



Regional innovation poles and knowledge diffusion in Italy: The case of the Abruzzo region

PRELIMINARY RESEARCH PROJECT

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Outline

- Motivation and theoretical framework: international integration and local innovation
- The Abruzzo region: a faded miracle?
- Regional innovation poles in Abruzzo
- Concluding remarks: innovation networks in the National Plan for Recovery and Resilience

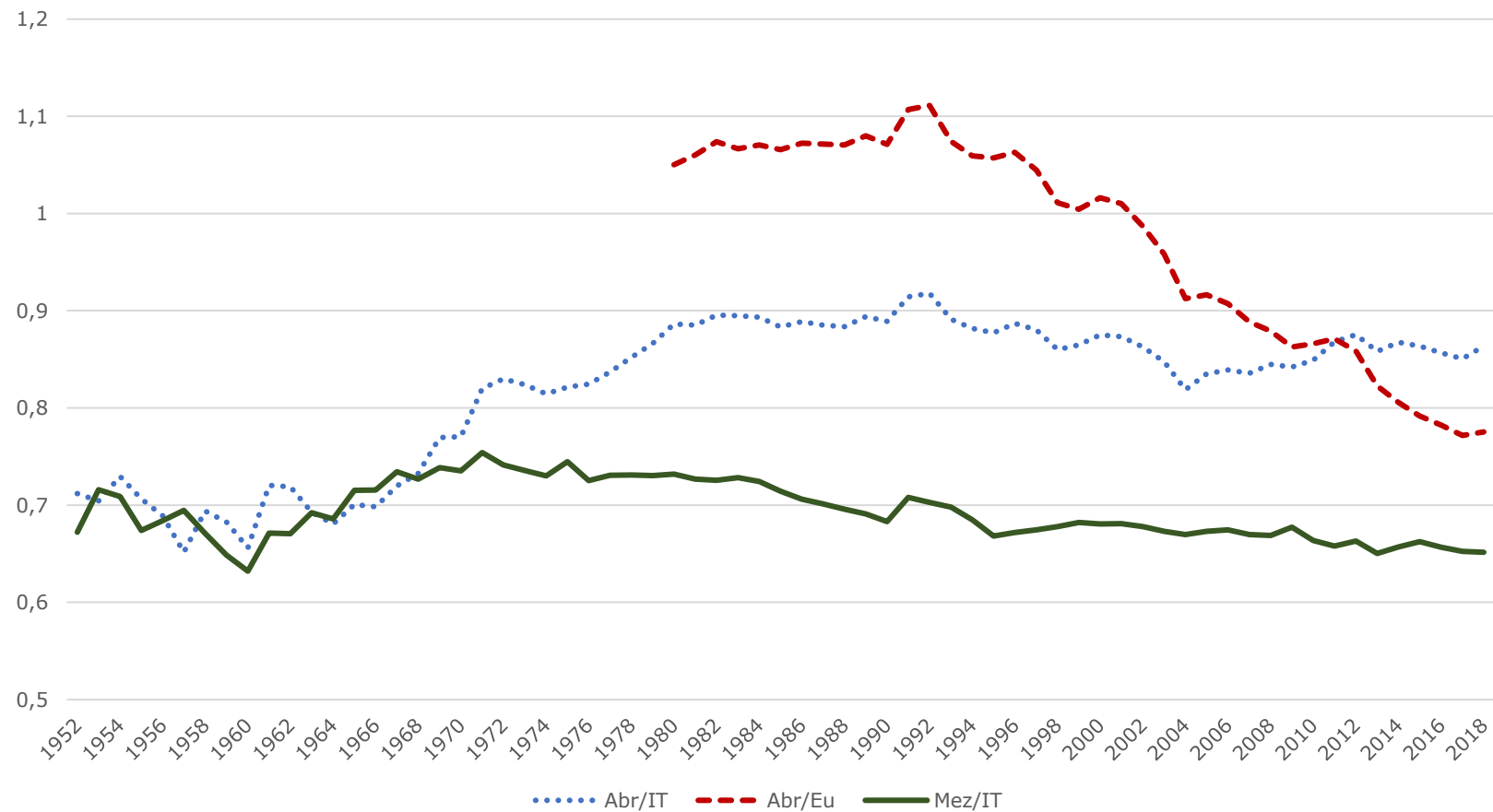
Motivation

- Slowdown of GDP and productivity growth in Italy
- Problems of competitiveness and innovative capacity of smaller companies
 - Managerial limits of family management
 - Predominant role of traditional bank financing
- Problems in accessing innovative knowledge
 - Many innovations are intangible, separated from physical capital, which in the past was used to absorb knowledge
 - The concentration of intellectual property induced by the digital transformation of the economy has raised the barriers to access for smaller companies
- Competitive selection and polarization of the Italian entrepreneurial system
 - Some (few) SMEs that innovate, export and ensure good working conditions
 - Many static companies, which only manage to survive thanks to low wages, bad jobs, large margins of tax avoidance and evasion and public subsidies
- Widening territorial inequalities in the Italian socio-economic system
 - The Mezzogiorno issue is still open
 - Increasing gaps between urban systems and peripheral areas

