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Regional Competitiveness: Innovation, Entrepreneurship and Triple Helix

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Abstract

The aim of this paper is to reflect and evaluate the factors that influence regional competitiveness and propose a conceptual model for regional competitiveness in Peripheral Regions. These regions have specificities and singulars characteristics distinct of central regions and need certain specifications to develop innovation and competitiveness. The entrepreneurship and innovation process require an important involvement of local actors and the creation of networks. This paper reflects upon the factors that influence regional competitiveness, enhancing the concept of regional innovation systems, the triple helix model and the concept of entrepreneurship to develop dynamics of innovation and competitiveness.

Keywords: Competitiveness; Innovation; Triple Helix Model; Regional Innovation Systems

Introduction

Innovation, entrepreneurship and the helix of triple helix model (THM) are topics invoked to promote competitiveness. Competiveness is related to the ability of generating high level of income with quality of life to its inhabitants.

Innovation has become the decisive challenge for global competitiveness. The advantages associated to entrepreneurship are unquestionable from the point of view of regions development, taking as a strong driver of employment and wealth creation [1]. The collaboration between the helices of THM generating a creative context capable to reduce the uncertain associated to innovation process and to develop dynamics of innovation in a territorial context.

Thus, the aim of this paper is to reflect and evaluate the factors that influence regional competitiveness in and propose a conceptual model for develop regional competitiveness in Peripheral Regions.

The paper is organised as follows. The second section presents a literature review regarding the innovation and entrepreneurship. The third section discuss the relationship among innovation and dynamics of triple (or quadruple) helix. The fourth section illustrates innovation systems related to regional competitiveness. The fifth section presents and discuss a conceptual model for regional competitiveness in peripheral regions. Finally, the last section illustrates the primary findings and discuss the implications, acknowledging the limitations of the work and suggesting avenues for future research.

Innovation and Entrepreneurship

According to the definition proposed by OECD in it's Frascati Manual [2] in the 2005 version (Oslo Manual), innovation is the transformation of an idea into a product or service which is possible for commercialization, into a fabrication procedure or operational distribution (new or improved) or still into a social service method.

Innovation can be defined by the creation, adaptation or adoption of new or improved products, processes and services are innovative activities [3]. Lundvall [4] adds innovation in markets, and Edquist [5] stresses organizational innovations. Following Lundvall [6], innovation is take to include the creation of something qualitatively different, new ideas and new knowledge. In this view, and following the Community Innovation Survey and Oslo Manual [2], innovation can take several forms: innovation of products; innovation of processes; organizational innovation and marketing innovation, but also innovation of the services, innovations of markets, institutional innovation and environment innovations.

Entrepreneurship is associated with the concept of the heroic entrepreneur, and directly related to the introduction of innovation [7]. Joseph Schumpeter [7] links entrepreneurial economic development to innovation and exploration opportunities. Effectively, entrepreneurs can be seen as individuals able to predict and invest in the future, capable of stimulating economic development through new and better ways of doing things [8]. Thus, entrepreneurship has been identified as a critical factor to attaining and maintaining successful economic development [1].

Entrepreneurship depends on the context and, according to Bosma, Wennekers and Amorós [9], can be defined as "any attempt at new business or new venture creation, such as self-employment, a new business organization, or the expansion of an existing business, by an individual, a team of individuals, or an established business [10].

Entrepreneurial activity measures the observed involvement of individuals in different phases of entrepreneurial activity. It also tracks the degree to which entrepreneurial activities are driven by opportunity and/or necessity [10]. The first, results from the desire to take advantage of one's own initiative by creating a company and establishing a business, while entrepreneurship induced by necessity arises from the absence of other opportunities for income generation (namely, dependent work) because they don't believe they have better alternative [10].

The GEM model takes into account the social, cultural and political context of the surrounding environment, and social conditions: the

level of openness to the market, the government's role, management, technology, R&D, the physical infrastructures, the financial and labour markets in addition to all the social and legal institutions (structural conditions and) and financial support, government policies and programs, education and training levels, transfer of R&D results, commercial and professional infrastructures, openness to internal markets, access to physical infrastructures, social and cultural norms and the protection granted to industrial property rights (structural entrepreneurial conditions) [1]. Thus, regional factors can affect individuals in their business process: entrepreneurship.

