



European
Research Area

EUROPEAN POLICY BRIEF



SEARCH
SHARING KNOWLEDGE ASSETS:
INTERREGIONALLY COHESIVE
NEIGHBORHOODS

Sharing Knowledge Assets: InterRegionally Cohesive Neighborhoods (SEARCH) Project

Ongoing project (01/08/2011- 31/07/2014)

CHARACTERISATION OF INNOVATION ADOPTION IN EUROPE

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INTRODUCTION

Succinctly describe the relevant policy problem and relate your evidence to the task of addressing it (1 page).

THE INNOVATION DIFFUSION PROCESS IN EU

In the Europe 2020 Strategy, the Member States and the European Commission recognized that increasing innovation is a key to respond to the challenge offered by globalisation and more specifically by the crisis. According to the Strategy, “The crisis has wiped out years of economic and social progress and exposed structural weaknesses in Europe’s economy. We need a strategy to help us come out stronger from the crisis and turn the EU into a smart, sustainable and inclusive economy delivering high levels of employment, productivity and social cohesion.” In order to get a smart growth, Europe 2020 puts forward a priority on developing an economy based on knowledge and innovation.

In this context, the main aim of the present study is to provide a descriptive statistical analysis of the **innovation diffusion process at the EU level** using indicators of innovation adoption

that can be obtained from the information available in the Community Innovation Survey (CIS). In particular, we examine innovation adoption at the country level using the information contained in the **CIS3, CIS4, CIS2006 and CIS2008**. This way, **we will highlight the dynamics of innovation adoption across EU member states for the different time spans of the CIS.**

Although we are also interested in knowing which is the innovation adoption process in the European Neighbouring Countries (ENCs) compared to that of the EU countries, the statistical information in CIS does not cover any of the ENCs. Therefore, since this task can not be tackled with the statistical information available, **we will try to proxy for it doing a comparison between the innovation adoption processes followed in the core countries compared to that of the EU New Member states.** The new member states that entered recently the EU resemble more closely the ENCs, so that the lessons obtained from this comparison between EU core and EU New Members can be useful for the design of innovation policies.

This policy brief forms part of SEARCH's policy brief series. It contains key observations on the innovation diffusion process in at the EU level using indicators of innovation adoption.

EVIDENCE AND ANALYSIS

Enumerate your most policy-relevant findings with basic contextual orientation (3 to 4 pages).

**PRODUCT AND
PROCESS INNOVATION**

For all the countries, the adoption rate is higher for process innovation (43% on average) than for product innovation (29% on average). This goes in line with innovation rate which is more process oriented (28 % of EU firms make process innovations whereas 24% perform product innovations).

Such a result suggests that **process innovations need interactions between the firm and its suppliers and/or clients to be successful.** Moreover, process innovations are often the results of supplier or client needs. This would **encourage cooperation or outsourcing strategies to develop this type of innovation.**

**THE POSITIVE IMPACT
OF FIRMS'
INTERACTIONS**

The nature of innovation adoption can differ according to the way adoption occurs. In particular, adoption may result from adoption of external technologies but it also relies often on the joint production of innovation. This last pattern is more frequent than the first one. **Cooperation activities are driving innovation adoption at the EU level while the acquisition of innovations from external innovators is a less important source of adoption of innovation (both process and product).**

Generally speaking, **countries which display the highest level of innovation are also those which show the highest adoption rate** and conversely countries with weak capacity to innovate are also weak adopters. Thus, the complementary dynamics linking innovation and adoption seems to be at work. However exceptions exist which are certainly not to neglect if we are to understand how countries can react to European incentives.

The comparison between two waves of the CIS (2002-2004 and 2006-2008) shows that both process and product adoption based on cooperation decreases by 2 points of %. On the opposite, the acquisition of external technologies remains stable.

**DIFFERENCES AMONG
COUNTRIES**

We turn to the geographical comparison across countries, with an analysis of the heterogeneity of adoption rates across EU countries. Despite the average percentage of process adoptive firms being equal to 43%, **this rate varies considerable according to countries.** The highest values are observed for Cyprus and the Netherlands (62%, although Cyprus decreases considerably four years later) and then for Slovakia, Hungary and Czech Republic (slightly above 55 %, in both periods). For the

case of product adoption, the ordination of countries is very similar although with lowest rates of adoption.