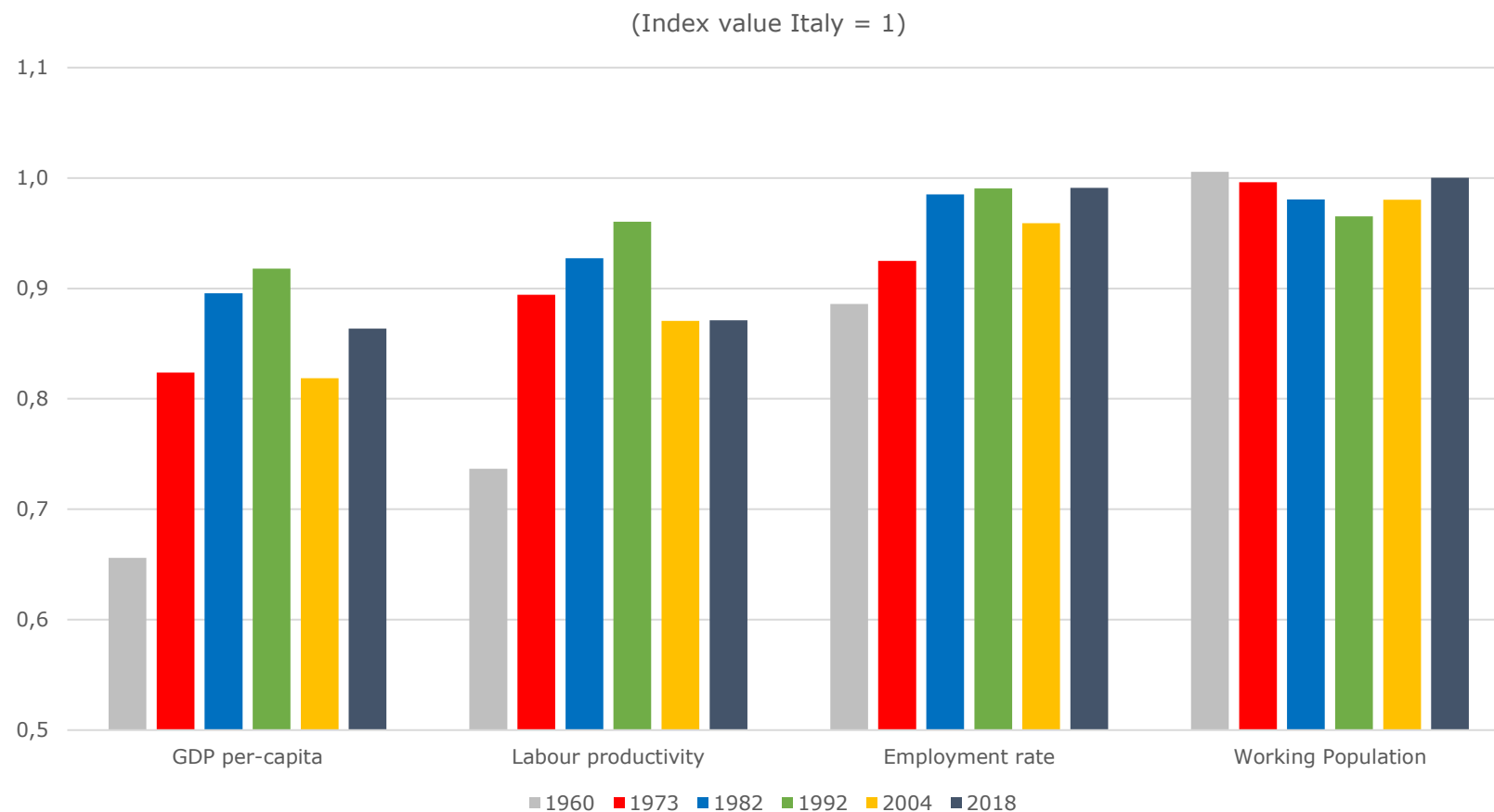


***International
integration,
innovation and
productivity in the
Abruzzo region***

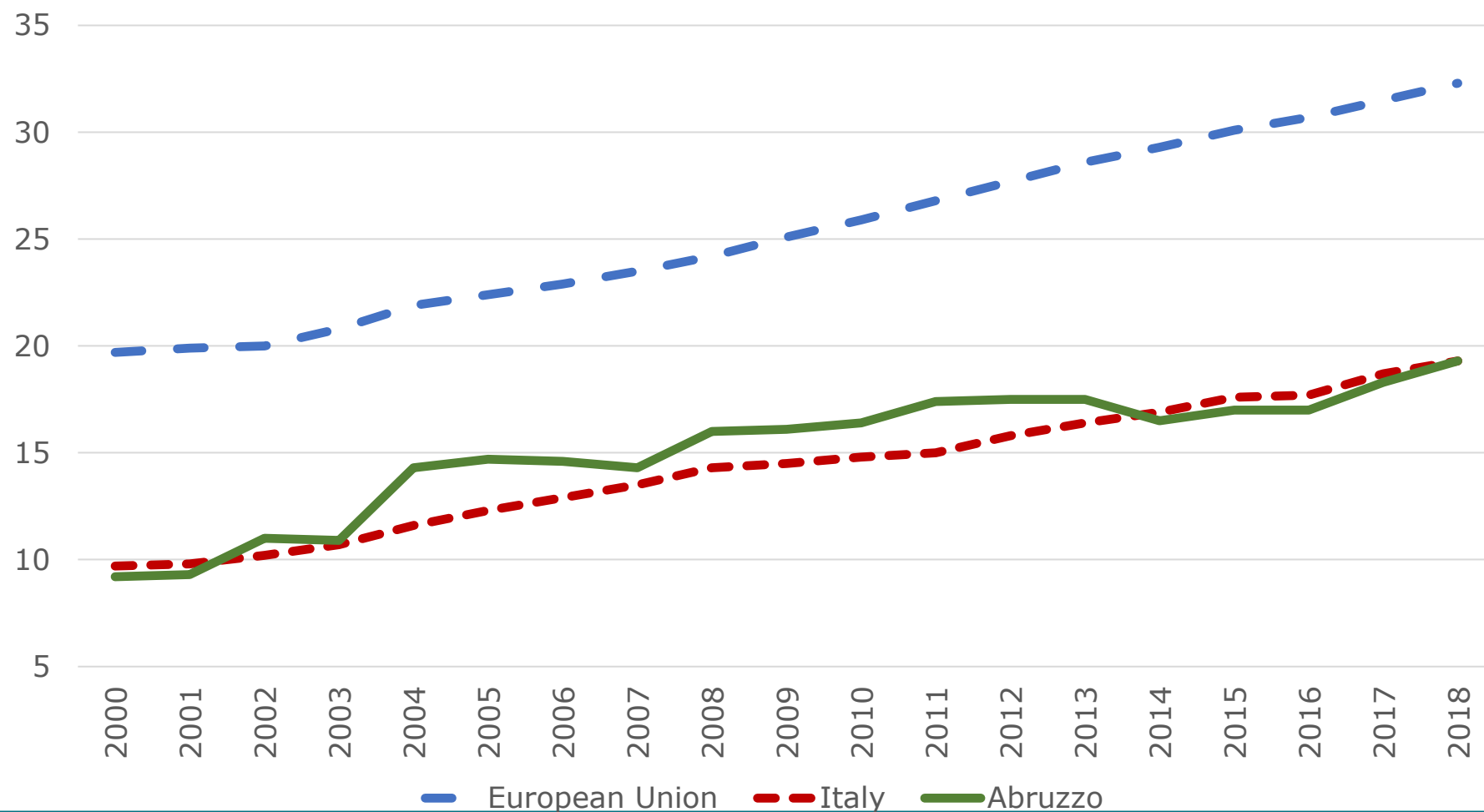
The case of Abruzzo: a faded miracle? Convergence in per-capita income



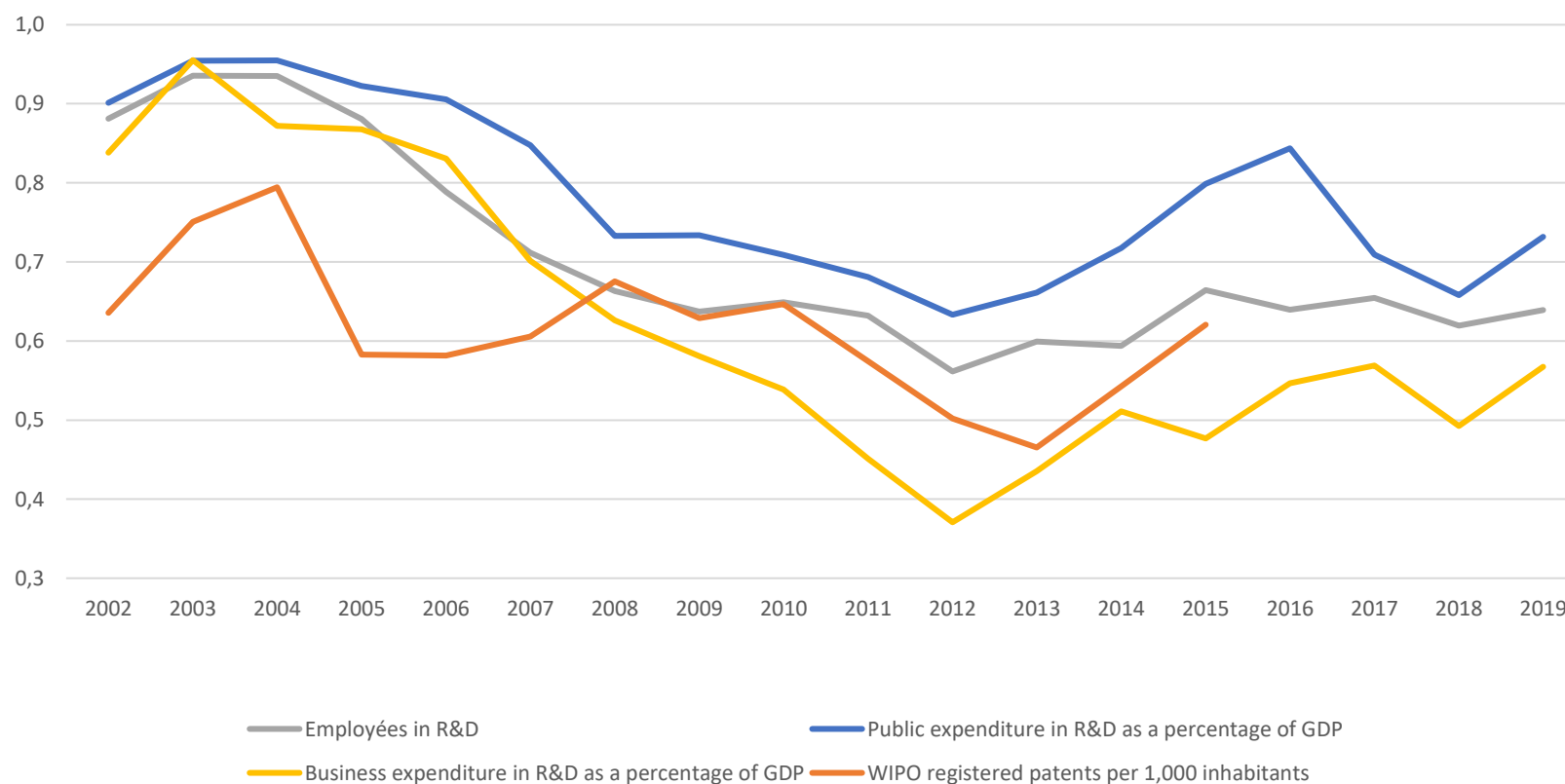
Abruzzo in a «development trap»: a problem of labour productivity



