Universitat Autònoma de Barcelona

Understanding the Influence of Institutional Dimensions on Entrepreneurship Phenomenon

Tatiana Lopez

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DOCTORAL THESIS

Tatiana Lopez

Supervisors
David Urbano
Claudia Alvarez

International Doctorate in Entrepreneurship and Management

Universitat Autònoma de Barcelona

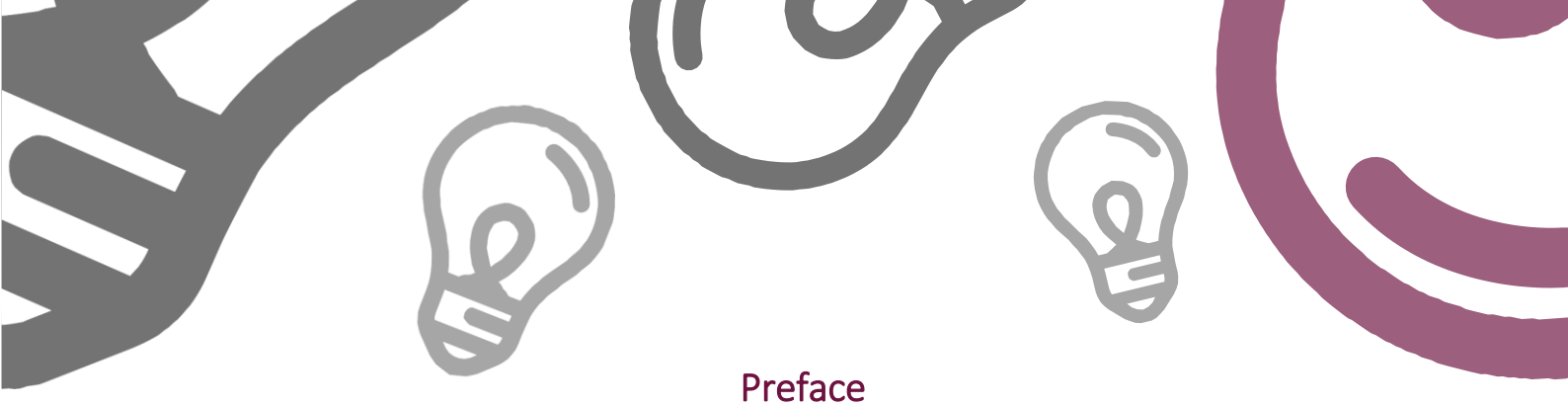
November 2021

Table of Contents

List of Tables

List of Figures

List of Appendices



Preface

During the almost 4 years of writing this document, I asked myself many times what makes a person an entrepreneur, even feeling many times like one. The theoretical framework of the institutions helped me get closer to the answer. But I think I always wanted to answer a deeper question, which keeps me going as academic entrepreneur, it is my context, social circle, the pressure of what is expected of me, myself, a combination of my consequences and my environment?

Although I am still looking for the answer, what I am convinced of is that those "institutions," social relations and implicit norms, as our peculiar and unique way of seeing the world determine us.

Because of that, without the people around me, I would not have been able to get here. Thanks to all the people who were close in one way or another, for believing in me, for seeing what I could not and for sending me their wonderful energy.

THANK YOU!

To my mentors, Claudia and David. There is no right way, and my life will not be enough to repay the advice, patience, and many hours that they put in during this process and even before it began. You bet on me; you have been my academic guide and, in many moments, my emotional guide to believe that this was possible and that I was capable. Thank you for your passion for what you do, for having walked by my side, and for making this process easier. I know that I was able to go further thanks to the fact that one day they pass through a more paved road.

To my colleagues for their support, for their readings, recommendations, as well as to the reviewers at the congresses in which I had the opportunity to participate. Thanks also to EAFIT University and the Universitat Autònoma de Barcelona for their economic and logistical support to develop this research.

To my family and friends, who have been patient and supported me in my moments of weakness. To my parents for always letting me be, for not questioning my decisions even if it meant distancing myself from them and believing so deeply in myself. To my brothers and my sister, because each one in their own way gave me life while I was away. To my aunts Maria and Ligia, who have been teachers of life. Because my love for you will always be the most important why for what I do.

Tatiana Lopez

Barcelona, September 2021

Abstract

The institutional perspective highlights the relevance of the social context within which human behavior occurs and organizations operate. Entrepreneurship is not excluding from this social context, and prior literature has demonstrated that institutional dimensions (regulative, normative, and cultural-cognitive) influence entrepreneurial activity across countries. Our literature review shows the necessity of in-depth evaluation of the institutional dimensions' influence on entrepreneurship phenomenon, especially to understand the normative and cultural-cognitive ones. Likewise, we claim more studies that analyze the interaction (moderation and mediation) between the three dimensions and their effect on entrepreneurship. Also, it is needed to find differences in the impact of the institutional dimensions in different economic sectors and for different types of entrepreneurship and different stages in the entrepreneurial process.

Consequently, the main objective of this research is to analyze the institutional dimensions as determinants of different types and stages of the entrepreneurial process, focusing on the interactions between the dimensions and their implications. We mainly follow a quantitative methodology, and in the last empirical chapter, we integrate mixed methods to overcome some of the limitations regarding each approach. The main findings demonstrate the importance of evaluating the institutional dimensions for specific types of entrepreneurs (e.g., opportunity and necessity, high technology, social entrepreneurs, female entrepreneurship) in different stages of the process. We show the relevance of the three institutional dimensions, highlighting the role that the cultural-cognitive dimension plays. Moreover, stand on multiple samples and important databases, the findings suggest relevant understanding regarding how institutions interact considering measures on both country and individual level. Based on the empirical evidence, we provide valuable insights both at the academic and public policy levels to continue advancing with understanding entrepreneurial activity, how the context determines it and the best way to provide support. More precisely, we show the necessity of targeted education strategies and policies because each entrepreneur in different sectors faces specific institutional limitations to develop and grow their businesses.

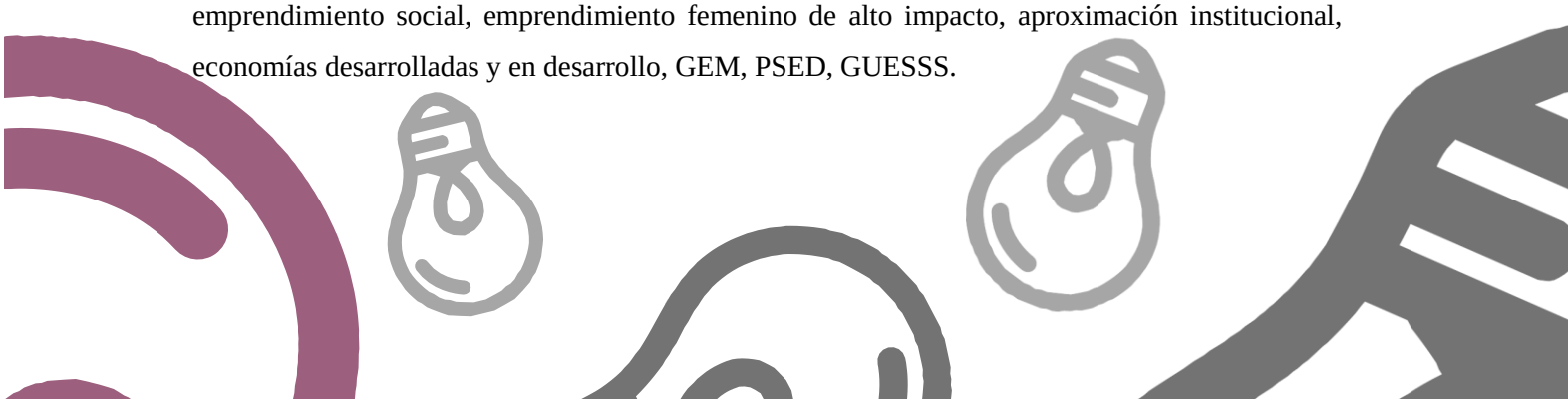
Keywords: Institutional dimensions, entrepreneurial process, survival, social entrepreneurship, high-impact female entrepreneurship, institutional approach, developing and developed countries, GEM, PSED, GUESSS.

Resumen

La perspectiva institucional resalta la relevancia del contexto social dentro del cual ocurre el comportamiento humano y operan las organizaciones. El emprendimiento no se excluye de este contexto, y la literatura previa ha demostrado que las dimensiones institucionales (regulativa, normativa y cultural-cognitiva) influyen en el emprendimiento en todos los países. Nuestra revisión de la literatura muestra la necesidad de una evaluación en profundidad de la influencia de las dimensiones institucionales en el fenómeno del emprendimiento, especialmente para comprender las dimensiones normativa y cultural-cognitiva. Asimismo, reivindicamos más estudios que analicen la interacción (moderación y mediación) entre las tres dimensiones y su efecto sobre el emprendimiento. Además, es necesario encontrar diferencias en el impacto de las dimensiones institucionales en diferentes sectores económicos, para diferentes tipos de emprendimiento y diferentes etapas del proceso emprendedor.

En consecuencia, el objetivo principal de esta investigación es analizar las dimensiones institucionales como determinantes de diferentes tipos y etapas del proceso emprendedor, enfocándose en las interacciones entre las dimensiones y sus implicaciones. Seguimos principalmente una metodología cuantitativa, y en el último capítulo empírico integramos métodos mixtos para superar algunas de las limitaciones de cada enfoque. Los principales hallazgos demuestran la importancia de evaluar las dimensiones institucionales para tipos específicos de emprendedores (por ejemplo, emprendimiento por oportunidad y necesidad, tecnológico, emprendedores sociales, emprendimiento femenino) en diferentes etapas del proceso. Mostramos la relevancia de las tres dimensiones institucionales, destacando el papel que juega la dimensión cultural-cognitiva. Además, a partir de múltiples muestras y bases de datos, los hallazgos sugieren una comprensión relevante sobre cómo interactúan las instituciones considerando medidas tanto a nivel nacional como individual. Con base en la evidencia empírica, brindamos valiosas implicaciones tanto a nivel académico como de políticas públicas para seguir avanzando en la comprensión de la actividad emprendedora, cómo el contexto la determina y la mejor forma de brindar apoyo. Específicamente, mostramos la necesidad de estrategias y políticas educativas focalizadas porque cada emprendedor en diferentes sectores enfrenta limitaciones institucionales específicas para desarrollar y hacer crecer sus negocios.

Palabras clave: Dimensiones institucionales, proceso emprendedor, supervivencia, emprendimiento social, emprendimiento femenino de alto impacto, aproximación institucional, economías desarrolladas y en desarrollo, GEM, PSED, GUESSS.



Chapter 1

Introduction

Understanding the institutional dimensions influence on entrepreneurship phenomenon

1. Introduction

1.1 Problem statement and objectives of the research

Entrepreneurship is a highly considered topic in different sectors and by different actors due to the importance of countries' development. In the past, economic growth was associated with the dynamism of large companies. However, those companies were not capable of improving employment conditions, and for that reason, small and medium businesses (SMEs) were recognized as essential players for regional development and growth (Birch, 1979; Peres & Stumpo, 2002; van Stel, Carree, & Thurik, 2005). Consequently, as a catalyst for the countries' realities, entrepreneurship should be recognized not only because of its significant contribution to socio-economic mobility but also as a necessary alternative to developing regions (Amorós, 2011).

For this reason, the interest in explaining what factors determine the decision to start a business is growing. One of the approaches in recent research is the use of institutional theory. It provides a useful theoretical framework to explain entrepreneurship rates in terms of how institutional context regarding entrepreneurship influences entrepreneurial activity and which institutions are most important for explaining it (Urbano & Alvarez, 2014). Although previous research validated these institutional dimensions (regulative, normative, and cultural-cognitive) in the field of entrepreneurship (Busenitz, Gómez, & Pencer, 2000; Dickson & Weaver, 2008; Wang, Thornhill, & De Castro, 2017), there are opportunities for research regarding the in-depth each one. Especially, in the analysis of the cultural-cognitive dimension (Companys & McMullen, 2007; Díez-Martín, Blanco-González, & Prado-Román, 2016; García-Cabrera, García-Soto, & Durán-Herrera, 2016), insofar as it is a fundamental factor for entrepreneurial activity, even more than the regulatory and normative dimensions as presented by Alvarez and Urbano (2014).

The key contributions of this research are grouped as follows: first, prior research (Kshetri, 2010; Lang, Fink, & Kibler, 2014; Steinz, Van Rijnsoever, & Nauta, 2016) has found that studies lack to determine the interaction between institutional dimensions and their effect on creating new companies. Researchers have advanced in the explanation of entrepreneurship in light of each dimension and emphasized in different aspects of regulative (Coeurderoy & Murray, 2008; Kshetri, 2010; Stephen, Urbano, & Van Hemmen, 2009), normative (Petrovskaya, Zaverskiy, & Kiseleva, 2016; van Hemmen, Alvarez, Peris-Ortiz, & Urbano, 2015) and cultural-cognitive institutions (Alvarez, Urbano, & Amorós, 2014; Knorr, Alvarez, & Urbano, 2013). However, there is still much to know about how institutions function and interact (Valdez & Richardson, 2013; Wang, Song, & Zhao, 2014). In that vein, it is necessary to clarify that in the specific field that considers the institutional dimensions to explain the

entrepreneurial activity, mediation and moderation relationships have not been studied in depth so far, although, in previous studies, the necessity to analyze the relationships between the institutional dimensions and their effects in entrepreneurship has been recognized (García-Cabrera et al., 2016; Valdez & Richardson, 2013).

The second contribution is addressing the countries or regions where the research is carried out (Díez-Martín et al., 2016; Kshetri, 2010). Even so, authors should explore the role of institutional "micro-climates" within countries; this helps to explain within-country variances (Stenholm, Acs, & Wuebker, 2013). Likewise, research in this field should increase in less-developed economies, which are not often included in significant studies (Kshetri, 2010). The third aspect refers to the economic sector. This study analyzes institutional dimensions in new businesses from different sectors since the institutional factors that are advantageous in one sector can be a disadvantage for another. Finally, the fourth aspect is entrepreneurship' type and motivation.

On the one hand, chapter 3 addresses one of the main shortcomings found in the research: when analyzing institutions' influence on entrepreneurial activity, little research distinguishes between different entrepreneurship phases. Although the analysis of institutional dimension in separate stages of the entrepreneurial process was essential to demonstrate that institutions effectively influence entrepreneurship, it is a simplified vision since entrepreneurship is a dynamic process that has multiple phases (Bergmann & Stephan, 2013), and that is why the institutional variables that influence it may be different in each of them. On the other hand, chapter 4 distinguishes necessity and opportunity entrepreneurship (Knorr et al., 2013). All these analyses in different aspects of entrepreneurship phenomena may help develop entrepreneurial policies and strategies according to each country's needs and every niche of entrepreneurship.

Another aspect in which research has room for improvement is measuring each institutional dimension since it has been found that there is no homogeneity in the variables used to operationalize them. Furthermore, multilevel research, which focuses on the relationship between institutional dimensions and entrepreneurial activity, is necessary. The conceptualization of the regulative and normative dimensions of institutions indicates the national or organizational measure; however, according to Scott (1995), the cognitive dimension mediating between the external world of stimuli (institutional environment) and the people's response requires an individual measure. Therefore, this project expands the use of institutional dimensions to study how the country and individual institutions influence entrepreneurial activity.

Consequently, this research's main objective is to analyze the institutional dimensions (regulative, normative, and cultural-cognitive) as determinants of different types and stages of the entrepreneurial process, focusing on the interactions between the dimensions and their implications.

The specific objectives of the research are:

1. Identify the content and evolution of entrepreneurship research that use the institutional approach as a conceptual framework.
2. Recognize the effects that institutional dimensions have in entrepreneurship, differencing between different stages of the entrepreneurship process.
3. Analyze the moderator or mediator effect of the cultural-cognitive dimension in the relationship between regulative and normative dimensions and entrepreneurial activity.
4. Explore the influence of institutional dimensions in high-impact female entrepreneurship.
5. Examine the differential effect of institutional dimensions between opportunity and necessity entrepreneurship.
6. Examine the differential effect of institutional dimensions between entrepreneurship in developing and developed economies, considering the relationship between the institutional dimensions.

We contribute to filling some research gaps in entrepreneurship research from the institutional theory. Through the chapters, this study advances in the aspects of this field that previous literature has not addressed before, such as the consideration of entrepreneurship as a process with different stages, the interaction between the institutional dimensions, specific studies that differentiate among types of entrepreneurial activity, and research that differentiates between the levels of institutional dimensions.

1.2 Institutions and entrepreneurial activity

Researchers employ two main approaches to analyze the influence of institutions on entrepreneurial activity. The first approach classifies institutions into formal and informal norms (North, 1990). In this approach, institutions define and limit individuals' choices; they allow the creation of a stable structure that reduces human interaction uncertainty (North, 1990). Following North (1990), formal norms are generally devised by people and are duly prescribed, such as laws, contracts, or regulations. For its part, informal norms are implicit agreements and codes of conduct, in sum, values and meanings shared in society. These values are not necessarily laws but help to maintain a specific order in the community. Considerable empirical evidence supports this approach to explain entrepreneurial activity (Chowdhury, Audretsch, & Belitski, 2019; Urbano, Aparicio, & Audretsch, 2019; Welter & Smallbone, 2011). The second approach uses regulative, normative, and cultural–cognitive dimensions (Scott, 1995) as a theoretical framework to explain entrepreneurship. Scott has developed an integrated model of institutions that focus on organizations. For this author, "institutions comprise regulative, normative, and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life" (Scott, 1995: 56).

There is a strong conceptual relationship between formal and informal institutions from North (1990) and institutional dimensions from Scott (2014):

> The most formal factors are the regulative institutions representing standards provided by laws and other sanctions. Normative institutions are less formal or codified and define the roles or actions that are expected of individuals. Normative institutions are often manifested through accepted authority systems such as accounting or medical professional societies. Finally, cultural-cognitive institutions represent the most informal, taken-for-granted rules and beliefs that are established among individuals through social interactions. (Alvarez, 2011: 22)

The institutional dimensions approach is still innovative within entrepreneurship research. Kostova (1997) was the first researcher to adapt institutional dimensions in the organizational and business fields with her concept of a country institutional profile, which Busenitz et al. (2000) applied and introduced later specifically to the entrepreneurship field.

Although neither North nor Scott developed his arguments about institutions for the field of entrepreneurship, other authors (Busenitz et al., 2000; Stenholm et al., 2013; Urbano & Alvarez, 2014) found institutional theory as a robust theoretical framework, and it has been used widely to explain how environmental factors influence entrepreneurial behavior. Prior empirical studies have also validated the second approach, and there is empirical evidence of the influence of regulative, normative, and cultural–cognitive dimensions on entrepreneurial activity (Chowdhury et al., 2019; Manolova, Eunni, & Gyoshev, 2008; Spencer & Gómez, 2004).

The analysis of each dimension (regulative, normative, and cultural-cognitive) facilitates understanding how institutions affect social relationships and organizational behavior. For entrepreneurship research, how the institutional environment affects the individual decisions to start a new venture and entrepreneurship rates across countries. This research contributes to the development of the thematic field of entrepreneurship. Specifically, this study considered the institutional dimensions approach to explain entrepreneurship as the process of new business creation and management by different individuals in a society. We analyze entrepreneurship as a phenomenon that is considered at the individual level (entrepreneurs) and country-level (entrepreneurial activity, new business creation).

The regulative dimension refers to the instrument to influence future behavior by establishing rules, manipulating sanctions, rewards, or punishments (Scott, 1995). Although this dimension can change more quickly in time, it is more challenging to implement a regulatory institution without the legitimation by the other two dimensions. In entrepreneurship, this dimension is represented in the policies formulated in different countries that seek to encourage entrepreneurial activity (Busenitz et al., 2000).

The normative dimension includes the goals of behavior in society and, at the same time, the correct way to pursue them. This is a dimension more challenging to change in the long term because it refers to aspects found in people's values and culture (Scott, 1995). This dimension in entrepreneurship research is represented in the common visions about being an entrepreneur and the legitimacy given to this profession, likewise, the appropriate forms socially accepted by the members of a community to create a new company (Busenitz et al., 2000).

The cultural-cognitive dimension includes the process of meaning and social reality creation from shared conceptions. This dimension represents the social construction of actors and interests based on cognitive frames that condition how individuals interpret and respond to the world around them (Scott, 1995). In entrepreneurship research, this dimension explains the individual characteristics that favor entrepreneurial activity, such as the knowledge and skills necessary to create a new business (Alvarez et al., 2014).

There is some consensus on the influence of the three dimensions in different types of entrepreneurship (Díez-Martín et al., 2016; García-Cabrera et al., 2016; Urbano & Alvarez, 2014). Although some researchers have found results that do not support some of them, Schillo et al. (2016) found that the regulatory dimension is not sufficiently significant to explain entrepreneurial intention distinct from the other dimensions. In the same sense, Castellano and Ivanova (2017) find that entrepreneurs do not perceive regulatory legitimacy as an essential aspect because the regulation is not well-established. Concerning contradictory results on the regulative dimension, there are different points of view. One of them is that the regulative dimension may not be sufficient because there is an inadequate formulation or slow development of entrepreneurship policies (Arshed, Carter, & Mason, 2014; Kshetri, 2010). However, in other aspects like access to financing, Díez-Martín et al. (2016) demonstrate a more positive and greater influence of regulative legitimacy. Nevertheless, these results should not be generalized to all types of new ventures because institutional factors that may be an obstacle to one type of business may not be for all.

Another research has emphasized the cultural-cognitive dimension. For example, Companys and McMullen (2007) showed that entrepreneurial opportunities exist thanks to the ambiguity of the environment and the available resources that an individual has to interpret and redefine those opportunities. Moreover, the cultural-cognitive dimension is recognized as an essential factor to explain new firm internationalization, García-Cabrera, García-Soto, and Durán-Herrera (2016) pointed out the existence of discretion or autonomy of the entrepreneur in the decision making explaining why entrepreneurs in the same institutional environment decide to internationalize their firms, and others do not. Finally, authors like van Hemmen, Alvarez, Peris-Ortiz, and Urbano (2015) highlighted the normative dimension. They operationalize the normative dimension through leadership; their results

show that participative leadership and higher education play an essential role in influencing innovative entrepreneurship.

1.3 Structure of the research

In the previous section, we presented the main theoretical foundations between the institutional dimension and entrepreneurship research. This section outlines this thesis's contents, divided into six chapters, highlighting the objectives and methodology.

As we mention in the previous section, the institutional dimensions' approach has recently gained attention to explain entrepreneurial activity across countries. However, it is still unclear how this approach has evolved, advanced and what remains to be done. Chapter 2 contributes to understanding entrepreneurship research that uses institutional dimensions as a conceptual framework through a rigorous systematic analysis of 60 articles published in journals within the Thomson Reuters' Journal Citation Reports from 2000 to 2020. The main findings reveal that: (a) there is still no consensus on the variables that measure the institutional dimensions, particularly the normative and cultural-cognitive dimensions; (b) additional research on the interactions between the three dimensions and their effect on entrepreneurship is needed; (c) each institutional dimension influences differently at each stage of the entrepreneurial process; (d) differences exist in the effects of the institutional dimensions on different economic sectors and for different types of entrepreneurship, such as opportunity or necessity; and (e) there are still few academic publications using institutional dimensions in the field of entrepreneurship; however, the number of articles is increasing as are opportunities for future research. Based on the results in Chapter 2, we develop this research to fill those gaps.

Consequently, Chapter 3 addresses the question regarding the entrepreneurial process. An entrepreneur should navigate through different stages from the idea conception until the business is operating. According to these stages, we expected that the context has a different impact on the individual's decisions. Through panel data model, Chapter 3 analyses the role of institutional dimensions (regulative, normative, and cultural–cognitive) in the entrepreneurial process (potential, nascent, and new entrepreneurship), using data from Global Entrepreneurship Monitor (GEM) and Heritage Foundation, with a sample of 99 countries for the period 2001-2017. Main findings demonstrate that (a) regulations regarding new business creation have a stronger influence on new entrepreneurship, (b) social norms have more influence on potential entrepreneurs and individual perceptions regarding their self-capacity and experience to start a new business, and (c) cultural–cognitive dimension has a stronger influence on nascent entrepreneurship.

Moreover, this chapter discusses the differences in the results regarding levels of development. For instance, the media attention to entrepreneurship positively influences potential entrepreneurs in developed countries; however, media attention negatively affects developing countries. Entrepreneurial

status, however, positively affects potential entrepreneurs in developing countries; however, this variable does not have the same effect in the other developed countries.

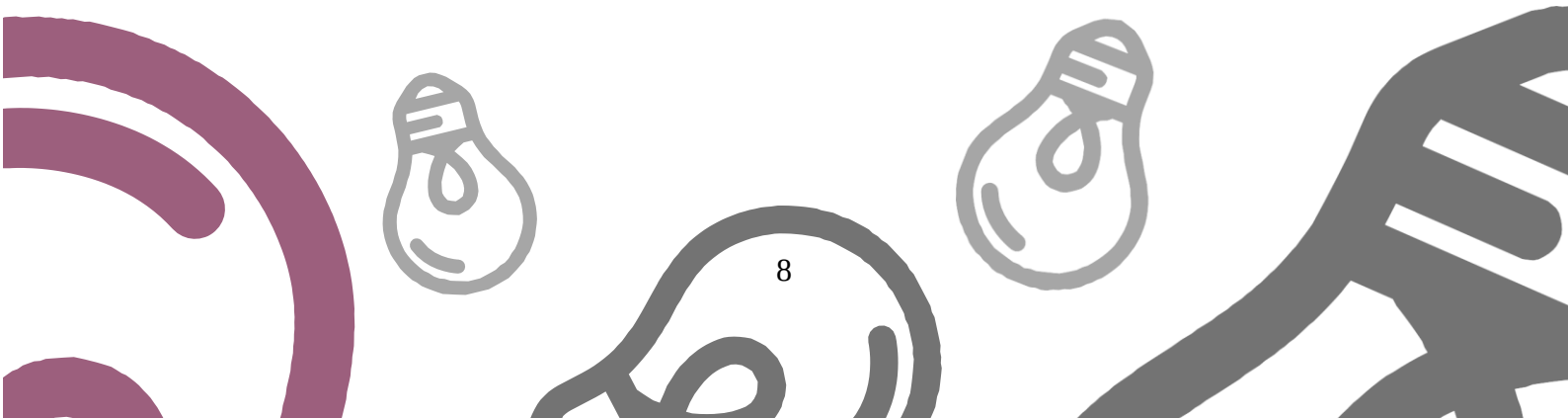
To develop target policies to support entrepreneurship is necessary to examine the influence of the institutional dimensions in different types of entrepreneurship, such as opportunity and necessity entrepreneurship. Moreover, policymaker strategies not only should motivate entrepreneurship but ensure the survival of the new business as well. Chapter 4 also analyses how those institutional dimensions influence survival. For this purpose, a binary logistic model on panel data and a survival analysis are specified and estimated using data from the Panel Study of Entrepreneurial Dynamics (PSED II). The main results show that the regulative dimension does not explain opportunity entrepreneurship comparing to necessity entrepreneurship. However, the positive governmental support to entrepreneurship has a positive influence on firm survival.

There are differences between the institutional dimensions that influence different types of new businesses, such as social entrepreneurs. We draw on a multilevel study to analyze the institutional dimensions that influence social entrepreneurship considering the interactions between the dimensions and the country and individual level. Specifically, Chapter 5 attends to determine the moderating effect of the regulative dimension on the relationships between the cultural-cognitive dimension and normative dimension and social entrepreneurship. This study uses a multilevel logistic regression, considering data from the Global University Entrepreneurial Spirit Students' Survey - GUESSS – 2018 and the World Bank with information of 53 different countries. Results in Chapter 5 show a significant negative relationship between the normative dimension and social entrepreneurial activity, showing that in those communities where traditional entrepreneurial activity is respected, there is less probability of becoming a social entrepreneur. Moreover, there are significant results for the interaction between the cultural-cognitive dimension with the normative dimension and entrepreneurial activity.

In Chapter 6, we focus on the analysis of high-impact female entrepreneurship through a mixed-methods analysis. Through quantitative analysis, results support the institutional dimensions' influence on high-impact female entrepreneurial activity across countries. Moreover, we found empirical support for the interaction effect of regulative and normative dimensions on entrepreneurship. For instance, when the procedures to start a business for a woman decrease, high-impact female entrepreneurship increases. However, the slope change when the status of entrepreneurial activity in the country increases, and the relationship becomes statistically significant while the status increases. Furthermore, through a fuzzy qualitative comparative analysis (fsQCA) in 12 cases from Medellín (Colombia) and Barcelona (Spain), we found that the interactions among the dimensions are necessary conditions for the employment generation and high-tech associated to innovation outcome; and cultural-cognitive dimension is sufficient condition by itself for high-tech female entrepreneurs.

Chapter 2

Institutional Dimensions and Entrepreneurial Activity: A Systematic Review



2. Institutional Dimensions and Entrepreneurial Activity: A Systematic Review and Agenda for Future Research

2.1 Introduction

According to the OECD (2019), European Union countries have a self-employment rate of 15.3% on average, while Latin American countries show rates of 27.2% and up to 50%. Precisely due to these different rates of entrepreneurial activity across countries, the interest in the factors that facilitate new business creation is growing (Camelo-Ordaz, Diánez-González, Franco-Leal, & Ruiz-Navarro, 2020; Julien, 2019). In recent years, the determinants of entrepreneurship have been explained based on institutional theory (Urbano, Aparicio, et al., 2019). In general terms, this approach describes the process through the sociocultural environment, and the legal constrains in each country determines an individual's decision to start a business (Schillo et al., 2016; Stenholm et al., 2013).

Although research has advanced using the institutional dimensions (regulative, normative, and cultural-cognitive) in the entrepreneurship field, some questions remain unanswered. Research is scant, and the studies developed until now have tried to explore from multiple perspectives without clear research lines. It is still unclear as to how these institutional dimensions facilitate different types of entrepreneurial behavior. For instance, if there is a favorable environment for entrepreneurship, institutions must be aligned so new businesses are oriented towards innovation (Schillo et al., 2016). Research goes from explaining high-impact entrepreneurship (Stenholm et al., 2013), female entrepreneurship (Yousafzai, Saeed, & Muffatto, 2015), social entrepreneurship (Pathak & Muralidharan, 2020), indicating the differences in each type of entrepreneurship. Therefore, researchers should consider the optimal institutional conditions in each case.

Moreover, extant literature does not precisely show how to operationalize the institutional dimensions. Various approaches exist, and the variables used differ, as do the measurement methods (Lang et al., 2014; Valdez & Richardson, 2013; Yu, Zhou, Wang, & Xi, 2013). Finally, any conceptual work exists to evaluate and analyze the research that has applied the institutional dimensions to explain entrepreneurship. This paper becomes essential in this context because it manages to show and synthesize what we know so far about this relationship and connects specific points less explored in previous research. The results also reaffirm the need for more studies in entrepreneurship that question and take a critical view with starting points within the research scope (Blackburn & Kovalainen, 2009).

The current study contributes to understanding the entrepreneurship research that uses institutional dimensions as a conceptual framework. The study shows the cornerstones on which research questions should be focused, addresses the current research limitations at the methodological and thematic levels

and provides future research guidelines. Moreover, this study is the first systematic review that deeply analyses the literature that explains entrepreneurial activity in the lenses of the institutional dimensions, which is a research field in constant expansion.

After this brief introduction, in the second section, the methodology used is outlined. In the third section, the institutional dimensions as a theoretical framework are presented. In the subsequent sections, the systematic literature review results are described (section fourth) and analyzed (section fifth). Finally, in the last section, we discuss the study's main findings and conclude with a future research agenda.

2.2 Methodology

This study adopts a systematic literature analysis approach involving four phases. The first phase describes the initial conceptual framework drawing on institutional dimensions related to entrepreneurship, and we explore its underlying assumptions and critical scopes. The second phase systematically analyses the literature that uses institutional dimensions as a framework in entrepreneurship research. The third phase develops the thematic analysis pointing out some propositions and the main paper's contributions to the research field. Finally, the four-phase, a future research agenda is discussed (what has been done, what remains to be done, and challenges).

Concerning the systematic review (second phase), following Merigó et al. (2016) and Urbano et al. (2019) we selected articles published in journals within the Thomson Reuters' Journal Citation Reports from 2000 to 2020 -up to November 2020- (business and management categories). We conducted a keyword search based on the title, abstract, and text of the articles: "institutional dimensions/ Pillar" "dimension/Pillar" "cultural-cognitive" "regulative" "normative" "Scott" and combinations (AND/OR) with "entrepreneur*" "new venture" "start-up" "small business or SMEs" "new firm creation" "new firm formation" "intrapreneur*" and "corporate entrepreneurship."

Besides, we applied our search protocol without any time restrictions to gather all relevant papers on the topic. The first sample includes a total of 116 articles, after excluding duplicates. All papers included in the database were manually read/checked to exclude based on the agreement with definitional and search parameters, with the initial focus being the title and abstract. In addition, we selected only articles, whereas introductions to special issues, books, and book chapters were excluded from the definitive database. Similarly, we excluded the articles considering the institutional dimensions but unrelated to entrepreneurship and the articles considering institutional theory but not specifically institutional dimensions. Finally, we read the full articles to ensure that they meet the objectives of the systematic review. Then, we obtained a final sample of 60 articles to be analyzed in this study. Appendix A shows the final sample that has used the institutional dimensions approach and how prior literature has operationalized the three dimensions.

After the definition of the sample, we analyzed the articles considering their contributions to the entrepreneurship theory. For this purpose, we follow the work of Makadok, Burton and Barney (2018) as a guideline for the theoretical contribution definition. This framework helps us characterize and understand the current state of the contributions on the relationships between institutional dimensions and entrepreneurial activity in six different ambits. (1) The mode of theorizing, (2) the level of analysis, (3) understanding the underlying phenomenon, (4) causal mechanisms, (5) constructs and variables, and (6) boundary conditions.

Considering the research questions that have been addressed in the field and the contributions made so far, we can propose through our thematic analysis of what is needed and the lines of future research.

2.3 Institutional theory and entrepreneurship research

In general terms, institutions define and limit individuals' choices, and then, they allow the creation of a stable structure that reduces the uncertainty of human interaction (North, 1990). North (1990) classified institutions as formal and informal. Formal institutions are devised by people and are duly prescribed, such as constitutions, laws, contracts, or regulations. Informal institutions are implicit agreements and codes of conduct, in sum, values and meanings shared in society, which are not necessarily set in stone but help maintain a particular order in the community. From another perspective, Scott (1995) developed an integrated model of institutions that focuses on organizations. The author stated that 'institutions comprise regulative, normative and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life' (Scott, 1995, p. 56)[1].

In entrepreneurship research, formal and informal institutions (North, 1990) have been popularly used to explain differences in entrepreneurial activity between countries (Urbano et al., 2019; Welter & Smallbone, 2011); however, the institutional dimensions (Scott, 1995) have had a slower application in the field of entrepreneurship research. Although formal and informal institutions maintain differences regarding institutional dimensions, they remain connected. Formal institutions are the most related to the regulatory dimension, whereas the normative and cultural-cognitive dimensions would be the most informal institutions, with the cultural-cognitive being more informal than the normative one. Earlier research in past decades (Busenitz et al., 2000; Stenholm et al., 2013; Urbano & Alvarez, 2014) found institutional dimensions to be a robust theoretical framework in entrepreneurship research to explain how environmental factors influence entrepreneurial behavior. Each dimension helps in understanding

[1] This quote refers to the first edition of Scott's work 'Institutions and Organizations'. Although the fourth edition is the most recent one, the institutional dimensions continue to maintain their initial essence, and only exemplifications and extensions have been added to the theory.

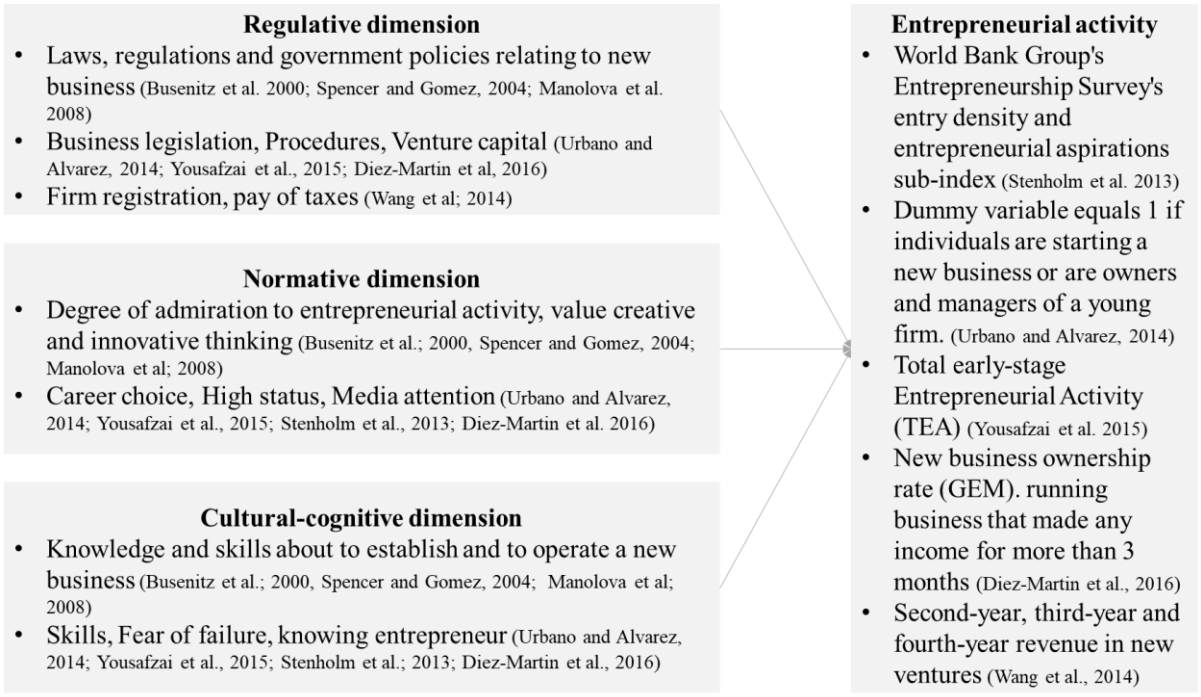
how institutions affect social relationships. In entrepreneurship research, the dimensions reveal how the institutional environment affects individual decisions to start a new venture.

The regulative dimension refers to the institutions influencing behavior through its espousal and insistence regarding the importance of establishing rules, inspections, manipulating sanctions, rewards, or punishments (Scott, 1995). Regulative dimension changes quickly over time because new laws can be enforced each time the government has some interests. However, it is challenging to implement for a regulative institution without being legitimized by the other institutions. In entrepreneurship, this dimension is represented in the policies framed in various countries that seek to encourage entrepreneurial activity (Busenitz et al., 2000).

The normative dimension includes the goals of behavior in society while enunciating the correct way to pursue them. It implies a system of values (concepts of desirable behavior and the construction of standards to which existing behaviors can be assessed) and norms (how things should be done). This dimension is difficult to change in the long term because it refers to the aspects found in peoples' values and culture (Scott, 1995). In entrepreneurship, the normative dimension is represented in the common visions about being an entrepreneur and the legitimacy lent to this profession; similarly, the appropriate forms are socially accepted by the community members to create a new company (Busenitz et al., 2000).

The cultural-cognitive dimension comprises the process of meaning and social reality that individuals create from shared conceptions. This dimension represents the social construction of actors and interests based on cognitive frames that condition how individuals interpret and respond to the world around them (Scott, 1995). In entrepreneurship, this dimension is discussed to clarify the individual characteristics that favor entrepreneurial activity, such as the knowledge and skills necessary to create a new business (Urbano & Alvarez, 2014). Within countries, knowledge is institutionalized because certain information is shared by all or most of the inhabitants; for example, the steps to start a business can be very clear in some countries, while in some others, few people might be interested (Busenitz et al., 2000). Figure 2.1 presents the general model that relates to entrepreneurial activity and institutional dimensions.

Figure 2.1 Relationship between institutional dimensions and entrepreneurial activity



Source: Own elaboration

2.4 Systematic review

Descriptive analysis

There are a few articles published in top management journals in Web of Science using the institutional approach as a conceptual framework in the field of entrepreneurship; for example, Busenitz, Gómez, and Spencer (2000) in the *Academy of Management Journal* and Coeurderoy and Murray (2008) in *Journal of International Business Studies*. Results show that 45 % of the analyzed articles have been published in specialized entrepreneurship journals. However, only *Small Business Economics* has six articles; *International Entrepreneurship and Management Journal* and *Entrepreneurship and Regional Development* have four articles each one dealing with the institutional approach as a theoretical framework. *International Journal of Entrepreneurial Behavior & Research* follows these journals with three articles; and *Journal of Small Business Management*, *Entrepreneurship Theory and Practice*, *Journal of International Entrepreneurship* and *Organization Science* with two articles each. The rest of the journals have published only one article each, which reveals not only the low rate of publication of articles on this subject in high-impact journals but also that no journal stands out in this field of study.

The number of articles has increased, particularly since 2013. Although the first article appeared in 2000, the publications have not been consistent, with only ten articles published in the ten years between 2000 and 2010. Notably, from 2015 a significant advance in entrepreneurship research from the institutional dimensions' perspective is observed since 62% of articles were published.

We analyze the techniques that are used in both theoretical and empirical research. Quantitative studies are predominant with 42 articles. In this category, the most used methods are multiple regression, followed by structural equation models, with only three articles using panel data. Qualitative research was conducted in 13 studies, among which there are eight case studies, two Qualitative Comparative Analysis (QCA), one content analysis, one phenomenological analysis, and one ethnography. Finally, only three articles are theoretical, while two studies combine qualitative and quantitative analyses.

Regarding the sources of information in the empirical studies, 38 % were found to use primary data, followed by 53 % gathering secondary data, and 8 % using both. The primary databases used are the Global Entrepreneurship Monitor study (GEM) for information related to entrepreneurship, whereas World Values Survey (WVS), World Bank Group's World Business Environment Survey (WBES), Doing Business Report (EDBI), and World Competitiveness Report (WCR), specific entities in each country were used for information related to the context and other regulatory aspects.

Regarding the number of authors and co-authors, 44% had three authors, 28% had two authors, 15.8% had a single author, and 12.3% had four or more authors. These results point to the need to have research teams in this field. To approximate national teams' activity, we analyze the articles based on the authors' country of affiliation. The countries with higher numbers of articles are the United States (22.4%) followed by authors with Spanish (15%) and English (6.8%) affiliation. Although studying the institutional dimensions in different contexts is essential, there is low participation by Latin American and African authors in research in this regard.

Thematic analysis, theory contribution, and propositions

As we mention before, we also characterize the studies according to how the papers make the theoretical contribution to the entrepreneurship field and their use of the institutional dimensions approach. Figure 2.2 shows the classification. Then, we present a thematic analysis of the articles in this systematic review, highlighting their theoretical contribution. Additionally, we present nine propositions that synthesize the findings. Furthermore, the propositions in this section are the key points in which further research should focus the analysis.

Figure 2.2 Ways previous studies contributed to entrepreneurship research from institutional dimensions approach

Inputs
Entrepreneurship Research Questions

Modes of Theorizing (How?)		
Shift between inductive based and deductive modes	Shift between process-based and variance-based modes/ Shift between static and dynamic modes/ Shift between formal and informal modes	Shift between analytical and numerical modes
(Arshed et al., 2014)	(Julien, 2019)	(Moro, Fink, Maresch, & Fredriksson, 2018)

Levels of Analysis (Who?) or Phenomena (Where?)		
Introduce (or import) a new or previously overlooked phenomenon or level of analysis	Apply an existing theory to a different phenomenon or level of analysis	Question the validity or utility of applying a theory to a particular phenomenon or level of analysis
(Busenitz *et al.*, 2000; Chowdhury *et al.*, 2019; Langevang *et al.*, 2015; Garcia-Cabrera *et al.*, 2020)	(Bjerregaard, 2010; Dickson and Weaver, 2008; Langevang *et al.*, 2015; Laurell, 2018; Mogos *et al.*, 2011; Moro *et al.*, 2018; Oftedal *et al.*, 2018; Schillo *et al.*, 2016; van Hemmen *et al.*, 2015; Garcia-Cabrera *et al.*, 2020)	(Szyliowicz & Galvin, 2010)

Causal Mechanisms (Why?)			
Introduce (or import) a new causal mechanism	Question an existing causal mechanism's validity or utility	Articulate similarities or differences between causal mechanisms	Synthesize multiple causal mechanisms for mediating or moderating effects
((González-González, Zamora-Ramírez, & García-Hernández, 2015; Li, 2018; Schillo et al., 2016; Wallin & Fuglsang, 2017; Yousafzai et al., 2015)	(Arshed et al., 2014; Liang, 2019); Johansson *et al.*, 2021)		(Gasbarro, Rizzi, & Frey, 2018)

Constructs/Variables (What?)		
Introduce (or import) a new construct as an antecedent, focal phenomenon, outcome, mediator, or moderator	Redefine, clarify, broaden, or narrow an existing construct	Change a construct's role: Is it antecedent, focal phenomenon, outcome, mediator, or moderator?
(Coeurderoy & Murray, 2008; Li, 2018; Schillo et al., 2016; Stenholm et al., 2013; Yiu & Makino, 2002; Yousafzai et al., 2015)	(Alvarez & Urbano, 2012; Díez-Martín et al., 2016; Knorr et al., 2013; Lang et al., 2014; Laurell, 2018; Mogos et al., 2011; Oftedal et al., 2018; Petrovskaya et al., 2016; Pinho, 2017; Sine, Haveman, & Tolbert, 2005; Yu et al., 2013)	(Li, 2018)

Boundary Conditions (When?)	
Relax a theory's assumptions for broader application	Expose a theory's hidden assumptions / Expose a theory's internal inconsistencies/ Restrict a theory's assumptions for more specific implications
(DeGhetto, Sutton, & Zorn, 2018; Eesley, Li, & Yang, 2016; Johnstone et al., 2018; Mickiewicz, Rebmann, & Sauka, 2019; Mogos et al., 2011; Petrovskaya et al., 2016; Watson, 2013)	

Outputs - Explanations, Predictions, Prescriptions, etc.			
Derive initial outputs from a new theory	Derive different types of outputs from an existing theory	Derive more specific outputs for interesting special cases	Derive new outputs by combining theories
(Busenitz et al., 2000)	(Bosma, Content, Sanders, & Stam, 2018; Busenitz et al., 2000; García-Cabrera, García-Soto, & Dias-Furtado, 2018; Gómez-Haro, Aragón-Correa, & Cordón-Pozo, 2011; Heilbrunn, Itzkovitch, & Weinberg, 2017; Li, 2018; Liang, 2019; Mickiewicz et al., 2019; Moro et al., 2018; Pinho, 2017; Sine et al., 2005; Valdez & Richardson, 2013)	(Amine & Staub, 2009; Castellano & Ivanova, 2017; DeGhetto et al., 2018; Effah, 2016; Gohar, Basit, & Abrar, 2018; Laurell, 2018; Liang, 2019; Okruhlica & Holienka, 2018; Steinz et al., 2016; Torkkeli & Fuerst, 2018; Urban & Muzamhindo, 2018; Urbano & Alvarez, 2014)	(Companys & McMullen, 2007; García-Cabrera et al., 2016; Pathak & Muralidharan, 2020; Stenholm et al., 2013; Tang & Tang, 2012; van Hemmen et al., 2015; Wang et al., 2014, 2017; Yiu & Makino, 2002; Yousafzai et al., 2015)

Source: own elaboration based on Makadok et al. (2018)

Modes of theorizing

The contributions to entrepreneurship research through the discussion of the necessity of changing the *Modes of Theorizing* is scarce, as we mentioned, most of the research in the field of study is quantitative and follow the same pattern. However, it is evident in the discourse that both methodologies, quantitative and qualitative, answer different questions. We find three papers that made changes in the modes either in the way of going from deductive to inductive methods (Arshed et al., 2014), switching between static and dynamic modes (Julien, 2019), or moving between analytical and numerical modes (Moro et al., 2018). Therefore, the call is to carry out more studies of mixed methods. For instance, the research of Julien (2019) builds an integrative model that is quite different from the models usually presented on the field. The author proposes a dynamic model that includes the institutional context as a part of a bigger picture where the entrepreneurial activity is immersed. This contribution is significant because the author shows a way in which the institutional dimensions approach interacts with other theories to explain entrepreneurship.

