



Contribution of Investment in Research to Regional Development

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7-9th June 2006, Turkkku





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1. Location patterns of research investment: key demand and supply side factors



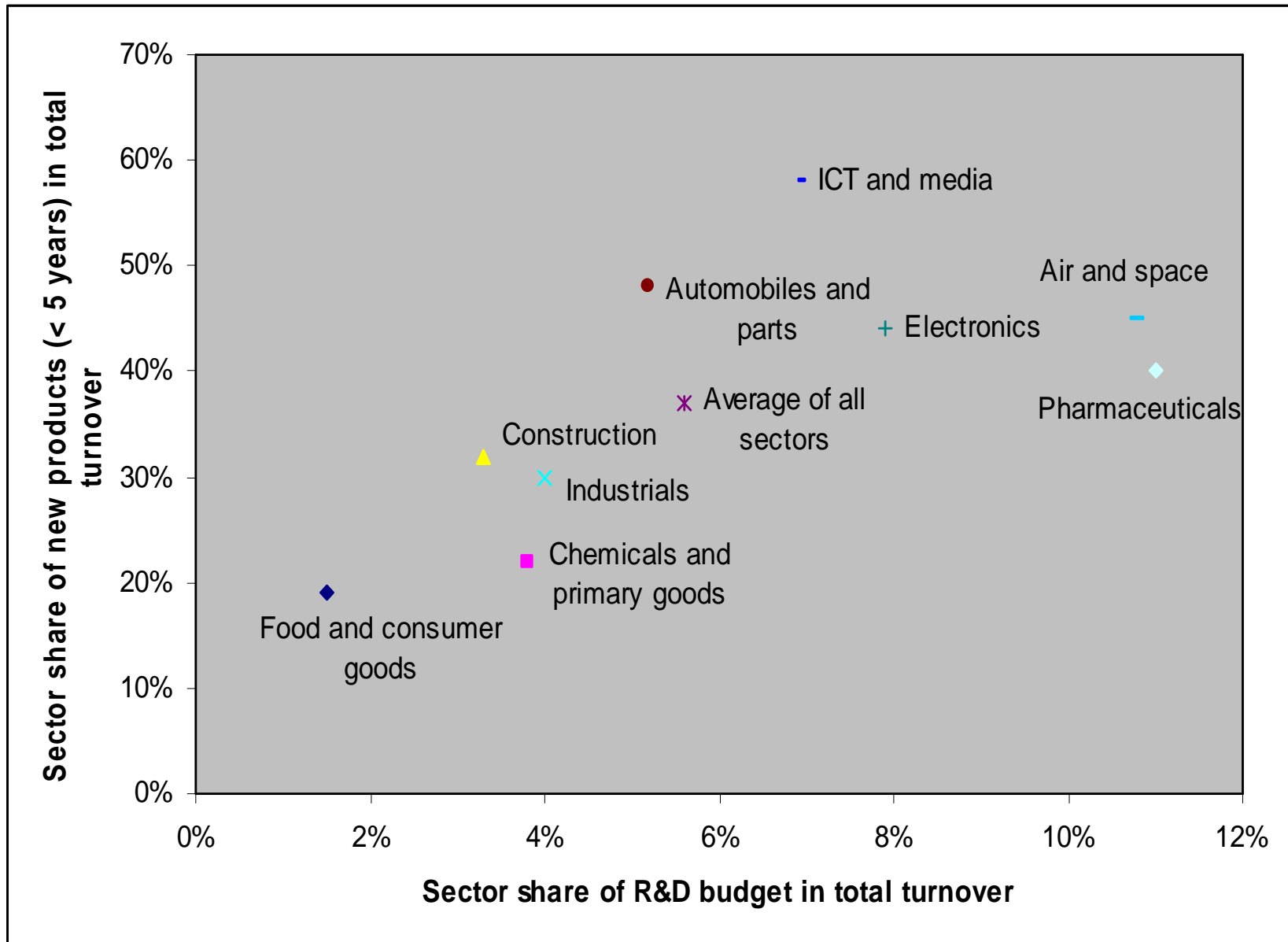
Incentives for R&D investment: from a company perspective

- Following competitors
 - Industry norm as basis for setting R&D budgets (but different types of firms within a sector)
 - Size aspect: critical mass of accumulated R&D required
- Broadening base of R&D firms
 - Knowledge intensive SMEs,
 - Technology start-ups, spin-offs
- Other factors of R&D location
 - General framework conditions
 - Economic environment
 - Political stability

