*e-Newsletter Nº 5*

## *July 2010*

### *Welcome to the fifth IAREG electronic newsletter!*

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## Presentation of the IAREG Project

### "INTANGIBLE ASSETS AND REGIONAL ECONOMIC GROWTH"

**(IAREG)**

Intangible Assets and Regional Economic Growth is a project financed by the European Union under the Seventh Framework Programme for Research and Technological Development in the 'Socio-economic sciences and the humanities' area (FP7-SSH-2007-1. 216813).

It was launched on February 1, 2008 with a kick-off meeting at the University of Barcelona.

The objective of the IAREG Project is to analyse the role played by intangible assets (IA) in the generation of innovation, competitiveness and consequently economic growth and increases in productivity at regional level with a special emphasis on the geographical space in which such processes occur.

Specific objectives:

- To develop new indicators for improving the measuring of the IA considered having the most influence in the generation of economic development.
- To analyse how IA and their interaction define the environment affecting firms' location.
- To measure the role of regional externalities in the generation of IA and in determining local economic performances in Europe and in the diffusion of knowledge.
- To provide decision makers with policy recommendations in order to support them in the future design and implementation of regional innovation strategies.

Further information can be found at www.iareg.org.

## New Partner

On the 1st September 2009, Dr. Simona Iammarino also from the Science & Technology Policy Research-University of Sussex (OUS), to took a post at the London School of Economics and Political Science (LSE).

As a result of transfers of personnel from University of Sussex, the London School of Economics and Political Science (LSE), has been added as a new beneficiary in the Consortium Agreement

## Project participants

The consortium is represented by **12 universities and research institutes** with broad European countries coverage, with complementary expertise in the field of Intangible Assets and regional development research.

| | |
|---|---|
| AQR UB IREA | **Regional Quantitative Analysis Group (AQR-IREA), Spain**<br>General Coordinator<br>WP2 and WP8 Leader |
| CRENoS | **Centre for North and South Economic Research (CRENoS), Italy**<br>WP5 Leader |

| | |
|---|---|
| | **Economic research centre of the University of Saint-Etienne (UJM-CREUSET), France**<br>WP4 Leader |
| | **German Institute for Economic Research (DIW), Germany**<br>WP6 Leader |
| | **Center for Research in Economic Policy (GKK), Hungary**<br>Partner |
| | **Max Planck Institute of Economics, Germany**<br>WP3 and WP7 Leader |
| | **Unit for Science, Technology and Innovation Studies (TaSTI), Finland**<br>Partner |
| | **Institute of Regional and Environmental Economy (WU-WIEN), Austria**<br>Partner |
| | **University of Tartu, Estonia**<br>Partner |
| | **Institute of Economic and Cultural Geography, Leibniz University of Hannover (LUH), Germany**<br>Partner |
| | **Spanish Council for Scientific Research. Institute of Innovation and Knowledge Management**<br>Partner |
| | **LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE**<br>Partner |

## Research programme

The IAREG Project is organized in eight Work-packages, six of them being technical as follows:

| Work-package | Objectives |
|---|---|
| WP 1 KNOWLEDGE ACCUMULATION PROCESSES AND REGIONAL GROWTH | The general objective is to achieve an integrated analytical framework of competitive strategies and collaborative linkages among firms and different organizations, in order to improve the understanding of the systemic nature of innovation processes at the sub-national and national scale; and to derive policy implications for national and regional systems of innovation. |
| WP 2 HUMAN AND SOCIAL CAPITAL AND REGIONAL PRODUCTIVITY | The main objective of this work-package is to analyze the influence of human and social capital on economic growth not only directly but also including the interactions among both of them, an issue that has not been studied in depth in the literature. Therefore, both individual and regional/national returns to human and social capital will be analysed as interacting factors of economic development in Europe. |
| WP3 ENTREPRENEURSHIP CAPITAL AND REGIONAL COMPETITIVENESS | The main objective of the work-package is to provide evidence on the impact of entrepreneurship capital on regional competitiveness and economic growth. |
| WP4 KNOWLEDGE FLOWS AND REGIONAL PRODUCTIVITY | The aim of this work-package is to better understand why the IA analyzed in the first block (WP1, 2 and 3) impact on firm and regional growth. |
| WP 5 IA, FIRMS LOCATION AND REGIONAL COMPETITIVENESS | The main objective is to estimate the role of the different types of IA in determining local economic performances in Europe, focusing on the impact they have on the localization choice of firms. |
| WP6 POLICY DESIGN TO STIMULATE IA AND ECONOMIC GROWTH | The main objective is the collection of policy conclusions according to conclusions extracted from WP1 to WP5. |

## Reports

### Working Package 1: Knowledge accumulation processes and regional growth

- Report on new measures and indicators able to capture the relative contribution of S&T to the increasingly interactive nature of innovation processes – Deliverable 1.1.

- Report on quantitative and qualitative insights on firms' innovation strategies (competition vs cooperation) based on primary and secondary data, and case-studies - Deliverable 1.2:

    - IAREG WP1/2a: Technological capabilities and patterns of cooperation of UK firms: A regional investigation
    - IAREG WP1/2b: R&D collaboration networks and spatial diffusion of knowledge. A comparison between Telecommunication and Microelectronics
    - IAREG WP1/2c: Organizational Capabilities: Some reflections on the Concept
    - IAREG WP1/2d: Organizational innovations and new management practices: Their diffusion and influence on firms' performance. Results from a Finnish firm survey

- Report on the role of university and its linkages in the creation of intangible assets and the role of multinationals - Deliverable 1.3:

    - IAREG WP1/3a: The spatial profile of university-business research Partnerships
    - IAREG WP1/3b: Intangible Assets, Multinational Enterprises and Regional Innovation in Europe

- IAREG WP1/3c: One Small State, Two Regions: Are There Differences in Commercialisation of University Research
- IAREG WP1/3d: Academic Knowledge Transfers and the Structure of International Research Networks
- IAREG WP1/3e: Marshall's Dilemma: Intangible Assets and European Universities
- IAREG WP1/03f: Sources of innovation and the role of multinationals in cluster dynamics
- IAREG WP1/03g: The Academic Entrepreneur: Myth or Reality for Increased Regional Growth in Europe?

### Working Package 2: Human and social capital and regional productivity

- Report on the new indicators for human and social – Deliverable 2.1:
  - IAREG WP2/01: Regional measures of human capital in the European Union
  - IAREG WP2/02: Indicators of social capital in the European Union

- Conclusions' report on the spatial variations of the returns to human capital according to the regional characteristics and on the interaction with social capital and the quality of work – Deliverable 2.2:
  - IAREG WP2/03: Regional variability in the impact of human capital on regional growth
  - IAREG WP2/04: Human Capital and Social Capital as Interacting Factors of Economic Development: Evidence from Europe
  - IAREG WP2/05: Quality in work and productivity

- Conclusion's report on the relationship between educational mismatch and mobility as determinants of regional economic growth – Deliverable 2.3
  - IAREG WP2/06: Regional economic growth and human capital: the role of overeducation
  - IAREG WP2/07: Mobile star scientists as regional knowledge spillover agents
  - IAREG WP2/08: Regional heterogeneity in wage distributions. Evidence from Spain

*Other Working papers WP2:*

- *IAREG WP 2/09:Human capital spillovers and regional economic growth in Spain*

### Working Package 3: Entrepreneurship capital and regional competitiveness

- Measures of Regional Entrepreneurship Capital – Deliverable 3.1
  - IAREG WP3/01: Concept and Measurement of Regional Entrepreneurship Capital

- Report on Venture Capital and Entrepreneurship in Europe and US – Deliverable 3.2:
  - IAREG WP3/04: Regional Patterns of Venture Capital Financing in the US

- Report on Entrepreneurship Capital, Knowledge Spillovers and Regional Productivity – Deliverable 3.3
  - IAREG WP3/02: The Impact of Regional Age Structure on Entrepreneurship
  - IAREG WP3/03:The Apple Doesn't Fall Far From the Tree: Location of Start-ups Relative to Incumbents
  - IAREG WP3/05: Entrepreneurship Capital and Regional Productivity: Some Empirical Evidence from European Regions

- IAREG WP3/06: Identity and Entrepreneurship

### Working Package 4: Knowledge flows and regional productivity

- Report on knowledge diffusion in European regions – Deliverable 4.1:
  - IAREG WP4/08 Knowledge diffusion in European regions
  - IAREG WP4/02 Hirschman Faculties: Brain Circulation and ERA Knowledge Flows of European University Academics

- Report on the underlying mechanisms of knowledge diffusion. Deliverable 4.2a and 4.2b:
  - IAREG WP4/07: Underlying mechanisms of knowledge diffusion"
  - IAREG WP4/04 Knowledge Management Practices in Low-tech and Medium-tech Industries. Findings from a Finnish Business Survey"
  - IAREG WP4/05. Productivity Changes and Intangible Assets: Evidences from French Plants"