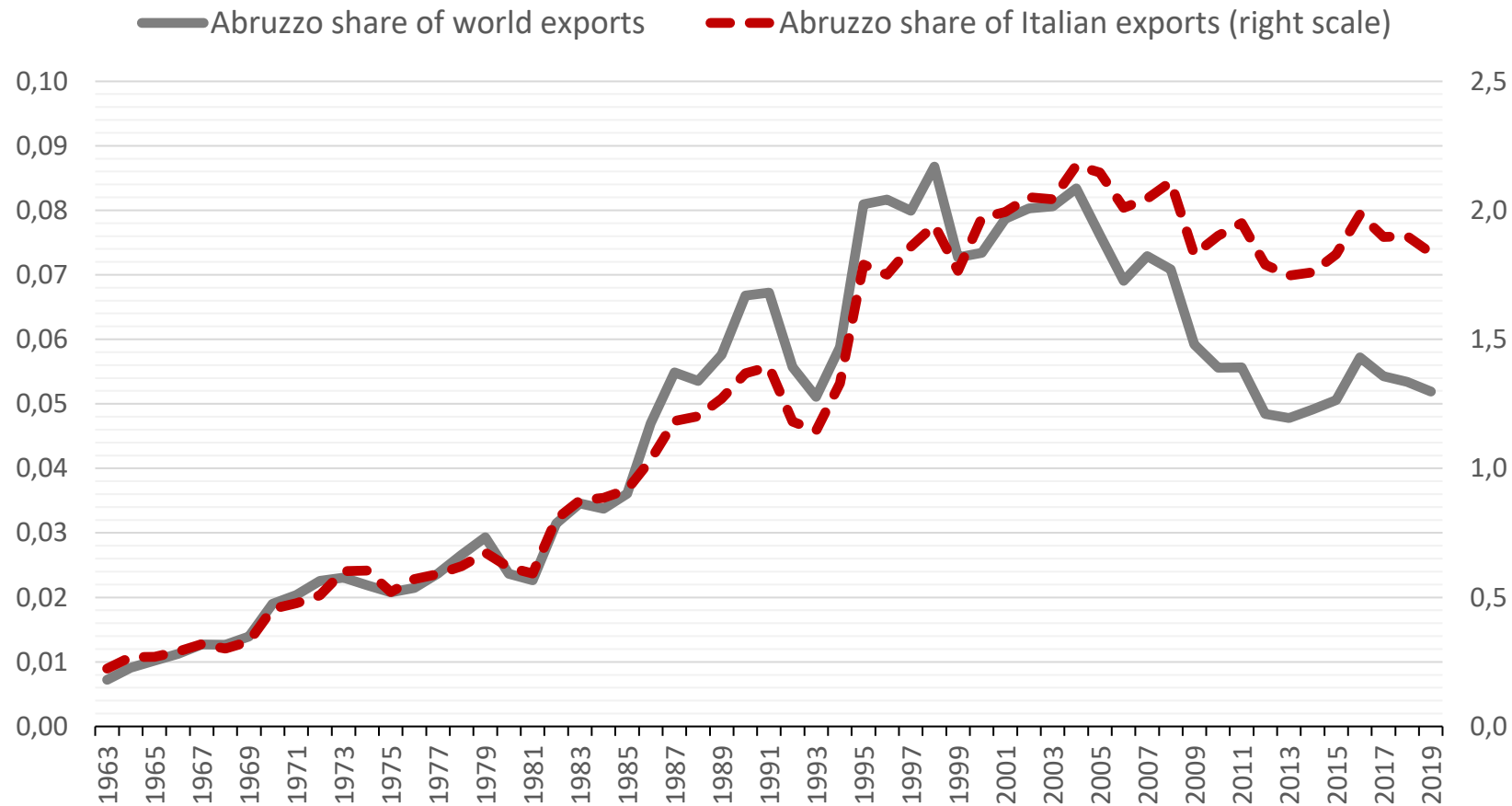
Population aged 25-64 with tertiary education (per cent)



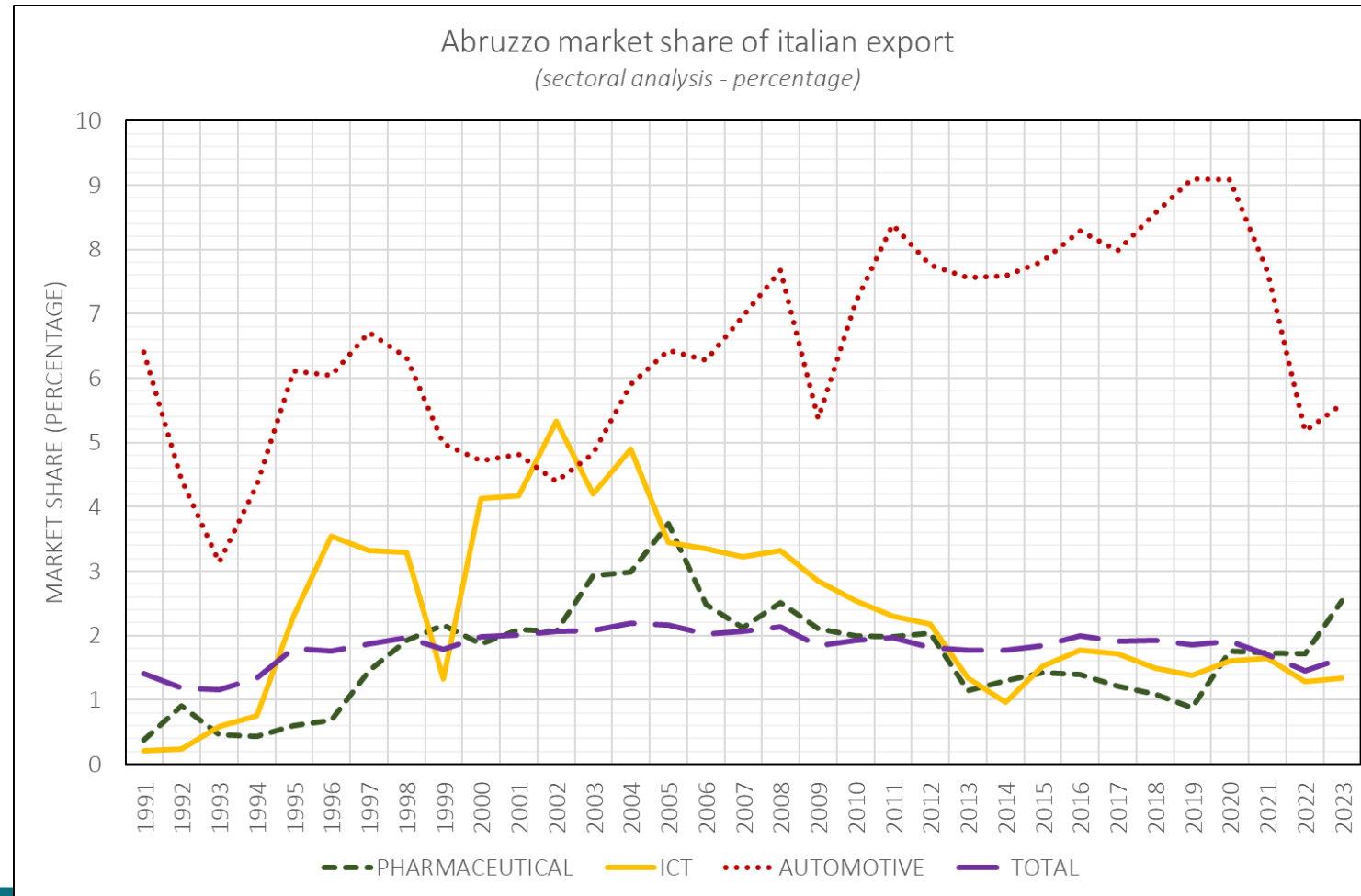
Abruzzo: innovation indicators (Italy = 1)



