

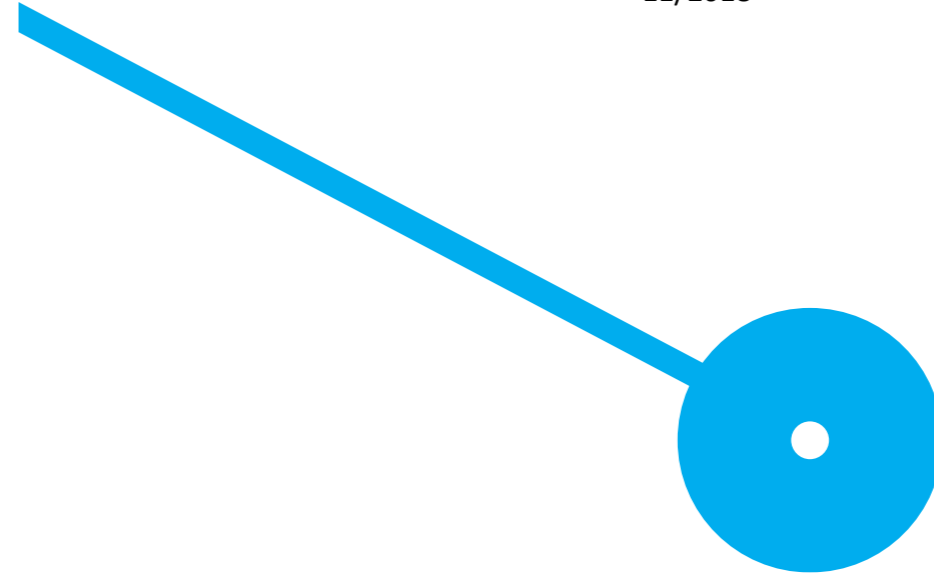
Entrepreneurial Motivations and Intentions - An  
Approach to International Entrepreneurship  
Ângela Brandão Mota

11/2018

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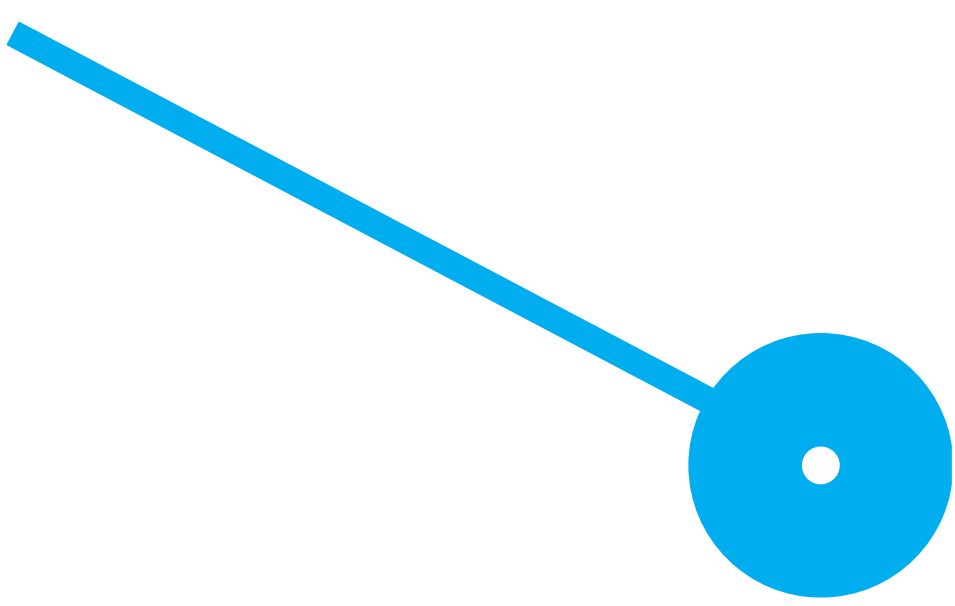


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MESTRADO  
Gestão e Internacionalização de Empresas

Entrepreneurial Motivations  
and Intentions - An  
Approach to International  
Entrepreneurship  
Ângela Brandão Mota

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Professor Dr. Vítor Braga



## **Abstract**

The relevance of entrepreneurship is unquestionable in all economies for driving economic growth and job creation. Entrepreneurs are motivated to start a business either by opportunities or necessity and entrepreneurial intention is defined as the will an individual has to start a business.

This research analyzes the behavior, attitudes and perceptions of individuals, that are reflected in their motivations and entrepreneurial intentions. In order to investigate the impact of entrepreneurial motivations and intentions, the study was divided into two chapters.

The results of the first chapter show that opportunity seeking is the main motivation of entrepreneurs, regardless of the economic development level of their countries. This analysis suggests that countries aiming to promote entrepreneurship should develop policies that foster entrepreneurial opportunities. For this analysis, the Global Entrepreneurship Monitor (GEM) database was used, in particular the Adult Population Survey (APS), for the period between 2010 and 2016 supported by multivariate statistical techniques, such as crosstab, linear regression, cluster and discriminant analysis.

In the second chapter, on entrepreneurial intentions, statistical analysis show that the perception of perceived opportunities and capacities, the need for personal fulfillment, risk attitude and culture are characteristics that influence entrepreneurial intentions. In turn, innovation, from 2002 to 2016, had no effect on entrepreneurial intentions. In the literature, culture is referred as being a determinant in the individuals' behavior. Our results show that Hofstede's cultural dimensions influence motivations of opportunity-motivated entrepreneurs negatively, namely: power distance index, uncertainty avoidance index, indulgence versus restraint, fear of failure rate. However, indulgence versus restraint has a positive impact in opportunity entrepreneurship. For this study, the Global Entrepreneurship Monitor (GEM) database was also used, in particular the Adult Population Survey (APS) between 2002 and 2016 and the Hofstede database for the year 2015 and these data was subject to linear regression, cluster and discriminant analysis.

This study contributes a better understanding of the factors that influence the motivations and intentions of the entrepreneurs, which are important for policy-makers and researchers to design adequate measures.

**Keywords:** entrepreneurship, motivated, intentions, GEM, Hofstede

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## **Part I**

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## **Introduction**

Entrepreneurship is an universal concept and this explain why different approaches emerged with the objective of increasing the rate of entrepreneurship in different countries. One of the main challenges in these studies is to identify why some countries are more entrepreneurial than others, regardless of their economic development level.

The development of any economy depends on the stimuli for the entrepreneurial spirit (Popescu, Bostan, Robu, Maxim and Diaconu, 2016). Ozaralli and Rivenburgh, (2016), point out that it is equally important to promote entrepreneurship in both developed and developing countries, and this entrepreneurship is an area of interest to governments and researchers mostly in how young people can become entrepreneurs. However, entrepreneurship initiatives in different countries differ considerably: some seek to promote entrepreneurship for job creation, others as a way to improve productivity or international competitiveness. Therefore, most countries have tried to understand entrepreneurship and compare with other countries as a way to benchmark successful policies (Congregado 2007, p.52).

The complexity of the causal relationship between the world economy and entrepreneurship (Bosma et al., 2010) is also reflected in the GEM database, which in turn allows to compare business behavior and attitudes across the various countries involved.

Entrepreneurs are defined by having a proactive behavior, to be innovative and risk averse (Covin and Slevin, 1989; Miller, 2011). However, it is important to explore other characteristics that led them to becoming entrepreneurs, i.e., their motivations and intentions.

The choice to develop this research, centered on entrepreneurial motivations and intentions, was due to the interest of exploring the stimuli of different countries that lead the individuals to become entrepreneurs. This approach is critical for determining a number of common characteristics on motivations and intentions that will allow governments to adapt their measures, such as education, that lead to an increase in entrepreneurship.

This study aims to explore entrepreneurial behaviors, attitudes and intentions that influence the motivations of entrepreneurship for opportunity and necessity in different countries, as well as the entrepreneurial intentions, based on GEM data.

The research is divided into two parts and two chapters. This chapter introduces the research study providing the context, analyzes and presents the conclusions of the authors who studied the theme of entrepreneurship, providing a state of the art on the subject. . Chapter I and II includes different sections, among them: the literature review, presents the conceptual framework that underlies this study; the research that are tested in the dissertation; the methodology where it describes the methods and strategies adopted in the investigation, description of the variables and the methods of analysis; the presentation of data and results. The last part presents the results of the statistical analysis on entrepreneurial intentions and motivations, refers the limitations and suggestions for future investigations

## **Brief Literature Review**

McDougall and Oviatt (2000) emphasize that entrepreneurship studies must be based on the entrepreneur's behaviors and compare different countries, as it is cultural sensitive. The GEM thus emerges to fill one of the biggest gaps in entrepreneurship studies, the lack of a worldwide database (Reynolds et al., 2002), and aims to study two elements: i. behavior and attitudes; ii. context and influence. The collection of information and analysis to GEM data is based on three assumptions that are as follows: i. business dynamism drives economic growth at all stages of development; ii. the entrepreneurial capacity of an economy that relates to the motivations and capacities of individuals to start a business; iii. entrepreneurship as a major contributor to job creation in an economy, and innovative entrepreneurship increases competitiveness at the national level.

The GEM distinguishes entrepreneurship by opportunity and necessity (Reynolds et al., 2002), who argue that in developed countries there is more entrepreneurship by opportunity, and in developing entrepreneurship by necessity. These facts were the basis of our research question, in order to seek evidence these assumptions. There are several studies that relate entrepreneurship to the level of development of a country and economic growth, but it is equally important to analyze other characteristics that are conducive to entrepreneurship, such as what leads the entrepreneurs to be entrepreneurs.

There are, however, other extrinsic variables that can eventually condition or foster entrepreneurship, such as politics, education and culture.

Governmental policies need to ensure that there are market mechanisms that efficiently prevent market failures in order to create a context allowing reasonable risk within business (Fuentelsaz et al., 2015). In this context, society and governments also influence the characteristics and quality of entrepreneurship initiatives. In addition, in some countries, governments establish regulations and restrictions to protect employees either by determining working conditions or compensation in cases of layoffs (World Economic Forum, 2013). These constraints can de-motivate and result in a decrease in entrepreneurship (Fuentelsaz et al., 2015), namely entrepreneurs by opportunity. The same does not apply to entrepreneurs by necessity in cases where market alternatives are scarce. A negative effect on entrepreneurship is the tax burden (Bowen and De Clercq, 2008), where entrepreneurs by necessity tend to be less likely to obtain returns associated with innovation and their profit margins are lower (Schumpeter, 1935), i.e., opportunity entrepreneurs are thus sensitive to tax increases. From this perspective, one can conclude that more tax freedom favors entrepreneurship.

In the perspective of Levie and Autio (2008), education plays a very important role on individuals, allowing to easily identify market opportunities, and this is critical for starting a business. Other authors, Bowen and De Clercq (2008), emphasize the importance of distinguishing general education from specific education in business - the educational system that focuses on entrepreneurship, where students gather a set of skills that enables them to develop a set of strategies for developing their future ventures. This specialization is especially conducive to entrepreneurs of opportunities enabling them to develop their capacity of opportunity (Levie and Autio, 2008). Thus, investing in educational may jeopardize necessity entrepreneurship, since the society

has a more active population and with better income level, and less prone to start their own business (Iversen et al.,2010).

The cultural context of a given country is one of the determinants that influences the development of entrepreneurship and the characteristics of entrepreneurs (Saffu, 2003). The national culture consists of a set of standards, beliefs and values associated with a group of individuals in a given demographic region (Hofstede, 1980). The cultural context influences the development of entrepreneurship and the characteristics of entrepreneurs (Saffu, 2003). Bratu, Cornesou and Druica (2009), are more general and recognise that entrepreneurship by opportunity is directly and positively related to the economic development of a country, but entrepreneurship by necessity has a zero relation, i.e., without any influence. However, there is a positive correlation between the incidence of entrepreneurial activities and economic growth, regardless of the type of entrepreneurship (Luetkenhorst, 2004). According to Hannan and Freeman (1977), the environment is a factor that directly (or indirectly) conditions the behavior and results of any organization, being a decisive element to be successful in any opportunity, in which the environment creates opportunities which condition the demand for a given region, due to the use of technologies, innovations, and so on, that improve competitiveness (Acs, Morck and Yeung, 2001; Verheul et al., 2001; Welter and Lasch, 2008).

**Objectives of the dissertation:**

1. Identify entrepreneurs' main motivations to start a business in different countries;
2. Identify behaviors and attitudes that influence entrepreneurial intentions.

## **Chapter I**

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## Motivation entrepreneurship: opportunity and necessity

**Abstract.** Nascent entrepreneurs have their own business for several reasons, but one can easily distinguish their motivations in two types: the willingness to be an entrepreneur and the need to be one. Finding a good opportunity in the market is not the only way to start a business; entrepreneurs also start a business because there is no better or no other choice to avoid unemployment (e.g., Evans and Leighton, *Small Business Economics* 2:319–330, 1990; Masuda, *Small Business Economics* 26:227–240, 2006). The Global Entrepreneurship Monitor divides entrepreneurs' motivations in two ways: opportunity and necessity. This research analyzes the motivations of nascent entrepreneurs; more specifically, it identifies the main motivations of entrepreneurs across different countries, presenting the characteristics that most influence the motivations of the individuals either by necessity or opportunity; and finally, it clusters countries in terms of entrepreneurship types and characterizes them. The literature suggests that entrepreneurs by opportunity are strongly associated with developed countries. Therefore presenting a set of characteristics that influences these motivations allows a greater understanding of the entrepreneurship process, where the motivation and the process that influence the business decision-making of individuals are critical. Our results show that motivations for entrepreneurship are strongly correlated with the sociodemographic characteristics of the entrepreneur, e.g., age, education, and family income. Our study also shows that entrepreneurship by opportunity does not necessarily happen in developed countries. In contrast, it should be noted that entrepreneurs by necessity do not seek to start an innovative business, nor do they perceive good opportunities in their context; nevertheless they decide to become entrepreneurs as a way to overcome the lack of employment opportunities, suggesting that they seek to avoid possible risks.