- Report on the impact of ICT geographical concentration on regional. Deliverable 4.3:
  - IAREG WP4/06 ICT and labour productivity: evidence for the Italian regions"

*Other Working papers WP4:*

- *IAREG WP4/01 Towards cross-border innovation spaces*
- *IAREG WP4/03 Profile of EU University Academics.*
- *IAREG WP 4/09"Knowledge diffusion and innovation policies within the European regions: Challenges based on recent empirical evidence*
- *IAREG WP4/10 Knowledge flows across European regions.*

### Working Package 5: IA, firms location and regional competitiveness

- Homogenised IA Database and econometric analysis for geographic data considering the problems related to large multidimensional datasets and variables' dependency - Deliverable 5.1
  - IAREG WP5/01: Measuring productivity
  - IAREG WP5/02: Intangible assets in the European regions

- Report on the role of regional and sectoral externalities in determining local economic performances with the econometric model showing the spatial dynamics of different economic sectors- Deliverable 5.2
  - IAREG WP5/03: Total factor productivity, intangible assets and spatial dependence in the European regions
  - IAREG WP 5/04: Persistent regional gaps and the role of social capital: Hints from the Italian Mezzogiorno's case
  - IAREG WP 5/05: The euro and firm restructuring
  - IAREG WP 5/06: What determines entrepreneurial clusters
  - IAREG WP 5/07: Does Idiosyncratic Business Risk Matter?
  - IAREG WP 5/08: Market value and total factor Productivity
  - IAREG WP 5/09:Total factor productivity, intangible assets and spatial dependence in the European regions
  - IAREG WP 5/10 Does social capital reinforce technological inputs in the creation of knowledge? Evidence from the Spanish regions
  - IAREG WP 5/11: Decomposing differences in total factor productivity across firm size. The role of innovation and human capital.
  - IAREG WP 5/12: Intangible capital and firms productivity
  - IAREG WP 5/13: Human Capital Composition and Economic Growth at the Regional Level
  - IAREG WP 5/14: Productivity and Firm Selection: Quantifying the "New" Gains from Trade.

- IAREG WP 5/15: Is Agglomeration really good for Growth? Global Efficiency and Interregional Equity
- IAREG WP 5/16: Missing Trade. Where is it?
- IAREG WP 5/17: International TFP dynamics and human capital stocks: a panel data analysis, 1960-2003
- IAREG WP 5/18: Schooling, Production Structure and Growth: An Empirical Analysis on Italian Regions
- IAREG WP 05/19: Assessing agglomeration economies in a spatial framework with endogenous regressors

- An integrated knowledge production and SCGE model developed for policy analysis impact – Deliverable 5.3
  - IAREG 05/20: Geographic Macro and Regional Model for EU Policy Impact Analysis of Intangible Assets on Growth

*Other Working papers WP5:*

- IAREG WP5/21: They arrive with new information. Tourism flows and production efficiency in the European regions
- IAREG WP5/22: Agglomeration and network effects in regional R&D productivity

**Working Package 6: Policy design to stimulate IA and economic growth**

- Report on design of regional innovation systems - Deliverable 6.3
  - IAREG WP6/01: The Design of Regional Innovation Systems" by Christian Dreger and Georg Erber

## Policy Conclusions

- Report on scientific support to policy activities in relation to the impact of knowledge accumulation processes on economic growth Deliverable 1.4:

- Report on scientific support for policy activities in relation with the effect of human and social capital on economic growth and productivity. Deliverable 2.4

- Report scientific support to policy activities with respect to the impact of entrepreneurship capital. Deliverable 3.4

- Report on scientific support to policy activities related to the impact of knowledge flows on regional productivity – Deliverable 4.4

- Report on scientific results for policy activities on the relationship between IA, firm location and regional competitiveness – Deliverable 5.4

- Guidelines for policymakers and practitioners on the IA that influence on regional growth - Deliverable 6.4

## Scientific Executive Summary

As a result of all the research done in the IAREG project, a Scientific Executive Summary has been done.

The Scientific Executive Summary is structured as follows. First, a brief summary about the State of the Art previous to the IAREG project is done. In this sense, we present the main drawbacks about the contents of the project, and the expected breakthroughs. Second, we present the Objectives as well as the main questions we expect to answer. Finally, we summarize the main results with respect to each one of the Intangible Assets considered in IAREG.

It could be downloadabled through the IAREG webpage (www.iareg.org)

## Targeted messages to policy makers

The main policy conclusions are collected in deliverables 1.4, 2.4, 4.4, 5.4 and 6.4. All the material is downloadable through the IAREG webpage (www.iareg.org)

**European level**

The Europe 2020 Strategy has similar key words as IAREG. This means that the analysis of our main conclusions can help in the development of that Strategy.

Homogeneous databases at the regional level for most EU countries are difficult to find for most intangible assets. Homogeneity is indispensable in order to get comparable analysis. It is also important for getting more observations so as to get more consistent results in econometric analysis. It is therefore necessary to make more data available to allow for more detailed research. The analysis on the impact of intangible assets would certainly benefit from higher data quality.

**Strong effort is indispensable to fill the gaps in the existing databases.** Therefore strong progress is to be made in the system and procedures to improve the quality of data on Intangible Assets. More specifically, a direct involvement by Eurostat is required in order to provide an homogenised data base on intangible assets which is essential to control for the achievements of the Lisbon agenda. It could also be interesting to develop a specific project to create a homogeneous database of IA at a regional European level. Specifically,

• The sources of data related to intangible assets are heterogeneous and still poorly coordinated and this is true at both geographical and sectorial level. Better and more homogeneous procedures are needed to collect data in the European countries, in particular in the candidate countries and in the countries recently included.

• Further, a better definition of regions, and in general of administrative boundaries related to statistical units, are suggested. For some country the existing definition is not useful to identify uniform regional areas in terms of economic, administrative and social elements. This is particularly true for certain variable such as, for example, the “self employment” used to proxy the entrepreneurship capital, but available with a depth sectoral disaggregation only at a national level. The geographical disaggregation is too low when we need select specific sector of activity.

The insufficient provision of suitable indicators to measure knowledge hampers the activity of researchers, practitioners and policy makers weakening any decision making process. **A higher degree of coordination between EU institutions** (e.g. Commission, Eurostat) **and national ones** (particularly national institutes of statistics and other statistical systems) is needed in order to:

• increase/extend the release of micro-data for policy and research, which, beyond the well known problems created by data confidentiality issues, is neither homogenously regulated at the EU level, nor always subject to transparent mechanisms of access;
• develop a benchmarking for policy learning across the EU, at national, regional and local level with respect to knowledge creation, accumulation and diffusion.

As for European R&D network, the imposed criteria on the multinationality of the FP projects is not sufficient to avoid their spatial concentrations. Indeed, in both the FP6 and FP7, there is evidence of a core-periphery structure emerging both at the European and sub-national level. This bares important consequences for regional development and cohesion policies.

As for human capital, it is necessary to **increase the attractiveness of the European Research Area by providing additional institutional funding for excellent research initiatives and for outstanding researchers from abroad**, e.g. by a European research chair scheme

which could be integrated within other research initiatives funded by the EU or national governments. Several interviewed star scientists mentioned that the recent research funding by the EU is too bureaucratic and that this is a serious disincentive to submit proposals.

Substitution of good jobs for bad jobs is probably behind some productivity gains, and most probably using new immigrants as cheap workforce is also related with that. **Flexicurity arises as a good opportunity to embrace the state of well being together with productivity gains**.