Source: Annual Digest, IPTS (2006)



Sector characteristics: Share of new products in turnover compared to R&D intensity per sector



Source: Annual Digest (2006) based on A.D. Little (2004)



Different R&D investment behaviour in different sectors

- Science-based industries (e.g. pharmaceuticals, biotechnology)
- Scale-intensive industries (e.g. chemicals, steel)
- Specialised equipment industries - close collaboration with customers, outsourcers
- Supplier-dominated industries – focus on adoption of innovations (e.g. health services, banking)
- Information-intensive industries – investment in market-driven innovations



Multinationals as key investors in R&D

- A two-way phenomenon:
 - Growing share of host region's R&D is controlled by FDI
 - Growing share of R&D activities (and production) with domestically owned multinationals are conducted in other countries
- Foreign companies increasingly control regional/domestic R&D investments (UNCTAD, 2002):
 - 34.2% in Canada; 32.8% in Spain; 31.2% in UK
 - 16.4% in France; 14.9% in United States; 1.7% in Japan



Main drivers of future R&D sites

- In the developed world (USA, Japan and the EU)
 - Access to technology or research clusters
 - Access to markets and customers
 - Access to highly qualified workforce
- In the developing countries
 - Access to low cost skills
 - Access to highly qualified staff (e.g. India, China)

Source: Booz Allen Hamilton - INSEAD (2006)



Dominant supply side factors of R&D location

IPTS's Survey on Industrial R&D:

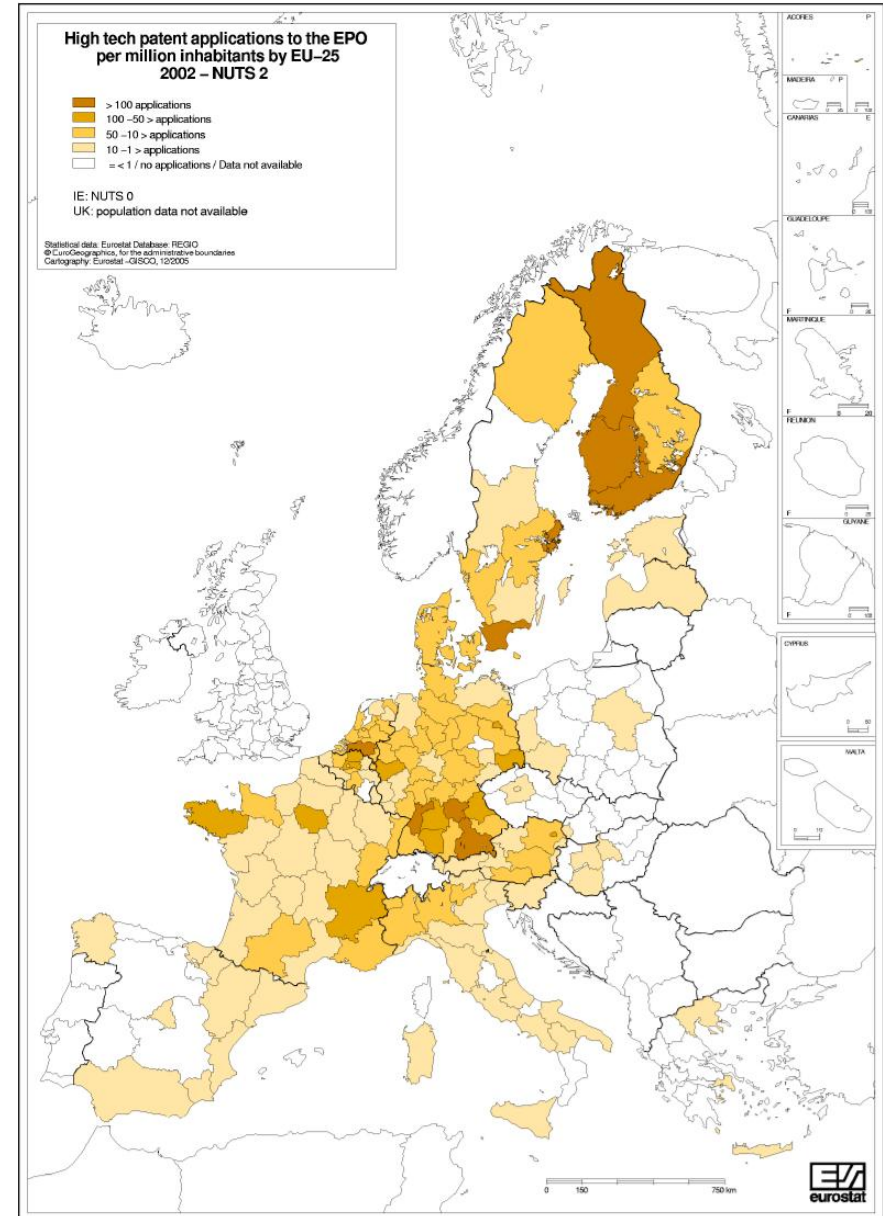
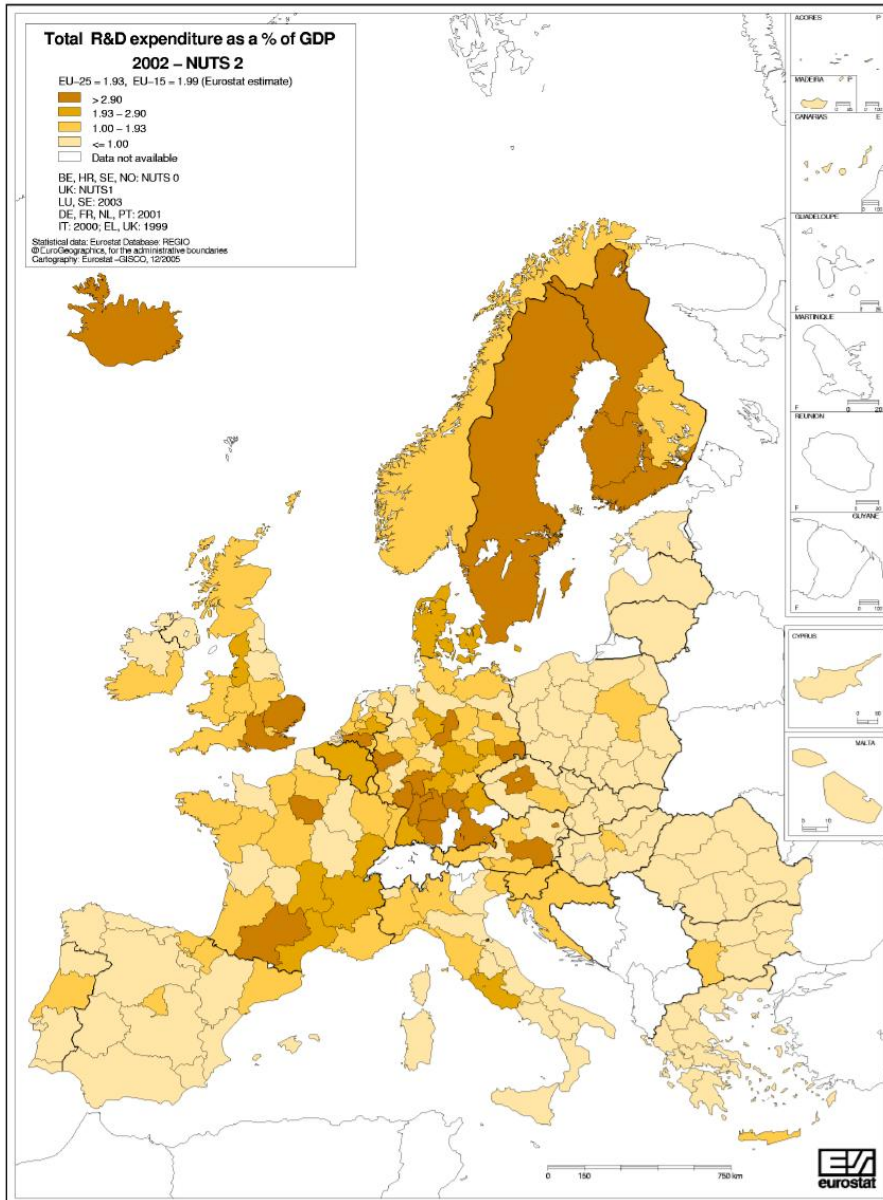
- Market demand remains the main driver for companies to invest in R&D
 - Labour cost of researchers is not so important
 - Access to R&D personnel and knowledge attracts companies to countries
 - Many EU companies prefer a place close to their home base within the EU and in countries with a strong potential outside the EU
 - Outside the EU, the US is still the preferred destination
- > Wherever creativity/talents go, innovation and economic growth follow (Florida, 2004)