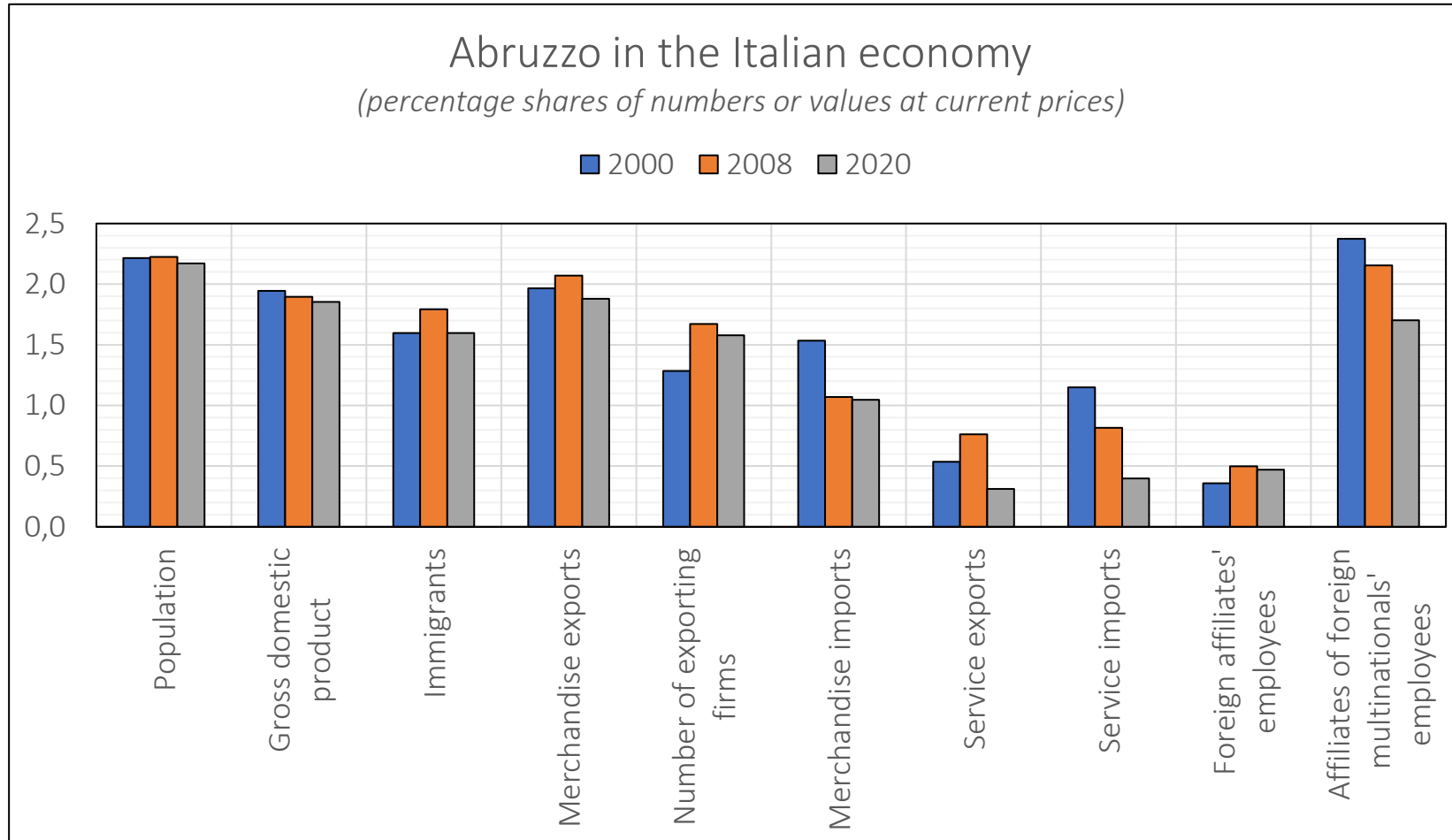
The Abruzzo faded miracle: export market shares (percentages)



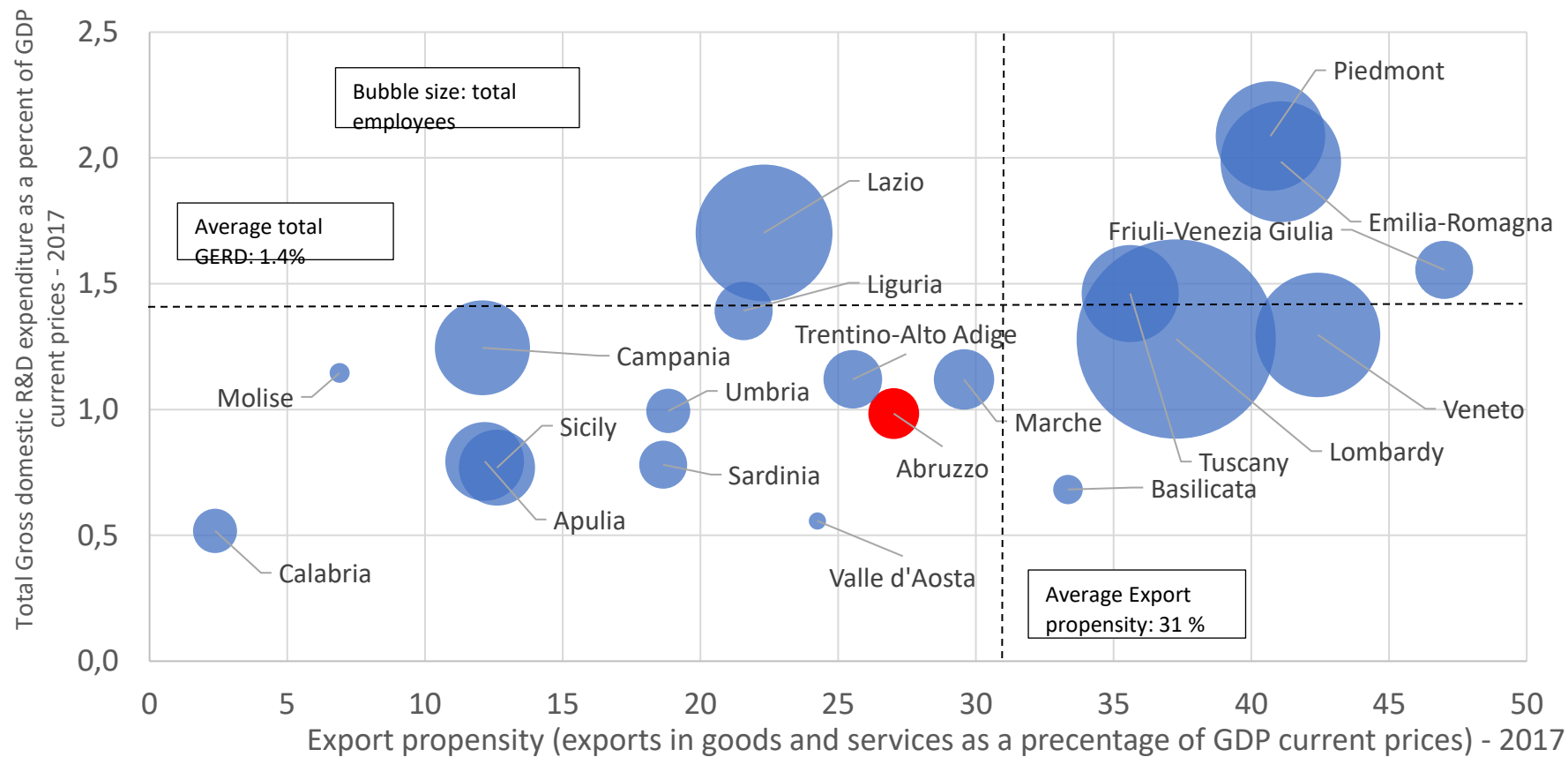
The Abruzzo faded miracle: export market shares (percentages)