Several actions could enhance knowledge flows. As is important to **favor local interactions and at the same time to connect the local innovation system to international levels,** it is important to promoting a regional "learning economy". This includes physical infrastructures, equipment and human resources for the education system, but also education and training policy, developing ways to learn, stimulating "a culture to learn" (for example rewards depending on learning and creative efforts). Developing communication infrastructures in all their forms, would also participate to this connectivity of regions. In addition, access for local businesses to international programs should be supported, for instance by developing advisory activities for SMEs in order to allow them to join the European cooperative structures. In addition, favoring integration of bordering regions (identifying and building cross-border RIS by reducing administrative boundaries and creating inter-regional linkages). **Retaining a significant proportion of the 75% of Europe's mobile academics within the ERA to reap the benefits of knowledge flows within Europe.**

Improving the impact of knowledge flows on productivity does not only rely on designing local scientific and technologic poles of excellence in order to benefit from agglomeration economies. It should be associated with specific actions towards lagging regions. Helping lagging areas to reach a critical mass will allow them to benefit from knowledge flows within and across the region. **In particular, policy makers should focus primarily on the medium size regions that need an initial help to access to global knowledge flows, instead of devoting too much attention to the largest areas that already benefit from agglomeration forces to build their own dynamics.**

Due to the great diversity of regional and sectoral context, general recommendations can hardly be drawn. The definition of regional policies adapted to each regional context requires a good understanding of the local characteristics and Trans-National Policy learning is also important to identify best practices. To this aim, there is a crutial need for monitoring tools. An easier access to data and a more systematic collection of this data is required, as well as an improvement and a diffusion of the indicators in order to adapt them to the local needs. This requires to organize the interactions between data producers, policy makers, and researchers specialized on these topics. A European structure should be set up to provide **a specific place:**
- **where data would be centralized and homogenized,**
- **where relevant indicators could be discussed and made available,**
- **and information could be diffused, both to the scientific community and to the policy makers.**

 Strong progress need to be made in both system and procedures to improve the quality of data on Intangible Assets, with a direct involvement of Eurostat in order to provide a broad and updated database on IA. This is necessary in order to assess their impact on the economy and to evaluate the implemented policy measures.
- Eurostat should coordinate the creation of a multidimensional database on IA with homogenised data for all European countries
- Data should be available with a sub-national disaggregation and also with a sectoral specification given the high heterogeneity among regions and sectors.
- Accurate procedures should be indicated for the regular collection of data in the European countries, in particular in the new accession and candidate countries.

 Dismantle residual trade barriers, especially between countries with strong income differences, to have relevant welfare gains.

 Support the peripheral territories to avoid regional inequalities deriving from a deeper European integration, so long as these peripheral regions are not able to compensate their disadvantaged geography with greater competitiveness.

 Promote financial markets with diversified sources of financing, such as Venture Capital and Private Equity, because banks alone are not able to supply the capital required for investing in new technologies.

 Support greater efficiency in the stock markets since they perform a key role in the evaluation of the introduction and successful exploitation of technological innovations which, in turn, positively affects total factor productivity.

 Promote a more liquid market for corporate control to facilitate the transfer of firms' control and to make entrepreneurs less subject to idiosyncratic risk.

 Stimulate and support the accumulation and improvement of all Intangible Assets (human capital, technological capital, social capital and institutions, entrepreneurial) in the system since their complementary action enhances economic performance at the firm and regional levels. This policy will also create beneficial effects to neighbouring regions due to the presence of spatial spillovers.

 Provide incentives to invest in R&D (also through FP programmes) and facilitate the creation of externalities especially for small firms, for instance, sharing the costs of R&D among several SMEs.

**National level**

**Increasing national educational levels is important, but not sufficient** for fostering economic development. In addition, **the quality of human capital should be addressed** in order to improve the ability of an economy to absorb technological advance. In addition, **higher political activity and the quality of governance** should be thus supported/improved.

Labour markets at the national level display specificities that drive **this level as the best chance to develop flexicurity policies**, by establishing national objectives for adaptation and change in the area of employment, productivity, flexibility and security. **A national dialogue is needed** with representatives of employers, workers, government and other parties, in order to reformulate a series of policy approaches or negotiating a package of measures, what would lead to the adoption of national integrated flexicurity strategies.

**Improvement on geographical labour mobility** will reduce overeducation and this will imply better matches in the labour market that will allow exploiting the potentialities of investment on education.

**The national level (instead of regional) should be the major policy level for higher education and research policy** due to the national peculiarities of university systems and the predominantly national scope of impacts from university research.

An enhancement of excellence in research depends to a critical degree on the amount of funding provided by public sources. Additional funding should be flanked by institutional reforms within universities, e.g. greater autonomy, institutional strategies, and greater flexibility in terms of remuneration and equipment. **Opportunities for young scientists should be increased to work independently and with possibility to achieve a tenured position at early stages of the careers**.

**National research agencies which are providing funding for research projects based on academic excellence and scientific potential of applications should be strengthened.** The funds should be provided in a less bureaucratic manner.

**Differences in returns to human capital are supposed to be behind migration of skilled workers across countries but, particularly, between regions within countries**. This should be taken into account when promoting development of lagging regions and when assessing the effect of educational policies on the productive structure of the regional economies.

 Promote education of the workforce (i.e. training programs) and facilitate the matching of newly/more educated workers to firms in more productive sectors to favour a virtuous structural change towards more dynamic sectors of the economy.

 Provide safety nets for those industries more directly hit by the process of euro adoption and facilitate the transition of low-skilled workers into jobs with a higher human capital content.

 Sustain attraction of more educated workers from abroad so that their competences can be used by local firms in the technology adoption mechanism.

 Promote financial incentives and fiscal policies designed to stimulate the firms accumulation of internal intangible capital stocks, like software, R&D expenditure, patents, economic competencies and employee training.

 Improve infrastructures and allow differentiated fiscal regimes among richer and poorer regions in order to attract firms in the poor region and favour spatial dispersion of industrial activities.

 Promote the location of enterprises (through fiscal and financial incentives, public infrastructures) in places where agglomeration economies are taking place to improve innovation output and support the emergence of industrial districts with a favourable external environment.

 Promote tourist flows since they convey new ideas and information to the destination regions enhancing their efficiency levels.

 Invest more resources on education; more specifically: in lagging economies invest in lower levels of education to favour imitation, for more advanced economies invest in tertiary education linked to own-innovation.

 Impose adequate standards in the provision of public good at the local level, through centrally designed national policies, to facilitate collective learning and relational development.

 Support higher education in business schools to stimulate the accumulation of entrepreneurial capital.

**Regional level**

Since the economic performance differs substantially even across the regions within the same country, a one size fits all approach cannot be the optimal strategy. Instead, policy measures should rely on the comparative advantages of the respective regions. Hence, the implementation of regional policies requires a deep understanding of the local characteristics, which should rely upon a detailed analysis of the regional strengths, weaknesses, opportunities and threats. This means that the actual measures to be implemented in each region can only be identified through a deep understanding of the local technological and socio-economic dynamics.

Regional policies should be also aware of the presence of external effects due to spatial spillovers. Besides their effect on the development in a particular region, measures to stimulate the investment in intangible assets will also affect the performance in other regions. Therefore, policies in neighbouring regions have to be coordinated.

With relation to the measurement of knowledge and innovation it is necessary to:
• **improve the regional availability of traditional STI indicators** (especially CIS), to ensure geographical comparability at the sub-national and sectoral level, possibly allowing also dynamic analysis;
• allow the measurement of new indicators on STI and IA at the regional level (such as those introduced in the report), **launching new surveys or revising existing ones** to account for the key features of spatial knowledge accumulation;
• provide a complete and constantly updated overview on overall regional data production within the EU, as information, particularly on specific national sources, is still rather difficult to be ascertained;

Regional policy makers should be aware of the fact that improving workers' human capital in their region will improve productivity and income per capita but maybe not as much as that kind of investment in some other regions. They should then be concerned about the factors that provoke such differences. And they should take into account that **improving the endowment of human capital is not likely to affect workers with the lowest earnings, as in this case differences has basically to do with lower returns to human capital.**

 To strengthen human capital (the skills of the local labour force), policy makers should devise: (a) Initiatives targeting long-term decreasing supply of scientific skills essential (regional talent management, strategic skills foresight); (b) Collaborative talent retention initiatives (industry & policy makers); (c) Programs to attract & bind international students

 To strengthen **organizational capital** (i.e. the regional ability to organise knowledge creation), policy makers should: (a) Promote cross-industry knowledge exchange & UIL through new mechanisms (e.g. innovation incubators, project houses etc.); (b) Strengthen public/private patent exploitation offices; (c) Increase availability & quality of venture capital (especially financing for early stage commercialization)

 To strengthen **network capital** (i.e. the regional ability to collaborate for knowledge creation) policy makers should: (a) Improve channels of communication of MNEs with other regional actors (awareness of local R&D/knowledge transfer initiatives); (b) Support temporary institutional moves from academia to industry; (c) Create regional partnering organizations (see pharmaceutical industry); (d) Increase scope of early-stage face-to-face interaction in publicly funded research consortia

 With respect to overeducation, the results indicate that even in the case that qualified workers do not find a suitable job, they are still more productive at the aggregate level than the unqualified ones. This implies that, there is the case for public investment in education. However, **in a context of high geographical mobility, regions will not directly benefit from their "over-investment" in the education of their population.**

 Related to quality of work, where substitution of good jobs for bad jobs is likely to happen, **comprehensive lifelong learning strategies are necessary** even before the crisis arrives. It would ensure continual adaptability and employability of workers, particularly the most vulnerable.

 With respect to social capital, low levels of social norms, civic participation, and formal and informal networks seem to hinder regional development – both separately and jointly with human capital – indicating the **importance of developing effective civil society**.