**Keywords:** Entrepreneurs – Motivations – TEA – GEM

## Introduction

Motivation is a combination of multiple factors, many of them are personal, including impulse, trust, relationships, and knowledge (Davis, 2018). Argote et al. (2003) states that rewards and incentives are important for motivating individuals. Motivation has been a key concept in the literature of psychology for more than 100 years, but it only appears linked to the literature of entrepreneurship since the 1980s but more related to attitudes, behaviors and intentions.

In general, entrepreneurship studies aims to answer the following question: "Why, when, and how some people and not others discovers and exploit these opportunities" (Shane & Venkataraman 2000, p.218). Recent studies on entrepreneurship focus on affective elements such as compassion (Miller et al., 2014), passion (Cardo et al., 2009; Murnieks et al., 2004) and social identification (Fauchart & Gruber, 2011; Powell & Baker 2014), while other studies are more related to cognitive elements such as perception of opportunities.

This study explores the entrepreneurs' motivations in two aspects: opportunity and necessity, in order to show the factors that characterize these motivations, facilitating the adaptation of strategic government measures with the objective of increasing the entrepreneurship rate.

## 1 Literature review

Entrepreneurial is a term that emerged in France to define those willing to take risks to start something new. Richard Cantillon (1725) - was the first author to refer to this term in an economic perspective in his work - *Essai sur la Nature du Commerce en Général* - in 1755, where it is referred to as self-employment with uncertain return, thus relating entrepreneurial activity to uncertainty in which the individual in his or her decisions is willing to take risks (Van Praag 1999, Adaman and Devine 2002). Entrepreneurship is not necessarily the result of a successful research or an innovation. Entrepreneurs are able to overcome the insecurity associated with business with their resistance, they are thus distinguished by having charismatic characteristics. Schumpeter (1935, p.130); emphasizes that "the entrepreneur is the revolutionary of the economy and the involuntary Pioneer of social and political revolution" - and considers them agents of change in production processes and economic development, and by being innovative they implement changes in the markets through new combinations, such as: the introduction of a new product, the introduction of a new production method, exploring a new market, the use of a new source of supply of new materials, and the reorganization of any sector (Hofer, Meeks and Carton, 1998).

The definition presented by Schumpeter suggests that characteristics associated with individuals - are central to entrepreneurship. Drucker (1985) points out that innovation is the main characteristic of entrepreneurs and that determines his behavior and how they explore the opportunities for a new business or service. Therefore, the entrepreneur is defined as not being integrally related to the creation of firms, since it is also associated with the creation of value, innovation and the implementation of changes. Shane and Venkataraman (2000) consider that the process of discovery, evaluation, and exploitation of opportunities, as well as the way individuals discover, evaluate, and exploit them, is opportunity entrepreneurship. For Scase and Goffee

(1980), entrepreneurs' behavior, ideas, and intentions are complex to determine therefore, becoming or being entrepreneurial is something almost innate and inherited (Gibb & Ritchie, 1982).

The lack of a conceptual definition of entrepreneurship is due to the fact that this issue is addressed in the social sciences (Swedberg, 1993, Weber, 1898/1990), in economics (Casson, 2003, Von Hayek, 1948), in management (Ghoshal and Bartlett, 1995), there are different perspectives of what entrepreneurship is. Table 1 presents some of the definitions.

**Table 1 - Definitions of entrepreneurship**

Publication	Characteristics
Cantillon (1755/1931)	Entrepreneurs buy at certain prices in the present and sell at uncertain prices in the future. The entrepreneur is a bearer of uncertainty.
Commission of the European Communities (2003)	Entrepreneurship is the mindset and process to create and develop economic activity by blending risk-taking, creativity and/or innovation with sound management, within a new or an existing organization.
Dauids (1963)	Ambition; desire for independence; responsibility; self confidence
Ireland, Hitt, & Sirmon (2003)	Entrepreneurship is a context dependent social process through which individuals and teams create wealth by bringing together unique packages of resources to exploit marketplace opportunities.
Kirzner (1973)	The entrepreneur recognizes and acts upon profit opportunities, essentially na arbitrageur.
Knight (1921)	Entrepreneurs attempt to predict and act upon change within markets. The entrepreneur bears the uncertainty of market dynamics.
Penrose (1959/1980)	Entrepreneurial activity involves identifying opportunities within the economic system.
Weber (1947)	The entrepreneur is the person who maintains immunity from control of rational bureaucratic knowledge
Hartmann (1959)	Source of formal authority
Hornaday and Aboud (1971)	Need for achievement; autonomy; aggression; power; recognition; innovative/independent
Liles (1974)	Need for achievement
McClelland (1961)	Risk taking, need for achievement
Palmer, (1971)	Risk management
Sutton (1995)	Desire for responsibility
Timmons (1978)	Drive/self-confidence, goal orientated moderated risk taker; internal locus of control; creativity/innovation
Welsh and White (1981)	Need to control; responsibility seeker; self-confidence/drive; challenge taker; moderate risk taker
Winter (1973)	Need for power

**Source:** Adapted from Carland et al. (1981, 1984) e Gartner (1988) and Ahmad and Seymour (2008)

Although there are different definitions, the perception and identification of market opportunities are one of the most important characteristics in the studies on entrepreneurship (Hills, Lumpkin and Singh, 1997; Shane and Venkataraman, 2000; Gaglio and Katz 2001; Ardichvili, Cardozo and Ray, 2003), being referred to as the one

that allows entrepreneurs to succeed (Ardichvili, Cardozo and Ray, 2003). Entrepreneurship is also analyzed as a social process that is dependent on the context in which it operates, and also where individuals or groups create wealth by exploiting market opportunities (Ireland, et al., 2003).

For Shane and Venkataraman (2000), entrepreneurship integrates two processes that are related: the discovery of opportunities and the exploration of these opportunities. In Stevenson's (1985) approach, entrepreneurship consists only of looking for opportunities.

According to Reynolds and White (1997) and Reynolds (2000), the entrepreneurial process can be classified in four stages (conception, gestation, childhood and adolescence), with three transitions: (1) entrepreneurs have the time and resources to start a new firm and are considered nascent entrepreneurs when the firm is distinguished as a start-up, an independent activity and on its own; (2) arises when the new business starts as an operating business; and (3) occurs when there is a positive change from the new company to a sustainable success.

This study addresses the first transition, in order to understand the motivations of nascent entrepreneurs. As pointed out by Gicheva and Link (2016), for more than two decades there are bases for research on nascent entrepreneurship. This research used data from GEM where a nascent entrepreneur is a person who attempts to start a new business in the last 12 months and expects to be the owner or part owner of the new firm and whose start-up does not have positive cash flow to cover the expenses and salaries of the managing owner for more than 3 months (Reynolds et al., 1999); Ács and Varga, 2005).

Nascent entrepreneurs are important to the process of development of countries and regions and consequently in the economic development and growth (Llopis, et al., 2015). Wagner (2000) adds that the nascent entrepreneurs are, therefore, important for the emergence of new firms, while also identifying crucial aspects of the economy, justifying the relevance of this research. Consequently, motivation and intentions are evidenced to be relevant to explaining entrepreneurial behavior, (Valliere, 2015), and are therefore considered important both in the role of internationalization and international entrepreneurship (Dimitratos et al., 2016; Busenitz and Barney, 1997; Hessels, et al., 2008). Herron and Sapienza (1992, p. 49) refer that "motivation plays an important role in creating new organizations, organizational creation theories that fail to solve this notion are incomplete".

Entrepreneurial motivation is related to the motivation of entrepreneurs seeking market opportunities to obtain resources, knowledge, experience, and access to financing and risk reduction (Autio, et al., 2000; De Clercq, et al., 2005; Kontinen and Ojala, 2011; Voudouris, Dimitratos and Salavou, 2011). It also refers to the motivation of international entrepreneurs that can be subdivided into two dimensions: the internationalization strategy (Segaro, Larimo and Jones, 2014) and the implementation of an internationalization strategy (Dimitratos et al., 2012).

As reported by Van der Zwan et al. (2016) the literature distinguish the pull and push motivations between entrepreneurship for opportunity and necessity, and in most of the investigations a distinction is made between factors that are positive that "pull" and the negatives that "push" people toward entrepreneurship (Shapiro and Sokol, 1982; Gilad and Levine, 1986), in which, for example, pull motivations include the need for achievement and the will to be independent, and the motivations of "push"

involve the risk of unemployment and dissatisfaction with the current situation. GEM distinguishes between pull and push motivations; however, they classify them as entrepreneurship by opportunity and necessity (Reynolds et al., 2002) where entrepreneurs by necessity are driven by pull motivations. GEM provides data allowing to analyze the two motivations to become entrepreneurs: the opportunities, where entrepreneurs are the ones who start a business to pursue an opportunity, and by necessity, where individuals feel compelled due to unemployment.

Oxenfeldt (1943), one of the first authors to explore push motivations, states that the unemployed or individuals with low employment prospects may become independent. However, there are other job factors, such as family pressure, transferring business to the new generation, or job dissatisfaction (Bowen and Hisrich, 1986). Entrepreneurs by opportunity tend to engage in innovative business, explore market niches, while entrepreneurs by necessity tend to engage in less innovative businesses (Angulo-Guerrero, et al., 2017).

Recognition of opportunities is one of the most important characteristics of a successful entrepreneur (Shane and Venkataraman, 2000). On the other hand, Minniti and Bygrave (2001) refer that successful experience is not always able to increase the perception of opportunities in the market, because in return, individuals who have failed are more susceptible to exploit opportunities.

Choi and Shepherd (2004) add that the exploration of opportunities is a decision to act on the perceived opportunities for which their behaviors will enable success. Withey et al. (1989) consider that the entrepreneur's previous experience provides a set of information useful for the creation of his business, which reduces some of the costs of exploiting opportunities and increases his capacity to reduce obstacles and uncertainties related to creation of a new business.

As mentioned above, some authors state that being risk averse is one of the distinctive characteristics of entrepreneurs (Kihlstrom and Laffont, 1979), but Ahn (2010) refers that this attribute is difficult to determine because there are no direct measures about the risk thus limiting some empirical studies. This is due to the fact that the risk that the future entrepreneur is willing to take depends on different variables, whether intrinsic or not to the enterprise (Baron and Ensley, 2006). Wennekers et al. (2005) add that there is a negative relationship between the TEA index and economic growth, implicitly indicating that there is also a relationship between the TEA index and the risk of creating a business, and consequently there is a relationship between risk and economic growth (Marcotte, 2012). There is, therefore, a causal relationship between the perception of risk and the behavior of the entrepreneur, likewise the risk is related to the perception of opportunities in the market and with entrepreneurship rate (Wenhong and Liuying, 2010).

Necessity motivations are present when individuals have no other employment options, so such decision is more noticeable than those who start a business for exploring opportunities (Wang and Poutziouris, 2010). This may suggest that entrepreneurs by necessity are more risk averse. Wennekers et al. (2005) refer that, in developed countries, economic growth is directly related to entrepreneurship, given that individuals are more motivated to be entrepreneurs because of the opportunities they identify (Barros and Pereira, 2008).

## 2 Hypotheses

The motivations of individuals to become entrepreneurs may differ by intrinsic and extrinsic stimuli, and knowing that the different motivations of business decisions influence the impact a new enterprise can have on society and the economy (Baumol, 1990; Estrin, Mickiewicz, Stephan, 2013; Williams, 2009), and in order to reach the objective of the present study, a set of research hypotheses was formulated that relates the motivation by opportunity and necessity.

### 2.1 Motivation for opportunity Versus. motivation by necessity

Necessity entrepreneurship predominates in less developed regions or in those where there is significant unemployment levels; in developed economies there are more opportunity entrepreneurship due to the existence of more entrepreneurial opportunities as a result of their wealth and innovation. Based on this argument, the first research hypothesis is defined as follows:

**[H1]:** Opportunity entrepreneurs create business in developed economies, while entrepreneurs by necessity create business in the less developed economy.

### 2.2 Characteristics of entrepreneurs

In the same way that there are different motivations that lead individuals to become entrepreneurs, there are also characteristics that can influence such motivations. According to Levine (1986), entrepreneurs' motivation is distinguished by two hypotheses between pull and push. This distinction is implicitly present in the model of the entrepreneurial event (Shapiro and Sokol 1982), where mention is made to initiating a business due to major changes in the life of an individual.

Entrepreneurs by opportunity are motivated to create innovative entrepreneurship and to increase productivity in an economy (Stenholm, Acs, & Wuebker, 2013), thus seeking growth, profit, innovation and personal aspirations (Cullen, Johnson & Parboteeah, 2014; McMullen, Bagby and Palich, 2008; Reynolds, Bosma, Autio, Hunt, De Bono, Servais, Lopez-García, & Chin, 2005), while entrepreneurs by necessity start a business given the lack of other employment options, economic recession and poverty (Acs & Amorós, 2008, Banerjee & Duflo, 2007, Block & Sandner, 2009, Gries, & Naudé, 2011).

Studies on the comparison of entrepreneurship by opportunity and necessity tend to focus on the rates of the GEM's early-stage entrepreneurial activity (TEA) (De Clercq, Lim, & Oh, 2013; Levie & Autio, 2011). Thus, the research hypothesis is described as follows:

**[H2]:** There are different characteristics that motivate the entrepreneurs by opportunity and necessity.

### **3 Methodology**

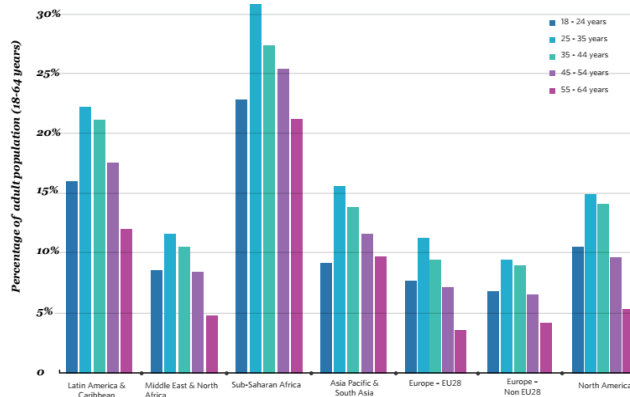
GEM is an organization focused on the study of entrepreneurship, which brings together a set of statistical data that allows analyzing the characteristics and motivations of individuals who started businesses in their various stages of enterprise development. The approach is shared by all countries and recognizes entrepreneurship as a process, thus enabling a comprehensive set of data, which facilitates international comparisons, to be able to track business activity, which is not the case with data national official statistics. GEM provides two sets of data, the Adult Population Survey (APS) and the National Expert Survey (NES). For this study, the most adequate data to achieve the research objectives are those of the APS, because it allows to focus on attitudes, behaviors and motivations of the entrepreneurs.

