ANALYSIS OF INNOVATION AT EUROPEAN UNION LEVEL

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Research and innovation policies are at the centre of the strategy on competitiveness, covering the set of relative problems when coming up with new knowledge and ideas, when using and marketing them. Recent approaches in innovation policies allow the identification of a priority regarding considerable efforts to increase availability and amplitude of skills of qualified people contributing to innovation as well as to strengthen the connections and knowledge flows at national and international levels. A more detailed exam of challenges to be dealt with and best practice policies with regard to innovation highlights similarities between the challenges of member states, while best practices policies, on the contrary, tend to go in different directions depending on national needs.

Keywords: innovative policies, innovation, process innovation, statistical analysis.

INTRODUCTION

Recent approaches in innovation policies allow the identification of a priority regarding considerable efforts to increase availability and amplitude of skills of qualified people contributing to innovation as well as to strengthen the connections and knowledge flows at national and international levels.

European political decision makers agree to acknowledge more and more that the response to the challenge of innovation consists in an increase of the number of qualified people and in increasing available skills within national innovation systems. It is necessary to support international cooperation for the purpose of making a transnational transfer of knowledge and integration of European and international networks in order to create information.

Another priority of European policies refers to an important commitment of regions in order to implement numerous recent initiatives, financed by Structural Funds, in the new member states and the necessity of coordination with national initiatives and orientations. The regional dimension of the innovation policy is gaining increasing importance. National and EU governments do support provision of skills regarding innovation policy elaboration to regions. These skills cover: strategic reflection and programme preparation; programme implementation and assessment; technology transfer and commercial counselling.

Numerous operational programmes from various countries have the purpose of developing innovation activities and technological services, including transfer of technologies and industrial research papers, marketing and legal services within SMEs, not only at national level, but also particularly at regional level.

There is an undisputable will to enhance innovation-related activities by stimulating enterprises to invest more in research-development and in all innovation forms in general.
In spite of the increasing importance given to measures for non-technological innovation, these generally stay related to market activities and direct state aids are not eligible (or they only benefit from a low subsidy). Therefore, traditional R-D measures remain a major component of innovation policy, situation emphasized by the objective of Barcelona intending to grant 3% of GDP for R-D, of which two thirds must be financed by enterprises. In this perspective, various measures of stimulating the involvement of enterprises in creating knowledge and, at the same time, of increasing governmental expenses in this field have been defined.

A more detailed exam of challenges to be dealt with and best practice policies with regard to innovation highlights similarities between the challenges of member states, while best practices policies, on the contrary, tend to go in different directions depending on national needs.

CASE STUDY – ANALYSIS OF INNOVATION AT EU LEVEL

For the analysis of innovation at the European Union level, two statistic investigations have been taken into account concerning the innovation activity in industry and services, conceived based on statistic investigations of community innovation of the European Union, the reference period being the years 2005-2007 and 2007-2009. The two statistic investigations have sought to keep an equivalent base of analysis.

Share and Typology of Innovative Enterprises

From data analysis results that between 2005 and 2007, a small number of 3983 enterprises have developed innovation activity, representing 17% of the total number of enterprises, the rest of 83% being non-innovative. Of total enterprises, 2% have product innovation, 2% process innovation, and 13% have product and process innovation.

Figure 1. The share of innovative and non-innovative enterprises compared to total enterprises between 2005 and 2007, Source: European Commission, 2007, p.2

The European Commission report (2007-2009) included in its analysis over two times more enterprises, 9,193 which have taken the survey, of which: 3,892 small ones (10-49 employees), 3,794 medium ones (50-249 employees) and 1507 large ones (over 250 employees). According to this analysis, in the period 2005-2007 a number of 5119
enterprises, of a total of 26480 active enterprises with over 9 employees have had innovation activity. A slight increase of the share of innovative enterprises results in the period 2002-2004, from 17% to 19.3%, and a reduction of non-innovative ones from 83% to 80.7%.

Most innovative enterprises in the period 2007-2009 operate in the industrial sector (73%) and only 27% in the services sector. In the period 2007-2009, the share of innovative enterprises decreased to 17.0%.

![Figure 2. The share of innovative enterprises on main activities in the period 2007-2009](Source: European Commission (2007))

From the analysis of innovator typology on size categories, data point out that the share of innovative enterprises is higher in large enterprises, of 41%, followed by medium enterprises, 21%, and small enterprises, 13%. It is relevant that in the period 2007-2009 some mutations have taken place, in the sense of reducing the share of product and process innovative enterprises (in each of the size categories of enterprises) in the favour of process innovations.

Of the total innovative enterprises, 475 have had only product innovations, 1197 only process innovation, 3410 product and process innovations and 37 non-finalized and/or abandoned innovations.