 **Regional governments should complement initiatives to strengthen research fields identified by the respective universities or the national government** if these activities have a high regional impact, e.g. scientific fields which are well integrated with the regional industry by direct collaborations and via the labour market, as well as promotion of start-up activities. However, these initiatives should be implemented in a very selective way and only in highly promising fields. The regional level should not have the main responsibility for higher education and research policy and funding due to the predominantly national scope of knowledge spillovers from university research.

**The scope for research interactions varies greatly among regions** and in some contexts is potentially huge. However, to achieve such potential, private and public resources have to be devoted to identifying and facilitating the most effective linkages for each region.

 Improve local transportation system to reduce the length of business and commuting journeys and to boost labour productivity by means of increasing returns derived from transportation cost savings, sharing inputs and knowledge spillovers.

**Institutional level**

Our analysis showed that the effect of human capital on economic development is stronger in societies with higher level of institutional trust – it is therefore **important to pay special attention to the trustworthiness of public institutions (and people's perception of it).**

In order to improve R&D collaboration performance, policy instruments might include, for instance, interdisciplinary events (workshops, programs of lectures, expert discussions, company presentations, research procurement etc) that allow actors to identify partners for cooperation. Publicly funded research consortia that increase the scope of early-stage face-to-face contacts and public-private partnerships to improve the utilization of the regional core competencies or support knowledge-sharing between academics and businesses can contribute to the process of knowledge creation. Public or private patent exploitation offices at universities or research institutes should be established to increase the use of intellectual property in a more systematic way.

In order to stimulate incentives to commercialize the new knowledge, more autonomy should be given to universities to strengthen strategic fields. Universities should develop their own strategies. More responsibility should be given to administrators to implement these strategies in an appropriate way. The involvement of business leaders to train the university staff may increase the chances of commercialization of academic knowledge in the future. Thus, university officials should engage local industry leaders and governmental officials in the design and management of university commercialization policies.

**To attract star scientists, more autonomy should be given to universities in order to enable them to internally strengthen certain strategic fields**. Additional funding is needed to provide a competitive research environment and remuneration for these strategic fields and the attraction of star scientists from abroad. Universities themselves have to develop unique institutional strategies and universities administrators should be given the power to implement these strategies properly. An important role can also be played by funding agencies: The German Research Foundation has established excellent funding schemes to promote the regional scientific integration of star scientists within collaborative research centers and by promoting independent research groups. This kind of funding should be further promoted since it is based on academic excellence and is not too bureaucratic.

To inform policy decisions on the processes of knowledge accumulation within firms the following findings are identified as crucial:

• Increasing resources for innovation is not an effective strategy unless the actual presence and strength of collaborative linkages within the system are identified. The attention of policy makers should be on the relation between networking and technological capabilities.

• R&D networks, although internationally in scope, may still uphold the geographical concentration both at the European level and at the sub-national level, baring important consequences on EU regional and cohesion policy.

• The support for firms' organisational innovation can be pursued through micro level initiatives such as creating awareness of the benefits of organizational renewal, providing training on organizational change and activities to support learning processes, but not through "best practice" approaches.

The following findings are deemed relevant for policies regarding the role of Universities in knowledge accumulation:

• Research quality and geographical proximity bare an important impact on the intensity of university-industry collaborations. However, such an influence varies greatly between basic-science and engineering-related scientific fields. The research indicates that a complex set of overlapping factors – most of them embedded in the industrial and scientific structure of regional systems – underlie the relevance of geographical proximity and the actual potential for localised knowledge spillovers.

• The quality of international network connections matters remarkably for academic entrepreneurship. As a consequence the set of tools of knowledge based economic development should include not only R&D promotion but also clever ways of supporting academic research networking.

• European professors generally show similar views to the US ones with regard to public vs. private science. However the professors that favour academic commercialization the most are those who, through their career, have gone beyond traditional core academic responsibilities interacting with firms, government and the wider public.

• A higher entrepreneurial orientation could be fostered through the introduction of mentoring programs for researchers who are not much experienced in commercialisation activities. Especially the opportunities in non-scientific disciplines should be promoted as they are often not well developed. In general the incentives for researchers to be engaged in commercialisation can be improved by a reduction of teaching requirements
• From the perspective of the academic staff, start ups by universities should be better supported. This could be achieved, for example, by providing management assistance and ongoing support from universities with respect to research and business contacts. Supportive departmental structures are crucial for the success of these policies.

**Recommended future action**

It might be useful to **analyze separately old and new EU members** (or in broader context, transition and non-transition European countries), as the relationship between economic growth and its factors seems to be different in these two country groups.

As future actions we also plan to **expand our research to more European countries**, specially those of quality of work, star-scientists and the regional impact of MNEs, which so far have been done for specific countries.

**To coordinate and develop new homogeneous European databases, at national and regional level**

**An European Institution should lead the creation of the European homogeneous database** at regional and national level, related with IA

 Strong progress need to be made in both system and procedures to improve the quality of data on Intangible Assets, with a direct involvement of Eurostat in order to provide a broad and updated database on IA. This is necessary in order to assess their impact on the economy and to evaluate the implemented policy measures.
• Eurostat should coordinate the creation of a multidimensional database on IA with homogenized data for all European countries
• Data should be available with a sub-national disaggregation and also with a sectoral specification given the high heterogeneity among regions and sectors.
• Accurate procedures should be indicated for the regular collection of data in the European countries, in particular in the new accession and candidate countries.

 The creation of such a database requires a specific place:
• where data would be centralized and homogenized,
• where relevant indicators could be discussed and made available,
• and information could be diffused, both to the scientific community and to the policy makers.
Such a structure is already experimented in France. The European Localized Innovation Observatory (EuroLIO, www.eurolio.eu) takes on the form of a network that gathers research labs specialized on localized innovation dynamics, all the innovation data producer offices and representatives of the national and regional technological policy makers. Its expertise in spatial data analysis, as in the diffusion of technological information could be extended to the EU, by including EU actors (research labs, data producers and representatives of policy markers).

## IAREG Output

2 special issues in Regional Studies (in process) and in Papers in Regional Science have been done. In addition, now we are disseminating our IAREG research in Workshops and Conference and publishing our results in international journals (see Annex I)

## Policy briefs

IAREG continues to produce so-called "Policy Briefs" that highlight policy-relevant results from the respective deliverables. Each Policy brief clarifies the objectives of the respective research

and its scientific methodology, before it summarizes the newly generated knowledge, as well as key messages for policy makers, businesses, trade unions and civil society actors.

- Policy brief: Knowledge diffusion. Underlying mechanisms and impact on productivity and region - General implications PDF
- Policy brief: Knowledge diffusion. Underlying mechanisms and impact on productivity and region -specific strategies PDF
- Policy brief: Report on traditional and new indicators of Science, Technology and Innovation (STI) and knowledge accumulation PDF
- Policy brief: Report on quantitative and qualitative insights on firms' innovation strategies PDF
- Policy brief: Report on the role of university and its linkages in the creation of intangible assets and the role of multinationals PDF
- Policy brief: Report on organizational innovations and new knowledge management practices: their diffusion and influence on firms' performance PDF
- Policy brief: Report on regional measures for human capital in the European Union PDF
- Policy brief: Mobile star scientists as knowledge spillover agents PDF
- Policy brief: Report on the role of human capital: General impact on economic performance at the regional level PDF
- Policy brief: Report on the role of human capital: The link with social capital and the quality of work PDF
- Policy brief: The role of regional and sectoral externalities in determining local economic performances PDF
- Policy brief: Report on the role of intangible capital on firms productivity PDF
- Policy brief: Is Agglomeration really good for growth? Global efficiency and interregional equity PDF

## Past events

As a way of coordinating the IAREG Project the Working Package leaders and the Coordinator periodically organise a series of workshops and informal meeting among the participants and members of the project. Here below we propose the events organised during the IAREG Project:

**Final IAREG Conference – 6th July 2010, Committee of the Regions, Brussels (IAREG)**

**Attendants:** IAREG members, Advisor Committee members, DG members, external experts.

**Activity:** The conference aimed to disseminate the scientific results from the project to the academia, research institutes, firms, policy makers and other stakeholders for supporting further research and evidence-based policy making.

The scientific results of the project addressed were presented in the first part of the Final Conference. The main part of the Final Conference devoted to presenting and discussing the policy implications with a policy-maker oriented perspective. The conference provided an opportunity to discuss the new knowledge which was created during the project and what still remains for future research. In particular, the users (Commission officers) and the audience gave the opportunity to express their needs on knowledge in this important policy area.