> *Proposition 1: The institutional dimensions influence on entrepreneurship phenomenon is complex and requires qualitative, quantitative, and mixed methods analysis.*

Level of analysis or phenomena

The authors that contribute to the field through the study of different *Level of Analysis* and specific *Phenomena* choose the topic depending on their specific interest, somehow ignoring the previous literature that also considers the same level of analysis.

From a broad perspective, Urbano and Alvarez (2014) show that better institutional dimensions increase the probability of an individual being an entrepreneur at the country level. Díez-Martín, Blanco-González and Prado-Román (2016) affirm that specifically for innovation-driven countries, more entrepreneurial legitimacy in each dimension represents greater rates of entrepreneurial activity. These results are in line with Busenitz, Gómez and Spencer (2000), whose seminal work analyses country-level institutional differences and their impact on different types and levels of entrepreneurship. They show that countries with different profiles can favor different types of entrepreneurship, such as small family business or technology firms. For instance, Pathak and Muralidharan (2019) show that individuals are more likely to engage in social entrepreneurship when the institutional dimensions are favorable but exist differences across countries. Moreover, those differences also impact other types of entrepreneurial activity, distance in the normative dimensions between origin and host countries hinder opportunity immigrant entrepreneurship (García-Cabrera et al., 2020). Authors like Heilbrunn, Itzkovitch and Weinberg (2017) focus their research not only in the differences between the institutional dimensions between countries but also between communities in the same country.

In international entrepreneurship, institutional dimensions explain the international performance of small and medium firms. Yiu and Makino (2002) found that institutional theory explains the choice of a company to enter an international market; they found that businesses fit the institutions of a new country. They also show that regulative and normative dimensions might explain the cross-national variations and that the cultural-cognitive dimension might explain the cross-firm variations in the choice of entry mode. Prior literature underlines the importance of an entrepreneur's favourable perception regarding institutional dimensions that benefit firm internationalisation (García-Cabrera et al., 2016; T. Li, 2018). Also, authors such as Mogos, Walliser, Holzmüller and Guo (2011) found that the three dimensions explain why small- and medium-sized enterprises (SMEs) from a few countries have an export advantage. While other authors found that normative dimension the regulative dimension have the most decisive impact with pressures on decision-making having a negative relationship on the SMEs international market orientation (Williams and Spielmann, 2019). However, Szyliowicz and Galvin (2010) show that scholars of international entrepreneurship have not sufficiently explored the knowledge of institutional theory.

About female entrepreneurship, Yousafzai et al. (2015) show that the regulative dimension, entrepreneurial cognitions and entrepreneurial norms benefit women's entrepreneurship leadership, particularly when they are supported. Similarly, in the specific context of Africa, Langevang et al. (2015) and Amine and Staub (2009) show how the institutional dimensions promote female entrepreneurial activity. Wang et al. (2019) found that the lack of growth ambition among female entrepreneurs in China is due to the flawed perceptions of the regulative and cultural-cognitive dimensions in comparison with their male counterparts. Furthermore, those researchers discuss the lack of institutional conditions that are necessary to ensure the growth and survival of these new companies. Therefore, these studies suggest the evaluation of support to female entrepreneurs.

Regarding corporate entrepreneurship, some authors indicate that entrepreneurial orientation is motivated by normative, regulative and cognitive institutional dimensions existing in the firm's institutional environment (Dickson and Weaver, 2008; Tang and Tang, 2012). Similarly, Gómez-Haro et al. (2011) suggest that normative and cognitive dimensions of the institutional environment influence entrepreneurial orientation and that the regulatory dimension influences the type of corporate entrepreneurial activity being developed. Wang, Thornhill and De Castro (2017) found that new entrepreneurial ventures could achieve higher performance if they made efforts towards cognitive, regulative and normative legitimization to meet their customers and suppliers' expectations.

Finally, other articles that use institutional dimensions approach such as (T. Wang et al., 2014) add to the institutional analysis the importance of early consumers to the performance of new businesses. They found that early customers are beneficial and that these benefits are higher when there are previous favorable cognitive and regulative dimensions. Considering knowledge transfer research, Bjerregaard

(2010) found that the three institutional dimensions affect the collaborative work between new firms and research groups in public universities, these institutional logics serve to facilitate the ongoing knowledge exchange between these two sectors. Meanwhile, Mickiewicz, Rebmann and Sauka (2019) found that legitimacy of the tax authorities and the government (normative dimension), feeling of belonging to the nation (cultural–cognitive dimension) and perceptions of the risk and severity of punishment (regulative dimension) are associated with the entrepreneur's attitudes towards tax evasion. Finally, in critical studies from an ethnography perspective, Watson (2013) supports the importance of expanding entrepreneurial research seeking to strike a balance in the study of the concept of entrepreneurial action within an institutional context.

Considering the literature and the contribution of the papers to the theory, this study contends the following proposition:

> *Proposition 2: The institutional dimensions influence entrepreneurial activity differently accordingly the sector, the type of business and the stage in the entrepreneurial process.*
>
> *Proposition 3: The institutional dimensions operate in both individual and country levels.*

Causal Mechanisms

When the main contribution is on the exploitation of new *Causal Mechanisms*, we found eleven papers that contributed to this aspect analyzing and proposing relationships of mediation and moderation between the institutional dimensions and with other constructs. Although the relationships that the authors propose are not consistent between the literature, and again we find disconnection between the researches.

We found that the interrelation between institutional dimensions is significant in determining the outcomes (Szyliowicz and Galvin, 2010). Lang, Fink and Kibler (2016) explain how regulative, normative, and cognitive institutions are interrelated and affect entrepreneurial practices in rural communities. The results show that only when the regulative dimension is explored in the context of normative and cognitive institutions, the complexity of the institutional mechanisms that shape entrepreneurship in a specific location can be better understood. Junaid et al. (2020) found the necessity to combine the cultural-cognitive dimension with the normative dimension to generate the conditions that produce higher levels of entrepreneurship in factor-driven and efficiency-driven economies. Also, the blend between regulative and cultural-cognitive was found as the most important to explain female rates of entrepreneurial activity when the development of the economy is low (Li, Wu, Zhang, & Ling, 2020).

An earlier study shows that informal institutions can influence the growth of formal institutions (Kshetri, 2010). In particular, the need to understand the regulative dimension in light of the other two

dimensions has been highlighted (Lang et al., 2014; Steinz et al., 2016). Eesley and Yang (2016) show how a project implemented by the government can affect individual beliefs and behavior in new entrepreneurs. However, the performance of their new ventures is not as expected because the program was not considered in all institutional environments. Another recent study that considers the interaction between the dimensions is Camelo-Ordaz et al. (2020), their results show that regulative and normative dimensions positively moderate the relationship between the cultural-cognitive dimension and entrepreneurial opportunity recognition. Then, we suggest the following proposition:

Proposition 4: The institutional dimensions operate in constant interaction, and it is crucial to understand how these interactions influence entrepreneurial activity.

Constructs and variables

The current study found that different authors emphasize the importance of favorable institutional dimensions by considering subfields and emerging topics within research in entrepreneurship. However, there is no consensus in the measurements of the institutional dimensions. Moreover, different indicators are implemented in the research according to the subfields. We found that in the level of contributions to theory through *Constructs and Variables,* the articles that we classify in this category made an operationalization of the institutional dimensions, which is different from most of the literature. They propose a different perspective to operationalize the institutional dimensions, sometimes considering constructs from other theories. For instance, the authors introduced the conducive dimension and the measurement of it to analyze high-impact entrepreneurship (Stenholm et al., 2013). Or including a new mediator to explain the relationship among the institutional dimensions and women entrepreneurship (Yousafzai et al., 2015). Others, presented new ways in which the institutional dimensions are moderators explaining internationalization (Li, 2018), while others consider just one of the dimension as a focal phenomenon, such as the regulative dimension to explain internationalization of new technology firms (Coeurderoy & Murray, 2008).

Proposition 5: The institutional dimensions are constructs measured through different proxies.

Boundary conditions

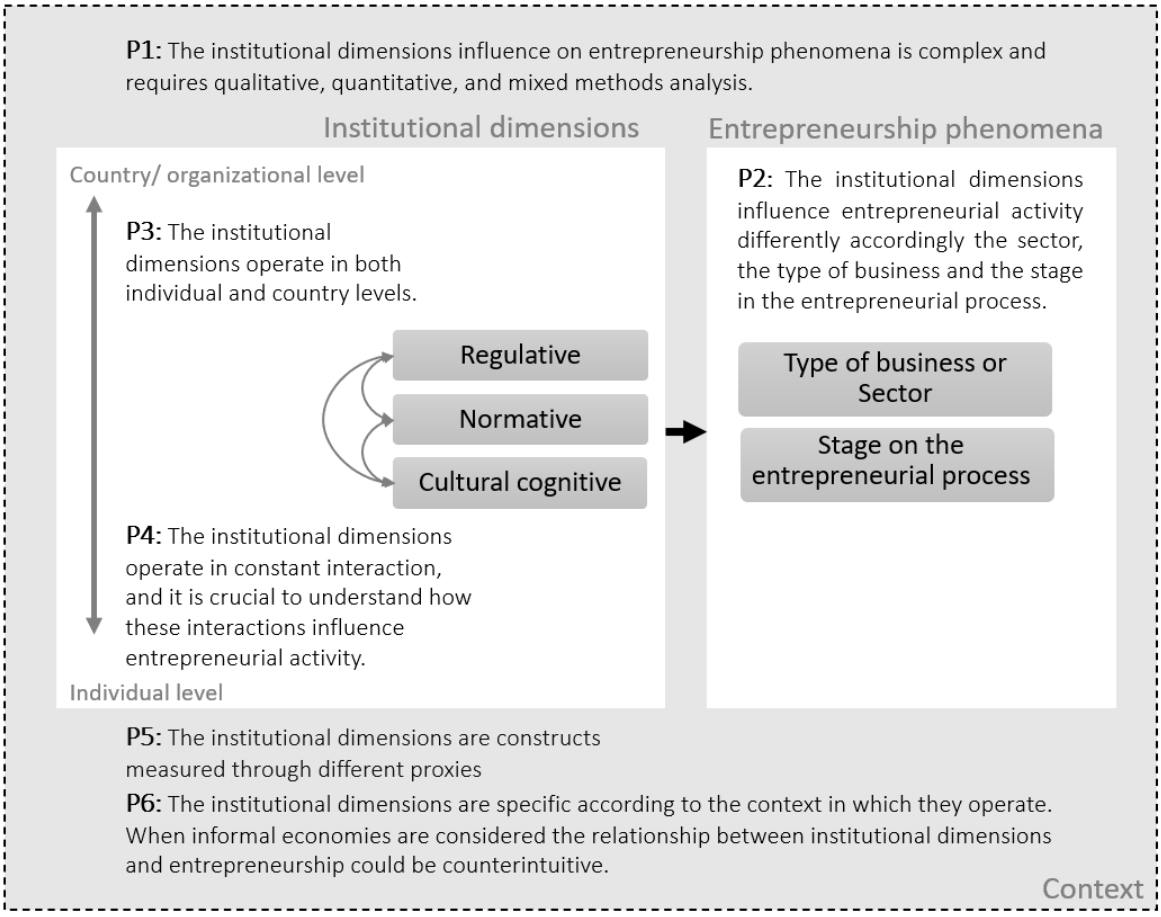
Moreover, regarding the authors that increases the limit of the *Boundary Conditions* of the theory, we observe the lack of critical research that contrast, or discuss and comment on the consistency of the institutional dimensions approach. As we mentioned in the contributions regarding constructs and variables, we identify through the analysis an adaptation of the institutional dimensions' definitions that allow the researchers to adjust and apply to different sectors and phenomena within the field, such as born-public new ventures (DeGhetto et al., 2018), inconsistencies among the institutional context in a country and the context inside universities that influence university entrepreneurship (Eesley et al.,

2016), language learning as a consequence of institutional dimensions and its influence on the internationalization of entrepreneurship (Johnstone et al., 2018), informal economy and tax avoidance (Mickiewicz et al., 2019). On the contrary, we did not identify research that made an explicit call to restrict the theory or the definitions. The above allows the authors, according to their interest, broad their possibilities to adapt the theory to specific sectors, and unit of analysis. Specifically, the studies in this category show how the institutional dimensions approach applies to understand the picture of entrepreneurship phenomena in different levels and contexts. Our research also contributes to this category since although we do not restrict the assumptions of the theory, we seek that the research that uses institutional dimensions approach considers in detail its contribution not only to a sector but also to the theory, constructing more specific implications.

> *Proposition 6: The institutional dimensions are specific according to the context in which they operate. When informal economies are considered the relationship between institutional dimensions and entrepreneurship could be counterintuitive.*

Figure 2.3 represents the model of the 6 previous propositions.

Figure 2.3 Proposed model to analyze the relationship between institutional dimensions and entrepreneurship phenomena (Propositions 1 to 6)



Outputs

Finally, we found that most of the contributions to the literature that analyze entrepreneurship on the lenses of institutional dimensions are related to the O*utputs*, that we can observe at the bottom of Figure 2. It indicates how contributions to theory can proceed as theories develop over time: When an approach is new, the first order of business is to derive some initial outcomes from it. In this case, Busenitz *et al.* (2000), started to apply the institutional dimensions approach to entrepreneurial activity and that was an essential contribution in this field, mainly because from this novel application, other researchers begin exploring the opportunities to contribute by deriving additional outputs from the existing theory.

As seen in earlier results, there exists some consensus regarding the influence of the three dimensions on different types of entrepreneurship although some works of research do not support the regulative dimension to explain entrepreneurial activity (Schillo et al., 2016; Torkkeli and Fuerst, 2018; Valdez and Richardson, 2013). This weak relationship can be explained by the type of variable with which the authors operationalize this dimension. For instance, Urbano et al. (2019) evidence that regulative conditions (such as property rights and government programs) enhance while other regulations (like support for science and technology) retard the probability of developing new technology initiatives among new/established firms.

In contrast, Coeurderoy and Murray (2008) show that concerning internationalization and the choice of location of new technology firms, entrepreneurs are more influenced by the regulations of the industry in which the company operates and less influenced by foreign regulation. These findings concur with those of Wang et al. (2017). They show that a regulative dimension helps new firms to acquire the necessary resources and develop capabilities to exploit the opportunities to enter a new market. Bosma et al. (2018) demonstrate the regulative dimension, operationalized such as financial stability and small government are the most important predictors of productive entrepreneurship. Sine, Haveman and Tolbert (2005) show that the development of regulative institutions legitimated the electricity sector and provided incentives for all entrants, with more significant effect in the novel and risky technologies, because of the need to acquire resources. However, not necessarily the entrepreneurs seek to adopt efficient and new technology designed by government policies.

Concerning the contradictory results on the influence of the regulative dimension on entrepreneurial activity, there are different perspectives. One of them is that the regulative dimension may be insufficient because there is little trust that regulations to favor entrepreneurship will remain stable over time (García-Cabrera et al., 2018), which is also connected with the poor entrepreneurship policies (Arshed et al., 2014; Kshetri, 2010). For example, in terms of the protection of intellectual rights (Yu et al., 2013). Other problems have been identified in bureaucratic licensing processes within the government and unclear regulatory frameworks in some sectors, such as new technologies (Effah,

2016), which can be complicated when it comes to the sale and the process of internationalisation of medical technology innovation (Laurell, 2018). To deal with this lack of regulation, some entrepreneurs seek to create strategic relationships (Steinz *et al.*, 2016) with people of authority or to form alliances with large and established firms (Yu *et al.*, 2013). However, in other aspects, such as access to financing, there is a more positive and more significant influence of the regulative dimension than that of normative and cultural-cognitive dimensions (Díez-Martín *et al.*, 2016). Moreover, Moro *et al.* (Moro *et al.*, 2018) found that that regulative dimension within the banks affects the entrepreneurs' credit possibilities. Therefore, the following propositions are put forth:

> *Proposition 7a: Favourable regulative dimension improves the possibilities of high-impact and innovative entrepreneurs.*
>
> *Proposition 7b: The more consolidated the new firm, the stronger the influence of the regulative dimension.*

Other researchers, such as van Hemmen, Alvarez, Peris-Ortiz and Urbano (2015), have highlighted the normative dimension through leadership indicators to examine the relationship between leadership style and entrepreneurship. The main results show that participative leadership and higher education play an essential role in influencing entrepreneurial activity.

Contrariwise, Petrovskaya, Zaverskiy and Kiseleva (2016) show that entrepreneurial activity is restricted for the negative stereotype of an entrepreneur, which is associated with the perception of ethics and wealth accumulation in Russia. Those differences are evident even in a context that share religion and political systems, for instance, Malaysia and Pakistan have significant differences of female entrepreneurial activity, and it is mainly the normative dimension which explains it (Junaid *et al.*, 2019). The authors argue that in Malaysia, the favourable social perception and societal attitudes encourage women to pursue their own business. Those results show that in certain societies, it is necessary to have a good general perception regarding entrepreneurship to encourage individuals to pursue an entrepreneurial activity. However, as we mentioned before, in this case it is also important to consider the sector. In the relationship between the normative dimension and entrepreneurial activity, previous research found in the hospitality sector "the normative dimension had a negative effect on opportunity entrepreneurship and a positive effect on necessity entrepreneurship" (Li et al., 2020).

On the contrary, another study shows that the normative dimension in the university context is of great importance in enhancing entrepreneurial intentions among students (Oftedal *et al.*, 2018), university entrepreneurs are expected to have the higher rates of opportunity motivated entrepreneurial activity. Accordingly, Valdez and Richardson (2013) suggest that if people believe that their society has a favorable view regarding entrepreneurs, many will want to participate in entrepreneurship initiatives. In this sense, cultural differences such as beliefs and values might play a more important role in entrepreneurship than might economic aspects such as transaction cost, especially in opportunity

entrepreneurship. He et al. (2020) argue that the normative dimension promotes the influence of opportunity-based entrepreneurship on the environmental quality of sustainable development. Those authors indicated that opportunity-based entrepreneurs try to identify new opportunities, also according to the values and the common rules (normative dimension), to improve their entrepreneurial capabilities building advantages for themselves.

Then, we point out the following propositions:

> *Proposition 8a: The normative dimension has a stronger influence on entrepreneurs that are motivated by opportunity than it does on entrepreneurs motivated by necessity.*
>
> *Proposition 8b: The stronger the normative dimension in a society, the greater the possibility that nascent entrepreneurs will emerge.*

Other researchers also emphasize the cultural-cognitive dimension. For example, Companys and McMullen (2007) show that entrepreneurial opportunities, from the cultural-cognitive perspective, exist because of the ambiguity of the environment and the resources that are available for an individual to interpret and redefine those opportunities. Moreover, in studies related to new firm internationalization, the importance of the cultural-cognitive dimension has been recognized. García-Cabrera, García-Soto and Durán-Herrera (2016) recognize an entrepreneur's discretion or autonomy in decision-making, which explains why some entrepreneurs in the same institutional environment decide to internationalize their firms, while others do not.

Chowdhury, Audretsch and Belitski (2019) found that improvement in institutions has a more significant effect on entrepreneurship in developing economies than it does in developed economies. This result is related to the cultural-cognitive dimension, which, in turn, is associated with the individual. In emerging economies, a majority of the new ventures are motivated by necessity. Therefore, self-confidence and a favorable individual perception regarding the skills needed to start a new venture and succeed are essential. Similarly, Bosma et al. (2018) found that the cultural-cognitive dimension concerning perceived start-up skills and a culture of entrepreneurship that nurtures awareness is conducive to entrepreneurial activity. In the same way, Garcia-Cabrera et al. (2018) show that the cultural-cognitive institutions related to the existence of business experience are most responsible for the emergence of the different types of entrepreneurial motivation.

Besides, to explain other types of entrepreneurs, the cultural-cognitive dimension appears critical when explaining opportunity entrepreneurship as shown by the critical role that the cultural-cognitive dimension plays in entrepreneurial behavior apart from the other two dimensions (Alvarez et al., 2014; Díez-Martín et al., 2016; García-Cabrera et al., 2016; Wu and Li, 2020). Therefore, various authors have focused on this dimension operating in the field of entrepreneurship through concepts such as independence, risk-taking and creativity (Alvarez and Urbano, 2012; Knorr et al., 2013).

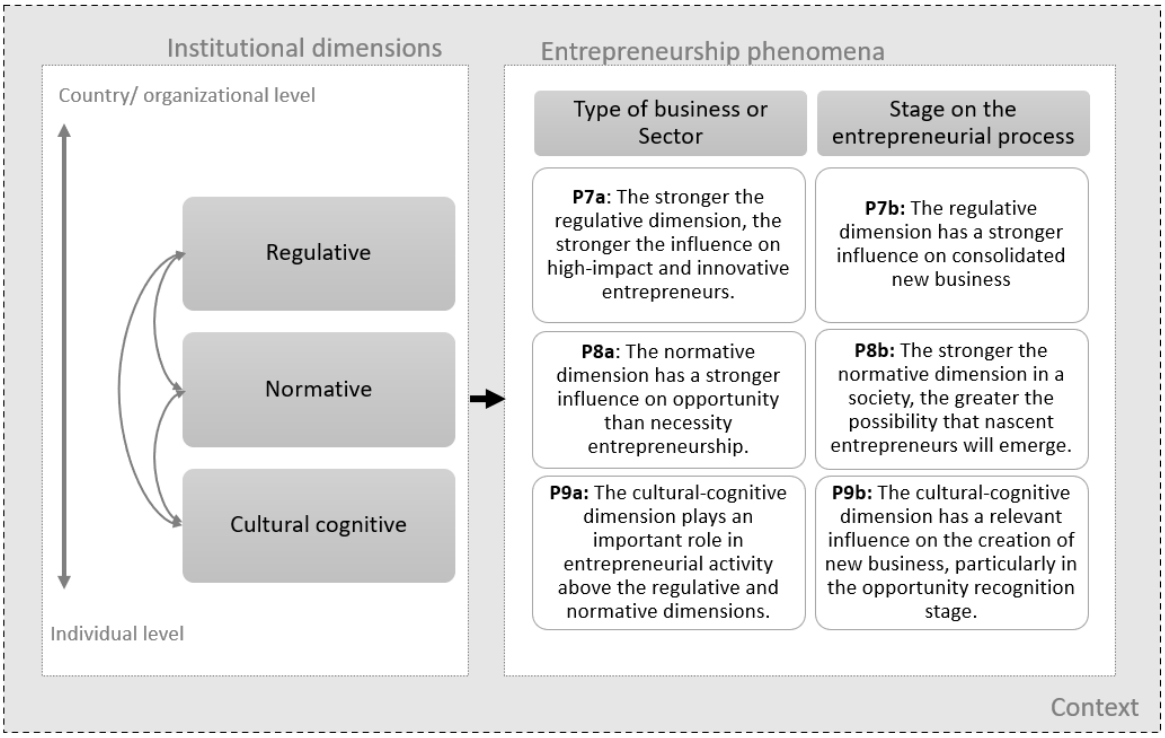
Sine, Haveman and Tolbert (2005) state that the development of cognitive institutions influences the new firm more than the other two dimensions; for instance, they indicate that their goals and experience shape the type of technology chosen by entrepreneurs. Wu and Li (2020) analyze a set of female institutional dimensions and found that among the three distinct dimensions, cultural-cognitive dimension has the most important effect on the levels of female entrepreneurship. Johansson et al. (2021) found similar results for the venture capitalist sector, arguing that both the normative and the regulative dimensions influence investment decisions. However, the cultural-cognitive dominates the final behavior.

A study on different contexts (Dickson and Weaver, 2008) found evidence that the cultural-cognitive dimension influences the entrepreneurial orientation of the firms, considering industries of different technological levels and sizes. Finally, a study in the context of entrepreneurial orientation (T. Wang et al., 2017) found that the performance of a new venture is more positive when the cognitive dimension is stronger. Therefore, the following propositions are proposed:

> *Proposition 9a: The cultural-cognitive dimension plays an important role in entrepreneurial activity above the regulative and normative dimensions.*
>
> *Proposition 9b: The cultural-cognitive dimension has a relevant influence on the creation of new business, particularly in the opportunity recognition stage.*

Figure 4 shows the propositions of the outcome to study the relationships between institutional dimensions and entrepreneurial activity.

Figure 2.4 Proposed model to analyze the relationship between institutional dimensions and entrepreneurship phenomena (Propositions 7 to 9)



2.5 Discussion and conclusions

The objective of this chapter was to contribute to the understanding of institutional dimensions that influence entrepreneurship by considering the contribution of each paper, what has been done and what remains to be done. Doing an exercise to self-evaluate our contribution to the theory with this study, under the same parameters with which the reviewed papers were evaluated, we find that our main contributions are in the boundary conditions. As we mentioned, in the first stages of the theory development the boundary conditions are blurred. And institutional dimensions approach is growing fast, as many other fields, without a careful view, and disjointed assumptions.

In this context, the main findings of this study could be useful for further methodological, as well as thematic, research that contributes to the development of entrepreneurship research from this approach in a constructive way.

As for the methodological aspect, the main results show the problems encountered in measuring the dimensions since different papers have contributed from their perspective, applying this approach to specific cases and units of analysis. The variables used to operationalize the institutional dimensions differ between investigations. There is no consensus on the appropriate measurements. Particularly, we

find it difficult to measure the cultural-cognitive dimension, given that in some of the research, it is a variable only of individual perception on skills or self-confidence. However, this dimension corresponds not only to the individual but also to the social construction of their beliefs, which diffuses the limits of their measurement, thereby making it a very complex dimension to operationalize. In addition, some of the results are not comparable as the institutional dimensions are used as a theoretical framework.

Nevertheless, in many cases, the methods of measurement depend on each author and their research interests. In general, the need is felt to include a broader range of institutional variables and measures (Dickson & Weaver, 2008). Although, in some cases, the same databases are used, as the GEM, the authors reveal the problems in these databases (Schillo et al., 2016; Stenholm et al., 2013; Urbano & Alvarez, 2014; Valdez & Richardson, 2013; Yousafzai et al., 2015). Data sources are limited, particularly when attempting to conduct cross-country comparisons, because of the limited number of indicators and the differences in measurement across countries (Schillo et al., 2016). Future research should improve the measurement of both dependent and independent variables to establish causal relationships in cross-sectional data (van Hemmen et al., 2015).

Regarding the type of studies, most of the articles are empirical works. Also, there are various research methods within the field with numerous quantitative studies. However, there is scope for improvement concerning the techniques used. Only three articles present panel data as an analysis technique, despite several researchers stressing the need for more longitudinal research in this field using quantitative and qualitative methods (Lang et al., 2014). Moreover, research with larger sample sizes is needed. However, researchers should be careful in these analyses and recognize the problems attendant to establishing a common institutional environment that generalizes the results (Busenitz et al., 2000; Gómez-Haro et al., 2011).

The use of longitudinal data in aspects such as evaluating the impact of policies (regulative institutions) that seek to benefit entrepreneurship is important because of the contradictory results found in the literature. Therefore, these measurements must consider specific aspects. This challenge could be overcome by continuing to construct databases to support the measures of specific institutional dimensions. Quantitative results show that 39% of empirical studies use primary data for their analysis and hence the need long-term projects and endeavors to ensure that these efforts to collect first-hand data are not lost.

On the other hand, adopting techniques that differentiate between the levels of institutional dimensions is essential to improve the quality of conclusions and results because each of them responds to a different level of analysis. As highlighted before, ‘the institutional environment is multifaceted’ (Yiu & Makino, 2002). While the regulative dimension is related to the rules or norms that affect the entrepreneurship policy of a whole country or a city, the cultural-cognitive dimension suggests a certain

individuality on the part of entrepreneurs' decisions. The current stream of research on entrepreneurship that uses the institutional approach emphasizes national-level analysis; however, the mechanisms influencing the decisions of individual entrepreneurs are still understudied (Stenholm et al., 2013). The use of multilevel models would address the issues of unobserved heterogeneity within the cross-country and cross-individual contexts (van Hemmen et al., 2015). This study evidence that the academic community cares about this issue, 25 % of the research published between 2019 and 2020 is based on multilevel analysis. However, it still scares in comparison to all the research in the field. Furthermore, the individual-level measures to operationalize the cultural-cognitive dimension do not follow a clear path. Even more, the hierarchical approach is urgent as the cultural-cognitive dimension has been founded as the most important variable to explain different types of entrepreneurship (García-Cabrera et al., 2018; Sine et al., 2005; Wu & Li, 2020).

Hence, more quantitative and qualitative studies are needed. In particular, qualitative research would help overcome the difficulties regarding a few vague and immeasurable institutional dimensions (Wang & Chugh, 2014). In addition, possibilities and fields of action are found in implementing both qualitative and quantitative mixed techniques in the same project. This approach allows the study to be addressed in different ways and thus achieves greater comprehension and generalization. Similar results have been found in articles on methods in general entrepreneurship research (Molina-Azorín, López-Gamero, Pereira-Moliner, & Pertusa-Ortega, 2012). This logic can be applied in the specific field employing the institutional dimensions approach. McDonald et al. (2015) noted that the discussion should focus on the research design and make criticisms that guide the appropriate and particular approaches for solving the problems within the entrepreneurship field. Moreover, have a critical vision that questions and does not take any assumption for granted; this is a topic that has been discussed in general in entrepreneurship research (Blackburn & Kovalainen, 2009).

With regard to the thematic aspects, one of the critical challenges that future research faces is the interaction among the institutional dimensions. Researchers have advanced the explanation of entrepreneurship in light of each dimension and have emphasized different aspects of regulative (Coeurderoy & Murray, 2008; Kshetri, 2010), normative (Petrovskaya et al., 2016; van Hemmen et al., 2015), and cultural-cognitive institutional dimensions (Alvarez & Urbano, 2012; Knorr et al., 2013). However, much needs to be understood about how institutions function and interact. Moreover, how regulatory institutions, such as laws, can be incentivized and interpreted depending on the environment and the relationship with the other two dimensions (Scott, 1995). In fact, some authors have found that the regulative dimension may hinder the generation of new ventures (Valdez & Richardson, 2013)—not only the entrepreneurship rates but also the type of new companies created (Sine et al., 2005). Those results can be explained by how the policy is formulated and how individuals respond (Arshed et al., 2014). As in prior research, results like these suggest that interactions between institutional dimensions

could be analyzed deeply (Valdez and Richardson, 2013; Wang et al., 2014). In this sense, two studies analyzed the combination of conditions regarding the institutional dimensions (Junaid et al., 2020; Yaokuang Li et al., 2020). However, those studies should be validated with other samples and among different contexts.

Another thematic aspect to consider in future research is the importance of detailed studies, as this allows for conclusive results. The key features to be considered in this regard are classified as follows: The first aspect is the country or region level of development in which the research is carried out (Díez-Martín et al., 2016; Kshetri, 2010). In addition, authors should explore the role of institutional 'micro-climates within countries, which explains within-country variance (Stenholm et al., 2013). Similarly, research in this field should be broadened to include less-developed economies, which are not often considered in major studies (Kshetri, 2010).

The second aspect refers to the economic sector. In most recent publications, the concern is expressed regarding studies focused on the effect of institutions in specific sectors, such as sustainable entrepreneurship (Gasbarro et al., 2018) and new companies in the medical technology sector (Laurell, 2018). Despite these efforts, studies must carefully analyze institutional dimensions in new business from other sectors' perspectives and specific characteristics of new firms (Dickson & Weaver, 2008). Because, as we presented here, the institutional dimensions that can be considered to be advantages in one sector can be seen as disadvantages in another.

The third aspect relates to the type and level of entrepreneurship. It is important to develop research that differentiates between necessity and opportunity entrepreneurship (Knorr et al., 2013) and even corporate entrepreneurship (Gómez-Haro et al., 2011). In this sense, evidence exists regarding how normative institutions determine a specific kind of entrepreneurship (van Hemmen et al., 2015). This type of differentiation might be useful in developing entrepreneurial policies and strategies according to the needs of each country.

In addition, articles adopting thematic analysis reveal an interesting result. There was greater interest in elaborating the regulatory dimension, whereas there was an imbalance concerning the conclusions presented regarding the other two institutional dimensions. Therefore, some questions remained: does this situation arise due to a particular interest concerning policy formulation? Or is it due to the availability of data and facilities to measure this dimension? Why has there been uneven progress in the publication of results on the normative and cultural-cognitive dimensions, although all dimensions are equally important in developing a thorough understanding of the entire context that determines entrepreneurial activity?

In sum, to address the challenges for future research, there must be continuity in this work. Table 2.1 presents the future research agenda and the main challenges to address in each case, considering the

article`s theoretical contribution to the field of entrepreneurship and what remains to be done. Furthermore, to build good quality, focused, and aligned research, it is necessary to connect research teams with a broad vision and manage complementary research techniques to respond to some of the aspects discussed previously in the main literature and proposed in the current study.

Finally, these aspects are not only for researchers who want to advance the study and make relevant contributions to consider. They are also relevant to policymakers in their discussion of some of the results of this work. It is necessary to clarify the policy's objectives and the characteristics of the population under the ambit of policy intervention. The actual realization of these analyses would be to tell apart strategies that promote successful entrepreneurship and avoid contrary effects.

2.6 Limitations and future research opportunities

Despite contributing, this paper also has several limitations. On the one hand, this systematic literature review only analyses the literature published in journals within the Thomson Reuters' Journal Citation Reports, which have a process of blind reviewers. Although this guarantees the research's quality, papers out of this study could probably meet the conditions to include them in the review, but they are published in journals out of the Journal Citations Report. In this sense, further studies should consider having those journals in the scope, exploring other papers or grey literature, and finding differences between the results and the academic conversations between the different research groups. On the other hand, we manually read all the documents and classify them to follow the rules describe in the methodology. Despite these systematic rules, the authors' interpretation is present in the classification of the contribution of the papers. Other techniques should be considered to analyze the articles, such as content analysis through data analytics tools.

Moreover, considering the increasing number of the literature employing quantitative techniques, the next step in the analysis is to propose a meta-analysis. Nonetheless, we think that research in the field should continue to advance to use this type of technique, given the heterogeneity in current studies. For this reason, this study makes a classification of the research's primary results, and it is a valuable guide that academics should review to understand the field and implement to advance constructively.

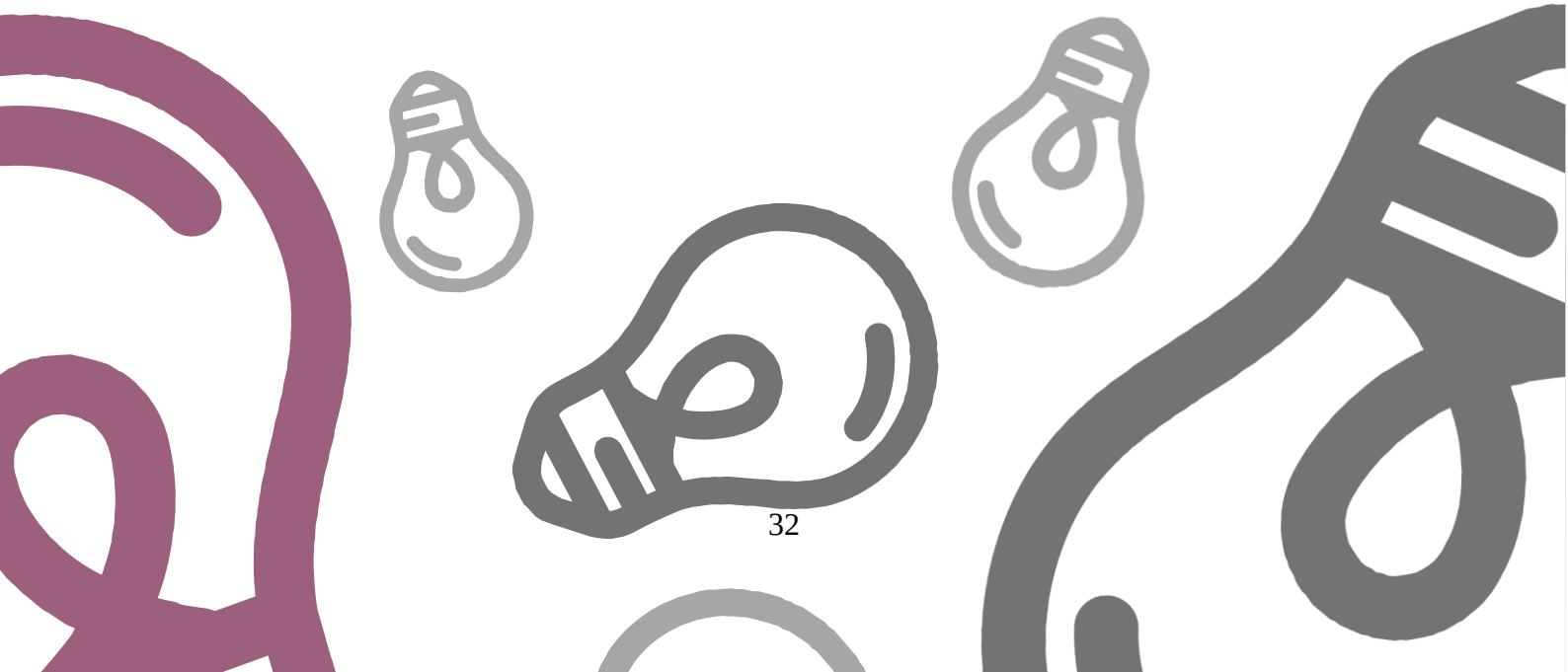
Table 2.1 Future research agenda

What has been done	What remains to be done / Research questions	Challenge
Prove the relationship between institutional dimensions and entrepreneurial activity	Are there mechanisms of bidirectional interaction between institutional dimensions and entrepreneurial activity?	Longitudinal research
	What is the causal mechanism that makes dimensions influence entrepreneurial activity?	Longitudinal research
	How to increase favorable institutional dimensions for the development of entrepreneurship?	Quasi-experimental analysis. Action research. Better links between academics and policymakers
	Analyze the role of institutional dimensions in the relationships between entrepreneurs and other stakeholders	Analyze the institutional dimensions to explain other phenomena
The dimensions that positively affect some type of entrepreneurship may not have the same effect in another type	Analysis to empirically compare the influence of institutional dimensions on different sectors	Get comparable data
Evaluation of different proxies to measure entrepreneurial activity at the same level	Research that adopts a multilevel analysis due to the nature of the institutional dimensions	Build a primary database at the individual level
Comparisons between different contexts, developed and developing economies considering available and non-specific proxies	Extended research to different contexts, differentiating developed and developing economies. Therefore, the analysis the particularities of each one	Get specific data from the normative and cultural-cognitive dimensions in different levels of development
Analysis of some parts of the ecosystem	Analyze the entrepreneurial ecosystem jointly in light of the institutional dimensions, understanding the actors (government, university, and industry) as players and the institutional dimensions as rules of the game	Collect data from different sources/levels
Consider the institutional dimensions as the factors that explain the entrepreneurial activity	Validate within the entrepreneurial ecosystem, whether the rules of the game correspond to institutional dimensions or other factors should be considered	Qualitative research

What has been done	What remains to be done / Research questions	Challenge
Relationship through multivariate analysis	Taking advantage of new methodologies, such as machine learning and big data, in order to understand the relationship between institutional dimensions and entrepreneurial activity, by analyzing information that has been obtained through international entrepreneurship projects, such as the Panel Study of Entrepreneurial Dynamics (PSED), Global Entrepreneurship Monitor (GEM) and Global University Entrepreneurial Spirit Student's Survey (GUESSS)	Access to big datasets
Identification of the institutional dimensions within the university environment	How can knowledge of the institutional dimensions be used in the training of entrepreneurs?	Integration of different theories
Analysis of the relationship between the institutional dimensions and the entrepreneurial activity without considering that each institutional dimension affects entrepreneurship in a different way	Which is the most important institutional dimension to explain entrepreneurial activity?	Several comparative studies (different contexts/ individuals) to find a pattern
Use of different proxies to measure the institutional dimensions, depending on the interests of each researcher.	Development and validation of scales to measure institutional dimensions, particularly normative and cultural-cognitive ones	Deepen understanding of institutional dimensions and the boundaries between them Time and resources to validate the scales
Analysis of the determinants of entrepreneurial activity from institutional economics theory	Is there a complementarity of institutional dimensions with other theories to better understand the determinants of entrepreneurship?	Integration of different theories

Chapter 3

Do Institutional Dimensions Matter in Different Stages of Entrepreneurship?



3. Do Institutional Dimensions Matter in Different Stages of Entrepreneurship? A Multi-country Study

3.1 Introduction

Chapter 2 discusses that institutional context influences the entrepreneurs differently across the entrepreneurial process since the particular needs through the distinct stages. In Chapter 3, we extend this discussion and provide empirical evidence.

The institutional context influences many individual decisions, such as what people aspire to be in the future, their social activities, and the political and economic relationships they have with others in their environments. Following Scott (1995), "institutions comprise regulative, normative and cultural–cognitive elements that, together with associated activities and resources provide stability and meaning to social life" (p.56). The entrepreneurship phenomenon is no stranger to this reality, and institutions—both those that support entrepreneurship and those that do not—influence decisions such as whether to create a new firm or to become an employee (Busenitz et al., 2000; Chowdhury et al., 2019; Urbano & Alvarez, 2014). New business creation is a process with different stages from the idea born until it grows, and the business is running. The institutional context influences all the process; however, the strength and the elements that influence it are different in each stage (Bergmann & Stephan, 2013).

Previous research has found that institutional conditions can explain variations in entrepreneurship rates between countries (Amorós, Ciravegna, Mandakovic, & Stenholm, 2019; Stenholm et al., 2013; Williams, Martinez-Perez, & Kedir, 2017). Despite the previous understanding, there are still limitations in the research conducted so far. Some of the aspects to be addressed are the interactions between institutions (Smallbone & Welter, 2012) and their influence on entrepreneurship in emerging and developed economies (Valdez & Richardson, 2013) while contemplating different stages of the entrepreneurial process (Dileo & García-Pereiro, 2019). In this sense, one of the main shortcomings found in the research is that when institutions' influence on entrepreneurial activity is analyzed, authors do not distinguish between the different entrepreneurship stages. Although this approach has been essential in demonstrating that institutions effectively influence entrepreneurship, it is a simplified vision; entrepreneurship is a dynamic process with multiple stages (Bergmann & Stephan, 2013; Dileo & García-Pereiro, 2019). Therefore, the institutional variables influencing entrepreneurship may be different in each stage. By considering the entrepreneurial process and the need to find the determinants of each stage, this research seeks to contribute to the development of studies that answer relevant questions for policymakers and do not go unused (Wiklund, Wright, & Zahra, 2019). Consequently, this study aims to analyze the role of institutional dimensions (regulative, normative, and cultural–cognitive) on the entrepreneurship process while considering the different stages.

Several theoretical contributions and policy implications result from this study. First, there is an explanation of the different mechanisms through which institutional dimensions influence entrepreneurship across the various stages of the entrepreneurial process. This explanation addresses broader perspectives regarding institutional dimensions and influences that are more specific depending on the entrepreneurial stage and across countries. Second, we contribute to understanding how institutional dimensions are interrelated between them, providing empirical evidence of this interaction and its effects in different new venture creation stages. Third, we inform policymakers of the need to develop programs targeted for each entrepreneurship stage from a policy formulation perspective. Also influence entrepreneurs' transition between stages: from potential entrepreneurship stage to nascent entrepreneurship, and up to the new entrepreneurship stage when the firm starts to generate incomes.

This chapter is organized as follows. After this introduction, we set the foundation of our theoretical argument and present our hypotheses regarding institutional dimensions at three different stages of the entrepreneurial process. In the subsequent section, we present the data, the variables, and the methodology applied to test our hypotheses, followed by our data analysis and discussion of the results. Finally, we discuss policy implications and present our conclusions.

3.2 Theoretical framework

Entrepreneurial activity and institutional dimensions

Specific studies such as Stenholm et al. (2013) have analyzed how differences in institutional dimensions influence both the rate and the type of entrepreneurial activity in a country. Valdez and Richardson (2013) explored the institutional determinants of macro-level entrepreneurship. For their part, Urbano and Alvarez (2014) examined the influence of institutional dimensions on the probability of becoming an entrepreneur. Further, Bosma et al. (2018) found that regulative and cultural–cognitive dimensions are the most important predictors of productive entrepreneurship.

Despite the evidence that institutional dimensions influence entrepreneurial activity, it is necessary to keep in mind that the decision to create a new company is not static. On the contrary, entrepreneurship is a dynamic process, and before becoming an entrepreneur, an individual must go through various stages in the process (van der Zwan, Thurik, & Grilo, 2010; van der Zwan, Verheul, & Thurik, 2012). This phenomenon starts with intention concept formation. Entrepreneurship does not end with firm creation or formalization and should be considered a process rather than an isolated, one-time event (Bergmann & Stephan, 2013; Galanakis & Giourka, 2017).