#### **3.1 Description of variables**

Data from the GEM' Adult Population Survey (APS) is overseen by GEM national teams, which conduct annual surveys (usually between April and June) on a representative national sample of at least 2000 respondents, where the age range for the target population for the GEM APS is 18 - 64 years old and covers all geographic regions of the country, urban and rural areas, with the primary objective of ensuring that the sample data represents a close combination of the adult population of the country, aiming to random samples representative of each economy. However, the data are only available to the public 3 years after their collection. In this sense, the APS data that served as the analysis of this study are those of the year 2013 and 2014. In the GEM global report of 2013, more than 197,000 people were surveyed and approximately 3,800 national entrepreneurship experts participated in the study in 70 economies. The following year, more than 206,000 people in 70 economies participated in GEM research accounting for 72.4% of the world's population and 90% of GDP. These data allow to present different profiles of entrepreneurship, for each region and stage of economic development.

The GEM APS allows analyzing the different characteristics of the entrepreneur in the various stages of their business life cycle, and for this study the variable explained was "Total Early Stage Entrepreneurial Activity" (TEA).

Note first that the year 2013, the initial business activity rates by age group and geographic region are as follows:



**Figure 1- Early-stage entrepreneurial activity rates within age groups by geographic regions**

Figure 1 shows that, in the year 2013, the young entrepreneurs (18-24), at an early stage of their activity, are represented mainly in Latin America and the Caribbean and in sub-Saharan Africa. As it can be seen, the least developed countries have a higher TEA rate, because they have a higher percentage of adult population (18-24).

In developing countries and with greater income inequality, entrepreneurship initiatives are important, so need-oriented entrepreneurship is very important (Reynolds et al., 2002). Entrepreneurship research is vast, but it does not offer a unanimous view of how the economic environment can influence the initial dynamics of entrepreneurship and entrepreneurial profile (Devece, Peris-Ortiz and Rueda-Armengot, 2016). It is known that identifying the differences between economies around the world, about social values, individual attributes and TEA, can be better understood if the motivational aspect to start a business is included. In this sense, we selected variables that would explain the motivation of individuals to want to start a business:

▪ **Demographic data, business activity, and sectors of activity**

There are several individual factors that are related to entrepreneurial self-efficacy, among them, gender, age, schooling level, and household income. In general, young people are characterized by having more ideas and education, and because they do not have so many responsibilities, they are more risk-averse. Blanchflower et al. (2001) state that the younger the individuals the greater the likelihood of becoming entrepreneurial. Education is one of the main factors that increases the entrepreneurial attitudes of individuals (Potter 2008). Household income can also boost entrepreneurship, being the example of some women who become entrepreneurs to support their families and be independent; however, one can read in the GEM report, the rate of entrepreneurship among women is less than the male one (Allen et al., 2007).

The following control variables were selected:

**Table 2 – Variables of demographic data, business activity and sectors of activity**

<b>Variables</b>	
<b>Tea13ac1 / Tea14ac1</b> - % 18-64 pop age category 18-24: % involved in TEA	<b>TEA13ed1 / TEA14ed1</b> - % 18-64 pop some secondary degree: % involved in TEA
<b>Tea13ac2 / Tea14ac2</b> - % 18-64 pop age category 25-34: % involved in TEA	<b>TEA13ed2 / TEA14ed2</b> - % 18-64 pop secondary degree: % involved in TEA
<b>Tea13ac3 / Tea14ac3</b> - % 18-64 pop age category 35-44: % involved in TEA	<b>TEA13ed3 / TEA14ed3</b> - % 18-64 pop post-secondary degree: % involved in TEA
<b>Tea13ac4 / Tea14ac4</b> - % 18-64 pop age category 45-54: % involved in TEA	<b>TEA13ed4 / TEA14ed4</b> - % 18-64 pop graduate experience: % involved in TEA
<b>Tea13ac5 / Tea14ac5</b> - % 18-64 pop age category 55-64: % involved in TEA	<b>Tea13s1p / Tea14s1p</b> - % within TEA: Extractive sector
<b>TEA13hi1 / TEA14hi1</b> - % 18-64 pop lowest household 33 ptile: % involved in TEA	<b>Tea13s2p / Tea14s2p</b> - % within TEA: Transforming sector
<b>TEA13hi2 / TEA14hi2</b> - % 18-64 pop middle household 33 ptile: % involved in TEA	<b>Tea13s3p / Tea14s3p</b> - % within TEA: Business oriented services
<b>TEA13hi3 / TEA14hi3</b> - % 18-64 pop highest household 33 ptile: % involved in TEA	<b>Tea13s4p / Tea14s4p</b> - % within TEA: Consumer oriented services

▪ **International entrepreneurship and growth expectation**

Internationalization is part or consequence of a firm's strategy, which can be defined as an entrepreneurial action (Schumpeter, 1935), and in this sense, entrepreneurship also explains the behavior of international firms. The issue of international entrepreneurship has been favoring new perspectives which, in turn, explain how firms face the new external market reality and succeed at the beginning of business activity (Ripollés-Meliá, Menguzzato- Boulard and Sánchez-Peinado, 2007). There is research that suggests that the speed at which a firm becomes internationalized can influence its internationalization process (Oviatt and McDougall, 1994). When the entrepreneur's goal is the rapid growth of business, it is referred to as high-expectancy entrepreneurship, where initiatives based on high-tech innovation play an important role (Seifert, Leleux and Tucci, 2008).

**Table 3– Variables of international entrepreneurship and growth expectation**

Variables	
<b>TEA13HIX / TEA14HIX</b> - % 18-64 pop: TEA exports: more than 50% customers outside country	<b>TEA13mk2/ TEA14mk2</b> - % 18-64 pop: TEA and some market expansion, no tech (TEA09MEM=2)
<b>Tea13e1p / Tea14e1p</b> -% within TEA: No customers outside country	<b>TEA13mk3 / TEA14mk3</b> - % 18-64 pop: TEA and some market expansion, with tech (TEA09MEM=3)
<b>Tea13e2p / Tea14e2p</b> - % within TEA: Export: 1-25% of customers outside country	<b>TEA13mk4 / TEA14mk4</b> - % 18-64 pop: TEA and profound market expansion (TEA09MEM=4)
<b>Tea13e3p / Tea14e3p</b> - % within TEA: Export: 25-75% of customers outside country	<b>TEA13HJG / TEA14HJG</b> - % 18-64 pop: TEA expects more than 19 jobs in 5 years
<b>Tea13e4p / Tea14e4p</b> - % within TEA: Export: 75-100% of customers outside country	<b>TEA13job / TEA14job</b> - % 18-64 pop post-secondary degree: % involved in TEA
<b>TEA13mk1 / TEA14mk1</b> - % 18-64 pop: TEA and no market expansion (TEA09MEM=1)	<b>TEA13EMP/ TEA14EMP</b> -% 18-64 pop: TEA any jobs now or in 5 years

▪ **Entrepreneurs by opportunity and necessity**

In GEM, Reynolds et al., (2001), distinguish pull and push motivations, introduced the concept of opportunity and need for entrepreneurship. As discussed in section 2, entrepreneurs by opportunity are more likely to engage in innovative business and exploit niche markets (Angulo-Guerrero, et al., 2017), while entrepreneurs by necessity are characterized by lower levels of satisfaction (Wagner Fonsen and Büttner, 2010) and because there is no better work option (Reynolds et al., 2005, Galbraith and Latham 1996, Block and Koellinger 2009, Kautonen and Palmroos, 2010).

In order to identify the common characteristics of entrepreneurs by opportunity and necessity, the following dependent variables were selected:

**Table 4 – Dependent variables of entrepreneurs by opportunity and necessity**

Variables	
<b>TEA13opp / TEA14opp</b> - % 18-64 pop: TEA and Opportunity motive	<b>TEA13nec / TEA14nec</b> - TEA and necessity motive (entr because of no better choice for work)

▪ **Innovation**

Innovation can be defined in five different ways: (1) development of a new product or change qualitatively; (2) development of the productive factor; (3) exploration of a new market; (4) implementation of supplies for raw materials; and (5) change in organization (Feeny and Rogers, 2003).

Dyer, Jeffrey, Gregersen and Christensen (2009) report that “innovative entrepreneurs have something called creative intelligence, which enables discovery”. And according to Gedik et al. (2015), an innovator is not only a person who has dreams or imagination and wants to create something new, there are still a set of factors that are related to his DNA that make it innovative.

High-tech and early-stage enterprising firms are important in encouraging the creation of emerging industry strategies but also to activate regional economic development (Pan et al., 2018).

In view of the above, we selected the following dependent variables related to innovation:

**Table 5 – Innovation**

Variables	
<b>Tea13cm1 / Tea14cm1</b> - % within TEA: Many businesses offer the same product	<b>Tea13cs3 / Tea14cs3</b> - % within TEA: Product new to none customers
<b>Tea13cm2 / Tea14cm2</b> - % within TEA: Few businesses offer the same product	<b>Tea13nt1 / Tea14nt1</b> - % within TEA: Uses very latest technology (only available since last year)
<b>Tea13cm3 / Tea14cm3</b> - % within TEA: None businesses offer same product	<b>Tea13nt2 / Tea14nt2</b> - % within TEA: Uses new technology (1 - 5 years)
<b>Tea13cs1 / Tea14cs1</b> - % within TEA: Product new to all customers	<b>Tea13nt3 / Tea14nt3</b> - % within TEA: Uses no new technology
<b>Tea13cs2 / Tea14cs2</b> - % within TEA: Product new to some customers	<b>TEA13tec / TEA14tec</b> - % within TEA: Active in technology sectors (high or medium)

▪ **Attitudes, perceptions, behavior, and intentions of the entrepreneur**

Entrepreneurship is referred to as a status of work (Arenius and Minniti, 2005), so attitudes and perceptions about entrepreneurship relate to how the individual action is perceived by other individuals. From the GEM, a set of relevant indicators was analyzed to explore individuals' perceptions of their competencies, knowledge, and experiences to start a business, as well as their intentions and the existence or not of opportunities to open a business.

Next, we describe the variables that were selected through the GEM in the year 2013, related to the attitudes, perceptions, and attitudes of the entrepreneurs.

**Table 6 – Attitudes, perceptions, behavior, and intentions of the entrepreneur**

Variables	
<p><b>Frfail13 / Frfail14</b> - % 18-64 pop: YES: Fear of failure would prevent starting a business</p> <p><b>Opport13 / Opport14</b> - % 18-64 pop: YES: Good conditions to start business next 6 months in the area I live</p>	<p><b>Suskil13 / Suskil14</b> - % 18-64 pop: YES: Has required knowledge/skills to start business</p>

### 3.2 Statistical analysis

In order to answer our research questions and to evaluate the research hypotheses related to the motivation of the entrepreneur, we used chi-square tests, linear regression, discriminant and cluster analysis techniques applied to GEM data.

The chi-square test was used to test independent groups and to analyze if they differ in relation to a given characteristic. This analysis aimed to test differences in entrepreneur’s motivation in different groups of countries, i.e., what was the motivational index of the entrepreneurs in a certain group. Based on this method, it was possible to analyze the research questions that derive from the literature review, in which some authors report that motivation for opportunity happens in economically more developed countries and motivation due to necessity arises due to the lack of better job opportunities.

Linear regression allowed to gauge the influence of the dependent variable and to assess a cause-and-effect relationship with independent variables, thus allowing to evaluate which variables explain early-stage entrepreneurs who started the business led by opportunity or necessity. This analysis is important to display a number of early-stage entrepreneurs motivated by opportunity or necessity enabling governments and researchers to understand how young individuals can become entrepreneurs. As previously mentioned, Ozaralli and Rivenburgh (2016) show that the promotion of entrepreneurship is an important measure for both developed and developing countries.

Cluster analysis allows grouping a set of variables into homogeneous groups. This method is the most appropriate to analyze which countries show similarities in terms of cultural characteristics, attitudes and entrepreneurial behaviors.

Discriminant analysis allows us to find a discriminant function that allows us to distinguish groups of samples known a priori.

The Statistical Package for the Social Sciences (SPSS Statistics) was used for analysis and presentation of results.

## 4. Results

### 4.1 Motivational index

The motivational index (MI) allows to characterize entrepreneurship in terms of opportunity or necessity, between 2010 and 2016, in order to understand whether opportunity entrepreneurship prevails developed countries or if, on the other hand, motivations by necessity are predominant only in developing countries.

Based on the indicators of the behavior and attitudes of the entrepreneur, GEM, measured through the Adult Population Survey (APS), we selected the indicator motivational index, which is expressed in the following equation:

$$\text{Motivational index} = (\text{opportunity motivated})/(\text{necessity motivated})$$

In which,  $MI \geq 1$  the motivation is by opportunity and  $MI < 1$  motivation by necessity. By distinguishing motivation by opportunity and necessity, it is possible to analyze the motivation of entrepreneurs from 102 countries, which are grouped into 6 regional blocks: Africa, Oceania, North America, Latin America and the Caribbean, Europe and Asia.

