



**Universitat Autònoma
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**ENVIRONMENTAL FACTORS THAT
AFFECT THE ENTREPRENEURIAL
INTENTION**

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ABSTRACT

There are several environmental factors that can influence the likelihood of an individual to start a business. In this bachelor thesis, the impact of those factors is studied. This analysis is based on 69 countries from all over the world and uses cross-sectional data from the World Bank Data and Global Entrepreneurship Monitor. Some researchers (Doytch & Epperson, 2012; Shapero, 1978; Gibb & Ritchie, 1982) state that some factors such as an easy access to financing or a favourable internal market dynamics raise the desire to develop an idea meanwhile others hinder it, like the taxes that involve the whole process together (Baliamoune-Lutz & Garello, 2011). Focusing this research on the conceptual framework provided by the GEM, we analyse the dependence of the entrepreneurial intention on several factors such as financing, education, culture, market dynamics, entry regulation, government policy, R&D transfer and commercial and physical infrastructure. Empirical results are supported by graphs and regressions. Obtained results show that the inflation and education increase the creation of new firms, but taxes and procedures speed such as the registration of a property decrease it.

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1. INTRODUCTION

Over the last decade, the emergence of entrepreneurs has produced a significant impact on the worldwide economy. They contributed by investing in R&D and turning it into necessary goods and services for the society, but also by providing job opportunities and by addressing environmental disputes, among others. Most authors have tried to explain the internal factors that lead those individuals to start a new project, focusing mainly on the *Theory of Planned Behaviour* presented by Icek Ajzen in 1985 (Wennekers & Thurik, 1999). However, a few economists (Gnyawali & Fogel, 1994) have recently looked for other factors beyond personality features or attitudes and their studies are more related with the external factors that persuade the entrepreneurial activity, so it is interesting to do further research on this topic.

Our thesis is motivated by the study of Gnyawali et. al. (1994) and applies a conceptual framework that the Global Entrepreneurship Monitor (GEM) provides in order to know which are the different environmental factors that influence entrepreneurs and how they can stimulate or hinder their activity. We have analysed their impact through the creation of different models and the use of statistics to measure the weight of different factors in the entrepreneurial intention function. This project is based on 69 nations from all the continents for the year 2013 and uses cross-sectional information from the Data Catalogue of the World Bank Data and the Adult Population Survey (APS) and National Expert Survey (NES) of the GEM. The obtained results are also compared with the period of time from 2007 to 2016 to contrast our findings. The main limitation of this thesis is the data that composes the sample. For some variables the values of all the years and countries are not available, besides, every nation has its own measurement of the data, what has produced small deviations of the statistical results.

The structure of the thesis is as follows: the coming section reviews existing theory about the history of entrepreneurship, whereas in section 3 the literature review about the entrepreneurial intention is introduced. In section 4 the environmental factors are presented with their corresponding explanations. Section 5 describes the data that we have chosen. In section 6 we can find how the study has been carried out and the results that we have obtained in the analysis. Finally, the last section summarizes and concludes the findings, and gives possible recommendations for future studies.

2. CONCEPTUAL FRAMEWORK: REVIEW OF EXISTING THEORIES AND EVIDENCE

2.1 The Nature of the Entrepreneurship

2.1.1 *What does “Entrepreneurship” mean?*

Entrepreneurship is probably one of the most ambiguous concepts in the economic theory. It is a loanword that comes from the French verb *entreprendre*, which means “to “undertake something” and refers to the risk that certain people take in consequence of the creation of a new enterprise. The people who make entrepreneurial activities are what we call *entrepreneurs*.

The interpretation of both “entrepreneurship” and “entrepreneur” that we have today is perhaps the most accurate. However, over the years, notable authors have struggled to explain their significance, thus obtaining many different definitions.

Adam Smith was one of the first economists who indirectly introduced the Entrepreneurship Theory. Smith (1776) recognized the entrepreneur as an individual with the scope of predicting possible demand inside the market and transforming it into the supply (Smith, 1776). Afterward, his proponent Jean-Baptiste Say (1845) wrote about the it in his masterpiece. He supported the idea that Adam Smith had previously developed and went beyond by saying that an entrepreneur is a person who fulfils the needs of the society through the creation of a company and an efficient use of the available resources, such as land, capital and labour (Say, 1845). Joseph Schumpeter (1934) has been one of the last authors to give us an insight of the entrepreneurship approach, he combined the existing definitions to develop a precise definition. Schumpeter illustrates the entrepreneur as an innovator who seeks opportunities and makes a profit of them by combining different resources in a new production function (Schumpeter, 1934).

This paper will be written in accordance with the actual definition of entrepreneurship that the Business Dictionary provides us. According to it, *entrepreneurship* is “the capacity and willingness to develop, organize and manage a business venture along with any of its risks in order to make a profit”. The pursued profit is more related to achievement and success than to capital gain.

2.1.2 Types of Entrepreneurs

In the same way that there is no correct definition of *entrepreneurship*, neither do we have an exact knowledge of the different types of *entrepreneurs* that exist. Nevertheless, Block and Wagner (2006) made a rigorous distinction and classified them into two categories depending on the motivation of a person to begin a new venture. The types that they made out are *opportunity-driven entrepreneurs* and *necessity-driven entrepreneurs*. The main difference between them is that the formers are those agents who become entrepreneurs due to the emergence of profitable business circumstances and their aim to take advantage of them, whilst the latter start their performance because they are out of necessity and have limited resources to survive (Block & Wagner, 2006).

It makes sense, therefore, to think that the necessity-driven entrepreneurs are related to individuals from the poorest countries due to their economic necessity, whereas opportunity-driven entrepreneurs are people from developed countries, which have access to innovation and more resources. As Rosa, Kodithuwakku and Balunywa (2006) announce “the greater the poverty, the more necessity entrepreneurship there is, thus resulting in high rates of entrepreneurial activity” (Rosa, Kodithuwakku & Balunywa, 2006: 1).

The following sections will be focused on two main areas that will provide a better understanding of what is behind the aim of individuals to initiate a business venture. We will first consider the history of research of the entrepreneurial intention in order to understand what it is, and how its meaning has been modified by some authors over the last years. After that, we will present the relevant theory for the environmental factors that affect and influence this variable, as well as general opinions about the different elements to complement it.

3. LITERATURE REVIEW

3.1 Entrepreneurial Intention

The term *Entrepreneurial Intention* was first illustrated by Barbara Bird (1988). As she cites, “intentionality is a state of mind directing a person’s attention toward a specific object or a path in order to achieve something” (Bird, 1988: 442). In her paper, Bird is obliquely referring to the creation of a new business. Thompson (2009) took this further when he interpreted it as “a self-acknowledged conviction by a person that intends to set up a new business venture and consciously plan to do so at some point in the future” (Thompson, 2009: 676). According to him, entrepreneurs who have that intention are placed between those individuals who have entrepreneurial dispositions and those who finally take the action of starting the venture.

Now that we know the meaning of the concept, it is essential to go more into detail and examine which are the elements that affect the individual intention to pursue an entrepreneurial activity. It is a fact that a trustworthy way to measure the entrepreneurial intention does not exist yet. Wennekers et. al. (1999) mention that it is an innate behaviour that people have (Wennekers & Thurik, 1999). Besides, most of the studies that have been carried out on the entrepreneurial intention are strongly based on internal factors of the entrepreneur, such as its personality traits or attitudes. The most representative model that analyses those factors is the *Theory of Planned Behaviour*¹ developed by the social scientist Icek Ajzen (1985).

However, the consideration of other critical external factors beyond the entrepreneur’s conduct had not been so widely studied. Furthermore, Gnyawali and Fogel (1994) mention that it exists an interdependency between the entrepreneurial activity and the environmental conditions, but that most of the studies that analyse them have been “fragmented, highly descriptive, and focused on only a few aspects of the environment” (Gnyawali & Fogel, 1994: 54). Our thesis is motivated by this argument, that is why in the next section we will define a comprehensive overview of all the environmental factors that influence the willingness to start a business.

¹ This theory demonstrates that the human behaviour is influenced by three types of assumptions: behavioural, normative and control beliefs and that there exist two intention sources: desirability and feasibility. Then, the higher the individual intention of starting a new venture, the higher the probability of manifesting the behaviour (Wennekers & Thurik, 1999).

4. ENVIRONMENTAL FACTORS THAT AFFECT THE ENTREPRENEURIAL INTENTION

In order to investigate the entrepreneurial promotion, we will apply the basic scheme that the GEM² provides us. This framework³ is shown in Figure 1. According to it, the National Economic Growth is pictured as the social, political, economic and cultural situation of a country. These variables affect, either positively or negatively, the advancement and development of a nation in terms of its efficiency, innovation and competitive advantage over other countries; but also have an impact on the Entrepreneurial Framework Conditions, which have a more direct impact on the entrepreneurial intention of a person. As Franke and Lüthje (2004) cite, they “can facilitate or impede entrepreneurial activities and thus affect the perceived cost and benefit ratio of new venture creation” (Franke & Lütjhe, 2004: 282).

These environmental conditions include the Entrepreneurial Finance, the Government Policy, the Entrepreneurial Education, the Research and Development Transfer, the Commercial and Legal Infrastructure, the Internal Market Dynamics, the Entry Regulation, the Physical Infrastructure and the Cultural and Social Norms. The multiple variables that compose each environmental condition are the key determinants of the emergence and growth of new companies, and their values vary among different countries. Those variables will be described further below and their weight and effect in the entrepreneurial intention function will be our main study interest.

² *Global Entrepreneurship Monitor* (GEM) is the leading source of Entrepreneurship research. Its reports collect, compare and analyse millions of data, thus measuring the attitudes and aims of individuals and, in overall, the entrepreneurship activity from all over the world.

