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**COINVEST:
Competitiveness, Innovation and Intangible Investment in
Europe**

**Intangibles and growth accounting results for Portugal
Preliminary Results**

Francisco Lima, IST

Stockholm, September 28-29, 2009

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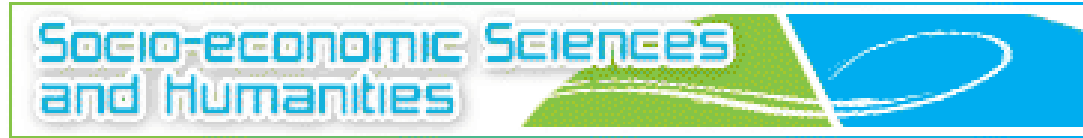


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The Team

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- From other related projects at IST (coordinated by F. Lima)
 - Filipa Cabral – works with CIS
 - Xavier Azque – works with ICT survey
- and Pedro Martins – Queen Mary, Univ London



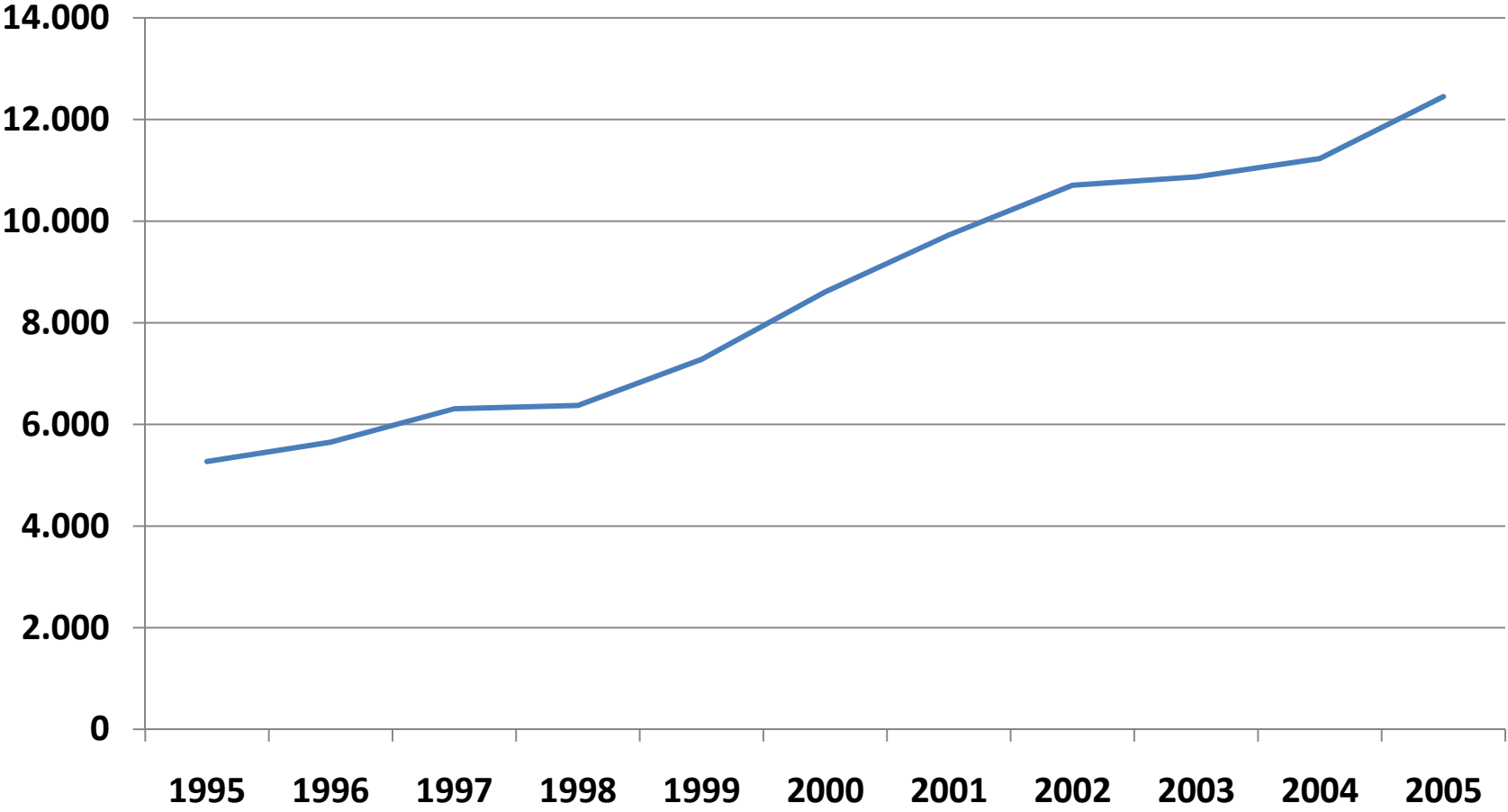
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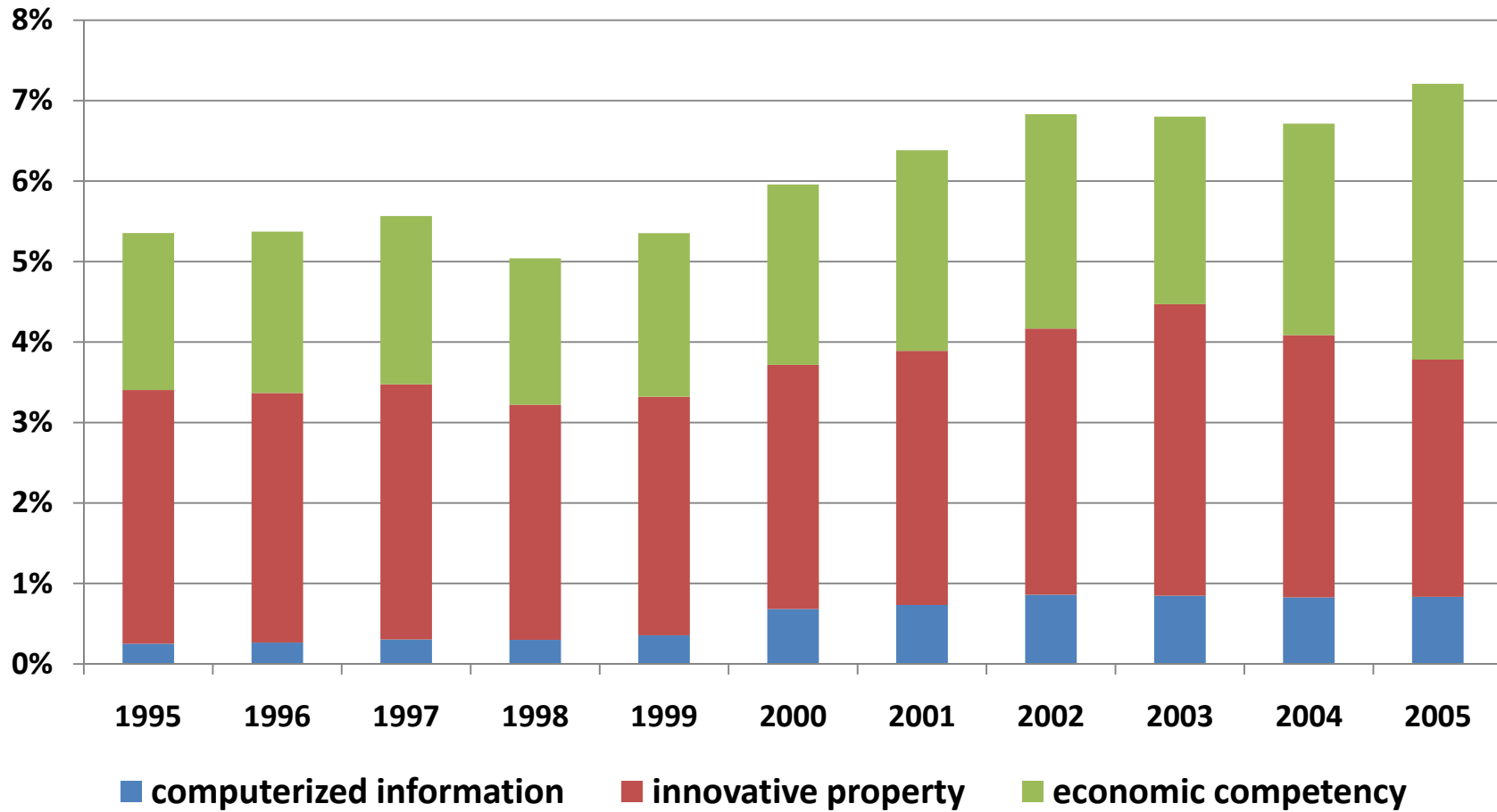
Sources

