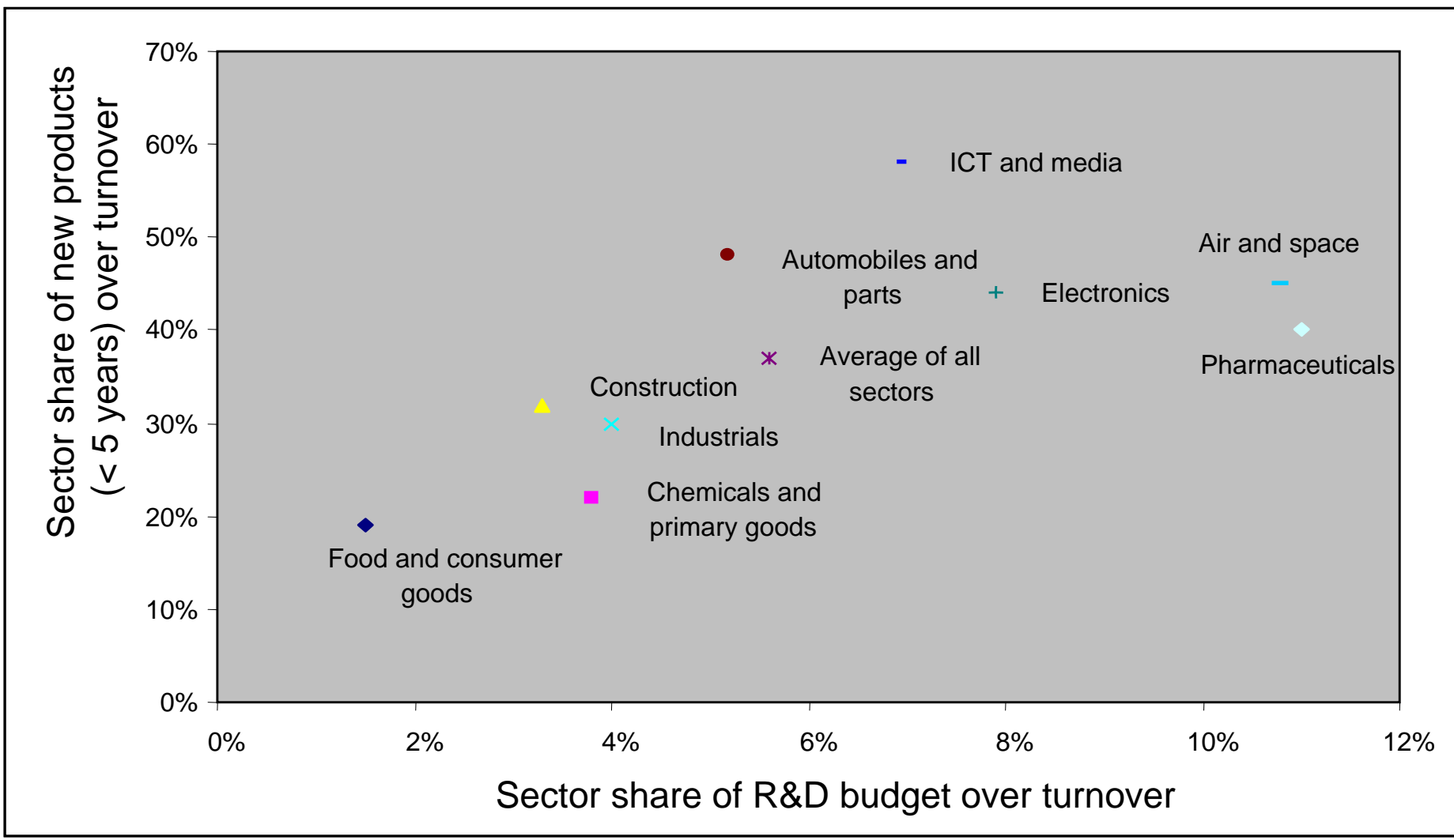
Sector shares by R&D intensity and main world region



Source: EU Industrial R&D Investment Scoreboard (2005)



R&D intensity depends on sector of activity





To discuss

- Low-tech or high tech?
- Emerging sectors (e.g. services) or established sectors in which there is competitive advantage?



Change in BERD and number of researchers in the EU (1995-2003)

	Total	Business	Manufacturing	Services
Researchers	29%	38%	24%	151%
Expenditures	29%	33%	25%	122%

Source: Eurostat Newcronos



Conclusion

- Industrial R&D is necessary for growth and jobs
- Raising industrial R&D intensity is a necessary condition
- But there is more to achieving R&D-fuelled growth and jobs than raising R&D intensity
- A disaggregated approach can lead to better-focused and more effective policies



Thank you

rene.van-bavel@cec.eu.int

Institute of Prospective Technological Studies