Intellectual Property as a vehicle for innovation and growth

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Workshop on RIS3 Cross-regional Learning,

21 February 2018, Chania, Greece

Outline

- Innovation in Greece
- IPs and Innovation
- IPs and Growth
- IPs in Greece
- Actions to encourage innovation

Introduction

- Innovation policies are crucial for tackling contemporary regional challenges and promoting sustainable, inclusive economic growth.
- Strengthen institutional capacity for research, innovation and inventions' commercialization is important.
- Foster university-industry collaborations.
- Enhance national and regional entrepreneurial innovation capacity could improve competitiveness.
- *A strategically designed IP policy could boost these key variables, encourage innovation and, in turn, economic growth*.

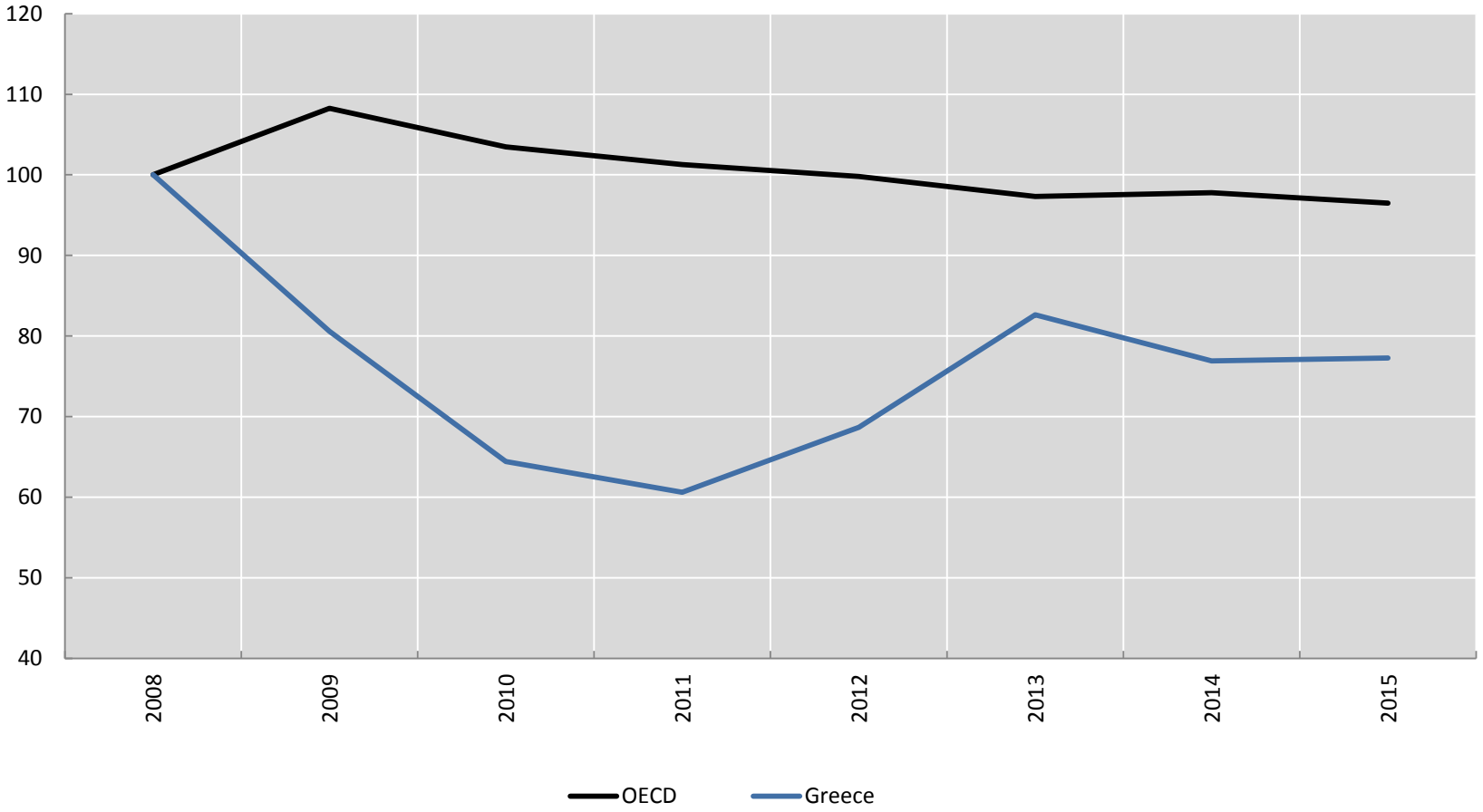
Innovation in Greece (1)

- **Greece** according to the European Innovation Scoreboard 2016 is a **moderately innovative country**.
- Greece in every dimension of the index is below the Average of the EU.
- The relative advantages of Greece are in the dimensions of the *Human Resources* indicator and *Innovators* indicator.
- Performance in *Financing and Support* and *Intellectual Property* is quite less than the EU average.

Innovation in Greece (2)