³ The GEM conceptual framework assumes that the entrepreneurial activity depends on the interaction of the entrepreneurs with the environment in which he or she is performing. It also takes for granted that the entrepreneurial activity is the result of the ability of the entrepreneur to see an opportunity and take advantage of it, at the same time that is influenced by the factors of the respective environment.

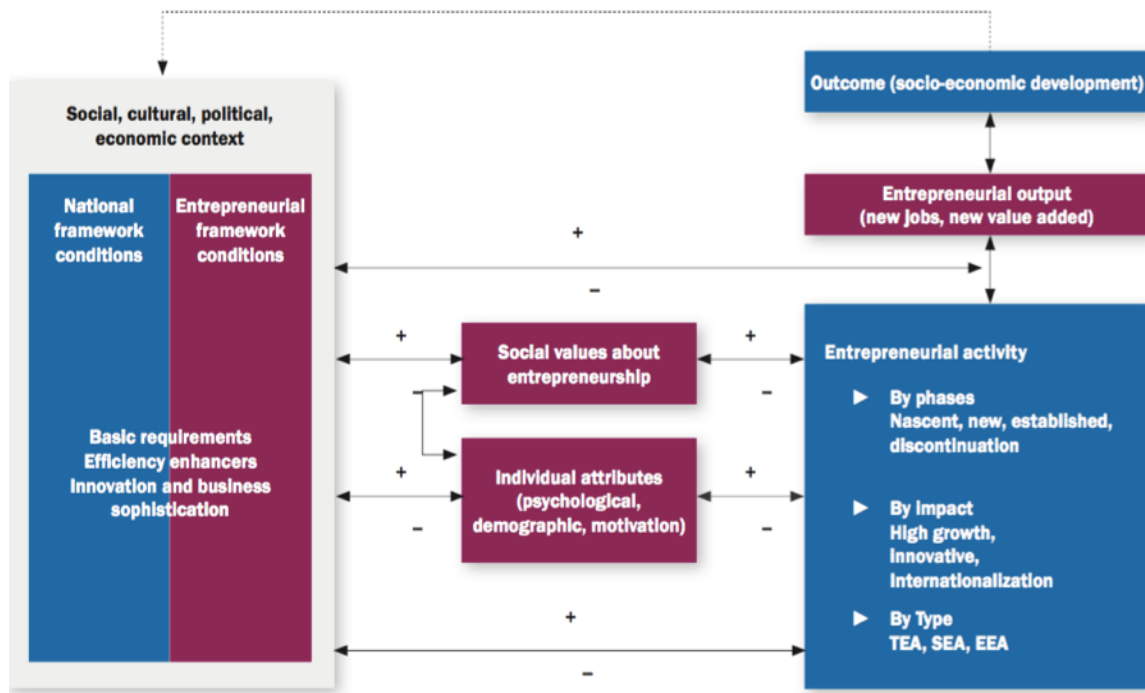


Figure 1. GEM Entrepreneurship Framework.

Source: <http://www.gemconsortium.org/>. Accessed November 16.

4.1 Entrepreneurial Finance

Finance is probably the biggest obstacle among potential entrepreneurs when it comes to venture but, at the same time, it is also the most supportive measure of the entrepreneurship development. Entrepreneurs may need capital for three reasons: to start a company, to diversify the risk associated with the new venture and to develop and grow their enterprise and fulfil their business objectives.

Martin Zwillig (2014) differentiated the most reliable ways of fundraising in an article for the *Entrepreneur*. These are: funding the business by yourself, getting a credit or bank loan, joining a start-up incubator⁴, negotiating with a strategic partner or customer, soliciting venture-capital investors, applying to a local angel-investor⁵, requesting a business grant, asking for capital from the family or through equity trading or crowdfunding⁶ (Zwillig, 2014).

⁴ A start-up incubator is a firm that supports early-stage businesses in the form of free resources, such as consulting or training services, or even funding.

⁵ The main difference between a venture-capital investor and an angel investor is that the former relates to a company that invests high amounts of capital in established businesses (or high technology start-ups), whereas the latter is an individual who helps new firms but with less amount of money.

⁶ Crowdfunding is a new funding form in which the interested party creates an online campaign and the participants make pledges.

Nevertheless, this paper will be mainly focused on grants and foreign direct investments. The reason is that, from a nascent entrepreneur's point of view, these may be the most straightforward ways to obtain non-repayable capital. David Urbano (2006) strengthens this argument when he says that entrepreneurs are generally compelled to search this kind of funding due to the absence of capital to begin operating, the high cost of private funding, and the difficulty of finding external resources (Urbano, 2006).

The use of grants⁷ to fund a new venture start-up is a good choice because it does not involve payment of interests and neither have to be paid back. The most important issue that the grants concern is that their availability depends on the country in which the entrepreneur wants to perform. It is a fact that the most developed countries have more options for those individuals who are thinking of setting up a business in comparison with the least developed countries but, at the same time, grants might be more difficult to obtain because more people have to compete with each other in order to get them. Besides, many of the grants are very specific aids or are addressed to concrete industries, so not everyone can request them.

In regard to the foreign direct investments⁸, the economic theory demonstrates that they can have either a positive or negative impact on the likelihood to start a business. Some authors defend that this kind of investments enhances the trade flows by increasing the production import competitiveness and maintaining the exports, and by causing a transfer of workers from domestic companies to foreign enterprises (Doytch & Epperson, 2012). In fact, they believe that these investments involve an economic development that can be seen by the potential entrepreneurs as a competitive advantage. However, other economists such as De Backer and Sleuwaegen (2003) highlight that the foreign direct investments can have adverse consequences for the domestic firms. As they claim, "foreign firms are better equipped to overcome some of the structural barriers to entry, including high sunk costs and scale economies, which typically hinder the entry and development of new domestic firms" (De Backer & Sleuwaegen, 2003: 17).

⁷ The Business Dictionary defines a grant as "a subsidy bestowed by a government or other organisation for specified purposes to an eligible recipient".

⁸ According to the Business Dictionary, the foreign direct investments are the "ownership of a country's businesses or properties by entities not domiciled there".

In addition, these authors explain that both types of firms compete for the same customers, thus discouraging the intention of potential entrepreneurs to enter the market. Since there is no single answer, we will consider these investments as a good financial resource that has a positive effect on entrepreneurship.

What is evident is that the ease of access to capital and the greater the available financial resources to set up the business, the greater the entrepreneurial intention. Then:

Hypothesis 1: A facilitating access to funding will positively increase the entrepreneurial intention.

4.2 Government Policy

Governments are systems that have an essential role in the economic growth of a state and its market efficiency. There are two fundamental components that directly influence the entrepreneurial process and that individuals have to consider before launching a new project because they can be an obstacle to the creation of their business. These elements are the government policies and regulations, and the procurement programmes that the government offers to support entrepreneurship, which may be a great help in a certain way, but of which we will not refer to in this thesis.

Audretsch, Grilo and Thurik (2007) explain that entrepreneurship is a process that, to a large extent, is led by policy-makers and that they are the responsible to design and implement regulations that provide a responsive environment to motivate the entrepreneurs to perform. According to these authors, the relevant government policies are “taxation, social security arrangements and labour market legislation regarding hiring and firing”⁹ (Audretsch, Grilo & Thurik, 2007: 10). If we focus on taxation, it is evident that the imposition of enormous tax policies affect the financial cost of firms, thus making entrepreneurs not interested in starting a business.

⁹ Audretsch et. al. (2007) say that the taxes affect the business revenue, the social security plans influence the desire of people to stop being unemployed and become a potential entrepreneur, and the labour market legislation have an impact on the adaptability of a company and the allure to set up or develop one (Audretsch, Grilo & Thurik, 2007).

This opinion is shared by Balamoune-Lutz and Garelo (2011), who examined the effects of it on entrepreneurship for a sample of European countries and confirmed that “higher taxation reduces the level of profit opportunities (incentive effect), thus reducing the entrepreneurship” (Balamoune-Lutz & Garelo, 2011: 5). The reason is that the application of high tariffs increases the compliance expenses, thereby incrementing the total cost of both setting up a business and maintaining it over the time. In consequence, this impacts the profitability of the firm and its capacity to make use of its benefits to continue growing. Their affirmation can be applied to all kind of taxes, including the net taxes on products and the revenue taxes that the employees have to pay, which are the taxes that we are going to examine.

In general, governments that are more supportive with taxes, in the sense of imposing a correct taxation, are due to have more favourable rates in entrepreneurship. Then:

Hypothesis 2: A favourable government policy will positively increase the entrepreneurial intention.

4.3 Entrepreneurial Education

The academic context may represent the first contact with entrepreneurship for many people, either during their stage in school or college or once they finish it and decide to continue studying on their own. It is a fact that, unless entrepreneurs are well equipped with technical and business skills, they may not be able to overcome various problems they encounter at different stages of their business development (Gnyawali & Fogel, 1994).

For Levie and Autio (2008), it is a good mean to encourage entrepreneurial intention for three reasons: (i) it provides the students the competent skills required to start a company and be good entrepreneurs; (ii) it improves their ability to address the issues that the opportunities and the creation of a new business involved; (iii) it shapes their attitudes and behaviours by inculcating them a culture (Levie & Autio, 2008). From this statement, we can assume that the higher the entrepreneurial knowledge and training possessed by entrepreneurs, the higher their ability to spot opportunities and the ease of undertaking a project. Then:

Hypothesis 3: An exposure of people to a wide and deep entrepreneurial education will positively increase the entrepreneurial intention.

4.4 Research and Development Transfer

The research and development¹⁰ (R&D) of innovative activities in order to create new products and services or improve the existing ones is crucial for both the economic growth and the enhancement of the quality of life. This brings us to the conclusion that knowledge itself is necessary to carry out the development of an idea, but sometimes it is not enough because the use of the technology and resources is important too.

