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The role of innovative entrepreneurship within Colombian business cycle scenarios: A system dynamics approach

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ABSTRACT

Since the advent of public and private initiatives in Colombia, there has been interest in exploring the possible future pathways of the Colombian business cycle. Based on a foresight analysis, it has been identified on the one hand that it is necessary to achieve greater productivity and competitiveness and on the other hand, collective intentionality towards progress must be encouraged. Using these analyses, new Colombian scenarios are discussed, taking into account intentionality towards entrepreneurship and innovation. Following the entrepreneurship research, it is suggested that innovative entrepreneurial activity is linked to long-term economic growth. Thus, the purpose of this paper is to identify the role of innovative entrepreneurship in Colombian business cycle scenarios using system dynamics (SD) modelling. Here, we approach futures studies, testing dynamic hypotheses concerning development based on societal and socioeconomic integration, in which innovative entrepreneurship is highly relevant. The model, supported by circular flow analysis and Schumpeterian theory, shows how this type of entrepreneurship contributes to sustainable economic growth during the simulation period (2003–2032). To achieve a 6.77% average growth rate (the higher scenario), policies regarding knowledge transfer from specialized foreign individuals, incumbent firms and universities, as well as incentives for entrepreneurial societies and collectivism, are discussed.

1. Introduction

Scholars in entrepreneurship research have been interested in the effects caused by entrepreneurial activity (Rocha, 2004; van Praag & Versloot, 2007; Wennekers & Thurik, 1999). It has been argued that entrepreneurship brings social benefits as the individual intentionality towards business creation generates new jobs (van Praag & Versloot, 2007; van Stel, Wennekers, & Scholman 2014), cluster formation (Lee, Lévesque, & Minniti, 2012; Li, de Zubielqui, & O'Connor, 2015; Rocha, 2004) and long-term economic growth (Acs, Audretsch, Braunerhjelm, & Carlsson, 2012; Audretsch & Keilbach, 2008; Urbano & Aparicio, 2016). Beyond traditional entrepreneurial activity, an emphasis on innovative entrepreneurship is suggested as a driver of progress for society (Audretsch, 2013). For instance, Aparicio, Urbano, and Audretsch (2016) analysed long-term economic growth affected by opportunity entrepreneurship. In this case, controlling for time fixed effects, innovative entrepreneurial activity was found to be positively associated with countries' business cycles. These results open

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up new avenues not only to explore the recent past in terms of innovative entrepreneurship and economic development, but also to extend our comprehension of entrepreneurial activity and the development process through futures studies.

Ács, Autio, and Szerb (2014) suggested that equilibrium between entrepreneurial activity and the development path depends on public policies, such as the creation of a national system of entrepreneurship. Although Minniti and Lévesque (2010) found that innovative entrepreneurship and its effects on the business cycle have been examined for longer in developed economies than in developing ones, Ács et al. (2014), using the Global Entrepreneurship and Development Index (GEDI), highlighted the balance between entrepreneurship and development in emerging economies such as Puerto Rico and Colombia, among other developing countries. In relation to Puerto Rico, Padilla-Pérez and Gaudin (2014) underlined the recent effort made by Central American governments in terms of infrastructure, financing, and science, technology and innovation (STI) policies to encourage, inter alia, entrepreneurship behaviour.

Regarding the Colombian case, governmental support for entrepreneurship as a formal institution has only been provided since the mid-2000s (DNP, Departamento Nacional de Planeación, 2007; República de Colombia, 2006), despite the long history of entrepreneurial activity (Echavarría, 1999). Nevertheless, due to the lack of diversification caused by industrialization and import substitution (Hausmann, Hwang, & Rodrik, 2007), as well as the violence faced in the country (Hiatt & Sine, 2014), entrepreneurship and subsequently economic growth have declined. According to Gómez (2005a), to recover industrial expansion, competitiveness and long-term economic growth, greater emphasis on entrepreneurship and innovation incentives is required. However, few works exist that assess foresight scenarios regarding the importance of entrepreneurship (Alvarez & Urbano, 2011a) for socioeconomic dynamics in Colombia (Gómez, 2005b; Jaén & Dyner, 2014). According to Davis, Eisenhardt, and Bingham (2007) and Jaén and Dyner (2014), the simulation of scenarios requires modelling methods that take into account specific characteristics in order to provide new insights for theoretical discussion, as well as for policy analysis and design.

Therefore, the objective of this paper is to identify the role of innovative entrepreneurship in Colombian business cycle scenarios using system dynamics (SD) modelling. Work on foresight analysis regarding social development (Cowan, Eidinow, & Likely, 2000) was used to suggest new Colombian scenarios, which are assessed through SD. For this purpose, data for the year 2002 from the National Statistics Department (Departamento Administrativo Nacional de Estadística [DANE]) and for 2005 from the World Development Indicators (WDIs) were used as inputs in the SD model. Through this methodology, it is possible to understand the complexity involved in socioeconomic processes and to analyse the possible behaviours in a defined system (Sterman, 2000); it is also useful for discussions concerning long-term policies. Our results suggest that the best scenario (high–high) for long-term Colombian economic growth (an average of 6.77% from 2003 to 2032) is obtained through an increasing number of innovative entrepreneurs (15% on average during the simulation period).

Following this brief introduction, Section 2 provides a literature review of SD modelling in entrepreneurship and the business cycle; here, the concept of the circular flow model is the starting point. Section 3 defines the SD methodology and its importance in addressing our problem. Section 4 presents the scenarios and the model proposed. Section 5 assesses the validation of the model, while Section 6 describes the results. Section 7 discusses the policy implications in terms of innovative entrepreneurship as a driver for achieving greater long-term economic growth. Finally, the conclusions are presented in Section 8.

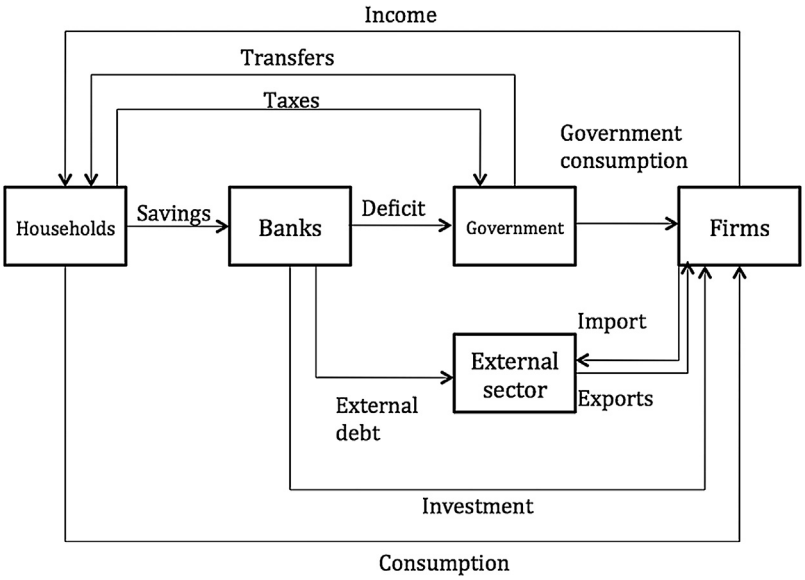

Fig. 1. Circular flow model.

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