Chapter 16
Entrepreneurship, Innovation, and Aging: A Conceptual Framework and Empirical Evaluation

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ABSTRACT

The entrepreneurship processes is an important process in the development and mature economies. The Schumpeterian logic of the classic entrepreneurship analyses and considers an evident relation between the rates of innovation and a positive effect on economic growth. The technological progress is another factor to consider in the entrepreneurship procedure. It especially affects the business innovation process and the personal innovation process of the entrepreneur. Both innovation and technology, apparently, are not characteristics of old entrepreneurs. For this reason, in this chapter, the authors sought to contribute to the literature by explicitly connecting the age structure with innovative results as measured by technological progress.

INTRODUCTION

Entrepreneurship processes are fundamental in capitalist development, particularly in mature economies, where capital accumulation has almost no effect on aggregate growth. Classic entrepreneurship analyses in the Schumpeterian logic, consider that its more explicit impact evidence is in the rates of innovation, and the rate at which these affect economic growth (Barro & Sala-i-Martin, 2004).

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Measuring technological progress has always been a contentious issue, although contemporary techniques relying on non-linear estimates, with controlled trends, and in panel structure, produce the most reliable forecast. This type of technique is used in research policy scholarship to evaluate the effect of patents, institutional systems, and industrial structures on technological progress (Aghion et al., 2005; Lindic et al., 2012; Engerman & Sokoloff, 2012).

Innovation is still considered a necessary condition to overcome economic slowdown due to depopulation or sociocultural disadvantage. The literature supports the argument that entrepreneurship is a crucial variable for regional development or economic growth (Sousa, 2013).

Hayek (2002) shows that innovative entrepreneurship and the "decentralized mobilization" of local information can promote the developing of an aging population. Schumpeter (1934), Christensen (2006), and Markides (2006) show that development on the micro-level can be enhanced by the ability to evolve, change, and adapt, mainly by new firms and businesses that substitute those destroyed by "creative destruction." Elderly people can transform into "innovative human capital" (McGuirk, Lenihan, & Hart, 2015). For Schumpeter, innovation and entrepreneurial leadership move together (Schumpeter, 1934, 2006). Innovation helps the aging population to participate in the innovation process, economically (employment, income generation), as well as emotionally to maintain their healthy living. Jones & Weinberg (2011) illustrate that age is not a burden to innovation, and that innovation and creativity are moving favorably toward an aging population. Entrepreneurial skills in creating new ideas, as a function of innovation, do not decrease with an aging population.

One topic that has been relatively neglected in the literature is the effect of aging on the rate of technical change, and the effect of the latter on economic growth (Prettner, 2013). In this paper, we sought to contribute to the literature by explicitly connecting the age structure with innovative results as measured by the technological progress chapter.

BACKGROUND

Our conceptual framework builds upon the contribution of Lancia & Parolo (2012), where an aging society confronts a trade-off dilemma between human capital accumulation and innovation policy. We also rely on Ang & Madsen (2015), who find that aging in OECD countries does not necessarily decelerate technological progress as highly educated individuals tend to have longer stays in the working population.

In the above-described logic, individuals with higher education, who are primarily devoted to knowledge-intensive sectors, promote technological progress in two fundamental ways: 1) the longer life-expectancy positively associates to human capital accumulation; and 2) longer life-expectancy increases the political weight of the elderly, which favors innovative effort (in contrast to capital accumulation).

We summarize this rationale in Figure 1, where to a traditional density function of age structures in a society, where there is a majority of working population and smaller percentages for the youth and elderly, we add lines representing different levels of human capital. Figure 1 over imposes three human capital accumulation functions to the age distribution, offering a rich dynamic to be empirically explored.

In Figure 1, the human capital increases with age, implying the effect of both: formal education and work experience. However, government policies can shift this function upwards, by prioritizing education and increasing the accumulation of human capital above any given value of the existing formal education and experience. This policy is represented by the shift of the Human Capital accumulation from KH1, and then KH2 and KH3.