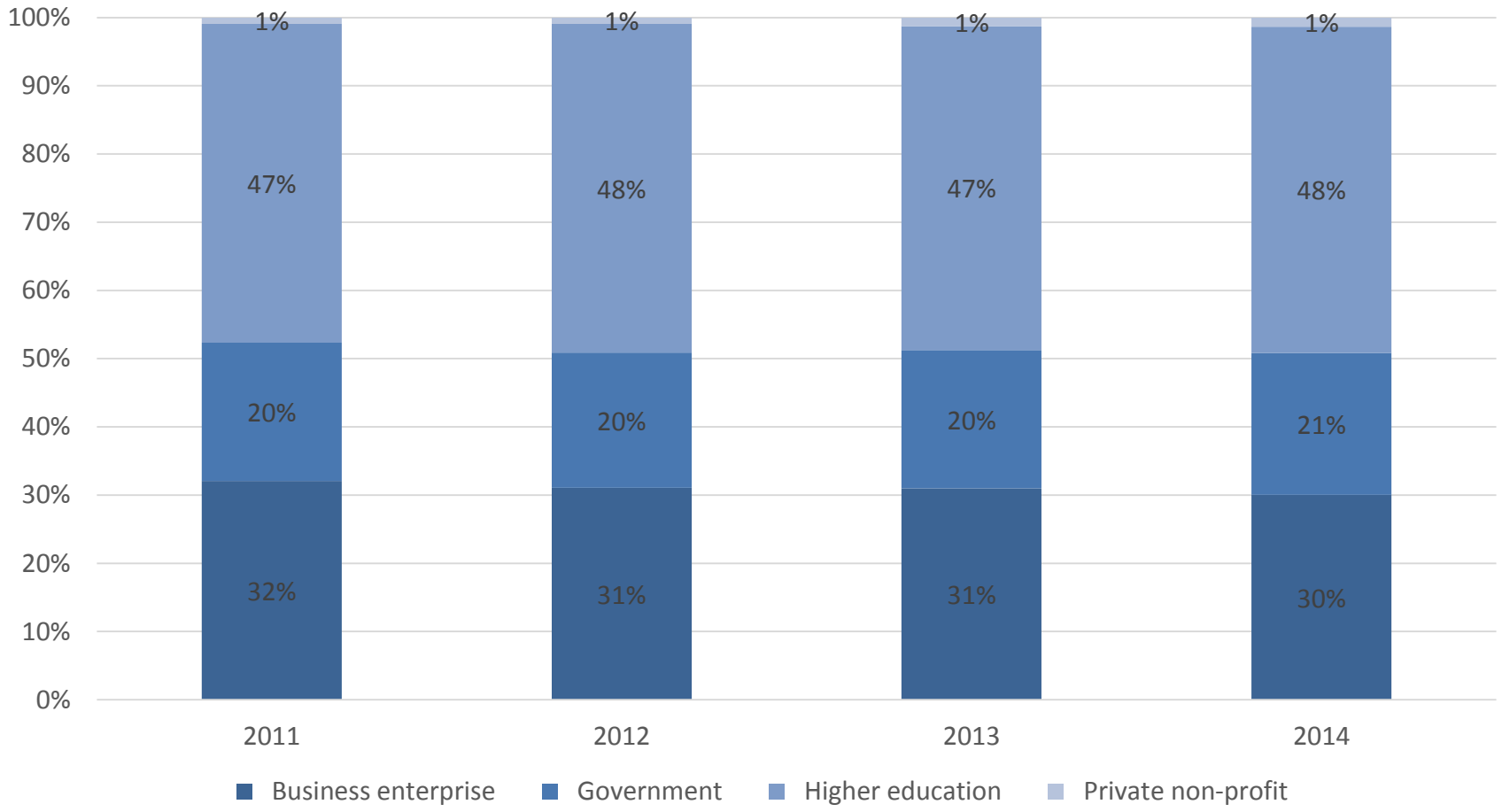
- **Increase in R&D intensity** from 0.84 (2014), 0.96 (2015) to 1.00 (2016), but Greece is still in the *lower ranks of OECD countries*
- Higher education accounts for **40%** of R&D. Performance in research and in international publications is *above the OECD's median*
- The public research system is isolated from the production one. **Universities & research centers do not commercialize** their research results → **low number of patents**.
- **The private sector is under-performing in R&D**
- **Lack of venture capital**
- The economic recession has caused **human resources losses** in the field of science and technology– loss of experience from early retirement & brain drain of new talents

R&D budget development



Source: OECD. R&D BUDGET. GBAORD INDEX(2008 = 100)

Gross Domestic Expenditure on R&D per industry



Source: OECD. Gross Domestic Expenditure on R&D by industry and source of funds

IPs and Innovation

- Under certain conditions, the IPs are connected with the production of **new knowledge / technology** and therefore innovation.
- Innovation activities affect the **economic growth** and the **social welfare** positively. (Hasan and Tucci, 2011; Solow, 1959; Romer, 1990; Rosenberg, 1986)

IPs positive effect on innovation

- Due to Monopoly right, inventors have an incentive to produce new knowledge/technology, so innovation is increasing.
- The inventor makes known the new knowledge produced that would otherwise be a trade secret, thereby disseminating the knowledge/technology produced, increasing innovation.

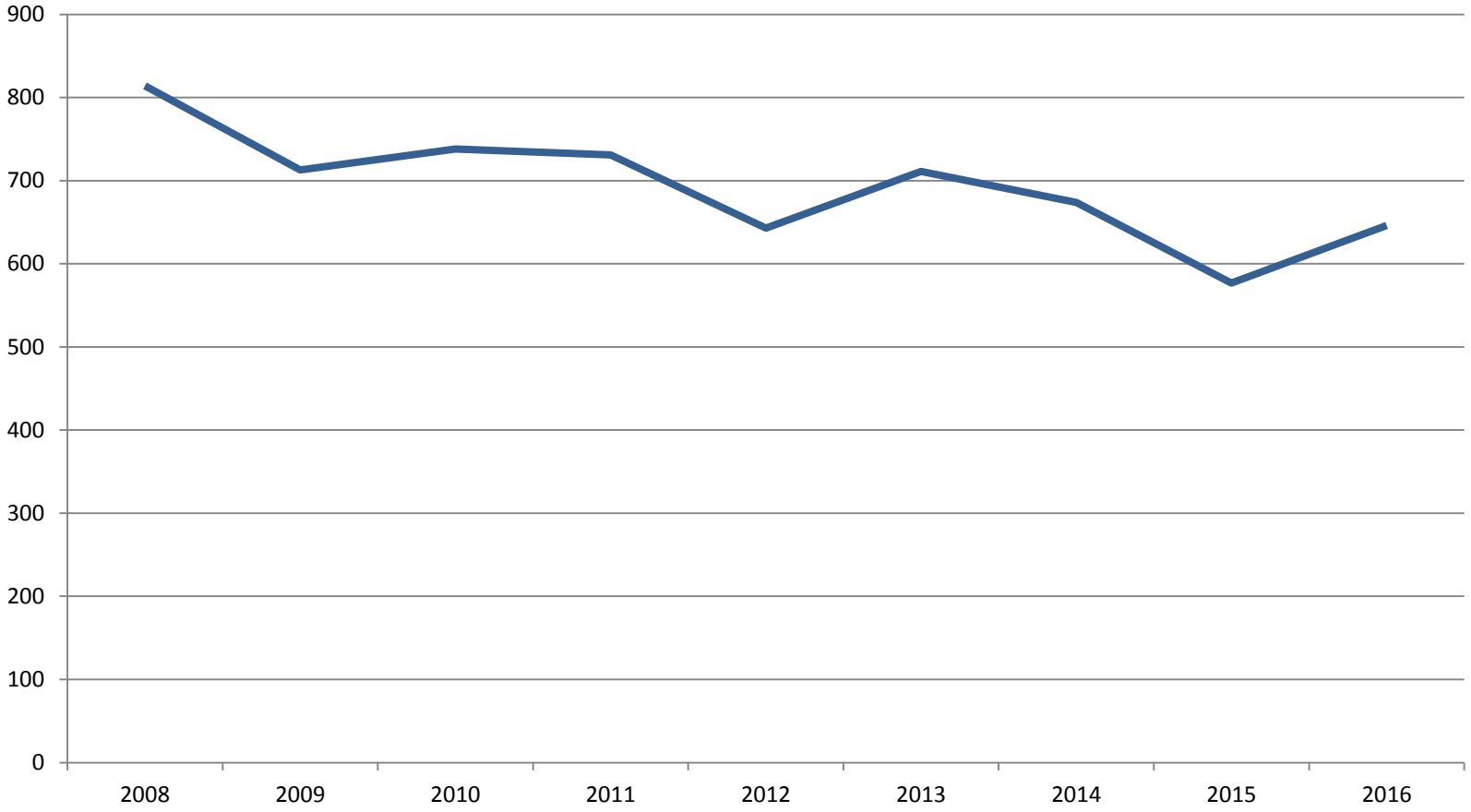
IPR Contribution to Economy

- IPR-intensive industries account for more than 31% of European industries.
- In the EU, over € 5.7 trillion is generated annually by the IPR-intensive industries (2011-2013 / 1 trillion **increase**)
- They contribute to 28% of employment / 2% increase (26% in Greece - **5% increase)**
- and to 42% of GDP / 3% increase (40% in Greece - 7% **increase)**
- Higher productivity by 46% / 5% increase (€ 776 vs. € 530)
- 93.2% of EU exports and 85.5% of EU imports
- Specifically for patents in the EU, they contribute 10% to employment, 15% to GDP and to productivity +69% (5% increase)