Innovation and Dynamics of Triple Helix

Innovation is an interactive process [11], and it is the result of the complex interactions among various actors and institutions [12]. The relationships among the various actors, institutions and innovation forms are multidirectional and interdependent. The activities, institutions and agents are linked to each other in a dense network [3]. Besides being interactive, the innovation process is systemic according to Edquist [5], Cowan and Paal [3], and according to Dosi et al. [13] it is cumulative: the technologies used today influence in the learning process and the nature of the accumulated experience, and what a company will do in the future is also conditioned by what it was capable of doing in the past.

Innovation results in a system of internal interactions – forward and backward linkages [6] – between different functions and distinct actors, in which experience and knowledge are mutually reinforced and accumulated. The innovation system approach, developed by Lundvall [6] and Nelson [14], describes the institutions and organizations, the networks, and the interrelationships among them that participate in the creation of innovation. This approach substantiates the active user/producer relationships of innovation [4].

At regional level innovation system represents the institutional infrastructure available in the region to promote and sustain a regional dynamic of innovation. This is an instrument to create external economies and promote competitiveness among firms and regions. But for an innovation system to be effective, it requires interaction - between the regional governance system and also national - the academy, the industry and the people established in them.

Thus, in the line of systemic approaches of innovation [5,6,15-17], the triple helix model (THM) proposed by Leydesdorff and Etzkowitz [18] is considered the exclusive engine [19] to innovate and to promote regional dynamics of innovation.

This model rediscovers the concept of innovation in different territorial patterns, alerting to the fact that many countries do not demonstrate innovation dynamics supported in the regions, but have industrial clusters in different regions. In the triple helix model, the interaction among companies-government- university (or, higher education institution-HEI) play an important role in promoting innovation. The trilateral or quadruple (fourth helix: civil society introduced by [19]) collaboration stimulates innovation and competitiveness by providing a balance in knowledge, social benefits, profits and motivations.

Regional Competitiveness and Innovation Systems

The competitiveness of countries and enterprises is inherent in the competitiveness of the regions. In the context of increasing globalization, the regions/territories are effectively competing more directly between themselves, not just the enterprises. On the territorial level, competitiveness is related to the capacity of generating wealth, with productive efficiency as well as quality of life for its population [12,20,21]. Competitiveness in the nations/regions involves a reduction of social and economic cultural differences by providing work and increased quality of life with respect to the environmental, cultural and landscaping issues along with a system of values [22].

Schwab [23] defines competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country and its ability to sustain a high level of income. The level of productivity sets the level of prosperity and determines the rates of return obtained by investments in an economy, which in turn are the fundamental drivers of its growth rates. The concept of competitiveness thus involves static and dynamic components.

Thus, territorial competitiveness is understood to be the capacity, given the territory (region or nation/country) to produce goods and services that satisfy the necessities of international markets, guarantees the economic conditions of sustained development and simultaneously offers employment and quality of life to its inhabitants [12,20,21].

Many determinants drive productivity and competitiveness [23,24]. Thus the competitiveness of the territories does not depend only on their endowment of traditional resources (capital, labour and raw materials), but rather depends on their innovative dynamics.

Thus, competitiveness and innovation dynamics is intimately related and depend on a solid and effective innovation system. It efficient innovation systems requires a strong involvement of all the local actors (public and private) in innovation activities, involves the interaction among organizational and regional cultures, relative to innovation and venture choices [25] and novel structures that align with salient goals, strategies, and cultural values [26].

A Conceptual Model for Regional Competitiveness in Peripheral Regions

Peripheral regions

Certain locations - urban areas, capitals of countries, metropolises or poles - of development - has been recognizing as privileged centres in a globalised knowledge based economy [27] and assumes the leadership and a special role in the competitive arena. This regions are characterized by high level of innovation and by a strong dynamics of innovations, with consolidated strategies of collective efficiency [28]. For opposition, others regions - non central regions- the struggle for competitiveness is hardest. The strategies of collective efficiency and the systems of innovation (regional innovation systems) are frail and supported by a lack or weak of relationships and cooperation between regional actors.

