

## Chapter 13

# Application of a Fuzzy System to the Analysis of Entrepreneurial Intention in Brazil, Mexico, and Colombia

**Juan Manuel Aristizábal Tamayo**

*University of Quindío, Colombia*

**Edwin Tarapuez**

*University of Quindío, Colombia*

**Juan Carlos Vasquez**

*University of Quindío, Colombia*

### ABSTRACT

*Asymmetries in the relative growth of Latin American countries and the disparities in both institutional performance and cultural aspects validate the search for new explanations in analyzing the role of entrepreneurship in economic growth. In this sense, although the study of entrepreneurial intention (EI) has received greater attention in the setting of academic research and design of public policy, the literature voids remain related with the treatment of the phenomenon as a multidimensional problem in situations in which the information available is scarce and not structured. Due to the aforementioned, this document proposes a mathematical model based on fuzzy logic techniques from the study of the factors that impact upon the EI of undergraduate students in administration in three Latin American countries: Brazil, Mexico, and Colombia.*

DOI: 10.4018/978-1-7998-2019-2.ch013

## INTRODUCTION

In principle, the deceleration of the global economic process has affected the amount and scale of the demand of human capital in emerging economies and, consequently, has increased further the pressure over a loose labor market in Latin American countries. Along with this, the employment of university graduates has become a social problem of great concern for all sectors of society. With this focus, the promotion of the knowledge economy has created a series of entrepreneurial waves that stimulate employment directly through the entrepreneurial spirit. The facts established expose that economic growth and development are linked to entrepreneurial initiatives (Gómez, Mira, & Martinez, 2010; Nabi, Holden, & Walmsley, 2010; Oosterbeek, Praag, & Ijsselstein, 2010). In consideration, university students, as future workers of society, must have their professional skills and converge into an auspicious institutional context to develop enterprise initiatives.

Within this context, this document explores differences in enterprise activity in Brazil, Mexico, and Colombia. With this idea, a configurational approach is suggested that rests on the mathematical support of fuzzy logic; thus, the method proposed draws attention about how the effects of the different causal conditions that lead to high levels of enterprise activity are interdependent, so that the effectiveness of any factor may depend on the presence or absence of another element in particular.

With this approach, it is demonstrated that no causal element is sufficient to promote enterprise activity; meanwhile, formal institutions, culture, and the students' attributes create combinations of conditions that lead to the definition of the levels of EI for each country.

In general, the critical mass and research methods have emphasized on analyzing the characteristics of possible entrepreneurs, influential factors, and the process of enterprise creation. Nevertheless, this chapter introduces and validates a methodology that rests on the fuzzy logic of mathematical support to construct an MIEI. Notably, the cognitive framework of fuzzy methods configures how a group of students from Brazil, Mexico, and Colombia interprets the culture, institutions, and added economy to develop enterprise units. With the exposition of the previous idea, this chapter seeks to analyze EI in Brazil, Mexico, and Colombia from the fuzzy sets method.

In keeping with the aforementioned, fuzzy systems developed by Zadeh (1965) seek to give mathematical treatment to terms that are not precise and, consequently, permit the multidimensional construction of an index that contemplates the plurality of EI. In particular, said logic consists in strengthening the mathematical logic to treat imprecise and vague information, like for example, when an element belongs or not to a set (Bedoya & Galvis, 2015). By following the fuzzy sets proposal developed by Zadeh (1965), the methodology used enables calculating the degree of student membership to a set through membership functions. The wealth of the method is aimed at the simplicity of the weights and, consequently, to the subtle interpretation of the results derived.

Furthermore, inclusion in the synthetic indicator of institutional and macroeconomic variables permits extrapolating considerations on the entrepreneurial initiatives of older people. Thus, this chapter provides empirical evidence to understand the motivations and preferences of senior entrepreneurs in Brazil, Mexico, and Colombia. From another point of view, changes in demographic dynamics within the Latin American context, characterized by the aging of the labor force and the consequential prevalence of enterprise activities in individuals over 50 years of age, motivates an analysis of EI in adult students and projection of their participation in entrepreneurship.

20 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:  
[www.igi-global.com/chapter/application-of-a-fuzzy-system-to-the-analysis-of-entrepreneurial-intention-in-brazil-mexico-and-colombia/246571](http://www.igi-global.com/chapter/application-of-a-fuzzy-system-to-the-analysis-of-entrepreneurial-intention-in-brazil-mexico-and-colombia/246571)

## Related Content

---

### Using Public Grants for Intrapreneurial Projects at a University: A Feasibility Study Example for the Medicinal and Aromatic Plants Research Center

Zeynep Gormezoglu (2023). *Handbook of Research on Designing Sustainable Strategies to Develop Entrepreneurial Intention* (pp. 484-499).

[www.irma-international.org/chapter/using-public-grants-for-intrapreneurial-projects-at-a-university/328358](http://www.irma-international.org/chapter/using-public-grants-for-intrapreneurial-projects-at-a-university/328358)

### Exploring How Women Entrepreneurs Use Technology for Idea Generation

Erastus Ndinguri, Krisanna Machtmes, Ryan J. Machtmesand Jessica Hill (2015). *International Journal of E-Entrepreneurship and Innovation* (pp. 24-38).

[www.irma-international.org/article/exploring-how-women-entrepreneurs-use-technology-for-idea-generation/163948](http://www.irma-international.org/article/exploring-how-women-entrepreneurs-use-technology-for-idea-generation/163948)

### An Empirical Investigation on Equity Market Integration of ASEAN-India

Swamy Perumandlaand Padma Kuriseti (2020). *Innovative Management and Business Practices in Asia* (pp. 29-57).

[www.irma-international.org/chapter/an-empirical-investigation-on-equity-market-integration-of-asean-india/246299](http://www.irma-international.org/chapter/an-empirical-investigation-on-equity-market-integration-of-asean-india/246299)

### IT Security Risk Management Model for Cloud Computing: A Need for a New Escalation Approach

Gunnar Wahlgrenand Stewart Kowalski (2013). *International Journal of E-Entrepreneurship and Innovation* (pp. 1-19).

[www.irma-international.org/article/it-security-risk-management-model-for-cloud-computing/106896](http://www.irma-international.org/article/it-security-risk-management-model-for-cloud-computing/106896)

### Developing A Model for Transforming Government in the Digital Age: Local Digital Government in Australia

Qiuyan Fan (2018). *International Journal of E-Entrepreneurship and Innovation* (pp. 44-53).

[www.irma-international.org/article/developing-a-model-for-transforming-government-in-the-digital-age/211139](http://www.irma-international.org/article/developing-a-model-for-transforming-government-in-the-digital-age/211139)