When creating a differentiated product or service, inventors must consider its protection through the intellectual property rights. This may help them to transform their innovation into competitiveness, especially in technology companies, where large amounts of money have to be invested and new innovations are made every day. Besides, in an article for the *Entrepreneur*, Vikram Upadhyaya (2015) describes three types of intellectual property which are patents, trademarks and copyrights¹¹, and claims that “intellectual property is an asset for its owner and has a commercial value attached to it” (Upadhyaya, 2015). As it is an asset, it can be bought and sold, and it is a fact that this kind of protection is very costly and may require a lot of time due to all the documentation.

Coeli Carr (2013) cites in an article for the *Entrepreneur* that the prices of intellectual property attorney are often “out of reach” and that entrepreneurs should do a cost-benefit analysis because, “for the benefit gained (for example launching a company quickly), the financial and other costs of doing it right may exceed the benefit” (Carr, 2013). This leads us to the conclusion that a cheap and quick transfer of R&D enhance the entrepreneurship instead of an expensive and slow transfer (Levie & Autio, 2008). Then:

Hypothesis 4: A cheap transfer of research and development will positively increase the entrepreneurial intention.

¹⁰ The Business Dictionary defines the R&D as a “research activity proposed for finding solutions to problems or developing new products and knowledge”.

¹¹ The Entrepreneur differentiates the three types of intellectual property. According to it, the patent refers to the protection of an invention; the trademark refers to the protection of words, sentences, symbols or designs; and the copyright is the protection of original works of authorship.

4.5 Commercial and Legal Infrastructure

Commercial and legal infrastructure includes all the assessment services that potential entrepreneurs have to hire in order to manage the entrepreneurial procedure. These services allow individuals who are willing to start a business to obtain all the authorisations, licenses, concessions and verifications so that they can officially operate formally. Some of them may be accounting, consulting or financing, among many others, and all of these services have their specific cost and time. The length of time of this bureaucratic process represents the required time to start a business, which is the magnitude that we are going to study.

In an article for the UK Start Ups portal, Sam Taylor (2018) states that the necessary time to begin depends on the type and complexity of the venture, and on the type of person who is setting it up. He mentions that a simple business that does not need initial capital, a proper office with employees and neither a product to be manufactured, can be started in a few weeks. But a more complex business that requires all the elements that we have previously described would take a minimum of three months to be ready to perform (Taylor, 2018).

Some authors connect the preceding argument with the entrepreneurial intention and explain that an increase of this time discourages the entrepreneurial activity (Djankov, La Porta, Lopez-de-Silanes & Shleifer, 2002). Djankov et. al. (2002) suggests that “more procedures and longer delays make entry less attractive to potential entrepreneurs” (Djankov et. al., 2002: 8), what we can interpret as a lower enterprising intention. Then:

Hypothesis 5: A favourable commercial and legal infrastructure will positively increase the entrepreneurial intention.

4.6 Internal Market Dynamics

The internal market dynamics are the price changes that are produced by the variations in either the supply or demand for a specific product or service in a specific market. Entrepreneurs may be affected by many factors regarding these dynamics, but this paper will be focused exclusively on the inflation rate.

Some scholars demonstrate in their papers that this indicator is positively linked with the entrepreneurial activity (Shapiro, 1978; Gibb & Ritchie, 1982). As they suggest, an increase in the relative price level can be perceived by the entrepreneurs as a relevant business opportunity in the sense that they can entail a higher income for the sales of their products or services.

Furthermore, this leads to a reduction of unemployment because with the formation of new companies more people are hired. Altogether this produces a remarkable economic growth. On the other hand, a study conducted by Perotti and Volpin (2004) demonstrates that the risky environment and reduction in the purchasing power of the consumers that the inflation involves may discourage the intention of entrepreneurs to begin a new venture. It occurs since the costs to set up a business are higher and the access to financial capital may be more difficult because the borrowing costs are meant to be higher (Perotti & Volpin, 2004). Over the time, it can cause many problems to business as they do not have a stable framework to prosper and end up disappearing, with the increase in unemployment.

Even though the impact of the market dynamics on the likelihood to set up a business is not clear at all and can be either positive or negative, we will consider the first approach, which is that the entrepreneurial intention is enhanced by the inflation. Then:

Hypothesis 6: A flexible internal market dynamic will positively increase the entrepreneurial intention.

4.7 Entry Regulation

Regulation of entry is related to the cost of meeting the administrative requirements for beginning a new business. Djankov et. al. (2002) classify the procedures for starting a firm: (i) screening procedures; (ii) tax-related requirements; (iii) labour/social security-related requirements; (iv) safety and health requirements; (v) environment-related requirements (Djankov et. al., 2002: 11).

As we can see, these regulations can be both economic and sacrificial. In this paper, we will study the effect of the effort cost with two forms of entry regulation, which are the necessary time to obtain an operating license and the necessary time to register a property. The set of these times form the waiting time to start operating legally. As we have mentioned in section 4.5, it is obvious that this time can be increased if the licenses and permits required to operate are delayed and that new venture creation is restricted when barriers to entry are high (Djankov et. al., 2002). Furthermore, Levie et. al. (2008) strengthen this argument by suggesting that the number of documents needed, as well as the delays and constraints that can happen in them, can diminish the entrepreneurial activity because “the window of opportunity may have passed by the time all regulations are complied with” (Levie & Autio, 2008: 12). Then:

Hypothesis 7: A supportive entry regulation without delays and constraints will positively increase the entrepreneurial intention.

4.8 Physical Infrastructure

There are several physical infrastructures that are basic for an entrepreneur to operate and subsist. Examples of them are transport networks like highways and rails, territories and constructions, means of communication such as the internet or the telephone, waterways and electricity supplies. It is a fact that the availability of these facilities increases the willingness of individuals to begin a business (Carter et al., 1996; Dubini, 1989). Then:

Hypothesis 8: An easy access to physical utilities will positively increase the entrepreneurial intention.

4.9 Cultural and Social Norms

Cultural and social norms refer to the agreed rules through which a community guide the behaviour of its members in a specific circumstance. This means that different norms exist for different cultures. On the basis that the individual cultural values are influenced by the national culture, it is understood that the likelihood of a person to start a business may also be highly related to the society’s view of entrepreneurship, that is, the attitude of the people toward entrepreneurial activities (Gnyawali & Fogel, 1994).

Despite the fact that the GEM does not elaborate on the cultural variables that might be contemplated to study the impact on the desire to set up a business, Hofstede (1980) developed a theory about the main four dimensions that represent the cultural differences. As he suggested, the characteristics are uncertainty avoidance, individualism, masculinity and power distance. The higher the individualism and masculinity and the lower the uncertainty avoidance and power distance, the higher the tendency to start a business (Hofstede, 1980). Then:

Hypothesis 9: A supportive and innovative cultural and social norm will positively increase the entrepreneurial intention.

Overall, it is a fact that the more conducive the entrepreneurial environment, the more likely the desire to start a business.

4.10 Analysis Structure

The structure of the analysis consists of 5 fundamental points:

1. Introduction, where our study interest and objective will be discussed
2. Data Analysis, where the chosen variables will be introduced and interpreted
3. Empirical Strategy, where the methodology that we will afterward use will be presented
4. Results, where the descriptive statistics of the data will be analysed and correlations and common characteristics and discrepancies will be found
5. Conclusion, where the validity degree of our results will be determined and a brief summary of what we have done, our findings, possible recommendations and future work will be explained

5. DATA ANALYSIS

5.1 Introduction

The aim of this work is to know, through macroeconomic data and a statistical analysis made with the use of the statistical software Stata, the correlation between the environmental factors that surround the entrepreneurs and their purpose of setting up a new business. After that, we will be able to find similarities and differences between the countries and therefore do an extended study comparing our results with the literature.

5.2 Data Sources

The following study is based on 13 variables that are divided into two groups: 1 dependent variable and 12 independent variables. We have collected the data from two different sources for 104 countries from the years 2007 to 2016.

5.2.1 *Description of the dependent variable*

The dependent variable that we are going to consider is the Entrepreneurial Intention (EI), provided by the Global Entrepreneurship Monitor (GEM). It is an individual attribute of a potential entrepreneur that reflects “the percentage of population aged between 18 and 64 years who are latent entrepreneurs and who intend to start a business within three years” (GEM). This means that the people who are already involved in any phase of the entrepreneurial activity are not included. The range of the variable goes from 0 (low entrepreneurial intention) to 100 (high entrepreneurial intention).

The entrepreneurial intention is measured through the GEM Adult Population Survey (APS), a questionnaire that conducts the National Team of each country every year and that is answered by a national sample of at least 2000 adult individuals. The people are randomly selected and the question related to the entrepreneurial decision-making is: “are you, alone or with other, expecting to start a new business, including any type of self-employment, within the next three years?”. As each National Team is free to select the number and traits of respondents by itself, the characteristics of the samples might vary between countries, thus obtaining non-homogeneous samples. Their differences regard features like the age and gender of the people, their education level, the area of residence (if it is urban or rural), the household size and income, or even if the person is economically active or out of the labour force, such as the students, the retired or the housekeepers. Once the data of all the countries have been collected, the GEM centrally harmonizes it and provides representative samples.

The amount of data that we have collected allows us to analyse in depth the results of one year, which will be 2013 because is the period of time in which we have more available observations of the entrepreneurial intention (69 observations). Nevertheless, we will compare our findings for 2013 with the rest of the years to confirm our conclusions. The overall distribution of this variable for the year 2013 is shown in Figure 2.