- EU KLEMS
- Matched employer-employee data (*Quadros de Pessoal*)
- National Accounts
- CIS
- ECVTS

Intangible investment (Million EUR)



Intangible Investment in the Market Sector (% GDP)





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Computerized Information

Computer software

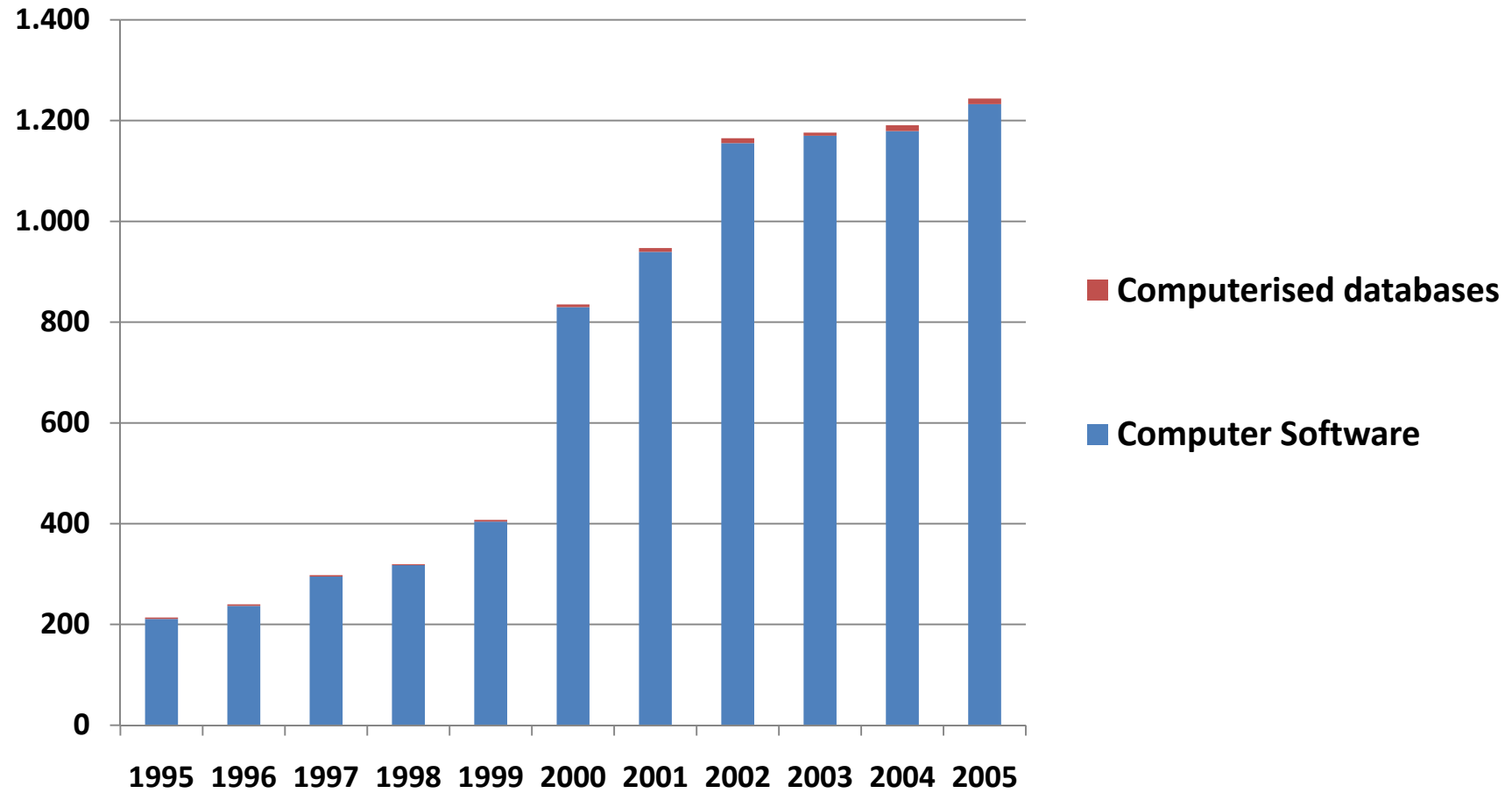
EUKLEMS database

Includes own use, purchased and custom software

Computerized databases

Quadros de Pessoal Database - Database Management sector (NACE K72400)