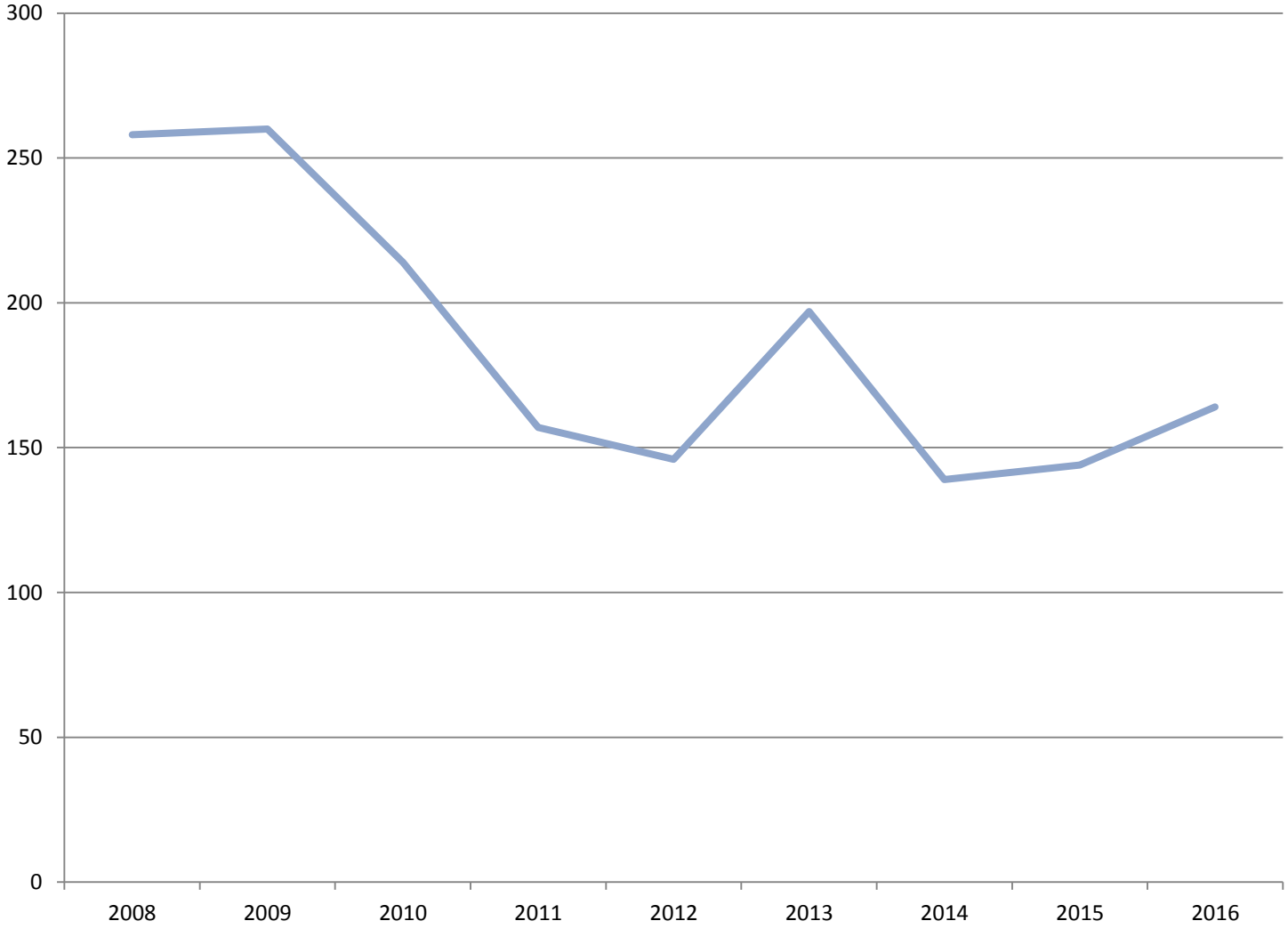
IPR Contribution to Greek Economy

IPR	Contribution to Employment	Contribution to GDP
Total	**26,2%**	**40,1%**
Trademarks	19,9%	36,1%
Industrial Designs	9,7%	7,9%
Patents	**6,9%**	**6,9%**
Copyright	5,0%	4,7%
Geographical Indications	0.2%	0.2%
Plant varieties	0,9%	0,3%