With crosstabs analysis for the motivation of entrepreneurs between 2010 and 2016, it is shown that, in general, motivation for opportunity prevails. However, we highlight situations in which there are significant changes in the motivation of the entrepreneurs, which are represented in the following table:

**Table 7 – Motivational index**

<b>Africa</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Algeria		1,27	1,58	2,92			
Angola	0,84		1,61	1,54	1,78		
Botswana			1,44	1,98	1,81	1,41	
Burkina Faso					2,37	1,36	1,4
Cameroon					1,21	1,26	1
<b>Egypt</b>	<b>0,48</b>		<b>0,68</b>			<b>0,79</b>	<b>1</b>
Ethiopia			3,4				
Ghana	0,94		1,85	1,32			
Libya				7,41			
Malawi			1,02	0,67			
Morocco						1,52	1,8
Namibia			0,99	0,98			
Nigeria		1,49	1,54	2,06			

Senegal						1,92	
<b>South Africa</b>	<b>0,87</b>	<b>1,13</b>	<b>1,25</b>	<b>1,04</b>	<b>1,26</b>	<b>1,13</b>	<b>1,8</b>
<b>Tunisia</b>	<b>2,02</b>		<b>1,19</b>			<b>3,56</b>	
Uganda	0,67		0,92	1,89	2,87		
Zambia	1,28		1,44	0,96			

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<b>Oceania</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Australia</b>	<b>3,17</b>	<b>4,86</b>			<b>3,62</b>	<b>5,19</b>	<b>3,9</b>
New Zealand							
Tonga							
Vanuatu	0,63						

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<b>North America</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Canada				4,43	4,04	4,14	3,4
<b>United States</b>	<b>1,81</b>	<b>2,78</b>	<b>2,78</b>	<b>2,7</b>	<b>4,96</b>	<b>4,82</b>	<b>6,4</b>

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<b>LatAm and Caribbean</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Argentina	1,19	1,35	1,35	1,59	1,55	1,7	1,6
<b>Barbados</b>		<b>11,57</b>	<b>5,05</b>	<b>3,7</b>	<b>3,65</b>		
Belize					3,64		6,2
Bolivia	3,36				2,26		
Brazil	1,48	1,47	1,95	2,01	2	1,11	1
Chile	1,78	1,98	3,96	2,87	3,53	2,42	2,8
Colombia	1,03	1,2	3,85	1,48	1,55	1,7	4,2
Costa Rica	1,19		2,37	3,29			
Dominican Republic							
<b>Ecuador</b>	<b>1,61</b>		<b>0,84</b>	<b>0,95</b>	<b>1,19</b>	<b>1,13</b>	<b>1,2</b>
El Salvador			1,11		1,71		1,3
Guatemala	1,83	1		1,41	0,96	0,89	1,1
Jamaica	0,91	1,2		0,84	1,04		0,8
Mexico	2,18	2,81	3,86	3,89	2,23	2,94	
Panama		1,5	2,91	2,14	2,29	0,86	3,9
Peru	2,24	2,32	2,27	2,41	3,59	2,12	5,4

Puerto Rico				1,99	2,49	1,65	1,3
Suriname				3,24	7,34		
Trinidad and Tobago	3,29	2,95	3,97	6,76	5,35		
<b>Uruguay</b>	<b>2,06</b>	<b>0,89</b>	<b>2,17</b>	<b>3,07</b>	<b>1,71</b>	<b>2,95</b>	<b>1,4</b>
Venezuela		1,52					

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<b>Europe</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Austria			3,53		3,41		3
Belgium	5,23	6,94	3,44	1,51	1,41	1,61	
Bosnia and Herzegovina	0,64	0,35	0,35	0,37	0,49		
Bulgaria					0,87		1,1
<b>Croatia</b>		<b>0,87</b>	<b>1,04</b>	<b>0,8</b>	<b>0,62</b>	<b>1,02</b>	
Cyprus							2
Czech Republic		2,07		2,65			
<b>Denmark</b>	<b>6,73</b>	<b>9,05</b>	<b>8,58</b>		<b>11,09</b>		
Estonia			2,7	3,38	2,72	4,17	3,3
Finland	3,01	3,25	3,5	3,68	4,04		
France	2,22	4,77	3,25	3,89	4,31		6,3
Germany	1,89	2,95	2,34	2,98	2,32	3,75	2,7
Greece	1,39	1,45	1,07	1,53	0,88	1,54	1,1
Hungary	2,18	0,94	1,13	1,38	1,09		
Iceland	10						
Ireland	1,08	1,25	1,44	2,43	1,64	1,99	3,2
Italy			1,42	0,98	2,84	1,61	
Kosovo					1,32		
Latvia	1,9	1,78	1,82	2,48		3,01	4
Lithuania		1,66	2,09	2,37	2,23		
Luxembourg				10,04	5,06	5,6	4,8
Macedonia	0,4		0,55	0,38		0,51	0,7
Montenegro	1,03						
Netherlands	7,6	6,85	7,86	8,41	4,01	4,45	3,2
<b>Norway</b>	<b>4,76</b>	<b>16,34</b>	<b>9,4</b>	<b>15,2</b>	<b>19,5</b>	<b>6,26</b>	
Poland		0,66	0,74	0,69	1,28	1,65	2
Portugal	2,31	3,26	2,97	2,36	1,8	1,46	2,7
Romania	1,59	0,83	1,56	1	1,72	1,21	
<b>Russia</b>	<b>0,94</b>	<b>1,56</b>	<b>0,86</b>	<b>1,19</b>	<b>1,07</b>		<b>1,3</b>

Serbia							
Slovakia		1,23	1,21	1			1
Slovenia	3,32	4,25	8,69	2,22	1,76	1,9	2,7
Spain	1,65	1,52	1,27	1,13	1,12	1,8	1,9
Sweden	5,36	11,1	7,11	6,03	7,1	5,71	11,8
Switzerland	4,27	5,39	3,18	8,97	4,05	6,53	5,1
United Kingdom	4,06	2,69	2,33	2,8	4,09	2,14	3,8

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<b>Asia</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Bangladesh		1,83					
<b>China</b>	<b>0,82</b>	<b>0,71</b>	<b>1,07</b>	<b>1,06</b>	<b>1,37</b>	<b>1,12</b>	<b>1,5</b>
Georgia					0,64		0,7
Hong Kong							4,4
India				0,93	1,15	1,81	1,2
Indonesia				1,72	1,85	1,92	2,3
Iran	1,04	0,6	0,86	0,94	1,28	1,68	1,5
Israel	2,24		2,41	2,83		3,29	2,6
Japan	1,29	2,55	3,21	2,38	3,63		
Jordan							1,9
Kazakhstan					1,28	0,87	0,8
Lebanon						2,09	1,1
Malaysia	3,33	7,06	4,56	3,53	3,65	4,9	3,7
Pakistan	0,96	0,53	0,45				
Palestine	1,04		0,63				
Philippines				0,87	1,14	1,62	
Qatar					2,53		6
Saudi Arabia	7,47						5,4
Singapore		3,24	3,69	8,18	6,21		
<b>South Korea</b>	<b>1,28</b>	<b>0,87</b>	<b>1,32</b>	<b>1,4</b>		<b>2,55</b>	<b>2,7</b>
Syria							
<b>Taiwan</b>	<b>1,58</b>	<b>2,85</b>	<b>2,38</b>	<b>1,6</b>	<b>4,98</b>	<b>3,78</b>	<b>2,7</b>
Thailand		3,53	4,04	3,63	4	4,42	3,5
Turkey	1,25	1,42	1,77	1,77			1,9
United Arab Emirates		4,67					1,4
Vietnam				2,48	1,79	1,55	
Yemen							

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As it turns out, Norway is one of the countries with the highest percentage of the individuals who most created a business motivated by opportunities, for example the year 2014, where opportunity-motivated entrepreneurs were 19.5 times more frequent than necessity entrepreneurs.

It is interesting to note that, during this time period, in countries such as Uruguay, Ecuador, Russia, Croatia and South Korea, the motivations of individuals vary between need and opportunity, i.e., 1 year the motivation was opportunity; in another motivation was necessity and vice versa. This analysis allowed us to conclude that [H1] could not be confirmed, motivation for opportunity and necessity is not directly related to economic development; there are other factors that lead individuals from different countries to become entrepreneurs, either by opportunity or necessity.

## 4.2 Linear Regression Analysis

This study sought to analyze demographic data, business activity, sectors of activity, internationalization, growth expectations, innovation, attitudes and perceptions and behavior of individuals, in order to determine the characteristics of individuals who create business in which the motivation was due to opportunity or necessity, for which we used the linear regression statistical analysis and two dependent variables were selected: TEA and opportunity motive and TEA and necessity motive.

As we have seen crosstabs' analysis shows that, in some of the countries, the motivation of the entrepreneurs has undergone changes in which in 1 year the motivation was for opportunity and changing in the following one changes that may possibly be associated with the policies adopted in the countries and, with the purpose to understand which factors can influence the motivational level of the individuals, we used a linear regression analysis model for the years of 2013 and 2014. In this model of analysis, the stepwise estimation method was used. This method is hybrid as a combination of the two forward and backward methods, allowing, easily, the removal of a variable whose importance in study is reduced by the addition of new variables. This analysis allows to critically evaluate the determination of a functional relation and the recognition of its importance of the behavior of an independent variable, so that in the following table, it shows the independent variables that contribute to explain the change of the motivation of the entrepreneur (opportunity or necessity).

Table 8 presents the summarized model with the results for each model, highlighting the variables that were inserted in the stepwise analysis, which are statistically significant.

**Table 8 – Model summary**

<b>Model</b>	<b>Dependent variable</b>	<b>METHOD=STEPWISE</b>	<b>R<sub>a</sub><sup>2</sup></b>	<b>Durbin-Watson</b>
<b>1</b>	% 18-64 pop: TEA and opportunity motive - 2013	(1)% 18-64 pop age category 35-44% involved in TEA (2) % 18-64 pop post-secondary degree% involved in TEA (3) % within TEAOPP opportunity type: Maintain Income (4)% within TEA: Business oriented services (5) % 18-64 pop; TEA and no market expansion (TEA09MEM = 1) (6) % within TEA: Uses no new technology (7) % 18-64 pop graduate experience:% involved in TEA (8)% within TEA: Product new to some customers (9) % 18-64 pop: TEA and profound market expansion (TEA09MEM = 4) (10) % within TEA: Product new to none customers	0,976	2,076
<b>2</b>	% 18-64 pop: TEA and necessity motive (entr because of no better choice for work) - 2013	(1)% 18-64 pop some secondary degree: % involved in TEA (2)% 18-64 pop: YES: Good conditions to start business next 6 months in the area I live (3)% 18-64 pop: TEA and profound market expansion (TEA09MEM=4) (4)% within TEA : Extractive sector	0,730	1,584
<b>3</b>	% 18-64 pop: TEA and opportunity motive - 2014	(1)% 18-64 pop age category 35-44: % involved in TEA (2)% 18-64 pop: TEA and some market expansion, no tech (TEA09MEM=2) (3)% 18-64 pop age category 25-34: % involved in TEA (4)% 18-64 pop: YES: Good conditions to start business next 6 months in the area I live (5)% within TEA : Consumer oriented services	0,949	1,937
<b>4</b>	% 18-64 pop: TEA and necessity motive (entr because of no better choice for work)- 2014	(1)% 18-64 pop middle household 33 ptile: % involved in TEA (2)% within TEA: Many businesses offer same product	0,752	1,787

### **Model I**

The results show that age, education level, activity sectors, internationalization, and technology and product innovation are characteristics that are associated with the motivation for opportunity in the year 2013. However, although these dimensions are significant based on the analysis of the absolute values of the standardized coefficients, it allows us to conclude that the variables % 18-64 pop age category 35-44: % involved in TEA; % within TEA: Uses no new technology; % within TEA opp opportunity type: maintain income; % within TEA: Business oriented services; % 18-64 pop: TEA and no market expansion (TEA09MEM = 1), have a greater importance in relation to the other variables of the model, i.e., these are the ones that better explain and influence the motivation of entrepreneurs in the 70 countries under study, among them, United States, Japan, Norway, Brazil and South Africa. In general, this analysis shows that entrepreneurs aged 35-44 years old have identified opportunities to start a business, by offering business-oriented services, as a way to maintain or increase their income. This also means that the motivation for opportunity is not necessarily a motivation that leads individuals to explore opportunities in other markets, as well as a way to maximize their income.

### **Model II**

This analysis allowed to verify that, in 2013, entrepreneurs' motivation by necessity in 70 countries could be explained by four dimensions: schooling level, activity sector, internationalization and individuals' perceptions of their context. It is also worth mentioning that from the analysis of the absolute values of the standardized coefficients, the variables % 18-64 pop some secondary degree: % involved in TEA and % 18-64 pop: YES: Good conditions to start business next 6 months in the area I live , are variables that are seen as having a greater influence on the motivation of entrepreneurship by necessity. Based on these results, it is verified that the individuals who in turn have some degree of schooling, consider that the place they are located meets the necessary conditions to start a business, being the extractive sector of the business activity that had a greater impact about the motivation of these entrepreneurs. Although opportunity entrepreneurs are naturally recognized as being entrepreneurs who discover and exploit the opportunities, from these results, it is evident that entrepreneurs by necessity also seek to expand the market, as a way to take advantage of the opportunities that may exist.

### **Model III**

Through the adjusted coefficient of determination, it was possible to determine a set of dimensions: age, the sectors of activity, the internationalization and the good conditions to start business in the place where they live that are directly related to the motivation of the entrepreneurs by opportunity in the year 2014 in 70 countries. Although the variables previously indicated in table 8 are considered significant, with the analysis of the absolute values of the standardized coefficients it is verified that

some of these variables have a greater importance in the model, such as % 18-64 pop age category 35-44: % involved in TEA; % 18-64 pop age category 25-34: % involved in TEA; % 18-64 pop: YES: Good conditions to start business next 6 months in I live area, that is, show a greater influence on the dependent variable TEA14opp. The results show that individuals aged 25-34 also had a greater impact on motivation for opportunity; it is relevant evidence, since it may be related to entrepreneurship incentives in different countries or simply a reflection of importance that entrepreneurship has for young people.

#### **Model IV**

In order to determine possible changes in the variables that influence the decisions of individuals who start businesses by necessity in the year 2014, in 70 countries, we have also used the linear regression model, in which the dependent variable is TEA14nec % 18-64 pop: TEA and necessity motive because of the fact that there are two variables % 18-64 pop middle household 33%: % involved in TEA and % within TEA; Many businesses offer the same product which are the variables that influence the dependent variable TEA14nec. The analysis of the absolute values of the standardized coefficients shows that the independent variable % 18-64 pop middle household 33%: % involved in TEA is the variable that significantly contributes to explain, and which has a greater influence on the dependent variable TEA14opp.