Different authors have developed the concept of the entrepreneurial process. Seminal studies, such as Shane and Venkataraman (2000), defined the general stages as discovery, evaluation, and exploitation

of opportunities. In more specific studies, Reynolds, Carter, Gartner, and Greene (2004) considered a detailed framework of the entrepreneurial process that comprised four main stages. In the first stage (conception), all individuals in the population are involved, and some might decide to start a business through a conceived idea (conception). Subsequently, the entrepreneur starts with activities to create a new firm (gestation); in this stage, the entrepreneur can do a variety of things: create an infant firm, be "still trying" to start up, put the effort "on hold" expecting to continue the process later, or abandon the start-up. The next stage is the generation of benefits for more than three months (birth). In the last stage, the new venture is at risk to survive (infancy); in this period, the firm could experience one of the following: growth, persistence and stable survival, or termination of its activities. For their part, van der Zwan et al. (2010) presented a five-stage model that describes the entrepreneurial decision as a process. The first stage includes people who never thought about starting a business; the second stage includes those who are thinking about it. The third stage includes people taking steps to start a business, and in the fourth stage, they are those operating a young business or one that was started in the last three years and still active. Finally, in the fifth stage, people started a business more than three years ago that is still active.

Similarly, Galanakis and Giourka (2017) considered four steps in the overall entrepreneurial process. The first step is entrepreneurship intentions, and the second involves the transformation of those intentions into a venture idea. The third step in the path refers to the creation of the idea, followed by the fourth step, which is venture growth. Since this model does not consider those who have never considered starting a new firm, it differs from the van der Zwan et al. (2010) model. Overall, in the studies that consider entrepreneurship as a process, there are three critical stages. First, when the entrepreneur has the intention to create a new business, the individual passes from intention to action through some initial activities, and finally, when the entrepreneur has managed to establish a new firm in the short term.

Although the literature shows entrepreneurship as a process, the evaluations of entrepreneurship determinants are carried out in specific stages without delving into the differentiated effects. Similarly, there is an essential lack of studies distinguishing the effects of institutional dimensions on the different entrepreneurship stages. Thus, it is important to investigate which institutions influence the different stages of venture creation. In this research, we build on prior theoretical advances and consider the most important stages of the entrepreneurial process identified in the literature—from intention to new entrepreneurship—and analyze them in the light of the institutional dimensions. The first stage refers to individuals that expect to start a business in the future; the second considers individuals who engage in activities to open their new firm, and the third stage considers individuals who have already managed to launch their new business.

Potential entrepreneurship and institutional dimensions

The first stage of the entrepreneurial process is potential entrepreneurship. In this stage, the environment reveals entrepreneurial opportunities. The context can stimulate an individual's curiosity for entrepreneurship, mainly if the society support entrepreneurship. Krueger, Reilly, and Carsrud (2000) stated that the intention to start a business is influenced by the expectations and beliefs of a reference group (social culture). If society accepts entrepreneurship, then its effect on intentions is positive. Consequently, entrepreneurial intention can be considered an approximation of the potential stage in which an individual tries to start a new firm.

Current empirical evidence shows mixed or non-conclusive results regarding the role social norms have in entrepreneurship. For example, the social recognition of entrepreneurial accomplishment is associated with a country's entrepreneurial activity rate (Urbano & Alvarez, 2014). Besides, Galanakis and Giourka (2017) showed that in the stages of ideation and intention, the socio-economic context affects the individual, mainly because it provides opportunities or needs that entrepreneurs could convert into valuable products or services through business activity. If the subjective norms consider the creation of new companies desirable in society, then this is reinforced.

Some studies corroborate that the ability of nascent ventures and small firms to access finance is hindered by persistent market failure, which creates funding gaps for new businesses, particularly in technology sectors, seeking small amounts of finance (Martins, Romaní, & Atienza, 2021). Conversely, in other studies, it has been found that the regulative dimension has no significant influence in the first stages of the creation of a new firm. For instance, Kim, Aldrich, and Keister (2006) reported that financial capital resources do not influence entrepreneurial entry. Valdez and Richardson (2013) found similar results. The authors show how government regulations measured through the economic freedom index do not influence new business creation. In contrast, they found a positive influence of the normative and cultural-cognitive dimensions on entrepreneurial activity.

The cultural and social environment affects the intentions that result in an entrepreneurial career choice (Shapero & Sokol, 1982). When individuals make decisions concerning their employment, they consider the objective economic aspects and the subjective ones. The perception of the local entrepreneurial environment can influence an individual's decision to start a new firm, particularly in the first stages of the start-up process (Mueller, 2006). Moreover, Uhlaner and Thurik (2007) demonstrated that in contrast to either nascent entrepreneurship or new businesses, cultural values predict new business formation. Manolova et al. (2008) propose that the supportive normative dimension may help individuals in emerging economies overcome legal systems that lagged in responding to the entrepreneurial necessities.

When choosing a career, the social norms favoring entrepreneurship are the most critical forces reflected through professional and family connections. Since entrepreneurs are immersed in their local business environment, an individual is more likely to see this option as a desirable career choice if entrepreneurship is a career that provides status in society (Mueller, 2006). Thus, informal institutions shape the social groups' perceptions from which entrepreneurship arises. Therefore, we suggest the following hypothesis:

> **Hypothesis 1:** The normative dimension will positively influence potential entrepreneurship stage.

Nascent entrepreneurship and institutional dimensions

In the nascent entrepreneurship stage, an individual moves from conception to action and initiates activities to launch the new firm. In this stage, the role of individual perception is crucial for firm development. The individual's cognitive processes have an indispensable role in gathering, transforming, and interpreting information from the environment to determine the course of action (Baron, 2004).

Consequently, it is necessary to consider the entrepreneur's role as he or she interprets environmental information in determining whether to create a company (Busenitz & Lau, 1996). The cultural-cognitive viewpoint may be a useful tool in probing and explaining these previously unexplained phenomena within the entrepreneurship research domain (Mitchell et al., 2002). Studies confirm that an entrepreneur's positive subjective meanings (cognitions) arise to face the environment's difficulties, such as the de-legitimization of entrepreneurship in the social environment or regulation obstacles (Lang et al., 2014).

Davidsson and Honig (2003) found that individual aspects representing both tacit and explicit knowledge (years of education, years of work experience, previous start-up experience) increase the probability of entering nascent entrepreneurship. Furthermore, related variables, such as work and previous self-employment, explain the probability of being a nascent entrepreneur and can have a more significant influence than formal education (Mueller, 2006). However, Parker and Belghitar (2006) reported different results regarding the education variable. These authors found that nascent entrepreneurs with post-high school studies are less likely to leave their start-up than entrepreneurs with less education. Besides, Brinckmann and Kim (2015) found that advanced academic education increases the likelihood that nascent entrepreneurs develop business planning activities and create more formal business plans.

As we found in the empirical evidence, entrepreneurs' previous experience and knowledge facilitate the process of creating a new venture; therefore, their perceptions about their abilities are more optimistic.

In this regard, Arenius and Minniti (2005) showed that nascent entrepreneurship is highly correlated with perceptual variables such as one's skills, the existence of opportunities, and the fear of failure.

Moreover, the fear of failure variable has been considered in other studies with interesting results. Kollmann, Stöckmann, and Kensbock (2017) found that the fear of failure is an essential factor in understanding an individual's decision to continue or cease the entrepreneurial process. From their perspective, the fear of failure is not a "fixed trait"; instead, they adopt an integrative approach, using a social cognitive perspective and the fear of failure. In this case, the fear of failure considers the individual's reactions to the environment, which gives this concept an explanatory power beyond the traditional perspective (Kollmann et al., 2017). This cognitive aspect plays a vital role in people's perception of the feasibility and desirability of starting a new company (Kollmann et al., 2017). The perception of their entrepreneurial abilities is crucial for nascent entrepreneurs (Arenius & Minniti, 2005). For example, empirical evidence shows that entrepreneurs who perceive they can carry out the required tasks are more likely to engage in business planning activities; further, these activities decrease their perceptions of environmental uncertainty and increase their perceived self-efficacy (Brinckmann & Kim, 2015; McCann & Vroom, 2015). In this context, we posit the following hypothesis:

> **Hypothesis 2:** The cultural–cognitive dimension will positively influence the nascent entrepreneurship stage.

New entrepreneurship and institutional dimensions

For a new firm, formalization is integral in maintaining its legitimacy and decreasing the probability of failure (Williams et al., 2017). When entrepreneurs start a business, they must decide to stay in the market and formalize their new firm. However, at this stage, the costs and procedures involved in the formalization become a barrier for entrepreneurs, and, subsequently, some decide to enter the informal economy (Webb, Tihanyi, Ireland, & Sirmon, 2009). Thus, an inadequate legal infrastructure such as barriers to market entry, gaps in the law implementation, and corruption restrict entrepreneurship development (Smallbone & Welter, 2012; Welter & Smallbone, 2011), particularly for new entrepreneurs. The regulatory environment may positively influence growth because of the incentives supplied to new businesses (Agostino, Nifo, Trivieri, & Vecchione, 2020).

One method through which formal institutions can support or hinder the transition from the nascent to the operational stage of entrepreneurship involves access to financial capital (Bergmann & Stephan, 2013; Parker & Belghitar, 2006). Alvarez, Urbano, and Amorós (2014) found that one of the proxies of formal institutions influencing entrepreneurial activity is access to financial resources. Nevertheless, finance issues are less relevant for nascent entrepreneurs (Kim, Aldrich, & Keister, 2006; Mueller, 2006). Galanakis and Giourka (2017) found that formal institutions, such as a supportive financial system that helps new ventures avoid falling into "Death Valley," are essential in the active and growing venture stage. Consequently, although these variables are less important in entrepreneurship's first

stages, they are more important in the exploitation and new stage. The support of formal institutions is an essential factor in the decision to continue or close a firm. Stenholm et al. (2013) showed that access to capital influences high-impact new firms and their success.

Nyström (2008) found that greater access to credit, a better legal structure, a small government sector, and security of property rights positively influence entrepreneurship. Similarly, Stenholm et al. (2013) described the negative influence of administrative barriers, procedures, and government processes related to founding or closing a firm on new firm formation. However, the factors mentioned above related to financing, formalization, property rights, and the ease of doing business are more related to running a new firm and less related to conceiving an idea or operating a new venture in its first months of creation (Galanakis & Giourka, 2017). In the stage of new firm formalization, an entrepreneur must pay more attention to regulations. Hence, we propose the following hypothesis:

> **Hypothesis 3:** The regulative dimension will positively influence the new entrepreneurship stage.

Interactions between institutional dimensions and the entrepreneurial process

Scott (1995) provided the following advice: "Rules, norms, and meanings arise in interaction." In this study, we have highlighted the importance of those interactions and their influence on entrepreneurial activity. Although the literature on the subject is scarce, we found support in prior studies that consider some of the institutional dimensions' proxies and their influence on entrepreneurship.

For potential and nascent entrepreneurs, Bello, Mattana, and Loi (2018) showed that social context, or the individual's relationship with peers or family that encourage entrepreneurship (in our theoretical framework, the normative dimension), mediates the relationship between creativity and individual perceptions and the first stages of entrepreneurship. Specifically, role models (positive examples of close friends or family members who are entrepreneurs) lead an individual to consider starting a new firm. Empirical evidence shows the significant effect of role models on the first stages of the entrepreneurial process in a specific rural context (Lafuente, Vaillant, & Rialp, 2007).

Those analyses showed that entrepreneurial cognition is not entirely independent; it is influenced by social context, values, culture, and individual or personal differences (Busenitz & Lau, 1996). For instance, Manolova et al. (2008) highlight how the normative dimension contributes to overcoming unfavorable regulatory and cognitive environments in an emerging economy like Latvia. In this regard, Valdez and Richardson (2013) show that normative institutions shape the cognitive dimension of individuals, leading to the assumption that cognition can be shared in a society. This result follows recent research that observed normative institutions influence entrepreneurship but always in conjunction with cultural–cognitive or regulative dimensions (Steinz et al., 2016). Thus, we anticipate

that in the potential and nascent stages, personal characteristics influence entrepreneurship without losing sight of the effect of the normative dimension.

Another proxy of the cultural–cognitive dimension is the fear of failure. Kollmann et al. (2017) showed that the fear of failure is interrelated with other social aspects, including the perception of support for entrepreneurship in society (normative dimension) and other formal dimensions, such as access to financial resources. Also, Webb, Tihanyi, Ireland, and Sirmon (2009) argued that in the informal economy, support for an entrepreneur by a group's collective identity strengthens the relationship between the first stages of the entrepreneurial process and opportunity exploitation. Comparably, Davidsson and Honig (2003) showed that having parents or close friends participating in entrepreneurial activities and encouraging close networks increases the probability of an individual becoming a nascent entrepreneur. Such role models are a relevant stimulus for nascent entrepreneurs; however, once individuals have reached their decision, the social entrepreneurial environment becomes less important (Mueller, 2006).

As previously explained, the regulative dimension plays a critical role in the new entrepreneurship stage, since an entrepreneur will start to care more about the regulation such as procedures, facilities to access credit, legislation on salary charges once the idea is launched. However, focusing only on formal institutional constraints ignores the role played by the cognitive and normative dimensions at this stage (North, 1990; Scott, 1995). Namely, despite formal difficulties in starting a new business, people continue to launch new businesses because their decisions also depend on other cognitive factors that reflect the values of the individuals, their perception of the environment, the allocation of resources, and their priorities in life (Davidsson & Honig, 2003). For instance, Agostino et al. (2020) argue that regulatory quality is less relevant to entrepreneurship in crisis times. In those scenarios, human capital, education, the propensity to innovate play a more critical role in determining new business creation.

Davidsson and Honig (2003) examined the determinants of entrepreneurship in the exploitation stage, in this study indicates new entrepreneurship. They found no relationship between this stage and variables related to the social environment of the individual as measured by parents entrepreneurs, encouragement by friends or family, contact with an assistance agency, and being a member of a start-up team. However, there is a relationship between new entrepreneurship and the variable "being a member of a business network."

Lafuente et al. (2007) found that self-confidence in entrepreneurial skills significantly influences the last stages of entrepreneurial activity. However, the effect of this factor is more significant in nascent entrepreneurship. Galanakis and Giourka (2017) found other individual factors related to professional education and personal abilities, such as hard work, persistence, open-mindedness, confidence, and ambition, are essential to entrepreneurial success and the maintenance of a new firm in the market. Grichnik, Smeja, and Welpe (2010) evaluated other cognitive aspects, such as emotions, and found that

positive emotions positively affect opportunity evaluation and conversely, negatively affect exploitation. In comparison, negative emotions negatively influence both opportunity entrepreneurship and exploitation.

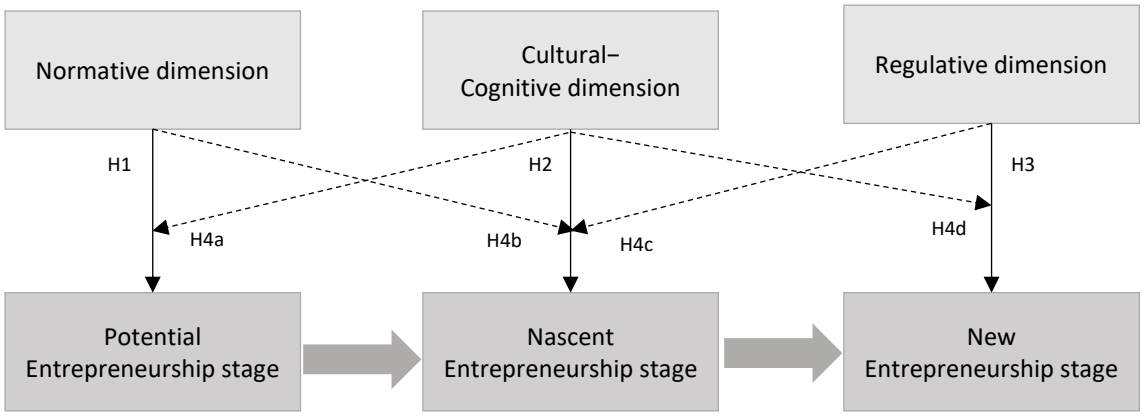
Researchers have highlighted the importance of government support programs that help nascent entrepreneurs move from nascent entrepreneurship to the establishment stage (Parker & Belghitar, 2006). Consequently, policy intervention and regulations that support entrepreneurship should include not only improvements in environmental conditions but also education on individual characteristics such as entrepreneurial skills (Verheul, Wennekers, Audretsch, & Thurik, 2002).

Considering the interactions of the institutions in prior literature, we propose the following hypotheses:

> **Hypothesis 4a:** The influence of the normative dimension on potential entrepreneurship is stronger when the cultural-cognitive dimension is higher.
>
> **Hypothesis 4b:** The influence of the cultural-cognitive dimension on nascent entrepreneurship is stronger when the normative dimension is higher.
>
> **Hypothesis 4c:** The influence of the cultural-cognitive dimension on nascent entrepreneurship is stronger when the regulative dimension is higher.
>
> **Hypothesis 4d:** The influence of the regulative dimension on new entrepreneurship is stronger when the cultural–cognitive dimension is higher.

In summary, Figure 3.1 presents the elements and relationships integrating the entrepreneurial model proposed in this study as well as the related hypotheses.

Figure 3.1 Entrepreneurial process and institutional dimensions



3.3 Methodology

Data and sample

The data used for the analysis are collected from different sources. The information of dependent variables and the proxies of normative and cultural–cognitive dimensions are collected from the Adult Population Survey developed by Global Entrepreneurship Monitor (GEM). The proxies for the regulative dimension are obtained from the Index of Economic Freedom. Finally, the control variables are obtained from the World Economic Forum and the International Monetary Fund. Table 3.1 presents the list of dependent and independent variables used in this research, including their sources.

Table 3.1 Definitions of Variables

	Variable	Description	Database
Dependent variables	Potential entrepreneurship stage	Percentage of 18–64 population (individuals involved in any stage of entrepreneurial activity excluded) who intend to start a business within three years.	GEM 2001–2017
	Nascent entrepreneurship stage	Percentage of 18–64 population who are actively involved in setting up a business they will own or co-own; this business has not paid salaries, wages, or any other payments to the owners for more than three months.	GEM 2001–2017
	New entrepreneurship stage	Percentage of 18–64 population who own and manage a running business that has paid salaries, wages, or any other payments to the owners for more than three months, but not more than 42 months.	GEM 2001–2017
Normative dimension	Equalitarianism	Percentage of people in a country that prefer equal standard of living for all.	GEM 2001–2007
	Entrepreneurial career	Percentage of people in a country that consider starting a business as a good career choice.	
	Entrepreneurial status	Percentage of people in a country that attach high status to successful entrepreneurs.	
	Media attention	Percentage of people that consider that there is lots of media attention for entrepreneurship in that country.	
Cultural–cognitive dimension	Opportunity	Percentage of people that agreed with the statement "There are good conditions to start a business in the next six months."	GEM 2001–2017
	Skills	Percentage of people that agreed with the statement "You have the knowledge, skill, and experience required to start a new business."	
	Fear of failure	Percentage of people that agreed with the statement "Fear of failure would prevent starting a business."	
	Knowing an entrepreneur	Percentage of people that agreed with the statement "You know someone personally who started a business in the past two years."	
Regulative dimension	Rule of law	Property rights	Heritage Foundation–Index of Economic Freedom 2001–2017
	Limited government	Fiscal freedom	
	Regulatory efficiency	Business freedom	
	Open markets	Investment freedom	

	Variable	Description	Database
Control variables	Per capita income	Natural logarithm of gross domestic product at purchasing power parity per capita, constant prices (U.S. dollars).	International Monetary Fund (IMF), World Economic Outlook Database 2001–2017
	Level of development	Classification of countries into three levels of development: 1. Factor-driven 2. Efficiency-driven 3. Innovation-driven	Global Competitiveness Report - World Economic Forum 2001–2017

Regarding the sample, we collected country-level information from each source for 11 years, between 2001 and 2017. The final sample consists of an unbalanced panel with data from 673 observations in 107 countries. The sample comprises countries from different regions of the world. The final sample distribution does not necessarily correspond to the number of countries per region because some countries do not have data for all years. The distribution is shown below: 47% of the observations are from Europe (38 countries); 18% from South America, Central America, and the Caribbean (19 countries); 16% from the Asia-Pacific (18 countries); 8% from the Middle East and North Africa (15 countries); 6% from Sub-Saharan Africa (14 countries); and 5% are from North America (3 countries).

Measures

Dependent variables

This study considers three stages in the entrepreneurial process, which are the dependent variables. The first measure is the potential entrepreneurship stage, referring to the percentage of the population that intends to start a business within three years. The second measure is the nascent entrepreneurship stage, consisting of the percentage of the population that is actively involved in setting up a business (owned or co-owned); however, this business has not produced salaries or other financial benefits to the owners for more than three months. Finally, the third measure is the new entrepreneurship stage, or the percentage of the population managing a business with paid salaries or financial benefits to the owners for three months to 3.5 years.

Independent variables

The institutional dimensions (normative, cultural–cognitive, and regulative) are the explanatory variables in this model. These dimensions are not easy to measure, mainly because they are not directly observable. For this reason, the study uses proxies to operationalize these constructs. Table 3.1 presents these measures, and each dimension is explained below.

Normative dimension. This dimension refers to the evaluation that people in society attach to entrepreneurship. There are four proxies for this dimension. The first proxy, equalitarianism, is the percentage of people in a country who believe that people should have different income levels.

Entrepreneurial career incorporates information about the percentage of people in a country that considers entrepreneurship a good career choice. Conversely, we consider entrepreneurial status as the percentage of people who attach high status to entrepreneurs. Finally, to operationalize this dimension, we consider entrepreneurial media attention, measured by the percentage of people who consider considerable media attention for entrepreneurship in their countries (Okruhlica & Holienka, 2018; Yousafzai et al., 2015).

Cultural–cognitive dimension**.** This dimension refers to the individual's perceived opportunities and capabilities to start a new venture, that is, the factors concerning the ease or difficulty in becoming an entrepreneur. This measure incorporates information concerning opportunities, referring to the percentage of people in a country who considers that exist good possibilities to initiate a new firm. Conversely, we operationalize this construct with the variable skills, referring to the percentage of people that believe they have the knowledge, skill, and experience required to start a new business. Fear of failure is the other proxy, which is the percentage of people that think that the fear of failure would prevent them from starting a new firm. Finally, the role model variable refers to the percentage of people that affirms knowing someone personally who has started a business in the past two years (Stenholm et al., 2013; Urbano & Alvarez, 2014; Valdez & Richardson, 2013).

Regulative dimension**.** To operationalize this dimension, we consider the Heritage Foundation indicators; in particular, we use the indicators of four components. The first is property rights, which refers to the legal conditions to accumulate private property with security and clear laws. The second component is fiscal freedom, measuring the level of public debt associated with poor government budget management. The third component is business freedom, which measures the extent of the regulatory and infrastructure environments relating to businesses' efficient operation in a country and thus reflects the ease of starting, operating, and closing a business. This score is a number between 0 and 100, with 100 indicating the most unrestrained business environment. The final variable to operationalize in the regulative dimension is investment freedom. It evaluates the different regulatory restrictions imposed on the country's investments; in a country with no restrictions on moving monetary resources, this score is 100 (Okruhlica & Holienka, 2018; Valdez & Richardson, 2013; Yousafzai et al., 2015).

Control variables

For robustness checks, we use income per capita and development level to classify the countries because the levels of income and development in a country are critical factors in explaining entrepreneurial activity. On the one hand, to measure the country's income, we use the natural logarithm of the GDP at PPP per capita in constant (U.S. dollar) prices. On the other hand, to group the countries by the development level, we use the classifications of the different stages of development from the World Economic Forum–Global Competitiveness Report, categorizing countries into three different stages as

follows. The first category includes “factor-driven” economies, where a country competes primarily on the use of unskilled labor and natural resources, and companies compete based on price as they buy and sell primary products or commodities. The second category includes “efficiency-driven” economies, where growth is based on the development of more efficient production processes and increased product quality. The third category includes “innovation-driven” economies, where companies compete by producing and delivering new and different products and services through sophisticated processes.

Analysis

To comply with the proposed objective, we use a panel-data model to control each country’s specific characteristics and unobservable effects. Not all countries have data for each year; therefore, an unbalanced panel analysis was developed. We combine and compare variables from each construct to analyze the interactions between the institutional dimensions. Initially, we run a pooled regression, calculating the ordinary least squares regression, which does not consider time and space dimensions. Later, to verify the choice of model, we estimate random and fixed effects models and use the Hausman specification test. This test shows if the difference in coefficients is systematic or not; a fixed-effects model considers that certain variables are constant over time for each country. Conversely, a random-effects model considers that each cross-sectional unit (country) has a different constant. After the Hausman specification test for each model, the result is significant ($p < 0.001$), indicating that the fixed effects approach is more consistent than random effects in all the cases.

Although we considered the temporal and spatial heterogeneity in our model, the panel data structure sometimes violates some assumptions regarding ordinary least squares estimators. In our sample, each country’s error terms could be correlated between them (contemporary correlation), or the errors within the country could be correlated (autocorrelation or serial correlation).

We conduct the Wooldridge test of autocorrelation (Wooldridge, 2002) for each stage of the entrepreneurial process model, with a null hypothesis H0: no first-order autocorrelation. We reject H0 for the potential entrepreneurship model (probability > F = 0.0014) at 99% confidence and reject H0 for the new entrepreneurship model (probability > F = 0.0587) at 90% confidence; in the case of nascent entrepreneurship (probability > F = 0.1201), we cannot reject the null hypothesis. These results indicate that our models have serial autocorrelation problems in two of the three models.

Next, to prove whether the variance of the error of each country is constant or not, we conduct the modified Wald test for groupwise heteroscedasticity in the fixed effects regression model. The null hypothesis of this test is H0: a heteroscedasticity problem does not exist. Following the results, we reject H0 for the three models at 99% confidence: the potential entrepreneurship model (probability > χ^2 = 0.000), the nascent entrepreneurship model (probability > χ^2 = 0.000), and the new entrepreneurship

model (probability > χ^2 = 0.000). These results indicate that we reject the null hypothesis H0 of constant variance and accept the alternative hypothesis of heteroscedasticity in the models.

We fit the panel-data linear models using feasible generalized least squares (FGLS) to correct the detected problems of serial correlation and heteroscedasticity. We are aware that FGLS estimation does not consider fixed effects; in this order, we insert the dichotomizing variables of each country and each year. The tables do not present these dummy variables estimations.

3.4 Results

Table 3.2 reports the observations, means, and standard deviations, as well as the correlation matrix with the correlation coefficients of the variables used in this study. Differences between the different stages of entrepreneurship among the different levels of development are evident. Factor-driven countries have a mean of 42% of potential entrepreneurship, whereas efficiency- and innovation-driven countries have a mean of 25% and 12%, respectively. This tendency continues in the other two stages of entrepreneurship, although there are fewer entrepreneurs developed at each successive stage.

Table 3.3 shows the fixed effects estimation results considering the initial model and the models with the moderation relationships. The different models present the coefficients of institutional dimensions' influence at the three stages: potential entrepreneurship, nascent entrepreneurship, and new entrepreneurship, respectively. In general, the results show that the three institutional dimensions (regulative, normative, and cultural–cognitive) influence the entrepreneurial activity in all the different stages of entrepreneurship analyzed.

The first model analyzes the influences of the regulative dimension (the rule of law, limited government, regulatory efficiency, open markets), the normative dimension (entrepreneurial career, entrepreneurial status, media attention), and cultural–cognitive dimension (the fear of failure, knowing entrepreneur, skills) in the first stage of the entrepreneurial process. The results indicate that open markets, fear of failure, skills, opportunity, equalitarianism, and entrepreneurial career are statistically significant and show the expected sign. The other variables are not statistically significant to explain the dependent variable.

Table 3.2 Descriptive Statistics and Correlation Matrix

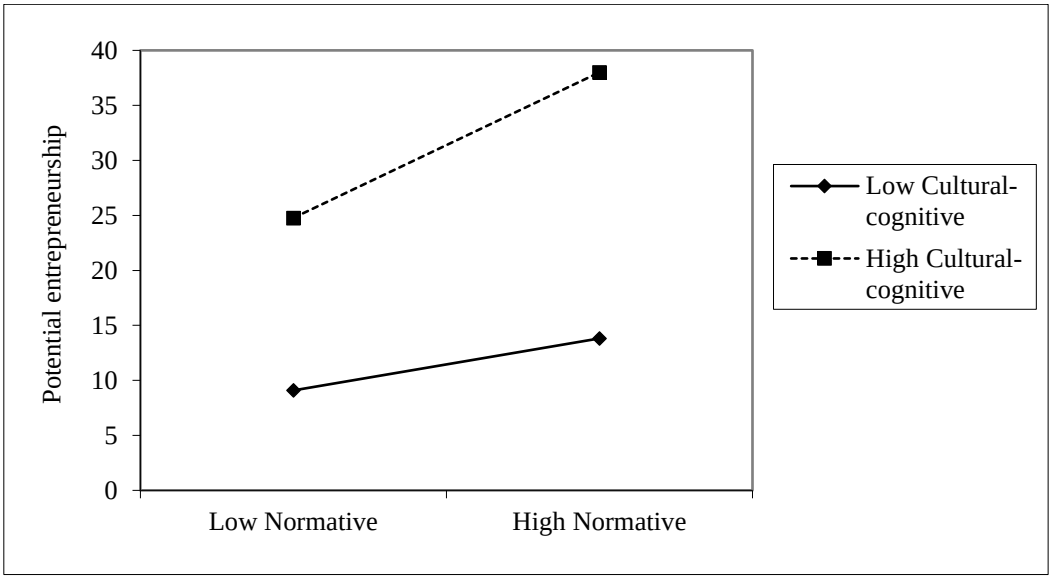
Variable	Factor-driven Countries			Efficiency-driven Countries			Innovation-driven Countries		
	Observations	Mean	Std. Dev.	Observations	Mean	Std. Dev.	Observations	Mean	Std. Dev.
Potential entrepreneurship	101	42.25	18.15	331	25.95	14.00	367	12.14	7.71
Nascent entrepreneurship	102	11.32	6.81	339	7.51	4.93	388	4.32	2.14
New entrepreneurship	102	10.13	6.30	339	5.81	3.61	388	3.18	1.50
Rule of law	102	32.32	14.96	337	46.04	17.97	388	79.96	13.74
Limited government	101	80.64	6.29	337	78.09	7.33	388	61.46	14.41
Regulatory efficiency	101	59.31	11.50	337	67.30	10.18	388	82.68	9.97
Open markets	102	40.88	20.41	337	58.18	17.99	388	74.73	13.79
Fear of failure	102	31.40	11.48	339	34.65	12.09	388	35.45	15.49
Knowing entrepreneur	102	51.87	15.69	339	38.58	13.97	388	31.43	14.35
Skills	102	65.60	16.46	339	49.85	18.43	388	37.06	16.60
Opportunity	102	55.11	16.94	339	38.57	16.65	388	32.11	18.69
Equalitarianism	92	60.52	13.01	299	64.69	13.87	308	62.86	11.26
Entrepreneurial career	92	74.17	11.77	304	68.88	11.65	324	57.46	11.89
Entrepreneurial status	92	77.21	10.54	305	67.98	10.80	326	68.69	9.54
Entrepreneurial media attention	92	73.50	69.31	305	61.68	14.65	322	57.71	13.28
Per capita income	101	8.70	0.84	337	9.60	0.39	387	10.59	0.28
Number of countries	22			43			34		

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Potential entrepreneurship	1															
2	Nascent entrepreneurship	0.70*	1														
3	New entrepreneurship	0.71*	0.59*	1													
4	Rule of law	−0.50*	−0.32	−0.40*	1												
5	Limited government	0.47*	0.34*	0.35*	−0.51*	1											
6	Regulatory efficiency	−0.45*	−0.34*	−0.44*	0.70*	−0.34*	1										
7	Open markets	−0.34*	−0.19*	−0.33*	0.71*	−0.35*	0.58*	1									
8	Fear of failure	−0.04	−0.14*	−0.08^{+}	−0.08^{+}	0.08^{+}	0.08^{+}	0.03	1								
9	Knowing entrepreneur	0.53*	0.35*	0.45*	−0.35*	0.29*	−0.27*	−0.28*	0.37*	1							
10	Skills	0.71*	0.53*	0.52*	−0.41*	0.37*	−0.32*	−0.21*	0.31*	0.75*	1						
11	Opportunity	0.59*	0.48*	0.48*	−0.19*	0.20*	−0.15*	−0.12*	0.21*	0.71*	0.75*	1					
12	Equalitarianism	0.08^{+}	0.03	0.09^{+}	−0.02	0.08^{+}	0.00	0.08^{+}	0.11*	0.00	0.23*	0.00	1				
13	Entrepreneurial career	0.56*	0.35*	0.49*	−0.47*	0.29*	−0.41*	−0.29*	−0.13*	0.29*	0.57*	0.40*	0.31*	1			
14	Entrepreneurial status	0.33*	0.15*	0.33*	−0.09*	0.12*	−0.05	−0.15*	−0.06	0.31*	0.33*	0.40*	0.17*	0.40*	1		
15	Media attention	0.21*	0.23*	0.22*	−0.11*	0.18*	−0.12*	−0.18*	−0.12*	0.25*	0.15*	0.29*	0.06	0.15*	0.19*	1	
16	Per capita income	−0.62*	−0.48*	−0.62*	0.71*	−0.42*	0.66*	0.49*	0.12*	−0.38*	−0.44*	−0.30*	−0.04	−0.51*	−0.20*	−0.17*	1

Significance: $^{+}p < 0.05$, * $p < 0.01$

According to the results, the normative dimension supports the first stage of the entrepreneurial process more than in the other two stages. The variable that measures whether entrepreneurship is considered a good career option (β = 0.089, p < 0.1) has the expected sign. The level of significance and the coefficients of this variable are as expected and support H1. When the interaction effects are added to the model, the coefficient of this variable is greater and statistically significant (β = 0.221, p < 0.05). As shown in Figure 3.2, this supports H4a, which states the cultural–cognitive dimension strengthens the positive relationship between the normative dimension and the nascent entrepreneurship stage. Regarding media attention, the coefficient has an unexpected sign and is statistically significant. Although this variable influences the other two stages in the entrepreneurial process, the coefficient shows a stronger relationship in the potential entrepreneurship stage than the other models and is greater in the models with moderation effects (β = −0.098, p < 0.05). These results regarding the first stage of the entrepreneurial process support H1 and H4a. In addition, the cultural–cognitive dimension measured by fear of failure appears to have the expected negative slope (β = −0.081, p < 0.1). By contrast, this variable does not affect the other entrepreneurship stages. In addition, the moderation relationship strengthens the effect regarding this variable (β = −0.090, p < 0.1). Considering the results, the most important variable to explain the first stage in the entrepreneurial process is skills, which has the expected slope and a higher coefficient in the main effects model (β = 0.297, p < 0.01) and in the moderation model (β = 1.061, p < 0.01).

Figure 3.2 Moderation effect of cultural–cognitive dimension on potential entrepreneurship stage



The second model analyzes the influence of the regulative, normative, and cultural–cognitive dimensions on the nascent entrepreneurship stage. H2 is supported by the coefficients and the significance of two of the variables used to operationalize the cultural–cognitive dimension: skills (β = 0.105, p < 0.01) and opportunity (β = 0.035, p < 0.01). Similarly, two of the variables used to operationalize the normative dimensions are statistically significant to explaining the nascent

entrepreneurship: media attention has a positive expected slope ($\beta = 0.015$, $p < 0.01$), indicating that if the percentage of people who thinks there is a lot of media attention for entrepreneurs increases, then the percentage of nascent entrepreneurs increases in the country. However, with the moderation effect, this variable loses its significance. Conversely, the variable of equalitarianism ($\beta = -0.044$, $p < 0.01$) has a negative sign. This result means that if the percentage of people who prefer an equal standard of living increases, then the percentage of nascent entrepreneurs decreases. Thus, the results show a higher probability of entrepreneurship in societies looking for individual interests than in the more collectivist societies. This situation has a special effect on the nascent entrepreneurship stage. The results support H4b and H4c, which propose that the normative and regulative dimensions, respectively, strengthen the positive relationship between the cultural–cognitive dimension and nascent entrepreneurship. For the variable skills, the coefficient without interaction ($\beta = 0.105$, $p < 0.01$) has a statistically significant change compared to the same coefficient in the moderation model ($\beta = 0.434$, $p < 0.01$), as shown in Figure 3.3 and Figure 3.4.

Figure 3.3 Moderation effect of normative dimension on nascent entrepreneurship stage

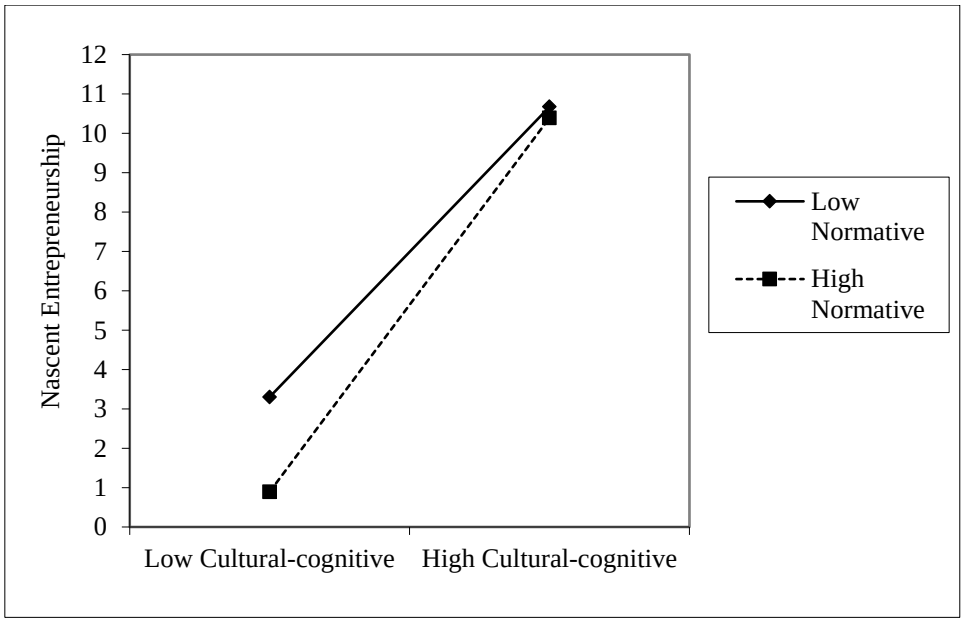
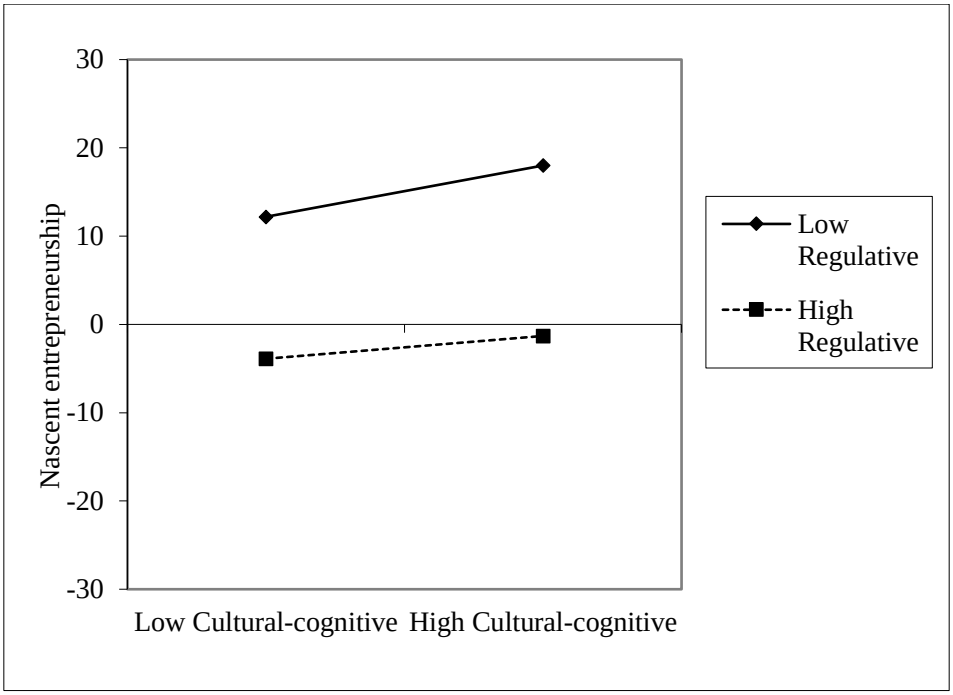


Figure 3.4 Moderation effect of regulative dimension in nascent entrepreneurship stage



Finally, the results regarding the third model support H3. Regulatory efficiency ($\beta = -0.026$, $p < 0.05$) has a significant relationship and the expected sign in explaining new entrepreneurship. This variable refers to the procedures to formalize a business, and this regulative constraint has a negative effect on entrepreneurship, following previous studies. Compared to the other two models, regulatory efficiency only has a statistically significant effect in the last stage of the entrepreneurial process.

However, when the moderation effects are added to the model, these variables lose significance in the new entrepreneurship stage and gain significance in the other two stages. Furthermore, as mentioned previously, the cultural–cognitive dimension also plays an important role in this stage. The variable skills ($\beta = 0.078$, $p < 0.01$) has positive and statistically significant coefficients that explain the new entrepreneurship stage. Furthermore, among all the statistically significant variables in explaining the dependent variable in the third model, the proxy for skills is the most important. H4d predicted that the cultural–cognitive dimension strengthens the relationship between the regulative dimension and the new entrepreneurship stage. Thus, as shown in Figure 3.5, H4d is supported. The coefficient for interaction between the regulative dimension and cultural–cognitive dimension is significant ($\beta = -0.130$, $p < 0.05$) and the variable skills increases the coefficient in the moderation model ($\beta = 0.140$, $p < 0.05$). Finally, media attention ($\beta = -0.014$, $p < 0.01$) also has a negative and statistically significant effect in the new entrepreneurship stage.

Figure 3.5 Moderation effect of cultural−cognitive dimension in new entrepreneurship stage

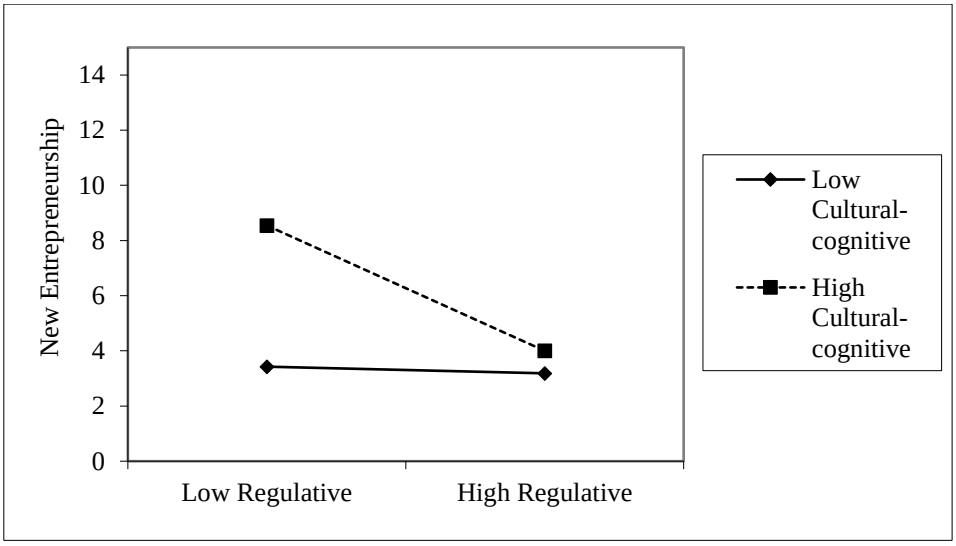


Table 3.3 shows that in most models, the level of income has the most important effect in explaining the different entrepreneurship stages. For robustness checks, we control the models considering countries' classification by the development level, results in Table 3.4. In this regard, the results confirm that institutional dimensions have different influences on the stages of entrepreneurship and that the level of development in a country plays an important role.

As observed in Table 3.4, in factor-driven countries, the three different institutional dimensions influence entrepreneurship in the first stage (the potential entrepreneurship stage). Most of the proxies have a significant effect and the expected slope coefficients. However, there are differences between the levels of development.