International integration and economic development

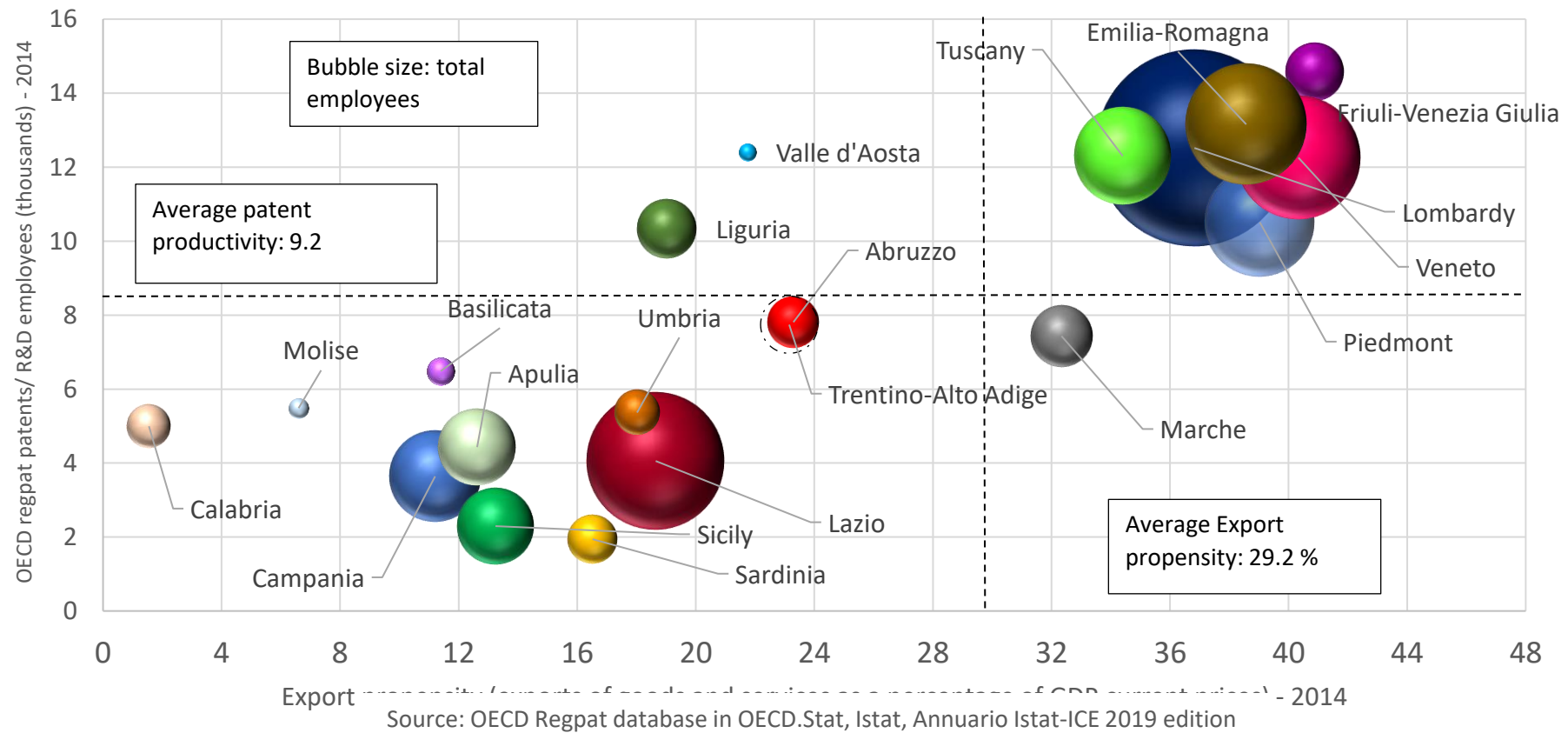


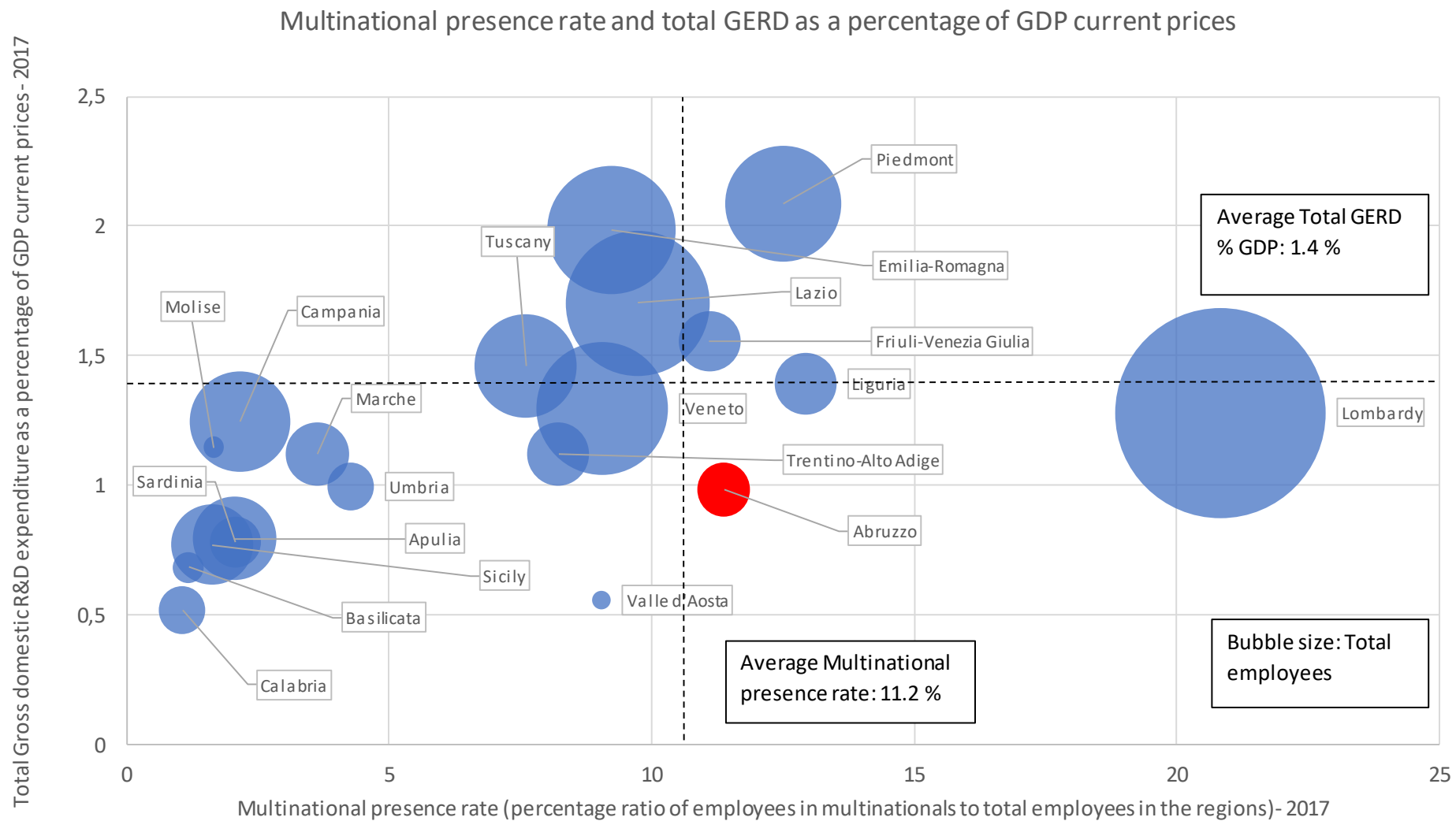
Export propensity and R&D expenditure - 2017



Source: Istat, Annuario Istat-ICE 2019 edition

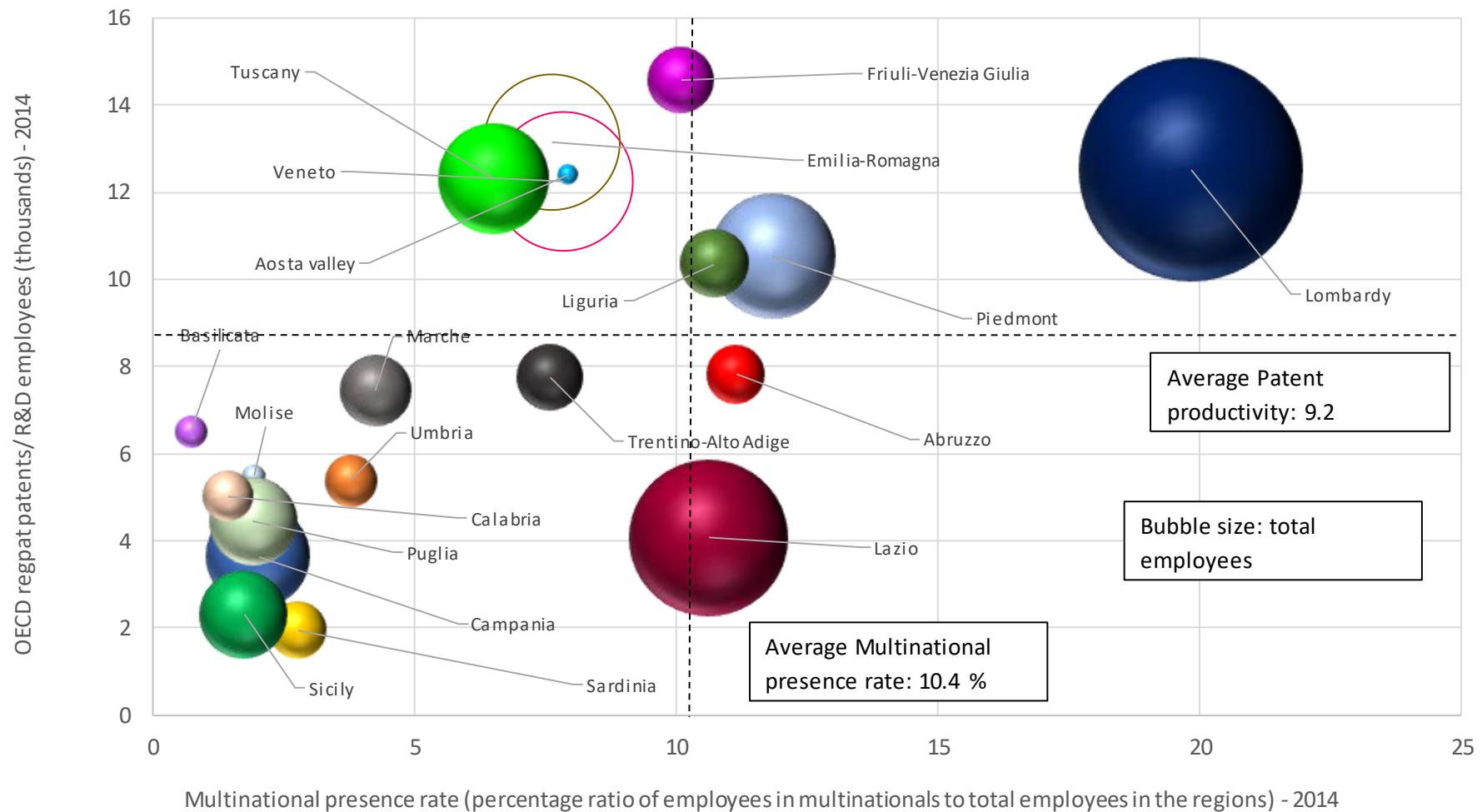
Export propensity and patent productivity