### **4.3 Cluster analysis**

Cluster analysis is an exploratory technique of multivariate analysis that allows grouping a set of common characteristics based on similarity or dissimilar measures. Note that, for 2014, 7 of the 41 independent variables were those that had a greater influence on the motivation of the entrepreneurs (opportunity or need), so it was considered equally important to group the different countries, into homogeneous groups in relation to one or more common characteristics. In its more abstract form, this analysis allows to distinguish the entrepreneurial characteristics that have a greater influence on a group of countries. Therefore, we selected the independent variables that better explain the behavior of individuals in motivational terms, in particular in 2014. Table 9 "cluster membership" allows to evaluate how similar (or dissimilar) each observation is to each of the clusters, while table 10 presents the average of each variable in each of the three clusters, reflecting the characteristics of the typical case of each cluster:

- Cluster I - Innovative entrepreneurs. Entrepreneurs try to offer products different from their competitors.
- Cluster II - Entrepreneurs oriented to consumers. Businesses focus on consumer oriented services
- Cluster III - Unfavorable entrepreneurship. The country offers mediocre conditions to start a business.

**Table 9– Cluster membership**

<b>Cluster I</b>		<b>Cluster II</b>		<b>Cluster III</b>	
<b>Country</b>	<b>Distance</b>	<b>Country</b>	<b>Distance</b>	<b>Country</b>	<b>Distance</b>
United States	9,39	Peru	10,1	Russia	12,9
Netherlands	8,779	Mexico	17,206	South Africa	19,434
Switzerland	12,306	Brazil	15,653	Greece	13,666
Austria	8,056	Chile	24,118	Belgium	12,957
United Kingdom	13,351	Colombia	21,117	France	21,734
Denmark	16,534	Philippines	26,392	Spain	11,804
Sweden	25,573	Thailand	12,996	Hungary	14,94
Norway	19,57	Vietnam	35,94	Italy	16,806
Australia	12,066	Burkina Faso	21,552	Romania	28,982
India	32,319	Cameroon	42,825	Poland	17,306
Canada	11,59	Angola	24,822	Germany	13,693
Luxembourg	12,877	Uganda	32,201	Argentina	11,325
Estonia	13,604	Botswana	29,298	Malaysia	24,344
Kosovo	22,631	Guatemala	15,41	Indonesia	24,062
Belize	25,095	El Salvador	31,195	Singapore	19,295
Panama	27,349	Bolivia	9,673	Japan	25,553
Suriname	21,059	Ecuador	16,639	China	35,791
Uruguay	20,045	Jamaica	13,033	Iran	19,601
Trinidad and Tobago	19,615			Barbados	24,989
Qatar	18,497			Portugal	10,505
				Ireland	22,514
				Finland	20,753
				Lithuania	9,82
				Croatia	22,929
				Slovenia	22,88
				Bosnia and Herzegovina	27,79
				Slovakia	14,883
				Costa Rica	17,059
				Kazakhstan	22,419
				Puerto Rico	29,57
				Taiwan	11,819
				Georgia	14,551

**Table 10– Final Cluster Centers**

	Cluster		
	1	2	3
% 18-64 pop: YES: Good conditions to start business next 6 months in the area I live	50,89	57,54	29,18
% within TEA : Consumer oriented services	44,86	66,46	48,16
% within TEA: Many businesses offer the same product	43,96	55,93	56,8
% 18-64 pop age category 25-34: % involved in TEA	12,14	29,26	12,32
% 18-64 pop age category 35-44: % involved in TEA	10,97	26,83	10,54
% 18-64 pop: TEA and some market expansion, no tech (TEA09MEM=2)	3,14	6,58	2,38
% 18-64 pop middle household 33 ptile: % involved in TEA	9,6	25,46	8,52

The analysis of ANOVA allows to observe which variables allow a better of clustering. Thus, the variables that mostly contribute to the definition of clusters are those that have a larger mean square cluster (QMC) and lower mean square error (QME), i.e., those with a higher F value ( $F = QMC/QME$ ). Thus, as variables contributing to a greater discrimination between clusters are "% 18-64 pop: yes: good conditions to start the business next 6 months in the area I live ", followed by "% 18-64 Pop average home 33 ptile:% involved in the TEA "; the variable "% inside the TEA: Many companies offer the same product " displays a lower discriminating power between clusters.

**Table 11– ANOVA**

	Cluster		Error		F	Sig.
	Mean Square	df	Mean Square	df		
% 18-64 pop: YES: Good conditions to start business next 6 months in the area I live	5577,267	2	88,830	67	62,786	,000
% within TEA: Consumer oriented services	2627,194	2	186,284	67	14,103	,000
% within TEA: Many businesses offer the same product	1125,468	2	84,200	67	13,367	,000
% 18-64 pop age category 25-34: % involved in TEA	1934,881	2	31,634	67	61,164	,000
% 18-64 pop age category 35-44: % involved in TEA	1738,784	2	31,145	67	55,829	,000
% 18-64 pop: TEA and some market expansion, no tech (TEA09MEM=2)	105,297	2	4,804	67	21,918	,000
% 18-64 pop middle household 33 ptile: % involved in TEA	1831,942	2	29,232	67	62,668	,000

#### 4.4 Discriminant analysis

This multivariate technique is used to determine the statistically significant differences and which of the independent variables contain a greater capacity for differentiation. The results of tests of equality of group means show that the independent variables that were studied in the cluster analysis should contribute to this model, since the difference between the three groups is statistically significant.

The assumptions of the multicollinearity and homogeneity of the variance-covariance matrices of each group were tested, given the sample size the rejection of the normality assumption does not undermine the quality of the model because the multivariate normality test is particularly sensitive large samples.

**Table 12– Tests of Equality of Group Means**

	Wilks' lambda	F	df1	df2	Sig.
% 18-64 pop: YES: Good conditions to start business next 6 months in the area I live	0,348	62,786	2	67	0
% within TEA : Consumer oriented services	0,704	14,103	2	67	0
% within TEA: Many businesses offer the same product	0,715	13,367	2	67	0
% 18-64 pop age category 35-44: % involved in TEA	0,375	55,829	2	67	0
% 18-64 pop age category 45-54: % involved in TEA	0,36	59,433	2	67	0
% 18-64 pop: TEA and some market expansion, no tech (TEA09MEM=2)	0,604	21,918	2	67	0
% 18-64 pop middle household 33 ptile: % involved in TEA	0,348	62,668	2	67	0

**Table 13– Wilks' lambda**

Test of function(s)	Wilks' lambda	Chi-square	df	Sig.
1 through 2	0,097	149,567	14	0
2	0,462	49,376	6	0

**Table 14– Classification Results**

		<u>Predicted group membership</u>				
		<u>Cluster</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>Total</u>
<b>Original</b>	<b>Count</b>	<b>1</b>	19	0	1	20
		<b>2</b>	0	18	0	18
		<b>3</b>	2	0	30	32
	<b>%</b>	<b>1</b>	95	0	5	100
		<b>2</b>	0	100	0	100
		<b>3</b>	6,3	0	93,8	100

<sup>a</sup> 95,7% of original grouped cases correctly classified.

This study presents the discriminant functions, by canonical correlation, for which it can be concluded that  $\lambda = 3,785$  corresponds to 76.49% of the variance explained in terms of differences between groups. In contrast, the second discriminant function only explains 23.50% of the variance. When analyzing Wilk's lambda, it is verified that  $p = 0.0002$ , therefore, we can conclude that the discriminant functions are highly significant. Results show that 95.70% of cases are correctly grouped and confirmed by cross validation. Through standardized analysis canonical discriminant function coefficients shows that the variables: % 18-64 pop: YES: Good conditions to start business next 6 months in the area I live; % within TEA: Consumer oriented services; % within TEA: Many businesses offer the same product; % 18-64 pop age category 35-44: % involved in TEA; % 18-64 pop age category 45-54: % involved in TEA; % 18-64 pop: TEA and some market expansion, no tech (TEA09MEM = 2); and % 18-64 pop middle household 33% involved in TEA, discriminate between groups. These are the characteristics that most contribute to explain the motivations of the entrepreneurs.

## 5 Discussion and main conclusions

The study concluded that, between 2010 and 2016, motivation for opportunity is the main motivation that led individuals to become entrepreneurs, regardless of the economic development level of different countries. This conclusion supported the results of the other studies, which indicate that when there is a crisis, individuals see it as an opportunity to start a business, since the period under study is characterized by the international economic and financial crisis that is still recovering therefore, the results confirm that the existence of a crisis does not, necessarily, mean that there is a necessity motivation to start a business.

This research reveals to what extent a set of characteristics related to the attitudes, behaviors and perceptions of individuals can positively or negatively influence the motivation of individuals, either by opportunity or necessity. Results

show that individuals' willingness to become entrepreneurs depends on: age, schooling level, activity sector and family income. In 2014, the family income was one of the main motivations of the entrepreneurs by necessity willingness to start a business, as confirmed by Oxenfeldt (1943), the unemployed or individuals with reduced employment prospects can become independent through entrepreneurship. Motivation of individuals is also influenced by how individuals perceive the world (external stimuli - which are provided by the environment) which are factors that lead individuals to start a business, an example is the variable "% 18-64 pop: YES: Good conditions to start business next 6 months in the area I live" that, in 2013, had a positive impact on motivation by necessity and in 2014 on motivation for opportunity.

Norway was one of the most distinguished countries due to the increase in percentage terms of entrepreneurs by opportunity between 2013 and 2014, which may be due to the fact that individuals between the ages of 25 and 34 also began to have a greater interest in being entrepreneurs. For Croatia, there has been an increase in motivation by necessity from 2013 to 2014, which may be related to the fact that individuals with an average family income are more motivated to become entrepreneurs due to the eventual needs. It is known that Croatia became a member of the European Union in 2013, and Croatia and Norway have enjoyed bilateral relations since February 20, 1992, where Norway has cooperated closely with Croatia in political terms and the European economy. This may explain the increase in the motivation of individuals for opportunity, rather than an increase in entrepreneurship by necessity, thus being an example of how not always the cultural or political level explain the motivation of entrepreneurs.

In the cluster analysis one can verify that the independent variables "% 18-64 pop: YES: Good conditions to start business next 6 months in the area I live" and "% 18-64 pop middle household 33% (Cluster I), Angola and Brazil (cluster II), and Russia and China (cluster III) are different in terms of the perception of opportunities and family income. It is, thus, important to develop policies that allow an increase in entrepreneurial opportunities for entrepreneurs, as well as an increase in family income. Through the discriminant analysis it is verified that the following variables: % 18-64 pop: YES: Good conditions to start business next 6 months in the area I live; % within TEA: Consumer oriented services; % within TEA: Many businesses offer same product; % 18-64 pop age category 35-44: % involved in TEA; % 18-64 pop age category 45-54: % involved in TEA; % 18-64 pop: TEA and some market expansion, no tech (TEA09MEM = 2) and % 18-64 pop middle household 33% are involved in explaining the motivations of entrepreneurs.

The different motivational characteristics that lead the individuals to start their own businesses, it is a promising approach for further research, under the perspective, that will enable the development of governmental strategies that aim to increase the rate of entrepreneurship.

## **Chapter II**

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## **Entrepreneurial intentions: approach to the characteristics of individuals**

**Abstract.** Individuals do not engage in entrepreneurship in an unplanned way, but rather this is a result of a choice (Krueger, 2007). This paper explores the individuals' behavior and attitudes that impact on entrepreneurial intentions on a cross-country perspective. The GEM database allowed comparisons of different entrepreneurship frameworks which is the basis of this research. Based on the Adult Population Survey (APS), it was possible to identify the main characteristics, motivations and ambitions of individuals, as well as their social attitudes towards entrepreneurship. The literature refers to the perceived skills and opportunities and the fear of failure are the main sociocultural characteristics of business behavior. This research added the cultural dimensions defined by Geert Hofstede as influencers of the entrepreneurial intentions.

**Keywords :** Entrepreneurial intentions, culture, entrepreneurship, GEM

## **Introduction**

To ensure the continuity of entrepreneurship in different countries, researchers and politicians need to know how the behavior, attitudes and culture influence the intentions for the entrepreneur's in early-stage. Bird (1988) was one of the first authors to refer to entrepreneurial intentions, identifying them as a central and differentiating aspect.

Entrepreneurial intention (EI) is defined as "the conscious state of mind that precedes action and directs attention toward entrepreneurial behaviors such as starting a new business and becoming an entrepreneur" (Moriano, Gorgievski, Laguna, Stephan, & Zarafshani, 2012, p. 165).

Esfandiar et. al (2019) says that recent research points to the importance of models of entrepreneurial intentions, since these include a perspective and processes-oriented theories that explain the origin of EI. The main models in most of the studies focus on Theory of Planned Behavior (TPB) (Ajzen, 1991) and Shapero's model of the Entrepreneurial Event (SEE) (Shapero & Sokol, 1982). Typically, these models show the factors that lead to the intent and behaviors that result in that intention. Ajzen's planned theory of behavior (Ajzen, 1991) is based on three determinant premises: (a) attitude to behavioral results, (b) social / subjective norms and (c) control of perceived behavior. Kolvereid (1996) analyzed the entrepreneurial intentions of 143 Norwegian students, show that attitudes towards behavior, perceived behavior and norms are directed towards entrepreneurial intentions. Shapero's model of entrepreneurship (Shapero & Sokol, 1982) states that the intention to start a venture requires three antecedents, which are: perceptions of desirability and feasibility of an entrepreneur's intentions (both personal and social); feasibility and desirability they are influenced directly by self-efficacy and personal desirability.

There are researchers who argue that cultural diversity explains the differences between countries, so that Gorgievski and Stephan (2016) suggest that future research should study the role of culture in entrepreneurial intentions.

In line with such arguments, the aim of this study is to explore the behavior and attitudes that between 2002 and 2016 had an influence on entrepreneurial intentions in different countries, in order to know what behaviors and attitudes have been determinant over time in entrepreneurial intentions, and also analyzes the cultural values that influenced entrepreneurial intentions.