Concerning peripheral regions, they are characterized by a fragile economic environment, an aging population, and low population density. The peripheral regions shown to be disfavoured and depressed, present a geographic and political situation of periphery, a territory that one could call very marginal and distant from the national centres of decision and consumer.

Moreover, also the peripheral regions or small and medium-sized regions having competitive performances different from those located in regions that are economically more developed and/or have the largest population. Their territorial innovation process is characterized

by the lack of connection between companies, the little support for innovation activities, and the fact that the possibility of establishing ways of collective learning is strongly conditioned by the insufficient number of public and private key players and interaction between them, as obstacles to innovation. This latter aspect is a kind of limitation that exists in peripheral regions where there is not enough critical mass of business concentration [29].

So which actions will facilitate the consolidation of an innovation system in a peripheral regions and the promotion of competitiveness? What actions of collective efficiency may facilitate the consolidation of a system of innovation and favoured international flows of knowledge?

Conceptual model for regional competitiveness

The aim is to strengthen the territorial platforms of competitiveness, encouraging a more innovative milieu and developing 'learning' regions through the promotion of the entrepreneurship, the articulation between the helix (HEI-Industry-Government and Civil Society) and the development of regional systems of innovation (Figure 1).

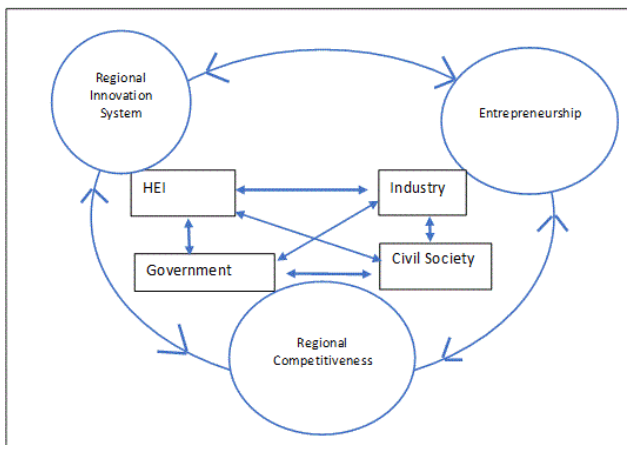

Figure 1: Conceptual Model for Regional Competitiveness. Source: Own elaboration.

In peripheral regions entrepreneurship, according Natário et al. [22] is motivated by opportunity (entrepreneurial activity induced by chance), and by a variety of reasons or in search of a different lifestyle. The entrepreneurs motivated by opportunity prefer the professional references and previous work are the characteristics most relevant at the time of hiring and retaining human resources. With regard to the importance of different distribution channels, the highest levels of use of store or branch with a view to promote the sales of the company. This type of entrepreneur focuses on the benefits of the products and location.

For the entrepreneurs motivated by need, the academic qualifications and the specific courses of professional qualifications are the most relevant factors/characteristics human resources consider when deciding whether to hire or retain a worker. The use Internet tools to communicate booklets in French. The entrepreneurs motivated by the allure of the lifestyle or induced by a mixture of reasons use the Internet to communicate more often and have webpages and domains in English. They also value less bureaucracy and corporate tax to increases to improve the innovation of the company, evidencing a greater benefit of public support when it is time to increase investment.

To foster entrepreneurship in peripheral regions it is important to develop a set of measures and actions, in particular: improve the marketing channels of the companies of the region; improve the process of companies marketing towards region; make the conditions more attractive; and boost productive sectors with greater predominance in the region. There is important to implement strategies for multidimensional entrepreneurship, which combine needs and wants of entrepreneurs and investors and develop public policies that reduce the costs associated with these regions and boost their ability to attract and exploit resources, as well policies to reduce bureaucratic procedures associated with the development of the activity.