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**Second Progress Meeting – 14th and 15th January 2010, Barcelona (IAREG).** The objective was to ensure the extraction of good policy recommendations. The aim was to show the conclusions extracted from WP1 to WP5 and to discuss on them in order to validate them for the later policy recommendations building. The members of the Advisor Committee were also invited to this meeting in order to discuss the adequateness of the conclusions extracted from the research of each workpackage. This validation help to the later extraction of policy recommendations of WP6.
**Attendants:** IAREG members, Advisor Committee members.

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**Internal Workshop WP1 – 22nd and 23rd October2009, Vienna (WU-Wien and LSE).** The activity in this workshop focused in a discussion of the work done so far in WP1, presentations of the new Working Papers and mark the guidelines for future work.
**Attendants:** CRENoS team, CREUSET team, UTA team, WU-WIEN team, LSE team, GKK team, LUH team and UB-AQR team.

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**Internal Workshop WP4 and WP5 – 1st and 2nd October 2009, Cagliari (CRENoS and CREUSET).** The activity in this workshop focused in a discussion of the work done so far in these two work-packages and mark the guidelines for future work.
**Attendants:** CRENoS team, CREUSET team, UTA team, WU-WIEN team, SPRU team, GKK team and UB-AQR team.

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**First IAREG progress meeting – January 2009, Brussels**
**Activity:** Two main objectives. First, to present the results obtained in WP2 and WP3 as well as the first preliminary results of WP1. Second, to ease the dissemination of information on both indicators and empirical results, from the partners participating in WP4 and WP5. The members of the Advisory Committee and members of different Directorates Generals of the European

Commission were invited to this meeting in order to discuss the conclusions extracted from the research of each workpackage. This validation helps to the later extraction of policy recommendations of WP6.
**Attendants:** IAREG members, Advisor Committee members and members of different Directorates Generals of the European Commission

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**Internal meeting – 4th July 2008 (SPRU-LUH):**
**Attendants**: Simona Iammarino, Elisabetta Marinelli, Javier Revilla Diez, Jan Kramer
**Activity:** We discussed WP1, Task 4, to finalise MNE interview process and Questionnaire.

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**Informal meeting WP1 and WP2 – 28th May 2008 (WU-Wien - LUH):**
**Attendants**: Edward M. Bergman, Harvey A. Goldstein (University of North Carolina, Chapel Hill), Bernhard Kurka, Gunter Meier, Christian Reiner, Daniel Schiller (LUH)
**Activity**: Discussion of survey methods and synergies between research on university-industry linkages (WP1, task 3) and mobility of knowledge spillover agents (WP2, task 4)

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**Informal Workshop – 22nd-23rd May 2008 (SPRU-GKK):**
**Attendants**: Simona Iammarino, Pablo d'Este, Nick von Tunzelmann, Elisabetta Marinelli, Attila Varga.
**Activity**: Discussions concentrated on Deliverable 1 of WP1, and on the progress of Task 3 of the same WP1. In addition, Attila Varga presented in the SPRU seminar series: "From the geography of innovation to development policy analysis: the GMR-approach".

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**Informal Workshop – 15th-16th May 2008 (SPRU-CRENoS-CREUSET):**
**Attendants**: Simona Iammarino, Nick von Tunzelmann, Elisabetta Marinelli, Stefano Usai, Corinne Autant-Bernard.
**Activity**: Extensive discussion about the structure of Deliverable 1 in WP1. In addition, Stefano Usai presented in the SPRU seminar series: Knowledge flows across European Regions. Also, it was discussed in depth with Stefano Usai the progress of Task 4 of WP1, as CRENoS is involved in the Task. Some interesting collaboration could be envisaged.

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**Informal Workshop – 9th May 2008 (AQR-DIW-UTARTU-LUH-CRENoS)**
**Attendants:** Jordi Suriñach, Rosina Moreno, Enrique Lopez-Bazo, Raul Ramos, Vicente Royuela, Fabio Manca, Christian Dreger, Georg Erber, Adriana Di Liberto, Raffaele Paci, Daniel Schiller, Giovanni Sulis, Eve Parts.

**Activity**: Presentation of papers:

- ✓ Regional variability in the returns to HK (AQR-IREA, Rosina Moreno, with Enrique López-Bazo)
- ✓ International TFP dynamics and income convergence: a panel data analysis (CRENOS, Adriana Di Liberto, with F. Pigliaru and P. Chelucci)
- ✓ The effects of public capital on the productivity of Italian regions, (CRENOS, Raffaele Paci, with E. Marrocu)
- ✓ Quality of work and productivity (AQR-IREA, Vicente Royuela, with J. Suriñach)
- ✓ Effects of educational human capital on regional wages (AQR-IREA, Enrique López-Bazo, with E. Motellón)
- ✓ Knowledge spillover agents – review of literature and research methods (LUH, Daniel Schiller)
- ✓ Human capital mobility (AQR-IREA, Raúl Ramos, with M. Artís and J. Suriñach)
- ✓ The Effect of Family Income on Schooling Outcomes of Children: Results from IIV Estimates (CRENOS, Giovanni Sulis, with S. Gratziu)

Presentation of data

- ✓ Presentation of human capital data (DIW, Christian Dreger and Georg Erber)
- ✓ Presentation of social capital data (Eve Parts, UTARTU)

Also, a deep discussion on the main issues of the WP2 was carried out. Especially on the way the work should be proposed to the EU Commission (templates, report formatting and others) as well as the main problems in the collection of data due for WP2.

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**Internal meeting WP3 – 7th March 2008 (MPIoE):**
**Attendants**: Werner Boente, Georg Erber (DIW), Stephan Heblich
**Activity**: discussion on the first draft of WP3 Report on Indicators, a definition of Entrepreneurship Capital, and following steps.

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**Internal meeting WP1 and WP4- 28th April-3rd May 2008 (SPRU):**
**Attendants**: Simona Iammarino, Elisabetta Marinelli, Cecilia Jona Lasinio.
Cecilia Jona Lasinio (based at the "The Libera Universita' Guido Carli LUISS" and ISTAT in Rome) is part of the SPRU team in IAREG and involved in WP4, Task 3, on which we extensively worked during the week of her staying. Morever Cecilia Jona Lasinio is one of the Principal Investigators of the FP7 project INNODRIVE, which explores the role of Intangible Assets at the MICRO and MACRO level and therefore is complementary to the IAREG project. As for IAREG, INNODRIVE is supervised by the EC officer Marianne PAASI, who stressed the importance of establishing strong channels of communication and cooperation among the two FP7 projects.
**Activity**: discussion on the first draft of WP1 Report on Indicators, where it has been tried to establish a link with the INNODRIVE project, and further possibilities of cooperation.

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**Internal meeting of WP1 – 18th February 2008: (SPRU-LUH):**
**Attendants**: Simona Iammarino and Javier Revilla Diez
**Activity**: WP1, Task 4, interview process and questionnaire structure discussion.

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## Annex I: OUTPUT Intangible Assets and Regional Economic Growth IAREG Project

| OUTPUT Intangible Assets and Regional Economic Growth IAREG Project | | | | |
|---|---|---|---|---|
| SSH – 2007. SOCIOECONOMIC SCIENCES AND HUMANITIES. FP7 Collaborative Research Project. | | | | |
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| AQR | | | | |
| Papers | | | | |
| **Title** | **Authors** | **Journal 1** | **Year** | **Status** |
| Does human capital stimulate investments in physical capital? Evidence from a cost system framework. | López-Bazo, E; Moreno, R | Economic Modelling, 25, 1295-1305 | 2008 | Published |
| Does social capital reinforce technological inputs in the creation of knowledge? Evidence from the Spanish regions | Miguélez, E; Moreno, R.; Artís, M. | Regional Studies | 2009 | Accepted |
| Evidence on the role of ownership structure on firms' innovative performance | Ortega-Argilés, R.; Moreno, R. | Investigaciones Regionales, 15, 231-250 | 2009 | Accepted |
| Regional Heterogeneity in Wage Distributions: Evidence from Spain | Motellón, E; López-Bazo, E; El-Attar, M | Journal of Regional Science | 2009 | Accepted |
| Human Capital and Regional Wage Gaps (1) | López-Bazo, E; Motellón, E | Regional Studies (IAREG Special Issue) | 2009 | Revise and Re-submit |
| Human Capital Composition and Economic Growth at the Regional Level | Manca, F. | Regional Studies (IAREG Special Issue) | 2009 | Submitted |
| Regional economic growth and human capital: the role of overeducation | Ramos, R; Surinach, J: Artís, M. | Regional Studies (IAREG Special Issues) | 2009 | Submitted |
| An alternative measure of the aggregate effect of education | López-Bazo, E; Moreno, R | Regional Studies | 2009 | Revise and Re-submit |
| Assessing agglomeration economies in a spatial framework with endogenous regressors | Artis, M; Miguélez, E; Moreno, R | Regional Science and Urban Economics | 2009 | Submitted |
| Quality of work and productivity | Royuela, V; Suriñach, J. | Annals of Regional Science | 2009 | Submitted |
| The role of intangible assets in the regional economic growth | Suriñach, J; Moreno, R. | Investigaciones Regionales | 2010 | Submitted |
| Human capital spillovers and regional economic growth in Spain | Ramos, R.; Suriñach, J.; Artís, M. | Papers in Regional Science 89(2), pp. 435-447 | 2010 | Published |
| Working Papers | | | | |
| **Title** | **Authors** | **IAREG WP** | **Year** | |
| Regional variability in the impact of human capital on regional growth | López-Bazo,E.; Moreno, R. | WP IAREG 2/03 | 2008 | |
| Quality of work and productivity | Royuela, V; Suriñach, J. | WP IAREG 2/05 | 2008 | |