The research sub-objectives are described below, which will achieve the general objective of this study.

Objective a) to identify which entrepreneurial behaviors and attitudes influence the EI;

Objective b) to evaluate the contribution of being innovative and risk averse to entrepreneurial intentions;

Objective c) to analyze, based on Hofstede's dimensions, the role of culture in entrepreneurial intentions.

From the sub-objectives previously defined, our study aims to answer the following questions:

Question a) What are the attitudes and behaviors that lead individuals to have entrepreneurial intentions?

Question b) How does innovation and risk-averse influence EI?

Question c) What cultural values positively influence entrepreneurial intentions?

This study concludes with a summary of results and suggestions for further research about entrepreneurial intentions.

## **1 Literature review**

### **Entrepreneurial Intentions**

Entrepreneurial intentions and the ability identify opportunities describe potential entrepreneurs (Karimi et al., 2016). Entrepreneurs intention (EI) is defined as "the conscious state of mind that precedes action and directs attention toward entrepreneurial behaviors such as starting a new business and becoming an entrepreneur" (Bird, 1988; Krueger and Carsrud, 1993). Botsaris and Vamvaka (2016) add that the greater the intensity of entrepreneurial intention, the greater the likelihood of entrepreneurial activity.

Valliere (2015), observed that there is a set of individual and social factors that support entrepreneurial intention, namely through Ajzen's theory of rational action and planned behavior theory (Ajzen, 1991), in which beliefs shape attitudes for any behavior, in turn attitudes impel intention to perform behavior, and intention lead individuals to act.

According to Shinnar, Hsu and Powell (2014), research has been carried out on the factors that drive entrepreneurial intentions, however, it remains a vaguely defined construction in the literature. For Thompson (2009), entrepreneurial intentions have been used to describe diverse perspectives, such as entrepreneurial orientation,

vocational aspirations, and the desire to own a business.

Although Krueger and Casey (2009) demonstrate that intention drives action (behavior), from the perspective of Esfandiar et al. (2019), there is a significant distinction between the individual's intention toward behavior and what he really it will do in the future (action), so defining the intentions of individuals becomes insufficient to measure the actual behavior individuals and has been recognized as a limitation in most research involving the EI (Schlaegel and Koenig, 2014; Altinay et al., 2012; Shook and Bratianu, 2010).

EI is a determining characteristic for the performance of entrepreneurial behavior (Fayolle and DeGeorge 2006; Kolvereid 1996). In this perspective, the intention to perform a certain behavior is dependent on the attitudes of individuals towards this behavior (Ajzen 1991), i.e. there are attitudes that are favorable for the entrepreneurship. According to Ajzen (1991), there is a relationship between the intention to be entrepreneur and its performance, in which the intention explains the behavior because it highlights the effort individuals make to become entrepreneurs (Liñán 2004), that can be influenced by: i) control of the perceived capacity of individuals, i.e., the perception of the difficulty to become an entrepreneur; ii) attitude towards behavior, i.e. the assessment that individuals make on being an entrepreneur; and iii) the perceived social norms that determine positively, or negatively, the accomplishment of this entrepreneurial behavior. These factors are explanatory variables of the entrepreneurial intention.

Opportunities identification of is an intentional process, and the behavior of individuals is the source of their intentions, so the greater the intention, the greater the success of their behavior. External influences affect only indirectly intentions and behavior due to attitude changes, for this reason, intentional models are based on prediction and the ability to explain entrepreneurial activity (Ajzen, 1991). Ajzen (1991), refers that, in general, intentions depend on the perceptions of personal attractiveness, viability and social norms. While Shapero (1982) argues that entrepreneurial intentions are dependent on perceptions of individuals' desire, viability, and propensity to act. Wilson et al. (2007) states that the decision to become an entrepreneur and create a new business is an intentional and conscious decision.

Simon, Houghton, and Aquino (1999) argue that entrepreneurs do not always identify the risks associated with perceiving the opportunity they identify and are, sometimes, subject to high risk and thus are also at risk for individuals in their entrepreneurial intentions (Zhao et al. al. 2005, Busenitz and Lau 1996, Bird 1988).

It should be noted that "opportunity perception" is one of the characteristics of entrepreneurial intention in the entrepreneurial intention model (Wennekers, 2002). They point out that entrepreneurs' intentions can be studied from a supply and demand, where opportunities reflect market demand perspective and perceived capacities represent supply (Wennekers et al., 2002; Wennekers 2006).

The perceived capacities introduced by Bandura in 1977 also explain the formulation of entrepreneurial intention (Krueger and Day, 2010), and consequently Bosma et al. (2008) also adapted perceived opportunities for their entrepreneurial intentions model. It should be noted that perceived capacities and perceived opportunities are concepts introduced before entrepreneurial intentions (Wennekers et al., 2002; Bosma 2008). The perceived capacities introduced by Bandura in 1977 also explain the formulation of entrepreneurial intention (Krueger and Day 2010), and

consequently Bosma et al. (2008) also adapted perceived opportunities for their entrepreneurial intentions model. Therefore, the ability to obtain and use knowledge is seen as a rare, valuable and difficult to imitate resource, resulting in a competitive advantage (Hunt and Morgan, 1995). The perception of opportunities and the ability to act in an entrepreneurial way also has an influence on business activity (Koellinger, et al., 2007). It is based on this perspective that one can conclude that the entrepreneur's behavior can be predicted through entrepreneurial intentions (Liñán, Rodríguez-Cohard and Rueda-Cantuche, 2011), since entrepreneurial intentions are like a self-recognized conviction of individuals who aims to create a new entrepreneurial business (Thompson, 2009).

Some entrepreneurs are more innovative than others, so it is assumed that entrepreneurs differ regarding the degree and type of innovation they introduce to the economy, where the basic distinction is that innovation is more uncertain than imitation, and for that reason 'innovative entrepreneurs' are more likely to accept risk than 'imitating entrepreneurs'. However innovation is a subjective concept and it depends on the observer's perspective (Koellinger, 2008).

It should be noted that the ability to innovate and recognize innovative business opportunities is related to previous experiences of the individual (Shane, 2000). In addition, entrepreneurs in developed countries are more likely to engage in innovative business - rather than activities that are imitative and, in particular, high schooling, unemployment, and a high degree of self-confidence are factors that are associated with innovative entrepreneurs. These entrepreneurs also differ in the degree and type of innovation they introduce to the economy.

### **Entrepreneurship in context**

Entrepreneurship, in today's economy, is known as "the entrepreneurial economy" (Audretsch and Thurik, 2000), given its importance. High-growth firms are characterized by increased productivity and job creation (Verhoeven et al., 2002, Littunen and Tohmo 2003), whose productivity can influence business success through entrepreneurial strategy. The choice of becoming an entrepreneur depends on, as defined by Dyer (1994), the perceptions of having skills or being successful as entrepreneur, and this is what influences adolescents career choices by (Kickul, Wilson and Marlino, 2004).

According to Crant (2000), entrepreneurs have a proactive personality capable of influencing their environment by identifying opportunities and acting on them (Crant, 1996). Proactive entrepreneurs tend to look for new opportunities that may allow them an advantage over competitors (Kickul & Gundry, 2002).

The cultural context of a given country is also a constraint that influences the development of entrepreneurship (Saffu, 2003). Culture is defined as "the collective programming of the mind which distinguishes the members of one human group from another. . . [and] includes systems of values." (Hofstede, 1980, p.43). It thus consists of a set of patterns, beliefs and values associated with a group of individuals in a demographic region. For this reason, the propensity for entrepreneurship differs between the different blocks of countries, since culture impacts on the characteristics of entrepreneurs. Geert Hofstede developed a model with six dimensions representing the national business culture, with the objective of grouping the countries into large

homogeneous cultural groups, using the following variables: distance to power, individualism vs. collectivism, masculinity vs. femininity, aversion to uncertainty, long-term vs. short-term orientation, and finally indulgence. Geert Hofstede's model of cultural dimensions is thus a frame of reference that helps to explain why some cultures are more conducive to entrepreneurial activity than others. In this perspective, "entrepreneurial culture" provides and fosters entrepreneurial activities as a positive social approach (Güney et al., 2006).

However, characterizing a national culture does not mean that all individuals have all the characteristics attributed to that culture. By taking the values and norms that gain in early life stages, they determine the choices, attitudes, and patterns of behavior that are expected to be consistent with the cultural context. And so entrepreneurial culture is like a force that motivates individuals in a group - or society, which may be more prevalent than in other societies (Mueller and Thomas 2000). As pointed out by Walker, et al. (2013), the entrepreneurial attitude of individuals is also influenced by the cultural context, which promotes and improves perceived capacities and the perception of opportunities.

## **2 Hypotheses**

The determinants of entrepreneurial intentions have inspired many studies, so some authors consider that personal factors (cognitive approach) and others refer to environmental factors, including family, school and society (contextual approach). For Bird (1988) entrepreneurial intentions are influenced by personal and contextual factors.

In order to get a more precise approach to the entrepreneurial intentions of individuals, a set of research hypotheses are formulated.

### **2.1 Characteristics of individuals**

Entrepreneurial intentions are defined as a conscious mental state that directs attention, experience, and behavior to an entrepreneurial action (Bird, 1988). The first hypothesis of investigation is defined as follows:

**[H1]:** Entrepreneurial intentions depend on the opportunities perception

### **2.2 Individuals expectations**

The need for fulfillment, which is the satisfaction of achieving an objective by one's own efforts, to which individuals are always looking for success, and therefore the need for achievement is an important determinant of entrepreneurial intentions (Rauch and Frese, 2000).

**[H2]:** Seeking personal fulfillment is an important determinant of entrepreneurial intentions

### 2.3 Innovation

Porter (1998) refers that a good balance between intelligence and imagination can lead to immediate success. In addition, innovation plays an important role in identifying opportunities and in business success, so that other authors have analyzed the impact of creativity on entrepreneurial intentions (Zampetakis, 2006; Baron, 2011).

The third hypothesis of investigation is defined as follows:

**[H3]:** Individuals who are innovative are more likely to display entrepreneurial intentions.

### 2.4 Risk

The ability of individuals to take risks is one of the distinguishing characteristics of entrepreneurs (Hvide, 2014). Knowing that a business can involve many risks an entrepreneur must have the capacity to face and manage them (Brandstätter, 2011), so individuals have the ability to make decisions and actions in the face of uncertainty.

**[H4]:** Fear of failure impaction entrepreneurial intentions.

### 2.5 Culture

Autio, Pathak & Wennberg (2013), reported that studies on economics (Baumol, 1996), sociology (Aldrich, 2009) and international business (Stephan & Uhlaner, 2010) allowed to conclude that the national culture has an influence on the entrepreneurial activity of the countries. Thus, the dimensions of Hofstede have been considered in the studies on entrepreneurship because they are more appropriate and because their influence exceeds the other researchers (Terjesen et al., 2013). Hofstede (2011) states that all societies are unequal, but some are more unequal than others. This research analyzes which countries are the most culturally similar and which are the most similar in terms of entrepreneurial intentions, in order to know what cultural values of the different countries where there is a greater proposition for individuals to have entrepreneurial intentions.

**[H5]:** Entrepreneurial intentions are influenced by different cultural values.

**[H5a):** Entrepreneurial intentions are influenced by power distance index (PDI)

**[H5b):** Entrepreneurial intentions are influenced by individualism versus collectivism (IDV)

**[H5c):** Entrepreneurial intentions are influenced by masculinity versus femininity

**[H5d):** Entrepreneurial intentions are influenced by uncertainty avoidance index (UAI)

**[H5e):** Entrepreneurial intentions are influenced by long term orientation vs. short term orientation.

**[H5f):** Entrepreneurial intentions are influenced by indulgence

## **3 Methodology**

### **3.1 Research strategies**

This study aims to provide a better understanding of the entrepreneurial intentions, regarding cultural behaviors, attitudes and values, which are determinants of individuals' EI, contributing for the political decision makers definitions of strategies to allow increasing the rate of entrepreneurial activity.

Through the GEM (Global Entrepreneurship Monitor) and using multivariate statistical analysis to the Adult Population Survey (APS) data is possible to analyze and compare the behavior and attitudes of individuals with regards to their entrepreneurial intentions.

Data from the GEM Adult Population Survey (APS) are based on surveys conducted annually for a national sample representative of at least 2000 respondents, where the age range for the population- target is 18 to 64 years old and covers all geographic regions of the country, so that the sample is on approximation of the adult population of the country. This quantitative data allows to conclude how different behaviors and attitudes influence entrepreneurial intentions. Data was collected for the time period between 2002 and 2016.

Geert Hofstede developed one of the largest studies on cultural theory in which he sought to know how cultural values influence the workplace based on a study, originally during 1978-83, where he hundreds of IBM employees in 53 countries took part in the study allowed him to determine a set of patterns of similarity and difference. For this study, the Hofstede database of the year 2015 was used. In order to analyze and present the results, we used the Statistical Package for the Social Sciences (SPSS Statistics).

### **3.3 Description of variables**

#### **Perceived Opportunities**

The perceived opportunity refers to the percentage of the population aged 18-64 that perceives good opportunities to start a business in their region.

#### **Perceived Capabilities**

Perceived capacity indicates the percentage of the population aged 18-64 who believe to have the skills and knowledge to start a business.

#### **Fear of Failure Rate**

The rate of fear of failure shows the percentage of the population aged 18-64 who consider the fear of failure would prevent them from starting a business, despite being able to identify good opportunities to start a business.

**Motivational Index**

The motivational index refers to the percentage of people who are involved in the Total Entrepreneurial Activity that are motivated by opportunity, in relation to the percentage of individuals motivated by necessity.

**Female / Male TEA**

This variable refers to the percentage of women between the ages of 18 and 64 who are nascent entrepreneurs or proprietary managers of a new business, divided by the male equivalent percentage.

**High Job Creation Expectation**

High job creation expectancy refers to the percentage of people involved in TEA who expect to create 6 or more jobs in 5 years.

**Innovation**

The innovation variable refers to the percentage of people involved in TEA who consider their product or service to be new to at least to some customers and that few or even no business offers the same product / service.