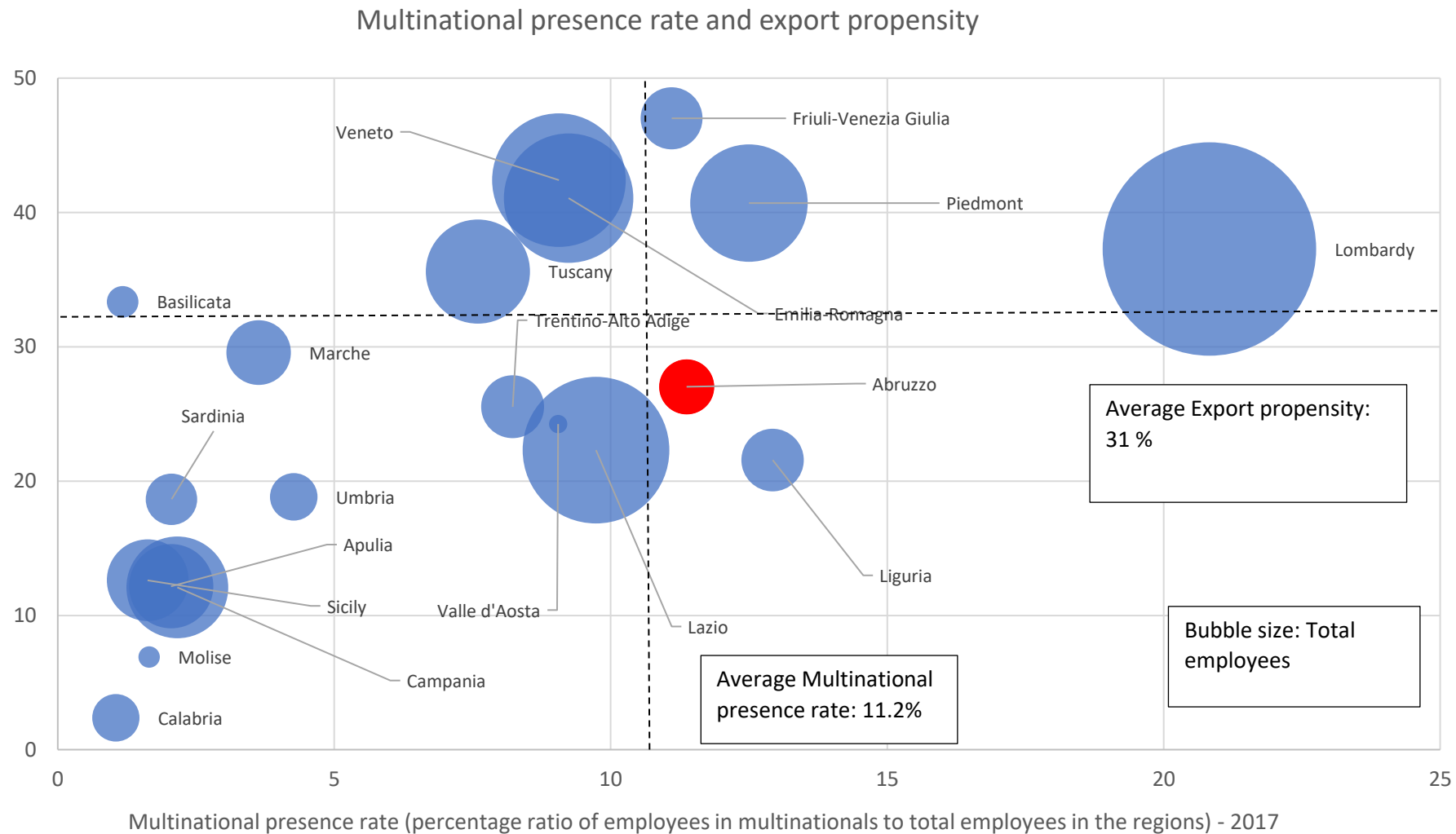
Source: Database ICE-Reprint, Istat

Multinational presence rate and patent productivity



source: OECD Regpat database in OECD.Stat, Database ICE-Reprint

Export propensity (exports in goods and services as a percentage of GDP current prices) - 2017



Source: Database ICE-Reprint, Annuario Istat-Ice 2019 edition

International integration and local development in Abruzzo: the challenges

- The regional economy's resilience to shocks is mostly based on large externally-controlled firms
- Spillover effects on local firms have been weak so far, although with important exceptions (the automotive system in the Chieti province)
- The social diffusion of the benefits of globalization has remained limited, also due to governance and participation problems, particularly in inner areas
- Earthquakes and other natural calamities have worsened the situation
- Big challenges for the regional innovation system, including the four universities

The need for innovation brokers in Italy

- Demand side
 - Limits in the ability of SMEs to express their demand for innovation
 - Difficulty in accessing credit for investment in innovation
- Supply side
 - Poor attitude and motivation of researchers towards dialogue with businesses
 - Multiplicity of existing institutional creatures, in the absence of a strategic vision of their role, a coordination system and mechanisms for assessing the impact of their actions
- **Innovation intermediaries**, conceived as third parties between the research system and the business community, that are able to understand firms' innovation needs and identify possible solutions
- The same model can be applied to **social innovation**, by connecting the university and research system to public administrations and NGOs

Regional innovation poles in Italy

PIEMONTE

- ENERMHY – Energie Rinnovabili e Mini Hydro
- MESAP – Meccatronica e Sistemi Avanzati di Produzione
- POLIGHT – Edilizia Sostenibile e Idrogeno
- IBIS – Chimica sostenibile
- TECNOGRANDA - Agroalimentare
- TORINO WIRELESS - Ict
- BIOPMED – Bioindustry Park
- PO.IN.TEX.- Tessile
- POLIBRE - Energie Rinnovabili e Biocombustibili
- PROPLAST - Plastica

LIGURIA

- DLTM – Tecnologie marine
- Polo Energia Sostenibile
- SI4LIFE – Scienze della vita
- SOSIA – Intelligent automation
- TECNOBIONET – Biotecnologie, applicazioni sicure
- TICASS – Controllo ambientale
- TRANSIT – Tecnologie per i trasporti
- POLITECMED – Tecnologie medicali

UMBRIA

- UMBRIA ENERGIA
- GGB - Genomica Genetica e Biologia
- PUMAS - Materiali Speciali e Micro e Nano Tecnologie
- UMBRIAMEC - Meccanica Avanzata e Meccatronica

TOSCANA

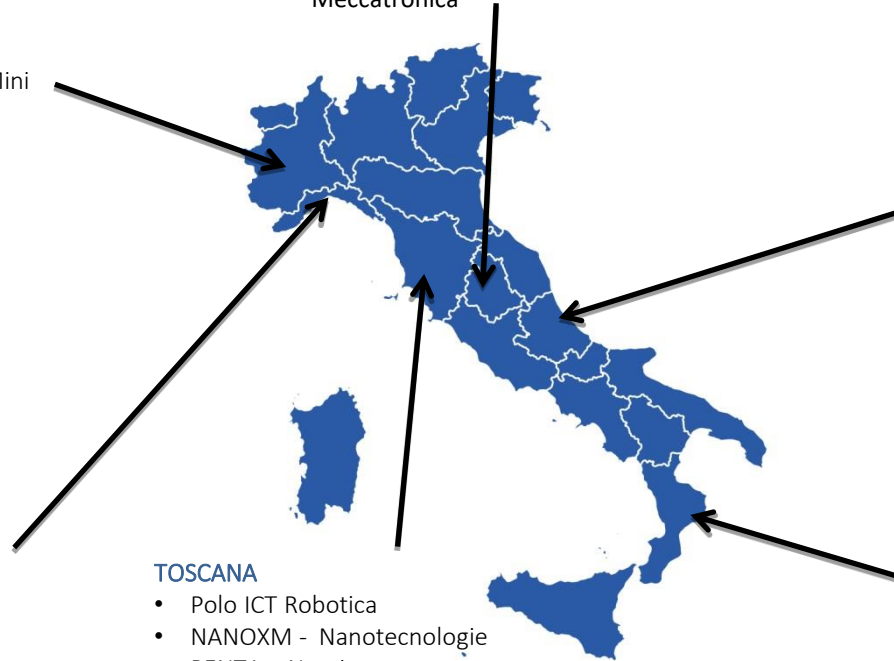
- Polo ICT Robotica
- NANOXM - Nanotecnologie
- PENTA – Nautica
- OP TOSCANA – Optoelettronica e spazio
- Polo Scienze della vita
- PIETRE TOSCANE – Polo lapideo
- PIERRE – Energie rinnovabili
- POLIS – Città sostenibile
- POLO 12 – Meccanica
- OTIR 2020 – Sistema moda
- INNOPAPER – Filiera cartaria
- CENTO – Mobile e arredo

ABRUZZO

- AGIRE – Agroalimentare
- Polo Artigianato artistico
- CAPITANK – Chimico farmaceutico
- Polo Energia
- Polo ICT
- Polo Internazionalizzazione
- INOLTRA – Logistica e trasporti
- Polo edilizia sostenibile
- Polo Tessile e abbigliamento
- PALM – Legno e arredo
- IRENE – Innovazione sociale e economia civile
- POLOSA – Servizi avanzati
- INNOVATUR – Turismo
- IAM – Automotive