Table 3.3 Institutional Dimensions and the Entrepreneurial Process: Moderation Effects

	Variables	(1) Potential	(2) Nascent	(3) New	(4) Potential	(5) Nascent	(6) New
Regulative dimension	Rule of law	−0.01	−0.003	−0.005	0.006	0.002	−0.001
		(0.048)	(0.017)	(0.012)	(0.048)	(0.017)	(0.012)
	Limited government	−0.062	−0.022	−0.032	−0.068	−0.026	−0.029
		(0.083)	(0.028)	(0.021)	(0.082)	(0.028)	(0.02)
	Regulatory efficiency	0.039	−0.002	−0.026**	0.280**	0.089*	−0.002
		(0.05)	(0.017)	(0.012)	(0.135)	(0.046)	(0.034)
	Open markets	0.080**	0.036***	−0.002	0.086**	0.037***	0.001
		(0.04)	(0.014)	(0.01)	(0.039)	(0.014)	(0.01)
Cultural–cognitive dimension	Fear of failure	−0.081*	−0.001	−0.019	−0.090*	−0.006	−0.018
		(0.049)	(0.017)	(0.012)	(0.048)	(0.017)	(0.012)
	Knowing entrepreneur	0.018	0.001	0.014	0.011	−0.003	0.014
		(0.045)	(0.016)	(0.012)	(0.044)	(0.016)	(0.012)
	Skills	0.297***	0.105***	0.078***	1.061***	0.434***	0.140**
		(0.051)	(0.018)	(0.013)	(0.223)	(0.078)	(0.057)
	Opportunity	0.072**	0.035***	0.007	0.071**	0.035***	0.005
		(0.033)	(0.012)	(0.008)	(0.033)	(0.011)	(0.008)
Normative dimension	Equalitarianism	0.058*	−0.044***	−0.007	0.041	−0.051***	−0.01
		(0.032)	(0.011)	(0.008)	(0.032)	(0.011)	(0.008)
	Entrepreneurial career	0.089*	−0.004	0.044***	0.221**	0.096**	0.017
		(0.053)	(0.019)	(0.014)	(0.105)	(0.037)	(0.027)
	Entrepreneurial status	−0.015	0.008	−0.013	−0.043	−0.003	−0.018
		(0.052)	(−0.018)	(0.013)	(0.052)	(−0.018)	(−0.013)
	Media attention	−0.015	0.015***	−0.014***	−0.098**	−0.007	−0.035***
		(0.009)	(0.003)	(0.002)	(0.04)	(0.014)	(0.01)
Control variables	Per capita income	−6.783**	0.519	−2.509***	−6.604**	0.348	−2.217***
		(3.249)	(1.077)	(0.772)	(3.247)	(1.072)	(0.772)
Moderation effects	Regulatory efficiency X Skills				−0.802***	−0.270***	−0.130**
					(0.236)	(0.082)	(0.06)
	Entrepreneurial career X Skills				−0.318*	−0.219***	0.047
					(0.19)	(0.067)	(0.05)
	Media attention X Regulatory efficiency				0.219**	0.057	0.056**
					(0.101)	(0.035)	(0.026)
	Constant	2.804	−13.6	2.316	34.57	−14.858	27.757***
		(25.436)	(9.092)	(6.642)	(38.59)	(12.813)	(9.245)
Countries		90	90	90	90	90	90
Observations		677	677	677	677	677	677
Wald $\chi 2$		3192.55***	3084.41***	3805.14***	3293.12***	3235.23***	3949.82***

The numbers in brackets are standard errors corrected for group heteroscedasticity. Year and country fixed effects are controlled but not reported. Standard errors in parentheses. * p < 0.1, ** p < 0.05, *** p < 0.01

The regulative dimension does not have any significant effect on this stage in innovation-driven countries. However, it has the most important effect in factor-driven countries, with the proxies of limited government ($\beta = -0.962$, $p < 0.1$) and regulatory efficiency ($\beta = -0.626$, $p < 0.01$). In the case of efficiency-driven economies, the regulative dimension has a significant effect in this entrepreneurship stage reflected in the proxy of open markets ($\beta = -0.225$, $p < 0.05$). The cultural–cognitive dimension has a significant effect on all three development levels but not through all the variables. For example, fear of failure does not significantly affect this stage for any level of development. Finally, the normative dimension affects the potential entrepreneurship stage, but the effects are, curiously, different at different development levels. In factor-driven countries ($\beta = -0.036$, $p < 0.01$), media attention has a negative effect on potential entrepreneurs while in efficiency-driven countries ($\beta = 0.157$, $p < 0.01$) and innovation-driven countries ($\beta = 0.118$, $p < 0.01$), the effect of the same variable (media attention) is positive. Regarding the entrepreneurial status, in factor-driven countries, the effect is positive and statistically significant ($\beta = 0.283$, $p < 0.05$); however, at the other two levels of development, although the coefficient is not significant, the sign is negative.

Concerning the nascent entrepreneurship stage at different levels of development, in the regulative dimension, the variable investment freedom has influence; it is statistically significant and has the expected sign in factor-driven ($\beta = 0.064$, $p < 0.08$) and efficiency-driven ($\beta = 0.074$, $p < 0.00$) economies. However, this dimension does not have effect on nascent entrepreneurship in innovation-driven countries. For their part in the cultural–cognitive dimension, fear of failure ($\beta = 0.037$, $p < 0.00$) and knowing an entrepreneur ($\beta = 0.022$, $p < 0.09$) are statistically significant in innovation-driven countries.

In addition, the sign of the coefficient for fear of failure in developed economies does not follow the results in the literature. The results show that in these countries, a higher fear of failure increases the nascent entrepreneurs. However, following the previous research, this relationship should be negative, akin to the coefficients in efficiency-and factor-driven countries, although the relationships are not statistically significant. For the skills, the variable is statistically significant in all types of countries but has a greater effect on efficiency-driven ones.

Regarding the normative dimension, media attention is the variable that is statistically significant in the three types of countries, with the same sign in each. However, the coefficient is larger in efficiency-driven economies ($\beta = 0.069$, $p < 0.00$). In addition, only entrepreneurial status ($\beta = 0.156$, $p < 0.00$) is statistically significant in factor-driven economies with the expected sign. Further, the cultural–cognitive dimension, measured as skills has a positive effect in nascent entrepreneurship in factor-driven ($\beta = 0.105$, $p < 0.06$), efficiency-driven ($\beta = 0.126$, $p < 0.00$), and innovation-driven ($\beta = 0.048$, $p < 0.00$) countries. On the one hand, opportunity positively affects nascent entrepreneurs in innovation-driven economies ($\beta = 0.035$, $p < 0.00$). On the other hand, it negatively influences ($\beta = -0.165$, $p < 0.00$) nascent entrepreneurs in factor-driven countries.

Finally, regarding the new entrepreneurship stage, the regulative dimension, measured by business freedom, has a negative effect on this entrepreneurship stage in both efficiency-driven ($\beta = -0.051$, $p < 0.02$) and innovation-driven countries ($\beta = -0.024$, $p < 0.01$). Only investment freedom has a positive and significant effect on the new entrepreneurship stage in efficiency-driven countries ($\beta = 0.034$, $p < 0.05$). Furthermore, property rights have a significant and negative effect only in factor-driven economies ($\beta = -0.182$, $p < 0.01$). Similarly, the cultural–cognitive dimension influences the new entrepreneurship stage. Fear of failure is statistically significant and has a negative slope in factor-driven ($\beta = -0.128$, $p < 0.00$) and efficiency-driven ($\beta = -0.044$, $p < 0.05$) countries. Knowing an entrepreneur also has different effects on the new entrepreneurship stage, depending on the country's classification. In factor-driven economies ($\beta = -0.135$, $p < 0.00$), the variable has a negative effect, which is counterintuitive when considering the theory. However, in innovation-driven economies ($\beta = 0.050$, $p < 0.00$), knowing an entrepreneur has a positive effect and is statistically significant. Again, the *skills* variable positively influences and is statistically significant in this stage of entrepreneurship in the three types of countries. As mentioned earlier, opportunity has a negative and significant influence on the new entrepreneurship stage in factor-driven ($\beta = -0.095$, $p < 0.04$) and efficiency-driven ($\beta = -0.029$, $p < 0.08$) countries. However, conversely, it has a positive and statistically significant influence on innovation-driven economies ($\beta = 0.013$, $p < 0.03$).

For its part, the normative dimension also influences the new entrepreneurship stage. The variable entrepreneurial career has the expected positive and significant coefficient in efficiency-driven ($\beta = 0.051$, $p < 0.03$) and innovation-driven countries ($\beta = 0.041$, $p < 0.00$). This result means that there are more entrepreneurs in this part of the entrepreneurial process in countries where people consider being an entrepreneur a good career choice. However, another counterintuitive result was obtained from the entrepreneurial status: the coefficient has a negative sign and is statistically significant in both factor-driven ($\beta = -0.117$, $p < 0.01$) and innovation-driven countries ($\beta = -0.046$, $p < 0.00$). This result means that contrary to theoretical intuition, in countries where people attach high status to entrepreneurs, there are fewer entrepreneurs in this third stage.

Although the coefficient does not have the expected sign, this could be explained because, during this stage, entrepreneurs are working to maintain their business and do not make decisions to continue based on the fashion trend of entrepreneurship. On the contrary, in the potential stage, people consider starting a business based on entrepreneurial status, among other factors. All the different results regarding the influence of institutional dimensions considering country development level are very interesting and show the importance of conducting the models by development groups.

Table 3.4 Institutional Dimensions and the Entrepreneurial Process: Controlling Different Country Levels of Development

		Factor-driven			Efficiency-driven			Innovation-driven		
		Potential	**Nascent**	**New**	**Potential**	**Nascent**	**New**	**Potential**	**Nascent**	**New**
Regulative dimension	Rule of law	0.303	−0.087	−0.182**	−0.043	−0.027	−0.006	0.041	−0.009	0.003
		(0.213)	(0.092)	(0.072)	(0.082)	(0.031)	(0.023)	(0.049)	(0.015)	(0.010)
	Limited government	−0.962*	−0.468**	−0.076	0.042	−0.037	−0.028	−0.099	0.035	0.005
		(0.517)	(0.222)	(0.182)	(0.115)	(0.044)	(0.031)	(0.079)	(0.024)	(0.017)
	Regulatory efficiency	−0.626***	−0.121	0.021	−0.085	−0.052	−0.050**	0.060	−0.017	−0.024**
		(0.191)	(0.081)	(0.070)	(0.084)	(0.032)	(0.022)	(0.046)	(0.014)	(0.010)
	Open markets	0.168*	0.063*	0.017	0.225**	0.074***	0.034*	−0.015	−0.009	−0.002
		(0.085)	(0.036)	(0.030)	(0.064)	(0.025)	(0.017)	(0.039)	(0.012)	(0.008)
Cultural–cognitive dimension	Fear of failure	0.01	−0.068	−0.128***	−0.106	−0.003	−0.044*	0.036	0.037***	0.009
		(0.132)	(0.057)	(0.046)	(0.079)	(0.030)	(0.022)	(0.045)	(0.013)	(0.009)
	Knowing entrepreneur	0.260***	−0.003	−0.135***	−0.061	0.030	0.027	0.204***	0.022*	0.049***
		(0.150)	(0.065)	(0.051)	(0.076)	(0.029)	(0.022)	(0.044)	(0.013)	(0.009)
	Skills	0.285**	0.105*	0.209***	0.289***	0.126***	0.101***	0.160***	0.048***	0.016
		(0.130)	(0.056)	(0.046)	(0.074)	(0.029)	(0.020)	(0.056)	(0.017)	(0.012)
	Opportunity	0.321**	−0.165***	−0.094**	−0.057	0.004	−0.028*	0.007	0.034***	0.012**
		(0.136)	(0.058)	(0.047)	(0.059)	(0.022)	(0.016)	(0.027)	(0.008)	(0.006)
Normative dimension	Equalitarianism	0.042	0.117**	0.109**	0	−0.043**	−0.018	0.030	−0.017	−0.001
		(0.134)	(0.057)	(0.047)	(0.043)	(0.016)	(0.012)	(0.040)	(0.012)	(0.009)
	Entrepreneurial career	−0.327**	−0.280***	0.048	0.175**	0.041	0.050**	0.020	−0.011	0.040***
		(0.164)	(0.070)	(0.058)	(0.085)	(0.033)	(0.024)	(0.052)	(0.015)	(0.011)
	Entrepreneurial status	0.283**	0.155***	−0.117**	−0.109	−0.039	0.014	−0.038	−0.012	−0.046***
		(0.136)	(0.058)	(0.047)	(0.084)	(0.032)	(0.023)	(0.052)	(0.015)	(0.011)
	Media attention	−0.035***	0.009*	−0.014***	0.157***	0.068***	0.013	0.118***	0.024**	0.011
		(0.011)	(0.004)	(0.003)	(0.056)	(0.021)	(0.015)	(0.038)	(0.011)	(0.008)
Control variable	Per capita income	−26.731**	14.701***	1.178	−8.867	−0.645	−2.671**	16.393***	4.533***	1.141
		(11.010)	(4.670)	(4.167)	(4.977)	(1.889)	(1.279)	(4.014)	(1.226)	(0.886)
	Constant	371.373***	91.469**				30.281**	−187.263***	45.490***	−9.177
		(102.886)	(43.538)				(13.684)	(−4.150)	(13.788)	(9.947)
Number of countries		22	22	22	43	43	43	34	34	34
Observations		78	78	78	288	288	288	305	305	305

The numbers in brackets are standard errors corrected for group heteroscedasticity. Year and country fixed effects are controlled but not reported

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; standard errors in parentheses

3.5 Discussion

The main findings of the panel-data models demonstrate that institutional dimensions matter and have different influences at each stage of the entrepreneurial process. Although the results reveal and confirm previous research in that institutional dimensions influence entrepreneurial activity, not all the proxies that measure the dimensions affect the different stages of entrepreneurship in the same manner. First, in the case of potential entrepreneurship, the normative dimension plays a vital role in explaining entrepreneurship's initial stage, confirming prior literature results (Galanakis & Giourka, 2017; Uhlaner & Thurik, 2007; Urbano & Alvarez, 2014). This effect is more important in this stage compared to the other two, thereby supporting H1. Society requires a high rate of individuals who wish to start a business and are willing to try. The most critical dimension in this stage is the cultural–cognitive dimension. Second, in the nascent entrepreneurship stage, the normative dimension is also relevant when individuals are actively involved in establishing a business that they will own or co-own. However, the coefficients show that cultural–cognitive proxies are the most important in explaining nascent entrepreneurship. This result follows the results found in previous studies (Arenius & Minniti, 2005; Davidsson & Honig, 2003). Individuals decide to start a new business depending on their self-perception of the skill required and close role models, thereby supporting H2. Finally, in the new entrepreneurship stage, defined as between 3 and 42 months of a new business, H3 is supported because we found that the regulative dimension has a statistically significant effect only in this last stage of the entrepreneurial process. This result corroborates previous research results (Parker & Belghitar, 2006); however, the dimension that explains this stage the most is the cultural–cognitive. These results follow Lafuente et al. (2007), who show that individual variables affect the latter stages of entrepreneurship and assert the need for policies that consider the individual characteristics of entrepreneurs, as proposed by Verheul et al. (2002).

Regarding the robustness checks, the specific results show that depending on the development level, the media attention to entrepreneurship affects potential entrepreneurs differently. Consequently, policymakers should take these differences into account. In developed countries, media attention positively affects potential entrepreneurs; however, media attention affects them negatively in factor-driven developing countries. Entrepreneurial status, however, positively affects potential entrepreneurs in factor-driven countries; however, this variable does not have the same effect in the other types of countries. These results suggest that in less developed countries, status is more important than in developed countries.

In addition, the results also show that the fear of failure has a positive effect on entrepreneurs, particularly in the nascent entrepreneurship stage in innovation-driven economies. Conversely, the fear of failure negatively influences factor-driven and efficiency-driven countries in the new entrepreneurship stage. These results show that in factor-driven and efficiency-driven economies, it is necessary to have policies to explain and support a failure culture to generate high-impact and technology entrepreneurship, addressing societal problems. Policies in that line would be helpful in countries where most new businesses are not very technological and innovative, associate with necessity entrepreneurship.

One of the most important findings is the relevance of the cultural–cognitive dimension for all the entrepreneurial process stages. The importance of the interaction between the culture, the norms, and the individual in decision-making is one aspect that needs more attention in this field. As mentioned previously, this dimension is the most difficult to measure but is one of the most important factors to explain entrepreneurship across countries. In summary, most of these results suggest that the policies should always be specifically designed according to the country, considering their characteristics.

When controlled by the levels of development, the results show that the institutional dimensions that affect some entrepreneurship stages in one type of country might not work in the same way in another country. Opportunity recognition in innovation-driven countries positively affects entrepreneurship (nascent and new entrepreneurship stages) but negatively affects entrepreneurship in factor-driven and efficiency-driven economies. In summary, in factor-driven economies, people often start businesses because they do not have other employment options and not necessarily because they see opportunities in their environment. However, this was not the main objective of this research, and this result should be considered a topic for future research.

3.6 Conclusions

The main contribution of this chapter is framed in the in-depth understanding of institutional dimensions as the determinants of entrepreneurship when considering the different stages in the entrepreneurial process. In entrepreneurship research, the stages of the entrepreneurial process are not well distinguished, and the interrelation of the institutional dimensions as determinants in each entrepreneurship stage has not been considered sufficiently.

The results have several implications for public policy that encourages entrepreneurial activity. Governments and policymakers are interested in formulating programs that not only increase the number of entrepreneurs but also improve the quality of new businesses. In this sense, understanding

the role of the institutional dimensions and how they intervene in each of the entrepreneurship stages will allow policymakers to design targeted policies and appropriate tools that have the desired effects on each entrepreneurial population. Therefore, to increase the number of potential entrepreneurs, policies should be oriented toward strengthening the normative dimension, for example, by increasing the general support and knowledge of entrepreneurship through various channels. Social media diffusion, for example, helps attach high status to successful entrepreneurs by a society.

However, this media strategy must be implemented with great care, considering each country's unique contexts and even each city because, in countries where entrepreneurship is seen as an exit to unemployment, it can have counterproductive effects. For example, encouraging people without the necessary skills and resources to become entrepreneurs will lead to businesses that inevitably fail in the market. In the long term, this can cause the expenditure of resources and further unemployment. Thus, an increase in the levels of entrepreneurship should not be the only objective to fulfill. The type of entrepreneurship and the necessary institutions to encourage innovative and high-impact new ventures should guide the regulative policies that aim to generate development through entrepreneurship (Stenholm et al., 2013).

Similarly, to increase the number of entrepreneurs that pass from the potential stage to the nascent entrepreneurship stage, the most important institution is the cultural–cognitive dimension. Therefore, education policies should be oriented to improving the entrepreneurs' knowledge, skills, and experience to overcome the early barriers. From this perspective, reducing the stigma of fear of failure that hinders entrepreneurship will empower people to form ideas, make mistakes, and try again. Since these values are cultural and cognitive processes that take time to be assimilated and internalized by individuals, these policies must be based in the long term and begin at the earliest educational levels. In this stage, it is crucial to ensure that entrepreneurs trust their abilities and believe in their success and skills to manage risks (Kollmann et al., 2017).

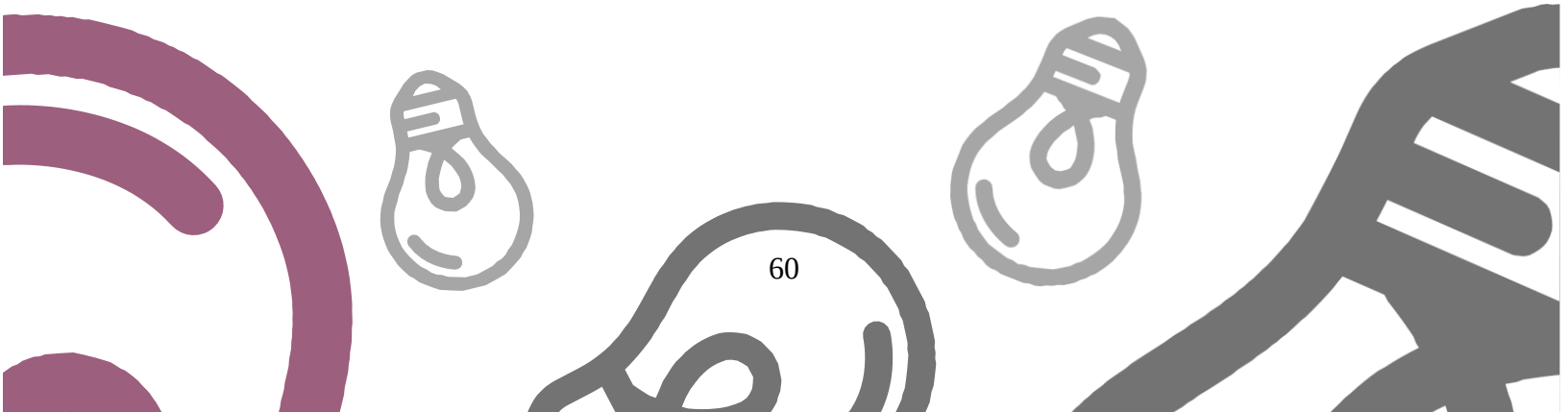
Finally, the effort to move from the nascent entrepreneurship to the new entrepreneurship stage must be accompanied by policies that strengthen the regulatory dimension, allowing for business and fiscal freedom, openness to trade, the protection of property rights, investment in education and training, and spending on research and development. Although it is necessary to have fewer procedures in legalizing new start-ups, laws that support other aspects, such as networks with universities, incubators, and easy access to financing, are essential, particularly in this last stage.

The results also showed that in this advanced stage, the confidence of individuals in their skills to manage their business is essential; therefore, government programs must not only strengthen the regulative dimension but also empower the individual to have more skills and confidence. In this manner, entrepreneurs can move to and stay in more advanced stages of the entrepreneurial process.

The results and limitations of this study present several possible areas for future research. The regulative dimension could represent barriers to nascent entrepreneurship because it is related to formalization costs and procedures. However, in specific sectors such as high-impact ventures that require technology and in cases of property rights and patents, the regulative dimension provides support and the necessary entry conditions to entrepreneurship, which is corroborated and expanded in Chapter 6. Therefore, we recommend that further research be conducted on a specialized, sector-based basis to analyze these differences. Some of our results, for instance, confirm that the influences of institutional dimensions may differ between necessity- and opportunity-motivated entrepreneurs as well as between more or less innovative start-ups among different sectors (e.g., technology, services, commerce). This study is limited, owing to the databases, considering the differences between the levels of development. Hence, it is essential to conduct more exhaustive studies that include the differences between countries' development and values. Even though differentiating the countries by some general factors remains a suitable approach. The differences in some coefficient signs in our results give evidence of cultural and specific characteristics between countries; consequently, future studies should consider more cultural variables. Finally, because of the theoretical nature of the institutional dimensions, it is vital for the maturity of research in this field to have information that allows researchers to develop multilevel analyses to show differences within the model at individual and country levels, in this regard Chapter 5 expands the multilevel nature of institutional dimensions.

Chapter 4

Institutional dimensions and their effect on the survival of necessity and opportunity entrepreneurship



4. Analyzing institutional dimensions and their effect on the survival of necessity and opportunity entrepreneurship

4.1 Introduction

As discussed in Chapters 2 and 3, the institutional dimensions influence each stage in the entrepreneurial process differently. However, other entrepreneurial activity characteristics also are essential to understand the phenomena, such as the source of the motivation to start the business. Consequently, this Chapter attends the evaluation of the influence of institutional dimensions on opportunity and necessity entrepreneurs and their survival.

Policymakers and stakeholders in the entrepreneurial ecosystem are called to support entrepreneurial activity through different strategies, such as educational programs, financial support, business development, and mentoring, among others. However, the resources are scarce, and governments should decide which entrepreneurs support through their programs and policies. At this point, the actors in the entrepreneurial ecosystem face two main dilemmas. First, they need to decide how to distribute the resources to support new business creation that generates employment and development. Second, they need to identify an efficient way to help different types of entrepreneurs to survive and grow. Consequently, they need to answer what type of entrepreneurs should focus their programs and what type of programs in each case?

Previous literature argues that opportunity entrepreneurs are more likely to succeed than necessity-motivated entrepreneurs (Amit & Muller, 1995; Belda & Cabrer-Borrás, 2018; Caliendo & Kritikos, 2010). Therefore, opportunity entrepreneurship is the one that the entrepreneurial ecosystem should support. Regarding the differences between these two types of new ventures, opportunity or pull entrepreneurship is defined as new business creation motivated by a potential opportunity (Amit & Muller, 1995; Reynolds et al., 2005). Opportunity entrepreneurship is associated with new firms based on knowledge and innovation (Hessels, Van Gelderen, & Thurik, 2008). For its part, necessity or push entrepreneurship refers to the new venture initiated by the unemployed; it means those who are forced to become entrepreneurs because they cannot find a new job (Amit & Muller, 1995).

Prior literature has studied the differences between opportunity and necessity entrepreneurship in terms of the factors that influence each type of entrepreneurial activity across countries (Boudreaux, Nikolaev, & Klein, 2019; Nikolaev, Boudreaux, & Palich, 2018) and the survival determinants of opportunity and necessity-driven entrepreneurship (Belda & Cabrer-Borrás, 2018; Cabrer-Borrás &

Rico, 2018). Moreover, some authors affirm that opportunity entrepreneurs contribute more to growth than necessity entrepreneurship (Acs & Varga, 2005; Wennekers, Van Stel, Thurik, & Reynolds, 2005), and this reasoning comes from the idea of entrepreneurs as individuals who promote new combinations and possibilities in the market, also called high impact entrepreneurs (Acs 2010). For instance, Reynolds and Curtin (2008) presented that knowledge-based entrepreneurship, which is related to opportunity entrepreneurship, adds value to the market; they argued that this new venture could transform an opportunity into a real business with bigger growth expectations.

It is fundamental to consider the presence in society of both opportunity and necessity entrepreneurship. Both are important due to the role that entrepreneurship plays in countries to drive innovation and economic prosperity (Boudreaux et al., 2019) and reduce unemployment rates (Aparicio, Urbano, & Audretsch, 2016). Also, both opportunity and necessity entrepreneurship are immersed in a context with specific organizations, cultures, and ecosystems that must support them. In this way, individuals can overcome each type of entrepreneurial activity's limitations during the new business's life cycle. So, it is vital to transcend the discussion of whether new businesses are better by opportunity or by necessity. Because in practice, many cases of new ventures that start because their founders could not find a job (necessity), in time become companies with high growth expectations and creators of new employment. Therefore, the theoretical framework of institutional economics and precisely the institutional dimensions (regulative, normative, and cultural-cognitive) that influence both types of entrepreneurship are essential to address. Institutional dimensions help to understand the context; it is a bigger picture of the environmental conditions, which goes beyond discussing which type of entrepreneurship is better. Moreover, the institutional dimensions approach highlights the regulative and normative logics and consider the importance of cognitions in shaping entrepreneurial decisions (Johansson, Malmström, Wincent, & Parida, 2021).

In order to improve entrepreneurship support strategies, both for entrepreneurship by opportunity and necessity, it is required to find such differences in the environment, at the level of regulation and social support that influence the individual decision to start the new business. Furthermore, it is crucial to understand the influence of institutional dimensions in the closure of the new business. Which is a bigger problem in society because individuals put not only effort but human and capital sources, and they must close their business because the performance is not the expected, losing all the investment. In this sense, the aim of the chapter is twofold. On the one hand, to analyze the influence of institutional dimensions (regulative, normative, and cultural-cognitive) in opportunity and necessity entrepreneurship, on the other hand, to study the relationship of the institutional dimensions with the survival of both types of entrepreneurship.

As we argue through this research, institutional dimensions are an important theoretical framework to explain entrepreneurial activity from different points of view. García-Cabrera et al. (2020) show how differences in the regulative and the normative institutions in the origin and host countries influence the opportunity and necessity motivation of immigrant entrepreneurship. Despite this recent research, this is a field to which researchers have paid less attention (Chowdhury et al., 2019). The complexity of reality makes it difficult to find the variables that influence these types of entrepreneurship. Based on this, the contribution of this study is the application of institutional dimensions to model the factors that influence opportunity and necessity entrepreneurial activity, as well as the survival of the new companies. Based on the empirical evidence, we inform policymakers about the importance of both necessity and opportunity entrepreneurship and their survival and how institutions affect entrepreneurship and the best way to maximize resources supporting new businesses.

The chapter is organized as follows. First, the conceptual background explores the institutional theory and its relationship with necessity and opportunity entrepreneurship to show how institutional dimensions influence entrepreneurship and their business survival differently. Second, the methodology section presents the measures of each institutional dimension and details about the sample that consider 3,792 observations in a logit panel data and survival analysis of 477 individuals. Third, the results section presents the model and the estimation of it and the results of the hypotheses. Finally, we discuss why some results are counterintuitive, such as the negative effect on survival of the interaction between the cultural-cognitive dimension and the normative one, and in conclusions, we present how results draw new lines of research.

4.2 Theoretical Framework

Institutional dimensions and entrepreneurial activity (necessity vs. opportunity)

Prior literature (Angulo-Guerrero et al., 2017) shows that opportunity entrepreneurship benefits from improvements in the regulative aspect, such as legal structure, property rights security, credit regulation, and business freedom. At the same time, Boudreaux et al. (2019) explain that fewer people will be forced to choose necessary entrepreneurship in societies with favorable regulations such as higher levels of economic freedom. Those regulatory aspects in the economy refer to the regulative dimension, as we mentioned before, it contemplates the "laws, regulations and government policies that provide support for new businesses" (Busenitz et al., 2000, p. 995). Angulo-Guerrero et al. (2017) propose that economic freedom encourages entrepreneurship motivated by opportunity; at the same

time, this liberalization discourages entrepreneurship motivated by necessity. Those results are in line with Fuentelsaz, Gonzalez, Maicas, and Montero (2015), who present that opportunity entrepreneurship benefits from improving property rights, fiscal freedom, business freedom, among others, while those factors damaged necessity entrepreneurship. Also, García-Cabrera et al. (2020) show how the differences between the regulative dimension in origin and host countries increase opportunity motivation in immigrant entrepreneurship. In contrast, some results do not follow the same line; Stenholm et al. (2013) found the regulative environment, related to business freedom, matters very little in creating the opportunity and high-growth new ventures.

For their part, Lekovic and Maric (2017) propose that technology availability allows individuals to be confirmed as opportunity entrepreneurs, and entrepreneurial behavior results in high innovation and business internationalization levels. Those results are in the same vein as Stenholm et al. (2013), who argue that the most critical factors for high-impact entrepreneurship are related to an institutional environment with access to knowledge and venture capital. Finally, in a recent study for the hospitality sector, Yaoqi Li et al. (2020) found that business freedom, related to the regulative dimension, influences opportunity entrepreneurs positively, while on necessity entrepreneurs in the same sector, the effect is negative. The prior literature leads us to the following hypothesis:

> **Hypotheses 1:** Regulative dimension has a greater influence on opportunity entrepreneurship than necessity entrepreneurship.

When society has a favorable vision about entrepreneurship and risks, entrepreneurial activity will be a viable option for individuals who are left without stable employment. Likewise, individuals will be more susceptible to find business opportunities when in a community, risk-taking and creativity are favored. The "degree to which a country's residents admire entrepreneurial activity and value creative and innovative thinking" corresponds to the normative dimension (Busenitz et al., 2000, p. 995).

Langevang, Namatovu, and Dawa (2012) argue that entrepreneurs' motivations and aspirations are related to "the socio-economic environment, social networks, family relations, and position in the life course." The social and family networks presented by these authors are related to the normative dimension. In this order, we confirm that the normative dimension influences the decision to start a new business either by necessity or opportunity.

Cullen et al. (2014) found that in the formation of opportunity entrepreneurship, the cultural background variables have a predominant role. Moreover, they found that higher levels of family support predict opportunity entrepreneurship, and this result is consistent in societies with developed and undeveloped educational systems. Furthermore, social norms and culture will affect opportunity

entrepreneurship more than necessity entrepreneurship. Since this type of entrepreneur may have other options, they will only decide to start the new business if they feel the social environment is supportive, including acceptance from family, friends, and colleagues, which means that entrepreneurial activities should be respected over a stable job in a large company. Thus, we hypothesize:

> **Hypotheses 2:** Normative dimension has a greater influence on opportunity entrepreneurship than necessity entrepreneurship.

In addition to the social assessment of entrepreneurship that is evident through the normative dimension, the start-up and success of a new business depend on the ability of the individual to project the future, so that what she or he expects becomes a reality, although in the present it cannot be proven (Lekovic & Maric, 2017). Prior research shows that confidence in one's skills promotes a positive effect of opportunity entrepreneurship on economic growth (Aparicio et al., 2016). This kind of thought is associated with the cultural-cognitive dimension, which refers to the individual creation of meaning from shared conceptions (Scott, 1995). As we mention in previous Chapters, in entrepreneurship research, this dimension is the "knowledge and skills possessed by the people in a country pertaining to establishing and operating a new business" (Busenitz et al., 2000: 995).

For his part, Yaoqi Li et al. (2020) found that the individual perception about the market opportunities and the individual skills had positive and statistically significant effects on both opportunity and necessity entrepreneurship for the sample that contains different industries. As we mentioned before, this individual perception is building based on a shared knowledge, which in the framework of the institutional dimensions refers to the cultural-cognitive dimension. Boudreaux et al. (2019) also found that entrepreneurs' self-efficacy, referring to self-perceptions about the capabilities of running a new business and alertness to new opportunities, promote entrepreneurship, in this case, opportunity motivated.

If the cultural-cognitive dimension is strong, the probability of creating a new business does not depend only on the motivations (necessity or opportunity). First, the entrepreneur identifies a good opportunity in the market, but their actual job is stable. It is necessary to have self-confidence in the skills and knowledge and the support from the family and society (normative dimension) in combination with the favorable regulations in the market (regulative dimension) to start a new business. Second, regarding the necessity entrepreneur, when this individual is unemployed and has been searching for a job, this person does not have many employment options. Moreover, if exist a certain degree of self-confidence in the skills and the knowledge to start a business, this combination

will lead this individual to self-employment. Amine and Staub (2009) argue that improved business skills and technical knowledge (cultural-cognitive dimension) will increase female opportunity entrepreneurship instead of necessity entrepreneurship in Africa. Building on these insights, we hypothesize that the cultural-cognitive dimension associated with both types of entrepreneurial activity:

> **Hypotheses 3:** Cultural-cognitive dimension has a positive influence on both necessity and opportunity entrepreneurship.

Institutional dimensions, motivations, and new business survival

As we mentioned prior studies have argue that opportunity entrepreneurs are more likely to succeed than necessity-motivated entrepreneurs (Amit & Muller, 1995; Belda & Cabrer-Borrás, 2018; Caliendo & Kritikos, 2010). This argument based on the differences between these two types of new ventures, holding that entrepreneurship by opportunity have greater options to survive given their characteristics based on the knowledge economy (Belda & Cabrer-Borrás, 2018; Cabrer-Borrás & Rico, 2018). Moreover, some authors affirm that opportunity entrepreneurs contribute more to growth than necessity entrepreneurship (Acs & Varga, 2005; Wennekers et al., 2005), because the ecosystem see opportunity entrepreneurs as high impact entrepreneurs, it means individuals who promote new combinations and possibilities in the market (Acs 2010). According to the prior literature we propose that:

> **Hypotheses 4:** The survival probability is higher for opportunity entrepreneurship than necessity entrepreneurship.

On the other hand, the role of the individual has been undervalued when explaining the variables that affect the survival of new companies. However, some research, such as Howell (2015), shows that risk aversion associated with the individual influences the new businesses' survival; while cautious entrepreneurs survive longer than risky entrepreneurs, these last are less efficient and less likely to survive. For their part, Riva and Lucchini (2015) consider the owners' characteristics, and they present that migrants have certain unique individual aspects reflected in lower failure rates than their native counterparts.

"Being a true entrepreneurial success depends on the individual's cognitive ability to see things in a way that would later prove to be true, even if you currently cannot be proven. This approach generates the basic aim, which seeks to uphold the fact that the availability of technology allows individuals to be confirmed as opportunity entrepreneurs" (Lekovic & Maric, 2017). Exist a greater likelihood that

an opportunity venture leaves the market if it does not have enough government incentives or other formal organizations. Among other factors, there is no obligation to continue with the new company if the regulation is not strong enough to support this type of venture or there are not enough resources to develop the idea.

Cauchie and Vaillant (2016) found a positive relationship between specific training and general education with new business survival. Those results confirm that the specific education in entrepreneurship affects the cognitive dimension, making those who receive it have more abilities and, therefore, more likely to survive. Also, Millán, Congregado, and Román (2014) found that individual with high qualifications is more likely to survive, but just if they consider entrepreneurs who hire employees. This type of entrepreneurs are more associated with high-growth new business or opportunity entrepreneurs, and in this sense, we found support in the line of Stavroulakis and Reklitis (2008). They show more survival propensity among opportunity entrepreneurs compared to necessity entrepreneurs. The individual characteristics related to inadequate education and low business skills are the factors that explain this situation. Nevertheless, Bourlès and Cozarenco (2018) affirm that the kind of motivation to start the business does not influence survival; however, there are differences between the loan repayments. The authors pointed out that necessity entrepreneurs have more difficulties in loan repayment than opportunity entrepreneurs do.

Therefore, we suggest the following hypotheses:

> **Hypotheses 5:** The cultural cognitive dimension is more important to entrepreneurship survival than the regulative and normative dimension.

Furthermore, the environment, such as the regulative and the normative dimensions that influence entrepreneurship conditioned the relationship among the individual cultural-cognition and survival. For example, prior studies have found that the characteristics associated with the firm innovation strategy (Cefis & Marsili, 2012; Howell, 2015) also moderate the relationship between the individual aspects, in this study the cultural-cognitive dimension, and the new business survival. The lack of support from social networks and a discouraging institutional environment also influence survival (Stavroulakis & Reklitis, 2008). Also, the type of community where the new venture is created is a determinant of survival. Entrepreneurs in rural communities tend to have higher survival rates than those in urban communities (Deller & Conroy, 2017). Other institutional aspects related to the regulative dimension, such as economic freedom, also moderates the relationship between the cultural-cognitive dimension, the measure by fear of failure, and the individual confidence in their skills and capabilities to run a new venture (Boudreaux et al., 2019).

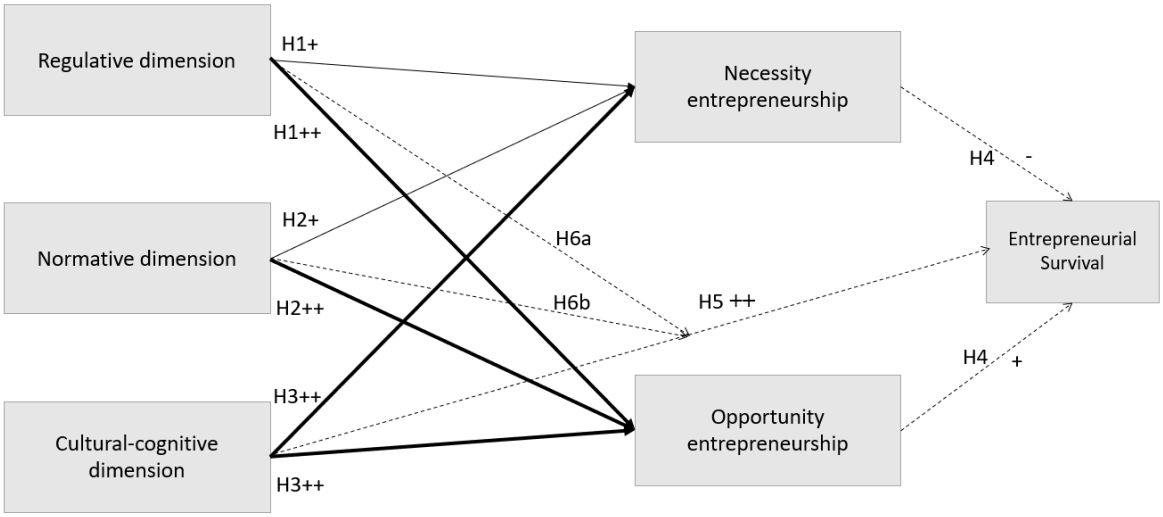
These results provide suggestive evidence that not only individual channels effort to productive entrepreneurial activities but also affects the extent to which individuals' socio-cognitive resources are likely to mobilize and lead to high-growth entrepreneurship (Boudreaux et al., 2019). In other studies, Tsvetkova, Thill, and Strumsky (2014) consider a broader regulative aspect as they are the activity of metropolitan patents, and the authors found that the patent activity positively influences the survival of new firms (with more than four employees).

Therefore, we suggest the following hypotheses:

> **Hypotheses 6a:** The regulative dimension strengthens the relationship between the cultural-cognitive dimension and the probability of entrepreneurship survival.
>
> **Hypotheses 6b:** The normative dimension strengthens the relationship between the cultural-cognitive dimension and the probability of entrepreneurship survival.

Figure 4.1 shows the model that integrates the hypothesis that studies the influence of institutional dimensions on necessity and opportunity entrepreneurship and survival of the new business.

Figure 4.1 Institutional Dimensions in Necessity and Opportunity Entrepreneurship and New Business Survival Model



4.3 Methodology

To test the hypotheses, we conduct two analyses. We first adopt a binary logistic model on a panel data approach to analyze the institutional dimensions' influence on opportunity and necessity entrepreneurship (H1, H2, and H3). The logit model accounted for the dichotomous nature of the dependent variable, which takes the value 1 for opportunity entrepreneurs and 0 for necessity

entrepreneurs. The panel data model collects the longitudinal characteristics of the sample and allows us to control for individual heterogeneity. The estimation of random and fixed effects models was conducted and the Hausman test to verify the model's choice. Hausman shows that random effects model is better, because the difference in coefficients is not systematic (chi2 (4) = 3.41, p-value = 0.49). According to the results, the null hypothesis that unobserved individual-level effects are uncorrelated with the other covariates is not rejected. This result implies that we should use the random-effects estimator instead of the fixed-effects estimator.

Secondly, we focus on survival analysis methodology to examine the influence of new business motivation (opportunity and necessity) and institutional dimensions on entrepreneurship survival (H5, H6a, and H6b).

Thus, we study the time duration until an event happens, in this case, the new firms' exit in the sample. Particularly, we use the semi-parametric Cox proportional hazards model (Cox, 1972) as well as the Parametric Survival Model.

The function of the Cox hazard model is semi-parametric because it is divided into the non-parametric and parametric part. The non-parametric is represented by the baseline hazard function, a non-negative function without specification common to all sample subjects. The parametric part is expressed by an exponential function, where the coefficients are parameters to estimate by the maximization of the function of partial likelihood (Cox, 1972). This function only considers the observations where the exit of the new business happens, and for that reason is called partial. Later, to calculate the probability of survival, all the observations are considered. In the model, the risk proportionality is a vital assumption, thus considering the same vector of variables for two subjects, the risk ratio is constant over time. Graphically this assumption can be proved through the parallel separation of the logarithmic transformation of the survival curves of each category. Also, it can be used the statistical test based on Schoenfeld residuals. The residuals chart only includes the observations relevant to the event. In this case, the event refers to the exit or non-survival of the new firms in the sample. The null hypothesis establishes that the population's risks are proportional, at least against the hypothesis that one population does not present a proportional hazard to the others.

Sample

We test our hypotheses on a sample of 1,214 new businesses from The Panel Study of Entrepreneurial Dynamics (PSED II); this research project enhances how people start businesses. The project offers reliable data on the process of new business creation based on a United States representative sample

of entrepreneurs who are active in business creation. This dataset includes the activities undertaken during the start-up process, stakeholders, new firms' nature, and entrepreneurs' demographic information (Reynolds & Curtin, 2008). The PSED II started with interviews in 2005-2006, followed by six interviews yearly. One of the most valuable aspects of the PSED II is its longitudinal nature, which allows us to develop the analysis of the hypotheses.

Operationalization of institutional dimensions and entrepreneurship

Table 4.1 shows the operationalization and description of the variables use in both the logistic panel regression and the survival analysis.

Table 4.1 Variables

Variable	Proxy	Description
Dependent Variables		
Entrepreneurial activity	Necessity and Opportunity entrepreneurship	1. Opportunity entrepreneurship 0. Necessity entrepreneurship
	Entrepreneurship survival	Time until the event occurs. The time between the first interview and the disengagement of the new business
Independent Variables		
Regulative dimension	Government support	State and local governments in your community provide good support for those starting (new) businesses. Five-point scale (1 = strongly disagree, 5 = strongly agree)
	Financial support	Bankers and other investors in your community go out of their way to help (new) businesses get started. Five-point scale (1 = strongly disagree, 5 = strongly agree)
Normative dimension	Social Norms Support for success	The social norms and culture of the community where you live are supportive of success achieved through one's efforts. Five-point scale (1 = strongly disagree, 5 = strongly agree)
	Social Norms Risk-taking	The social norms and culture of your community encourage entrepreneurial risk-taking. Five-point scale (1 = strongly disagree, 5 = strongly agree)
	Social Norms encourage creativity	The social norms and culture of your community encourage creativity and innovativeness. Five-point scale (1 = strongly disagree, 5 = strongly agree)
	Social Norms encourage responsibility	The social norms and culture of your community emphasize the responsibility that the individual has in managing his or her own life. Five-point scale (1 = strongly disagree, 5 = strongly agree)
	Support for young entrepreneurs	Young people in your community are encouraged to be independent and start their own businesses. Five-point scale (1 = strongly disagree, 5 = strongly agree)

Variable	Proxy	Description
	Support from groups	Community groups provide good support for those starting (new) businesses. Five-point scale (1 = strongly disagree, 5 = strongly agree)
	Role models (friends)	Many of your friends have started (new) businesses. Five-point scale (1 = strongly disagree, 5 = strongly agree)
	Role models (relatives)	Many of your relatives have started (new) businesses. Five-point scale (1 = strongly disagree, 5 = strongly agree)
	Role models (parents)	Did your parents ever work for themselves or run their own businesses, alone or together?
Cultural-cognitive dimension	Know entrepreneur	Do you know someone personally who started a business in the past two years?
	Previous experience	How many years of work experience have you had in the industry where this (new) business will compete? (number of years)
	Skills self-confidence	Overall, my skills and abilities will help me start this new business. A five-point scale was used (1 = strongly disagree, 5 = strongly agree)
	Experience	My experience will be very valuable in starting this new business. A five-point scale was used (1 = strongly disagree, 5 = strongly agree)
	Entrepreneur goals	If I start this new business, it will help me achieve other important goals in my life.
	Effort Self-confidence	I am confident I can put in the effort needed to start this new business.
	Persevering personality	There is no limit as to how long I would give maximum effort to establish this new business.
	Strong intention	My philosophy is to "do whatever it takes" to establish my own business.
	Introverted personality	I rarely show my feelings.
	Structured personality	I enjoy having a clear and structured mode of life.
	Risk aversion	I enjoy the uncertainty of going into a new situation without knowing what might happen. A five-point scale was used (1 = strongly disagree, 5 = strongly agree)
Interaction between Institutional dimensions	Effort x Financial support	Interaction term between Effort Self-confidence and Financial support (cultural-cognitive and regulative)
	Skills x Social norm Support for success	Interaction term between Skills self-confidence and Social Norm Support of success (cultural-cognitive and normative)

Variable	Proxy	Description
Control variables	Type	What kind of business are you starting? NAICS 6-DIGIT CODES
	Age	Years at the moment of answering the interview
	Gender	Are you male or female?
	Level of education	What is the level of education you have completed? Up to eighth grade – Some high school High school degree – Technical or vocational degree Some college – Community college degree Bachelor's degree – Some graduate training Master's degree - Law, MD, PhD, EDD, degree
	Region	New England - Middle Atlantic East North Central -West North Central South Atlantic - East South Central West South Central – Mountain -Pacific

4.1 Results

Table 4.2 presents the pairwise correlations between the variables in our panel logit model and the descriptive statistics number of observations in each variable, mean, and standard deviation

Panel logistic regression

Firstly, a binary logistic model on panel data is specified and estimated, in which the three institutional dimensions (measure through different proxies) determine the probability of opportunity and necessity entrepreneurship.

Table 4.3 shows the estimation of three different models. The first model was estimated with the variables of control, gender, age, sector of the new company, region, and education level. Neither the age, nor the sector, nor the region is statistically significant to explain entrepreneurship by opportunity comparing to entrepreneurship by necessity. However, gender is statistically significant when education level is not considered (men are more likely to become an entrepreneur by necessity than by opportunity compared to women). Some education levels explain the opportunity entrepreneurship compared to the necessity one, and when this variable is added, the model increases its significance.