![Figure 3. Share of innovative and non-innovative enterprises compared to total enterprises in the period 2007-2009, Source: European Commission (2009)]
The result is that of the total of 19.3% innovative enterprises, the highest percentage, of 12.9% is that of enterprises innovating both products and processes, and the lowest percentage – 1.8% – is that of product innovators. In terms of activities, shares are slightly higher in the case of industry: 21.1% innovative enterprises in total, 14.3% enterprises with product and process innovations, and 1.9% only product innovations. Large enterprises also have the highest shares in the innovation activity in all activity profiles and all three innovation categories.

**Innovative Enterprises’ Expenses for Innovation**

The largest expenses have been made to purchase equipment and installations (53% of the volume of expenditure) justifying the tendency of enterprises from the industry and services to resort to technological novelties.

<table>
<thead>
<tr>
<th>Table 1. Distribution of R-D expenses by the companies with R-D departments and of employees on activity sectors (2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Field</strong></td>
</tr>
<tr>
<td>Agriculture, forestry, fish breeding</td>
</tr>
<tr>
<td>Extractive industry</td>
</tr>
<tr>
<td>Food, drinks and tobacco products</td>
</tr>
<tr>
<td>Textile products, clothing, leather and footwear</td>
</tr>
<tr>
<td>Wood and wood product processing (excluding furniture)</td>
</tr>
<tr>
<td>Cellulose, paper and paper products</td>
</tr>
<tr>
<td>Processing petroleum, coal carbonization and treatment of nuclear fuels</td>
</tr>
<tr>
<td>Chemical substances and products</td>
</tr>
<tr>
<td>Rubber and plastic goods</td>
</tr>
<tr>
<td>Construction materials and other products from non-metal minerals</td>
</tr>
<tr>
<td>Metallurgy</td>
</tr>
<tr>
<td>Metallic constructions, machines and equipment</td>
</tr>
<tr>
<td>Furniture and other unclassified activities</td>
</tr>
<tr>
<td>Electric and thermal energy, gas and water</td>
</tr>
<tr>
<td>Construction</td>
</tr>
<tr>
<td>Other activities (excluding companies specialized on R-D)</td>
</tr>
</tbody>
</table>

Effects of Innovation

The interest in innovation activity has immediate effects on results of enterprises.

Table 2. Structure of effects of the innovation activity in terms of activities and effect types, in the period 2006 - 2008

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Industry</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects on products</td>
<td>49</td>
<td>47</td>
<td>54</td>
</tr>
<tr>
<td>Effects on processes</td>
<td>35</td>
<td>37</td>
<td>31</td>
</tr>
<tr>
<td>Other effects</td>
<td>16</td>
<td>16</td>
<td>15</td>
</tr>
</tbody>
</table>

The share of enterprises promoting technological innovation decreased from 32% in 1996 to 10% in 2000, while the share of enterprises in the case of which the value of new or improved products is over 10% of the turnover decreased from 16% to 3% in the same period.

Innovation by Cooperation

Cooperation in the field of innovation involves the active participation in joint research-development or innovation projects together with other enterprises or institutions.

Of the total number of 3983 enterprises with innovation activity, only 892 enterprises declared that they have had cooperation, which is only 4% of the total statistical population (the same share for the industry and services).

In the field of cooperation with different partners, according to their localization, in services cooperation is better, registering percentages up to 31% of total enterprises with innovation activity. Most cooperations are with units in the country, 25% followed by European countries, 15%. For the industry, the share is lower, registering a percentage of 19% for all types of cooperation and manifesting the same tendency as in the services field, of national cooperation of 16%, and 10% in European countries. A weak cooperation is found with USA and Japan both in industry and in services, below 5%. Thus, only 1% of total enterprises have implemented patents, for active innovative enterprises, the share was 7%, and for non-innovative ones there was a poor interest in
this field. Within innovative enterprises which have implemented patents, 37% are large, 35% are medium and 28% are small.

CONCLUSIONS

The following conclusions result from data presented in the paper:

- Innovation is one of the main factors leading to economic well-being. In the economic literature some definitions of innovation are focused on technological innovations, others include innovations at the level of organization and presentation of products and services.
- Research and innovation policies are at the centre of the strategy on competitiveness, covering the set of relative problems when coming up with new knowledge and ideas, when using and marketing them.
- A small part of the total active enterprises in European economy are innovative (below 20%), but their share is increasing in 2007-2009 compared to 2005-2007;
- As far as innovative enterprises only are concerned, the comparison between data of the two reference periods indicate the decrease of the share of enterprises with product and process innovation (66.6% in the first period analyzed compared to 74.9% in the second period), and of those with product innovation only (9.3% compared to 14.7%) and the extensive increase of share of enterprises with process innovation only (23.4% compared to 10.4%).
- The lack of current data such as those referring to: technology transfer at national and European level, the benefit obtained by enterprises from the innovation activity or a series of tendencies in the recent innovation, leads to a partial analysis of European innovation.
- A real European space of research and innovation will be able to develop research and innovation policies implemented through national and European programmes relying on strengths specific to member states and their regions.

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