The collaboration between helices of TMH stimulates innovation and promotes competitiveness. The networks among industry, HEI, civil society and government, it strengthens local and national partnerships by funding research programs and influences the human (and material resources) to generate solutions and new knowledge [30]. The complex interaction among these elements brings a potential innovation into an effective innovation; it allows for improvement the ability to innovate and enable to the territory (innovative) to compete, to grow and to strengthen its internal cohesion [31].

The THM performance and its influence on regional innovation dynamics suggests a belief, widely shared by the helices, in the development of innovation. The important role of HEI in the business dynamics and community development through knowledge transfer and entrepreneurship training (in its traditional role of education and training) is reflected in the high proportion of businesses and institutions of the governance system that have workers trained in this type of institution. The main way of collaboration between companies and HEI is through the provision of services and the use of equipment, and from the local government with HEI, it is the provision of services and the recruitment of trainees.

The benefits to HEI from cooperation are obtaining practical knowledge about existing problems, incorporating new information into the processes of teaching and research and disseminating the image and reputation of the investigator and the institution. For companies/local government institutions, the most important benefits from cooperation are access to highly skilled resources of higher education institutions, access to new knowledge developed in academics and identification of students for future recruitment.

The government (local or national) assumes a decisive role for the construction of collective territorial strategies and to promote development and competitiveness. Their effectiveness depends heavily on the capacity to encourage and mobilise territorial forms of partnerships and capitalise on relational portfolios [32]. The robustness and sustainability of territorial development processes are based on the collective capacity for mobilisation, organisation and recovery of resources by local actors [33] and are conditioned by the institutional density and relational density of the territory.

The competitive and innovative performance of the peripheral territory depends on the persistence and attitude of the different actors (public and private) toward promoting innovation and competitiveness. The innovation systems at the regional level require specific needs of the community and, by principle, have greater probability of mobilizing the community (civil society) and the

different regional actors to participate in this process as a way of attending to their needs [29].

The regional innovation system represents the institutional infrastructure available in the region to promote and sustain a regional dynamic of innovation and involves the set of actors and organizations (companies, HEI, investigation centres) that are systematically dedicated to the development of innovation and the interactive learning through common institutional practices [34].

For regional competitiveness the territory becomes part of a more active and interactive strategy as an agent of integrated development, which values local resources and encompasses social, cultural, technical, and economic aspects, as well as the active participation of the whole population. To promote their competitiveness, their actors must have identify the local specificities (information, knowledge, relationships, motivation, culture, values, habits, and customs) and valorize the underutilized endogenous resources. Thus, according Natário et al. [35], it is important that each territory identifies their clusters (active, latent or potential) within their local specificities and potential endogenous resources to promote their development and competitiveness. The regions must reusing competitive advantages inherited and constructed to survive in the context of increased competition within the territories.

Conclusions

This study sought to examine the factors that influence regional competitiveness and propose a conceptual model for regional competitiveness in Peripheral Regions. The competiveness is related to the ability of generating high level of income with quality of life to its inhabitants and requires innovation, entrepreneurship and the cooperation among the helices of THM. The involvement and commitment among HEI, Industry, Government and civil society are fundamental to promote dynamics of innovation and support the efficient functioning of regional innovation systems.

Has implications of this study is possible enhance the need to develop entrepreneurship and innovation policies centered in the need to promote regional innovation systems and policies that sustain and support projects in cooperation with HEI, companies, government and civil society. The innovation process in peripheral regions could be stimulated through funding policies that promote the development of relationships and cooperation with two special stakeholders: HEI and clients.

To foster entrepreneurship in peripheral regions it is important to develop a set of measures and actions, in particular: improve the marketing channels of the companies of the region; improve the process of companies marketing towards region; make the conditions more attractive; and boost productive sectors with greater predominance in the region. There is important to implement strategies for multidimensional entrepreneurship, which combine needs and wants of entrepreneurs and investors and develop public policies that reduce the costs associated with these regions and boost their ability to attract and exploit resources, as well policies to reduce bureaucratic procedures associated with the development of the activity.

As limitations to this study we consider the absence of empirical analyses that demonstrate several points enhanced in this approach. Thus, future research could depart from the analysis of specific cases to identify the detailed dynamics of the process, verifying which aspects are correlated with innovation and competitiveness levels in peripheral regions.

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