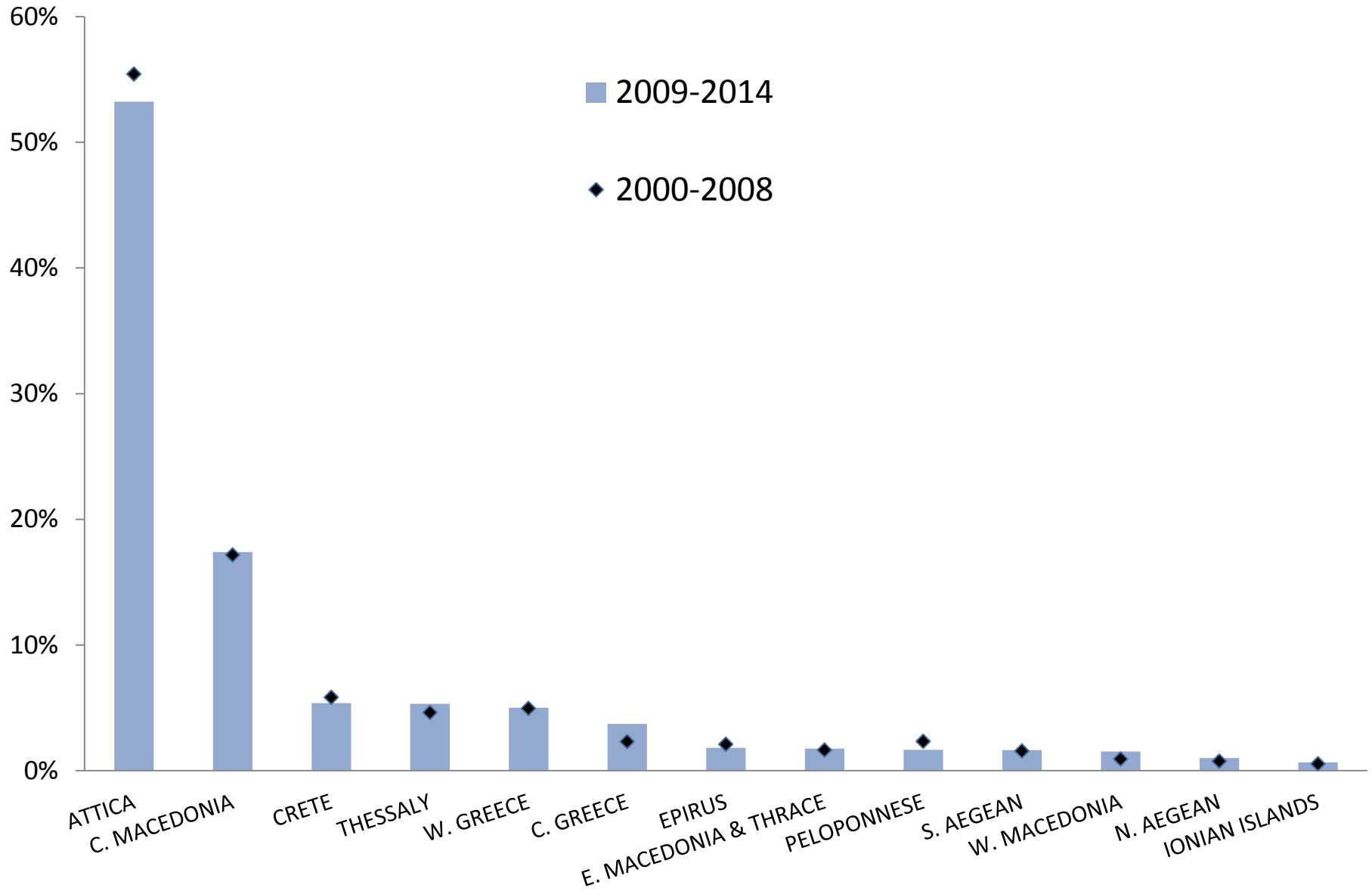
Patent Applications in Greece



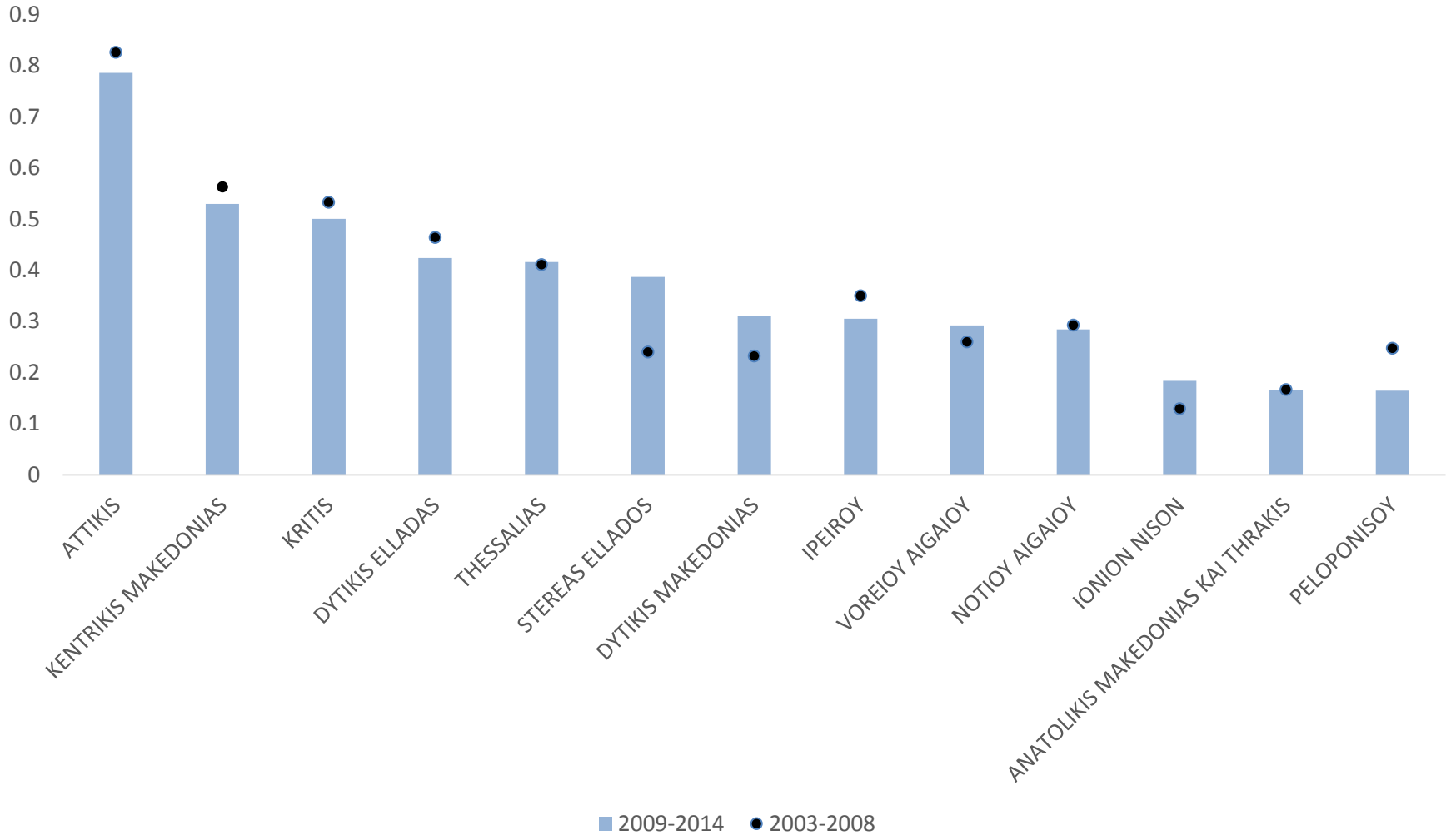
Industrial Design Applications



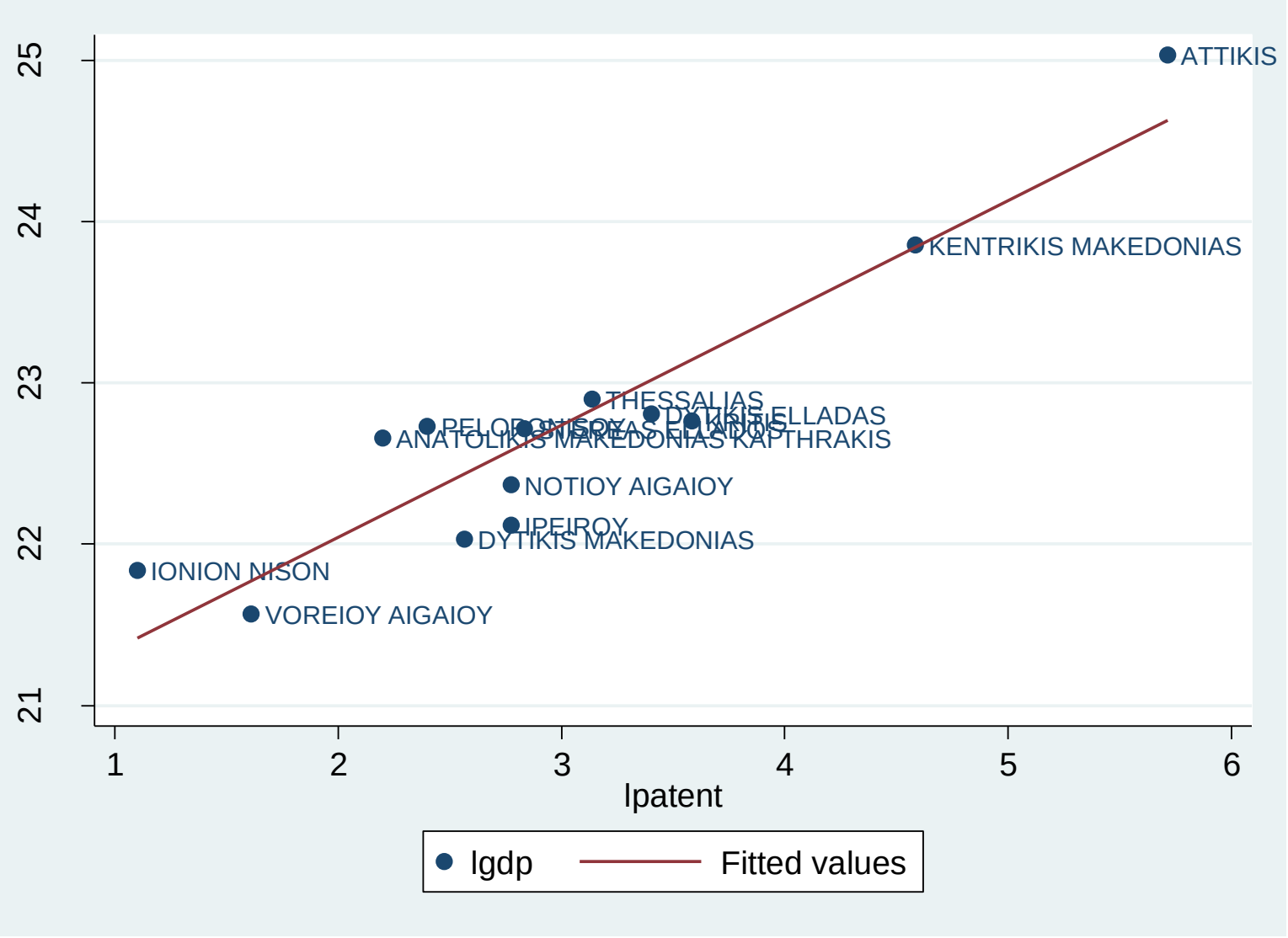
