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From invention to Innovation—challenges and opportunities: a multiple case study of independent inventors in Brazil and Peru

Luiz Stephany Filho [a,*], Elda Fontinele Tahim [a], Vitória Maria Serafim [a], Cynara Barros de Moraes [b]

[a] *Universidade Estadual do Ceará (UECE), Ceará, CE, Brazil*
[b] *Instituto Federal do Maranhão (IFMA), Maranhão, MA, Brazil*

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Abstract

The present paper looks into the situation of independent inventors in two South American countries. Little has been published on this topic in Brazil and other emerging economies. Despite the growing efforts of innovation-supporting institutions, public innovation policies have not always benefited inventors as intended. Based on the cases of three inventors (one Ecuadorian and two Brazilian), we identified the difficulties and challenges of elevating inventions to the category of innovation and tried to determine to what extent public policies and innovation-supporting institutions have contributed to this process. Our results show that independent inventors will continue contributing to innovation, most often by perfecting techniques and improving existing products, responding to adversity with determination and resilience and honing their creative skills. For many, acknowledgment is more important than profit. Inventors adhere to a vision, the belief that they can change realities and help others exercise their trades more efficiently, with quality of life.

Keywords: Independent inventors; Innovation; Entrepreneurship; Public policies

Introduction

Independent or individual inventors represent a minority in technical and scientific production in these times of progressive institutionalization of the invention process and the creation of alliances between the government, private firms and universities, a model referred to as the triple helix (Leite & Mota-Ribeiro, 2004; Salvador, 2008). However, independent production is still relevant in developing countries where technological development indices are low and little investment is made in research, development and innovation (INDECOPI, s.d.; INPI, 2016; GII, 2015).

In the countries sampled for this study, independent inventors have made a significant contribution to the increase in patent applications filed with the National Industrial Property Institute (INPI) and the National Institute for the Defense of Free Competition and the Protection of Intellectual Property (INDECOPI), organisms responsible for granting patents and issuing intellectual property licenses. However, the path from invention to innovation can be long and arduous for the inventor. Moreover, access to publication in the specialized literature and to debates on public research, development and innovation policies tends to be very limited.

Unsurprisingly, not much has been published on independent inventors (Barbieri, 1999; Chrisomalis, 1996; Conceição, 2003; Thiebaut, Rios, & Azevedo, 2016) and on the obstacles and challenges they face (de Fátima Morais, 2007; Gonçalves & Tomaél, 2013; Mendes, 2009; Pinheiro, 2001).

In order to review and expand the discussion on the situation of independent inventors, the following question was formulated: What challenges and opportunities do independent inventors encounter in the exercise of their trade? To answer this question, the following study objectives were established: i) analyze the challenges faced by independent inventors in

* Corresponding author.
E-mail: luizstephany@hotmail.com (L.S. Filho).
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their efforts to elevate inventions to the category of innovation, ii) analyze the adequacy of public policies and the contribution of innovation-supporting institutions to policy-making, considering the growing allocation of public funds to innovation-supporting programs, and iii) generate subsidies for the theorization on innovation and independent inventors.

The paper is laid out in five parts: an introduction, a section describing the theoretical framework, a section outlining the methods, a descriptive analysis of our findings, and a closing section with our main conclusions.

Theoretical framework

Human creativity can materialize in many different ways, resulting in inventions, whether tangible or intangible. However, much attention should be given to the question of intellectual property and its urgent need of legal protection.

Creativity and invention

According to Schumpeter (1982), economic development ultimately depends on technological innovation. Independent inventors, by combining the qualities of persistence and creativity, are highly valued on the current labor market. Perhaps the greatest advantage of independent inventors over corporate inventors is freedom of thought and action (Dahlin, Taylor, & Fichman, 2004).

Increasing attention is being given to creativity, invention and innovation due to their importance to economic dynamics. In the corporate world, organizations and professionals are encouraged to ensure environments are inventor-friendly in the hope of speeding up the process of invention and conversion to innovation (Hargadon & Sutton, 2000; Martins & Terblanche, 2003).

The creative process requires direct effort and insight on part of the inventor, not merely knowledge acquisition. The concepts of creation and invention are very close: as explained by Amorim and Frederico (2008, p. 17), creativity is immaterial, subjective and intangible. On the other hand, invention is the materialization of ideas generated by creativity (Tigre, 2006).

Leite and Mota-Ribeiro (2004) have shown that economic returns are not necessarily proportional to the effort invested in creative work, but this rarely demotivates inventors many of whom are driven by their ability to identify problems and find solutions. Creativity may be seen as fuelling the appearance of new ideas and, consequently, inventions capable of turning into innovations. Because creativity is so strongly tied up with the process of innovation—hence with economic growth—much is invested in fostering it.

As shown by Parolin (2001, p. 34), the literature on creativity and corporate innovation covers three main perspectives: i) the characteristics of highly creative and innovative individuals, ii) the characteristics of environments favoring or inhibiting creativity and innovation, and iii) the cognitive skills required by creative and innovative thinking. Likewise, Alencar (2010) believes creativity is inherent to the individual and that cognitive skills are susceptible to stimulation and development through training; therefore, organizations should make the work environment creativity-friendly and even offer incentives beyond professional remuneration.

Independent inventors

The World Intellectual Property Organization (WIPO) defines 'inventor' as a natural or legal person authoring an invention. Inventors are entitled to legal protection of their intellectual property through the filing of a patent application. A patent is a right to exclusive commercial exploitation granted, upon application, by a government agency (or equivalent) to an inventor in exchange for detailed public disclosure. Industrial patents may be for inventions (if the criteria for novelty and usefulness are known), inventive activities, industrial applications and utility models (minor improvements of existing products or processes) (WIPO, 2015).

Barbieri (1999, pp. 39–40) classifies inventors into three types: i) inventors employed by R&D centers, ii) inventor-entrepreneurs who, though independent, do not fit the artisanal/workshop model, but start their own business to exploit their inventions, iii) independent inventors of the classic artisanal type who invent at home or on the job, such as when a motorcycle mechanic converts a motorcycle into a mini tractor.

Independent inventors develop their inventive skills on the margin of the larger corporate world (Pinheiro, 2001, p. 2). Despite social discrimination (many relate being stigmatized as "Gyro Gearloose" types) and the lack of public policies to support the development of their inventions (few inventions are ever operationalized), independent inventors are often remarkably resilient (Mendes, 2009). As put by Leite and Mota-Ribeiro (2004, p. 2), the predominant image of the independent inventor is not one of economic success, social projection and prestige.

In Brazil, data collected by the INPI show that, despite the decline in the proportion of patent applications filed by independent inventors, reaching 54% in 2014, most applications still come from this segment. Peru has no tradition of registering or patenting inventions, but the number of applications has grown by 260% since the introduction of government incentives in 2006 (Banco-Mundial, 2015).

One of the consequences of strengthening the national system of innovation is the establishment of associations of inventors, which often serve as intermediaries and catalysts helping inventors obtain patents and, if successful, starting their own small or mid-sized technology-based firms to manufacture and market their inventions (WIPO, 2015).

To deal with problems such as limited access to funding, R&D laboratories and patent offices, Brazilian independent inventors are now supported by the Brazilian Association of Inventors and Industrial Property (ABRIPI), which defends their interests at the level of the federal government (ABRIPI, 2013). In Peru, the government agency INDECOPI plays an important role organizing activities, encouraging inventors to register their inventions and facilitating contact between local economic actors and potential investors (INDECOPI, s.d.).