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Market of R&D results in Romania

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Abstract

The theoretical and methodological approach, as well as the empirical analysis of the market of R&D face major challenges stemming from the high diversity of determinant factors, functional mechanisms, the dimension and structure of R&D demand and supply on one hand, and the necessity to find a relevant indicators system for the quantitative and qualitative assessment of demand and supply, on the other. Issues such as the public nature of the research results, the specific obstacles in the commercialization the R&D's supply, the operation mode and regulatory mechanisms of this market, intellectual property rights, the degree and forms of state involvement in supporting public and private research are still subject of public debates This paper aims to contribute to the description of the dimensions and of the tendencies of the market of R&D in Romania and to show imbalances between supply and demand. Outlining the particularities of the science market, in general, and in Romania, in particular, the paper highlights the main determinants that contributed to the current position of the market of science in Romnania in European landscape, the main aspects of the knowledge transfer from the institutes of research and development towards industrial companies and the obstacles that blocked the relationship between supplier and users of the scientific results.

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Keywords: R&D market, R& D demand, R&D supply, intellectual property right, relation between science and market

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1. Introduction

In the literature, despite the fact that various facets and features of the market of scientific research results are approached, there is still any coherent conceptualization of this topic that is rather challenging because the R & D market is a particular form of market, entirely different from traditional ones. The theoretical and methodological approaches and empirical analysis of the "market of research results and development" are a challenging and difficult approach, due to the complexity and of the great diversity of the supply and demand components, of their determinants, and of the functional mechanisms of the demand and supply equilibrium. Beyond theoretical differences concerning the nature of the science results, which have been regarded as either "public goods" or having "commercial nature"", significant difficulties arise in connection with the evaluation methodology of scientific research results, due to the lack of standardized system of indicators, and, particularly, due to the difficulty to gain data needed to assess both the real dimensions of the demand and supply on this particular market. The aggregated data that can be collected from international databases cover a small number of indicators relevant for an accurate analysis of the size and structure of supply and demand results of the research and development activity. These indicators are usually of quantitative nature, as the qualitative aspects are difficult to differentiate and evaluate. Based on the above theoretical background and on the specific indicators available in international and national databases, the paper has highlighted the trends in production, circulation and using of the results of R & D embedded in publications and patents in Romania compared to other EU countries and, also, to explain the current gaps and possibilities to solve them.

2. Literature review

Specific issues that can be considered parts of the theory of the R&D market, such as: the commercialization of R & D, especially when research is funded from public sources, the protection of intellectual property rights, the ways of knowledge transfer from the suppliers of scientific output towards the industrial companies, have been controversial in the literature and in the public debates along the last tens years (SotaroShibayama, 2012). The argumentation concerning “the commercialization of the university R&D results” was triggered by the changing the paradigm regarding the new role of the universities, that is of the knowledge transfer, through various channels, towards the business sector (AISBL, 2012; M.Callon, 1993; OECD, 2003; E Rasmussen et al, 2006). Issues such as : the nature of "public good" of research results, the specific barriers that diminish the marketability of the R & D results, the regulatory mechanisms, the degree and forms of state involvement in supporting public and private R&D have represented, also, subjects of recent debate

"The new role on entrepreneurship “of the universities, supported by an increasing number of experts, especially from the U.S., Canada and from many European countries, has drawn criticism from those who argue that science is a "public good" that requires supportive intervention of the government that would avoid market failures. They argue that the commercialization of the science results leads to losing intellectual property right of public institutions and to the limitation of researchers 'independence, which may increasingly become dependent on the business sector. Moreover, these authors argue that this perspective will lead to the promotion, mainly, of applied research and to the diminishing the attention for the basic research (V.Doronina, 2013; Caufield et al, 2012). Derek Bok (2009) argues that universities faced with the temptations of getting much money in the knowledge-based economy but in this way they are jeopardizing their fundamental mission and can compromise their basic academic values..

This new theory, that has substantiated the concept of the "entrepreneurial university", was based, on one hand, of the need to find supplementary, private funds for R&D performed in universities, and, on the other hand, of the necessity to spur the increasing of the contribution of the research activity, especially the one financed from public funds, to the sustainable economic growth, to solving stringent problems of the economy and society through new scientifically proven solutions. (Abramo et al., 2012; Geuna A, Nesta L.J.J.2006).

Recently, the debate has intensified (Darrell, 2012). Some authors (Kealey et al., 2013) have argued that the theory of "science as public good is a myth", a dogma unproven by empirical data. These authors have motivated taking into account the contribution of the science supported by the private funds to the greatest discoveries in various fields of research but their opponents have argued that science is a "common good", and its results cannot be traded. They brought also other examples to sustain the contribution of the public research to the challenges of the