Also, **countries with higher level of innovative activities seem to be also those more dynamic in the context of innovation adoption.** It seems that fostering innovation activities may also be associated to some extent to spillover effects (which take place through “adoption mechanisms”) leading to higher levels of adoption of innovation (in this respect, we should take into account that the adopting rates are calculated over innovative firms, whereas innovative firms are calculated over total number of firms). Generally, countries with low innovation rates also record a low adoption rate, no matter whether it is in product or process. This concerns Romania, Bulgaria and Spain. On the opposite, countries with high innovation rates have higher adoption rates (like Cyprus, Germany and Austria). Some countries have specific positions against this general rule of high innovation and adoption rates:

- Luxembourg has a high rate of innovation but the adoption rate is very low for all types of innovation.
- Slovakia, Hungary, Latvia, and to a lesser extent Poland, have very important adoption rates together with very low innovation rates. That is, firms in these countries rely less than in others on innovation made in the own firm, and more importantly in that made together with other firms or acquired directly from others.

Looking at the **evolution in time**, both for product and process innovations, firms tend to rely less on the joint production of innovation without changing the rate of acquisition of external innovation. **The percentage of cooperation based adoption decreases by 2 percentage point between 2004 and 2008.**

For the case of process innovation, **four countries present the highest increases in the acquisition of external technologies as the same time than the highest decreases of joint production of innovation: Poland, Estonia, Czech Republic and Bulgaria.**

For the case of product innovation, only Belgium, Sweden and France present a positive change in the joint production of innovation, with the rest of countries showing negative changes (Luxembourg, Austria and Sweden with the highest decreases together with increase in the acquisition of external technologies). Therefore, product and process innovations do not face the same exact evolution in the way adoption is conducted.

The general patterns of the level of innovation adoption do not

present substantial differences between EU core countries and New Entrants for product and process innovations and they tend to follow the general rule of similar relative rates of adoption and innovation. However, **some countries that have a specific position against this general rule include New Entrants such as Slovakia, Hungary and Latvia, with important adoption rates together with very low innovation rates.** This is so because, as said before, **the adoption levels do not seem to be very different among the two groups whereas the innovation levels are lower in the case of these New Entrants.**

Accordingly, we could say that New Entrants in general tend to innovate less than core EU countries, but once they decide to do it, **there is a high heterogeneity across countries in the level of adoption as well as in the way they adopt.** In fact, among the countries that display high level of adoption compared to their innovative capacities we find mainly New Entrants.

POLICY RECOMMENDATIONS

State the policy implications of your findings and, where appropriate, offer recommendations (1 to 2 pages). Detail the territorial dimension (country, region,...) .. that could be affected for this findings)

THE KEY ROLE OF INTERNAL MARKET...

In the Europe 2020 Strategy, the Member States and the European Commission recognised that increasing innovation is a key to respond to the challenge offered by globalisation and more specifically by the crisis. According to the Strategy, “The crisis has wiped out years of economic and social progress and exposed structural weaknesses in Europe’s economy. We need a strategy to help us come out stronger from the crisis and turn the EU into a smart, sustainable and inclusive economy delivering high levels of employment, productivity and social cohesion.” In order to get a smart growth, Europe 2020 puts forward a priority on developing an economy based on knowledge and innovation. When analysing the production of innovation, adoption comes as way of doing it.

In describing the innovation adoption process in the EU, we have obtained that countries which display the highest level of innovation are also those which show the highest adoption rate and conversely countries with weak capacity to innovate are also weak adopters. Thus, the complementary dynamics linking innovation and adoption seems to be at work. However exceptions exist which are certainly not to neglect if we are to understand how countries can react to European incentives.

In this last group of countries - Easter and Baltic countries- acting towards a better integration to the EU, policy makers should reinforce the Internal Market in order to permit to increase their capacity to adopt innovation.

We should underline however that such a policy might have no effect if it is not accompanied by actions aiming at reinforcing the own innovative potential of these countries in order to boost their absorptive capacity.