Computerized information





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Innovative Property

- Scientific R&D
 - BERD (OECD - Main Science and Technology Indicators 2008-2)
- Mineral exploration
 - *Quadros de Pessoal* database - Mineral exploration industry (NACE 10 to 14 excluding “Services associated to oil and gas extraction not related to prospection” and “Salt refinement”)
- Copyright and license costs
 - *Quadros de Pessoal* database - TV and radio, publishing, music industries, acting activities, reproduction of recorded sounds or videos



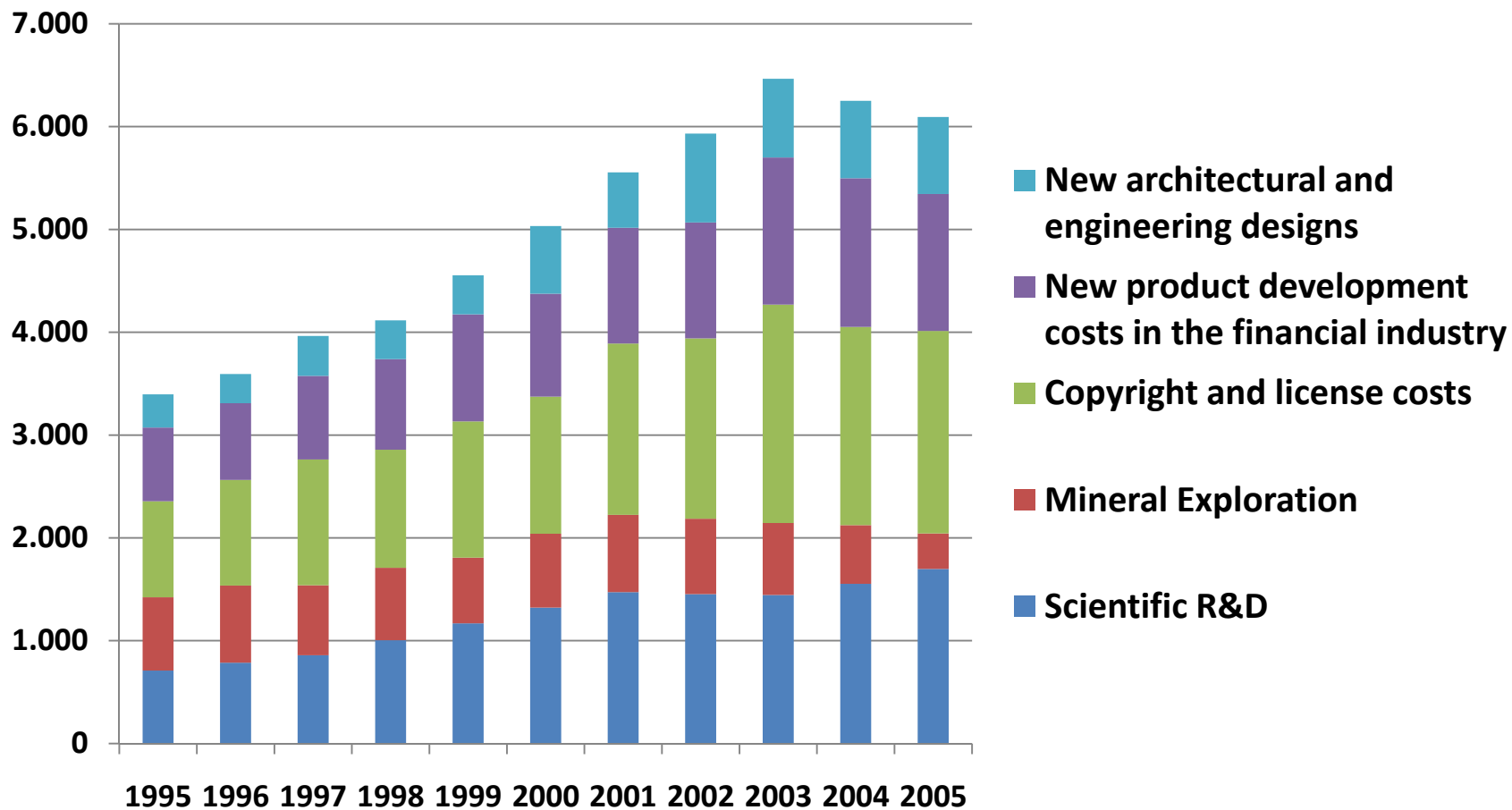
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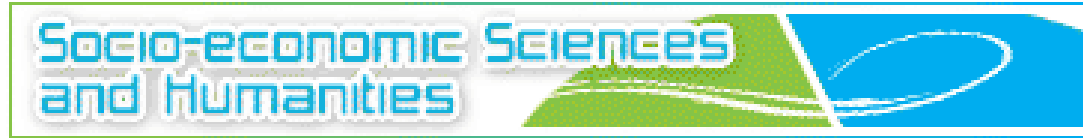
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Innovative Property