Results suggest that the regulative dimension does not explain opportunity entrepreneurship comparing to necessity entrepreneurship. The measurements for the support from government and financial system proxies have coefficients that are not statistically significant. These results do not support H1.

Regarding H2, the variable support of success (p-value=0.001) shows that when the culture and society support successful entrepreneurship, the necessity entrepreneurs are more likely than opportunity entrepreneurs are. Besides, when social norms and culture of community encourage entrepreneurial risk-taking (p-value =0.046), it is statistically significant to explain necessity entrepreneurship compared to opportunity. Those results do not support H2.

Table 4.2 Correlation Table and Descriptive Analysis of the Data

Variables	N	Mean	Std Dev	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Necessity/Opportunity				1.000							
(2R) Government support	4155	2.97	1.29	0.004	1.000						
(3R) Financial support	4155	3.22	1.30	-0.058*	0.396*	1.000					
(4N) SN supp of success	4155	2.171	1.063	-0.094*	0.209*	0.211*	1.000				
(5N) SN risk-taking	4155	2.395	1.152	-0.061*	0.239*	0.185*	0.528*	1.000			
(6N) SN creativity	4155	2.287	1.096	-0.033*	0.239*	0.219*	0.511*	0.641*	1.000		
(7N) SN responsibility	4155	2.026	0.938	-0.031*	0.189*	0.178*	0.464*	0.429*	0.486*	1.000	
(8N) SN supp to young e	4155	2.873	1.308	-0.027*	0.272*	0.255*	0.366*	0.451*	0.433*	0.344*	1.000
(9N) SN supp from groups	4155	2.724	1.206	-0.015	0.388*	0.368*	0.225*	0.323*	0.303*	0.258*	0.355*
(10N) SN friends	4155	3.044	1.186	-0.044*	0.061*	0.071*	0.176*	0.203*	0.218*	0.174*	0.202*
(11N) SN relatives	4155	3.208	1.204	-0.030*	0.095*	0.074*	0.130*	0.141*	0.143*	0.106*	0.177*
(12C) Experience years	4269	10.748	12.576	-0.016	0.010	-0.014	0.053*	0.038*	0.022	0.036*	0.089*
(13C) Skills	4269	1.494	0.613	-0.039*	0.012	0.001	0.058*	0.078*	0.076*	0.041*	0.036*
(14C) Valuable past exp	4269	1.569	0.776	-0.032*	0.029*	0.006	0.052*	0.115*	0.083*	0.060*	0.022
(15C) Rarely show feelings	4269	3.366	1.203	0.093*	0.016	-0.022	-0.069*	-0.037*	-0.044*	-0.027*	-0.059*
(16C) Enjoy risk	4269	2.812	1.195	-0.000	0.017	0.010	-0.008	0.029*	0.033*	0.031*	0.040*
(17C) Effort	4269	1.439	0.567	-0.053*	0.080*	0.050*	0.033*	0.038*	0.046*	0.040*	0.050*

Variables	N	Mean	Std Dev	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(9N) SN supp from groups	4155	2.724	1.206	1.000								
(10N) SN friends	4155	3.044	1.186	0.100*	1.000							
(11N) SN relatives	4155	3.208	1.204	0.082*	0.297*	1.000						
(12C) Experience years	4269	10.748	12.576	0.052*	-0.025	0.041*	1.000					
(13C) Skills	4269	1.494	0.613	0.040*	0.059*	0.092*	-0.144*	1.000				
(14C) Valuable past exp	4269	1.569	0.776	0.061*	0.107*	0.085*	-0.251*	0.487*	1.000			
(15C) Rarely show feelings	4269	3.366	1.203	-0.011	-0.017	-0.041*	-0.089*	-0.019	0.014	1.000		
(16C) Enjoy risk	4269	2.812	1.195	0.033*	0.086*	0.025	0.012	0.103*	0.126*	0.122*	1.000	
(17C) Effort	4269	1.439	0.567	0.039*	0.024	0.063*	-0.068*	0.480*	0.377*	0.044*	0.086*	1.000

* shows significance at the 90% level

Table 4.3 Panel logit model

Variables	Operationalization	(1)	(2)	(3)
		M1	M2	M3
Dependent	**Opportunity vs. Necessity**			
Regulative dimension	**Government support**	0.077	0.062	0.063
		(0.124)	(0.131)	(0.131)
	Financial support	-0.110	-0.111	-0.476*
		(0.100)	(0.106)	(0.248)
Normative dimension	**SN Support of success**	-0.490***	-0.447***	-0.426***
		(0.133)	(0.139)	(0.139)
	SN Risk-taking	-0.277**	-0.279**	-0.295**
		(0.126)	(0.140)	(0.140)
	Support to young entrepreneurs	0.201*	0.165	0.161
		(0.119)	(0.128)	(0.127)
	SN creativity		0.101	0.103
			(0.174)	(0.173)
	SN responsibility		-0.025	-0.020
			(0.168)	(0.168)
	SN supp from groups		0.049	0.062
			(0.131)	(0.129)
	SN friends		-0.174	-0.168
			(0.125)	(0.124)
	SN relatives		0.035	0.043
			(0.133)	(0.133)
Cultural-cognitive dimension	**Know entrepreneur**	-0.284***	-0.240***	-0.241***
		(0.069)	(0.075)	(0.075)
	Previous experience	-0.015	-0.022**	-0.022**
		(0.010)	(0.011)	(0.011)
	Entrepreneur goals	-0.314*	-0.353*	-0.367**
		(0.172)	(0.187)	(0.187)
	Introverted personality	0.488***	0.352***	0.354***
		(0.110)	(0.117)	(0.117)
	Risk aversion	-0.024	-0.020	-0.015
		(0.117)	(0.125)	(0.125)
	Effort Self-confidence	-0.510**	-0.501*	-1.296**
		(0.254)	(0.283)	(0.608)
Control variables	**Parents – self employment**	0.802***	0.805***	0.805***
		(0.270)	(0.302)	(0.302)
	Up to eighth grade		0.000	0.000
			(.)	(.)
	Some high school		2.636	2.595
			(3.362)	(3.370)
	High school degree		3.856	3.806
			(3.307)	(3.316)
	Technical or vocational degree		4.984	4.890

Variables	Operationalization	(1)	(2)	(3)
		M1	M2	M3
			(3.343)	(3.351)
	Some college		5.168	5.125
			(3.308)	(3.317)
	Community college degree		5.070	5.036
			(3.357)	(3.365)
	Bachelor's degree		5.845*	5.817*
			(3.313)	(3.321)
	Some graduate training		4.584	4.556
			(3.375)	(3.383)
	Master's degree		6.885**	6.841**
			(3.376)	(3.382)
	Law, MD, PhD, EDD, degree		6.799**	6.822**
			(3.418)	(3.425)
Interaction between institutional dimension	**Effort x Financial support** (cultural-cognitive and regulative)			0.231
				(0.147)
	_cons	6.578***	2.041	3.258
		(0.835)	(3.350)	(3.454)
	lnsig2u			
	_cons	2.929***	2.845***	2.852***
		-0.16	-0.158	-0.159
	N	3796	3792	3792
	rho	0.850	0.839	0.840

Standard errors in parentheses * p<0.1, ** p<0.05, *** p<0.01 - Regarding the interaction between the institutional dimensions, all the possible relationships were checked but only we presented those statistically significant or those that improve the parameters to the model to avoid model misspecification.

To test hypothesis H3, we considered different proxies to measure the cultural-cognitive dimension. To know an entrepreneur, years of experience in the industry, the perception that entrepreneurship helps to achieve goals, and the individual self-confidence to put the effort needed in the new business decreases the probability of opportunity entrepreneurship comparing to necessity. Moreover, those results are statistically significant, supporting H3a. Simultaneously, the proxy that measures introverted personality positively influences the opportunity entrepreneurship, supporting H3b.

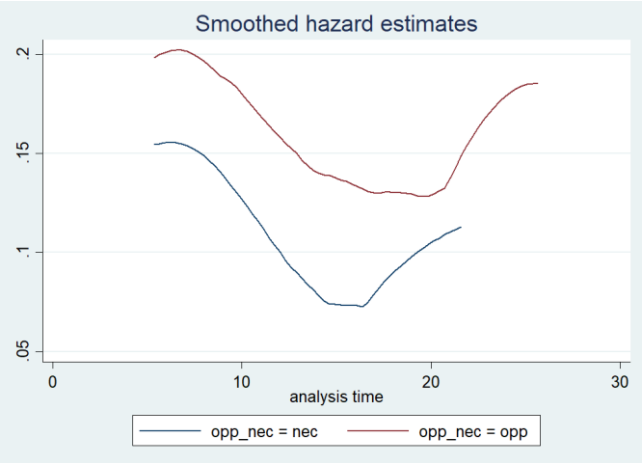
Regarding the control variable, results show that if the level of education is a bachelor (p-value<0.1), master (p-value<0.05), or postgraduate degree (p-value<0.05), the probability of opportunity entrepreneurship increases in comparison to necessity entrepreneurship.

Survival analysis

As we mentioned before, after the binary logistic model, we conducted a survival analysis in order to test the hypotheses H4, H5, H6a, and H6b related to the influence of the type of motivation (opportunity and necessity entrepreneurship) and institutional dimensions on entrepreneurial activity persistence. As robustness checks for the obtained results, we measured the event of failure and included different control variables. The checks yielded consistent results.

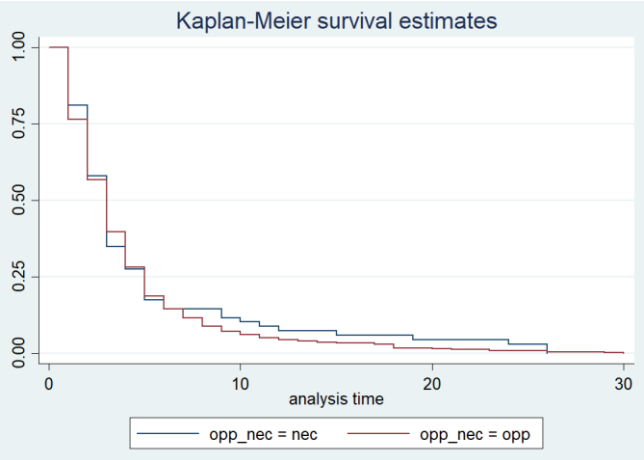
For the non-parametric analysis, in Figure 4.2, we plot smoothed hazard estimates over time for the two types of entrepreneurs according to their motives to start the business. The curves follow a parallel trajectory, the hazard rate is proportional over time, and the Cox proportional hazard model is adequate (Cleves, Gould, & Marchenko, 2016).

Figure 4.2 Smoothed hazard estimates for the new business according to the type of motivation



Using the Kaplan–Meier (KM) estimator, we calculate the unconditional probability of an entrepreneur survive beyond time. Figure 4.3 compares the estimated survivor function of opportunity and necessity entrepreneurs without controlling for any differences in their observed and unobserved characteristics. The differences are not statistically significant, according to the Log-rank test. According to these results, we do not have empirical evidence to affirm that motivation influences new business survival; thus, we do not support H4.

Figure 4.3 Estimated levels of survival according to the type of motivation, using Kaplan-Meier



Log-rank test: $\chi^2$0.57 (Pr>chi2 = 0.4483)

The model in Table 4.4 shows how institutional dimensions influence the survival of the new firms independent of entrepreneurship motives. Although the regulative dimension does not influence the type of entrepreneurship, regarding H5, the positive governmental support to entrepreneurship positively influences the firm's survival (disengage is less likely because of the negative coefficient) result is statistically significant with a confidence of 99%.

Although there is a counterintuitive result with the support of the financial system, and this is when this kind of support is higher, the likelihood of the new firm disengaging the new firm increases. This result is also statistically significant at 95% of confidence.

Regarding H6a, we found that when the individual relies on his or her entrepreneurial skills and social norms support success when given through personal effort, the probability of the new firm surviving decreases, and the result is statistically significant (p-value <0.01), which do not support the H6a.

Finally, the empirical evidence supports the H6b after running different interaction models between cultural-cognitive and regulative dimensions proxies. We found that the probability of disengage decreases with 90 % confidence when the individual effort into the new company is supported by a financial system favorable to entrepreneurship. Regarding the robustness checks, we also computed another measure of survival, which is the time between the entrepreneur starting to develop activities to lunch the new business and the disengagement of the new business, the results were consistent with the measure we selected.

Table 4.4 Survival analysis and institutional dimensions

Variables	Operationalization	(1) M1	(2) M2	(3) M3
Independent	Opportunity/Necessity	0.074		
		(0.162)		
Regulative dimension	Government support	-0.162***	-0.161***	-0.138***
		(0.040)	(0.038)	(0.039)
	Financial support	0.061	0.075*	0.198**
		(0.043)	(0.041)	(0.082)
Normative Dimension	SN Support of success	0.018	-0.028	-0.302**
		(0.066)	(0.063)	(0.147)
	SN Risk-taking	-0.018	0.031	0.040
		(0.065)	(0.059)	(0.059)
	SN encourage creativity	0.105	0.104*	0.109*
		(0.067)	(0.063)	(0.062)
	SN encourage responsibility	-0.173**	-0.138**	-0.132**
		(0.069)	(0.066)	(0.066)
	Support to young entrepreneurs	0.122**	0.088*	0.094*
		(0.059)	(0.048)	(0.049)
	Support from groups	-0.085	-0.082*	-0.101**
		(0.052)	(0.050)	(0.050)
	Role models (friends)	0.085*	0.075*	0.075*
		(0.045)	(0.043)	(0.043)
	Role models (relatives)	-0.110**	-0.120***	-0.128***
		(0.048)	(0.045)	(0.046)
Cultural-cognitive dimension	Previous experience	-0.022***	-0.020***	-0.019***
		(0.005)	(0.005)	(0.005)
	Skills self-confidence	0.109	0.088	-0.297
		(0.084)	(0.081)	(0.207)
	Introverted personality	0.078*	0.066	0.067*
		(0.042)	(0.040)	(0.041)
	Risk aversion	0.086*	0.090**	0.080*
		(0.045)	(0.043)	(0.043)
	Effort Self-confidence	-0.155*	-0.129	0.156
		(0.084)	(0.079)	(0.180)
	Parents – self employment	-0.020	0.010	0.029
		(0.115)	(0.108)	(0.109)
Control variables	High school degree	-0.095	-0.005	-0.008
		(0.263)	(0.253)	(0.254)
	Technical or vocational degree	0.510	0.583*	0.628**
		(0.333)	(0.314)	(0.316)
	Some college	-0.168	0.012	0.009
		(0.257)	(0.244)	(0.245)
	Community college degree	-0.597*	-0.465	-0.502
		(0.337)	(0.320)	(0.321)

Variables	Operationalization	(1)	(2)	(3)
		M1	M2	M3
	Bachelor's degree	-0.144	0.021	0.016
		(0.259)	(0.246)	(0.247)
	Some graduate training	-0.256	-0.213	-0.234
		(0.358)	(0.347)	(0.346)
	Master's degree	-0.536*	-0.450	-0.504*
		(0.302)	(0.287)	(0.288)
	Law, MD, PHD, EDD, degree	0.255	0.444	0.449
		(0.451)	(0.426)	(0.427)
Relationship between institutional dimensions	Skills x Social norm Support for success (cultural-cognitive and normative)			0.171**
				(0.084)
	Effort x Financial support (cultural-cognitive and regulative)			-0.075*
				(0.044)
	_cons	-1.522***	-1.581***	-1.484***
		(0.396)	(0.357)	(0.489)
	ln_p _cons	0.283***	0.286***	0.295***
		(0.036)	(0.034)	(0.035)
	N	407.000	447.000	447.000

Standard errors in parentheses * p<0.1, ** p<0.05, *** p<0.01 – Regarding the interaction between the institutional dimensions, all the possible relationships were checked but only we presented those statistically significant or those that improve the parameters to the model to avoid model misspecification.

The global test of the proportional-hazards assumption in table 4.5 is not statistically significant. Therefore, we do not reject the assumption of proportional hazards. It means there is no evidence that the proportional-hazards assumption has been violated; in consequence, survival analysis is adequate for the overall model.

Table 4.5 Test of proportional-hazards assumption

Test of proportional-hazards assumption			
Time: Time			
	chi2	df	Prob>chi2
Global test	18.15	25	0.8361

4.2 Discussion

The regulative dimension does not explain opportunity entrepreneurship as expected, considering the main literature review (Angulo-Guerrero et al., 2017; Fuentelsaz et al., 2015). This result must be carefully considered because the sector does not explain the dependent variable for the sample that is

being evaluated. However, following previous literature (Coeurderoy & Murray, 2008), the specific regulations will affect the type of entrepreneurship initiated. For example, in the hospitality sector, the regulative dimension positively influences opportunity entrepreneurs but negatively necessity entrepreneurs (Yaoqi Li et al., 2020). Regarding immigrant entrepreneurship, the regulative dimension has a negative effect on opportunity entrepreneurship (García-Cabrera et al., 2020). Therefore, those results evidence the necessity of specific studies that determine the influence of regulation in particular economic sectors and minority groups.

Moreover, further studies that consider the regulative dimension should include in the analysis not only entrepreneurship support from government and financial support but also the availability of new technologies (Johansson et al., 2021; Lekovic & Maric, 2017), which occurs through access to venture capital along with knowledge (Stenholm et al., 2013). The government can incentivize those factors at the regulative dimension level with quality educational programs and triple helix cooperation between the public sector, the private sector, and universities. Moreover, those measures will influence not only the opportunity but also necessity entrepreneurs (Amorós et al., 2019), and in the end, that effect would be positive because "ex-ante necessity entrepreneurs can shift to opportunity status over time" (Bourlès & Cozarenco, 2018: 951).

Prior literature considered education a proxy of informal institutions to explain entrepreneurship (Schillo et al., 2016) and entrepreneurship survival (Cabrer-Borrás & Rico, 2018). In this study, it could be considered as a proxy of the cultural-cognitive dimension. Although we analyze this variable as a control due to is not an institution directly related to entrepreneurship. However, the results related to the influence of each educational level on the type of entrepreneurial activity and survival are interesting because of their practical implications. One of the most remarkable results when comparing the two models is that the level of education that influences the type of entrepreneurship differs from the type of education that is statistically significant to explain the survival function.

We found that support from society (normative dimension) facilitates necessity entrepreneurship comparing to opportunity entrepreneurship. Although this finding does not support H2, it shows an interesting pattern that confirms the questions of Langevang et al. (2012), who shows the complexity of the motivation of an entrepreneur and the variety of future aspirations. For this reason, even entrepreneurs starting their business out of necessity; their aspiration may be to turn it into a high-impact new venture.

The proxies regarding the individual experience, perceptions about skills, and self-confidence to put the effort in the new venture, which is related to the cultural-cognitive dimension, decrease the probability of opportunity entrepreneurship compared to necessity. This result is not in line with prior literature that indicates the positive relationship between the cultural-cognitive dimension and opportunity entrepreneurship (Boudreaux et al., 2019). Moreover, the positive perceptions regarding the skills that

increase the probability of necessity entrepreneurship support Yaoqui Li et al. (2020), who argue the same.

Results show that the institutional variables that influence entrepreneurship type differ significantly from the variables that determine survival. While the regulative dimension does not influence entrepreneurship by opportunity or necessity, survival is influenced negatively by the support of the government and positively by the financial system.

There is no difference between the survival of necessity and opportunity entrepreneurship. This result explains how entrepreneurs with strong cultural-cognitive dimensions, such as self-confidence, have entrepreneurial experience, and they can turn this necessity entrepreneurship into an opportunity for a sustainable business. Furthermore, in this type of case, it does not matter the initial motives of the new business. This result discusses previous literature results showing that entrepreneurship by opportunity has a better chance of survival than necessity entrepreneurship (Amit & Muller, 1995; Cabrer-Borrás & Rico, 2018; Caliendo & Kritikos, 2010). Simultaneously, our empirical analysis confirms no differences between the survival when the motivation is analyzed of Bourlès and Cozarenco (Bourlès & Cozarenco, 2018).

The result that does not support H6a is interesting because the coefficient is statistically significant but with the contrary sign. This result shows that when the individual has a good perception of his or her skills and this confidence is moderated by a favorable normative dimension (perception of the social norms support new business creation), the probability of failure increases. It may be due to the excess of confidence of the individual that may not correspond to reality, that is encouraged by the society, which leads the individual to fail. This overconfidence is an aspect that has been addressed in previous studies (Invernizzi, Menozzi, Passarani, Patton, & Viglia, 2017). Moreover, it confirms why the cultural-cognitive variable as direct and the normative and regulative as moderators is explain because to survive entrepreneurs consider the environment conditions. However, even if the conditions are not favorable (poor regulations or scarce society support) the individuals continuing pursuing the new business.

On the contrary, the probability of surviving increases when the regulative dimension moderates the cultural-cognitive dimension. Specifically, when banks' and investors' support for those starting new business moderates the individual's effort in the new venture, the probability of survival increases. This result explains the importance of the interaction between the institutional dimension; the cultural-cognitive dimension regarding effort was not statistically significant before running the regression with the interaction term.

4.3 Conclusions

On the one hand, there are differences in the institutional dimensions that influence the likelihood of one type of entrepreneurship or another. Based on the information, the results serve to generate specific public policies that support entrepreneurs in a specific way according to the institutional factors that influence them.

One significant result is how the level of education influence positively the opportunity entrepreneurs; if policymakers seek to increase opportunity entrepreneurship in their regions, educational policies should consider this objective. For instance, although high education levels are associated with opportunity entrepreneurship, technical and vocational education affect survival. Thus, an integral education is needed for entrepreneurship survival, and policies must be designed in this line. In this sense, university students need more entrepreneurial education to manage a new business if they want to pursue an entrepreneurial career. Moreover, public policies should also consider that social support for entrepreneurship (normative dimension) can cause an increase in necessity entrepreneurship.

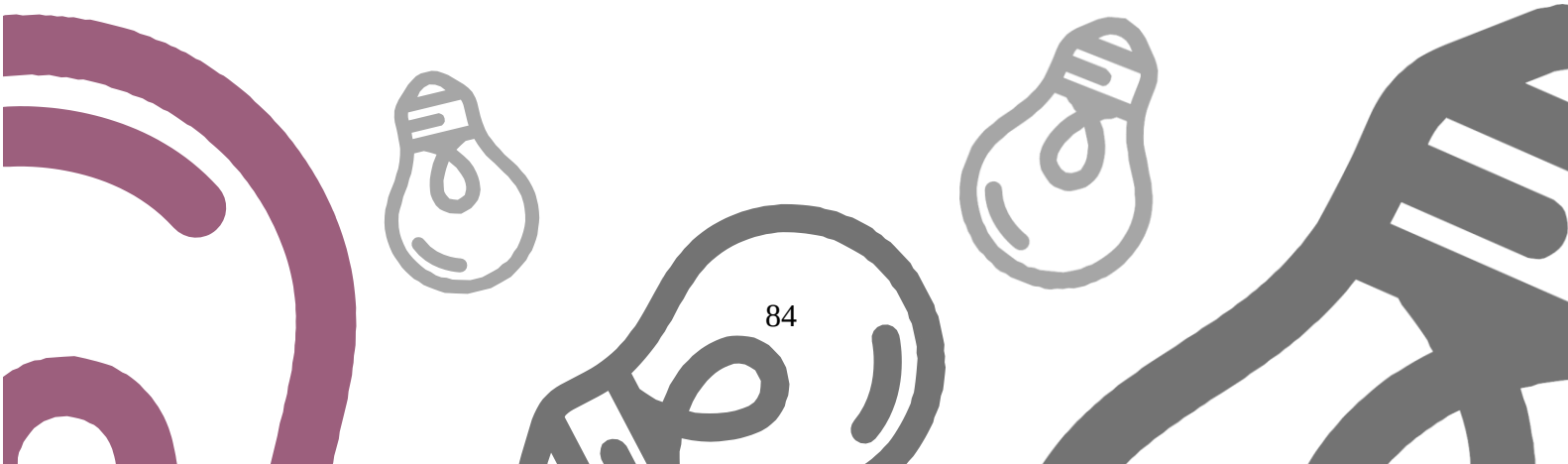
Nevertheless, in many cases, governments expected to have more high-value-added companies with the possibility to generate employment (opportunity entrepreneurship). Therefore, policies that strengthen individuals' skills and raise awareness of the difficulty of starting a business are necessary, thus avoiding overconfidence entrepreneurs who are supported by society but without enough tools to survive. Our results also highlight the necessity of supportive regulations that facilitates financial stability because that backing increases the survival of those entrepreneurs with high self-confidence. In summary, when the financial system supports the entrepreneur, the probability of survival increases.

Our research has several limitations. There is a limitation regarding the data, given that the study cannot be generalized to contexts different from the United States, given that the database obtained thanks to the PSED II project are just in their initial stage in other countries.

There are several suggestions for future studies, first conduct comparative studies between different countries. The influence of the institutional dimensions in entrepreneurship, especially the regulative dimension, differs according to the type of new business analyzed and the sample used. This type of result precisely shows the need for comparative and specific studies. Second, conduct a multilevel analysis considering variables in the regional level for normative and regulative dimensions, which are not available for the data in this Chapter, but we consider in Chapter 5. This study presents different proxies for measuring institutional dimensions, and some of them are statistically significant to explain entrepreneurship by opportunity and necessity; however, these variables must continue to be validated for other samples. Likewise, we made an effort to analyze the interaction between the institutional dimensions. However, this line of research still has many potentials to explore, that we analyze in the following Chapters.

Chapter 5

Institutional Dimensions and Social Entrepreneurship: A Multilevel Study



5. Institutional Dimensions and Social Entrepreneurship: A Multilevel Study

5.1 Introduction

As discussed above, in previous chapters, we analyze the influence of regulative, normative, and cultural-cognitive dimensions on entrepreneurship phenomenon, differencing according to the stages in the entrepreneurial process, survival, and motivation either by necessity or opportunity. Results in Chapters 3 and 4 suggest the necessity of conducting research on specific sectors. Consequently, the following chapters focused the analysis on social entrepreneurs and high-impact female entrepreneurs since each micro-context also has its own rules of the game, which implies differences in the institutional dimensions and their influence.

Authors like Stephan et al. (2015) applied institutions as a theoretical framework to study social entrepreneurship at the country level specifically. Though, most research that analyses social entrepreneurship from the institutional approach has focused on the influence of formal and informal institutions (Estrin, Mickiewicz, & Stephan, 2013; Popov, Veretennikova, & Kozinskaya, 2018; Puumalainen, Sjögrén, Syrjä, & Barraket, 2015; Sud, Vansandt, & Baugous, 2009).

However, this literature overlooks the influence of individual interpretations of the constraints determined by institutions, perceived through the cultural-cognitive dimension. Consequently, a gap in the literature exists in explaining how institutional dimensions (regulative, normative, and cultural-cognitive) are related and how they influence specific types of new ventures (Stenholm et al., 2013), including social entrepreneurship.

Different stakeholders acknowledge social entrepreneurship as a potential response to various social problems such as poverty, social exclusion, and environmental degradation. Its appeal is powerful among socially aware people skeptical about governments and businesses' ability to effectively address pressing social problems (Dacin, Dacin, & Tracey, 2011). There is an extended debate in the literature about social entrepreneurship's definition (Dacin et al. 2010). However, one factor common to all definitions is as follows: '…the primary mission of the social entrepreneur being one of creating social value by providing solutions to social problems…' (Dacin et al. 2010, p. 41).

As discussed in previous chapters, the institutional approach recognizes that human behavior is shaped by the constraints, incentives, and resources established by various institutions. In this study, those institutions shape the behavior to become an entrepreneur or social entrepreneur.

Although researchers have made some headway examining social entrepreneurship from the institutional perspective (Martí and Mair 2009, Tracey et al. 2011, Stephan et al. 2015), much remains

to be explored. For instance, understanding how institutional complexity affects social entrepreneurs is challenging, as they are required to draw from both for-profit and non-profit institutional logics, which may conflict with one another.

Consequently, this chapter aims to analyze the role of institutional dimensions (regulative, normative, and cultural-cognitive) in social entrepreneurship, considering the different levels on which those institutions operate and their relationship. Using the institutional dimensions approach, we consider the relationship between individuals and their context, which is possible through the cultural-cognitive dimension. Data were obtained from the Global University Entrepreneurial Spirit Students' Survey (GUESSS)[2], considering a sample of 53 countries and 165.679 individuals in 2018.

We develop a multilevel model for country-level institutional influences on entrepreneurship and social entrepreneurs that analyze the effects of regulative, normative, and cultural-cognitive dimensions. This multilevel research is essential because the institutional dimensions theoretically have different levels of analysis. While the regulative and normative dimensions indicate national or organizational measures, the cultural-cognitive dimension suggests an individual measure. According to Scott (2008:57), the cognitive dimension mediating between the external world of stimuli (i.e., the institutional environment) and individual responses requires an individual measure. Therefore, this study expands the use of institutional economics to study how the country and individual-level institutions influence entrepreneurship and social entrepreneurship.

Moreover, one of the main contributions of this chapter is to consider the multilevel perspective of the social entrepreneurship phenomena, which has remain only partly understood (Saebi, Foss, & Linder, 2019). Our findings indicate that all three institutional dimensions influence general entrepreneurial activity across countries. However, the positive effect of the cultural-cognitive dimension, measured at the individual level, is more prominent than the regulative and normative dimension coefficients. Furthermore, the results are different when we compared the influence of the institutional dimensions on social entrepreneurship. Especially regarding the predictor factors at the individual level, the greater perceived self-confidence has a positive impact on social entrepreneurship than commercial entrepreneurship, which is statistically significant. We found that the easier it is to start a business at the level of procedures and regulations, the relationship between the positive perception of individual skills and social entrepreneurship is weaker than commercial entrepreneurship, suggesting that the regulative dimension plays a moderating role. These results improve our understanding of the influence of institutional dimensions on social entrepreneurship compared to commercial entrepreneurship and the relationship between the dimensions and the different levels they operate.

[2] For further information about Global University Entrepreneurship Students' Spirit Survey, see http://www.guesssurvey.org/

5.2 Theoretical framework

Regulative dimension and entrepreneurial activity

As it was mention before, the regulative dimension, which is measure at the country level in entrepreneurship research, refers to the rules and laws established that support new business creation (Busenitz et al., 2000). This dimension is visible also "via the size of government intervention" (Bosma et al., 2018). In some cases, those regulations also can hinder entrepreneurship. For example, more legal processes to formalize a new business could be a barrier for some entrepreneurs due to the time and the financial resources they need to invest.

Therefore, it is expected that fewer procedures and costs contribute to entrepreneurial activity as there are fewer costs and barriers to starting a business. Prior literature found that the overall easiness of doing business in a specific country positively affects business creation (Canare, 2018; Urbano & Alvarez, 2014). Although, the research found contradictory results, such as Van Stel et al. (2007) that found no relationship between the creation of nascent and young business entrepreneurship and regulations at an administrative level such as time, the cost, or the number of procedures. Another way of approaching the regulatory dimension is the laws and procedures to raise capital to start the business. Bowen and De Clercq (2008) found that financial support influences entrepreneurial activity positively across countries.

Social entrepreneurs have different motivations, and they are not mobilized by the same facilitating factors at the regulatory level. For example, social entrepreneurs, due to their differences in their mission in seeking a social rather than just monetary benefit (Moss, Short, Payne, & Lumpkin, 2011), also have different sources of financing (Sahasranamam & Nandakumar, 2020). For instance, social entrepreneurs have difficulties getting financial resources due to the lack of legitimacy of their way to create value (Dart, 2004; Mair & Marti, 2009).

In this sense, due to the limited resources, while there is a benefit for commercial entrepreneurs to get resources from the regular financial system, there is a detriment of the possibilities for social entrepreneurs. Stephan et al. (2015) found that social entrepreneurship is more likely in countries where the government is not actively answering social needs. Activism is the state's ability to provide public goods, and with the government, institutions help solve the social problems of society. It means that the government is not efficient in meeting people's needs. Ease of doing business scores are higher in countries that are more activist due to their income level (World Bank, 2020). In the case of active involvement of the public sector in solving social problems, the need for social services and goods decreases. Hence, the motivation of entrepreneurs to participate in social entrepreneurship also decreases (Mair & Marti, 2009).

Social entrepreneurs arise in places where the state is unable to meet all the population's social needs. Estrin et al. (2013) found a negative correlation between state activity in solving social problems and social entrepreneurial activity. According to these observations, we conjecture that the more ease of doing business in a country (few procedures, less time to create the business, greater availability of venture capital), the more likely it can provide the resources for entrepreneurs in general, but at the same time this negatively affects the social entrepreneurial activity.

Hypothesis 1a: Ease of doing business increase the probability of becoming entrepreneurs.

Hypothesis 1b: Ease of doing business decreases the probability of becoming social entrepreneurs compared to commercial entrepreneurs.

Normative dimension and entrepreneurial activity

In entrepreneurship research, the normative dimension refers to the degree of social acceptance and admiration, which people attached to entrepreneurial activity (Busenitz et al., 2000). The normative dimension that refers to cultural values in the society is difficult to measure consistently across countries. Nevertheless, researchers have used different indicators to measure this dimension. Several researchers argued that supportive culture and respect and admiration for entrepreneurship are predictors of entrepreneurial activity in a country (Spencer & Gómez, 2004; Stephan & Uhlaner, 2010) and influence entrepreneurial growth aspirations (Capelleras, Contin-Pilart, Larraza-Kintana, & Martin-Sanchez, 2019).

Also, Urbano and Alvarez (2014) found that both favorable media attention and the positive social view regarding entrepreneurship as a career choice increase entrepreneurship probability across countries. Although, they did not find conclusive results regarding the relationship between high-status attached to entrepreneurs and entrepreneurial activity in a country.

Social entrepreneurs are actors of change in their communities. They have to build legitimacy to modify their context practices effectively (Ruebottom, 2013). Furthermore, these individuals have different values; social entrepreneurs are motivated for a firm conviction to change the world and their communities (Tiwari, Bhat, & Tikoria, 2017), with a non-monetary focus to help the society (Germak & Robinson, 2014).

Therefore, the opposite of commercial entrepreneurs influence is expected to be the contrary effect for social entrepreneurs who are precisely modifying structures because they have a different way of thinking. In the case of commercial entrepreneurs may be influenced positively by the entrepreneurial culture and the most deeply rooted norms in society regarding how business is done. Authors such as Kibler et al. (2018) found that in societies where the market economy is accepted and prioritized and

the institutional logics conflict, the legitimacy of social entrepreneurs is diminished. This lack of legitimacy leads to having fewer social entrepreneurs.

The results of lack of legitimacy are explained because institutional demands that are contradictory tend to restrict social entrepreneurial actions and shape the social venture's strategies and structures (Cherrier, Goswami, & Ray, 2018). In the case of the normative dimension, when the individuals identify informal support networks that support social entrepreneurship, the vision of those individuals' possibilities change, seeing possibilities of success (Nicholls, 2010). However, if society gives enough support and status to traditional entrepreneurial activity types, it would be more challenging to support social activities that seem to have no economic returns (Mair & Marti, 2009). Thus, we have the following hypotheses.

> **Hypothesis 2a:** Social acceptance of entrepreneurial activity increases the probability of becoming entrepreneurs.
>
> **Hypothesis 2b:** Social acceptance of entrepreneurial activity decreases the probability of becoming social entrepreneurs compared to commercial entrepreneurs.

Cultural-cognitive dimension and entrepreneurial activity

As we mention before, the cultural-cognitive dimension refers to the "knowledge and skills possessed by the people in a country pertaining to establishing and operating a new business" (Busenitz et al., 2000). This dimension establishes the nature of the cognitive frameworks through which individuals interpret information (Stenholm et al., 2013). In this chapter, we operationalize the cultural-cognitive dimension through the self-confidence concept that is highly related to self-efficacy. The measure of the cultural cognitive dimension represents an individual level which is, in turn, a social construction, depending, among other factors, on the level and type of education, and the individual experiences regarding entrepreneurship. This dimension is important because although it is measured at the individual level, it is also part of construction where the environment affects these individual perceptions (Turkina & Thai, 2015).

Different characteristics of the individual that are necessary for an individual to become an entrepreneur have been analyzed. For example, self-efficacy defined as the individual confidence in the abilities and skills to complete an entrepreneurial task (Borchers & Park, 2010; Tiwari et al., 2017; Wennberg, Pathak, & Autio, 2013) positively influence the new business creation across countries. For instance, although the individual causation between self-efficacy and behavior is operating at the individual level, it is shaped by the broader social environment that influences people's perceptions of their control over their actions (Krueger & Brazeal, 1994). In this sense, we consider this concept as an excellent approach to the cultural-cognitive dimension. Individuals will feel more confident with their-self capacities, and

they will think positively about their performance if they have a supportive culture. For example, role models around them, close success stories that have been successful in their careers as entrepreneurs. This variable as a proxy of the cultural-cognitive dimension influence both entrepreneurship (Turkina & Thai, 2015; Wilson, Kickul, & Marlino, 2007) and, specifically, social entrepreneurship (Hockerts, 2017; Nicolas, Rubio, & Fernandez, 2019; Tiwari et al., 2017). The level at which this cultural-cognitive dimension influences positively or negatively; each type of entrepreneurial activity will depend on the environment in which the new business is developed. Accordingly, we posit the following hypotheses:

> **Hypothesis 3a:** Individuals with higher levels of self-confidence are more likely to be entrepreneurs.
>
> **Hypothesis 3b:** Individuals with higher levels of self-confidence are more likely to be social entrepreneurs.

Regulative dimension as moderator of the relationships between normative and cultural-cognitive dimensions with entrepreneurship

As we mention before, there are contradictory results regarding the influence of the regulative dimension on entrepreneurship. Those results evidence the necessity of analyzing the interaction between the dimensions and the regulative dimension's moderating role. Muñoz and Kibler (2016) affirm that formal institutions (in this study, those related to the regulative dimension that supports entrepreneurship) are the dominant condition to develop new social businesses. Moreover, the interaction with less formalized local institutions needs to exist. In this sense, normative and cultural-cognitive are in this study those informal institutions that interact with the regulative dimension to promote social entrepreneurship. Other studies also show how more formal institutions at the macro level influence the positive effect of the cultural-cognitive dimension at the individual level and entrepreneurship. Wennberg et al. (2013) found that institutional collectivism's cultural practices moderate self-efficacy and entrepreneurship relationship. Nicholls (2010) found that activities from the government that gives visibility to favorable regulations for social entrepreneurs help create legitimacy at the cognitive level.

This prior literature evidences the interrelation of regulative and cultural-cognitive dimensions. Stephan and Uhlaner (2010) affirm that "policymakers have concentrated on changing formal institutions to increase entrepreneurial opportunities and entrepreneurship rate," although to impact entrepreneurship in the long term, policymakers need to address the basic social institutions influencing society. In this study, the normative and cultural-cognitive dimensions.

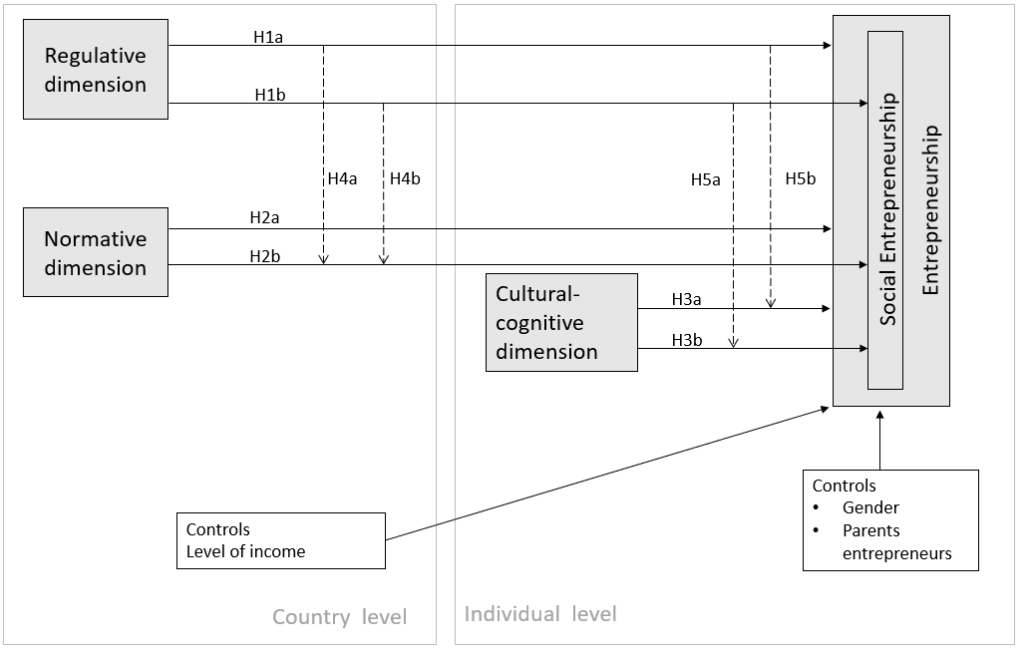
Consequently, relevant literature leads us to affirm that regulations to support entrepreneurship in themselves do not make more people want to start a new business. However, they help to facilitate the decision in combination with the other two institutions. Accordingly, those individuals who already had

a strong self-confidence regarding their abilities to become entrepreneurs (cultural-cognitive dimension) must be affected by the ease of doing business (regulative dimension). Similarly, in a society where the entrepreneurial culture supports entrepreneurship (normative dimension), the ease of doing business (regulative dimension) will interact and make this relationship stronger. In other words, the regulative dimension moderates the relationship between cultural cognitive and normative dimensions and entrepreneurship and social entrepreneurship. Moreover, following previous hypotheses (H1 to H3) built from existing theory and the need to analyze the interaction of these dimensions according to the theory presented in this section, we propose the following hypotheses:

> **Hypothesis 4a:** Ease of doing business moderates positively the relationship between the individual perception of the individual capacities and the probability of becoming an entrepreneur.
>
> **Hypothesis 4b:** Ease of doing business moderates negatively the relationship between the individual perception of the individual capacities and the probability of becoming social entrepreneurs.
>
> **Hypothesis 5a:** Ease of doing business moderates positively the relationship between the social acceptation regarding entrepreneurial activity and the probability of becoming an entrepreneur.
>
> **Hypothesis 5b:** Ease of doing business moderates negatively the relationship between social acceptation regarding entrepreneurial activity and the probability of becoming a social entrepreneur.

Figure 5.1 shows the integrated proposed model considering the relationships in the hypothesis, the individual and country level.

Figure 5.1 Research model: Institutional dimensions and entrepreneurship – multilevel approach



5.3 Methodology

Data and sample

The data used for the analysis is a combination of different sources. At the individual level, we use the data of the research GUESSS project. The project's objective is to analyze students' entrepreneurial aspirations considering family support, the university environment, and the socio-cultural context. The project distributed the online survey every two years since 2003 with coverage of students around the globe specializing in different fields of study; in the 2018 edition, more than 1,000 universities from 54 countries participated (Sieger, Fueglistaller, & Zellweger, 2016). The GUESSS database has already been used in previous research, recognized by the academic community, and published in influential journals in the area (e.g., Bergmann et al., 2016; Lima et al., 2015). The use of this database has advantages because the instrument considers some scales corresponding to proxies' variables of the institutional dimensions – as included in this study –. For our study, which is based on how the institutional dimensions influence entrepreneurial activity and especially social entrepreneurship, this source is the only secondary database that allows us to obtain information on validated and standardized university entrepreneurs from different countries. Regarding the country-level variables, we consider the World Bank databases, specifically the Doing Business project collecting secondary data in this source for 2018 indicators. Table 5.1 shows that the average number of university entrepreneurs per country is 26% and the average number of social entrepreneurs is 2.7%.

Table 5.1 Sample information per country

Country	Sample	% of Entrepreneurs	% of Social Entrepreneurs	Ease of doing business (0-100)	GDP pc ($)	% Male
Albania	518	55	0.0	66.8	13,601	30.3
Algeria	979	47	2.2	46.2	11,479	38.4
Argentina	2,691	48	2.0	57.3	22,746	41.5
Australia	77	31	4.2	80.8	49,576	50.6
Austria	1,999	12	4.2	78.7	55,687	36.9
Belarus	504	24	2.5	73.6	18,885	31.9
Brazil	20,623	35	4.7	55.6	14,596	44.6
Chile	7,704	33	1.9	72.0	24,259	49.8
China	18,685	71	3.3	65.2	15,243	74.8
Colombia	15,851	45	1.5	69.0	14,456	47.7
Costa Rica	7,359	31	1.2	69.3	19,427	41.9
Czechia	1,254	28	1.7	76.4	39,453	44.3
Ecuador	3,702	45	2.5	57.5	11,562	44.0
England	465	22	5.8	83.2	46,310	43.4
El Salvador	641	48	0.3	64.7	8,616	31.7
Estonia	1,303	29	5.1	80.8	35,308	29.2
Finland	181	18	6.3	80.0	48,191	35.4
France	230	23	3.8	76.0	45,561	35.2
Germany	10,082	11	5.1	79.3	53,660	44.3
Greece	1,157	24	0.7	67.1	29,712	38.3
Hungary	9,667	25	4.3	72.7	31,073	41.6
Indonesia	1,279	71	0.9	66.9	11,372	46.1
Ireland	1,408	13	1.7	80.1	83,471	49.2
Italy	7,299	20	6.7	73.2	42,198	46.5
Japan	4,150	14	0.3	78.0	41,074	58.2
Jordan	4,564	46	3.5	59.9	9,854	42.6
Kazakhstan	3,425	51	3.3	76.9	25,544	23.2
Korea	832	25	3.4	84.0	41,894	45.9
Kosovo	683	55	1.6	70.5	10,895	44.7
Lebanon	40	20	12.5	54.4	15,612	40.0
Lithuania	1,059	17	2.9	80.6	35,390	23.1
North Macedonia	398	38	0.0	-	15,944	39.7
Mexico	5,173	55	2.7	72.5	19,992	46.1
New Zealand	1,924	18	5.4	87.0	42,635	37.1
Norway	56	18	10.0	82.7	63,333	41.1
Pakistan	2,389	62	1.9	53.0	4,740	68.0
Panama	3,564	47	1.5	66.5	31,049	40.6
Peru	121	52	0.0	67.8	12,782	36.4
Poland	332	27	1.1	77.9	31,766	23.5
Portugal	4,178	11	4.2	76.5	34,013	35.3
Russian Federation	2,851	31	1.1	76.5	26,668	30.4
Saudi Arabia	1,641	45	3.3	62.1	47,597	11.3
Sierra Leone	332	15	14.0	47.1	1,663	38.3
Slovakia	4,868	18	1.9	75.2	32,067	34.4
Slovenia	564	7	4.8	76.4	38,022	37.8
South Africa	3,515	48	3.9	65.3	12,631	44.5
Spain	33,278	17	4.5	77.6	40,329	41.1
Switzerland	9,784	9	5.3	76.6	68,479	38.3
Turkey	693	49	2.4	70.9	28,299	45.0
Ukraine	722	34	1.2	68.1	12,338	30.1
United Arab Emirates	931	26	0.8	79.3	66,968	36.5
Uruguay	509	25	4.7	61.0	21,591	45.6
USA	64	19	0.0	83.6	61,544	26.6
Total/mean	1303	27.6	2.7	73.0	29,712	40.6
Total count	208,636	68,189	2118			94,364

Dependent variable at the individual level: entrepreneurship and social entrepreneurship

Entrepreneurship. This variable is dichotomous: A person is either an entrepreneur (1) or not (0). The entrepreneurs are represented in this study for the individuals who respond yes in at least one of the following questions: Are you currently trying to start your own business / to become self-employed? Are you already running your own business / are you already self-employed?