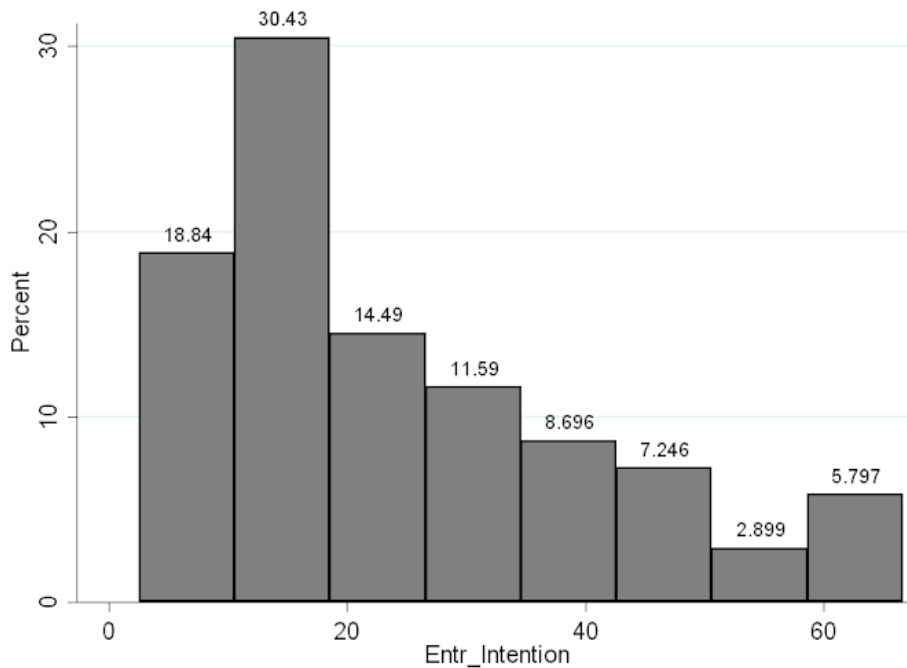


Figure 1. Distribution of the Entrepreneurial Intention, year 2013.

The country that presented the minimum value of the entrepreneurial willingness was Russia with 2.6%, and the maximum value was 66.69%, which corresponded to Malawi. As the figure 2 demonstrates, the distribution is positively skewed, where many countries have low percentages of intention and a few countries have high percentages.

Given this type of distribution and in order to facilitate our analysis and be able to determine common characteristics and differences of results between the countries, we have divided them into 4 groups according to their incentive level (Table 1). The division has been made taking into account that each group has a similar number of countries. Those nations with a range of entrepreneurial intention between 0 and 12.99 are from group 1 (low EI). The ones that have values between 13 and 20.99 are from group 2 (middle-low EI). If their willingness to start a new venture is ranged between 21 and 35.99, they belong to group 3 (middle-high EI). In the last place, we find those regions that make up the group 4, with ranges between 36 and 100 (high EI).

Table 1. Classification of the Incentive Groups (1-4) according to their Entrepreneurial Intention for the year 2013

Incentive Group	Description	Range of Entrepreneurial Intention	Number of Countries
1	Low EI	0 – 12.99	20
2	Middle-low EI	13 – 20.99	16
3	Middle-high EI	21 – 35.99	17
4	High EI	26 – 100	16

Then, for the year 2013, we have 20 countries that are considered the incentive group 1, 16 countries that belong to the incentive group 2, 17 countries that represent the incentive group 3 and 16 countries that are part of the incentive group 4.

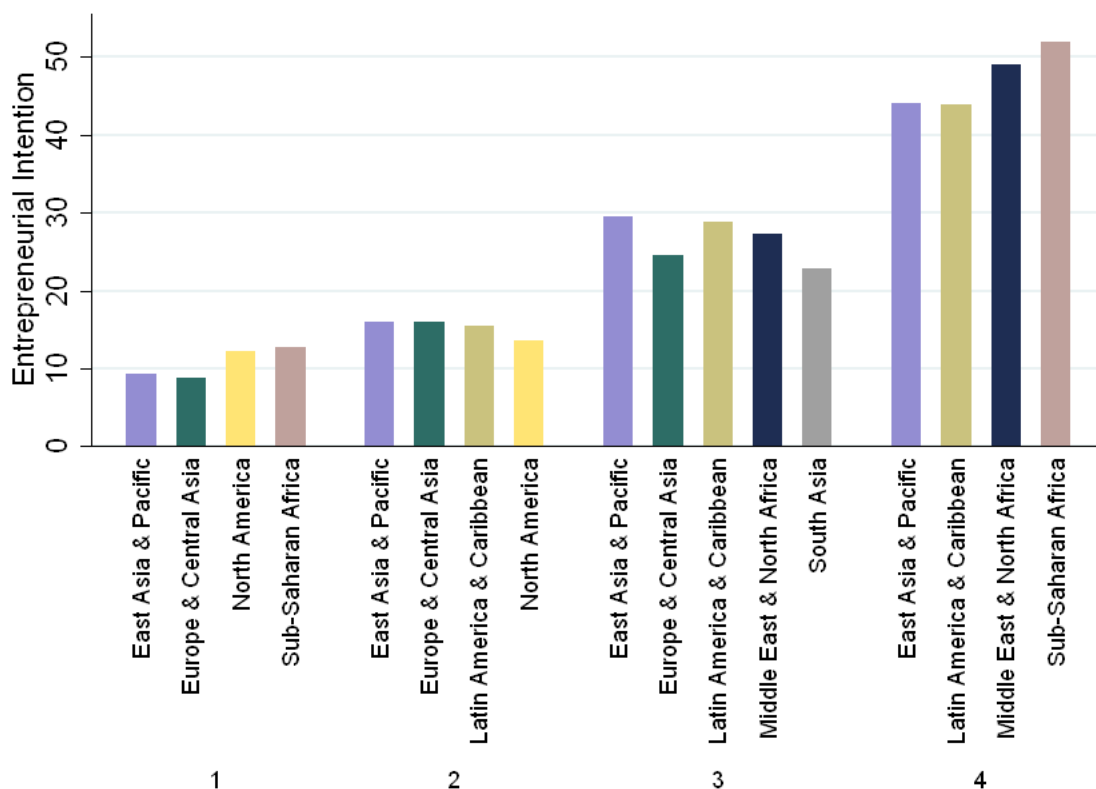


Figure 3. Entrepreneurial Intention by Continents and Incentive Groups (1-4) for the year 2013

A more detailed table with a classification of each country by incentives group for this year is attached in the Appendix (Table 1).

In general, we have noticed that the countries that form the group 1 (low EI) are characterised by being highly developed and market-oriented. They belong mostly to Europe, especially to Northern Europe. But they are also from Eastern Asia such as the case of Japan, Malaysia and the Republic of Korea. South Africa is another exception since it is one of the largest economies in Africa. In addition, the world's largest economy, which is the United States, is within this group. The group 2 (middle-low EI) is also based mainly on European countries, but all of them are from Southern, Western and Eastern regions. We can also find some countries from Latin America and the Caribbean in this group and a few leading economies from East Asia like China, Singapore and Thailand. Canada is also part of this group.

As many countries of our sample are from Europe and Latin America and the Caribbean, we can see that they still predominate in group 3 (middle-high EI). However, two countries from the Middle East emerge, which are Iran and Israel, as well as some other Asian countries like India, Vietnam and Indonesia. Finally, the group 4 (high EI) is basically formed by the least developed countries of our sample. More than half of the countries are from the Sub-Saharan Africa. We can also find some nations from the Latin America and the Caribbean. Moreover, two countries from the North of Africa can be observed, being them Libya and Algeria and one from East Asia, which is the Philippines.

Now we are going to look at the whole period of time, from 2007 and 2016. We can see that the allocation of efforts towards entrepreneurship of some countries has not always been the same. There are countries that have gone up their incentive group. For example, Argentina belonged to group 2 from 2007 up to 2010, and it happened to be group 3 so far. Other countries, however, have come down their incentive group such as Greece, which was part of group 2 in 2009 and turned out to be group 1 since 2010 until now.

Ghana is one of the regions where, even though it has always belonged to the same incentive group (group 4), its entrepreneurial intention has remarkably decreased over the years, being 68.83% in 2010 to 46.6% in 2013. Nations such as China have had enormous peaks in their purpose to launch a business. Its intention has gone from a 26.9% in 2010 (group 3), to a 42.8% in 2011 (group 4), and then back to 20.39% in 2010 (group 3 again).

Nevertheless, Saudi Arabia is probably the most extraordinary case: in 2009 the purpose was of 34.03% (group 3), a year later it was of 0.98% (group 1), and in 2016 it had a value of 23.88% (group 3).

On the other hand, Guatemala is one of the countries where the people's aim to begin a venture has positively evolved the most, being part of group 1 in 2009, with an intention of 10.34%, to group 4 in 2016, with an intention of 36.96%. In India the exact opposite has happened, it moved from group 4 and an entrepreneurial intention as good as 49.66% in 2007 to group 2 and an entrepreneurial intention of 14.88% in 2016. There is no doubt that Russia is the country with the least motivation to start an enterprise, being its values lower than 4% for all the years. Otherwise, Malawi is one of the countries with the highest incentive rates, belonging to group 4 with a percentage of 70.26% in 2012 and 66.69% in 2013. Finally, Nigeria has the highest rating of all the period from 2007 to 2016 with a 90.95% of intention in 2011.

Even though the irregularities mentioned above, if we observe the intention values that we have collected for all the countries and years, we can affirm that, generally, the individuals that value more the possibility to begin a new venture are indeed the ones who reside in those places that confront barriers to develop in a sustainable way, and vice versa.

5.2.2 *Description of the independent variables*

In order to evaluate the impact of the environmental factors on the aim of beginning a new business activity, we have used 12 independent variables that we have obtained from both the Development Indicators of the World Bank Data and the Indicators of the GEM. The periodicity of all the variables is annual. The Table 2 of the Appendix shows the variables source, observed years and the number of countries.