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| Regional economic growth and human capital: the role of overeducation | Ramos, R.; Suriñach, J.; Artís, M. | WP IAREG 2/06 | 2008 | |
| Regional Heterogeneity in Wage Distributions: Evidence from Spain | Motellón, E; López-Bazo, E; El-Attar, M | WP IAREG 2/08 | 2008 | |
| Regional variability in the impact of human capital on regional growth | López-Bazo,E.; Moreno, R. | IREA WP 2008/17 | 2008 | |
| Quality of work and productivity | Royuela, V; Suriñach, J. | IREA WP 2009/01 | 2008 | |
| Regional economic growth and human capital: the role of overeducation | Ramos, R.; Suriñach, J.; Artís, M. | IREA WP 2009/04 | 2008 | |
| Regional Heterogeneity in Wage Distributions: Evidence from Spain | Motellón, E; López-Bazo, E; El-Attar, M | IREA WP 2009/03 | 2008 | |
| Human capital spillovers and regional economic growth in Spain | Ramos, R.; Suriñach, J.; Artís, M | WP IAREG 2/09 | 2009 | |
| Does social capital reinforce technological inputs in the creation of knowledge? Evidence from the Spanish regions | Miguélez, E; Moreno, R.; Artís, M. | WP IAREG 5/10 | 2009 | |
| Decomposing differences in total factor productivity across firm size. The role of innovation and human capital. | Castany L., López-Bazo E., Moreno R. | WP IAREG 5/11 | 2009 | |
| Human Capital Composition and Economic Growth at the Regional Level | Manca, F. | WP IAREG 5/13 | 2009 | |
| Assessing agglomeration economies in a spatial framework with endogenous regressors | Artis, M; Miguélez, E; Moreno, R | WP IAREG 5/19 | 2009 | |
| Regional economic growth and human capital: the role of overeducation | Ramos, R.; Suriñach, J.; Artís, M. | IZA DP 4453 | 2009 | |
| Human capital spillovers and regional economic growth in Spain | Ramos, R.; Suriñach, J.; Artís, M | IREA WP 2009/25 | 2009 | |
| Human capital spillovers and regional economic growth in Spain | Ramos, R.; Suriñach, J.; Artís, M | IZA DP 4579 | 2009 | |
| Does social capital reinforce technological inputs in the creation of knowledge? Evidence from the Spanish regions | Miguélez, E; Moreno, R.; Artís, M. | IREA WP2008/13 | 2009 | |
| Decomposing differences in total factor productivity across firm size. The role of innovation and human capital. | Castany L., López-Bazo E., Moreno R. | IREA WP 2007/05 | 2009 | |
| Human Capital Composition and Economic Growth at the Regional Level | Manca, F. | IREA WP 2009/13 | 2009 | |
| Assessing agglomeration economies in a spatial framework with endogenous regressors | Artis, M; Miguélez, E; Moreno, R | IREA WP 2009/27 | 2009 | |
| Human Capital and Regional Wage Gaps | López-Bazo, E; Motellón, E | IREA WP 2009/24 | 2009 | |

**Dissemination**

| Title | Authors | Conference | Year | Place |
|---|---|---|---|---|
| Assessing agglomeration economies in a spatial framework with endogenous regressors | Artis, M; Miguélez, E; Moreno, R | III Spatial Econometrics Conference | 2009 | Barcelona |
| | | European Economy Association Conference | 2009 | Barcelona |

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| Does social capital reinforce technological inputs in the creation of knowledge? Evidence for the Spanish regions | Miguélez, E; Moreno, R.; Artís, M. | 48th European Regional Science Association Congress | 2008 | Liverpool (UK) |
| | | XI Encuentros de Economía Aplicada | 2008 | Salamanca (Spain) |
| Evidence on the role of ownership structure on firms' innovative performance | Ortega-Argilés, R.; Moreno, R. | XREAP Simposio sobre Dinámica Empresarial e Innovación: La incidencia del espacio | 2008 | Barcelona (Spain |
| Does human capital stimulate investments in physical capital? Evidence from a cost system framework. | López-Bazo, E; Moreno, R | Seminar in Univerity of Valencia | 2008 | Valencia (Spain) |
| Human Capital and Regional Wage Gaps (1) | López-Bazo, E; Motellón, E | XI Encuentro de Economía Aplicada | 2008 | Salamanca |
| | | XXXIII Simposio de Análisis Económico | 2008 | Zaragoza |
| | | 55th Annual North American Meetings of the Regional Science Association International | 2009 | New York |
| | | VIII Jornadas de Economía Laboral | 2009 | Zaragoza |
| | | X ECOMOD Conference | 2010 | Istanbul (Turkey) |
| | | Seminar in Sabanci University | 2010 | Istanbul (Turkey) |
| Regional Heterogeneity in Wage Distributions: Evidence from Spain | Motellón, E; López-Bazo, E; El-Attar, M | Conference on Spatial Economics and Trade | 2008 | Glasgow |
| | | 55th Annual North American Meetings of the Regional Science Association International | 2009 | New York |
| | | FEDEA Seminar | 2008 | Madrid |
| | | Seminar in Universitat Rovira i Virgili, Dpt d'Economia i Empresa | 2009 | Reus |
| IAREG Project. Results on the effect of Human Capital on Regional Growth | López-Bazo, E (3) | Seminario Hispano-Francés sobre la Innovación con el Apoyo de los Fondos Europeos | 2009 | Sevilla |
| Regional economic growth and human capital: the role of overeducation | Ramos, R.; Suriñach, J.; Artís, M. | XII Encuentro de Economía Aplicada | 2009 | Madrid (Spain) |
| | | First IAREG Progress Meeting | 2009 | Brussels |
| Human capital spillovers and regional economic growth in Spain | Ramos, R.; Suriñach, J.; Artís, M | World Conference of Spatial Econometrics | 2009 | Barcelona (Spain) |
| Human Capital Composition and Economic Growth at the Regional Level | Manca, F. | II World Congress of the Spatial Econometrics Association | 2008 | New York (U.S.A) |
| Appropriate IPRs, Human capital composition and Economic Growth | | 55th North American Research Council Conference | 2008 | New York (U.S.A) |
| | | XIV Spring Meeting of Young Economists | 2009 | Istanbul, (Turkey) |
| | | XXXV Reunion de Estudios Regionales | 2009 | Valencia (Spain) |
| | | XIV International Society for New Institutional Economics | 2009 | Berkeley (U.S.A) |
| | | XI Conference on International Economics | 2009 | Barcelona |
| Quality of work and productivity | Royuela, V; Suriñach, J. | 55th Annual North American Meetings of the Regional Science Association International | 2009 | New York |