- New product development costs in the financial industry
 - *Quadros de Pessoal* database - Turnover from the financial industry * share of innovation expenditures of the financial industry obtained from the CIS III (4%) (update with CIS IV)
- New architectural and engineering design
 - *Quadros de Pessoal* – 50% of the turnover from the architectural and engineering industry plus the earnings from designers in other industries
- R&D in social science and humanities
 - Included in the scientific R&D

Innovative property





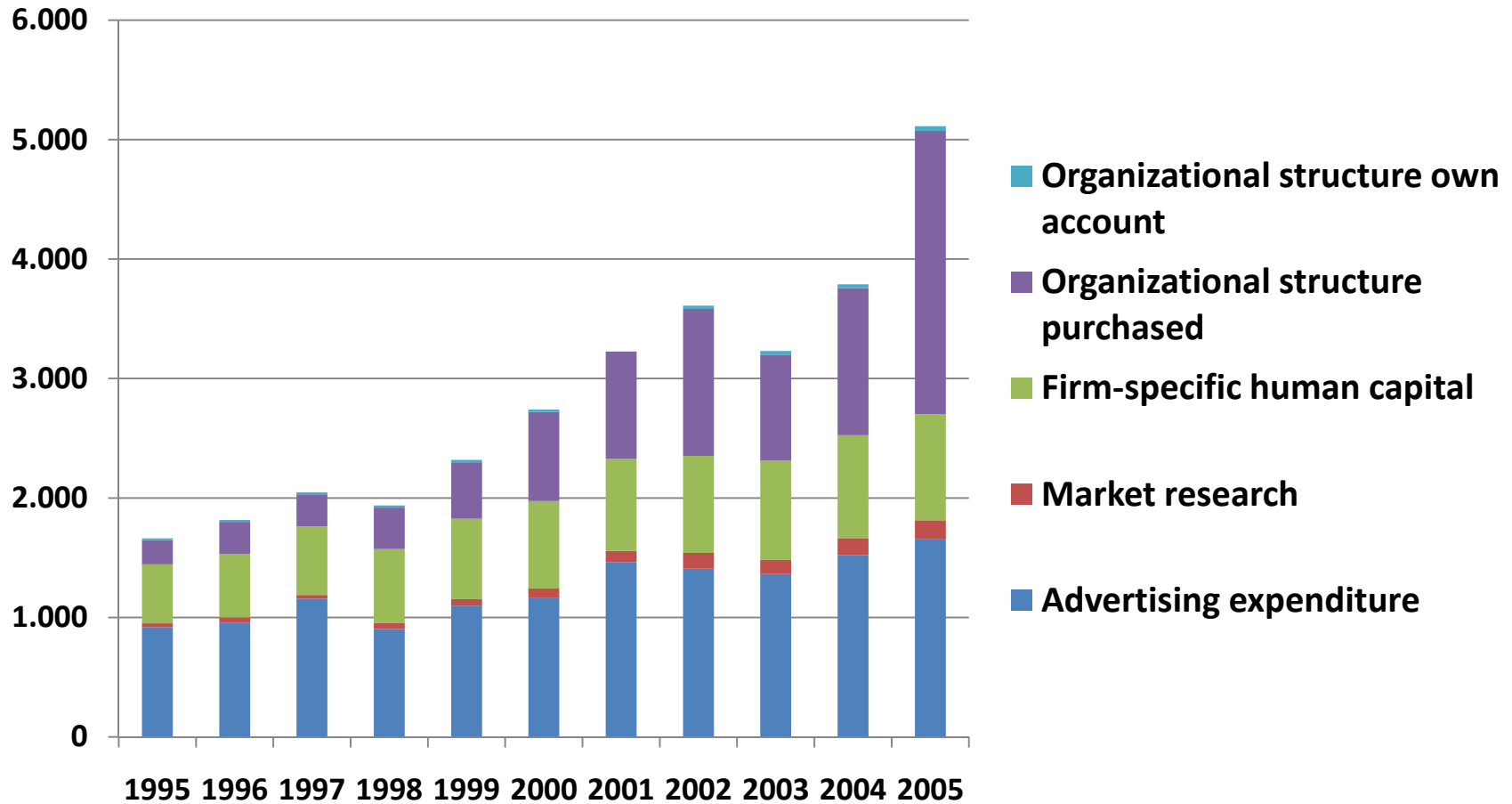
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Economic competencies

