Entrepreneurship capital types and economic growth: International evidence

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ABSTRACT

This paper analyzes the effect of entrepreneurship capital types on economic growth. We use an augmented Cobb–Douglas production function, which introduces variables such as entrepreneurship capital into the analysis of growth as endogenous factor. We differentiate our work from the previous studies by using panel data analysis, with 43 countries in the period from 2002 to 2012, and different measures of entrepreneurship capital. Our estimations suggest that these measures have a positive effect on economic growth, specifically overall TEA and opportunity TEA. Distinguishing between groups of countries and periods of time, we find that overall TEA has a greater effect on economic growth in OECD countries and in the post-crisis period for all the countries in our sample. These results suggest new elements to both theoretical discussion and public policy focusing on entrepreneurship capital as an important factor to achieve economic growth.

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1. Introduction

Entrepreneurship has been considered an important mechanism to achieve economic growth (Acs et al., 2008, 2012; Audretsch and Keilbach, 2004a,b, 2008). Previous authors have provided evidence of the importance of entrepreneurship for growth, distinguishing between self-employment, business ownership and new business creation, among others (Blanchflower, 2000; Carree and Thurik, 2008; Carree et al., 2002). Such approaches have used elements of neo-classical economic growth and Schumpeterian theory to link entrepreneurship with economic growth.

First, Solow (1956) and Swan (1956) based their model of economic growth on the neo-classical production function, the key factors of which are capital and labor. Ever since, researchers have relied upon the model of the production function as a basis for explaining the determinants of economic growth. Lucas's (1988) and Romer's (1986) critique of the Solow approach did not follow the basic model of the neo-classical production function. Instead, they introduced variables such as human capital and externalities into this analysis to differentiate the types of labor. They found that more skilled labor generates positive externalities as well as more economic growth. Acs et al. (2012), Blanchflower (2000), Colino et al. (2014), Iyigun and Owen (1999) and Minniti and Lévesque (2010) used the neo-classical production function taking into account human capital as well as entrepreneurship (or self-employment) as special characteristics of individuals. Hence, entrepreneurship is assessed in an economic growth model to find its impact and complementarity. Second, according to Schumpeter (1934), entrepreneurs are agents capable of generating shocks in the economic cycle through innovation processes. This author develops a theory of economic development based on a creative destruction process generated by entrepreneurial activity. Using this theory, some authors have focused on the relationship between entrepreneurship and economic growth, taking into account the stages of development, finding that business ownership and the gross domestic product (GDP) per capita have a U-shaped form (Carree and Thurik, 2008; Carree et al., 2002; van Stel and Carree, 2004). Based on these theories, other authors have proposed entrepreneurship as a conduit of knowledge that affects economic growth (Agarwal et al., 2007; Audretsch, 2007b; Audretsch and Keilbach, 2008; Noseleit, 2013).

Using these theories, Audretsch (2007b) and Audretsch and Keilbach (2004a,b, 2005, 2008) included one set of forces that drives economic growth (Solow, 2007). They developed the

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entrepreneurship capital concept, which includes the social factors in a production function. However, they were explicit regarding the limitations of entrepreneurship capital measured through firm demography, and suggested for future research that similar studies of other countries as well as studies based on additional indicators of entrepreneurship capital should be conducted. According to Audretsch et al. (2008), the new indicators should capture social and other latent factors in entrepreneurial activity over time and be comparable across countries. Thus, we propose in this paper overall total entrepreneurial activity (TEA), opportunity TEA and necessity TEA as new types of entrepreneurship capital. The Global Entrepreneurship Monitor (GEM) developed these variables, which allow the measurement of new business creation regarding the social context (Wennekers et al., 2005; Wong et al., 2005). According to Acs et al. (2008), on the one hand, these variables use uniform definitions and data collection across countries for international comparisons, and on the other hand, the variables measure the intention and capacity of a community to create firms in order to determine the relationship between entrepreneurship and national economic growth.[1] Using large cross-sections and time series of countries spanning a wide range of economic development allows researchers to gain an understanding of the possible differences in groups of countries and particular periods of time (Acs et al., 2008).