Patent Applications before & during crisis (NUTS2)



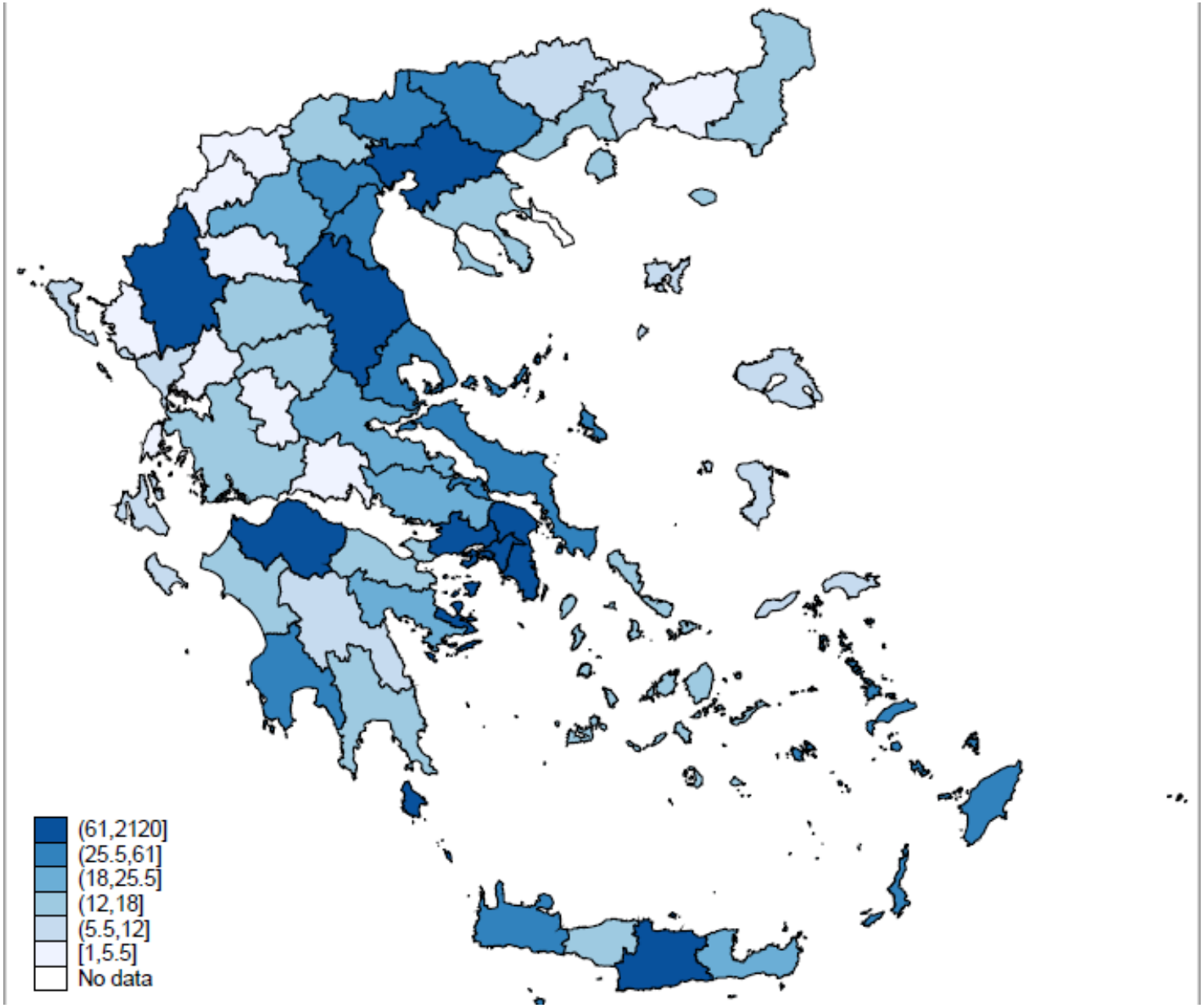
IP applications per capita by region
(10,000 citizens)