...AND FIRMS INTERACTIONS

For all the countries, both in the core EU and for the New Members, the adoption rate is higher for process innovation than for product innovation which goes in line with innovation rate which is more process oriented. **Such a result suggests that policies should support interactions between the firm and its suppliers and/or clients to be successful.**

Moreover, **since process innovations are often the results of supplier or client needs, cooperation or outsourcing strategies should be encouraged in order to develop this type of innovation.**

**DIFFERENT CHANNELS
OF INNOVATION
ADOPTION**

As it has been observed, the nature of innovation adoption can differ according to the way adoption occurs. In particular, adoption may result from adoption of external technologies but it also relies often on the joint production of innovation and this last pattern is more frequent than the first one.

With the aim of supporting innovation adoption, cooperation activities should be encouraged at the EU level with respect to the acquisition of innovations from external innovators which is a less important source of adoption of innovation (both process and product and both core EU and New Entrants).

RESEARCH PARAMETERS

Introductory statement

The policy brief summarises main findings and policy implications related a research analysis about the characterization of innovation adoption in Europe.

Objectives of the research

The main objectives of the research were to:

- provide a descriptive statistical analysis of the diffusion process at the EU level using indicators of innovation adoption that can be obtained from the information available in the Community Innovation Survey (CIS);
 - know which is the innovation adoption process in the European Neighbouring Countries (ENCs) compared to that of the EU countries through a comparison between the innovation adoption processes followed in the core countries compared to that of the new member states.
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Methodology

The innovation adoption process has been analysed at the country level using the information contained in the CIS3, CIS4, CIS2006 and CIS2008. This way, empirical observation has highlighted the dynamics of innovation adoption across EU member states for the different time spans of the CIS and with a differentiation between core EU countries and New Entrants. Based on the definition and measures of innovation adoption given in a previous working paper of this SEARCH project, this research work characterizes innovation adoption in Europe with two kinds of comparisons: nature innovation-based comparisons (product vs process innovation and collaboration vs acquisition of external technologies) are analysed; and geographic comparisons (comparison across European countries with special emphasis made in the comparison between the behaviour of core European countries and Eastern countries).

PROJECT IDENTITY

Provide details about the research consortium, project funding, time frame, etc. (1 to 2 pages).

Project name	Sharing Knowledge Assets: InterRegionally Cohesive Neighbourhoods (SEARCH)
Coordinator	<p>University of Barcelona Faculty of Economics and Business Department of Econometrics, Statistics and Spanish Economy AQR-IREA Research Group Av. Diagonal, 690 08034 Barcelona Spain Tel.: 0034 93 403 72 41 Fax: 0034 93 403 72 42 E-Mail: search.project@ub.edu</p> <p>Coordinator: Dr. Jordi Suriñach</p>
Consortium	<ol style="list-style-type: none"> 1. Universitat de Barcelona. AQR Research Group – UB-AQR – Barcelona, Spain 2. Urban and Regional Research Centre Utrecht – URU – Utrecht, The Netherlands 3. University of Thessaly, South and East European Development Center – UTH – Thessaly, Greece 4. Centre for North and South Economic Research University of Cagliari – CRENoS – Cagliari, Italy 5. London School of Economics and Political Science – LSE – London, United Kingdom 6. Institute of Regional and Environmental Economy – WU-WIEN – Vienna, Austria 7. Brunel Law School, United Kingdom – UBRUN – London, United Kingdom 8. Economic Research Centre of the University of Saint-Etienne – UJM GATE – Saint-Etienne, France 9. Center for research in Economic Policy. University of Pécs – GKK – Pécs, Hungary 10. Institute of Economic and Cultural Geography, Leibniz University of Hannover –LUH – Hannover, Germany 11. University of Tartu – UTARTU – Tartu, Estonia 12. The State University - Higher School of Economics – HSE –

Moscow, Russia

13. University of Cady Ayyad – UCAM,FSJES –
Ankara, Marrocco
 14. International Centre for Black Sea Studies ICBSS
Athens, Greece
 15. European Institute of the Mediterranean, IEMED Spain
 16. Hebrew University of Jerusalem – HUJI –
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 17. The Scientific and Technological Research Council of Turkey –TUBITAK–
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Collaborative Projects

Budget

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Website

www.ub.edu/searchproject

**Further
Reading**

Moreno R., Suriñach J. "Characterisation of innovation adoption in Europe" Search WP4.8