Therefore, the objective of this paper is to analyze the effect of entrepreneurship capital types on economic growth. We support our hypotheses in the conceptual framework that links entrepreneurship capital with economic growth using a neo-classical production function. Using a panel data model with information over the period 2002–2012 from the GEM and World Development Indicators (WDI), we provide empirical evidence of the impact of overall TEA, opportunity TEA and necessity TEA on economic growth, distinguishing between OECD and non-OECD countries and between pre- and post-crisis periods. Furthermore, following Acs et al. (2012), we overcome the endogeneity problem between entrepreneurial activity and economic growth by implementing some instrumental variables. We find that entrepreneurship capital, measured through overall TEA and opportunity TEA, has a positive and statistically significant impact on economic growth. We also find that the effect of overall TEA on economic growth is higher in OECD countries and in the post-crisis period.

After this brief introduction, the study is structured as follows. In Section 2, we discuss a conceptual framework that relates entrepreneurship capital with economic growth. In Section 3, we present the data and model. In Section 4, we discuss the results. Finally, in Section 5, we conclude and highlight the future research line.

2. Conceptual framework: Linking entrepreneurship capital with economic growth

One of the basic questions in economics concerns what drives economic growth. While the neo-classical theory has identified investment in physical capital and labor as the driving factors (Solow, 1956; Swan, 1956), the endogenous growth theory (Romer, 1986) emphasizes the process of the accumulation of knowledge, and hence the creation of knowledge capital. Since Romer's paper, new variables have been included in the neo-classical model. Thus, the new class of endogenous growth model recognizes some aspects of social factors that are also important in generating economic growth.

Putnam (1993) referred to social factors focusing on social capital, which consist of connections among individuals. Using this idea, some authors have linked social capital to entrepreneurship (Aldrich and Martinez, 2003; Thornton and Flynne, 2003). According to this literature, entrepreneurship should be encouraged where the investments in social capital are greater (Amin, 2000; Simmie, 2003; Smith, 2003). Schumpeter (1934) also mentioned the idea of social capacity, establishing entrepreneurial behavior conceptually as a key factor in driving economic development. Entrepreneurial activity leads to the process of creative destruction (Schumpeter, 1934) by causing constant disturbances to an economic system in equilibrium. These disturbances create opportunities for economic rent. In this way, Schumpeter's theory predicts that an increase in the number of entrepreneurs leads to an increase in economic growth. Hence, it is possible to link entrepreneurship with economic growth (Schumpeter, 1934). Authors such as Minniti and Lévesque (2010) used this idea to incorporate entrepreneurship behavior into the Solow–Swan growth model. They developed a mathematical structure to demonstrate how entrepreneurship could impact on the steady state. Other authors, such as Audretsch and Keilbach (2004a,b, 2005, 2008), Bjørnskov and Foss (2013) and Iyigun and Owen (1999), proved the effect of entrepreneurship on economic growth econometrically. They included entrepreneurship as a new input in the Solow–Swan model to find its relative importance in the growth process.

However, Audretsch (2007b) and Audretsch and Keilbach (2004a,b, 2005) introduced the concept of entrepreneurship capital, which refers to the firm demography capable of creating value. This variable was assessed in the Cobb–Douglas production function, finding a positive effect on economic growth, but only at the regional level and using cross-sectional data. Reynolds et al. (2005) proposed a methodology of which the main indicator is overall total entrepreneurial activity (TEA). This methodology measures the stock of the adult population involved in the entrepreneurship process, and includes economic, social and cultural factors in its framework. In addition, this measure is uniform across countries, which is useful for international comparisons. Liñán and Fernandez-Serrano (2014), van Stel et al. (2005), Wennekers et al. (2005) and Wong et al. (2005), without using the entrepreneurship capital concept, evaluated the effect of overall TEA on economic growth at the national level. However, they also limited their analysis to cross-sectional data. According to Audretsch and Keilbach (2004a,b), other types of entrepreneurship capital could explain economic performance, specifically measures that capture entrepreneurial activity in the social context. Overall TEA and other complementary measures, such as opportunity TEA and necessity TEA, used by van Stel et al. (2005) and Wong et al. (2005), among others, could follow Putnam's (1993) statement about social factors. According to Reynolds et al. (2005), overall

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[1] Although we focused on these three measures of entrepreneurship capital, we also considered a self-employment and an employers' measure. The problem with these two variables is the lack of information regarding countries and time.