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EXTENDED ABSTRACT

Title: HOW TO MAKE INNOVATION POLICIES MORE EFFECTIVE: THE CHALLENGE OF CONSIDERING THE INSTITUTIONAL CONTEXT (work in progress)

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Abstract:

The necessity to optimise the processes of design and implementation of instruments that stimulate R+D+i is a matter of urgency due to both the existing public sector budget constraints and the dubious effectiveness of much of the innovation strategies implemented. In this regard, the institutionalist theory makes it possible to identify the main factors that condition the emergence and success of innovative activities. It also considers that incentives for innovation should be designed considering the specificities of institutional environment rather than a one-size-fits-all type solution. In this context, the main aims of this article are two. On the one hand, to understand, through a bibliometric analysis, the scientific production that link institutional theory and innovation policies and, on the other hand, to highlight, through a literature review, the

elements that should be considered for designing more effective innovation policies, with particular emphasis on factors related to the institutional context.

Keywords: Bibliometric methods; Institutions; Innovation performance; Regional policies

JEL codes: O38

1. INTRODUCTION

The central argument of this research is that institutions are key players in regional innovation processes and, therefore, should be considered in the design of innovation policies. This argument, which is approached from a regional perspective, is based on two key concepts: innovation and institutions. Not all authors have related institutions to innovation and territorial development. Despite this, if their works are reviewed from the perspective of institutionalist theory, institutions can be found implicitly identified in most of its approaches (Acemoglu *et al.*, 2014).

Different formal and informal institutions exert an effect on regional innovation processes. As a mechanism to stimulate innovation processes, innovation policies should consider these institutions in their design and implementation (Peters, 2019).

In this process of optimising public policies, the institutional diverse context, the resource availability and local and regional economic dynamics must be considered and, as a consequence, the measures and actions have to be adapted to the different territories (Gertler, 2010; Glückler and Bathelt, 2017; Vázquez-Barquero, 2010; Vázquez-Barquero and Rodríguez-Cohard, 2016). Indeed, regional innovation processes often need to be stimulated in order to agents find the motivation to start or to consolidate their innovative projects (Guellec and Van Pottelsberghe, 2003) as evidenced by successful cases such as Silicon Valley (Hamel, 1999), Boston (Glaeser, 2005) or Beijing (Tan, 2006). However, these “*model*” experiences, which have served as an example for policy design elsewhere, are not an equitable formula that public policy makers can extrapolate and apply in their regions.

Neither the hypotheses based on geography (Sachs and Warner, 2001), nor on culture (Weber, 2012), nor on ignorance (Acemoglu and Robinson, 2012) have the capacity to, independently, explain these different effectiveness patterns. Obviously, these factors

are relevant for innovation, but they cannot be considered as the only explanatory elements but as part of a causal chain (Rodrik *et al.*, 2004). Actually, institutional architectures constrain and shape the evolutionary trajectories of economies and these lead to different social and economic outcomes (Gertler, 2010; Streeck and Thelen, 2005).

Consequently, we conducted the following bibliometric analysis in order to know the state of the art on the influence of institutions on innovation policies formulated and implemented by governments.

2. METHODOLOGY

The bibliometric review of the literature was conducted using the open source scientific mapping analysis tool SciMAT (Cobo *et al.*, 2012). This tool has been chosen as it allows a complete scientific map analysis, in a linguistic framework, using bibliometric measures of impact (Cobo, 2012). Raw data were collected from SCOPUS database using the keywords “*innovation policies*” and “*institutions*”. Based on these parameters, 388 documents have been downloaded and imported into a RIS file. For the selection of the period of analysis, the turning point was considered to be the emergence of the new institutionalist theory. The new institutional economics began to be discussed in the 1990s with Douglas North’s work (Bates, 2014; Rutherford, 1995), so the period of analysis for our bibliometric study spans from this date to the present day. For the co-word analysis, keywords have been selected as units of analysis for the creation of the scientific map. After using an equivalent index as a similarity measure to normalise the network, clustering techniques were applied.

3. RESULTS OF CO-WORD AND BIBLIOGRAPHIC ANALYSIS

During the period analysed, an increase in the diversity of the themes studied has been observed as a result of the scientific community's growing interest in the relationship between innovation policies and institutions. In the same way, a maturing process is also observed in the theorisation analysed, both in the inclusion of institutionalist theory in innovation processes and in the identification of different institutions that condition these processes.

In the first instance, the relationships between innovation policy and institutions are considered through the prism of industrialisation processes (Boekholt, 1996). The first

highly relevant research on cumulative learning processes and interactive learning in innovation systems also emerged (Edquist and Hommen, 1997; Morgan, 1997). As studies progress, the institutional framework becomes a motor theme, emphasising the role of the territory in innovation processes and, therefore, in the formulation of innovation policies (Fagerberg *et al.*, 2009; Fromhold-Eisebith, 2007). Knowledge transfer and collective learning continue to be relevant in the authors' studies, which also analyse the interactions of intellectual capital, the governance and university-private sector-government relations (De la Mothe, 2004; Doloreux and Parto, 2005; Jacob *et al.*, 2003; Langford *et al.*, 2006; Van Beers *et al.*, 2008; Koschatzky and Sternberg, 2000). In latest articles, the literature addresses more concrete and specific issues, appearing the first empirical studies that relate the target study variables. “*Smart specialisation*”, “*Triple helix systems*” and “*Sustainable development*” are sub-themes of great relevance to the scientific community and that allow us to glimpse future lines of research (De Saille, 2015; Ranga and Etzkowitz, 2013; Morgan, 2017).

However, it should be noted that bibliometric analysis with any software has a number of inconsistencies. Therefore, to complement the bibliometric analysis, a traditional literature review such as the one carried out in this article is necessary to fill in those “gaps” that these softwares are not able to detect.

The articles reviewed have highlighted the different variables that favour the effectiveness of innovation promotion policies, which should be considered by policy makers. The research analysed shows that it is endogenous elements of the territory, which, if they are managed appropriately, are drivers of innovation. To this end, it is essential to know the intrinsic characteristics of the territories, in order to identify and enhance their strengths, but also to know the shortcomings and try to minimize their impact.

4. CONCLUSION

As a consequence of the work carried out, it can be deduced that the policies that stimulate the innovative activities of firms and other research organisations cannot be designed in isolation but as an interactive process in which strengths and weaknesses of innovative agents, which have deep institutional roots, are considered. Those responsible for formulating innovation strategies and policies must be able to obtain this information and not simply extrapolate and implement successful practices from other

territories. These policy makers need to integrate the institutional environment into the design itself, which will allow the development of more appropriate instruments to stimulate innovation.

Summarising, innovation processes depend on the institutional environment, so that in order for them to be properly stimulated, it is essential that the instruments designed for this purpose reach optimum levels of efficiency, unthinkable if governments do not consider the institutional environment of each territory or region in the policies formulation. Policies that do not consider institutions are not efficient and may even be counterproductive.

From a theoretical point of view, it has been shown how the institutional architecture affects innovation policies. In addition, institutions that act as innovation accelerators have been identified. However, there are still some limitations in the scientific production analysed.

On the one hand, although most of the key institutions for innovation processes have been related to innovation policies, not all of them have awakened the same interest. On the other hand, although theorisation is growing and the number of empirical analyses has intensified in recent years, empirical analyses that reaffirm this theorisation are still lacking. Therefore, it would be very interesting if future research could be oriented towards obtaining a more complete understanding of the factors that would allow us to find the specific institutional structure that positively influences innovative dynamics.

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