Chapter 12

The Role of High-Tech Entrepreneurship on Regional Development

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ABSTRACT

In a globalized business environment characterized by the existence of mature sectors, it is essential to focus our attention on those firms with low entry barriers as well as high growth potential in order to design adequate regional development policies. In this context, we analyze firm growth in Brazilian technology-based companies over the 2002-2013 period testing the Law of Proportionate Effect which allows us to provide useful information for policy makers. This study confirms that firm growth is not a random process and, most importantly, we observe that there has been a positive and significant effect of more profitable firms on firm growth in years of global recession. Consequently, we highlight that public policies should be focused on small, profitable and less indebted firms of the technology-based sector because they would contribute to business dynamism and job creation.

INTRODUCTION

There exists a huge amount of empirical studies that analyze firm dynamics in developed economies. However, the economic crisis initiated in mid2007 in the US has primarily affected developed countries. In this context, emerging economies have started to receive greater attention by researchers due to their higher rates of growth and wealth as well as their manufacturing sector has an ever greater presence in trade and in international markets.
Brazil stands out from the other developing countries due to three essential aspects. Firstly, Brazil has a great wealth of raw materials. Secondly, it has an emerging middle class which is increasingly demanding a large quantity of manufactured products. Finally, in recent years there have been several structural reforms in Brazil that have allowed the entry of foreign capital as well as the presence of foreign firms (Bellak, 2004; Park & Jang, 2010; Xia & Walker, 2015). This presence of foreign companies has strengthened business competition in certain sectors of activity and this is the case for the technology sector, a young sector with growth potential, in which the barriers to entry are lower than elsewhere, which enhances the appearance of business opportunities and promotes entrepreneurial activity.

In this context, the aim of this chapter is to examine the growth of technology-based firms in Brazil during the period 2002-2013 testing the Law of Proportionate Effect (LPE) or Gibrat’s Law (Gibrat, 1931). This research provides useful information not only for shareholders and foreign companies interested in being established in Brazil, but also for academics and policy makers, because the results obtained from the LPE tests may be used to design public policies of regional development.

The analysis of the LPE is based on the hypothesis of a lack of relationship between firm size and growth. More precisely, the LPE is characterized by considering that the firm size level in a given year is determined by the action of a random variable which acts proportionately to the firm size level in the previous year. This theoretical approach implies that all firms have the same probabilities to grow, which would mean an increase in concentration and monopoly situations and the rejection of the existence of an optimal firm size, contrary to that established by the Classical Theory.

However, the empirical research may provide some different results with their consequent implications for economic and social policies (Wagner, 1992; Daunfeldt, Elert, & Johansson, 2014; Coad, Segarra, & Teruel, 2016). Specifically, the rejection of this hypothesis, based on the existence of a positive relationship between firm size and growth, imply that public policies should be aimed at favoring the positioning of large companies. However, the rejection of the hypothesis based on the existence of a negative relationship between firm size and growth imply that public policies should be focused on creating new companies as well as supporting small ones through grants or subsidies, advice and low-cost financing. Finally, the acceptance of the hypothesis based on the existence of a null relationship between firm size and growth imply that public policies should not be guided by firm size and should be focus on other factors. Meanwhile, the LPE also allows us to consider other explanatory variables of firm growth and therefore define more specific criteria for implementing public policies.

Our overall results for Brazilian technology-based firms reveal that there exists a negative relationship between firm size and growth, which implies that public policies should focus their resources on helping small, profitable and less indebted technology companies in order to improve economic growth and job creation.

The remainder of the chapter is organized as follows. Section 2 contains a literature review about LPE tests. In Section 3 we describe the research design and presents results obtained for Brazilian’s high-tech firms. In Section 4 we provide some solutions and recommendations. Section 5 contains future research directions. Finally, in Section 6 we provide our overall conclusions.

**BACKGROUND LITERATURE**

There exists a vast literature about firm growth which tests the LPE proposed by Gibrat (1931). Those studies have been classified into three main stages which show the evolution of this research field over