In summary, the main sources of the financial, governmental and market dynamics variables are the International Monetary Fund, the Balance of Payments database, the Government Finance Statistics Yearbook, the International Financial Statistics and data from other OECD estimates. Moreover, the values of the research and development variable are extracted from the International Monetary Fund, but also from the Balance of Payments Statistics Yearbook. All the time variables and education and culture and social norms variables are directly observed by the World Bank and the Global Entrepreneurship Monitor, respectively. The paragraphs below will explain how the data of these variables have been collected. Finally, the source of the physical infrastructure variable is the International Energy Agency Statistics.

The independent variables that we have chosen are as follows:

Entrepreneurial Finance:

- Grants and other revenue (% of revenue): no refund payments that individuals and companies receive from governments or other institutions for public projects. The range of this variable goes from 0 to 100. The limitation of this variable is that the government finance data of the majority of the countries are concentrated in a single account, but there are countries that only have budgetary central government accounts, which not include all the government units. The countries of our analysis that have budgetary accounts are represented by an asterisk in the Table 2 of the Appendix. For 2013, the average percentage of revenue that individuals receive in form of grants is higher for those workers of the countries that have higher entrepreneurial intentions (for group 4 is an approximate 30.26% of their income) and lower for those with less interest in starting a new business (for group 1 is an approximate 12.98% of their earnings). The average percentage of group 2 is 14.23% and of group 3 is 14.04%.

- Foreign direct investment, net outflows (current US\$): the sum of capital invested by an individual of a reporting country in another economy. In order to be considered direct investment, the person must have a 10% or more of the ownership of the shares of voting stock. Data are in current US dollars. In 2013, the average amount invested was higher in countries that are from the group 4, with 588,94 US\$ invested and lower in the countries that form group 2, with 446,56 US\$. The average investment made by group 1 was 487,55 US\$ and by group 3 was 523,41 US\$.

Government Policy:

- Other taxes (% of revenue): payments that employers and employees have to do, charges on property and taxes that can not be assigned to other classifications, like fines for late or non-payments. Its range goes from 0 to 100. In 2013, the workers of countries that belonged to group 1 were generally the ones that allocated more percentage of their revenue in other taxes (an average of the 3.53% of their revenue) and those of group 3 allocated the less (about 1.83% of their gains). If we look at the other groups, the percentage of group 2 is around 2.59% and of group 4 is 2.16%.

- Net taxes on products (current US\$): payments that producers have to do in relation to the production, trade or use of the goods and services. It is calculated by doing the sum of the product charges less subsidies¹². Data are in current US dollars. The countries that have registered higher net taxes on products in 2013 are again those that form group 1, with an average of $1.41e^{+11}$ US\$ and the ones that have to pay less net taxes are those of group 4, with a mean of $7.29e^{+09}$ US\$.

Entrepreneurial Education:

- Post-school entrepreneurial education and training: the extent to which preparation in developing and administering an enterprise is included within the tertiary education¹³. This variable is measured via the GEM National Expert Survey (NES)¹⁴. As the Adult Population Survey commented above, this questionnaire is conducted by the

¹² Subsidies are payments that the general government makes to private and public enterprises to guarantee a specific price or maintain it below the costs of production (World Bank Data, 2018).

¹³ This type of education involves colleges, business schools and personal vocation (World Bank Data, 2018).

¹⁴ Some examples of the affirmations that they have to score are: “the vocational, professional and continuing education systems provide good and adequate preparation for starting up and growing new firms” or “colleges and universities provide good and adequate preparation for starting up and growing new firms” (Global Entrepreneurship Monitor, 2018).

National Team of each country every year. However, in this case, the survey is answered by a national sample of at least 36 experts (4 individuals for each environmental factor specifically selected). The answer scale, as well as the variable range, goes from 1 (completely false) to 9 (completely true). The limitations of this questionnaire are the same as those of the APS. Finally, once the data of all the countries have been collected, the GEM harmonizes it and provides representative samples. The summary statistics shows that, for 2013, the individuals of the countries that positively value this type of education are the same that consider more the possibility to undertake a new enterprise. Then, we see that the group 4 register an approximate value of 2.94, the group 3 a value of 2.88, the group 2 a value of 2.86 and the group 1 a value of 2.76.

Research and Development Transfer

- Charges for the use of intellectual property, payments (current US\$): payments between citizens and non-citizens in order to have the authorisation for the use of proprietary rights¹⁵ or for the production of prototypes. Data are in current US dollars. The fee that individuals have to pay is lower as we move from the countries that form the incentive group 1 ($1.11e^{+10}$ US\$) to the ones that form the incentive group 4 ($2.27e^{+08}$ US\$). The group 2 spend an average of $4.79e^{+09}$ US\$ and the group 3 spend $1.06e^{+09}$ US\$.

Commercial and Legal Infrastructure

- Time required to start a business (days): average number of days that the small or medium-size enterprises need to finish the required procedures to legally operate. The data are collected annually through a World Bank survey that is responded by more than 9.000 professionals of the respective countries that advise on legal requirements. The main limitation regarding this variable is that the data represents a particular type of business and only refers to companies that operate in the largest city in the country. Also, it does not illustrate all the problems that enterprises can encounter. The average amount time that the individuals have to wait in 2013 to launch a business in the group 1 are 12.43 days and more than the double, 30.89 days, in the group 4. The individuals of the group 3 and the group 4 have to wait for the same number of days, which are an average of 26.77 and 27.63 days, respectively.

¹⁵ The rights can be in the form of patents, logos, franchises, copyrights, industrial procedures and designs such as trade secrets (World Bank Data, 2018).

Internal Market Dynamics

- Inflation, consumer prices (annual %): percentage change of the price level of a fixed basket of goods and services acquired by an average consumer. Its range goes from 0 to 100. The highest percentage of inflation in 2013 is registered by the countries that form the group 3, with an annual average value of 7.34%. The group 4 has the second highest percentage, which is 6.82%. It is followed by the group 2, with a percentage of 1.88% and finally the group 1 records an average of 1.68%.

Entry Regulation

- Time required to obtain an operating license (days): average number of days that an individual willing to open an establishment have to wait to obtain an operating license. It is counted from the day that the individual applies for it to the day that it is accepted. The World Bank Data evaluates this time with Enterprise Surveys that are responded by random samples formed by business owners that are randomly selected from different groups¹⁶. For our sample, we can see that the average time of countries that form the incentive groups 1, 2 and 3 in 2013 are more or less the same, around 20.3 days (group 1), 30.66 days (group 2) and 28.47 days (group 3). The people from group 4 are the ones who wait the less, an average of 18.97 days.

- Time required to register property (days): average number of days that an individual that has registered a property have to wait to secure the rights associated with it. It is counted from the day that the individual buys the property to the day that it has the purchaser's name. The data are collected by the World Bank Data through the same survey that is used to evaluate the "time required to start a business" variable. Contrary to the time required to obtain a license, in 2013 the group 4 records the highest amount of time with an average of 49.54 days. For the countries of group 1, the average number of days is 26.81, 44.61 days for those of group 2 and 34.43 days for the group 3.

¹⁶ These groups consider the size of the firm where they currently work (small, medium and large), their business sector (manufacturing, retail and other services) and the geographic region of the country where they reside (World Bank Data, 2018).

Physical Infrastructure

- Electric power consumption (kWh/capita): generation of electricity by the power facilities less its transmission, distribution, destruction due to its transformation and personal use that the heat and power plants do of it. We take electric power consumption as a “proxy” variable for physical infrastructure. From the summary statistics, we can deduce that the kWh consumed of electricity per capita in 2013 is higher for the countries that belong to group 1 (8530.74) and it decreases as the group number increases. In comparison, the individuals from group 4 consume an average of 1261.03 kWh.

Cultural and Social Norms

- Cultural and social norms: up to what point the cultural and social norms stimulate or permit business methods that benefit both the personal wealth and income. The data of this variable is collected by the GEM National Expert Survey (NES)¹⁷. The sample size, main issues of the data collected and response scale are the previously discussed. The lowest value is the one recorded by group 2, which is 2.67. It is followed by the group 1 (2.77) and after that comes the group 2 (2.89). The highest value is from group 4 (2.99).

Even though we are going to work with the 2013 data, the summary statistics of all the period, from 2007 to 2016, as well as the codebook for each variable are attached in the Appendix.

¹⁷ Some examples of the affirmations that the respondents have to score are: “the national culture is highly supportive of individual success achieved through own personal efforts” or “the national culture encourages creativity and innovativeness” (Global Entrepreneurship Monitor, 2018).

6. RESULTS

Now that all the variables are defined, in this section, we are going to develop the empirical model of our study and analyse the results.

6.1 Pearson Correlation Coefficient

First of all, we will measure the linear correlation between the entrepreneurial intention variable and the rest of them through the *Pearson Correlation Coefficient* for the year 2013. The correlation is, therefore, a measure that will inform us of the meaning and relevance between two variables and will also allow us to compare the results with the conceptual framework.

The correlation coefficient has the expression:

$$\rho_{X,Y} = \frac{\sigma_{XY}}{\sigma_X \sigma_Y} = \frac{E[(X - \mu_X)(Y - \mu_Y)]}{\sigma_X \sigma_Y}$$

where σ_{XY} is the covariance of (X,Y), σ_X is the standard deviation of X and σ_Y is the standard deviation of Y. Analogously, it can be expressed as:

$$r_{xy} = \frac{n \sum x_i y_i - \sum x_i \sum y_i}{\sqrt{n \sum x_i^2 - (\sum x_i)^2} \sqrt{n \sum y_i^2 - (\sum y_i)^2}}$$

The values of the correlation coefficient range between -1 and 1. The greater the absolute value of the coefficient, the stronger is the relation between the variables. The interpretation of the result is the following way:

- If $r < 0$, there is a negative correlation: when the value of one variable increases, the value of the other variable decreases and vice versa
- If $r > 0$, there is a positive correlation: when the value of one variable increases, the value of the other variable raises as well and vice versa
- If $r = 1$, there is a perfect positive correlation
- If $r = -1$, there is a perfect negative correlation
- If $r = 0$, the variables are not linearly correlated

The results of the coefficient for the year 2013 and from the years 2007 to 2016 can be found in the Table 5 and Table 6 of the Appendix.