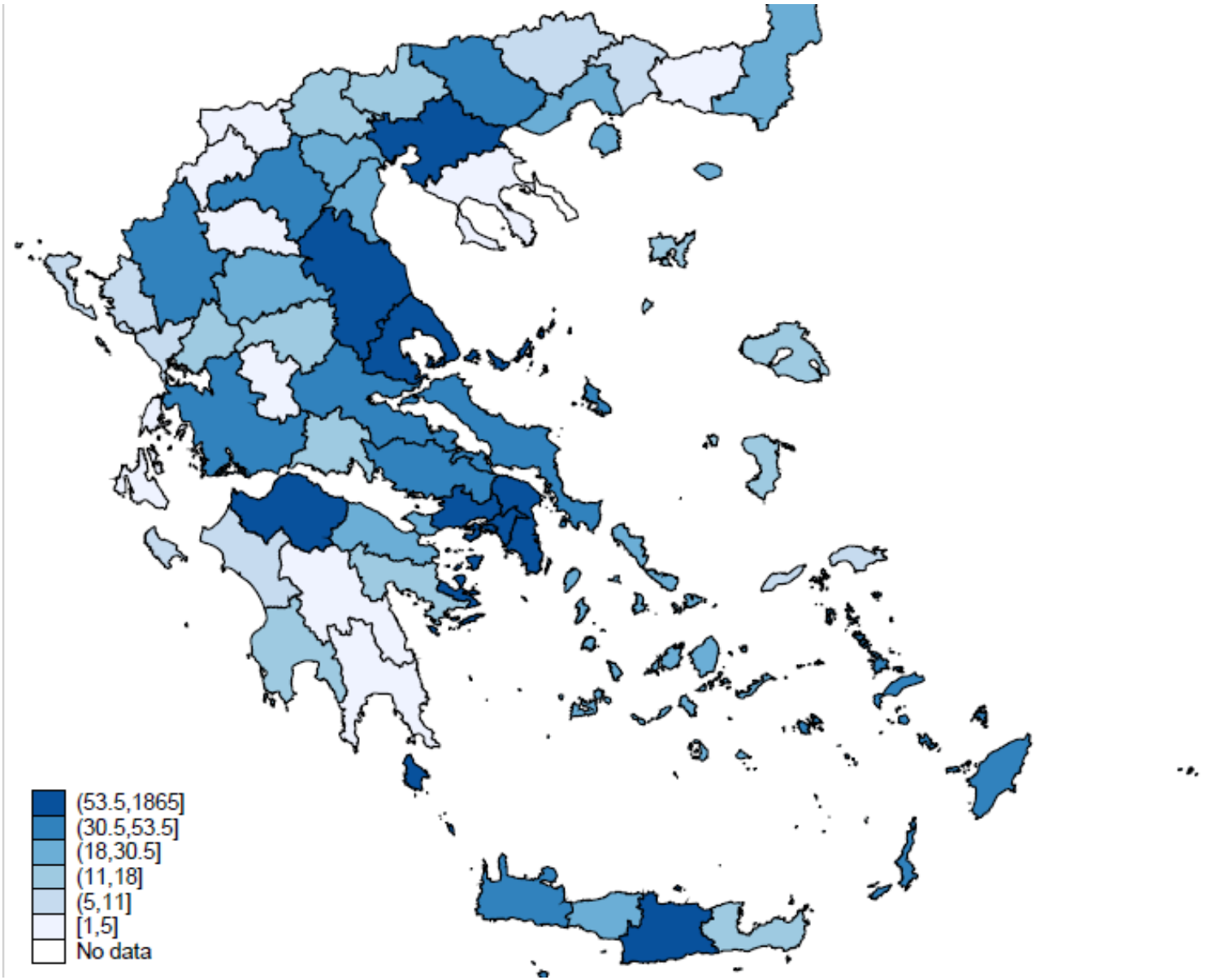
Regional patent activity & regional growth (2014) (13 regions – NUTS 2)



Distribution of Patent Applications before crisis (NUTS3, 2001-07)



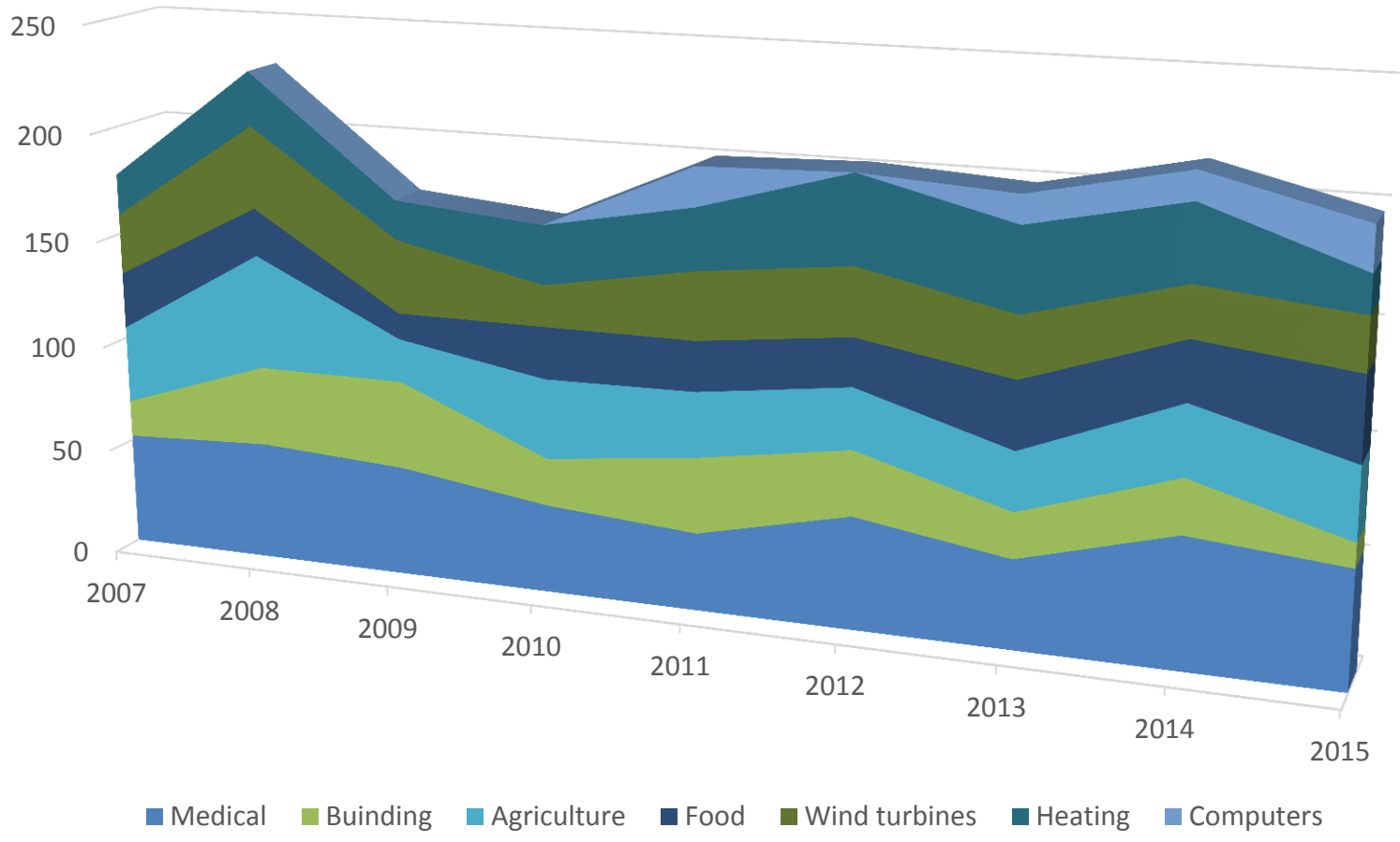
Distribution of Patent Applications during crisis (NUTS3, 2009-14)