CALABRIA

- AGRIFOODNET – Agroalimentari di qualità
- BIOTECNOMED – Tecnologie della salute
- NUOVE MATERIE
- Polo Energie e Ambiente
- Polo Innovazione ICT Calabria
- R&D.LOG – Logistica, Trasporti e Trasformazione
- CALPARK - Materiali e produzione



Regional innovation poles in Abruzzo

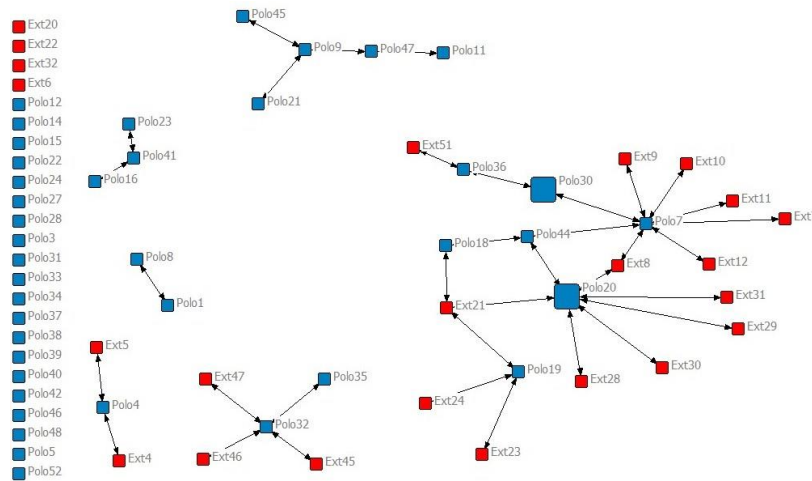
- Innovation poles, established in 2010: consortia among universities and research centres, service providers, and firms, based in the Region
- Public funds for:
 - Investments in buildings, machinery and plants
 - Marketing to attract new businesses to the innovation pole
 - Management of the open access installations of the pole
 - Knowledge transfer programmes
- Only the consortium managing the pole could receive public funding

Regional innovation poles in Abruzzo

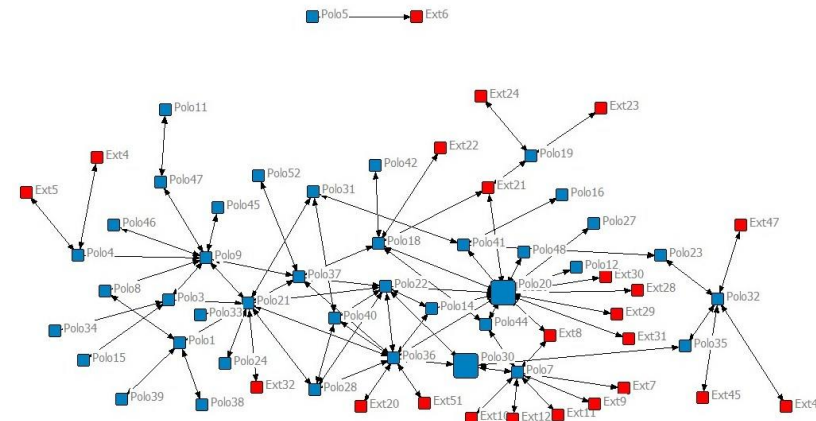
- 14 Regional innovation poles established initially
- «Smart specialization strategy» of the Abruzzo region (2014): 5 domains
 - Automotive
 - ICT/aerospace
 - Life sciences and pharmaceutical industry
 - Agri-food
 - Fashion and design
- The «Pescara charter» (2016): Abruzzo as the region of sustainable industry

The example of the ICT Abruzzo innovation pole

Innovation network *before* the birth of the Pole (2012)



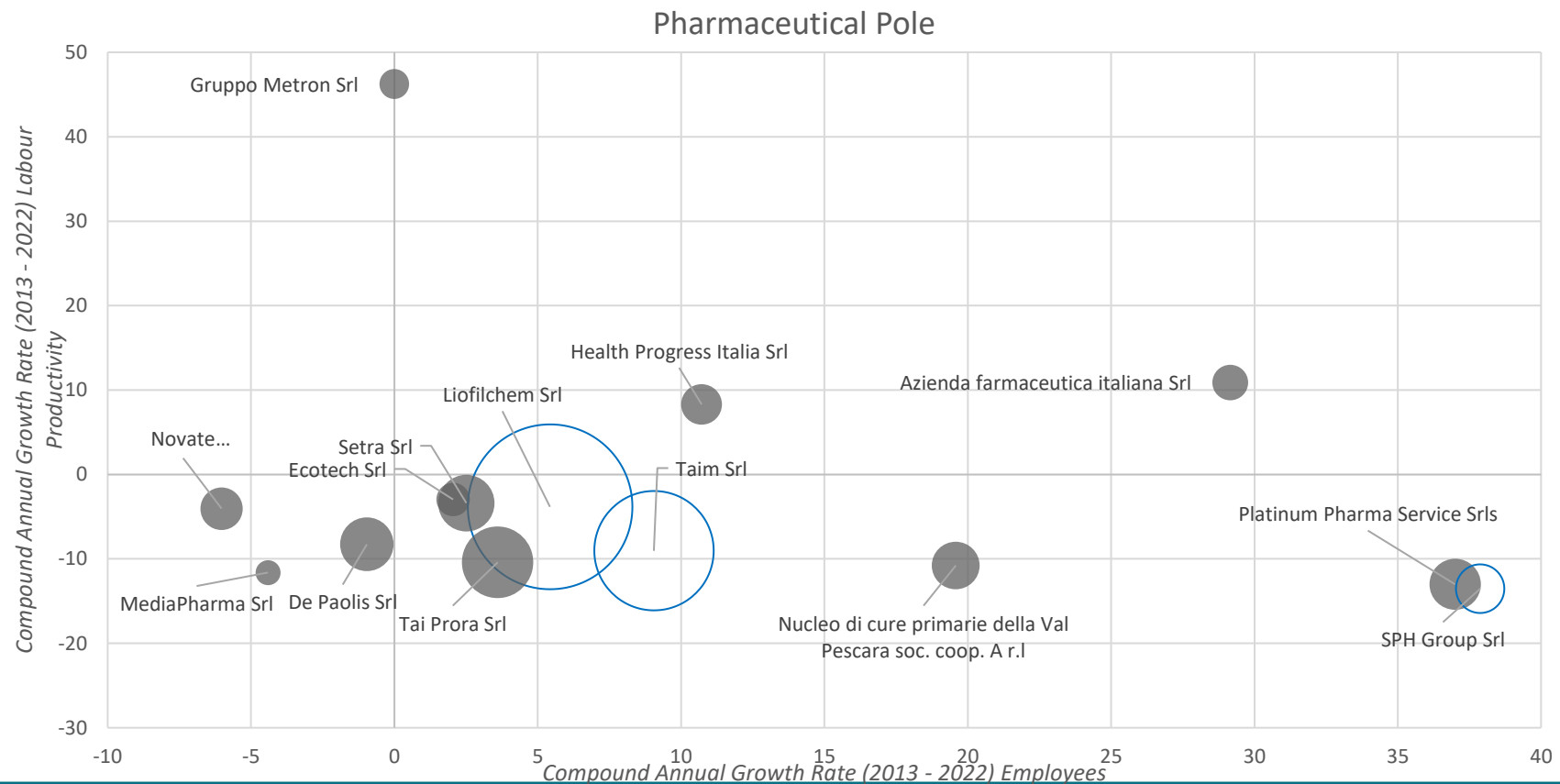
Innovation network *after* the birth of the Pole (2014)