The first column of the Pearson Correlation Coefficient for the year 2013 demonstrates that the inflation rate and the net taxes have a strong positive linear relationship with the entrepreneurial intention, with values of 0.7555 and 0.6472, respectively. This means that the *higher* the increase of the price of the goods and services and the *higher* the net taxes that entrepreneurs must pay for their product, the *higher* the willingness to launch a company (and vice versa). As we have mentioned in the literature review section, the inflation variable is positively related with the purpose to start a business because it is seen as a business opportunity that can lead to higher revenues. However, the net taxes result is not in accordance with our expectations because they are supposed to reduce the desire of people to create a new project.

Figure 2 of the Appendix shows the scatter plot graph of the Entrepreneurial Intention and Inflation variables for the year 2013, in which the numbers 1 to 4 represent the different incentive groups. We can see from the graph that the type of countries that have lower inflation rates and thus lower intentions are those which belong to groups 1 and 2 (developed countries), whereas the countries that form group 3 and 4 (developing countries) have higher inflation rates, which means higher intentions.

Variables that are moderately correlated with the entrepreneurial intention are the education variable, as well as the time to obtain a license and culture variables. Their interpretation is pretty much the same as the one discussed in the previous paragraph: the *higher* the entrepreneurial knowledge that individuals learn after school, the time that they have to wait to obtain a license and the entrepreneurial stimulation associated with the cultural norms, the *higher* the entrepreneurial intention (and vice versa). The education and culture results are in accordance with the literature review, but the time that entrepreneurs have to wait to get an operating license does not. If we look at the summary statistics table for the year 2013, we can understand that this result may be consequence of the little amount of observations that we have of this variables for this year (15 observations).

Figures 3 and 4 of the Appendix (which represent the education and culture variables) represent positive linear patterns. In this case, we can see that the points are considerably scattered in an extensive band, which means that the relation is not as strong as before. From both graphs, we can contemplate that, even though all the countries have mixed rates of education and culture, the observations of the incentive groups 3 and 4 are the ones which predominate in the right side of the graph, which indicates higher education and culture rates and also higher intentions.

Regarding the foreign direct investment, it has a very weak positive linear correlation with the entrepreneurial intention and this does not show much of anything happening.

On the other hand, the power consumption and the charges for the use of intellectual property are variables with a moderate negative correlation with the entrepreneurial intention, being their values of -0.5668 and -0.5405. This means that the *higher* the electricity consumed per capita and the amount of money charged for the use of intangible property, the *lower* the entrepreneurial intention (and vice versa). This results are in accordance with our expectations. As it is clear, the type of countries that consume more electricity are the ones which belong to incentives groups 1 and 2 and, in fact, they are the ones that have lower intention rates in comparison with the incentives groups 3 and 4. Besides, it is evident that entrepreneurs may be discouraged to perform if they have to pay high amounts of money for the use of intellectual property. This explanation is represented in the Figure 5 of the Appendix, in which we can observe that developed countries have higher charges for the use of intellectual property and thus lower intention rates.

Also, the time that people have to wait to start a business and register a property, and the grants have a weak negative linear relationship. Therefore, the *higher* the waiting time to outset a company and to register it and the *higher* the percentage of revenue that cover the grants, the *lower* the entrepreneurial intention (and vice versa). The time to start a business and to register a property results are in accordance with the literature review, but the grants variable should have a positive relationship instead.

Finally, the variable which is least correlated with the entrepreneurial intention with an absolutely weak value very close to 0 is the other taxes. This result indicates that there is hardly a linear relationship, which means that the other taxes that individuals have to pay do not affect their plan to begin a new venture. The Figure 6 of the Appendix shows the scatter plot graph of this variable, and we can see that almost all the observations for all the incentive groups are located on the left side of the graph, so it does not show us any relation.

If we analyse the whole period of time, from 2007 to 2016, we can see some changes in the results. For instance, variables such as the inflation, education, necessary time to obtain a license, culture and time required to register a property, have a weaker linear relationship. Yet, the foreign investment and the other taxes variables have a stronger relationship in this case. Moreover, we can observe a very interesting fact: the net taxes, grants and necessary time to start a business have the opposite sign for this set of years, in comparison with the year 2013.

6.2 Linear Regression

After that, the technique that we will use is the linear regression. This method will allow us to approximate the dependence relation between the dependent and independent variables for the same year (2013) and will also permit us to see if the results are statistically significant.

We will determine the significance level of our results through the *p-value*. The range of this number is between 0 and 1. A *p-value* below 0.05 means that we reject the null hypothesis of the corresponding coefficient being equal to zero and that the dependent variable depends on the independent variables. The asterisk rating system may be helpful for us to identify the result that we obtain:

- * refers to $p < 0.05$, and this means that the result is *significant*
- ** refers to $p < 0.01$, and this indicates that the result is *very significant*
- *** refers to $p < 0.001$, and this suggests that the result is *extremely significant*

If the **p-value** ≥ 0.05 , the result is *not significant* as we do not reject the null hypothesis.

The first step that we have done before drafting different models is to run a regression with all the variables (dependent and independent) for our year of interest, which is 2013, to check if we have any problem. The strong dependency and correlation that exists among our independent variables added to the fact that for some variables the data of all the countries is not available has resulted in the omission of all our proposed variables because of multicollinearity issues. As we will not be able to work with all the variables, we will discriminate a few of them, in particular the variables changed sign in the previous section. These variables are the grants, the necessary time to get a license and the other taxes.

For the year 2013, we can observe in the regression that the variable power consumption has a p-value of 0.001, which means that has a significance of 1%. Also, the variable culture has a p-value of 0.021 and a significance of 10%. However, the variable inflation just very slightly missed the significance level, because its p-value is 0.095 and the rest of the variables are not statistically significant.

Table 2. Linear Regression between the Entrepreneurial Intention and the rest of the variables, for the year 2013

Source	SS	df	MS	Number of obs = 53	
Model	5935.73388	9	659.525987	F(10, 22) =	6.53
Residual	4343.45634	43	101.010612	Prob > F =	0.0000
Total	10279.1902	52	197.676735	R-squared =	0.5775
				Adj R-squared =	0.4890
				Root MSE =	10.05

entr_intention	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
charges_in~p	-2.89e-10	2.19e-10	-1.32	0.195	-7.31e-10 1.53e-10
power_cons~n	-.0013077	.0003627	-3.61	0.001 ***	-.0020391 -.0005762
foreign_inv	6.05e-12	3.04e-11	0.20	0.843	-5.53e-11 6.74e-11
inflation	.985391	.5777707	1.71	0.095	-.1797946 2.150577
net_taxes	-2.48e-11	1.62e-11	-1.53	0.134	-5.75e-11 7.91e-12
time_regis~r	-.0380363	.0633885	-0.60	0.552	-.1658713 .0897988
time_start	-.0028988	.0496161	-0.06	0.954	-.1029593 .0971617
education	1.604054	5.390671	0.30	0.767	-9.267269 12.47538
culture	8.666299	3.621486	2.39	0.021 *	1.362875 15.96972
_cons	1.140709	15.1635	0.08	0.940	-29.43941 31.72083

We can think that these little-significant results may be consequence of the multicollinearity issues seen before. Nonetheless, the Variance Inflation Factor (VIF)¹⁸ of our variables ranges between 1.25 and 2.94, which indicates that we do not have factors that inflate the variability of our model and that multicollinearity is not the problem.

Table 3. VIF of the variables for the year 2013

Variable	VIF	1/VIF
foreign_inv	2.94	0.339933
charges_in~p	2.44	0.410270
net_taxes	1.81	0.551519
education	1.60	0.625822
power_cons~n	1.44	0.694109
inflation	1.42	0.703219
culture	1.42	0.703344
time_regis~r	1.31	0.764196
time_start	1.25	0.799813
Mean VIF	1.74	

In the Table 7 of the Appendix, we can contemplate that for the period of time from 2007 to 2016, the variables charges in the intellectual property and power consumption have a p-value of 0.000. meaning that their significance is of 1%. In addition, the net taxes variable has a p-value of 0.002, which indicates that its significance is of 5% and the variable culture has a p-value of 0.019 and consequently a significance of 10%. Variables such as the inflation and the required time to register are not significant, but have p-values around 0.5, being them 0.075 and 0.063, respectively. The rest of the variables are not statistically significant.

The VIF, which is represented by the Table 8 of the Appendix, ranges between 1.06 and 2.04, demonstrating a better result that if we only consider the year 2013.

¹⁸ The VIF is a way to measure the effect of multicollinearity in a linear regression. It describes when two or more variables of the model are highly correlated by estimating how much the variance of a regression coefficient is inflated due to multicollinearity. The interpretation of the VIF is as follows:

- If VIF = 1, the variables are not correlated
- If $1 < \text{VIF} < 5$, the variables are moderately correlated
- If VIF > 5, the variables are highly correlated

As we do not have multicollinearity, we need to prove that the variables are consistent¹⁹. In order to do so, we will create two models, one for the year 2013 and one for the period of years 2007 to 2016, and check the robustness of them by adding different variables. Also, we will delete the power consumption variable because we can see in both regressions that it absorbs the explanatory effect of the other variables.

The first step (1) of the model that we are going to create will relate the effect of the three variables that we consider the most interesting from the point of view of a nascent entrepreneur with the intention of starting a business. After that, we will do a second, third and fourth step by adding more different variables to the variables of the former model.