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|---|---|---|---|---|
| Quality in work and aggregate productivity. | Royuela, V; Suriñach, J. | XII Encuentro de Economía Aplicada | 2009 | Madrid (Spain) |
| Calidad del empleo y satisfacción laboral | Royuela, V; Suriñach, J. | III Congreso Nacional Mercado de trabajo y relaciones laborales | 2010 | Palencia (Spain) |
| Decomposing differences in total factor productivity across firm size. The role of innovation and human capital. | Castany L., López-Bazo E., Moreno R | COINVEST Conference on Intangible Investments at Macro and Micro Levels and Their Role in Innovation, Competitiveness and Growth | 2010 | Lisbon |
| INTANGIBLE ASSETS AND REGIONAL ECONOMIC GROWTH | Moreno, R. | EU-2020 strategy - Insights from European research in socio-economic sciences | 2010 | Brussels |
| Main scientific results of IAREG Project | Suriñach, | IAREG Final Conference | 2010 | Brussels |
| Dissemination IAREG Internal meetings and Workshops | | | | |
| Title | Authors | Conference | Year | Place |
| Regional variability in the impact of human capital on regional growth | López-Bazo,E.; Moreno, R. | FIRST IAREG PROGRESS MEETING | 2009 | Brussels |
| Regional variability in the returns to HK | López-Bazo,E.; Moreno , R. | "Human and social capital and regional productivity" Workshop | 2008 | Barcelona |
| Quality in work and productivity | Royuela, V; Suriñach, J. | FIRST IAREG PROGRESS MEETING | 2009 | Brussels |
| Quality of work and productivity | Royuela, V; Suriñach, J. | "Human and social capital and regional productivity" Workshop | 2008 | Barcelona |
| Regional economic growth and human capital: the role of overeducation | Ramos,R.; Suriñach,J.; Artís, M. | FIRST IAREG PROGRESS MEETING | 2009 | Brussels |
| Regional heterogeneity in wage distributions. Evidence from Spain | Motellón, E.; López-Bazo, E.; El-Attar, M | FIRST IAREG PROGRESS MEETING | 2009 | Brussels |
| Do innovation and human capital explain the productivity gap between small and large firms? | Castany L., López-Bazo E., Moreno R | "Knowledge flows, intangible assets and regional performance" Workshop | 2009 | Cagliari |
| Assessing agglomeration economies in a spatial framework with endogenous regressors | Artis M., Miguélez E., Moreno R. | "Knowledge flows, intangible assets and regional performance" Workshop | 2009 | Cagliari |
| Human Capital Composition and Economic Growth at the Regional Level | Manca, F. | "Knowledge flows, intangible assets and regional performance" Workshop | 2009 | Cagliari |
| Effects of educational human capital on regional wages | Motellón, E.; López-Bazo, E.; | "Human and social capital and regional productivity" Workshop | 2008 | Barcelona |
| Human capital mobility | Ramos,R.; Suriñach,J.; Artís, M. | "Human and social capital and regional productivity" Workshop | 2008 | Barcelona |
| | | | | |
| **CRENOS** | | | | |
| **Papers** | | | | |
| **Title** | **Authors** | **Journal 1** | **Year** | **Status** |
| What determines entrepreneurial clusters | Schivardi F., Guiso L. | Journal of the European Economic Association | 2009 | Forthcoming |
| The euro and firm restructuring | Schivardi f., Bugamelli M., Zizza R. | Europe and the Euro, (eds) A. Alesina and F. Giavazzi, University of Chicago Press | 2009 | Published |

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| Knowledge flows across the European regions | Paci R., Usai S. | Annals of Regional Science | 2009 | Published |
| Productivity and Firm Selection: Quantifying the New Gains from Trade | Corcos G., Del Gatto M., Mion G., Ottaviano G. | Economic Journal | 2009 | Resubmitted |
| Measuring productivity | Del Gatto M., Di Liberto A., Petraglia C. | Journal of Economic Surveys | 2010 | Published |
| International TFP dynamics and human capital stocks: a panel data analysis, 1960-2003 | Di Liberto A., Pigliaru F., Chelucci P. | The Review of Income and Wealth | 2010 | Published |
| Total Factor Productivity, Intangible Assets and Spatial Dependence in the European Regions | Dettori B., Marrocu E., Paci R. | Regional Studies (IAREG Special Issue) | 2009 | Resubmitted |
| Schooling, Production Structure and Growth: An Empirical Analysis on Italian Regions | Sulis G., Hirsch C. | Rivista Italiana degli Economisti, SIE - Societa' Italiana degli Economisti (I), vol. 14(3) | 2009 | Published |
| Persistent regional gaps and the role of social capital: Hints from the Italian Mezzogiorno's case – | Pigliaru F. | QA Rivista dell'Associazione Rossi-Doria, pp. 113-13 | 2009 | Published |
| The generation and exploitation of technological change: market value and total factor productivity | Antonelli, C., Colombelli, A. | The Journal of Technology Transfer | 2010 | Accepted |
| They arrive with new information Tourism flows and production efficiency in the European regions | Marrocu M., Paci R. | Tourism Management | 2010 | Accepted |
| Intangible capital and firms productivity | Marrocu E., Paci R., Pontis M. | Industrial and Corporate Change | 2010 | Submitted |
| **Working Papers** | | | | |
| **Title** | **Authors** | **IAREG WP** | **Year** | |
| Measuring productivity | Del Gatto M., Di Liberto A., Petraglia C. | WP IAREG 5/01 | 2009 | |
| Intangible assets in the European regions Data homogenization and descriptive analysis | Foddi M., Paci R. | WP IAREG 5/02 | 2009 | |
| Total Factor Productivity, Intangible Assets and Spatial Dependence in the European Regions | Dettori B., Marrocu E., Paci R. | WP IAREG 5/03 | 2009 | |
| Persistent regional gaps and the role of social capital: Hints from the Italian Mezzogiorno's case – | Pigliaru F. | WP IAREG 5/04 | 2009 | |
| The euro and firm restructuring | Schivardi f., Bugamelli M., Zizza R. | WP IAREG 5/05 | 2009 | |
| What determines entrepreneurial clusters | Schivardi F., Guiso L. | WP IAREG 5/06 | 2009 | |
| Does Idiosyncratic Business Risk Matter? | Schivardi F., Michelacci C. | WP IAREG 5/07 | 2009 | |
| Does Idiosyncratic Business Risk Matter? | Schivardi F., Michelacci C. | CEPR WP 6910 | 2009 | |
| The generation and exploitation of technological change: market value and total factor productivity | Antonelli C., Colombelli A. | WP IAREG 5/08 | 2009 | |
| Intangible capital and firms productivity | Marrocu E., Paci R., Pontis M. | WP IAREG 5/12 | 2009 | |
| Productivity and Firm Selection: Quantifying the New Gains from Trade | Corcos G., Del Gatto M., Mion G., Ottaviano G. | WP IAREG 5/14 | 2009 | |

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|---|---|---|---|---|
| Is Agglomeration really good for Growth? Global Efficiency and Interregional Equity | Cerina F., Mureddu F. | WP IAREG 5/15 | 2009 | |
| Missing trade where is it? | Pinna A. | WP IAREG 5/16 | 2009 | |
| International TFP dynamics and human capital stocks: a panel data analysis, 1960-2003 | Di Liberto A., Pigliaru F., Chelucci P. | WP IAREG 5/17 | 2009 | |
| Schooling, Production Structure and Growth: An Empirical Analysis on Italian Regions | Sulis G., Hirsch C. | WP IAREG 5/18 | 2009 | |
| They arrive with new information Tourism flows and production efficiency in the European regions | Marrocu M., Paci R. | WP IAREG 5/21 | 2009 | |
| Knowledge flows across the European regions | Paci R., Usai S. | WP IAREG 4/10 | 2009 | |
| **Dissemination** | | | | |
| **Title** | **Authors** | **Conference** | **Year** | **Place** |
| Schooling, Production Structure and Growth: An Empirical Analysis on Italian Regions | Sulis G., Hirsch C. | 6th International Conference Developments in Economic Theory and Policy | 2009 | Bilbao |
| | | 3rd World Congress of the Spatial Econometrics Association | 2009 | Barcelona |
| Total factor productivity, intangible assets and spatial dependence in the European regions | Dettori B., Marrocu E., Paci R. | 48th ERSA Congress, University of Liverpool | 2008 | |
| | | Seminar CRENoS-Deca | 2009 | Cagliari |
| | | Third World Conference of Spatial Econometrics | 2009 | Cagliari |
| | | DIME Workshop on "Technology, Skills and Geography", SPRU | 2009 | University of Sussex |
| | | 50th Riunione Scientifica Annuale della Società Italiana degli Economisti | 2009 | Rome |
| | | 56° Northern American Regional Science Association | 2009 | San Francisco |
| Market value and total factor productivity | Antonelli C., Colombelli A | AFSE 2009 tematic meeting | 2009 | Sophia Antipolis |
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| The euro and firm restructuring | Schivardi f., Bugamelli M., Zizza R. | NBER Conference on Europe and the Euro, | 2008 | Milan |
| | | External adjustment: the macroeconomic and microeconomic dimensions", Directorate-General for Economic and Financial Affairs (DG ECFIN) | 2009 | Brussels |
| Does Idiosyncratic Business Risk Matter? | Schivardi F., Michelacci C. | seminar at the University of Naples, Sassari, Cagliari, Venice, EIEF and at the CREI-CEPR conference on Finance | 2008-2009 | Naples, Sassari, Cagliari, Venice |
| Knowledge flows across the European regions | Paci R., Usai S. | Knowledge flows across European Regions", IEA Conference | 2008 | Istanbul, Turkey |
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| What determines entrepreneurial clusters | Schivardi F., Guiso L. | Entry, Entrepreneurship and Financial Development, World Bank | 2005 | Whasington D.C. |
| | | Understanding Productivity Differences Across Sectors, Firms and Countries | 2004 | Alghero |
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| Intangible capital and firms productivity | Marrocu E., Paci R., Pontis M. | 56° Northern American Regional Science Association | 2009 | San Francisco |
| | | 50 European Regional Science Association Congress | 2010 | Jonkopping (SE) |
| | | 25° Congress European Economic Association | 2010 | Glasgow |
| | | 37° Congress European Association Research in Industrial Economics | 2010 | Istanbul |
| | | 51° Congress Italian Economic Association | 2010 | Catania |
| Is Agglomeration really good for Growth? Global Efficiency, Interregional Equity and Uneven Growth | Cerina F., Mureddu F. | Italian Trade Study Group | 2009 | Cagliari |
| | | Italian Society of Economists | 2009 | Rome |
| | | Northern American Regional Science Association | 2009 | San Francisco |
| | | Conference “Dynamics, Economic Growth, and International Trade, DEGIT – XV” | 2010 | Frankfurt am Main |
| | | Conference of the Regional Science Association International (British and Irish Section) | 2010 | Glasgow |
| | | AnConference of the Regional Science Association International (Germa Section) | 2010 | Hannover |
| | | European Parliament Conference "The Economic Crisis and the Process of European Integration" | 2010 | Brussels |
| | | Annual Conference of the Scottish Economic Society | 2010 | Perth |
| Missing trade where is it? | Pinna A. | European trade study group conference | 2009 | Rome |
| International TFP dynamics and human capital stocks: a panel data analysis, 1960-2003 | Di Liberto A., Pigliaru F., Chelucci P. | 15th International Conference on Panel Data | 2009 | Bonn |
| | | “The Dynamics of knowledge and innovation in knowledge-intensive industries” BRICK Conference, | 2009 | Torino |
| | | “Financial markets, firm internationalization and competitiveness” Conference | 2009 | Rome |
| | | 22th Annual Congress of the European Economic Association | 2009 | Budapest |
| | | CRENoS Workshop "Innovation and Growth: Local and global perspectives” | 2009 | Cagliari |
| They arrive with new information Tourism flows and production efficiency in the European | Marrocu M., Paci R. | 2° IATE Conference | 2009 | Chiang Mai |