- Advertising expenditure
 - *Quadros de Pessoal* - Advertising industry (NACE 744)
- Market research
 - *Quadros de Pessoal* - Market research industry
- Firm-specific human capital
 - Compensation of employees (EU Klems) * Percentage of training costs obtained from the Eurostat Vocational Training Survey (1999 value)
- Organizational structure - Purchased
 - *Quadros de Pessoal* - Management consulting industry
- Organizational structure Own Account
 - *Quadros de Pessoal* – 20% of managers' earnings

Economic competences



Growth Accounting without Intangible Assets

	1996-2000	2000-2004
Annual growth rate of labor productivity of the business sector	2.76%	0.91%
Contribution of Inputs		
ICT tangible capital deepening	0.57%	0.51%
Non-ICT tangible capital deepening	1.26%	0.88%
Labor quality	-0.22%	0.83%
MFP	1.07%	-1.38%

Growth Accounting with Intangible Assets

	1996-2000	2000-2004
Annual growth rate of labor productivity of the business sector	3.06%	1.20%
Contribution of Inputs		
ICT tangible capital deepening	0.45%	0.44%
Non-ICT tangible capital deepening	0.73%	0.71%
Intangible capital deepening	-0.38%	0.64%
Labor quality	-0.20%	0.74%
MFP	2.32%	-1.40%
Software	-0.42%	0.07%
Innovative property	0.16%	0.32%
Economic competence	-0.11%	0.25%

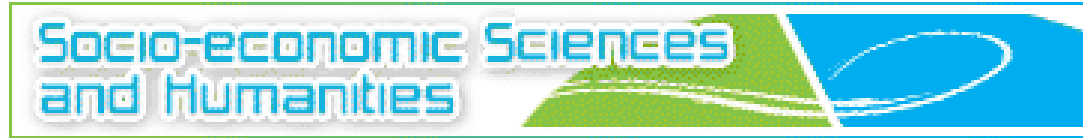


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What's next?

- Improve the estimates
- Other sources/methodologies
 - INE-Statistics Portugal – the National Accounts Dep.
 - Portuguese Central Bank – the Research Dep.

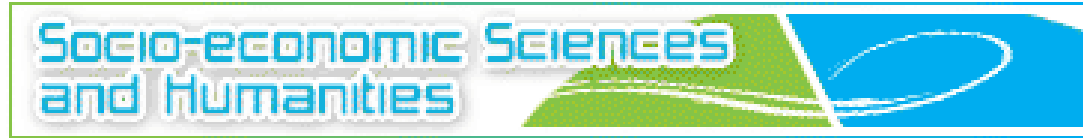


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Micro Work

- Interdependence and Spillovers: Is Firm Performance Affected by Others' Innovation Activities?
- Firm Decision on Innovation Types: Evidence on Product, Process and Organizational Innovation
- Cooperation Innovation Activities: The Importance of Partners
- International Cooperation on Innovation: Firm-level Evidence from Two European Countries
- Formal and Strategic Appropriability Strategies of Multinational Firms – a Cross Country Comparison

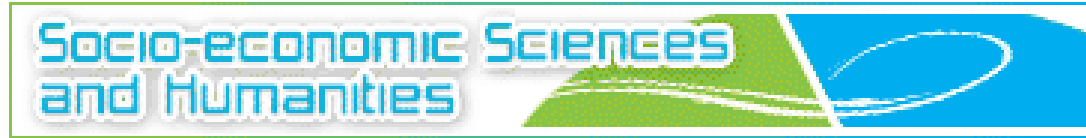


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Conclusions – Micro work

- Innovation influences firm level performance
- Innovation activities generate spillovers to surrounding firms
- Innovation strategies that combine process and product innovation activities amplify the positive impacts of innovation on firm performance
- Absorptive capacity and firm size influence the success of open innovation strategies of firms
- Open innovation strategies with international partners require experience on other internationalisation activities
- Multinational subsidiaries have more deep and diversified appropriability strategies than national firms



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Further (Micro) Work

- Matching CIS with firm data / CIS with matched employer-employee data
- ECVTS
- IPCTN - Survey on the National Science and Technology Potential
- More on occupations
 - matched employer-employee data