The most important matter that entrepreneurs have to handle in order to start performing is the generalised and sustained increase in the level of prices in the market. As we have mentioned in the literature review, this growth can be either positive and negative. We will only consider the positive approach, in which the entrepreneurs do not perceive it as a threat, but as an opportunity to obtain greater benefits. Besides, they may not only care about the inflation rate, they also have to deal with taxes. Entrepreneurs should be more concerned about the annual payments that they have to do for selling their products rather than another type of taxes. This is because depending on the type of good or service that the individual is thinking of producing or providing, the tax charge can be higher or lower. Finally, entrepreneurs might also deeply take into account the total time that they have to wait whether to start their business, register their property or obtain an operating license. In general, if this amount of time is high, their desire to develop the venture can be hindered, which means that they can probably give up, set their idea aside and start searching for a job. That is why we will consider the overall time required to start the production. Then:

$$entr_intention_{it} = \beta_0 + \beta_1 inflation_{it} + \beta_2 net_taxes_{it} + \beta_3 time_start_{it} + u_{it} \quad (1)$$

¹⁹ An estimator is consistent if it converges to its true value as the number of data of the sample increases indefinitely.

where $entr_intention_{it}$ is a measure of purpose reported by the country i in the year t ; β_0 is a country's fixed effect; β_j is the model's parameter (for $j = 1, 2, 3$); $inflation_{it}$, net_taxes_{it} , $time_start_{it}$, are measures of influence reported, again, by the country i in the year t and u_{it} is a random error term, which can not be explained with the relation between the dependent and the independent variables.

In the second step (2) we will add two more environmental factors to the model. Aside from the previous variables, entrepreneurs must consider the charges for the intellectual property. If entrepreneurs do not want their products to be imitated, they have to pay a sum of money to protect them from other companies, so they might take into account this expense. Also, financing is essential for them because they cannot develop their idea without money. Foreign investments, as we have seen in the theory, can have two perspectives. The positive view is the one that we will consider, and it explains that these kind of investments enhance the trade flows because it increases the production import competitiveness and maintains the exports. Then:

$$entr_intention_{it} = \beta_0 + \beta_1 inflation_{it} + \beta_2 net_taxes_{it} + \beta_3 time_start_{it} + \beta_4 charges_intellectual_p_{it} + \beta_5 foreign_inv_{it} + u_{it} \quad (2)$$

where $charges_intellectual_p_{it}$ and $foreign_inv_{it}$, are measures of influence reported by the country i in the year t .

A third step (3) will include the effect of the three main variables plus the time that they have to wait to register their property and the entrepreneurial education that they have had after the school. As we have mentioned above, entrepreneurs must wait some days or even months in order to enter the market. In this case, the time that they need to register their property is crucial because this will determine when they can legally perform. If they have to wait a lot of time they can refuse to continue with the project. In terms of the entrepreneurial education, as we have said before, it is the first contact that individuals have with entrepreneurship and it may be the main reason why they decide to operate. Then:

$$entr_intention_{it} = \beta_0 + \beta_1 inflation_{it} + \beta_2 net_taxes_{it} + \beta_3 time_start_{it} + \beta_6 time_register_{it} + \beta_7 education_{it} + u_{it} \quad (3)$$

where $time_register_{it}$ and $education_{it}$ are measures of influence reported by the country i in the year t .

In the last step (4) we will include all the previous variables and the last variable which is the culture. We consider that the culture of a country is the variable that determines the intention the least. Then:

$$entr_intention_{it} = \beta_0 + \beta_1 inflation_{it} + \beta_2 net_taxes_{it} + \beta_3 time_start_{it} + \beta_4 charges_intellectual_p_{it} + \beta_5 foreign_inv_{it} + \beta_6 time_register_{it} + \beta_7 education_{it} + \beta_8 culture_{it} + u_{it} \quad (4)$$

where $culture_{it}$ is a measure of influence reported by the country i in the year t .

In order to study the linear regression between the variables, we will look at the coefficient and number of asterisks of each step.

Table 4. Linear Regression Models, year 2013

	(1)	(2)	(3)	(4)
	entr_intention	entr_intention	entr_intention	entr_intention
inflation	1.030*** (3.71)	1.978*** (5.07)	1.111*** (4.01)	1.859*** (4.78)
net_taxes	-4.43e-11** (-2.82)	-3.88e-11* (-2.32)	-3.51e-11* (-2.21)	-3.21e-11 (-1.75)
time_start	0.0610 (1.05)	0.0290 (0.53)	0.0389 (0.63)	0.0189 (0.34)
charges_intell		-2.98e-10 (-1.16)		-3.37e-11 (-1.34)
foreign_inv		1.55e-11 (0.46)		-1.17e-13 (-0.00)
time_register			0.0171 (0.25)	-0.0194 (-0.29)
education			12.54* (2.31)	4.363 (0.71)
culture				8.019 (1.96)
_cons	20.69*** (7.70)	19.05*** (6.95)	-15.97 (-0.99)	-14.52 (-0.87)
N	61	58	59	56

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

When we examine the model, we can see that the inflation has a level of significance of 1% in all the steps. Furthermore, its coefficient is positive, which indicates us that the more inflation, the more desire to have a business, thus confirming the hypothesis of section 4.6. In regard with the net taxes variable, we can observe that its level of significance decreases as we increase the number of variables, because it has a significance level of 5% in the first step and no significance in the last one. Nonetheless, the results are in accordance with our expectations because the coefficient indicates that as the net taxes that entrepreneurs have to pay decrease, their intention increase, once again confirming the hypothesis of section 4.2. In step 3 we can see that the education variable is significant at a level of 10% and has the highest coefficient of the model, thus confirming the hypothesis of section 4.3. On the other hand, we can contemplate that the rest of the variables are not statistically significant. About the coefficients, all of them are in accordance with our previsions except for the necessary time to start and foreign investments variable, but they seem to be insignificant as their value is very close to 0.

Looking the whole period of time that we have, we notice that the results are more in our favour. The inflation is still the most significant variable (1%) for all the steps, as well as the net taxes variable (1%). The time to start the business variable is significant in the two first steps (5% and 10%). Even though its coefficient is positive, it has a value very close to 0, which is not that important. Other significant variables are charges for the intellectual property and culture, with significance levels of 5% and 1%, respectively. Their coefficients are also in accordance with what we expected.

In general, we observe that, in most of the cases, the p-values become higher as we add more variables. This means that we do not reject the null hypothesis and that the entrepreneurial intention does not depend on the variables that we are using. However, this fact is not true at all because we obtain good results when we do not consider some of the variables. The explanation to this is that our estimators are inconsistent. And, although our independent variables are correlated, the accuracy of the estimators worsen as we increase the sample size.

7. CONCLUDING REMARKS

This thesis attempts to confirm the Gnyawali and Fogel (1994) argument that not only the behaviour of individuals enhances their propensity and ability to enterprise, but also other environmental conditions have influence on it. Therefore, we have analysed, on an exploratory basis, the effect of several environmental conditions that the Global Entrepreneurship Monitor provides in their reports.

The results of our study, in general, support our literature review. We have found that factors such as the inflation rate and culture of a country, the entrepreneurial education that individuals have and the foreign investments are positively correlated with entrepreneurship. Moreover, the charges that entrepreneurs have to pay for the intellectual property, the necessary time to start and register a business and taxes are negatively correlated with entrepreneurship.

One of the aspects that did not meet our expectations is that in the Pearson Coefficient, the net taxes variable, for our year of interest, is positively related with the entrepreneurial intention. This can happen due to changes in the regulation and a time lag of the introduction of these changes, but it can also be result of a really different taxation system in different countries. Most of our sample is composed by data of European countries, and they have a really strong taxation system in comparison with countries of other continents.

We have also seen that in the same year the grants are negatively correlated with our dependent variable. An explanation for this outcome can be that applying for a grant takes a lot of time for the individual because many documents have to be prepared. This time can exceed the benefits that the grant gives the entrepreneur, which can be seen in the end as a cost. Moreover, most of the grants are only available in areas or industries that are not accessible for private entrepreneurs, like for example the agriculture, the atomic industry, the military service, among others. So the results are mainly affected by the quality of the data, and it can be studied in detail in subsequent studies.

In regard with the linear regression, we have seen that the power consumption is the most significant variable of the model, and it has a negative coefficient, which means that the entrepreneurial intention increases as this variable decreases. Although at first sight this argument does not have sense at all, it can have an explanation behind. The use of power of a country depends on its economy. Therefore, the developed countries can consume more energy than the countries in development because they have more money and resources to do so. As we have mentioned in the 5.1.1 section, the countries that are meant to have a higher intention to start a business are those that need to survive (least-developed countries) then, the result that we have obtained makes sense.

On the other hand, even though our number of observations was so small that we could not be able to compare effect of the environmental conditions between countries, we have proved that the argument of Rosa et. al. (2006) is confirmed: the developing countries have higher rates of entrepreneurial intention, which means that the individuals living there have more motivation to start projects. The main reason behind is that they need to survive, that is why they are referred as necessity-driven entrepreneurs. However, the entrepreneurial intention rates of the developed countries are lower, meaning that the willingness of the people to start a business is not that notorious as with those we have argued before. So that the individuals decide to set up an enterprise mainly because of the emergence of an opportunity rather than for their survival, which confirms that they are opportunity-driven.

In addition to our findings, the constraints of our study must be referred. As we have mentioned throughout the thesis, the data that we have gathered, and therefore used, is not consistent at all. Its consistency might be deficient either because not all the countries have their data available (which has limited us the total number of observations) or because the measurement methods used by each country are different, as well as their samples size. Also, we must acknowledge that the data has been collected from two different sources, the database of the World Bank Data and the reports of the Global Entrepreneurship Monitor, and this may, in one way or another, have distorted our estimates. In the case of the GEM, as the data is collected through exploratory questions, it is possible that, even though they have some value, they are not designed to brace it rigorously.