**Business Services Sector**

The business services sector is the variable that indicates the percentage of people involved in the TEA in the business services, information and communication sector, financial and real estate intermediation, professional services or administrative services, as defined by ISIC Business Code 4.0.

**High Status to Successful Entrepreneurs**

High status for successful entrepreneurs reveals the percentage of the population aged 18-64 who agrees that, in their country, successful entrepreneurs receive high status.

**Entrepreneurship as a good career choice**

Entrepreneurship as a good employment option shows the percentage of the population between the ages of 18 and 64 who agree that in their country, most people consider starting a business as a preferred career choice.

**Power Distance Index (PDI)**

PDI is also known as the hierarchical distance that refers to the extent to which the less powerful members of a civilization accept and expect unequal distribution of power in society.

**Individualism versus Collectivism**

This dimension measures if a given society is a social network with weak relations between individuals, or if it offers a social fabric in between members and non-members of groups. Individualism refers to cultures that have no ties between individuals, while collectivism refers to a society where individuals are integrated into groups that protect them in exchange for unquestioning loyalty.

**Masculinity versus Femininity**

This dimension informs about the extent that gender determines the roles of men and women in the society. Masculinity represents a social preference for achievement, heroism, assertiveness, and material rewards for success, whereas feminists prefer cooperation, modesty, and quality of life. Hofstede found that the values of women are less divergent across societies than the values of men, for which the so-called "masculine" assertiveness has defined the modest and attentive "female" (Hofstede & Minkov, 2010).

**Uncertainty Avoidance Index (UAI)**

Hofstede defined this dimension to express the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity. Countries with high UAI are rigid in beliefs and behavior and intolerant to unorthodox behavior and ideas. While societies with reduced UAI maintain a more relaxed attitude where practice counts more than principles.

**Long term orientation versus short term normative orientation**

This dimension indicates, for short term-oriented societies, oriented towards the past and the present as a form of respect for tradition and fulfillment of social obligations, or for long term oriented to the future-oriented values fitting a more pragmatic approach by stimulating the economy and efforts in modern education that prepares them for the future. Societies need to keep some connections with their own past while dealing with the challenges of the present and the future.

**Indulgence versus restraint**

Indulgence refers to a society that allows the retribution of the basic needs of individuals, among them enjoying life, while restriction means that a society controls the satisfaction of needs and regulates it through strict social norms (Hofstede G., 2011).

**3.4 Statistical analysis**

This study includes both linear regression and cluster analysis in order to meet our research objectives.

Multivariate linear regression was used to determine the influence on dependent variables of a set of independent variables allowing to identify the factors that drive the intentions of individuals to start a business. The cluster analysis indicates the groups that are similar, allowing to observe how countries group in terms of cultural attitudes and behaviors. And through the discriminant analysis it was possible to find a discriminant function that allows us to distinguish groups of samples that are known a priori.

## 4 Results

### 4.1 Linear Regression Analysis

The entrepreneurship rate in early stage (TEA) is related to entrepreneurial intentions (Bigones & Dubose, 1992; Sarfati, 2013; Zhao, Seibert & Lumpkin, 2010; Das & Teng., 2001; Zhao et al, 2010 aiming to understand which characteristics influence EI, linear regression stepwise estimation method, was based on 10 indicators of the GEM database, related to behavior and entrepreneurial attitudes. In order to illustrate the independent variables that, in turn, present a cause-effect relationship with the dependent variable - entrepreneurial intentions. Table 1 includes the results between 2002 and 2016 with the variables included in the models, as well as its significance and the analysis of Durbin-Watson.

**Table 1** – Indicators entrepreneurial I behaviour and attitude

	Entrepreneurial Intentions														
	Standardized Coefficients Beta														
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Perceived Opportunities									0,523	0,723	0,295	0,357		0,170	0,578
Perceived Capabilities	0,497	0,426	0,687		0,471	0,555	0,520	0,351	0,289		0,493	0,441	0,411	0,492	
Fear of Failure Rate												0,175			
Motivational Index									-0,403	-0,527					
Female/Male TEA													0,280		
High Job Creation Expectation											0,289	0,266	0,406	0,351	0,371
Innovation															
Business Services Sector	-0,507	-0,292	-0,302	-0,653	-0,491	-0,420	-0,390				-0,264	-0,214		-0,285	-0,378
High Status to Successful Entrepreneurs				0,318			0,2230	0,404							
Entrepreneurship as A Good Career Choice		0,336						0,401				0,211	0,289	0,171	
<b>Adjusted R Square</b>	0,378	0,626	0,675	0,499	0,630	0,640	0,586	0,606	0,705	0,575	0,760	0,763	0,556	0,736	0,606
<b>Durbin-Watson</b>	1,956	2,066	2,249	2,328	2,020	2,052	2,494	1,762	1,965	1,802	2,058	2,125	1,963	2,108	2,350
<b>Number of observations</b>	37	31	34	35	42	41	39	54	59	55	66	65	63	55	64

These results show that the variables that most influence the entrepreneurial intentions are: perceived capabilities, perceived opportunities, business sector services, high job creation expectation and entrepreneurship as a good career choice. Innovation is one of the characteristics that authors point out as important to be / become entrepreneur, but our results show that innovation is not directly related to the entrepreneurial intentions, or, at least, no statistical significance was found. This can be

explained by the fact that some individuals have a business but do not aim at being entrepreneurs. However, individuals who perceive the opportunities and are confident about their abilities are more likely to start a business. In the years 2002, 2005, 2008 and 2011, the adjusted coefficient of determination displays values statistically not significant to explain the variable EI but allowed to understand what indicators had influence on those years.

This research also seeks to understand how entrepreneurial intentions influence the motivations of entrepreneurs by necessity or opportunity, i.e., to analyze if the entrepreneurial intentions have a cause and effect relationship with the motivations of entrepreneurs. In addition, we aimed to analyze the rate of fear of failure and the six cultural dimensions of Geert Hofstede, in order to analyze which factors related to entrepreneur's behavior; attitudes and culture can determine entrepreneurship.

For this linear regression study, we used the data available on the 6 dimensions of Geert Hofstede and GEM data on the behavior and attitudes for the year 2015. The aim is to analyze the following functions:

**Opportunity Entrepreneurship =**

$$\alpha + \beta_1 * \text{Power Distance Index} + \beta_2 * \text{Individualism versus Collectivism} + \beta_3 * \text{Masculinity versus Femininity} + \beta_4 * \text{Uncertainty Avoidance Index Long Term Orientation versus Short Term Normative Orientation} + \beta_5 * \text{Indulgence versus Restraint} + \beta_6 * \text{Fear of Failure Rate} + \beta_7 * \text{Entrepreneurial Intentions} + \varepsilon_i$$

**Necessity Entrepreneurship =**  $\alpha + \beta_1 * \text{Power Distance Index} + \beta_2 * \text{Individualism versus Collectivism} + \beta_3 * \text{Masculinity versus Femininity} + \beta_4 * \text{Uncertainty Avoidance Index Long Term Orientation versus Short Term Normative Orientation} + \beta_5 * \text{Indulgence versus Restraint} + \beta_6 * \text{Fear of Failure Rate} + \beta_7 * \text{Entrepreneurial Intentions} + \varepsilon_i$

In the following table we can analyze how the independent variables influence the dependent variable "entrepreneurship opportunity". The results for dependent variable "entrepreneurship necessity" are not presented in this study because they are not statistically significant.

**Table 2 – Opportunity entrepreneurship Model**

	2015	
	Standardized Coefficients Beta	Sig.
Power Distance Index	-0,419	0,001
Individualism versus Collectivism	--	--
Masculinity versus Femininity	--	--
Uncertainty Avoidance Index	-0,26	0,021
Long Term Orientation versus Short Term Normative Orientation	--	--
Indulgence versus Restraint	0,235	0,046
Fear of Failure Rate	-0,252	0,038
Entrepreneurial Intentions	-0,317	0,010
<b>Adjusted R Square</b>	0,561	
<b>Durbin-Watson</b>	1,802	

The analysis to the Standardized Beta Coefficients, allows concluding that the independent variables power distance index, uncertainty avoidance index, indulgence versus restraint, fear of failure rate and entrepreneurial intentions are those that present a greater contribution to explain entrepreneurship by opportunity. Cultural differences also influence, to some extent, the orientation and behavior of the entrepreneur.

Results show that countries classified as having high levels of power distance index display a lower propensity to access to business opportunities and high levels of uncertainty cause individuals to avoid taking risks, explaining the negative variation that these cultural dimensions result for opportunity entrepreneurship. In contrast, the cultural dimension indulgence versus restraint positively contributes to entrepreneurship by opportunity. Dimension individualism versus collectivism was not considered by the stepwise method despite being one of the cultural factors that is more related to entrepreneurship activities, but in this study, it does not explain the variation of entrepreneurship by opportunity in the year 2015. Similarly, the dimensions masculinity versus femininity and long-term orientation versus short term normative orientation, had no influence on opportunity entrepreneurship.

Fear of failure rate negatively influences entrepreneurship by opportunity, as can also be verified through the cultural dimension uncertainty avoidance index, therefore, the uncertainties and the fear of failure are conditions for entrepreneurship by opportunity.

This analysis shows that entrepreneurial intentions negatively influence entrepreneurship by opportunity. This means that entrepreneurs by opportunity often did not even have entrepreneur intention at the outset, just glimpsed an opportunity and therefore, for creating a business.

## 4.2 Cluster Analysis

This exploratory multivariate analysis technique allows grouping the variables into homogeneous groups related to one or more common characteristics, so each observation belonging to a given cluster is similar to all others belonging to that cluster and is different from observations in different clusters. Since the database available on the 6 dimensions of Geert Hofstede refers to the year 2015, the data on the characteristics presented by the entrepreneurs through APS, GEM, are based in year 2015. The method for clustering was hierarchy, using the Euclidean distance measurement and the group-to-distance clustering method. Table 3 shows the membership of each country to each of the clusters, while Table 4 shows the average of each variable in each of the three clusters that shows the characteristics of the typical case of each cluster.

**Table 3 – Cluster membership**

Cluster I		Cluster II		Cluster III	
Countries	Distance	Countries	Distance	Countries	Distance
Argentina	29,759	Australia	40,643	Belgium	51,381
Brazil	18,008	Canada	22,913	Bulgaria	39,129
Chile	37,766	Finland	18,782	China	49,927
Colombia	51,76	Ireland	41,992	Croatia	28,951
Greece	38,982	Israel	69,227	Estonia	46,131
Iran	34,561	Latvia	59,672	Germany	43,812
Mexico	55,903	Luxembourg	30,213	Hungary	59,132
Morocco	36,552	Netherlands	36,781	India	32,882
Peru	24,108	Norway	34,402	Indonesia	38,242
Philippines	51,936	Sweden	48,77	Italy	43,775
Poland	40,093	Switzerland	44,01	Malaysia	60,225
Portugal	33,861	United States	38,683	Taiwan	68,176
Romania	43,767			Vietnam	43,66
Slovenia	38,073				
Spain	34,173				
Thailand	28,47				
Uruguay	21,57				

**Table 4 – Final cluster centers**

	Cluster		
	1	2	3
Entrepreneurial Intentions	<b>25,68</b>	12,57	14,64
Power Distance Index	<b>67,59</b>	34,08	65,08
Individualism versus Collectivism	33,59	<b>72,17</b>	43,54
Masculinity versus Femininity	46,76	39,33	<b>53,15</b>
Uncertainty Avoidance Index	<b>82,65</b>	53,58	61,08
Long Term Orientation versus Short Term Normative Orientation	31,18	45,42	<b>68,00</b>
Indulgence versus Restraint	49,65	<b>55,42</b>	38,15

These results show that cluster I is the one that presents a higher average value of entrepreneurial intentions, which can be justified in cultural terms, given its average values for power distance index and uncertainty avoidance index. A high-power distance index means that it is a hierarchical society and may occasionally make access to resources and entrepreneurial opportunities limited. It is also found that there is a high uncertainty avoidance index, this means that countries prefer to avoid uncertainty, decisions are made after a careful analysis of all available information, therefore, safety is an important element in individual motivation. Nevertheless, individuals in these societies, display more entrepreneurial intentions when compared to other clusters. These countries need to make efforts to meet the necessary conditions to foster entrepreneurship, so that individuals with entrepreneurial intentions create their own business, i.e., the necessary conditions are in place to ease the process of business start-up.

Cluster II is the one with a lower average value of entrepreneurial intention, as there are high levels of individualism, the reduced entrepreneurial intention of the countries represented in this cluster can be explained by the individualistic culture in which individuals are seen as independent with low levels of interpersonal ties. Entrepreneurial intentions is, often a process supported by social norms.

Cluster III presents, on average, a value of entrepreneurial intentions superior to Cluster II that can possibly be justified due to its culture of masculinity, where successful entrepreneurial enterprises are valued and Long-Term Orientation describing a more pragmatic approach. However, this cluster is also represented by a culture that is also characterized by restriction, in which the individual has the perception that their actions are restricted by social norms - this may eventually limit individuals' intentions to become entrepreneurs.

#### **4.2 Discriminant Analysis**

This analysis is a multivariate statistical technique that allows to identify variables that differentiate between groups of structurally different and mutually exclusive individuals or observations.

The analysis of the results obtained from Tests of equality of group shows that masculinity versus femininity and indulgence versus restraint should not contribute to this model, because the difference between the three groups are not statistically significant. In addition, the value of Wilks'  $\lambda$  is approximately 1, thus the groups are equal and the independent variables, considered individually, do not differ between groups, since, masculinity versus femininity ( $F = 1,74$ ) and indulgence versus restraint ( $F = 2.14$ ), therefore, does not have significant discriminating power.

The analysis of the assumptions (multicollinearity and multivariate homoscedasticity, in particular the multivariate normality test is sensitive to large samples leading to rejection of the normality assumption) is critical for validating the results. The multivariate homoscedasticity, where it is observed through the Box's M test, shows a p value of 0.126, and thus the hypothesis ( $H_0$ ) of equality of the variance-covariance matrices for the 3 groups is rejected. Multicollinearity can be diagnosed through the matrix of bivariate correlations between the variables on database, based on pooled analysis within-groups matrices, for which the absence of multicollinearity is confirmed.