Social entrepreneurship. As the general entrepreneurship variable, this proxy variable for social entrepreneurship is also dichotomous: A person is either a social entrepreneur (1) or a commercial entrepreneur (0). It reflects the entrepreneurs in the sectors of human health and social work activities. The definition of this proxy is in line with GEM (Global Entrepreneurship Monitor), which took a broad view of social entrepreneurship, including non-profit businesses and commercial businesses that worked predominantly on social sectors. We are aware of the difficulty of measuring the social entrepreneurial activity through this proxy only considering the sector. However, due to the lack of information regarding this specific entrepreneurial activity type, we also consider this variable that collects social entrepreneurship activity characteristics.

Country-level predictors

Regulative dimension: Ease of doing business. The ease of doing business scores benchmark economies concerning regulatory best practice, showing the proximity to the best regulatory performance on each Doing Business indicator. An economy's ease of doing business score is reflected on a scale from 0 to 100, where 0 represents the lowest and 100 represents the best performance. This score collects different information regarding ten different topics: starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, and resolving insolvency (World Bank, 2020).

Normative dimension: Subjective norm. This dimension refers to the evaluation that people in society attach to entrepreneurship. This variable refers to the individuals' perceived social pressure about entrepreneurship. The individuals answered the following question: 'If you would pursue a career as an entrepreneur, how would people in your environment react?' Their answers were coded on a seven-point scale (1 = very negatively, 7 = very positively) and corresponded with three types of relationships: Your close family, friends, and fellow students. Based on these answers, we calculate the factor that indicates the subjective norm (Liñán & Chen, 2009).

Individual level

Cultural-cognitive dimension: Self-confidence. This variable captured a perception of belief in one's worth and the likelihood of succeeding. We combine the answers of two different statements considering that the instrument does not ask the same questions to everyone depends on their answers regarding whether they are entrepreneurs. The individuals give their level of agreement with two different statements (1 = strongly disagree, 7 = strongly agree): (1) I am usually able to protect my personal interests. (2) I feel that I am a person of worth, at least on an equal basis with others.

Controls

At the individual level, we controlled for gender: with female = 0 and male = 1. And parents entrepreneurs (1= yes, 0 = no)

We controlled for level of income at the country level as categorical variable High=1 Middle=2 and Lower=3 (World Bank, 2020). For robustness checks, we included Gross Domestic Product per capita as a second economic covariate. Because changes in national wealth may also impact entrepreneurship and social entrepreneurship. Moreover, we include the cultural map classification of the World Values Survey (Inglehart et al., 2014) as a cultural control.

Analysis

Multilevel models are developed for the analysis of data that is structured hierarchically. This structure consists of lower-level observations (in this study, individuals) nested within higher-level (countries). The individual-level observations are Level 1 or micro-level. Country-level, concerning the hierarchy structure, is defined as the macro-level. In social science, they are often called contexts (Aguinis, Gottfredson, & Culpepper, 2013). We estimate specifically the multilevel logistic regression model or mixed-effects logistic regression in Stata. As the observations are nested in countries, we do not employ standard multivariate methods because they would preclude us from assuming the independence of observations (Wennberg et al., 2013). Those approaches need to view individuals as acting homogenously but would not account for how the context affects their decisions (Morgeson & Hofmann, 1999).

Multilevel logistic regression aims to estimate the odds that an event occurs. In this study, we analyze the odds that an individual becomes an entrepreneur in general and specifically a social entrepreneur while considering the dependency on individual factors nested in country-level data. Essentially, it will allow us to estimate the effect of country-level measures of regulative and normative dimensions on the individual decision to engage in entrepreneurial activity. Simultaneously, how the cultural-cognitive dimension influences that decision and how all three dimensions interact (cross-level). Multilevel modeling is important in this research field because it allows us to differentiate the institutional

dimensions levels. Moreover, this type of estimation has several advantages over single-level regression analyses. It reduces the risk of false-positive results (Type I errors) that occur when higher levels (such as countries) are not considered in the sample. Also, it offers a development over the option of aggregate data to level-2, which has the risk of aggregation biases. This error is known as the ecological fallacy. Finally, this model reflects the clustering or non-independence among individuals. This means that context matters because of similar experiences among individuals.

We proceed on a multilevel modeling estimation to analyze the predictors of entrepreneurship, comparing two models, one for general entrepreneurship and the other for social entrepreneurs compared to commercial entrepreneurs.

First, we estimate the unconditional mean model or empty model that is a model containing no predictors. Based on this empty model, we calculate the intra-class correlation coefficient (ICC), which quantifies the degree of homogeneity of the outcome within clusters. The ICC represents the proportion of the between-cluster variation (in this study case: between-country variation of the chances of becoming an entrepreneur or being a social entrepreneur instead of commercial) in the total variation (in this study: the between- plus the within-country variation of the chances of becoming an entrepreneur or being a social entrepreneur instead of commercial). The ICC ranges from 0 to 1. On the one hand, ICC = 0 indicates that the chance of being an entrepreneur or social entrepreneur does not differ from one country to another (there is no between-country variation).

On the other hand, ICC = 1 indicates perfect interdependence of residuals: The observations only vary between countries, which means in a given country, either everyone or nobody is an entrepreneur (there is no within-country variation). The ICC for entrepreneurship and the alternative, dependent variable social entrepreneurship provided evidence regarding the data clustering: the observed values of 0.23 and 0.26, respectively, indicate that 23% and 26% of the total variance correspond to the country level. ICC levels above 0.15 are considered large (Hox, 2010).

To improve the model estimations' interpretability, the individual level variables were cluster-mean centered (subtract the country-specific mean to estimate the within-country effect). The country-level were grand-mean centered standardized based on their individual-level mean and standard deviation across the sample (we correct for the average country value of those variables) (Enders & Tofighi, 2007; Paccagnella, 2006). Robustness checks using grand-mean centered individual-level controls yielded the same results.

To test for multicollinearity, we calculated the variance inflation factor (VIF) scores for the models. The scores in each variable remain below the recommended cut-off value of 10, which provides no evidence of multicollinearity (Hair, William, Babin, & Anderson, 2014). The highest VIF score is 2.42, which belongs to the ease of doing business variable (a proxy for regulative dimension).

The likelihood-ratio test (LR) test is significant in all the estimated models, explain whether the current mixed-effects model represents a significant improvement in fit relative to a standard logistic regression. The chi-square test indicates that the difference in fit is significant between models. We tested the postulated main effects at the individual and country-level (Models 1 and 4) with the control variables in the models. To test for the interaction effects (Models 2, 3, 5, and 6), we first computed each interaction separately. We then conducted several robustness tests: for the interaction hypotheses, we include both interaction terms together. In addition to the regression coefficients, we report for each model the log-likelihood ratio and the McKelvey and Zavoina pseudo R^2.

5.4 Results

Table 5.2 shows the models estimated to test the hypotheses. Models 1 and 4 include individual-level (Level 1) and country-level (Level 2) predictor variables for entrepreneurship and social entrepreneurship, respectively, including the controls. Models 2 and 5 include the main effects of the three institutional dimensions considering the interactions among the dimensions. Finally, to compare the fit of the estimations, we estimate Models 3 and 6 that just include the statistically significant interaction. It is important to note that the models regarding general entrepreneurship (Models 1 to 3) and social entrepreneurship (Models 4 to 6) are comparable in terms of the sign and significance of their results, but not the weight coefficients or model fit because of the differences on the number of observations in each sample.

The inclusion of the control variables changes the significance of some coefficients, and we keep those control variables to avoid misspecification of the model. As prior literature has found, it is important to note that being male increases the probability of becoming an entrepreneur. However, regarding social entrepreneur, this relationship is opposite, results show that being a woman increases the probability of being social entrepreneurs in comparison to commercial entrepreneurs, and those results are statistically significant, moreover, regarding the country level control variable, level of income, countries where the income is higher the probability of becoming social entrepreneurs' decreases.

Main individual level and country-level effects

H1a and H1b posit that the regulative dimension is positively associated with entrepreneurship and negatively related to social entrepreneurship compared to commercial entrepreneurship. In support of H1a, higher scores of ease of doing business are related positively to the likelihood of becoming an entrepreneur (β=0.322, p<0.001, see model 1). Although when the interaction effect is introduced to the model, holding the control variables constant, this coefficient loses significance (β=0.247, p=ns, see model 3). In consequence, as predicted in H1a, there is a positive relationship between the regulative dimension, but this relationship is less robust. Regarding the H1b, the coefficient is negative as

expected, but it is not statistically significant in any of the models (β=0.0317, p=ns, see model 3). Thus, the results provide only partial support for H1a and no support for H1b.

According to H2a and H2b results, Models 2 and 5 show that the results are as expected and statistically significant. The normative dimension influence positively the general entrepreneurial activity (β=0.036, p<0.001) and negatively social entrepreneurship (β= -0.0854 p<0.1).

H3a and H3b indicate that the cultural-cognitive dimension, related to the individual level dimension, is associated positively with entrepreneurship and social entrepreneurship. In Models 3 and 6, which consider the control variables and also the interactions, the results indicate that self-confidence predicts the likelihood of being an entrepreneur (β=0.485, p<0.001) and social entrepreneur (β=0.064, p<0.1). Accordingly, the results provide support for H3a and H3b.

Interactions between institutional dimensions

H4a and H4b predicted that the regulative dimension moderates positively the relationship between normative and entrepreneurship in general, making the relationship stronger and negatively with social entrepreneurship making the relationship weak. In both cases, the interaction effect is positive, but it lacks significance (β = 0.003 and β = 0.004 and p = ns; see Models 2 and 5). Accordingly, the results do not provide support for H4a either for H4b. Because of those results, we estimate the next models (3 and 6) without considering this interaction to avoid misspecification.

Regarding the cross-level interaction, H5a and H5b hypothesize that the effect of the cultural-cognitive dimension on entrepreneurship (H3a) and social entrepreneurship (H3b) is maximized and weakened respectively in countries where it is easier to do business. First, the result of the interaction regarding being an entrepreneur or not is positive, as expected (β=0.0855, p<0.1), but negative when the interaction is estimated considering social entrepreneurs (β= -0.0793, p<0.1). In both cases, the results are statistically significant. Second, the inclusion of the cultural-cognitive dimension and regulative interaction leads to an improved model fit. Hence, H5a and H5b are supported.

Robustness checks

While seemingly multilevel analysis produces more efficient results than logit regressions, as a robustness check, we also ran separate logit regressions estimating the model. Unreported results based on logistic regressions are consistent with those reported in this chapter. We also explored whether there are some systematic differences across different entrepreneurial activity stages (potential and nascent entrepreneurs) regarding the influences of regulative, normative, and cultural-cognitive dimensions, and the results are consistent.

Table 5.2 Effects of institutional dimension on entrepreneurship and Social entrepreneurship

	Entrepreneurship			Social entrepreneurship vs. commercial		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Regulative dimension	0.322**	0.247	0.247	-0.349	-0.317	-0.317
	(2.04)	(1.49)	(1.49)	(-1.33)	(-1.20)	(-1.20)
Normative dimension	0.036***	0.037***	0.036***	-0.0869*	-0.0834	-0.0854*
	(4.07)	(3.96)	(4.07)	(-1.95)	(-1.63)	(-1.92)
Cultural-cognitive dimension	0.507***	0.485***	0.485***	0.0710	0.0638*	0.0641*
	(9.85)	(9.72)	(9.72)	(1.43)	(1.70)	(1.72)
Control variables						
Country income level	1.284***	1.307***	1.308***	-0.793**	-0.794**	-0.794**
	(5.73)	(5.70)	(5.70)	(-2.13)	(-2.12)	(-2.12)
Gender: Female	-0.660***	-0.660***	-0.660***	0.365***	0.364***	0.364***
	(-40.52)	(-40.51)	(-40.52)	(4.09)	(4.08)	(4.08)
Interactions						
Cultural-cognitive X Regulative		0.0850*	0.0855*		-0.0793*	-0.0787*
		(1.72)	(1.73)		(-1.81)	(-1.83)
Normative X Regulative		0.00300			0.00440	
		(0.27)			(0.08)	
Constant	-3.588***	-3.637***	-3.639***	-0.626	-0.610	-0.611
	(-8.85)	(-8.79)	(-8.79)	(-1.03)	(-0.99)	(-1.00)
var(Cultural-cognitive)						
Constant	0.160***	0.140***	0.140***	0.00602	1.60e-33	1.17e-32
	(4.33)	(4.20)	(4.20)	(0.60)	(0.00)	(0.00)
var(_cons[Country])						
Constant	0.809***	0.830***	0.830***	1.015***	1.035***	1.034***
	(4.85)	(4.80)	(4.80)	(3.25)	(3.24)	(3.24)
Observations	165679	165679	165679	4064	4064	4064
$\chi 2$ Controls to Main (df) - comparative	22461.0	22350.4	22393.7	704.8	704.3	705.2
$\chi 2$ Controls to Main (df)	1856.6	1866.0	1865.9	26.19	35.29	35.29
McKelvey&Zavoina R^2 (fixed & random effects)	0.4267	0.4268	0.4268	0.2836	0.2843	0.2843
McKelvey&Zavoina R^2 (fixed effects only)	0.2118	0.2168	0.2169	0.0409	0.0453	0.0453
AIC	107233.6	107234.8	107232.9	3728.833	3727.992	3725.998
BIC	107313.8	107335	107323	3779.312	3784.781	3776.477

Standard errors in parentheses - * p<0.1, ** p<0.05, *** p<0.01

5.5 Discussion

Regarding the influence of the ease of doing business, our model does not support H1a. This result corroborates prior research results that also explain how although fewer regulations do not explain entrepreneurial activity across countries, this variable should influence the level of formalization in the economy (Stephan & Uhlaner, 2010; van Stel et al., 2007). Even more, those regulations need to join with less formal institutions to affect entrepreneurial activity. Moreover, we need to keep in mind that entrepreneurs in this sample are university students who could manage their businesses in a very informal way, in some cases to pay for their studies or as a future option after they finished their studies. Therefore, the informality of those new businesses should be addressed to have more conclusive results in this regard.

Although H1b the negative sign in the result shows a possible adverse effect of the ease of doing business in social entrepreneurship along with all the models, the result is not statistically significant, so H1b is not supported. We cannot make any assumption from those results, although we consider that the insignificance is due to the data restrictions. When we made the robustness check validations without considering the multilevel structure, this result is statistically significant. The lack of data does not allow us to have specific measurements for the regulative dimension of social entrepreneurship, such as the availability of resources that support non-profit new ventures. Therefore, it is necessary to replicate this model with other variables to operationalize the regulative dimension with specific social entrepreneurship data. Moreover, previous research found an important relationship between regulations and social entrepreneurship (Nicholls, 2010). Besides, those considerations regarding the sample and the data restrictions also are applicable and vital to discuss that we do not find empirical support for H4a and H4b regarding the interaction between normative dimension and regulative dimension to influence entrepreneurship and social entrepreneurship.

Results support H2a regarding the positive relationship between the normative dimension and entrepreneurial activity. This result confirms suggestions in the literature on entrepreneurship and institutional context that supportive social culture towards new business creation and the social acceptance of entrepreneurship as a career option help individuals to decide to become entrepreneurs (Spencer & Gómez, 2004; Stephan & Uhlaner, 2010; Urbano & Alvarez, 2014). Moreover, a significant result is a negative relationship between the normative dimension and social entrepreneurial activity (H2b). This result evidence that in those communities where traditional entrepreneurial activity is respected and supported, there is less probability of becoming a social entrepreneur. It corroborates the importance of local support from informal spheres (Muñoz & Kibler, 2016), relevant for social entrepreneurs.

We found empirical support for the positive relationship between cultural cognitive dimension and entrepreneurship, including social entrepreneurship (H3a and H3b). This is very important because those hypotheses consider the dimensions at the individual level. In this sense, those results endorse the literature that found this positive relationship (Stenholm et al., 2013) complementing to other sectors such as social and from a multilevel perspective. Likewise, these results reaffirm the need to consider the individual in context with their institutional environment.

Finally, regarding H5a and H5b, this is the evidence of the interaction between the cultural-cognitive dimension and the regulative dimension. Results are in line with prior literature that discusses how the individual's confidence to start a business and specifically a social one depends on the legislative interventions and their interactions to the individual cognition (Muñoz & Kibler, 2016)**.** Moreover, our findings support the importance of combining formal regulations with the social appropriation of entrepreneurial activity (Stephan & Uhlaner, 2010).

5.6 Conclusions

One of the main contributions of this chapter is the multilevel approach of the institutional dimensions and the interrelation between them. The institutional dimensions approach considers the role of the individual level as the interactions between higher levels of institutions (such as regulative and normative dimensions) which are defined externally and are in constant interaction with the individual level (cultural-cognitive dimension) that receives all the context information and generate output from there.

This research has important implications for the practice of entrepreneurship and the design of appropriate and regionally relevant strategies to support entrepreneurship and social entrepreneurs. The results of the empirical analysis discussed in the previous section suggest that policymakers' emphasis should be placed on giving support to social entrepreneurs that go beyond reducing processes because social entrepreneurs develop their businesses in different spheres than the market economy. Especially in the financial system, it is more difficult for social entrepreneurs to have the legitimacy to get resources, which is why it is necessary at the level of regulative dimension to do much more in this regard. As we discuss according to our results, regulations (number of processes, time to formalize the new business) are more determinant to define how the entrepreneurs manage their businesses, for example, in their level of formalization. However, according results in Chapter 3 this ease of doing business offers facilities that the operation/management will be easier and more convenient for the entrepreneur in advanced business stages. In this sense, it is essential to consider the different stages, in which the social entrepreneur is involved to analyze the best strategies at the regulative dimension for each one.

Regarding the implications on the normative dimension, the culture and the perception regarding the benefits of being an entrepreneur influence social entrepreneurship. In this sense, more support from local opinion leaders and influence stakeholders can legitimize the social entrepreneurs aligning their discourses and norms of the community. It is crucial to make visible the cases and stories of successful social entrepreneurs and demystify beliefs about what success in entrepreneurship usually means regarding value generation, for instance, in countries where social entrepreneurship is key to close gaps on problems not solved by the market or government. The role models will help generate legitimacy and recognition in society (normative dimension), which will also help entrepreneurs when facing legal procedures such as obtaining funds.

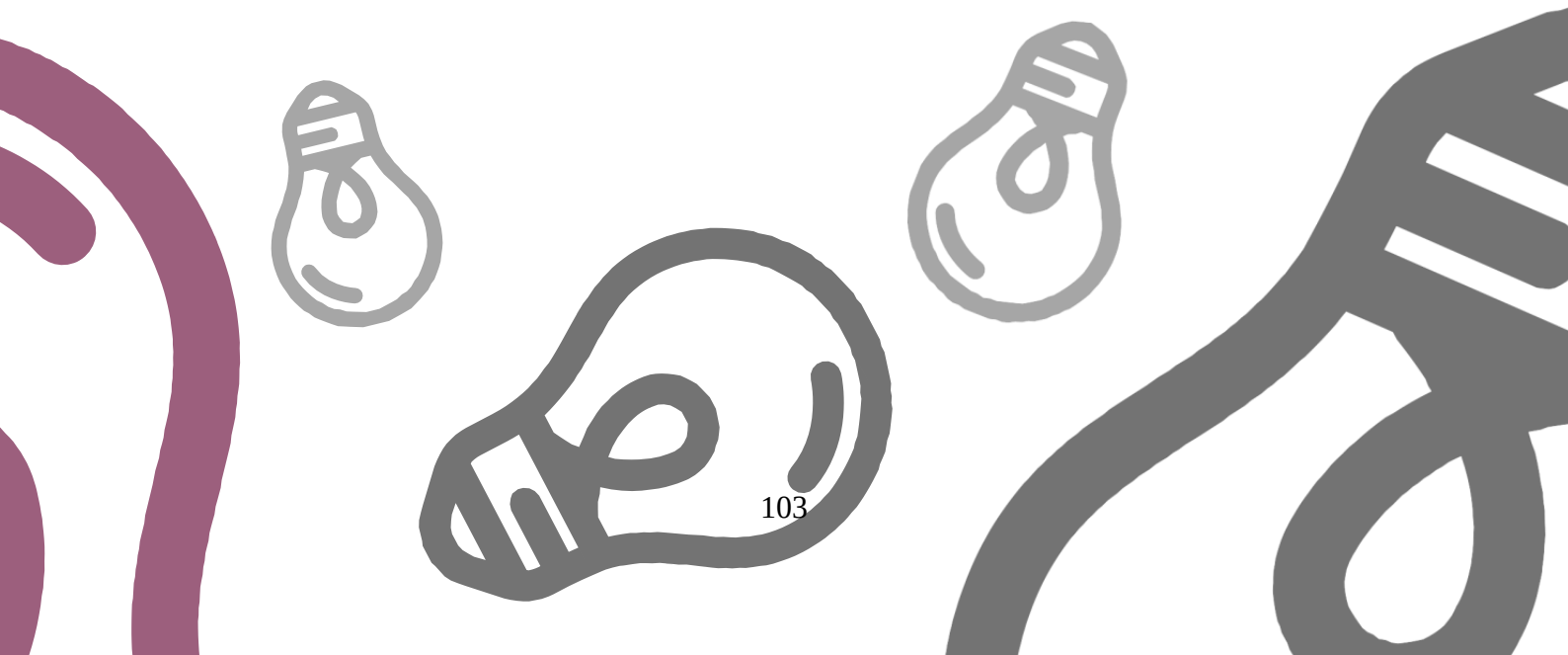
Data limitations constrain us to operationalize the institutional dimensions that influence general entrepreneurial activity and, specifically, social entrepreneurship. Moreover, considering the results, this research found empirical support to claim the necessity to measure different institutional dimensions, specifically for different types of entrepreneurs, to find conclusive results.

Another of our limitations is the use of a specific database that has university students as a sample. Even though it is a robust sample, the type of entrepreneurs analyzed has characteristics of a specific entrepreneurial environment. However, we consider entrepreneurs who are carrying out activities to start their business and obtaining income. For that reason, they have had to face the context outside the university, allowing a certain level of results generalization to samples outside such an environment. Prior literature has also been used university students in their samples, claiming for those individuals' characteristics. Specifically, the seminal work of Busenitz et al. (2000) considers this type of sample adequate for understanding the institutional dimensions approach. The authors posit three crucial issues. Those university students have more knowledge of business than the general public. They represent an important part of the possible entrepreneurs, and most of the students have not decided their career paths definitely. Future research should advance from here, analyzing the university environment as another level in which other types of variables also coexist that are considered proxies of the three institutional dimensions. This possibility of a third intermediate level was considered during the study; however, due to the short amount of data on social entrepreneurship to aggregate at this level, it was not possible to analyze the institutional dimensions in this way.

Moreover, the causality relationships also should be considered in new research furthermore, how the entrepreneurs play the role of agents of change in institutions in their communities. This study provides empirical evidence on how dimensions affect social entrepreneurs who are unique due to their specific motivations and objectives differently. However, more studies are needed on the inverse relationship of how social entrepreneurs change their institutional conditions. Qualitative or mixed methods studies, measuring specific institutional dimensions for social entrepreneurs can help answer these types of relationships. Chapter 6 addresses this limitation for the analysis of female entrepreneurship.

Chapter 6

Understanding institutional dimensions in high-impact female entrepreneurship



6. Understanding institutional dimensions in high-impact female entrepreneurship

6.1 Introduction

Results and discussion in preceding chapters evidence the importance of analyzing institutional dimensions in specific sectors and the lack of qualitative research in the field to corroborate the results. This chapter contributes to those lines. Chapter 6 goes profound because it uses not only quantitative analysis techniques but also qualitative. We propose an instrument to collect primary data about the institutional dimensions that influence high-impact female entrepreneurship through semi-structured interviews.

Female entrepreneurs constitute a small percentage of high-impact and high-growth technology firms (Hampton, Cooper, & McGowan, 2009). Although this number is increasing (Mayer, 2008; Venkatesh, Shaw, Sykes, Wamba, & Macharia, 2017), the tradition of male entrepreneurs in high-tech sectors resulted in a work culture of improper behaviors, in some cases illegal, such as sexual harassment (Ozkazanc-Pan & Clark, 2018). As an example, Kanze, Huang, Conley and Tory Higgins (2018) found that in capital raising rounds, investors have a tendency to ask female entrepreneurs prevention-focused questions that differs from promotion-focused questions to male entrepreneurs. In these cases, female entrepreneurs have an extra barrier to overcome because the prevention-focused question hinders the entrepreneur's ability to raise capital.

Despite their barriers to start a new business, women are called to increase their participation in entrepreneurship, and their importance has been demonstrated through the advantages they have by leading high-impact new businesses to achieve high growth (Devine, Molina-Sieiro, Holmes, & Terjesen, 2019). Therefore, it is essential to understand the determinants of high-impact female entrepreneurship to promote it. This research focuses on the concept of high-impact female entrepreneurs that define those who operate innovative, growth-oriented firms with increasing revenue and job creation (Aidis & Weeks, 2016). This concept is in line with the broader concept of high-impact entrepreneurship proposed by Acs (2010), who affirm that high-impact entrepreneurs differ from those that just replicate new business because they respond to "opportunities by bringing inventions to market that create wealth and growth" (p.165).

Most of the previous research on the influence of institutional conditions on entrepreneurial activity focuses on the differences of entrepreneurship rates between countries and the determinants of those differences (Saeed, Yousafzai, Yani-De-Soriano, & Muffatto, 2015; Urbano & Alvarez, 2014). Although less research shows how institutions influence specific types of new ventures (Stenholm et al., 2013), some researchers focused their studies on analyzing how formal and informal institutions influence female entrepreneurship in different contexts (Giménez, Gabaldón, & Seierstad, 2017;

Noguera, Alvarez, Merigó, & Urbano, 2015; Terjesen & Amorós, 2010; Xie, Wang, Xie, Dun, & Li, 2021). Specifically, the normative context for women's participation in entrepreneurial activity (Baughn, Chua, & Neupert, 2006).

Some prior literature has used the institutional dimensions approach to analyze women entrepreneurship (Xie et al., 2021), but they do not consider the specific high-impact female entrepreneurs. For instance, Yousafzai, Saeed and Muffatto (2015) show that regulatory institutions, entrepreneurial cognitions, and entrepreneurial norms positively influence women's entrepreneurship leadership, especially when there is specific support for this type of entrepreneur. In the same way, in research developed in the context of Africa, Langevang, Gough, Yankson, Owusu and Osei (2015) and Amine and Staub (2009) show that favorable regulative, normative, and cultural-cognitive institutions promote female entrepreneurial activity. However, at the same time, the authors discuss the lack of institutional conditions necessary to ensure the growth and survival of female entrepreneurship, and for this reason, these studies suggest the support evaluation to these new firms. Consequently, research on how institutional dimensions influence and determine high-impact female entrepreneurship is necessary because of their contributions to innovation, growth, and employment generation. Moreover, women have the capacities to lead and manage high-impact new firms differently and effectively because of the experience from all the roles they play in their lives, giving them practice at multitasking, opportunities to improve interpersonal and leadership skills (Devine et al., 2019; Ruderman, Ohlott, Panzer, & King, 2002).

For this reason, it is necessary to understand how and what are the environmental and individual factors (institutional dimensions) that influence the process of creating this type of business, not only to support its growth and survival over time but also to generate strategies that incentivize the high-impact female entrepreneurship in different contexts. Accordingly, the broad question that this research seeks to answer is: what and how the institutional dimensions (regulative, normative, and cultural-cognitive) influence high-impact female-led entrepreneurship?

We are drawing on a mixed-methods study involving panel data and mediation analysis of high-impact female entrepreneurs and Fuzzy Qualitative Comparative Analysis (fsQCA) based on the case comparison of specific new ventures in both developed and developing economies. Thus, the data collection is divided into two parts. First, for quantitative analysis, we used data from secondary sources such as Organization for Economic Co-operation and Development (OECD), Global Entrepreneurship Monitor (GEM), and World Bank. Second, for the fsQCA, we collected primary information through in-depth semi-structured interviews with 12 high-impact female entrepreneurs in two cities: Barcelona (Spain) and Medellin (Colombia).

This paper makes significant contributions to theory and practice. The first contribution is made on the scarce empirical literature understanding the institutional dimensions as determinants of high-impact female entrepreneurship (Wang, Li, & Long, 2019). The second one is determining the primary

institutional configurations driving high-impact female entrepreneurship in two specific contexts. We find no differences between Barcelona and Medellín regarding the challenges that high-impact female entrepreneurs face. By implementing the mixed-methods approach, we advance in understanding the relationships, inquiring into the internal configurations, particularly institutional dimensions' complementarity and substitution effects that usually remained black-boxed with typical statistical approaches (Fiss, 2011). Third, we contribute to practice by allowing governments and policymakers to design policy initiatives to meet female entrepreneurs' needs, such as specific and agile regulations for high-impact sectors and venture capital programs. Of course, those strategies regarding the regulative dimension need to interact with the other two dimensions.

Regarding the cultural-cognitive dimension, it is necessary to develop specific education for women showing them a place in science, technology, and engineering. Regarding the normative dimension, we identify that in both contexts, entrepreneurship is recognized but not in the first stages. The women in the study need to demonstrate results to receive their family support; at the beginning, most of them are traditional and prefer the entrepreneur gets a job. Those institutional dimensions' interactions will increase employment by encouraging women with innovative ideas to participate in entrepreneurship. Finally, the mixed-methods approach also responds to balancing the research between positivism and humanism to advance the research field and triangulate the results (Liñán & Fayolle, 2015; McDonald, Gan, Fraser, Oke, & Anderson, 2015).

6.2 Theoretical Framework

Institutional dimensions and high-impact female entrepreneurship

As in previous chapters, we consider institutional dimensions (Scott, 1995) applied to entrepreneurial activity (Amine & Staub, 2009; Busenitz et al., 2000; Urbano & Alvarez, 2014) to analyze high-impact female entrepreneurship since it considers environmental factors (regulative and normative dimensions) and the interaction between the culture and the rules that affect the individual constructions of reality (cultural-cognitive dimension).

Scott (1995) identified three dimensions that support social institutions: regulatory, normative, and cultural-cognitive. Those dimensions influence entrepreneurial activity (Alvarez et al., 2014; Stenholm et al., 2013), including high-impact female entrepreneurship since 'they set boundaries, both implicit and explicit, for individual actions' (Welter, 2012). Following, we will present the results that analyze high-impact female entrepreneurship in light of the different institutional dimensions.

As we mentioned before, the concept of high-impact entrepreneurship is broad (Acs, 2010). According to prior literature, high-impact female entrepreneurship includes female entrepreneurial activity in high-technology, and STEM sectors (science, technology, engineering, and mathematics) (Bendell, Sullivan,

& Marvel, 2019), creative industries (Mylonas & Petridou, 2018), market-expanding, export-oriented and innovative business (Aidis & Weeks, 2016). We integrate all the previous concepts of high-impact entrepreneurship to build our theoretical framework.

As we mention in prior chapters, the regulative dimension refers to rules monitored and enforced through laws and government policies that promote or restrict society's behavior (Scott, 1995). Some examples of the regulative dimension applied to entrepreneurship are property rights, the rule of law, and tax policies (Chowdhury et al., 2019; Estrin et al., 2013). We identify in prior literature how this dimension constraints and enable high-impact female entrepreneurship.

Women have lower levels of expectation for the high-growth of their firms (Brush, Carter, Gatewood, Greene, & Hart, 2004). Some explanations of this are related to the sectors that traditionally women initiate their entrepreneurial activity and usually are less innovative (Ozkazanc-Pan & Clark, 2018). The lack of training programs compounds this problem to develop the potential of female entrepreneurs. In this regard, Braun (2010) calls for improving those essential digital and strategic skills of women entrepreneurs to participate in the knowledge economy. Part of this reality is that the incentives in female entrepreneurship's regulatory dimension have not remained favorable, especially in developing countries (Langevang, Hansen, & Rutashobya, 2018; Terjesen & Amorós, 2010). Another problem for female entrepreneurs at the regulative level is access to venture capital, decreasing their performance (Xie & Lv, 2016). Demartini (2018) shows that innovative female businesses have more difficulties raising financial resources than men. Therefore, we found that literature suggests the positive relationship between high-impact female entrepreneurship and a favorable regulative dimension, such as adequate levels of investment freedom, access to venture capital, less time and procedures to start a new business (Demartini, 2018; Langevang et al., 2018).

As we mention in prior chapters, the normative dimension involves the values that dictate what behavior is desirable in society, the goals, objectives, and how to achieve them. This pillar includes values and norms (Scott, 1995). The values and norms that differentiate men from women entrepreneurs differ in each groups' roles throughout history. Some behaviors and careers are stereotyped as masculine or feminine (Williams & Best, 1982). Therefore specific jobs have been considered more appropriate for each gender (Williams, Satterwhite, & Best, 1999). Entrepreneurship is historically considered as a male activity, and especially in more traditional cultures where women are often ascribed to a primary role as homemakers and children's caregivers, the societal values indirectly interpret women's entrepreneurship as less desirable and, as a result, provide lower normative support, which leads to lower opportunity recognition by women (Brush, de Bruin, & Welter, 2009). Those stereotypes also affect women's ability to pursue entrepreneurial careers and grow their businesses (Baughn et al., 2006; Langevang et al., 2015).

Alakaleek and Cooper (2018) found that Jordanian female founders of technology-based firms access venture capital differently than occidental female founders in the same sector. They use formal business networks in an early stage, establishing connections through formal events. In this study, networking platforms and events are essential for this type of entrepreneur. In some cultures, society does not support female entrepreneurial activity (Alakaleek & Cooper, 2018; Shukla, Chauhan, & Saumya, 2018), and those women need to find creative ways to find resources based on the opportunities in the market. This lack of support is mainly influenced by social norms (Baughn et al., 2006). Particularly, property traditions allow a woman to own property, but it tends to be her husband or father who manages it. So for them, it is more difficult to access loans (Shukla et al., 2018). Consequently, the literature review suggests the direct relationship between the social normative support towards women growing their businesses and female entrepreneurs' level (Baughn et al., 2006; Yousafzai et al., 2015). The extent to which entrepreneurship is encouraged for women would be expected to lead to a higher level of high-impact female entrepreneurship.

As we mention before, the cultural-cognitive dimension refers to the interaction between the individual and the society's external belief systems, which is the individual construction of reality based on the shared conceptions about different behaviors (Scott, 1995). In female entrepreneurship research, this dimension is related to the woman's self-confidence, skills, and competencies, and how she adapts the information that she receives from the regulative and normative institutions and makes her reality.

In general, high-impact entrepreneurship is influenced by the reward for an application that refers to the thinking that personal effort and knowledge help overcome difficulties (Turkina & Thai, 2015). The definition of reward for application is part of the cultural-cognitive dimension. In this sense, we infer that when females have higher levels of reward for application, the probability that she is in high-impact entrepreneurship increases.

Specifically, Bendell et al. (2019) show how male and female entrepreneurs immerse in high-technology firms have differences regarding their self-goal-setting and self-cueing behaviors, which has implications for the development of their new ventures. For their part, Martin, Wright, Beaven, and Matlay (2015) found that women adapt to contexts dominated by men as they are new companies in science, engineering, and technology. In this adaptation, female entrepreneurs need to make allowances to behave as an "honorary man," unquestioning the norms imposed by their counterparts. Moreover, female entrepreneurs have to earn a space based on demonstrating their hard work and expertise, while men are accepted as entrepreneurs with the necessary skills. However, the specific factors that facilitate this adaptation are not established, and female entrepreneurs affirm that they did not suffer overt discrimination but need to adapt to the context. The hard work and the expertise that refers to Martin et al. (2015) are related to education, previous experience, and individual abilities connected to the cultural-cognitive dimension in prior literature.

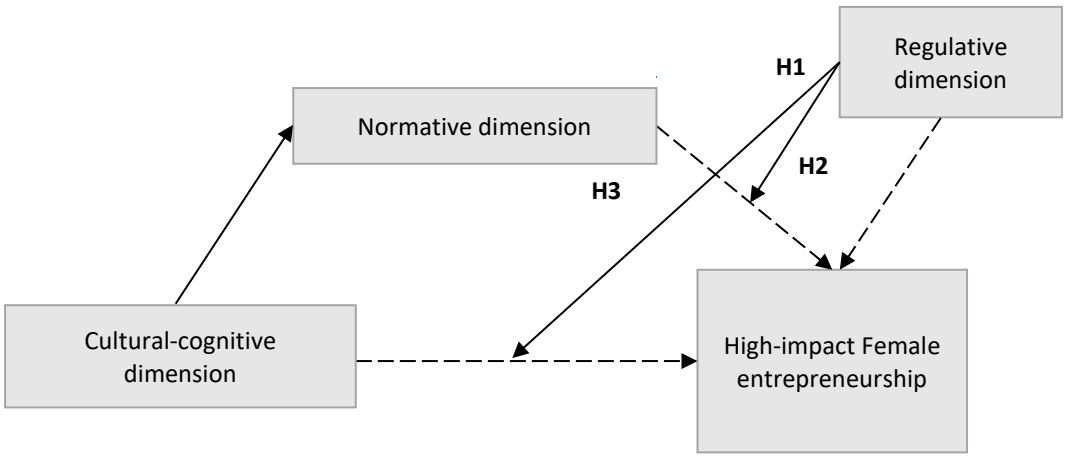
As we presented, the cultural-cognitive dimension is a frame to understand how female entrepreneurs face difficulties immersed in high-impact entrepreneurship. Therefore, prior literature suggests a positive relationship between high-impact female entrepreneurship and the cultural-cognitive dimension, such as good perceptions to overcome barriers, knowledge, and skills.

Moreover, despite the strong dependence between individual attributes and perceptions and entrepreneurship, some authors have found that context variables mediate (Klyver, Nielsen, & Evald, 2013; Lee & Marvel, 2014) or moderate (Capelleras et al., 2019) the effects of individual characteristics (related to cultural-cognitive dimension in our theoretical framework) on entrepreneurial activity. Thus, a personal attribute's negative influence can change if the context variable's impact is positive, generating a sort of compensation effect. Moreover, individual characteristics and perceptions influence entrepreneurial behavior; both vary according to the specific context in which people are embedded (Klyver et al., 2013; Welter, 2011). In specific analyses on women entrepreneurship, the variable on society's vision about female entrepreneurship was used as a mediator and moderator when analyzing the influence of institutional dimensions on women's ability for entrepreneurship (Yousafzai et al, 2015). In this study, it is observed that the mediation/mediator variable is one of the proxies used to operationalize the normative dimension.

As we presented in the literature, there is empirical and theoretical evidence about the direct relationship between the institutional dimensions, although the institutions are continually interacting (Busenitz et al., 2000; Scott, 1995). In consequence, we propose a moderated mediation model that explains the interaction between the institutional dimensions and the high-impact female entrepreneurship. Furthermore, according to the literature, Figure 6.1 shows the model that explains the following interaction hypothesis:

> **Hypothesis 1**: The regulative dimension (investment freedom, time to formalize a new business, number of procedures to initiate a business) moderates the relationship between the cultural-cognitive dimension (good perceptions regarding the conditions, the knowledge, and the skills) and high-impact female entrepreneurs.
>
> **Hypothesis 2:** The regulative dimension moderates the relationship between the normative dimension and high-impact female entrepreneurs.
>
> **Hypothesis 3**: The normative dimension mediates the relationship between the cultural-cognitive dimension and high-impact female entrepreneurship.

Figure 6.1 Moderated Mediation Model



Previous direct relationships in literature

As a general aspect, although previous research has focused on specific aspects of women entrepreneurs in high-impact sectors, we do not find a model that can integrate the factors that influence this type of entrepreneurial activity. In this sense, this study is necessary to advance in the construction of empirical evidence to understand the institutional and contextual factors, especially how the institutional dimensions interact between them and which dimensions are more critical to high-impact female entrepreneurs.

6.3 Methodology

Research Design and Sample

As we mentioned before, this study follows a mixed-methods design involving two stages. The first stage analyzes quantitative secondary data from different databases to find the paths and significant relationship between institutional dimensions and high-impact female entrepreneurship rates across OECD countries. The second stage took those relationships and reviewed the causal mechanisms in depth through in-depth qualitative research with a sample of high-impact female entrepreneurs. The female entrepreneurs were chosen for the interview based on theoretical sampling (Eisenhardt & Graebner, 2007). The combination of qualitative and quantitative research using a mixed-methods design helps researchers avoid each approach's disadvantages (Johnson, Onwuegbuzie, & Turner, 2007). Moreover, it helps to have a more comprehensive understanding of the phenomenon and answer the research questions.

Quantitative

Sample

The database used for quantitative analysis is from different sources; the dependent variable's information is from the OECD database, proxies for the regulative dimension are from the Doing business. On the other hand, proxies of normative and cultural-cognitive dimensions are from the Adult Population Survey (APS) developed by Global Entrepreneurship Monitor (GEM). Finally, the control variables were obtained from the World Economic Forum and the International Monetary Fund. Table 6.1 presents the list of dependent and independent variables used in this research, including each source.

Regarding the sample, we merge information from country-level in each source between 2004 and 2017, considering data availability. Our final sample consists of an unbalanced panel with data with 256 observations. The sample is made up of countries that belong to OECD, and this restriction is based on the dependent variable, which is only a measure for this group of countries.

Variables

The dependent variable in this study is high-impact female entrepreneurship which is operationalized at the country level through the percentage of female self-employees with tertiary studies. Acs (2010) shows that: *"high impact entrepreneurship that leads to economic growth is fueled by talent, tolerance and technology (3T), including knowledge spillovers, for Edward Glaeser (2005), it is human capital that drives growth".* One of the main conclusions is that for high-impact entrepreneurs education becomes the most important variable (Acs, 2008). Finally, Acs (2010) also show tertiary education as an efficiency enhancement of new business, therefore is expected that this type of new venture is high growth and high-impact.

The institutional dimensions are the explanatory variables in this model. These dimensions are not easy to measure, mainly because they are not directly observable. For this reason, we use some proxies to operationalize these constructs. The measurements are presented below:

Regulative dimension. To operationalize this dimension, we consider the indicators of doing business from the world bank. We use the data from the number of procedures and the number of days to start a business. Also, we use the cost of starting a business (% of income per capita), all these variables specifically for women in each country.

Normative dimension. This dimension refers to the evaluation that people in society attach to entrepreneurship. The first proxy is the entrepreneurial status as the percentage of people who attach high status to entrepreneurs. Moreover, to operationalize this dimension, we also consider entrepreneurial media attention, measured through the percentage of people who perceive the media

attention for entrepreneurship in their countries. Finally, the variable entrepreneurial career that measures the percentage of people in a country that consider starting a business is a good career choice.

Cultural-cognitive dimension. It refers to the individual's perceived opportunities and capabilities to start a new venture, the factors they consider about the ease or difficulty of becoming an entrepreneur, formed based on the individual interaction with the context. This measure incorporates information about perceived opportunities measured as the percentage of people in a country who considers that there are good possibilities to initiate a new firm. On the other hand, we operationalize this construct with the variable called skills, which refers to the percentage of people who believe they have the knowledge, skill, and experience required to start a new business.

Table 6.1 Definition of variables

	Variable	Description	Database
Dependent variable	High-impact Female entrepreneurship	Percentage of female self-employees with tertiary studies	OECD 2004–2017
Regulative dimension	Procedures	Number of business procedures (women) x Days to start a business (women)	Doing business 2004–2017
	Costs	Costs to start a business for (women) % of income per capita	
Normative dimension	Entrepreneurial career	Percentage of people in a country that consider starting a business as a good career choice.	GEM 2004–2017
	Entrepreneurial status	Percentage of people in a country that attach high status to successful entrepreneurs.	
	Media attention	Percentage of people that consider that there is lots of media attention for entrepreneurship in that country.	
Cultural–cognitive dimension	Opportunity	Percentage of people that agreed with the statement "There are good conditions to start a business in the next six months."	GEM 2004–2017
	Skills	Percentage of people that agreed with the statement "You have the knowledge, skill, and experience required to start a new business."	
	Fear of failure	Percentage of people that agreed with the statement "Fear of failure would prevent starting a business."	
Control variables	Per capita income	Natural logarithm of gross domestic product at purchasing power parity per capita, constant prices (U.S. dollars).	World Economic Outlook Database 2004–2017

Preliminary Analysis

Table 6.2 shows the correlation matrix. Most of the institutions considered are significantly correlated with the dependent variable.

In the quantitative analysis, we first run a panel data model to confirm the direct relationship between the institutional dimensions and high-impact female entrepreneurship. In Stata, we run a pooled regression, which omits the dimensions of space and time of the data, calculating the ordinary least

squares regression by OLS. Later we estimate random and fixed effects models, and we use the Hausman specification test to verify the choice of the fixed or random-effects model, which shows that the difference in coefficients is not systematic. In this sense, we choose random effects. Second, the quantitative analysis's essential part calculates the mediated moderation showed in Figure 6.1. This model was calculated using the statistical software PROCESS (Hayes, 2018).