Preliminary concluding remarks

- Patent activity in the region is strongly associated with regional income growth
- This association applies both for regions and counties of Greece
- Result remains positively significant when adding area (region or county) FE and year FE, as well as a number of other area-year varying explanatory variables, like: population (or employment); capital; university graduates, etc.
- Work-in-progress:
- Investigate the impact of regional investment in R&D (from EU structural funds) on patent activity, and economic growth
- Use patent quality; Use opening/closure of regional branches

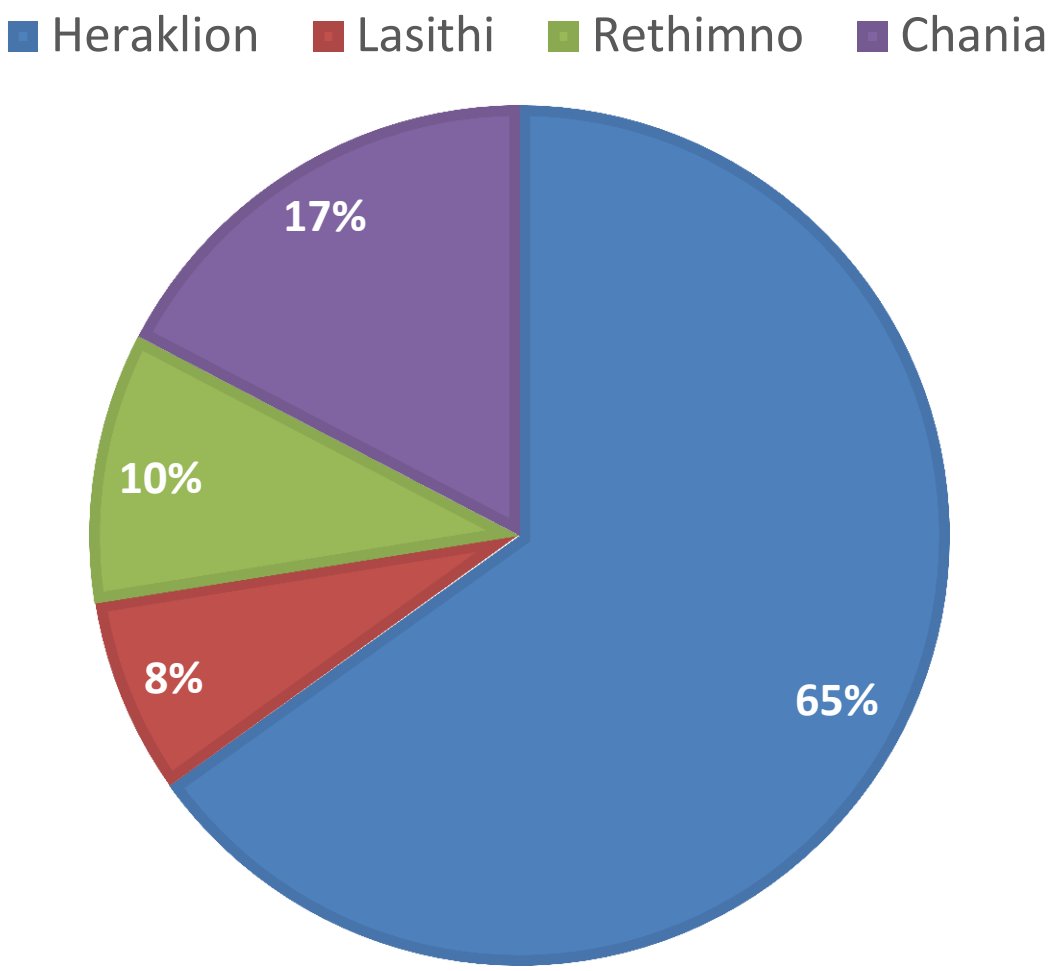
Top 5 Technological Fields of the last 10 years



