



Characterization on the patents deposits from Public Research Institutes of Brazil from 2004 to 2013

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Received 17 July 2015; accepted 24 January 2017

Scientific Editor: Felipe Borini

Abstract

Public Research Institutes (PRI) in Brazil have played a considerable role in the development of the country given the design and creation of specific usable knowledge in their areas. To this process is important the knowledge's systematization created through patents, since it allows that the 'best' knowledge is practically implemented and what benefits are obtained for such institutions and for the country. Through the survey of patent applications, this paper demonstrates the technological development promoted by PRI. Based on deposits of patents in Thomson Innovation data, is performed a quantitative approach, from the collection of secondary data, based on frequency analysis, regression and chi-square test. We conducted a survey of patent deposits by PRI from 2004 to 2013, proving the joint and individual technological development, the most frequent types of partners promoters of deposits. Thus, we propose a presentation and signaling technological development of PRI by production of patent deposits and this becomes the basis for further analysis.

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Keywords: Patents; Public Research Institutes; Innovation; Technological development

Introduction

The evolution of a country is measured by the development of technological innovation and according to Tigre (2006) they provide the increase of organizational productivity and competitiveness which represent this evolution. This competitiveness can occur through technological research (predominantly to solve problems in the productive system) and through development of the technological autonomy of a country as stated by the articles 218 and 219 of the Constitution of the Federative Republic of Brazil from 1988 (BRASIL, 1988). Thus it is possible to evaluate the national development.

The government needs to establish public policies and actions of strategic planning which lead to technological research and promote productive, scientific and technological development. Therefore, the Public Research Institutes (PRI) must be supported by the government because they provide for Brazil to reach some differentials that are relevant in the technological development process and solutions to the productive system.

The PRI have expertise in research in some areas as in agriculture, health, among some others (Póvoa, 2008). It provides the development of each practice area which allows the intensive use of information and knowledge from a specific area to solve the problems in addition to help finding new solutions to eventual future needs.

This can generate opportunity to returns, as an example, there is the practice of patent production that brings the results of the work through commercial technologies (Henderson, Jaffe, & Trajtenberg, 1998); the systematization of knowledge by science tend to generate technologies that are able to be applied in practice (Rosenberg, 1982), this means that when PRI develop

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Peer Review under the responsibility of Departamento de Administração, Faculdade de Economia, Administração e Contabilidade da Universidade de São Paulo – FEA/USP.

new knowledge and are able to systematize it through patents, enable practical uses and achieve returns.

It is important to highlight that the practice of innovations is linked with the relation between the interacting agents from the National Innovation System (NIS) (Albuquerque, 1996; OECD, 1997; Plonski, 2005; Póvoa, 2008; Stal, 2006). When the PRI keep a relationship with some agents from NIS (industries, governmental agencies, universities) they raise the possibility of innovation because, according to Póvoa (2008), it is difficult to get it isolated.

This happens because of the interaction between the acting parts of that system, which increases the potential of commercial application by complementarity (Gusberti, Dorneles, Dewes, & Cunha, 2014). The technological development occurs through the process of cooperative action among universities, research institutes and industries because throughout this process knowledge is risen, according Etzkowitz and Leydesdorff (1996), Plonski (1999), Porto (2000, 2007), Sábato and Botana (1968), Segatto (1996), Segatto-Mendes and Rocha (2005), and Segatto-Mendes (2001).

This kind of action enables the creation of innovation, for example, stimulating innovation comes from the offer of right infrastructure, laboratories for researches, financial support (Pinto & Feldmann, 2016). Competences and abilities to generate quality in technological aspects of a country are built by cooperation process (Garcez & Sbragia, 2013).

It is important to notice that the technological capacity influence of a country is on its policies applied by the government to the development of science and technology (S&T); the governmental policies that support the cooperation between research institutions and industries have a considerable impact in the developing countries (Zeng, Xie, & Tam, 2010). Especially because these policies create the effort to stimulate Research and Development (R&D) which allows, in practice, the existence of scientific publication and patents register (Dalmarco, Dewes, Zawislak, & Padula, 2011; Stal, 2006).

It is pointed out that the patent analysis proposed come from the perspective that theses analysis carry the characterization of innovation development of a country (Dalmarco et al., 2011; Póvoa, 2008; Stal, 2006), apart from the economic indicator considered applicable to the measurement of the technological process (Danguy, Rassenfosse, Potterie, & de la, 2013). These analysis produce a quantitative indicator of production measurement, among others, of partnership research (Segatto, 1996; Segatto-Mendes & Rocha, 2005). Ferreira, Guimarães, and Contador (2009) emphasize that the patents are sources of technological information and competitive instrument.

With patents, there is the possibility of practical uses and the acquisition of temporary gains in a specific sector (Tigre, 2006), once the patent is a temporary title of property of a determined technology created given to its inventor by the state and which guarantees the exclusivity and economic use as it is established by the USP Innovation Agency (2014).

This paper focuses the patent deposit of PRI from Brazil that rendered information to the Report of Brazilian Intellectual Property Policy of scientific institution and technological – Formict Report (2012), by MCTI (2013), according to the

article 17 of the Brazilian Innovation Law (BRASIL, 2004), and the ones that have a patent registered in the basis of Thomson Innovation.¹ It is necessary to highlight that a way of characterizing the technological development of a country through the patent deposits (Dalmarco et al., 2011; Póvoa, 2008; Stal, 2006), thus, answering the issue about this development is the purpose of this study.

Based on that, through the analysis of the production of patent deposits by the PRI from Brazil, based on Thomson Innovation, this aim is to overview how the technological development from these institutions is working. Therefore, it is understood that this study contributes to the literature once it brings up a technological survey throughout patents which can raise other discussions and start better managing practices to the institutions studied.

Therefore, it is performed a signaling of the technological development of the PRI by the patent deposits in the period of 2004–2013, considering the individual technological development, the existence of partnerships in the deposits, the identification of the kind of partners that promote the deposits more often.

Theoretical background

Joint technological development

The technological development of a country comes from its domestic capacity in R&D, from its competence to create and use technology in different areas, so it is possible to provide social improvement to people and economic benefits to industries (Tigre, 2006). Technological innovation comes from R&D actions.

Products have their value renewed in the Market because of innovation; resources are saved by technology, new sources of material are developed (Rosenberg, 1982). The process of joint technological development, through cooperation, is an effective way to decrease prices, to allow bigger access to resources, complementarity between the acting parts among others.

Cooperative processes in technological development, as the ones occurred in the relation among Universities, Public Institutions and Industries, allow the rise of knowledge, because they increase the productive and technological capacity of products, the processes improvement, the dissemination evolution and efficient use of knowledge (Etzkowitz & Leydesdorff, 1996; Plonski, 1999; Porto, 2000, 2007; Sábato & Botana, 1968; Segatto, 1996; Segatto-Mendes, 2001; Segatto-Mendes & Rocha, 2005).

In this kind of relationship, the information sharing and/or know how is the resource to the activities evolution (Garcez & Sbragia, 2013; Lind, Sthyre, & Aaboen, 2013); it is possible that resources are used efficiently, specially through the competences created by the complementarity (Penrose, 1959). Some benefits are gotten in this relationship: saving in transaction expense,

¹ The Thomson Innovation is the basis of patent data which gather information from 47 patent offices from many countries, where INPI belongs to Brazil (WIPO, 2014a).

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