When analyzing the discriminant functions, by canonical correlation, one concludes that  $\lambda = 3.110$  which corresponds to 71.8% explanation of the variance of differences between groups. In contrast the second discriminant function explains 28.2% of the variance. Wilk's Lambda serves to test the significance of the discriminant functions. Was the study have  $p = 0.0002$  concluding that the functions are highly significant.

**Table 5** – Tests of equality of group means

	Wilks' Lambda	F	df1	df2	Sig.
Power Distance Index	0,442	24,602	2	39	0
Individualism versus Collectivism	0,514	18,41	2	39	0
Masculinity versus Femininity	0,918	1,747	2	39	0,188
Uncertainty Avoidance Index	0,652	10,423	2	39	0
Long Term Orientation versus Short Term Normative Orientation	0,49	20,267	2	39	0
Indulgence versus Restraint	0,901	2,143	2	39	0,131
Entrepreneurial Intentions	0,721	7,543	2	39	0,002

The coefficients of the discriminant functions are a relative measure of the importance of the variables, the greater the coefficient of this variable in this function, the greater its contribution in the discrimination between the groups. Table 6 shows that

UAI has a greater contribution to the definition of the discriminatory function in function 1, whereas in function 2 the LTO is the most relevant variable.

**Table 6** – Classification results – standardized canonical discriminant function coefficients

	Function 1	Function 2
Power Distance Index	0,858	0,605
Uncertainty Avoidance Index /96	0,918	-0,105
Long Term Orientation versus Short Term Normative Orientation	-0,508	0,860

Considering the details of the coefficients of the models, these may be written as:

Global model:

$$EI\_1 = -5,562 + 0,063PDI + 0,051UAI - 0,032LTO$$

$$EI\_2 = 0,860 + 0,605PDI - 0,105UAI + 0,860LTO$$

Model for cluster I:

$$EI\_cluster\ I = -40,109 + 0,611PDI + 0,436UAI + 0,033LTO$$

Model for cluster II:

$$EI\_cluster\ II = -16,168 + 0,330PDI + 0,232UAI + 0,135LTO$$

Model for cluster III:

$$EI\_cluster\ III = -35,717 + 0,547PDI + 0,300UAI + 0,224LTO$$

The models presented for cluster 1, cluster 2 and cluster 3 show that the power distance index variables and the uncertainty avoidance index are the variables that most contribute to the existence of entrepreneurial intentions. It is important to note that in the global model the LTO variable contributes negatively to function 1 and positively to function 2, however, these do not contribute in a very significant way to the models of the clusters.

**Table 7 - Wilks' lambda**

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 2	0,109	84,082	6	0
2	0,45	30,37	2	0

This study shows that 92.9% of cases are correctly grouped and it is confirmed by cross-validation. In the analysis of the standardized canonical discriminant function coefficients shows the variables power distance index, uncertainty avoidance index and long-term orientation versus short term orientation are those displaying a greater contribution to explain entrepreneurial intentions.

**Table 8 – Classification results**

	Cluster	Predicted Group Membership			Total	
		1	2	3		
Original	Count	1	17	0	0	17
		2	0	11	1	12
		3	1	1	11	13
	%	1	100	0	0	100
		2	0	91,7	8,3	100
		3	7,7	7,7	84,6	100

a 92,9% of original grouped cases correctly classified.

## 5 Discussion and main conclusions

This section presents the main conclusions of the study, where it was pointed out that entrepreneurs are recognized for a particular way of thinking about the economic context, where they seek opportunities about the threats and opportunities. Therefore, opportunity identification is clearly an intentional process and this is why entrepreneurial intentions are important to explore, i.e. they inform about what leads individuals to become entrepreneurs, allowing to explain and predict entrepreneurship more precisely (Peterman and Kennedy, 2003).

With this study, we sought to know how the behavior of individuals influence entrepreneurial intentions, namely with regards to the perceptions of opportunity and capabilities. Our results allow concluding that hypothesis [H1] can be confirmed. However, the perception of abilities is the variable with a greater contribution to entrepreneurial intentions, as, between 2002 and 2016, individuals who believed to have the necessary skills and knowledge to start a business are more likely to display

entrepreneurial intentions. Although the perception of opportunity is a feature that is related to entrepreneurial intentions, it becomes more evident in the presence of external stimuli. The analysis of entrepreneurial intentions, shows that only from the year 2010, the perception of opportunities has a positive impact on entrepreneurial intentions, which may be related to the international economic crisis. In the previous year in 2009, individuals considered that successful entrepreneurs in their country had a high status and starting a business was a good employment option - this individuals' perspective coincides with entrepreneurial intentions for that year, however, it was not always found during the time period that the social stimuli had a very significant impact on the entrepreneurial intentions. This confirms hypothesis [H2], i.e. the need for personal fulfillment has an influence on entrepreneurial intentions, as happened for example in 2009. It is also important to point out that, as of 2009, by opportunity entrepreneurship had an influence on entrepreneurial intentions, which may indicate that, eventually, the search for personal fulfillment constrains the perception by opportunity. After the year 2011, the variable high job creation expectation shows a positive impact on entrepreneurial intentions, but the business services sector has been a sector that has been negatively influencing entrepreneurial intentions.

The results show that innovation had no influence on entrepreneurial intentions between 2002 and 2016, so [H3] could not be confirmed. Although innovation has no influence on entrepreneurial intentions, they may have an impact on the identification of opportunities as reported by authors Zampetakis (2006) and Baron (2011).

Although risk is a characteristic that distinguishes entrepreneurs, Hvide (2014) refers that it is an important variable in the decision making process of starting a business. The hypothesis was proposed that the fear of failure has no impact in entrepreneurial intentions [H4] the analysis of results reveals that the rate of fear of failure is not a sufficiently significant constraint on entrepreneurial intentions, as it is concluded that [H4] is confirmed – i.e. entrepreneurial individuals are risk-seekers.

Our last research hypothesis proposes that entrepreneurial intentions are influenced by different cultural values. The analysis of our results where the dimensions of Hofstede are tested, show that, in fact, entrepreneurial intentions are influenced by the different cultural values, therefore, the hypothesis [H5] could be confirmed. Results show that societies that culturally present a high power distance index and high uncertainty avoidance are those that have individuals with more entrepreneurial intentions. However, this does not necessarily mean that these cultural values lead individuals to become entrepreneurs because a high number of entrepreneurial intentions is accompanied by high levels of avoidance of uncertainty, which indicates that, although these individuals have this intention, they may be slow to make the decision to start a business, which may partially justify the high number of entrepreneurial intentions in cluster I. In contrast, in individualistic societies, entrepreneurial intention is not so clear; however, these societies value independence and achievement of personal goals, which may eventually foster entrepreneurship. This suggests that individuals in cluster II do not show as many entrepreneurial intentions, possibly because individuals have already made different decisions, justifying a smaller number of entrepreneurial intentions.

The discriminant analysis shows that the masculinity versus femininity and indulgence versus restriction cultural values do not contribute to this model, since the

difference between the three clusters is not statistically significant. These cultural values show a greater impact on cluster III, which is the one with the most entrepreneurial intentions in relation to cluster II, but less entrepreneurial intentions when compared to cluster I. However, it is important to note that in the linear regression analysis one can verify that the cultural indulgence versus constraint dimension positively contributes to opportunity entrepreneurship. In addition, the results show that the index of power distance, avoided uncertainty index, indulgence versus constraint, fear of failure rate and entrepreneurial intentions negatively influence entrepreneurship by opportunity, so these results show that the behavior of a society before the power inequalities and unknown situations does not stimulate motivation for opportunities seeking. Nonetheless, the variable indulgence versus constraint, which analyzes the importance of happiness and life control, is positively related to the motivation for opportunity.

With this research, it was possible to verify that individual characteristics and expectations positively drive entrepreneurial intentions, via, for example, the perceived capacities and entrepreneurship as a good employment option. This suggests that countries should seek to engage in education so that individuals have a set of knowledge that pushes them to become entrepreneurs.

Cultural values are considered in the literature as those that foster entrepreneurship, as is the case for example of individualistic cultures, but that in turn these societies display a small mean of entrepreneurial intentions vis the countries in the other clusters.

## **6 Limitations and future research**

One of the main limitations is the heterogeneity in the measurement of variables because we use two different databases, GEM and Hofstede, in turn, this limitation can have equal impact on the significance of the different variables and, as such, other independent variables could have significance statistic for a greater number of observations.

Another limitation is the use of the GEM database, since they make the data available to the public every three years and only from the participating countries, so they do not allow a current view of the behaviors and attitudes that have an influence on the entrepreneurial intentions of all countries around the world, preventing a more transverse and recent approach. Likewise, the Hofstede database for the six dimensions of culture is only currently available for the year 2015, not allowing a more recent approach to cultural values that has a greater impact on entrepreneurial intentions.

In addition to this study, future research should continue to attitudes and behaviors indicators from 2016 to the present in order to verify if for example the perception of capacity continues to influence entrepreneurial intentions.

More important than this is to analyze whether the attitudes, behaviors and cultural values that influenced the entrepreneurial intentions, identified in this study, led individuals to become entrepreneurs.

## **Part II**

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## Main Conclusion

This study provides a better understanding of the motivations and intentions of entrepreneurs, which is important for politicians and researchers to expect future entrepreneurship activities, based on the variables that explain entrepreneurial motivations and intentions. The results presented are relevant to provide guidance in determining what leads individuals from the different countries to become entrepreneurs, also allowing an understanding of the current situation of the business environment as the changes are becoming more constant and uncertain, which are sometimes reflected in the behavior of individuals and, consequently, in the society. The research focuses on the motivations and intentions - in order to analyze each of them specifically two studies were carried out. In the first chapter, on entrepreneurial motivations, we sought to analyze motivations for opportunity in more developed economies, as these may become more susceptible to what individuals tend to want to involve in a business. The results show that this assumption is not necessarily true, since there is statistical evidence to support that between 2010 and 2016, the main motivation of the individuals was the opportunity regardless of the degree of development of the country or the current context. However, faced with the global economic and financial crisis in the period, one would assume that one of the main motivations of the individuals would be necessity entrepreneurship.

It is therefore important to analyze the common characteristics of different countries that made individuals start business due to opportunity and necessity, in order to determine the factors that motivate the entrepreneurs. We used GEM data analysis in 2013 and 2014, allowing a comparison of the last available data. In the year 2013, motivation for opportunity can be explained by age, educational level, and sectors of activity, internationalization and product innovation. In the following year, it is verified that the age, the sectors of activity, the internationalization and the good conditions to start a business in the place where they live are factors that contribute to explain the motivation for opportunity.

Regarding motivations by necessity, one can verify that the level of schooling, the industry, the internationalization and the good conditions to start a business in the area where they live are variables that explain the motivation of individuals who start a business due to their needs. In the year 2014, we find that two variables% 18-64 pop middle household 33%: % involved in TEA and% within TEA: Many businesses offer same product are the variables that generate influence on motivations for opportunity. The results show that there are characteristics that equally influence the motivation for opportunity and necessity, such as: the good conditions to start a business in the place where they live, the level of education, the sectors of activity and the internationalization are factors that lead the individuals to feel motivated to be entrepreneurs. Therefore, entrepreneurs of different countries present these common characteristics, which explains their motivation to start a business. In response to the last question of this study, one can verify that variables such as: "% 18-64 pop: YES: Good conditions to start business next 6 months in area I live", and "% 18-64 pop middle household 33 ptil: % involved in TEA" are the variables that distinguish the motivations between different countries.

In the second chapter, it allowed to respond to another central question of the research - what characteristics influence entrepreneurial intentions.

Statistical analyzes show that the perception of perceived opportunities and capacities, the need for personal fulfillment, risk averse and culture are characteristics influences entrepreneurial intentions. It is important to note that innovation had no influence on entrepreneurial intentions between 2002 and 2016.

As we have seen in the literature, culture is a factor that can determine the individuals' behaviors - a linear regression analysis was performed and with the presented results, it was verified that the cultural dimensions defined by Hofstede that influence the motivations by opportunity are: power distance index, uncertainty avoidance index, indulgence versus restraint, fear of failure rate. The independent variable indulgence versus restraint has a positive impetus in entrepreneurship by opportunity. Therefore, power inequality and uncertainty do not drive motivation by opportunity. What seems to be interesting in light of the results is to verify that entrepreneurial intentions negatively influence (-0.317) motivation for opportunity in the year 2015. In other words, this may mean that people may want to start a business for reasons that are different from the motivational factors, and that are "active" in the early stage of the business.

## **Limitations and further research**

During this research process, some limitations were identified. The first study was conducted on the basis of inquiries made by GEM experts, who provide the data to the public every three years, not allowing a current view of the behavior, attitudes and perceptions of the entrepreneur. Nevertheless, the use of a real database that explores the perspectives of the individuals allows to analyze a set of characteristics related to the motivations of the entrepreneur and, therefore, surpasses another limitation found in this study, which was the collection of information related to the entrepreneurship in different countries of the world. For a future investigation it is suggested to evaluate the possible consequences that the different entrepreneurial motivations have on the entrepreneur's performance in their business, allowing to determine how the initial motivation determines their strategic decisions.

As might be expected, the second research also had some limitations. In order to answer the research questions and, consequently, to meet the objectives under study, the GEM database was also used, with the most recent data available for 2016, we also used 2015 data from the cultural dimensions of Hofstede. Not allowing a more current analysis of entrepreneurial intentions, which would be important, so that government politicians from different countries can adopt measures that foster entrepreneurship, considering these results. However, in this study we can see some of the characteristics that continue to have a greater influence on entrepreneurial intentions. As 2015 Hofstede data was available, it was only possible to verify which of the factors that influence the entrepreneurship by opportunity. It is suggested that future research analyzes the cultural characteristics that can be related to the entrepreneurship by necessity. Based on the results of the cluster analysis, it is also suggested that future research investigates whether, in countries with a greater number of entrepreneurial intentions, higher levels of entrepreneurship are observed, and vice versa. Thus, it is important that future researchers continue to study indicators that influence entrepreneurial intentions as a way of predicting entrepreneurship.

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