Table 6.2 Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Female Entrepreneurship	1.000								
(2) Procedures	-0.172**	1.000							
(3) Cost	-0.036†	0.492*	1.000						
(4) Career	-0.176**	0.114**	0.257*	1.000					
(5) Status	0.123**	-0.213*	-0.273*	0.114**	1.000				
(6) Media	0.253*	-0.271*	-0.376*	0.102†	0.356*	1.000			
(7) Skills	-0.266*	0.065	0.075	0.519*	0.158*	0.157*	1.000		
(8) Opportunities	0.164*	-0.229*	-0.264*	0.234*	0.351*	0.441*	0.276*	1.000	
(9) Fear of Failure	-0.239*	0.132**	0.085	0.034	0.035	-0.319*	-0.051	-0.302*	1.000
(10) GDP	0.124**	-0.238*	-0.507*	-0.204*	0.271*	0.239*	-0.279*	0.279*	-0.119**

* Correlation is significant at the 0.01 level (two-tailed) ** Correlation is significant at the 0.05 level (two-tailed)
† Correlation is significant at the 0.10 level (two-tailed)

Qualitative

Sample and cases selection

We implement Fuzzy-set qualitative comparative analysis (fsQCA) to analyze the causal relationships between institutional dimensions and high-impact female entrepreneurs. To implement fsQCA, the sample should meet two main characteristics: first, the cases should be similar enough to compare, and second, we needed variation across the cases. This variation should be in the outcome and also the conditions (Ragin, 2008).

Regarding selecting the cases, we decide to search the female entrepreneurs in two different cities (Barcelona and Medellín). In these two cities are entrepreneurship ecosystems that promote entrepreneurship to increase development and growth. The conditions to select the cases were: the entrepreneur should be a woman, part of the foundation team, no more than five years since foundation, new business on STEM sectors (science, technology, engineering, and mathematics). Most of the criteria were based on the principle that we need cases similar enough to compare.

Most of them were searched through LinkedIn with female CEO, founders, and years since the foundation' criteria in the two cities. After analyzing the potential cases based on our selection criteria and contrast with secondary data such as web pages, LinkedIn, and Instagram. We contacted the entrepreneurs through LinkedIn or e-mail, depending on the availability of online resources' contact information. In the first stage in Barcelona, were contacted 14 entrepreneurs and 10 in Medellín. In Barcelona, eight entrepreneurs answered the message, and eventually, after a short chat and interview

regarding the project, they agreed to participate. The process was similar to entrepreneurs in Medellín, but they were more challenging to find. On LinkedIn, the entrepreneurs we contacted just two replied. We asked different entrepreneurial ecosystem actors, such as university professors and consultants, if they know any woman with the cited criteria. Due to the COVID-19 restrictions, all the interviews were done through video call via Zoom between June and September 2020.

Semi-structured interviews were continued until saturation of themes was achieved. We concrete the interviews with 14 female entrepreneurs. The first two interviews are not part of our final sample because they were used as a pilot test to change some questions and be sure we had the right instrument. Each interview was between 40 and 60 minutes and was recorded and transcribed. The final sample includes 12 entrepreneurs. All the interviews were conducted in Spanish, the official language in both cities. Table 6.3 includes the sociodemographic information of the sample.

Table 6.3 Description of the sample fsQCA

Case	Age (years)	Age Firm (months)	Number Employees	Immigrant yes=1 no=0	Cofounder yes=1 no=0	How it started	Technology / Patent+
1*	25	60	2	0	1	URP	Machine learning
2*	43	29	6	0	1	URP	Analytics
3*	26	60	1	0	0	PO	Nanotechnology+
4*	34	36	5	1	0	URP - PO	3D print
5*	29	48	12	0	1	SO	Specialized consultant
6*	37	60	15	0	1	MO	Specialized consultant
7**	44	25	2	1	1	URP	Analytics
8 **	51	60	4	1	0	MO	Machine Learning
9**	26	48	9	1	1	MO	InsurTech
10**	37	36	9	1	1	URP - SO	Digital image processing+
11**	32	24	6	1	1	PO	Specialized consultant
12**	32	37	6	1	1	MO -PO	Machine Learning
Mean	34	43	6.42				
Std. Dev.	7.77	13.59	4.03				
Min	25	24	1				
Max	51	60	15				

*Medellín **Barcelona +Patent
Cases 9 and 11 are not selling at the moment of the interview
URP= University research project, PO= Personal opportunity, SO= Spinoff, MO= Market opportunity

The semi-structured interview themes were based on the entrepreneurial process: motivations to become an entrepreneur, experiences of running a business as a woman, challenges and opportunities experienced, tactics for dealing with challenges, and aspirations for the future. Based on Busenitz (2000) and Langevang et al. (2018). See Appendix B.

Fuzzy-set qualitative comparative analysis

Qualitative Comparative Analysis as a technique is increasing in popularity in business and the social sciences (Dwivedi, Joshi, & Misangyi, 2018), particularly entrepreneurship and innovation research (Beynon, Jones, & Pickernell, 2020). The underpinnings of the analysis, which is set-theoretical,

include combinatorial logic, fuzzy-set theory, and Boolean minimization to detect the combinations of case conditions that may be necessary and sufficient to produce an outcome (Ragin, 2006). Necessary conditions are causes that must be present for an outcome to occur, while sufficient conditions are causes that always lead to the outcome. To identify these conditions, fsQCA seeks commonalities and differences across cases sharing the same outcome (Fiss, 2011). Thus, the inductive approach of fsQCA identifies the configurational relationships between the conditions and an outcome (Fiss, 2011). In this study, the institutional dimensions and the high-impact female entrepreneurship, respectively. Due to the different approaches to measure and consider high-impact in the literature, we choose new employment generation and high-technology applications to set the outcome. The fsQCA method is particularly apt for analyzing causal complexity and is, thus, appropriate for this research (Ragin, 2008). One of the strengths of fsQCA is its applicability in small samples (Fiss, 2011). Then, we use fsQCA software 3.0 for the analysis (Ragin, 2018).

Measurement and calibration

After completing the data collection, we performed a content analysis of the raw interview data using qualitative data analysis software (Atlas.ti). To code the interviews, we developed an initial list of codes based on the preliminary list of indicators for the conditions (institutional dimensions) and the outcome (high-impact female entrepreneurship), see Table 6.4. As proposed in Basurto and Speer (2012), when interviewees had pointed out an additional indicator of one of our institutional dimensions or the outcome that we had not captured in the preliminary list of measures, we added it in the course of the content analysis using open coding.

Table 6.4 preliminary list of measures of the conditions and the outcome

Regulative	
Rules regarding the sector	Contacts with government support programs
Contacts with university support programs	Perception of the governmental programs
Financial support (credits) yes/no	Perception regarding the formalization process
Normative	
Support from family	Easy of starting a business in the city
Admiration/recognition of entrepreneurship in the city	Culture
	Social Support
Admiration/recognition of her work as an entrepreneur	Entrepreneurial culture
Entrepreneurial ecosystem	Role models
Cultural-cognitive	
Previous experience in the sector (years)	Technical skills
Previous experience in the sector (other projects related)	Management Skills
Previous entrepreneurial experience	Motivation to run the business
Knowledge regarding the (legal) protection of the new business	Perception of female Entrepreneurship in STEM
	Fear of failure
Outcome	
High Tech	Number of employees
Sales – Profitability	

After comparing the responses, we assign values to each indicator following Basurto and Speer (2012: 164). Later, the sum of indicators values yields the score of each condition. The step before the truth table analysis is the construction of the data matrix where the qualitative data is calibrated. The calibrated data matrix is available in Table 6.5, and scales and raw data matrix are available in Appendix C. Calibration assigns each case a degree of a set membership (based on the punctuation in the previous step). We relied on previous theories and knowledge to establish all calibration thresholds. Membership scores range from 0 to 1, where 1 indicates full membership; 0, full non-membership; and 0.5, the point of maximum ambiguity between membership and non-membership. We calibrated the data by setting the fully-in and fully-out cutoff points at +/- one standard deviation (SD) from the median, with the point of maximum ambiguity set to the median for each variable (Douglas, Shepherd, & Prentice, 2020).

Table 6.5 Calibrated Data Matrix

Case	Regulative	Normative	Cultural-cognitive	Employment	High-Tech
1	0.5	0.25	0.5	0.25	1
2	0.5	1	0.5	0.75	1
3	0	0.5	0	0	1
4	0.25	0.5	1	0.25	0.75
5	1	1	0.75	1	0.25
6	1	0.25	0.25	1	0.25
7	1	1	1	0.25	0.75
8	1	0	1	0.25	1
9	0.5	0.75	1	1	0.75
10	0	0.25	0.25	1	1
11	0.75	0	0	0.75	0.25
12	0	0.25	0.25	0.75	1

Since the literature is imprecise about the high-impact definition, we contrast two different outcomes. The first one is employment measured as the number of employees, and the second one is high-tech, which measures the degree of innovation of each case. While the first variable indicates the level of employment generation, the latter provides information regarding the firm's innovation, and both are components of high-impact entrepreneurs that correspond to the definition that high-impact "ensure the utilization of invention, contribute to increased productivity, and both facilitate and contribute to economic growth" (Acs, 2010). Outcomes scores also follow the calibration process setting the membership through the +/- SD approach (Douglas et al., 2020).

6.4 Results

To achieve the aim of the Chapter, a mixed-methods approach was used. First, we present the quantitative model results, which establish the influence of the institutional dimensions on high-impact female entrepreneurship and their interactions. Second, the results of the fsQCA allow the understanding of the causal mechanisms of the interactions.

Table 6.6 shows the panel data analysis, which relates the institutional dimensions' influence on the proxy of high-impact female entrepreneurial activity across OECD countries.

Table 6.6 Results Cross-sectional time-series FGLS regression testing effects of institutional dimensions on high-impact female entrepreneurship

Female Entrepreneurship		Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Regulative	Procedures	-0.003	0.001	-2.22	0.026	-0.006	0.000	**
	Cost	0.126	0.038	3.30	0.001	0.051	0.201	***
Normative	Career	-0.045	0.023	-1.96	0.050	-0.091	0.000	*
	Status	0.057	0.028	2.09	0.037	0.003	0.111	**
	Media	0.066	0.025	2.67	0.008	0.017	0.114	***
Cultural-cognitive	Skills	-0.122	0.027	-4.53	0.000	-0.175	-0.069	***
	Opportunity	0.034	0.019	1.77	0.077	-0.004	0.071	*
	Fear of failure	-0.078	0.027	-2.92	0.003	-0.130	-0.026	***
Moderation effects	Opportunity x Procedures	0.002	0.007	0.23	0.811	-0.011	0.014	ns
	Status x Procedures	-0.031	0.011	-2.88	0.004	-0.052	-0.010	***
	Constant	11.412	2.261	5.05	0.000	6.981	15.842	***

Mean dependent var	9.595	SD dependent var	4.375
Number of observations	279	Chi-square	84.378
Prob > chi2	000	Akaike crit. (AIC)	1558.542

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Specifically, for the regulative dimension, when the time to open a business and the number of procedures for the women in a country increases, the percentage of entrepreneurial activity studied decreases. Regarding the normative dimension, when the society considers entrepreneurship a good career choice, the percentage of high-impact female entrepreneurial activity decreases; this result is statistically significant and counterintuitive (β = -0.045, $p < 0.1$). However, the other two proxies related to normative dimensions, when society attached high status to entrepreneurial activity and the media attention for entrepreneurial activity is favorable, the percentage of high-impact female entrepreneurship increases. The results are statistically significant. Analyzing the cultural-cognitive dimension results, we found empirical evidence about fear of failure negatively influences high-impact female entrepreneurship (β = -0.078, $p < 0.01$). The perception of good opportunities also has a positive influence on high-impact entrepreneurial activity (β = 0.034, $p < 0.1$). Although the proxy regarding the confidence in the knowledge, skill, and experience negatively influences the high-impact female entrepreneurship (β = -0.122, $p < 0.01$).

We control the model using the gross domestic product, and the results are consistent. Although this variable changes the model in prior research significantly, in this case, as we are contemplating data

from OECD countries (more standardized in terms of development), we expect that this variable does not have a huge impact.

After analyzing the relationship between the three different institutional dimensions on high-impact female entrepreneurship and confirming prior literature relationships, we analyze the interactions, H1 and H2 propose the moderation effects. On the one hand, H1 suggests the moderation between regulative and cultural-cognitive dimensions influencing high-impact female entrepreneurship. Results on H1 are not statistically significant (β=0.02, p< n.s). On the other hand, H2 proposes the moderation between the regulative and the normative dimension influencing high-impact female entrepreneurship.

Table 6.6 shows that the interaction between status and procedures is significant, supporting H2. To confirm the moderation, we then used the bootstrapping-based analytic approach described by Edwards and Lambert (2007) as Table 6.7 shows. As Berry, Golder and Milton (2012) indicate, conditional effects are significant when both confidence interval lines lie below or above zero.

Table 6.7 Conditional indirect effects of cultural-cognitive on high-impact female entrepreneurship – moderated by procedures

Procedures	Effect	BootSE	BootLLCI	BootULCI
-2.404	0.022	0.008	0.007	0.038
-0.404	0.008	0.006	-0.003	0.019
2.596	-0.013	0.010	-0.034	0.006

To illustrate this result regarding H2, Figure 6.2 presents the interaction terms. When the procedures to start a business for a woman decrease, female entrepreneurship increases and the slope changes when the status to entrepreneurial activity increases and the relationship becomes statistically significant.

Figure 6.2 Interaction effect of the regulative and normative dimension

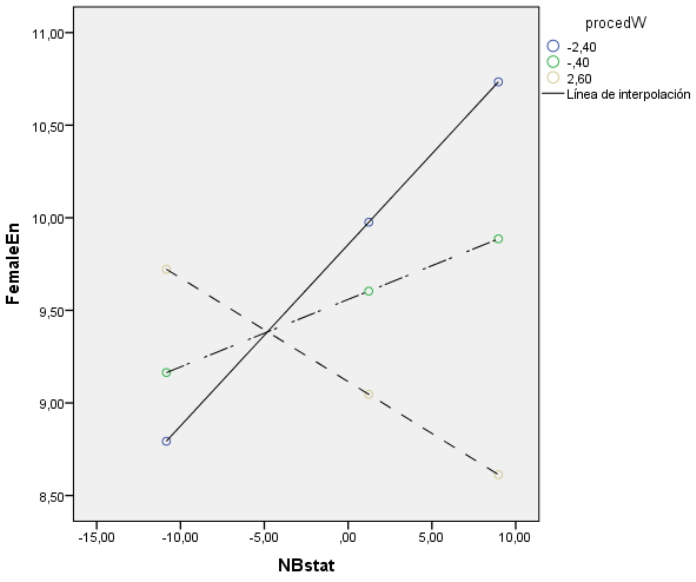


Table 6.8 shows the moderated mediation effect of cultural cognitive through a positive normative dimension (status) moderated by the procedures. First, the conditional direct effect, meaning the moderation between regulative and cultural-cognitive dimension that influence high-impact entrepreneurship is not significant at any point (conditional indirect effect = 0.022, SE = 0.008, 95% CI= 0.07 to 0.038), this result is consistent with the model in Table 6.6 that does not support H1. Second, the effect of the indirect effect (mediation) is significant when there are fewer procedures (conditional indirect effect =0.022, SE = 0.008, 95% CI = 0.07 to 0.038). The null of 0 does not fall between the lower and upper bound of the confidence interval. The effect becomes not significant and is weaker when there are more procedures.

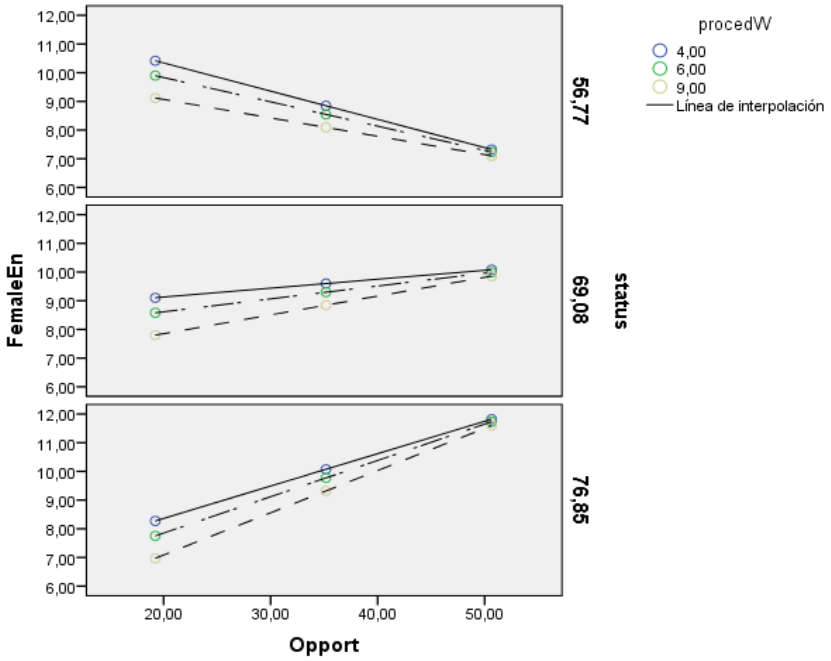
Table 6.8 Conditional indirect and direct effects of cultural-cognitive on high-impact female entrepreneurship

Conditional Direct effect	Cultural-cognitive → High-impact Female Entrepreneurship (moderated)					
Procedures	Effect	se	t	p	LLCI	ULCI
-2.404	0.030	0.022	1.382	0.168	-0.013	0.073
-0.404	0.033	0.018	1.801	0.073	-0.003	0.069
2.596	0.038	0.028	1.353	0.177	-0.017	0.093

Conditional Indirect effect	Cultural-cognitive → Normative → High-impact Female Entrepreneurship			
Procedures	Effect	BootSE	BootLLCI	BootULCI
-2.404	0.022	0.008	0.007	0.038
-.404	0.008	0.006	-0.003	0.019
2.596	-0.013	0.010	-0.034	0.006
Index of moderated mediation				
	Index	BootSE	BootLLCI	BootULCI
Procedures	-.007	.003	-.012	-.002

The moderated mediation index test indicates that the moderated indirect effect of the regulative dimension (procedures) on the cultural-cognitive dimension was statistically significant (index=-0.007, SE = 0.003, 95% CI = -0.012 to 0.002). The null of 0 does not fall between the lower and upper bound of the confidence interval. This result supports H3 regarding the indirect effect of the normative dimension in the relationship between cultural-cognitive and high-impact female entrepreneurship The model focuses on cultural-cognitive and its direct and indirect effects on high-impact female entrepreneurs, moderated mediation by regulative and normative dimensions. The cultural-cognitive dimension is our focal antecedent (Hayes, 2018: 510). Figure 6.3 Interaction among the three dimensions (Moderated mediation regarding H3. When entrepreneurial activity status is higher, the cultural-cognitive dimension's indirect effect on high-impact female entrepreneurship increases.

Figure 6.3 Interaction among the three dimensions (Moderated mediation)



As we mentioned before, we found significant relationships between the institutional dimensions and high-impact female entrepreneurial activity across countries. However, those quantitative analysis based on correlations does not allow asymmetric causality assumptions, which is one of the main criticisms of this approach (Fiss, 2011). Consequently, this study's second phase seeks to go beyond the institutional dimensions' interaction and their effect on high-impact female entrepreneurship. That is why the fsQCA is proposed to overcome the limitation on causal relationships and allow in-depth analysis of how to measure the institutional dimensions that affect high-impact female entrepreneurship by comparing cases and analyzing their outcomes.

Qualitative analysis

After the calibration process, following Ragin (2008), the first step of the analysis process is to perform necessary condition tests and, finally, sufficiency tests. The necessary condition means the outcome is the subset of the causal conditions, and it means high-impact female entrepreneurship is caused by the institutional dimensions, which can be evaluated by the consistency score (Ragin, 2006). A consistency score greater than 0.75 implies that a condition is necessary or almost always necessary (Ragin, 2008). Table 6.9 shows the results of the necessary conditions tests for the operationalization of high-impact female entrepreneurship. According to the necessary conditions test and their consistency score, the institutional dimensions need to interact to achieve employment generation or high technology.

Table 6.9 Analysis of Necessary Conditions

Conditions tested	Outcome			
	Employment		High-tech	
	Consistency	Coverage	Consistency	Coverage
Regulative	0.68	0.73	0.61	0.79
~Regulative	0.50	0.64	0.47	0.85
Normative	0.54	0.65	0.56	0.87
~Normative	0.57	0.64	0.56	0.80
Cultural-cognitive	0.57	0.62	0.58	0.84
~Cultural-cognitive	0.57	0.73	0.50	0.78
Develop_country	0.57	0.67	0.53	0.79
~Develop_country	0.43	0.50	0.47	0.71
Regulative+Normative	0.79	0.65	0.75	0.79
Regulative+Cultural-cognitive	0.82	0.70	0.72	0.79
Normative+Cultural-cognitive	0.61	0.55	0.83	0.83
Regulative+Normative+Cultural-cognitive	0.82	0.62	0.86	0.79

Then, we perform sufficient condition tests using the truth table approach (Fiss, 2011). The truth table was calculated with all the logically possible configurations for each outcome and then reduced by specifying the consistency and frequency threshold. Since our sample is 12 cases, a frequency threshold of one is appropriate. Then, those configurations without a case were deleted. Regarding the consistency threshold, we assign the value=1 to each outcome when the consistency value of that configuration equals or exceeds 0.75 and assigns the value=0 otherwise.

To distinguish between core and peripheral conditions, we consider the intermediate and parsimonious solutions. A core condition has a strong causal relationship with the outcome, showed in parsimonious and intermediate solutions. Furthermore, the peripheral condition has a weaker causal relationship with the outcome, appearing only in the intermediate solution (Fiss, 2011). Table 6.10 groups the solutions according to both core and peripheral conditions.

Table 6.10 Analysis of sufficient conditions

Outcome: Employment			
Sufficient conditions	Raw coverage	Unique coverage	Consistency
Parsimonious solution			
Normative	0.54	0.36	0.65
Regulative*~Cultural-cognitive	0.36	0.18	0.91
solution coverage: 0.71			
solution consistency: 0.69			
Intermediate solution			
Regulative*~Cultural-cognitive	**0.36**	**0.18**	**0.91**
Regulative*Normative	**0.43**	**0.25**	**0.80**
solution coverage: 0.61			
solution consistency: 0.81			

Outcome: High Technology/ Innovative			
Sufficient conditions	Raw coverage	Unique coverage	Consistency
Parsimonious solution			
~Regulative	0.61	0.31	1.00
Cultural-cognitive	0.58	0.28	0.81
solution coverage: 0.89			
solution consistency: 0.86			
Intermediate solution			
~Regulative	**0.61**	**0.31**	**1.00**
Cultural-cognitive	**0.58**	**0.28**	**0.81**
solution coverage: 0.89			
solution consistency: 0.86			

To facilitate comparisons across the results (Rubinson, 2019), Table 6.11 present the configurations following Fiss (2011) configuration chart.

All the intermediate solutions consistency scores are above the recommended minimum value of 0.75 (Ragin, 2008), so these causal conditions are sufficient for high-impact female entrepreneurship measured through the employment and high-tech outcomes.

For the outcome employment, the intermediate solution, which is recommended to analyze above the other solutions, consistency and solution coverage are 0.71 and 0.69, respectively, representing appropriate values for both indicators (Ragin, 2008). Overall, the causal combinations in Table 6.11 account for 69% of the total membership in high-impact female entrepreneurship.

Table 6.11 Configurations for High-Impact Female Entrepreneurship

	Employment				High-Technology	
Configurations	**1[a]**	**2[a]**	**3[b]**	**4[b]**	**5[ab]**	**6 [ab]**
Regulative dimension		●	●	●	○	
Normative dimension	●			●		
Cultural-cognitive dimension		○	○			●
Consistency	0.65	0.91	0.91	0.80	1.00	0.81
Raw Coverage	0.54	0.36	0.36	0.43	0.61	0.58
Unique Coverage	0.36	0.18	0.18	0.25	0.31	0.28
Overall Solution Consistency	**0.71**		**0.81**		**0.86**	
Overall Solution Coverage	**0.69**		**0.61**		**0.89**	

[a] Configurations of Parsimonious Solution
[b] Configurations of Intermediate Solution
● Represent the presence of the condition ○ Represent the absence and blank spaces "do not care" meaning that the condition may be present or absent in the configuration

Regarding the high-tech outcome, the consistency and solution coverage are 0.89 and 0.86, respectively. In this analysis, the parsimonious and intermediate solution is the same. This solution accounts for 89% of the total membership in high-impact female entrepreneurship.

The raw coverage scores for all the solutions are relatively high and imply great empirical importance. The results show that sufficient configurations differ depending on the outcome we evaluate to measure high-impact female entrepreneurship. The presence of the regulative dimension in interaction with normative and absence of cultural-cognitive are sufficient configurations to generate higher employment levels. This finding supports the study's assumption that institutional dimensions interact to influence high-impact female entrepreneurs.

Regarding the innovative high-technology outcome, the absence of the regulative dimension or the presence of cultural-cognitive dimension is sufficient configuration by themselves for the outcome. This result explains how female entrepreneurs overcome the absence of regulatory context favorable through the cultural-cognitive dimension that refers to their skills and the perceived opportunities.

6.5 Discussion

How the environment encourages or inhibits high-impact female entrepreneurship? This paper explores the institutional dimensions' influence on high-impact female entrepreneurs. The first quantitative stage shows that institutional dimensions influence high-impact entrepreneurial activity, and they are in constant interaction, corroborating prior results (Yousafzai et al., 2015). The second stage of this study

was the qualitative analysis through fsQCA. Previous research that also implements fsQCA analysis focuses on the female entrepreneurship rates and not specific outcomes (Yaokuang Li et al., 2020). Through this research, we analyze the specific conditions that lead to high-impact female entrepreneurship, moreover their outcomes in terms of employment and high technology.

The first hypothesis, which proposes the regulative dimension (measure as procedures to start a business) acts as a moderator in the relationship between the cultural-cognitive dimension and high-impact female entrepreneurship, was not supported. Overall, the model tested showed that the two variables selected as measures of the regulative dimension have a main effect on high-impact female entrepreneurship. Therefore, the procedures to start a new business have a negative effect on female entrepreneurial activity, which is consistent with the literature (Langevang et al., 2018; Terjesen & Amorós, 2010). Although this result can also be extrapolated to men, it is important to show that for high-impact women entrepreneurs the empirical analysis supports the theory. Since in these areas women tend to camouflage themselves and follow the rules pre-established by the sector that has been primarily male-oriented (Martin et al., 2015).

However, the costs to start a business also associated with the regulative dimension has a positive and statistically significant sign. Although this result is counterintuitive, it is not surprising since high-impact female entrepreneurship is unique, and those entrepreneurs must overcome high costs associated with the sector and high growth firms, like patents, access to human and financial capital (Devine et al., 2019; Singh, 1997).

For this reason, it is expected that the regulatory dimension in this study does not have a statistically significant effect on the relationship between the cultural-cognitive dimension and high-impact female entrepreneurship. When comparing these results with the female entrepreneurs' cases, we find that they are aware of the high costs they incur when starting high-impact firms. For instance, entrepreneurs in both Medellín and Barcelona affirm they face legal barriers. They argue that: "startups and digital companies are agile and flexible, but the regulations are old, very traditional, that means bureaucracy, administrative processes, translate in wasting time and resources" (Case 12), "You should be spending your time selling more, taking your business forward, and not in administrative bureaucracies" (Case 2). However, we found that not having a favorable regulative dimension does not stop them from moving forward.

Consequently, the question to address is what Latin American countries should do to generate favorable environments for high-impact entrepreneurship. And specially from a gender perspective how to make women see a career as entrepreneurs in sectors with high growth and high-impact possible. Some of the results in this chapter support the call of OECD et al. (2020) endorsing programs to develop management skills to grow high-impact new ventures, those education strategies should come together with financing and assistance and policies that ensure the same opportunities for men and women.

Finally, the OCDE et al. (2020) refers to the importance of low-cost good-quality childcare, financial aid, and teaching practices without gender bias encouraging women transition to higher education. The ability to export high value-added products and services is another of the skills that should be promoted in Latin American countries. Studies such as Acs and Amorós (2008) show that Latin American countries face negative effects on international orientation entrepreneurship. The authors suggest that Latin-American should focus on structural production efficiency instead of improving general entrepreneurship in the country, as mentioned above because high-impact entrepreneurship has outstanding outcomes and allows more development and growth.

Regarding the second hypothesis, results show when the procedures to start a business for a woman decrease, and there is a high status attached to entrepreneurial activity, female entrepreneurship increases. This result corroborates that the regulations necessary for the high-impact female entrepreneurial activity and the context related to the high status of entrepreneurs in society play an important role. For example, to decide the place to start the business, one of the entrepreneurs affirm: "I started to look in which country I can start a business without feeling like a bad person because I have children and a company, I thought of the United States, but it is very far away, I have my family in France, but the support is zero, and in Barcelona, I find that they are open" (Case 8). Also, how the status of being an entrepreneur in the family and the city is relevant: “So my parents were always very happy and proud of me, with the things we have achieved in the business (…) I think we are fortunate to live in Medellín, we are in an ecosystem that promotes innovation, new entrepreneurship ideas and I think it is something very positive.” (Case 5). Culture and context promoting female high-impact entrepreneurship corroborate the normative dimension importance.

Regarding the third hypothesis, bootstrapping results showed significant indirect and direct effects, according to which the normative dimension explains the mechanism linking cultural-cognitive dimension to high-impact female entrepreneurship. In other words, the normative dimension, status for entrepreneurship, accounts for part of the explained variance of cultural-cognitive dimension, expressed here as the perception that a person has opportunities to start a business on high-impact female entrepreneurs. Some female entrepreneurs show how the normative dimension influences the cultural-cognitive dimension that expands the explanation of quantitative results. For example, the role models that influence the perception of females’ capacities and possibilities to start their business in STEM sectors. “Let us say that, in part, the idea of getting into engineering and also starting a business was thanks to my dad, because my dad is an engineer and since I was very young, he always talked to me about the universe, about physics, about mathematics.” (Case 3), “My dad had a company, so there was always an affinity to be able to start a business; in fact, I was working with him for a time (...) that opened up the world of what one can do with an enterprise.” (Case 4). Results show how the normative dimension influence the cultural-cognitive, through parents that generate different mindset for high-impact female entrepreneurs.

As we can find examples in the interviews to illustrate the quantitative findings, the fsQCA corroborates and expands the mediated moderation model results regarding the interaction among the institutional dimensions influencing high-impact female entrepreneurship. The moderated mediation becomes statistically significant when there are fewer procedures. This result shows the statistically significant interaction among the three institutional dimensions. For the 12 cases in this study, fsQCA results demonstrate the interaction among the three institutional dimensions as a necessary condition for high-impact entrepreneurship. However, the sufficiency results show the absence of the regulative dimension with the assumptions of the other two dimensions' presence leads to innovative female-led new ventures. This result is very interesting, to some extent, because it explains why panel data results do not support the interaction among the regulative and the cultural-cognitive dimension interaction. Both are consistent with the difficulty reported in prior research that women always have to overcome at the regulatory level (Langevang et al., 2018; Terjesen & Amorós, 2010), for example, to raise venture capital (Demartini, 2018), female entrepreneurs are vulnerable to gender discrimination in acquiring resources (Kanze et al., 2018; Xie & Lv, 2016). In this sense, the cultural-cognitive dimension plays a relevant role in developing an innovative new business. In all the selected cases, the entrepreneurs believe that difficulties are expected in the process, and they are aware of the possible failure. However, it does not stop them from continuing.

Moreover, some of them have failed in starting a new business, but they continue because they have a high and positive cultural-cognitive dimension through entrepreneurship, even when the social context is not supportive. Those results explain why prior research such as Kanze et al. (2018) finds that female entrepreneurs change their circumstances when they understand that in venture capital raising, women are discriminated against males. However, they increase their performance by answering the investors' prevention questions with promotion answers. In this case, the ability of entrepreneurs to adapt (cultural-cognitive dimension) to the context is crucial to achieving positive results. Specially in Latin American Countries where is high uncertainty due to the insecurity problems and high levels of corruption, the adaptation skills related to cultural-cognitive dimension should be placed in an important place in educational spheres (OECD/ECLAC/CAF, 2016; OECD et al., 2020).

Between the multivariate analysis (panel data and mediated moderation) and fsQCA, the results are complementary. They serve to answer different questions that each approach isolated is not able to address. Net effects of panel data and the moderated mediation models analyses only examine direct and indirect effects of independent variables on dependent variables and ignore the complexity of antecedent combinations in reality. However, net effects analyses indicate whether the relationship between independent and dependent variables is statistically significant, and the relationship's direction may not be relevant to any particular case. For this reason, fsQCA is a good complement and goes further in the specific analysis maintaining the integrity of individual cases while identifying causal conditions combined to produce an outcome in the real world (Woodside, 2013).

6.6 Conclusions

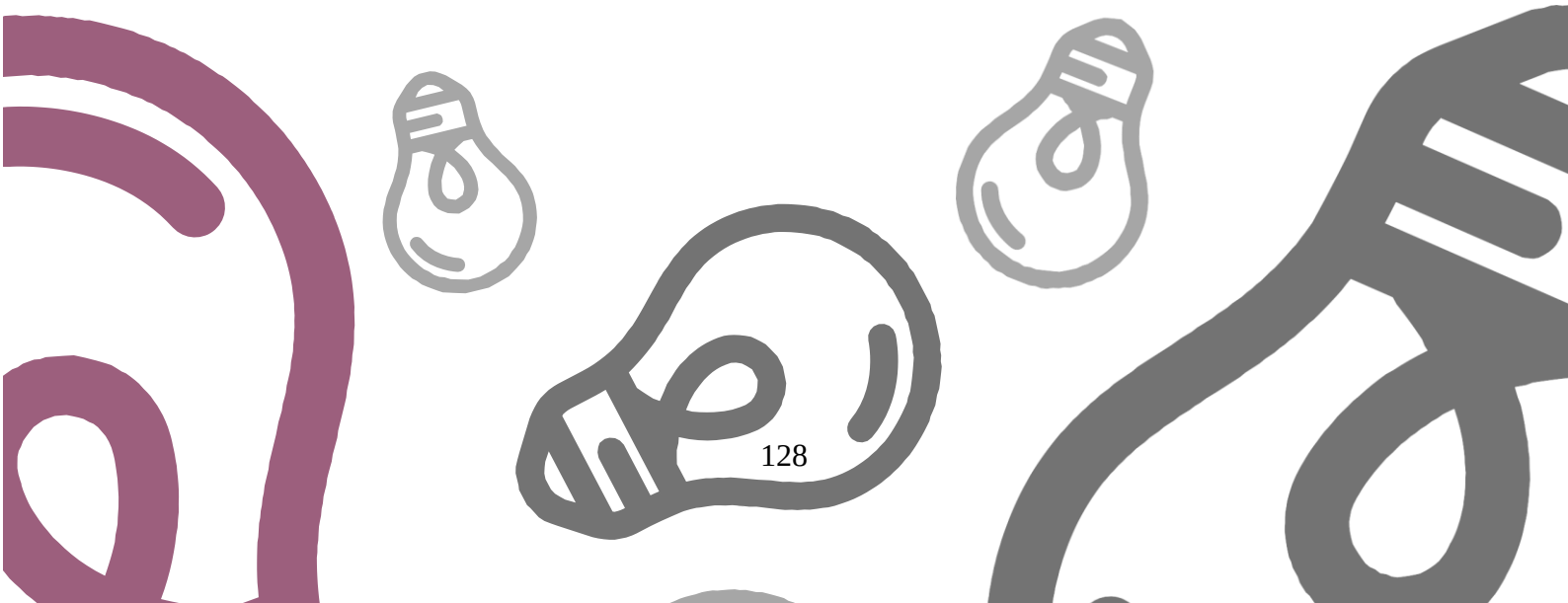
The results contribute to advancing the research field by understanding the institutional dimensions' interactions to explain high-impact female entrepreneurship in countries with different levels of development. The institutional dimensions explain high-impact female entrepreneurship rates and their outcomes regarding high technology and employment. Moreover, this study empirically confirms new causal mechanisms not explored before in the literature. The instrument development and the primary data design in the qualitative stage serve to overcome the big issue and criticism when analyzing the institutional dimensions. Previous research has to use proxies that are not entirely designed to measure the dimensions. We offer a systematic way to measure the institutional dimensions in entrepreneurship research through in-depth interviews. Also, we followed a mixed-methods design that "combine qualitative and quantitative methods, approaches, and concepts in a way that produces complementary strengths and nonoverlapping weaknesses" (Johnson et al., 2007: 127).

The study contributes not only to the theory but also has implications for policymakers. The regulative dimension should be favorable to increase new ventures' job creation that leads to development. Moreover, for innovation and high-tech new ventures, the law should be more dynamic. Entrepreneurs with the highest levels of technology argue that the regulations are complicated for the technology sector; in some cases, the type of businesses they lead is not included in the procedures or laws. For example, to pay taxes, it is not easy to classify the type of activity the entrepreneurs are developing. Furthermore, this concern is both in entrepreneurs from a developed and developing economy.

This study also has limitations and, in this way, opportunities for further research. First, the study analyses all the institutional dimensions separately with country and individual level indicators. However, those indicators follow coherent theoretical support and a relationship between them, which can be proved by analyzing the independent variables (Table 6.1) and the conditions' measurement process (Appendix C). It is still necessary to develop multilevel research, such as in Chapter 5, that considers the different levels of the institutional dimensions including different informants in the interviews. Finally, it is also necessary to contrast these results with more extensive samples; although the fsQCA allows us to analyze causal relationships, this is not extrapolated to different cases outside this analysis.

Chapter 7

Conclusions



7. General Conclusions

7.1 Main conclusions

The main objective of this study was to analyze the institutional dimensions as determinants of different types and stages of the entrepreneurship phenomenon in both developed and developing countries, focusing on the interactions between the institutional dimensions and their implications. Consequently, we conducted further theoretical and empirical development to accomplish the general and specific objectives. The institutional dimensions approach (Busenitz et al., 2000; Urbano & Alvarez, 2014) is the common thread for answering the main and specific objectives. Considering the complexity of entrepreneurship as a multidimensional and multilevel phenomenon (Shane & Venkataraman, 2000), we analyze the institutional dimensions' relationship with (1) different stages such as potential, nascent and new entrepreneurship, (2) survival of necessity and opportunity entrepreneurship, and (3) social entrepreneurship and high-impact female entrepreneurship.

Our findings contribute to discussing the importance of the institutions influencing entrepreneurial activity going beyond the well-studied theoretical framework of formal and informal institutions. The results through the Chapters present and corroborate, as we expected, different ways in which institutional dimensions influence entrepreneurship (Pathak & Muralidharan, 2020; Stenholm et al., 2013; Yousafzai et al., 2015), stressing the importance of the institutional dimensions approach to explain entrepreneurship. We develop a theoretical argument base for each sphere of entrepreneurship phenomenon, namely entrepreneurship process, entrepreneurship motivation, social entrepreneurship, entrepreneurship education, female entrepreneurship. Through different databases and different samples, we demonstrate the explanatory power of the institutional dimensions approach in entrepreneurship field.

We go further showing empirical evidence on the interrelation among the regulative, normative, and cultural-cognitive dimensions (Julien, 2019; Schillo et al., 2016; Yiu & Makino, 2002; Yousafzai et al., 2015). Moreover, we found the cultural-cognitive dimension's primary relevance (Johansson et al., 2021), which is related to the entrepreneur experience and the interpretation of the regulative and normative dimensions. Unfortunately, we found the cultural-cognitive as the less studied dimension in the field, which is a big opportunity to explore in further studies. Consequently, we encourage further research, both qualitative and quantitative, focused on measuring the cultural-cognitive dimension and the analysis of the interaction (moderation and mediation) with the regulative and normative dimensions in different contexts.

Following we detail the main conclusions from this study (See Table 7.1).

Table 7.1 Thesis Summary and main results

Chap.	Main Results			
1 – 2	This research's main objective is to analyze the institutional dimensions (regulative, normative, and cultural-cognitive) as determinants of different types and stages of the entrepreneurial process, focusing on the interactions between the dimensions and their implications. The first systematic literature review that deeply analyses the literature explains entrepreneurial activity through the lens of institutional dimensions. Categorization of the prior research according to the theory contribution. It proposed a theoretical model to study the relationship among the dimensions and the entrepreneurship phenomenon. It proposed future research agenda in the field.			
	Institutional Dimensions	**Operationalization**	**Methodology**	**Results**
3	Regulative	Rule of law Limited government Regulatory efficiency Open markets	Panel Data 90 countries 2001–2017 Sources: GEM Index of Economic Freedom Global Competitiveness Report World Economic Outlook	Institutional dimensions influence each stage in the entrepreneurial process differently. Regulations regarding new business creation have a stronger influence on new entrepreneurship Social norms have more influence on potential entrepreneurs and individual perceptions regarding their self-capacity and experience to start a new business Cultural–cognitive dimension has a stronger influence on nascent entrepreneurship.
	Normative	Equalitarianism Career Status Media attention		
	Cultural-cognitive	Fear of failure Knowing entrepreneur Skills Opportunity		
	Interactions (moderation)	-Skills X Regula efficiency - Career X Skills - Media attention X Regulatory efficiency		
4	Regulative	Government support Financial support	Binary logistic model on panel data - survival analysis 1,214 entrepreneurs 2005-2011 Sources: Panel Study of Entrepreneurial Dynamics (PSED II)	The regulative dimension does not explain opportunity entrepreneurship comparing to necessity entrepreneurship. However, the positive governmental support to entrepreneurship has a positive influence on firm survival. The interaction between the cultural-cognitive dimension and the normative has a negative effect on survival. This result shows how positive social support and overconfidence has a negative effect, which has implication for public policies that promotes entrepreneurship without the supporting programs to avoid the closure of new ventures
	Normative	Social Norms: Support for success Risk-taking Encourage creativity Encourage responsibility Support for young entrepreneurs Support from groups Role models		
	Cultural-cognitive	Know entrepreneur Previous experience Entrepreneur goals Introverted personality Risk aversion Effort Self-confidence		
	Interactions (moderation)	-Skills x Social norm Support for success -Effort x Financial support		
5	Regulative	Ease of doing business (country level)	Multilevel-Logistic regression 2008 53 countries Sources: Doing business World Bank GUESSS	Empirical evidence of the multilevel nature of institutional dimensions. A significant result is the negative relationship between the normative dimension and social entrepreneurship Interaction between the cultural-cognitive dimension and the regulative dimension.
	Normative	Subjective norm (country level)		
	Cultural-cognitive	Self-confidence (individual level)		
	Interactions (moderation)	-Self-confidence X ease of doing business -Subjective norm X ease of doing business		

Chap.	Independent Variables	Operationalization	Methodology	Results
6	Regulative	Procedures Costs	Mixed-methods approach Panel Data 2004-2017 Sources: OECD Doing Business GEM World Economic Outlook	Results support the institutional dimension's influence on high-impact female entrepreneurial activity across countries. We found empirical evidence on the interaction effect of regulative and normative dimensions. When procedures to start a business for a woman decrease, high-impact female entrepreneurship increases, and the relationship is stronger when the status of entrepreneurial activity in the country increases. From fsQCA, we found that the dimensions' interactions are necessary conditions for high-impact (measured as employment and high-technology); and the cultural-cognitive dimension is a sufficient condition for high-tech female entrepreneurs. Overall, the results are complementary. And evidence of the interaction among the institutional dimensions. We find no differences between Barcelona and Medellín regarding the challenges that high-impact female entrepreneurs face. However, there are few high-impact female entrepreneurs in Medellín.
	Normative	Career Status Media attention		
	Cultural-cognitive	Opportunity Skills Fear of failure		
	Interactions (moderation and mediated moderation)	-Opportunity X Procedures -Status X Procedures -Opportunity X Status X Procedures		
	Regulative	Rules regarding the sector Contacts: government support programs and university support programs Financial support Formalization process	fsQCA In deep semi-structured interviews to 12 female entrepreneurs (two different cities: Barcelona and Medellín)	
	Normative	Support from family Easy of starting a business in the city Admiration/recognition of entrepreneurship in the city - Culture Admiration/recognition of her work as an entrepreneur Entrepreneurial culture and ecosystem Role models Social Support		
	Cultural-cognitive	Previous experience Technical skills Management Skills Entrepreneurial experience Motivation Perception of females in STEM Fear of failure		
7	**Main Results**			
	Specific institutional dimensions influence entrepreneurship and new business survival, according to the stage, the sector, and the type of motivation (opportunity or necessity), considering different contexts. The importance of the cultural-cognitive dimension across all the results. Relevant understanding regarding how institutions function and interact considering measures on both country and individual level. The main implications are related to the need for targeted policies and education strategies according to the specific interest.			

Besides the general conclusions, every chapter in this research yielded specific theoretical and practical implications. Through a systematic literature review, Chapter 2 analyzes the theoretical contributions to the literature that relates institutional dimensions approach and entrepreneurial activity. Moreover, Chapter 2 contains two significant contributions. First, a conceptual model to study the influence of institutional dimensions on the entrepreneurship phenomenon. Second, an agenda for future research claims for studies that consider different stages of the entrepreneurial process, different sectors, and the interrelation among the institutional dimensions in both developing and developed economies. Furthermore, at the methodological level, the claims are for more mixed-methods, longitudinal research, new methodologies, and approaches (such as big data and data analytics) applied to the field. It is important to highlight that Chapter 2 was the first step to clarify the field's research gaps. Consequently, we addressed and contributed to some of those issues throughout this investigation.

Chapter 3 main contribution is outlined in the in-depth understanding of institutional dimensions as the determinants of entrepreneurship when considering the different stages (potential, nascent, and new) in the entrepreneurial process. Understanding the role of the institutional dimensions in each entrepreneurship stage allows the design of targeted policies. Thus, in the first stages, policies should be oriented toward strengthening the normative dimension. However, at the same time, the cultural-cognitive dimension that increases the necessary skills to become entrepreneurs is vital. In the second stage, the cultural–cognitive dimension is the most relevant, and it is crucial to ensure that entrepreneurs trust their abilities and skills to manage risks (Kollmann et al., 2017). Finally, in the third stage, the regulative dimension is essential. Not only in terms of fewer procedures or laws but also other regulations such as networks with universities, incubators, and easy access to financing.

The main objective of Chapter 4 was to analyze the influence of the institutional dimensions on necessity and opportunity entrepreneurship. Results showed that institutional dimensions influence both necessity and opportunity entrepreneurship in a different way. Moreover, as prior literature suggests, opportunity entrepreneurs have more chances to survive, so we also developed a survival analysis. The counterintuitive results show that whether they are new companies created by a motivation of opportunity or need. Its survival function does not depend on the source of motivation. Nevertheless, the institutional dimensions do explain this survival, and especially the cultural-cognitive dimension is vital in this process.