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| Productivity and Firm Selection: Quantifying the New Gains from Trade | Corcos G., Del Gatto M., Mion G., Ottaviano G. | GTAP 10th Annual Conference on Global Economic Analysis, Purdue Univ. | 2007 | West Lafayette, Indiana |
| | | Roundtable on "Trade and the Turmoil", European Central Bank | 2009 | Frankfurt |
| | | DIME-ISGEP 2010 Workshop on Firm Selection and Country Competitiveness, Univ of Nice | 2010 | Nice |
| | | European Trade Study Group (ETSG) | 2009 | Rome |
| | | Jornadas de Economia Industrial (JEI), Univ of Vigo; | 2009 | Vigo |
| | | Annual workshop on Trade and Productivity - CRENoS | 2008 | Cagliari |
| Dissemination IAREG Internal meetings and Workshops | | | | |
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| International TFP dynamics and income convergence: a panel data analysis | Di Liberto, A.; Pigliaru, F.; Chelucci, P. | "Human and social capital and regional productivity" Workshop | 2008 | Barcelona |
| The effects of public capital on the productivity of Italian regions | Paci, R.; Marrocu, E. | "Human and social capital and regional productivity" Workshop | 2008 | Barcelona |
| The Effect of Family Income on Schooling Outcomes of Children: Results from IV Estimates | Sulis, G.; Gratziu, S. | "Human and social capital and regional productivity" Workshop | 2008 | Barcelona |
| Total Factor Productivity, Intangible Assets and Spatial Dependence in the European Regions | Dettori B., Marrocu E., Paci R | "Knowledge flows, intangible assets and regional performance" Workshop | 2009 | Cagliari |
| The role of social capital on regional EU productivity | Di Liberto A., Pigliaru F | "Knowledge flows, intangible assets and regional performance" Workshop | 2009 | Cagliari |
| Is Agglomeration really good for Growth? Global Efficiency, Interregional Equity and Uneven Growth | Cerina F., Mureddu F | "Knowledge flows, intangible assets and regional performance" Workshop | 2009 | Cagliari |
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| Productivity Changes and Intangible Assets: Evidences from French Plants | Corinne Autant-Bernard, Jean-Pascal Guironnet and Nadine Massard | International Journal of Production Economics | 2009 | Submitted |
| Quantifying knowledge spillovers | Corinne Autant-Bernard and James LeSage | Journal of Regional Science | 2009 | Forthcoming |

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| Knowledge Diffusion:Challenges to Innovation Policies within the European Regions | Corinne Autant-Bernard, Muriel Fadairo and Nadine Massard | Research Policy | 2010 | Submitted |
| Innovation et Espace - Des externalités aux réseaux | Corinne Autant-Bernard, Pascal Billand, Nadine Massard | Revue d'Economie Industrielle | 2009 | Published |
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| R&D collaboration networks and spatial diffusion of knowledge. A comparison between Telecommunication and Microelectronics | Corinne Autant-Bernard, Pascal Billand,David Frachisse, Nadine Massard | IAREG WP 1/2b | 2009 | |
| Underlying mechanisms of knowledge diffusion | Autant-Bernard C., , Massard N. | IAREG WP4/07 | 2009 | |
| Productivity Changes and Intangible Assets: Evidences from French Plants | Corinne Autant-Bernard, Jean-Pascal Guironnet and Nadine Massard | IAREG WP4/05 | 2009 | |
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| Defining and measuring cultural diversity for innovation analysis purpose | Fabrice Périac | ESSID | 2009 | Barcelona |
| Quantifying knowledge spillovers | Corinne Autant-Bernard and James LeSage | CORE Seminar | 2009 | Louvain-La-Neuve |
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| Academic knowledge transfers and the structure of international research networks | Varga A., Parag A | Universities, Knowledge Transfer and Regional Development, Edward Elgar, 138-159 | 2009 | Published |
| Egyetemi tudástranszfer és a nemetközi kutatási hálózatok szerkezete | Varga A., Parag A | Közgazdasági Szemle április, 343-358 | 2009 | Publsihed |
| Az egyetemi vállalkozó – legenda vagy valóság az európai regionális fejlődés elősegítésére? | Erdős K., Varga A | Közgazdasági Szemle 2010 május, 457-472 | 2010 | Published |
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| | | Culture of Business - Capital of Culture. Internatio-nal confrence in Pécs | 2010 | Pécs |
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| Agglomeration and network effects in regional R&D productivity | Varga A., Pontikakis D., Chorafakis G. | ERSA | 2009 | Lodz |
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| | | ESSID Summer School, Barcelona | 2009 | Barcelona |
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| | | DG Regio workshop on Cohesion Policy | 2009 | Brussels |
| | | Hungarian Academy of Sciences Center for Regional Studies, Győr | 2009 | Győr |
| | | II. Conference of the Hungarian Society for Economics, Budapest | 2008 | Budapest |
| | | RSAI, New York | 2008 | New York |
| | | EC-JRC-IPTS Seville invited seminar, Seville | 2008 | Seville |
| Academic knowledge transfers and the structure of international research networks | Varga A, Parag A | DRUID 25th Celebration Conference Coppenhagen | 2008 | Coppenhagen |
| | | Knowledge in space and time. 1st DIME Conference, Strasbourg | 2008 | Strasbourg |
| | | The autonomous University of Madrid, Spain | 2008 | Madrid |
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| Innovation through spin-offs in Hungary | Erdős K., Varga A | 3rd Central European Conference in Regional Science, Kosice | 2009 | Kosice |
| Innovation through spin-offs in the Hungarian biotechnology sector | Erdős K., Varga A | Cooperation and participation in technoscience in the Socialist and the Post-Socialist space workshop, Graz | 2009 | Graz |
| Academic Entrepreneurship: The Role of Institutions | Erdős K., Varga A | ERSA Conference 2009 | 2009 | Lodz |
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| Regional innovation policy analysis with a Spatial Computable General Equilibrium model | Varga A., Járosi P., Sebestyén F | "Knowledge flows, intangible assets and regional performance" Workshop | 2009 | Cagliari |
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| Economic modeling to assist regional policymaking - workshop at the Faculty of Business and Economics, University of Pécs, 2010, June 11 | http://www.krti.ktk.pte.hu/index.php?p=contents&cid=63 | | 2010 | Pécs |
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| Regional Regimes and Local Entrepreneurship | David Audretsch, Oliver Falck, Maryann Feldman, Stephan Heblich | Regional Studies | 2009 | Accepted |
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| Organizational Capabilities: Some reflections on the Concept | Schienstock, G. | IAREG WP 1/2c | 2009 | |
| Organizational innovations and new management practices: Their diffusion and influence on firms' performance. Results from a Finnish firm survey | Schienstock, G.; Rantanen, E.; Tyni, P. | IAREG WP 1/2d | 2009 | |
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