2. Impact of research investment on regional economies



High concentration of R&D in the EU





Few "R&D islands" in the EU

- 25% of the total R&D expenditure concentrates in seven EU regions and 50% of total R&D expenditure was spent in 23 regions
- The top ten regions with the highest proportions of total R&D expenditure in the EU countries accounts for 30% of total R&D expenditure

*Table 1: Top 15 regions in terms of R&D intensity
all sectors, EEA countries — 2001*

All sectors				
Regions	Country	As a % of GDP	Constant PPS at 1995 prices	
			Mio	% of EU-15
EU-15		1.99	147 998	100.0
EEA		1.98	150 030	:
Braunschweig	DE	6.21	2 116	1.6
Västsverige	SE	5.27	1 958	1.3
Stuttgart	DE	4.82	4 807	3.5
Oberbayern	DE	4.72	5 578	4.1
Pohjois-Suomi	FI	4.36	464	0.3
Stockholm	SE	4.33	2 407	1.6
Tübingen	DE	4.22	1 563	1.2
Uusimaa (Suuralue)	FI	4.21	1 745	1.2
Berlin	DE	3.68	2 356	1.7
Eastern	UK	3.56	3 745	2.8
Dresden	DE	3.47	835	0.6
Rheinhessen-Pfalz	DE	3.42	1 370	1.0
Karlsruhe	DE	3.35	2 145	1.6
Île de France	FR	3.34	11 788	8.2
Köln	DE	3.29	3 151	2.3

Source: EUROSTAT



Metropolitan regions as “R&D nodes”

- FDI/multinationals choose most frequently metropolitan regions as R&D investment location
- Metropolitan regions provide:
 - Variety of knowledge providers
 - Diversity of important suppliers and customers
 - Regional R&D externalities
 - Face-to-face interactions between R&D facilities
 - Proximity to “technology leaders”



EU regions from a “birds eye view” perspective

- Regional economies of Europe exhibit “structural” similarities within “convergence clubs” (i.e. types)
- The economic structure, specialisation of the industrial fabric and existing research capacities seem to be the most important determinants
- Socio-economic attributes of types of regions determine their capacities to produce and absorb technological knowledge and integrate it in the production process
- Majority of European regions have limited governance autonomy and RTDI policy competences
- RTDI policy is a central issue only for fraction of regions in Europe
- RTDI policy is - to a large extent - restricted to innovation policy in the majority of EU regions



3. Consequences for policy-making



Expected impact of R&D investments

- To support or improve conditions for industrial renewal
- To create new fields of specialisation
- To contribute to economic growth of the region

BUT not automatically and everywhere!



Key elements to consider

- Reasons behind research investment decisions
- Absorption of knowledge is easier in those regions that already have a relatively higher productivity level and a larger stock of knowledge
- Geographical clustering and knowledge spillovers: university research and private R&D are closely correlated
- New research based firms are likely established in those regions which are endowed strong university research and clustered private R&D activities



Principles for constructing regional advantage

- To broaden economic base by building on existing resources
- “One-size-fits-all” policy offer too general solutions for very heterogeneous regional situations
- > Tailor-made policy more effective
- Focus on region-specific potentials and bottlenecks
- Not too much reliance on region: non-local linkages are crucial

Source: CRA Expert Group, DG RTD (2006)



4. Contribution of the RIPWATCH regional analysis to mutual learning



RI PWATCH regional analysis

Basis: statistical analysis and typology of regions as “selection methodology”

Objective: investigate relationships between the socio-economic context, knowledge creation, absorption and diffusion mechanisms, actors involved and RTDI policies

Outcome: 20 Case study and synthesis reports (in two cycles by April 2007)

Structure of the reports:

- Regional knowledge base (RTDI infrastructure, Human resources, RTDI efforts and outcomes, Knowledge transmission mechanisms)
- Regional economic structure (Productive structure, Regional clusters, International position and effects of FDI, Financial capacities and instruments)



Potential for mutual learning

- Conclusions on the broader picture of the regional R&D and innovation landscape of the EU25
- Better understanding of factors that determine regional R&D and innovation capacities
- Identification of inducement mechanisms and good policy practices conducive to overcoming identified dysfunctions in different types of regional economies
- Identification of potential ways for development absorption capacities



Thank you for your attention!