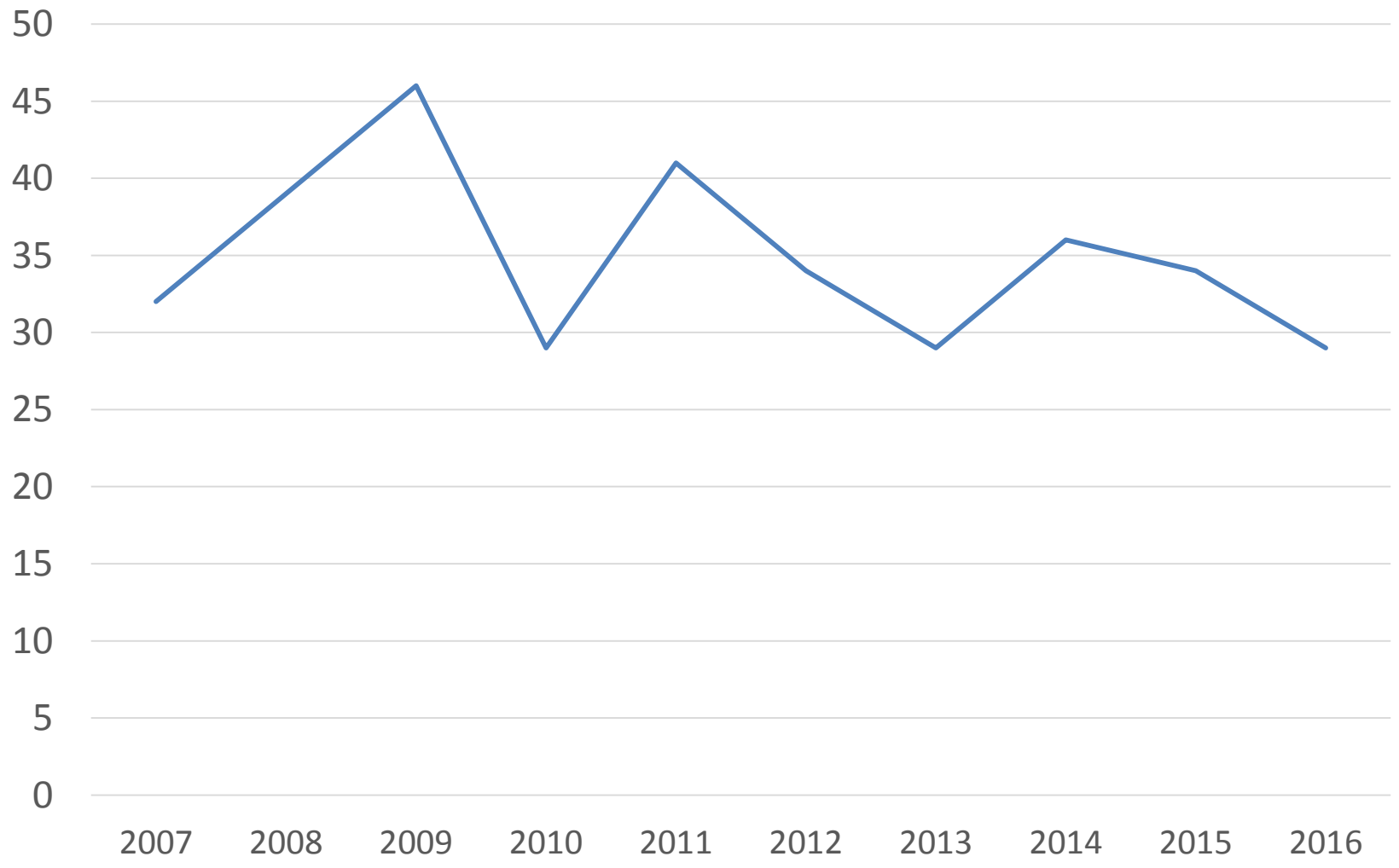
The most important Technological Fields

- The **medical/veterinary sciences**, i.e. **medical devices, instruments, tools, and implants**, have always been in the first place.
- Apart from the medical inventions, other inventions that were included in the Top 5 of patent applications were:
  - **Wind Turbines, Hydraulic Machines or Engines, Power Engineering.**
  - **Food, Foodstuffs, Food Processing.**
  - **Agriculture, Forestry, Livestock, Fisheries.**
  - **Heating, Air Conditioning**
- Applications in the '**Buildings**' technology field, which was traditionally in the top positions, fell significantly in 2015.
- From 2011, the technology field "Computers" begins to appear in the first 10 positions and in 2015 it occupied the 5th position.

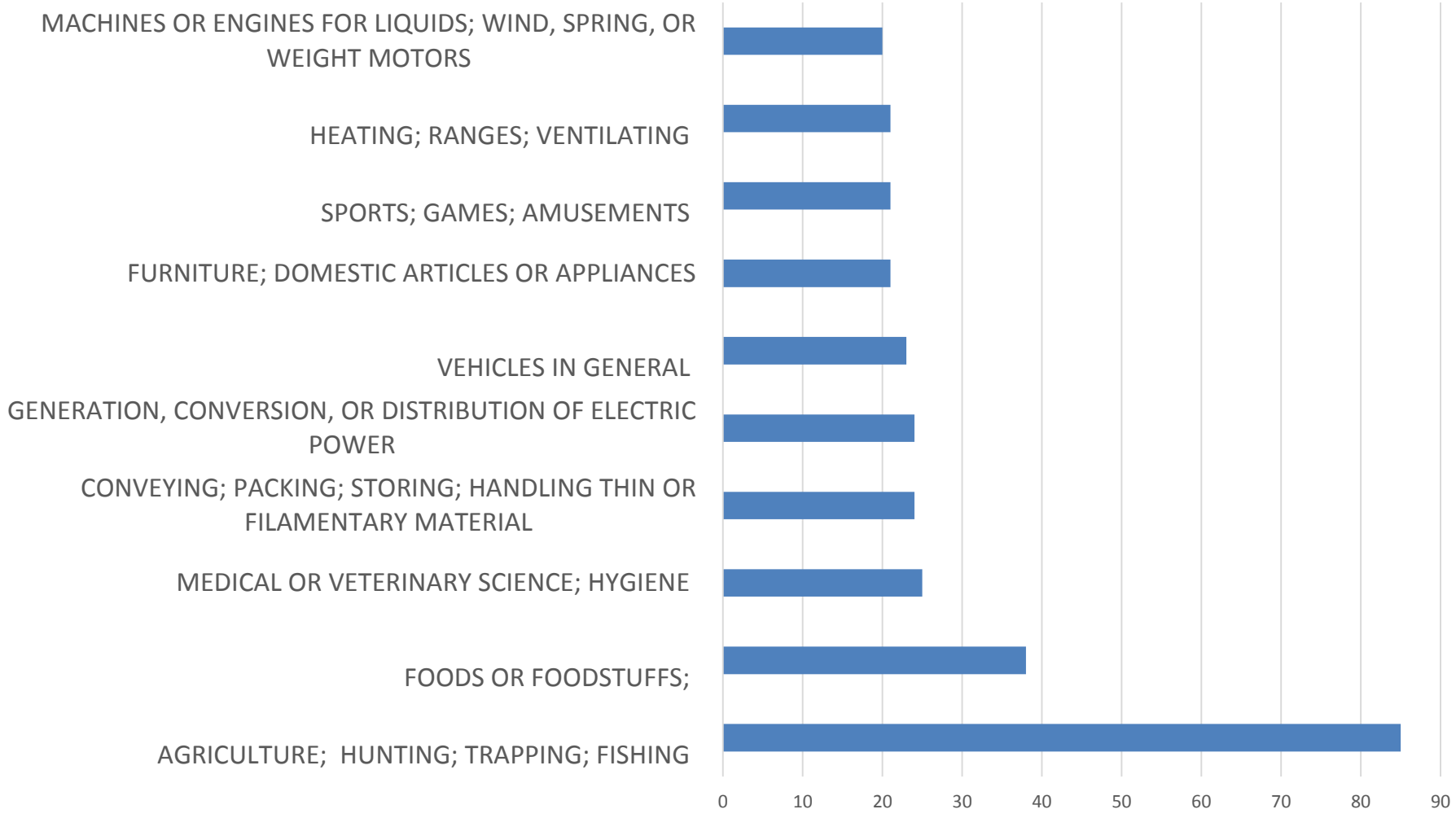
IP applications, Crete, 2007-2016



IP applications, Crete 2007-2016



Top 10 technological Fields, Crete, 2007-2016



OBI activities

- Training seminars/workshops in collaboration with International Organizations in different target groups, such as **Academic Institutions, Research Centers, Business/Industry Associations, Chambers, Small and Medium Enterprises, Enterprise Europe Network (Hellas)** etc.

- Participation in EU programmes in co-operation with other National Agencies and Institutions, **developing tools for the management and exploitation of Intellectual Capital** that will especially assist SMEs in developing policy/strategy for IP.

- The most crucial effort is the development of culture, not only about the importance of protecting intellectual/industrial property, but rather about the importance of technological information → innovation.

Development strategy (1)

Extroversion:

- Single policy for IP - establishing a National Council for IP (OBI, trademarks, “ΟΠΙ” - Hellenic Copyright Organization, GIs, plant varieties).
- “ΚΕΠ” (Citizens’ Service Centres) for IP and restarting regional libraries
- Establishment of IP Academy
- Inventor Awards
- IP filling facilitation through fully electronic procedures.

Development strategy (2)

Commercialization

- 2 of the 4 new NSRFs, targeting small and very small existing and emerging businesses, include funding for IP preparation and application
- IP Coupons
- IP Marketplace (digital platform for transaction of patents and industrial designs)
- Evidence base - evidence-based policies
- "Tax incentives for patents" (Art.71 of Law 3842/2010 – GG. 58/23.04.2010).

Discussion topics

- **IP policy regime and regional innovation**
  - **RIS3**
- **Entrepreneurship and innovation**
- **Commercialization of research through**
  - **IPRs (patents, designs, trademarks, GI)**
  - **Universities, RIs and Firms collaboration**
  - **Business clusters, SMEs**
- **Incentives for innovation**
- **R&D and non-R&D innovation**

Thank you for your attention!

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