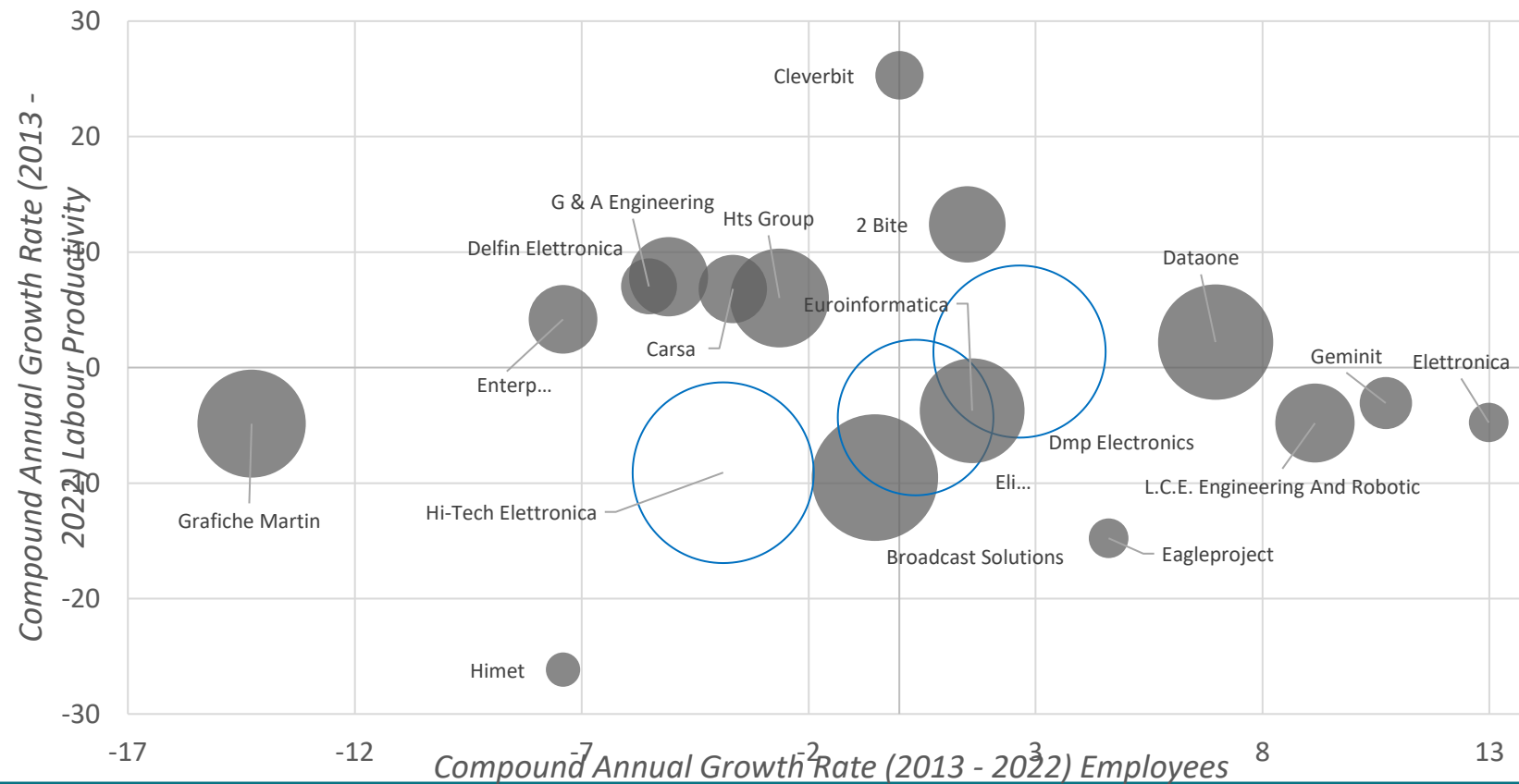
Empirical strategy: data

- Micro-level data on firms participating in regional innovation poles (Orbis)
- Survey data on Italian firms (MET)
- Case studies of Abruzzo regional innovation poles
- Policy-related indicators (Abruzzo Region):
 - Comparison between policy objectives and performance indicators (Russo et al., 2019, *Science and Public Policy*)

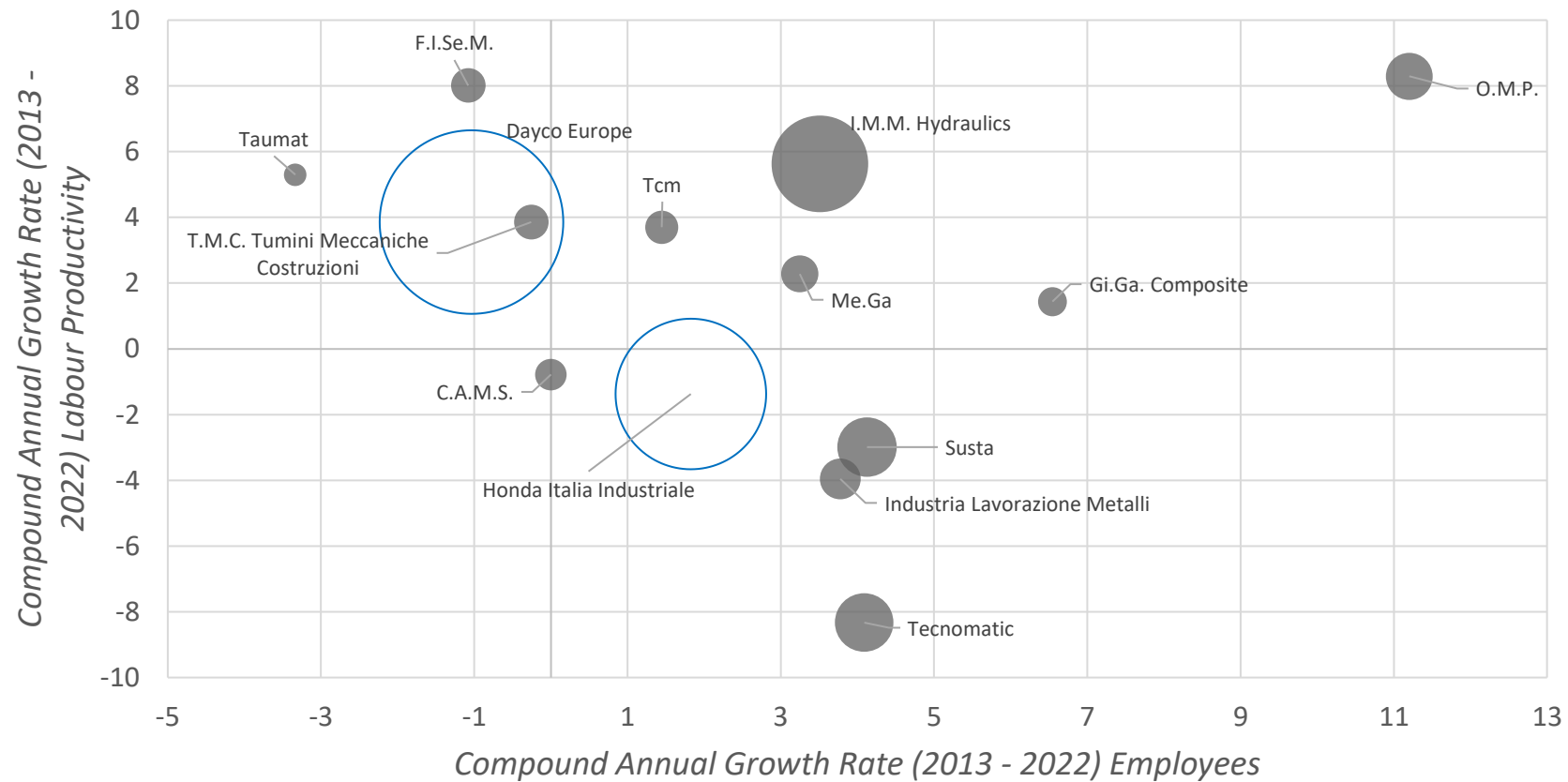
Micro-data: Pharmaceutical Pole



Micro-data: ICT Pole



Micro-data: Automotive Pole



Empirical strategy: method

- Descriptive analysis of the available data
- Qualitative case studies
- Counterfactual impact evaluation of public support to innovation poles
 - Double-level analysis
 - Macro treatment group: Italian regions that established regional innovation poles
 - Micro treatment group: firms participating in regional innovation poles in Abruzzo

Policy implications: innovation systems in the National Plan for Recovery and Resilience (NPRR)

- A **proliferation of partnership forms** aimed at connecting the business community with universities and research centres
 - **Partnerships extended** to universities, research centres, companies and funding of basic research projects;
 - Initiatives based on the **IPCEI model**. Partnerships in research and innovation;
 - Strengthening research structures and supporting the creation of "**national R&D leaders**" on some Key Enabling Technologies;
 - Strengthening and sectorial/territorial extension of **technology transfer centers** by industry segments;
 - Establishing and strengthening of "innovation ecosystems", building "**territorial leaders of R&D**"
- The above list is non-exhaustive and there is no attempt to organize an impact assessment of existing experiences

Policy implications: concluding remarks

- The need for two interconnected types of **innovation intermediaries**, with a large degree of international openness
 - **National research and innovation networks** on major social issues
 - **Regional innovation poles**, acting as intermediaries between universities and their social partners
- A change of strategic vision for the **university and research system**: going **beyond "technology transfer"**, motivated mostly by the economic exploitation of research results, **towards the "sharing of knowledge"** through **mutual learning processes** between research centers, enterprises (especially SMEs), social organizations and public institutions
- The fundamental role of universities: **connecting local systems to international networks** of knowledge creation and diffusion
- **Tackling inequalities** by trying to reduce the **concentration of knowledge and intellectual property**
 - Supporting technological and organizational innovation in **small and medium-sized enterprises**
 - Promote social innovation through collaboration with the **"civil society"**
 - Collaborate with **public administrations** to improve the quality of social policies and services