Chapter 5 objective was to analyze the role of institutional dimensions in social entrepreneurship, considering the different levels of those institutions. The institutional dimensions approach considers the interactions between regulative and normative dimensions (higher levels of institutions) defined externally and in constant interaction with the individual level (cultural-cognitive dimension) that receives all the context information and interpret it according to the shared knowledge. Regarding the regulative dimension, Chapter 5 results suggest that policymakers' emphasis should be placed on

supporting social entrepreneurs beyond reducing processes. Especially in the financial system, it is more challenging for social entrepreneurs to have the legitimacy to get resources. Regarding the normative dimension, social entrepreneurship is affected by the perception regarding the benefits of being an entrepreneur. Thus, more support from local opinion leaders and influence stakeholders legitimizes the social entrepreneurs into the community. Role models will help to generate legitimacy and recognition in the society.

For their part, Chapter 6 expands the analysis of the moderation interactions in the prior chapters. The last empirical chapter contributes to understanding the institutional dimensions' interactions to explain high-impact female entrepreneurship from a mixed-methods approach. This chapter empirically confirms new causal mechanisms (moderated mediation) not explored before in the literature. Moreover, Chapter 6 provides a systematic way to measure the institutional dimensions in entrepreneurship research, specifically for female entrepreneurs. This qualitative approach helps to overcome the big issue and criticism when analyzing the institutional dimensions because previous research must adopt proxies that are not entirely designed to measure the dimension. Results show that the regulative dimension should be favorable to increase new ventures' job creation. Because regulations are complex for the technology sector, the law should be more dynamic in developed and developing economies. Also, the cultural-cognitive dimension is again essential for high-impact female entrepreneurs due to the necessity that those women must adapt and overcome difficulties related to covert gender discrimination. Moreover, qualitative results evidence the importance of analyzing the institutional dimensions' interactions. For example, the interaction among dimensions is a necessary condition for high-impact (high-technology and employment outcomes). In the case of employment, the presence of the regulative dimension and the interaction regulative-normative dimensions is not only necessary but also sufficient. In the case of the high-technology, the cultural-cognitive dimension presence is a sufficient condition.

7.2 Implications

Implications for theory development includes the evidence on the different way that each institutional dimension influence entrepreneurial activity when we seek the phenomenon in a complex way. We develop a theoretical framework (Chapter 2) to study the influence of institutional dimensions in different stages (Chapter 3), types of entrepreneurial activity (Chapter 4), differentiating among distinct sectors (Chapters 5 and 6) in both developing and developed countries (throughout the chapters depending on the data availability). Although we focus on the institutional dimensions approach, we develop a theoretical framework to explain each sphere of the phenomenon in the light of each proxy of the institutional dimensions coherently and innovatively because most of the relationships tested, especially the institutional dimensions interactions, are new in the literature.

Also, at the methodological level, this thesis has implications. We include different sources that have not been tested with the institutional dimensions approach, such as the PSED II project (Chapter 5), the GUESSS database (Chapter 5), OCDE measures of female entrepreneurial activity (Chapter 6). Furthermore, we develop a multilevel model (Chapter 5) to measure the different dimensions according to their theoretical definition. In the last empirical chapter, we propose a mixed-methods approach (Chapter 6) that allows us a depth understanding of the effect of institutional dimensions in entrepreneurial activity through causal analysis, which is a limitation of quantitative research. The fsQCA analysis that we develop in Chapter 6 contributes to new ways to measure the institutional dimensions in qualitative research since there was no validated instrument to measure the regulative, normative, and cultural-cognitive dimensions from this perspective.

As we pointed out in the conclusions in each chapter, this research has important implications for policymakers. The central message is the need for targeted policies and education strategies according to the specific interest. For example, to increase the number of high-tech female entrepreneurs, the strategies must be focused on the cultural-cognitive dimension, such as education programs or mentoring, for young women to be successful in sectors usually dominated by men. Moreover, for female entrepreneurs and social entrepreneurs, male or female, the programs need to facilitate thriving venture capital raising conditions, one of the most challenging processes to overcome for those entrepreneurs. The legislation should develop specific regulatory support. Not only in terms of procedures and costs to formalize new businesses but also in understanding the laws that these high-tech and social-oriented entrepreneurs need to operate their businesses. For example, be attentive to technology changes and legislate norms that facilitate their managerial activities, such as payment of taxes, which often does not exist in the accounting books.

7.3 Limitations and future research lines

Although this subsection describes some of the most relevant limitations and therefore research opportunities based on this dissertation, a detailed and expanded version of a future research agenda can be consulted in the conclusions of Chapter 2.

The primary limitations along the chapters are regarding the availability of databases to test longitudinal models that allow causality relationships. Also, the primary data sources with instruments specifically designed to measure institutional dimensions and their influence on entrepreneurial activity. The availability of such data will allow researchers interested in the field to use analytics tools like big data to test more complex relationships.

This thesis analyzes the entrepreneurship phenomenon, considering different stages and types of entrepreneurial activity. However, there are still other specific areas of the entrepreneurship field that we do not analyze since they are not part of the study objectives due to time and resource limitations. Some of those areas of the entrepreneurship phenomenon in which further research should focus are entrepreneurial intention, international entrepreneurship, entrepreneur's growth aspirations and corporate entrepreneurship.

Moreover, one critic that we are aware of is that we consider concepts present in other theoretical frameworks as proxies of the dimensions, and we are not integrating those theories explicitly in our analysis. Despite this limitation, we firmly believe that the institutional dimensions approach is a broad theoretical framework to explain behavior, including entrepreneurial activity. Consequently, further research should integrate the results of this thesis to analyze other relationships, and this theoretical framework should be exploited in the future to integrate it with theories at different levels to provide more contextualized results.

As the most important implications of this research are based on the importance of context in entrepreneurial activity, future research also needs to analyze how the global context of COVID-19 affects entrepreneurial activity and how institutional dimensions function in these uncertain times.

We analyze the relationship of institutional dimensions' influence on entrepreneurial activity, although the contrary relationship: how individuals influence and relate to the institutional dimensions could also be innovative and relevant in future research. Considering that one of the properties of institutions is they are relative resistant to change (Scott, 2014, p. 57), to develop this type of analysis is essential to have longitudinal data exploring the mechanisms by which entrepreneurs would have the power to influence and change the institutions that surround them.

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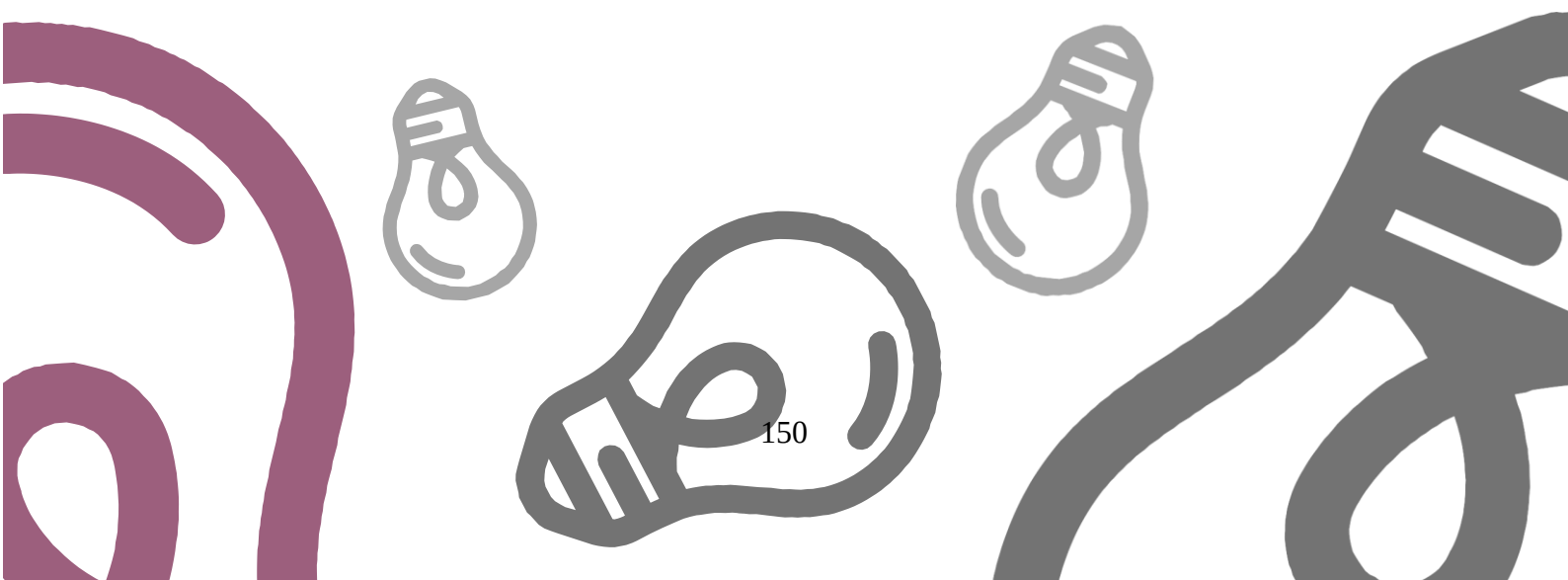

Appendices

Appendix A List of articles (objective, technique, hypotheses, and operationalization)

Author	Objective	Technique	Operationalization
Alvarez and Urbano (2012)	Analyze the relationship between independence, risk taking, creativity, and entrepreneurial activity at the country level, concretely using the cultural-cognitive dimension	Regression	Cultural-cognitive: independence (how much independence do you have in performing your tasks at work?), risk taking (adventure and taking risks are important to this person, to have an exciting life), creativity ("importance to this person to think up new ideas and be creative; to do things in one's own way). (WVS)
Amine and Staub (2009)	Study of women entrepreneurs (WEs) in sub-Saharan Africa by examining factors in the environments in which WEs operate. The goal is to understand better how environmental barriers of many types impact the efforts of WEs.	Literature review	
Arshed et al. (2014)	Explore the ineffectiveness of entrepreneurship policy	Qualitative	
Bjerregaard (2010)	Analyze how institutional logic explain R&D work between SMEs and public university research groups, it means if this relationship is influenced by normative, regulative or cultural-cognitive institutions	Qualitative	Regulative: Contracts agreements
Buendía and Carrasco (2014)	Analyze the impact of some determinants of the institutional environment in the European cooperative sector	Structural equation model	Informal factors: social capital (voluntaries European union, thrust in companies), poverty, inequality, education. (page 158)
Busenitz et al. (2000)	Introduces and validates a measure of country institutional profile for entrepreneurship consisting of regulatory, cognitive, and normative dimensions	Structural equation model	Regulatory: 1.Government organizations in this country assist individuals with starting their own business, 2. The government sets aside government contracts for new and small businesses. 3. Local and national governments have special support available for individuals who want to start a new business. 4. The government sponsors organizations that help new businesses develop

Author	Objective	Technique	Operationalization
			5. Even after failing in an earlier business. the government assists entrepreneurs in starting again, Cognitive: 1. Individuals know how to legally protect a new business 2. Those who start new businesses know how to deal with much risk, 3. Those who start new businesses know how to manage risk, 4. Most people know where to find information about markets for their products Normative 1. Turning new ideas into businesses is an admired career path in this country 2. In this country, innovative and creative thinking is viewed as the route to success, 3. Entrepreneurs are admired in this country 4. People in this country tend to greatly admire those who start their own business
Camelo-Ordaz et al. (2020)	Analyze the influence of entrepreneurial cognition factors (entrepreneurial self-efficacy and outcome expectations) on entrepreneurial opportunity recognition (EOR). We also consider the moderating effect of contextual factors (normative and regulatory dimensions) on the relationship between entrepreneurial factors and EOR.	Multilevel analysis	The dependent variable in our analysis is EOR. This variable is extracted from the GEM indicator opport and it was measured from the responses of the whole sample to the question of whether they perceived the existence of opportunities to carry out entrepreneurial actions in their environment in the next six months. Entrepreneurial self-efficacy and outcome expectations are used herein as individual-level independent variables: suskill, which is a dummy indicator that takes a value of 1 if an individual believes that he or she has the knowledge, skills or experience required to start a new business venture. suoptype, which takes the value 1 when entrepreneurs report that the most important reasons for pursuing an opportunity include either attaining greater independence or freedom in their working life or increasing and maintaining personal income. Country-level independent variables: career choice, high status and media attention.
Castellano and Ivanova (2017)	Explain how SMEs in transition environments overcome the disadvantage of the origin country to penetrate global markets	Interview	Cognitive legitimacy: This signal is based on local practices such as local shared-meanings
Chowdhury et al. (2019)	to examine how formal and informal institutional dimensions affect the quality and quantity of entrepreneurship between developed and developing countries.	Random and fixed effects panel estimation to combine the coun-try and time effects	Availability of debt and venture capital, regulatory business environment, entrepreneurial cognition and human capital, corruption, government size, government support

Author	Objective	Technique	Operationalization
Coeurderoy and Murray (2008)	Effect of the institutional dimension, specifically the national regulatory environment, on the location choices and the speed of internationalization by British and German New-technology-based firms.	Panel data	Regulative: Legal systems of countries. Categories from La Porta et al. (1999) Political risk IPR protection: IP rights protection index developed by Ginarte and Park (1997) Previous experience in international business (individual): will influence the choices made by the young firm when facing regulatory issues.
Companys and McMullen (2007)	Reviews the strategic management and entrepreneurship literatures to identify the nature and character of entrepreneurial opportunities and the entrepreneurial strategies that firms employ to seize and commercialize these opportunities.	Literature review	
Dickson and Weaver (2008)	Explore how entrepreneurial orientation may be to an important extent a strategic response to institutional forces (dimensions)	Hierarchical linear regression	Regulative: The origin of the legal system of each of the countries. work of La Porta et al. (1997, 1998, 1999, 2002) Normative: individual country scores for "institutional collectivism" and "uncertainty avoidance" drawn from the GLOBE Cognitive: environmental munificence, general uncertainty and technological uncertainty can be found in Dickson and Weaver (1997).
Diez-Martin et al. (2016)	Analyze the impact of a country's entrepreneurial legitimacy on its entrepreneurial activity as well as on entrepreneurs' access to financing	Structural equation model	Regulative: Rules, policies, norms, and laws Normative: Entrepreneurship as desirable career choice, Media attention for entrepreneurship, high status successful entrepreneurship, Cognitive: Perceived capabilities (GEM)
Eesley et al. (2016)	How Project 985 affects alumni beliefs regarding innovation, the innovative behavior of firms they found, and ultimately the performance of these firm	Quasi-experimental setup	
Effah, J (2016)	Understand how regulative, normative and cognitive institutions affect e-payment entrepreneurship in developing countries	Case study	Regulatory: bureaucratic licensing processes Normative: cash culture, growing Internet and mobile technology culture in the developing country Cognitive: the entrepreneur's unawareness of and failure to consider contextual differences between the developed and the developing world

Author	Objective	Technique	Operationalization
Garcia-Cabrera et al. (2016)	Analyze how the entrepreneur's perception of the institutional dimensions influence the decision to internationalization	Multiple lineal regression	Regulative: variables related to government measures aimed at generating an environment favorable to business activity and international expansion – e.g., public help from the Brazilian state and regional funds, information offices advising on issues related to running and expanding a business, training opportunities for professions required by the firm and for current employees to improve their knowledge and skills in their current jobs. Normative: Tominc and Rebernik's (2007) cultural variables. people who successfully start their own business are highly respected, success stories are frequently seen in the local media, and frequent conversations are had about successful new businesses. Cognitive: consists of variables measuring the business knowledge existing in the environment and obtained either from professional experience or in the university lecture hall – e.g., this municipality has people with management experience, with experience in my firm's sector, with IT skills etc.
Garcia-Cabrera et al. (2020)	Examines how the institutional distance between immigrants' country of residence and country of origin, as well as the regulative and normative aspects of institutions in immigrants' country of residence, social context variables and individual psycho-behavioural factors, condition immigrants' entrepreneurial motivation (i.e. mainly by necessity, by a combination of necessity and opportunity, or mainly by opportunity).	Multilevel analysis	Normative: uncertainty avoidance, national values, linguistic distance Regulative: Ease of doing businness Cognitive: Entrepreneurial personal attitude, Percived behavioural control: find customers, Perceived behavioural control: own skills, Social connections of entrepreneur.
Gómez-Haro et al. (2011)	Contribute to a better understanding of how different dimensions of the institutional environment of a region may influence the level of corporate entrepreneurship of firms.	Structural equation model	Adapted the Busenitz et al. (2000) instrument: the CIP instrument which measures pressures exerted by regulatory institutions (five items), cognitive institutions (four items) and normative institutions (four items) Cognitive institution: shared cognitive conceptions about business management Normative: value to taking initiative and creativity Regulative: Support programs for business activities

Author	Objective	Technique	Operationalization
Gonzalez-Gonzalez et al. (2015)	Improve the knowledge about the strategic actions of institutional entrepreneurs in the configuration of the institutional pillars of an emerging field such as the Spanish renewable energy sector, as well as to illustrate the role of these actors in the fight against climate change	Case study	
He et al. (2020)	Examine the relationship between opportunity-based entrepreneurship and the environmental quality of sustainable development	Multiple regression	Regulative factor: Governmental financing support and government programs. Normative factor: Internal market dynamic, internal market openness and R&D transfer. Cognitive factor: Cultural and social cognition, service infrastructure
Heilbrunn et al. (2017)	Scrutinized the role of regulative, normative and cognitive institutional environments on perceived desirability and feasibility of entrepreneurial action	Manova	
Johansson et al. (2021)	Explores how government venture capitalists approve or reject financing applications	Grounded theory/case study	Regulative system: Market, product and production: Prioritized/supportable industries Type of companies to support Supportable/prioritized geographical area New markets, increased export New technology solutions New or refined products/services Clarity of business concept Competitive distortion effect Market conditions Human capital: Be legally competent No payment defaults Disqualified for running own business Increase of employment rate Educational investments (quality, environment, or organizational development) New establishment of entrepreneur New entrepreneur in new industries

Author	Objective	Technique	Operationalization
			Financial: Scope of support clear limits (e.g., 20%–50% of the applicant's investment). Substantial financial effects of investment Regulations on the companies' financial situation Not bankruptcy Unable to self-finance the whole investment Profitability of business Degree of earlier public funding Normative system: Market, product and production: Own norms among the group of financiers (e.g., on businesses, support areas, unique products, market characteristics, and competition). Ethical aspects of the funding. (e.g., entertainment machinery in tourism) Although not mentioned in regulation, supportive of businesses that collaborate with large national cooperation contributing to social development Norms on what is relevant (entrepreneurial characteristics, education, experiences, and social network). Entrepreneur's track record Financial: Group norms on scope depending on particular characterized situations Group norms for interpreting the substantial financial effects of investments Norms for what is acceptable counter financing Cognitive system: Market, product and production: Own subjective evaluation of the market, product, and production potentials Own preferences. Some more favored than others Taken-for-granted assumptions not shared by regulation or group Human capital: Individual subjective definitions of entrepreneurs' and key people's characteristics that are not shared or mentioned in regulation or group norms Analogies between situations that are used for decision-making argumentation Financial: Subjective perceptions of the scope of investment; how much to support

Author	Objective	Technique	Operationalization
			Subjective expectations on future financial performance, in comparison to prior own experiences (e.g., of industry performance)
Julien (2019)	What are the variables that explain entrepreneurial dynamism and how may they be apprehended under the four necessary and complementary dimensions of this phenomenon, namely the demand, supply, institutional and spatial dimensions? And how should the nature and interrelatedness of these dimensions and their associated variables influence regional policymakers and other regional stakeholders in their efforts to stimulate entrepreneurship in their region?	phenomenological qualitative analysis /Regression	The Institutional Dimension: - Entrepreneurial culture. - Immigration - Density (Proximity) - % of SME's - Education level - College and research centers - Provincial / National-local public policies - Rules of the game or Social conventions - Networking or inter-enterprise and inter-actor relationships
Junaid et al. (2019)	Explore how informal institutions causes cross-country differences in women entrepreneurship	Probit	cultural-cognitive institution was measured by three items skills and knowledge, fear of failure and knowing other entrepreneur social-normative institution was measured by items including good career choice, media attention, and business opportunity
Junaid et al. (2020)	Explores the different configurational paths of informal institutions to promote men's and women's entrepreneurial activities across factor-driven and efficiency-driven economies.	fsQCA	Cultural-cognitive Knowing other entrepreneurs: Whether potential entrepreneur knows other entrepreneurs before starting a business in last 2 years Skills and knowledge: It shows the entrepreneurs skills, knowledge and experience to start a new business Fear of failure: It presents the fear of failure the prevents the creation of new venture Social-normative Good career choice: It demonstrates that individuals consider entrepreneurship is a feasible career choice in their country Media attention: People often see stories of successful business in public media Business opportunity: Individuals have business opportunities that are worth pursuing in the area where they live

Author	Objective	Technique	Operationalization
Knorr et al. (2013)	Influence of the cultural-cognitive dimension - measured through creativity, risk taking and independence - on the probability of becoming an entrepreneur or an employee.	Binomial and multinomial probit models	Cultural-cognitive: creativity (importance to this person to think up new ideas and be creative; to do things one's own way). Risk taking ("adventure and taking risks are important to this person; to have an exciting life"). Independence ("how much independence do you have in performing your tasks at work").
Kshetri (2010)	Investigate, theoretically and empirically how entrepreneurial firms perceptions of formal institutions differ across Central and Eastern European (CEE) economies	t-test	Regulative dimension= question numbers 7-11 and 35 in WBES.
Lang et al. (2014)	Explain how regulative, normative and cognitive institutions interrelate and affect entrepreneurial practices in rural communities	Case study	Cognitive: Based on the meaning attributed to the place: 'Who am I as an entrepreneur and what actions make sense to me?' Normative: Based on appropriateness: 'What does the community expect of me as an entrepreneur?' Regulative: Based on instrumentalism: 'What restricts my entrepreneurial behavior?'
Langevang et al. (2015)	Explore how time-and-place-specific institutional contexts influence women's entrepreneurship	Statistic descriptive	
Li Yaokuang et al. (2020)	Examine the contextual embeddedness of female entrepreneurship through a focus on gendered institutions.	fsQCA	Regulative gendered institutions: Length of maternity leave indicates the duration of absence for employed women around the time of childbirth or the adoption of a child FTE paid maternity leave assesses the level of financial support during leave time, which is calculated as the wage replacement rate multiplied by the duration of maternity leave Normative gendered institutions: Experts were asked to rate their agreement or disagreement on a five-point scale with the following statements about their country (1.00 = completely false; 5.00 = completely true) There are sufficient social services available so that women can continue to work even after they start a family. Starting a new business is a socially acceptable career option for women. Women are encouraged to become self-employed or start a new business. Cognitive gendered institutions: Opportunity perception indicates the ratio of female to male percentages of the nonentrepreneurial adult population who see opportunities for starting a business in the area in which they live. Knows an entrepreneur indicates the ratio of female to male percentages of the nonentrepreneurial adult population who personally know an entrepreneur

Author	Objective	Technique	Operationalization
			who started a business in the previous two years. Skills indicate the ratio of female to male percentages of the nonentrepreneurial adult population who believe that they have the required skills and knowledge to start a business.
Li Yaoqi et al. (2020)	Examine the relationships between three dimensions of the country-level institutional environment (i.e., regulatory, cognitive, and normative) and two types of hospitality entrepreneurship (opportunity-based vs. necessity-driven).	Logistic	Regulatory Dimension of Institutional Environment: Business freedom was used to assess the regulatory institution relative to entrepreneurial activity. Property rights were used to assess the extent to which individuals are capable of accumulating private property. Cognitive Dimension of Institutional Environment: The perception of entrepreneurship was measured by the percentage of participants who saw promising opportunities to start a business in the area in which they lived. The skills of entrepreneurship were measured by participants' beliefs about their knowledge and the required skills to start a business. We used the percentage of the non- entrepreneurial adult population who knew people who had started a business in the previous two years to measure entrepreneurship networks. Normative Dimension of Institutional Environment: The status of entrepreneurship was measured by the percentage of the adult population that considered successful entrepreneurs to be people with high status. The level of perceived media attention paid to entrepreneurship was measured through the percentage of the adult population that agreed with the statement that people will frequently notice stories in the public media about successful entrepreneurship in their country.
Mickiewicz et al. (2019)	Understand how the environment influences business owner/managers' attitudes towards tax morale, we build a theoretical model based on a neo-institutionalist framework	Regression, OLS, Probit	The normative: trust in the government and in the tax system; The cognitive: identification with the wider polity; The regulatory: perceptions of deterrence.
Mogos et al. (2011)	Propose a measure of the institutional country profile relevant to exporting small- and medium-sized enterprises (SMEs)	Confirmatory factor analysis	Regulative: 1. Governmental organizations in Romania assist SMEs in exporting. 2. The government provides financial aid to help small businesses export. 3. The government provides support programs for SMEs willing to export. 4. At both local and national levels governmental bodies provide special support for SMEs willing to internationalize.

Author	Objective	Technique	Operationalization
			5. The government assists small businesses in starting to export even if they have previously failed. Normative: 1. In Romania, exporters are admired. 2. In this country, exporting is a proof of good performance. 3. In Romania, exporting is synonymous with success. 4. In this country, exporting is viewed as a route to success. 5. People in this country greatly admire exporting companies. Cognitive: 1. Most exporters know where to find information about foreign markets for their products. 2. Exporters know where to search for foreign customers. 3. The majority of export companies know how to find out if their products are adapted to foreign markets. 4. In this country, exporters are able to deal with the high levels of uncertainty characterizing foreign markets.
Pathak and Muralidharan (2020)	understand how societal-level ethical orientations impact the likelihood of individuals engaging in social entrepreneurship	Multilevel analysis	Normative: average of the scores for the following four questions asked in the WVS survey: (a) Is it justifiable to claim benefits to which you are not entitled? (b) Is it justifiable to avoid paying a fare on public transport? (c) Is it justifiable to cheat on taxes if you have a chance? (d) Is it justifiable to accept a bribe in the course of one's duties. Cultural-cognitive: The respondents in the survey were asked to indicate the importance they attached to unselfishness as a quality that they encouraged their children to learn at home. Regulative: The index for the public-sector ethics was obtained from the Global Competitiveness Report of the WEF. This index measures vari- ables related to public integrity, bribery, and favoritism in the public-sector
Petrovskaya et al. (2016)	Discover the assumptions about money, wealth and work that constitute the moral base of entrepreneurship, and define whether entrepreneurial activities are legitimate within a specific culture	Exploratory Factor analysis	Perceptions about entrepreneurship Normative: 1. Activities of Russian entrepreneurs have harmful rather than beneficial effects on society. 2. I wish my children and relatives would be entrepreneurs. Regulatory: 'You cannot be a successful entrepreneur in our country if you do not break laws'. Cultural-cognitive: 1. The entrepreneurs often infringe moral and ethical standards and the concept of justness. 2 Rush for profits by all manner of means is typical for the Russian entrepreneurs.

Author	Objective	Technique	Operationalization
Pinho (2017)	Examines first the extent to which several Scott's institutional variables (normative, regulative, and cultural-cognitive) differ according to the economic structure of countries participating in NES-GEM	t-test	
Schillo et al. (2016)	How individual-level and country-level institutional considerations interact to influence entrepreneurial intent	Multilevel logistic regression	Regulative: Ease of starting up a business - Financial freedom - Investment freedom - Trade freedom. Normative: Financial success - Status indicates whether successful entrepreneurs have a high level of status and respect - Media how often stories about successful entrepreneurs appear in the public media - Recognition indicates whether entrepreneurs are considered as competent, resourceful individuals. Cultural-cognitive: Experiential education - Economic education - Start-up education Conductive: Company spending on R&D - Capacity for innovation - Production process - Research institutions indicate the quality of scientific research institutions - Scientists and engineers.
Sine et al. (2005)	Explore how development of institutions reduce the risks of entering new sectors, or how it influences the founding rates of firms using novel and stablished technologies	Cox proportional-hazards model	Regulative: avoided costs, 2. tax credit. 3. Supreme Court decision. Cognitive: the density of independent power producers and the total number of positive and neutral articles about this sector in major U.S. newspapers and magazines. Normative effects: Dummy considering the year of foundation (company creation before of after foundation) of two trade associations the Independent Energy Producers Association of California and the Independent Power Producers of New York
Steinz et al. (2016)	Identifies the barriers that foreign cleantech start-ups can encounter when attempting to enter the Chinese market, as well as the possible strategies that can help overcome these barriers	Case study	Regulative: student/tourist visa - hire an advisor - postpone registration - pay taxes in Hong Kong - use the 'gray area' for a favorable interpretation - talk to other entrepreneurs for information learn the language - hire an advisor - solve problems as they emerge Cultural–cognitive: avoid working with the government - focus on industry - rely on networking - pay what is asked -learn the language - good Chinese team member or partner profiling - do business with a partner who has assets abroad - good Chinese team member or partner – networks recruiters - reward employees through promotion - localize the supply chain- reduce development to market time - rely on trial and error learning Normative: - invest time - pay on the basis of growth - invest much time in management - find an

Author	Objective	Technique	Operationalization
			investor who adds value to the company (Page 598)
Stenholm et al. (2013)	Introduces a novel multidimensional measure of the entrepreneurial environment that reveals how differences in institutional arrangements influence both the rate and the type of entrepreneurial activity in a country	Structural equation model	Normative: High status, Media attention, Cognitive: Opportunity perception. Knows an entrepreneur. Skills (believe that they have the required skills and knowledge to start a business) Regulatory: Business freedom. Ease of starting up a business. Ease of closing a business. Property rights. Conducive: ICT laws (e.g. electronic commerce). University–Industry collaboration. Availability of venture capital for innovative and risky projects. Availability of latest technology. (table 2 page 9)
Szyliowicz and Galvin (2010)	We review recent work on institutional theory and international entrepreneurship to understand how scholars have applied institutional theory	Literature review	
Tang and Tang (2012)	Strategies to overcome the contextual constraints and mitigate the negative performance implications of entrepreneurial activities	Hierarchical Regression	
Urbano and Álvarez (2014)	Examine the influence of institutional dimensions (regulative, normative and cultural-cognitive) on the probability of becoming an entrepreneur when controlling for sociodemographic factors and macro variables	Logistic	Regulative (at country level): Business Creation of firms is supported by legislation. Index from 0 to 10. Number of procedures multiplied by the number of days to start a business. Venture capital is easily available for businesses. Index from 0 to 10 Normative (at country level): Career choice Percentage of people in a country that consider starting business a good career choice. High status Percentage of people in a country that attach high status to successful entrepreneurs. Media attention Percentage of people that consider that in their country there is lots of media attention for entrepreneurship. Cultural-cognitive dimension (at individual level): Skills, Dummy variable that indicates whether the respondent agreed with: ‘‘You have the knowledge, skill and experience required to start a new business’’. Fear of failure Dummy variable that indicates whether the respondent agreed with: ‘‘Fear of failure would prevent starting a business’’. Knowing entrepreneur, Dummy variable that indicates whether the respondent agreed with the statement: ‘‘You know someone personally who started a business in the past 2 years’’

Author	Objective	Technique	Operationalization
Urbano et al. (2019)	Explores how some strategic dynamic capabilities (entrepreneurial and export market) and supportive environmental conditions (regulative and normative) influence the configuration of technology entrepreneurship initiatives.	Multilevel analysis	Regulative environmental conditions: Perception about science and technology, property rights, governmental programs and market regulations associated with the development of new technology entrepreneurship initiatives. Normative environmental conditions: Perception of opportunities for launching new ventures or growing established ventures as well as if the national culture encourages creativity, innovativeness and entrepreneurship
Valdez and Richardson (2013)	Explores the institutional determinants of macro-level entrepreneurship	Multiple regression	Cognitive: Knowledge, skills, capabilities (Perceived capabilities, GEM) and aversion to risk. Regulative: government regulations and national-level economic freedom: operationalized using the Heritage Foundation/Wall Street Journal IEF Normative: (Entrepreneurship as desirable career choice GEM, Media attention for entrepreneurship, High status successful entrepreneurship GEM)
van Hemmen et al. (2015)	Examine the relationship between leadership styles and innovative entrepreneurship	Regression	Normative dimension: Leadership styles (Autonomous, Charisma, Humane, Participative, Self-protective, Team)
Wallin and Fuglsang (2017)	Explore and explain how new ventures aim to break institutional arrangements (i.e. regulations, normative rules, and cultural-cognitive beliefs) protecting the field by introducing digitally enabled service innovations into health care markets.	Case study	
Wang et al. (2017)	Entrepreneurial orientation and legitimation jointly enhance new venture performance.	Regression	Cognitive: business expertise and manufacturing capacity Regulative: number of professional and industrial certifications that a venture obtained. Normative: number of stakeholder groups a venture addressed
Wang et al. (2014)	Explores the extent to which the signaling effect of early customers depends on these three types of legitimacy	Multinomial logistic regression	Cognitive: (of the founding team) is measured by natural log transformation of (1) the combined number of years of industry work experience of the founders and (2) the combined number of new businesses started by the founders. Regulative: (1) a dummy variable indicating if a firm was legally registered as either a C incorporation or S incorporation during the first year of founding (2) a dummy variable indicating if a firm paid FICA taxes during the first year of founding (1 = yes, 0 = no).

Author	Objective	Technique	Operationalization
			Normative: measured by a dummy variable indicating whether a new business had an arrangement with a supplier to make purchases by trade financing during the first year of founding.
Wang et al. (2019)	Illustrate how the institutional environment of an entrepreneurial ecosystem (EE) fosters the gender gap in entrepreneurial growth intention. The mediating role of the perceived institutional environment in the gender effect on entrepreneurial growth intention is tested in the Chinese context.	Structural equation model	Regulative dimension REG3: In your city, the government helps entrepreneurial businesses to access contracts for expansion REG4: In your city, the government assists organisations that help entrepreneurial business growth Cognitive dimension COG1: In your city, individuals know how to legally protect their businesses in expansion COG2: In your city, entrepreneurs know how to find market information for growth COG3: In your city, entrepreneurs know how to deal with risk for growth COG4: In your city, entrepreneurs know how to manage risk for growth Normative dimension NOR1: In your city, people tend to greatly admire those who achieve business expansion successfully NOR2: In your city, entrepreneurs with large business are admired NOR3: In your city, one's ambition is regarded as a route to success NOR4: In your city, expanding an entrepreneurial business is an admired career path. Independent self-construal IND10: I believe that people should maintain their independence in a group IND14: I believe that people should be unique and different from others IND16: For myself, I believe that others should not influence my self-identity Interdependent self-construal ITD2: I believe that success of the group is more important than success of the individual ITD4: Once you become a member of the group, you should try hard to adjust to the group's demands ITD5: I believe that people should find their place within a group ITD6: I believe that the group should come first when it is in conflict with the individual ITD7: I believe that it is important to maintain group harmony ITD15: Belonging to a group is important to my self-identity, or sense of myself

Author	Objective	Technique	Operationalization
Watson (2013)	Identify the underlying logic of entrepreneurial action and its relationship to its economic and social setting	Ethnography	Institutional logics: as the sets of values, rules, assumptions and practices associated with the key institutions of a society
Williams and Spielmann (2019)	Examine how external institutional pressures influence international market orientation (IMO) in small-medium sized enterprises (SMEs).	Regression	We captured pressure on business management decisions firstly with a specific focus on formal REGULATORY pressures through international laws and national laws, and then informal NORMATIVE pressures from distributors and end-consumers.
Wu and Li (2020)	Examine how three pillars of gendered institutions-regulative, normative and cognitive gendered institutions-shape both the absolute and the relative levels of female entrepreneurial activity	EFA, CFA, Regression	Regulative dimension: Length of maternity leave indicates the duration of absence for employed women at around the time of childbirth or the adoption of a child. Full-Time Equivalent (FTE) paid maternity leave assesses the level of financial support during leave time, which is calculated as the wage replacement rate multiplied by the duration of maternity leave. Normative dimension: Sufficient social services indicates the extent of agreement or disagreement by the surveyed experts with the statement that “there are sufficient social services available so that women can continue to work even after they start a family”. Acceptable career option indicates the extent of agreement or disagreement by the surveyed experts with the statement that “starting a new business is a socially acceptable career option for women”. Female entrepreneurship encouragement indicates the extent of agreement or disagreement by the surveyed experts with the statement that “women are encouraged to become self-employed or start a new business”. Equal opportunities indicates the extent of agreement or disagreement by the surveyed experts with the statement that “men and women are equally exposed to good opportunities to start a new business”. Cognitive dimension: Opportunity perception indicates the percentage of the nonentrepreneurial adult population who see opportunities for starting a business in the area in which they live. Knows an entrepreneur indicates the percentage of the nonentrepreneurial adult population who personally know an entrepreneur who started a business in the previous two years. Skills indicate the percentage of the nonentrepreneurial adult population who believe that they have the required skills and knowledge to start a business. Regulative dimension (CONTROL): Property rights. Business freedom. Ease of starting a business. Ease of resolving insolvency.

Author	Objective	Technique	Operationalization
			Normative dimension (CONTROL): Get rich. Good career choice. High status. Media attention. Competent and resourceful. Cognitive dimension (CONTROL): Entrepreneurial education at school stage. Entrepreneurial education at post school stage.
Yiu and Makino (2002)	Provide a unifying theoretical framework to examine the relationship between transaction-cost and institutional perspectives	Logistic	Regulative: WCR 1995. These items include state interference (the extent to which state interference hinders the development of business); state control (the extent to which state control of enterprises distorts fair competition); investment restriction (the extent to which investment in the economy is directed by the local government); bureaucracy (the extent to which bureaucracy hinders business development); protectionism (the extent to which national protectionism prevents foreign products and services being imported); policy (the extent to which fiscal policy treats enterprises in an unequal manner); and ownership restrictions (the extent to which foreign firms have difficulties in acquiring control in a domestic company). Normative Cognitive
Yousafzai et al. (2015)	Examine the mediating role of the vision for women's entrepreneurship (VWE) on the relationship between the pillars of institutional theory and women's entrepreneurial leadership (WEL)	Structural equation modelling	Regulatory: Business freedom, ease of Starting up a business, ease to close a business, property rights Norms: status of entrepreneurship, level of perceived media attention paid to entrepreneurship, most people consider starting a business as a desirable career choice. Cognitions: perceived business opportunities and skills necessary for starting a business: opportunity, knows an entrepreneur, Skills: measure the percentage of the non- entrepreneurial adult population who believe that they have the required skills and knowledge to start a business
Yu et al. (2013)	Explore the interaction of entrepreneurs in rural China and their institutional environment	Content analysis/ narrative studies	Regulative: legal and regulatory policies to regulate the emerging market economy.e.g. how policies help to develop new ventures Normative: role of family and friends: borrow money from them, seeking business advice or information, changes in projects because of the normative (culture, etc). Cognitive: how entrepreneurs build legitimacy, skills, etc: learning from established firms in the areas of marketing and public relations.

Appendix B Instrument Interview

Motivations to become an entrepreneur

1. What is your business about?
2. Do you remember the first moment to create the business?
3. Why did this idea emerge?
4. Finally, when do you decide to start the business?
5. Could you describe the process you follow in creating your firm?
6. Who helps you to create the business?
7. Who gives you the money to start?
8. Do you describe yourself as a successful entrepreneur?
9. How do parents consider individuals who are innovative and creative thinking?

Experiences of running a business

1. How do you realize that you had the ability to run your own business?
2. What is your more important motivation to run this business?
3. Before start, did you know how to protect your new business legally?
4. How was the process that you follow to find information about the market for your products?
5. Do you think that turning new ideas into businesses is an admired career path in this country or your community?
6. Do you remember any situation in which you felt that your job as an entrepreneur was admired?
7. Do you think that being an entrepreneur is well recognized?
8. How do your parents and friends consider that you are an entrepreneur?

Challenges and opportunities

1. What has been the main challenge in all the processes to start your business?
2. Have been government organizations important to start your own business?
3. The government sponsors organizations (or other types of formal organizations) help you develop your idea?
4. Was it easy to get financial support to start your business?
5. There is any legal barrier to start your business?

Tactics for dealing with challenges

1. There is local and national government support available for your type of business?
2. Do those who start new businesses know how to manage risk in your sector?
3. How did you deal with risk in your specific sector?
4. Suppose you are failing in this earlier business. Will the government assist you in starting again?

Aspirations for the future

1. Which are your expectations for the future regarding your business?
2. Do you expect to have (more) employees in the next year? How many?
3. What percentage do you expect to increase your income?
4. Do you have any contact with a government organization? Do you expect to have it in the future?

Appendix C Raw Data Matrix and indicators for each condition and outcome

Dimension	Indicator / Dimensions' proxies	Scales and metrics	Measurement/from the interviews	Cases											
				1	2	3	4	5	6	7	8	9	10	11	12
Regulative	Cost to start a business	Very bad=1 Very good=5	Perception regarding the cost to star the business	1	2	2	2	3	4	2	1	2	3	3	1
Regulative	Financial resources - Own money	No=0 Yes=1	Financial support (own money)	0	1	1	1	0	1	1	1	1	0	1	1
Regulative	Financial support -credit	No=0 Yes=1	Financial support (credits)	0	1	0	0	0	0	1	1	0	0	0	0
Regulative	Financial support - Entrepreneurship competitions	No=0 Yes=1	Financial support (Competitions)	1	0	0	0	0	0	0	0	0	1	0	0
Regulative	Government programs	Very bad=1 Very good=5	Perception of the governmental programs	5	3	2	4	1	4	4	2	4	5	2	2
Regulative	Venture capital	No=0 Yes=1	Is doing activities to get this financial resource or receive venture capital	0	0	0	1	0	0	0	0	1	1	0	1
Regulative	Entrepreneurship formalization	Very difficult =1 Very easy=5	Perception regarding the formalization process	2	5	4	2	5	2	2	5	4	1	4	2
Regulative	Rules regarding the sector	Very difficult =1 Very easy=5	Presence of specific rules regarding the sector and impact on her business	3	2	1	1	5	4	5	4	2	1	4	5
Regulative	Contacts with government programs to support E-ship	No=0 Yes=1	1=part of one or more programs 0=no	1	0	0	1	0	1	1	1	0	1	1	0
Regulative	Contacts with university programs to support E-ship	No=0 Yes=1	1=part of one or more programs 0=no	1	0	0	1	0	0	0	1	0	1	0	0
Total Regulative				14	14	10	13	14	16	16	16	14	14	15	12
Normative	Support from family	Low=1 high=5	Low or high support	4	5	4	2	5	2	5	1	5	3	4	4
Normative	Admiration/recognition of entrepreneurship in the city	Negative=1 Positive=5	Perception regarding the admiration of entrepreneurship in general, Success entrepreneurs receive High status	5	4	4	4	3	4	4	4	4	2	3	5
Normative	Admiration/recognition of her work as female entrepreneur	Negative=0 Positive=5	Perception of her job as entrepreneur	4	5	2	4	4	4	4	3	4	4	4	4
Normative	Entrepreneurial culture	Disagree=0 Agree=5	Knowledge and informal support society	2	3	3	4	3	4	5	2	2	4	2	3
Normative	Entrepreneurial ecosystem	low=0 high=5	Perception of ease of starting a business in the city	4	4	5	4	4	2	5	2	2	4	2	2
Normative	Entrepreneurial ecosystem for STEM	low=0 high=5	Perception of ease of starting An IT business in the city	2	2	2	2	3	2	4	1	4	2	2	2
Normative	Role models	No=0 Yes=1	Parents entrepreneurs or close family entrepreneurs	0	1	0	0	0	0	1	1	0	0	0	1
Normative	Culture	Negative=0 Positive=5	Perception of the general culture positive to develop their skills	2	4	4	4	5	4	5	2	4	2	2	0
Total Normative				23	28	24	24	27	22	33	14	25	21	19	21

Dimension	Indicator / Dimensions' proxies	Scales and metrics	Measurement/from the interviews	Cases											
				1	2	3	4	5	6	7	8	9	10	11	12
Cultural-cognitive	Management Skills	low=0 high=5	Perception about the ability to run your own business (Managerial skills) - Education in Administration or related / previous experience managing business	5	3	3	5	4	3	5	4	4	3	5	4
Cultural-cognitive	Technical Skills	Very bad=1 Very good=5 low=1 high=5	Perception about the Knowledge specific for the business (Technical skills) - Technical education regarding the business	5	5	5	4	5	4	4	5	5	5	5	5
Cultural-cognitive	Previous experience in the sector (years)	According the categories 0-3 =1 4-6=2 6-9=3 10-15=4 more=5 low=1 high=5	Years in the specific sector before starting the business	1	1	1	2	2	2	1	5	5	1	2	2
Cultural-cognitive	Previous experience	According the categories 0-3=1 4-7 =2 7-10=3 10-15=4 more =5	Experience in other industries	1	5	1	5	2	5	5	5	5	2	3	2
Cultural-cognitive	Entrepreneurial experience yes/no	No=0 Yes=1	Previous entrepreneurial experience	0	0	0	1	0	1	1	1	1	0	1	0
Cultural-cognitive	Fear of failure	No=0 Yes=1	Fear of failure would prevent them from setting up a business / more fear of failure indicates also more risk aversion	0	0	0	0	0	0	0	0	0	0	0	0
Cultural-cognitive	Capacity of learning and adaptation	low=1 high=5	Positive thinking regarding changes	5	5	4	5	5	4	5	5	5	4	1	4
Cultural-cognitive	Capacity to identify opportunities	low=1 high=5	Positive thinking regarding new opportunities	5	5	5	5	5	3	5	5	5	4	1	4
Cultural-cognitive	Female E-ship in STEM	Negative=1 positive=5	Perception female E-ship in STEM	4	3	3	5	4	4	4	4	4	4	4	4
Cultural-cognitive	Manage the business being woman	Negative=1 positive=5	Perception regarding the easy of Operate the business being a woman	4	4	2	4	4	4	5	2	3	4	4	2
Total Cultural-cognitive				30	31	24	36	31	30	35	36	37	27	26	27

Dimension	Indicator / Dimensions' proxies	Scales and metrics	Measurement/from the interviews	Cases											
				1	2	3	4	5	6	7	8	9	10	11	12
Outcome	Employment	#employees Employees 0 -1 = 0 2 – 5 =0.25 6 – 8 = 0.75 9 or more =1	Direct Employment	.25	.75	0	.25	1	1	.25	.25	1	1	.75	.75
Outcome	High technology	Machine learning, nanotechnology, artificial intelligence = 1 Analytics, 3D print, Insurtech =0.75 Specialized consultant =0.25 None of the above=0	High-tech related to innovation, and technology impact	1	1	1	.75	.25	.25	.75	1	.75	1	.25	1