Additionally, a very important issue that we must consider is that the period of time (from 2007 to 2016) of our data encompasses two economic phases: recession and expansion. The Great Recession that occurred in 2007 and that expanded to the whole world a year later might have altered our results because the data from the growing period is offset by the data from the decline period.

Considering all these restrictions, some recommendations that can be undertaken in future studies in order to have more reliable conclusions about the relationship between the variables are to focus only on a limited region (i.e. a continent or a specific area within the continent) so that the geographical area is more precise. It would also be interesting to increase the time margin to have a greater number of observations. In regard with the economical factor, the same study could be done but comparing both the recession and the expansion phases.

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9. APPENDIX

Table 1. Classification of the countries according to their incentive group for the year 2013

Incentive Group	Country	Region	Entrepreneurial Intention
Group 1	Russian Federation	Europe & Central Asia	2.6
	Japan	East Asia & Pacific	4.09
	Norway	Europe & Central Asia	5.23
	Germany	Europe & Central Asia	6.84
	United Kingdom	Europe & Central Asia	7.19
	Belgium	Europe & Central Asia	7.85
	Finland	Europe & Central Asia	8.34
	Spain	Europe & Central Asia	8.43
	Greece	Europe & Central Asia	8.77
	Netherlands	Europe & Central Asia	9.08
	Sweden	Europe & Central Asia	9.53
	Switzerland	Europe & Central Asia	9.78
	Italy	Europe & Central Asia	9.8
	Malaysia*	East Asia & Pacific	11.82
	Korea, Rep.	East Asia & Pacific	12.07
	United States	North America	12.18
	Slovenia	Europe & Central Asia	12.37
	France	Europe & Central Asia	12.59
	Ireland	Europe & Central Asia	12.59
South Africa	Sub-Saharan Africa	12.76	
Group 2	Puerto Rico	Latin America & Caribbean	13.08
	Suriname*	Latin America & Caribbean	13.14
	Portugal	Europe & Central Asia	13.24
	Canada	North America	13.53
	Czech Republic	Europe & Central Asia	13.73
	Hungary	Europe & Central Asia	13.73
	Luxembourg	Europe & Central Asia	14.13
	China	East Asia & Pacific	14.42
	Singapore	East Asia & Pacific	15.09
	Slovak Republic*	Europe & Central Asia	16.39
	Mexico	Latin America & Caribbean	16.93
	Poland	Europe & Central Asia	17.27

	Barbados*	Latin America & Caribbean	18.39
	Thailand	East Asia & Pacific	18.47
	Estonia	Europe & Central Asia	19.39
	Croatia	Europe & Central Asia	19.6
Group 3	Bosnia Herzegovina	Europe & Central Asia	21.76
	Lithuania	Europe & Central Asia	22.42
	Latvia	Europe & Central Asia	22.69
	India	South Asia	22.79
	Romania	Europe & Central Asia	23.65
	Israel	Middle East & North Africa	23.97
	Vietnam*	East Asia & Pacific	24.07
	Uruguay	Latin America & Caribbean	25.3
	Panama	Latin America & Caribbean	26.96
	Brazil	Latin America & Caribbean	27.2
	Turkey	Europe & Central Asia	28.06
	Trinidad & Tobago	Latin America & Caribbean	28.69
	Macedonia, FYR	Europe & Central Asia	29.11
	Iran, Islamic Rep.	Middle East & North Africa	30.63
	Argentina	Latin America & Caribbean	31.02
	Peru	Latin America & Caribbean	33.91
Indonesia	East Asia & Pacific	35.06	
Group 4	Algeria*	Middle East & North Africa	36.02
	Angola*	Sub-Saharan Africa	38.25
	Guatemala*	Latin America & Caribbean	38.95
	Jamaica	Latin America & Caribbean	39.51
	Ecuador	Latin America & Caribbean	39.91
	Philippines*	East Asia & Pacific	44.12
	Zambia*	Sub-Saharan Africa	44.45
	Chile	Latin America & Caribbean	46.49
	Ghana*	Sub-Saharan Africa	46.6
	Nigeria*	Sub-Saharan Africa	46.81
	Namibia*	Sub-Saharan Africa	52.39
	Colombia	Latin America & Caribbean	54.54
	Botswana*	Sub-Saharan Africa	59.2
	Uganda*	Sub-Saharan Africa	60.72
	Libya	Middle East & North Africa	62.07
	Malawi*	Sub-Saharan Africa	66.69

Table 2. Variables source, observed years and number of total countries classified by Environmental Factor

Environmental Factor	Variable	Source	Observed Years	Num. of Countries
Entrepreneurial Finance	Grants and other revenue (% of revenue)	WDB	2007-2016	104
	Foreign direct investment, net outflows (current US\$)	WDB	2007-2016	104
Government Policy	Other taxes (% of revenue)	WDB	2007-2016	104
	Net taxes on products (current US\$)	WDB	2007-2016	104
Entrepreneurial Education	Post school entrepreneurial education and training	GEM	2007-2016	104
Research and Development Transfer	Charges for the use of intellectual property, payments (current US\$)	WDB	2007-2016	104
Commercial and Legal Infrastructure	Time required to start a business (days)	WDB	2007-2016	104
Internal Market Dynamics	Inflation, consumer prices (annual %)	WDB	2007-2016	104
Entry Regulation	Time required to obtain an operating license (days)	WDB	2007-2016	104
	Time required to register property (days)	WDB	2007-2016	104
Physical Infrastructure	Electric power consumption (kWh per capita)	WDB	2007-2016	104
Cultural and Social Norms	Cultural and social norms	GEM	2007-2016	104
Incentive	Entrepreneurial intention	GEM	2007-2016	104

Table 3. Summary Statistics of the variables classified by the level of Entrepreneurial Intention for the year 2013.

Variables	Summary Statistics	Entrepreneurial Intention			
		Low	Middle-low	Middle-high	High
grants	Observations	14	11	11	9
	Mean	12,97746	14,23024	14,03945	30,25995
	Std. Dev.	7,439347	7,900458	5,12831	23,98372
	Min	4,105075	6,697734	6,401613	2,738634
	Max	26,91004	33,75577	25,11954	70,21181
foreign_invest	Observations	20	16	17	16
	Mean	487,55	446,5625	523,4118	588,9375
	Std. Dev.	289,8932	346,9546	305,8776	373,6623
	Min	51	28	41	58
	Max	963	925	982	992
other_taxes	Observations	20	14	13	10
	Mean	3,532276	2,593269	1,830334	2,158829
	Std. Dev.	6,351174	5,413487	2,190775	2,568792
	Min	0	0	0,0260286	0
	Max	29,29615	20,13585	7,599132	7,505593
net_taxes	Observations	19	13	17	13
	Mean	1,41E+11	2,63E+10	5,00E+10	7,29E+09
	Std. Dev.	1,50E+11	3,26E+10	9,11E+10	9,68E+09
	Min	6,57E+09	4,36E+08	1,03E+09	3,76E+08
	Max	5,38E+11	1,17E+11	3,61E+11	3,04E+10
education	Observations	18	16	17	16
	Mean	2,761111	2,864375	2,875882	2,9425
	Std. Dev.	0,3246335	0,2828419	0,3648811	0,3854954
	Min	2,25	2,38	2,13	2,12
	Max	3,36	3,27	3,47	3,5
charges_intellectual_p	Observations	20	15	15	15
	Mean	1,11E+10	4,79E+09	1,06E+09	2,27E+08
	Std. Dev.	1,37E+10	7,56E+09	1,47E+09	3,62E+08
	Min	2,53E+08	9885401	7514460	0
	Max	4,64E+10	2,26E+10	4,57E+09	1,36E+09
time_start	Observations	20	16	17	16

	Mean	12,43	26,76875	27,62941	30,89375
	Std. Dev.	9,279638	48,539	25,57286	19,63383
	Min	4	2,5	6	5,5
	Max	45	204,5	86,6	66
inflation	Observations	20	15	16	16
	Mean	1,679231	1,883976	7,340986	6,823035
	Std. Dev.	1,81052	0,8539996	9,100687	6,191488
	Min	-0,9212719	0,2744167	0	1,791711
	Max	6,762503	3,80639	39,26636	27,28333
time_license	Observations	1	5	6	3
	Mean	29,3	30,66	28,46667	18,96667
	Std. Dev.	.	15,5542	14,47421	7,523519
	Min	29,3	16,1	10	10,4
	Max	29,3	55,5	42,7	24,5
time_register	Observations	20	16	17	15
	Mean	26,81	44,60625	34,42941	49,54
	Std. Dev.	22,71044	52,38811	24,74825	42,83376
	Min	2,5	1	3,5	12
	Max	79,5	193,5	81	190
power_consumption	Observations	20	14	17	14
	Mean	8530,738	6074,538	2960,803	1261,034
	Std. Dev.	4774,949	4144,027	1719,408	1005,425
	Min	4315,805	2079,194	765,5638	142,6765
	Max	23806,88	15718,33	6876,332	3903,972
culture	Observations	18	16	17	16
	Mean	2,765	2,6875	2,886471	2,986875
	Std. Dev.	0,5066992	0,4646791	0,4344097	0,3401513
	Min	2,11	1,89	2,16	2,43
	Max	3,92	3,46	3,81	3,55
entr_intention	Observations	20	16	17	16
	Mean	9,1955	15,65812	26,89941	48,545
	Std. Dev.	2,981436	2,374541	4,08475	9,602561
	Min	2,6	13,08	21,76	36,02
	Max	12,76	19,6	35,06	66,69

Table 4. Summary Statistics of the variables classified by the level of Entrepreneurial Intention from the years 2007 to 2016

Variables	Summary Statistics	Entrepreneurial Intention			
		Low	Middle-low	Middle-high	High
grants	Observations	140	68	78	62
	Mean	12,59908	13,90664	17,35597	25,92553
	Std. Dev.	9,988191	6,67216	11,71663	18,66273
	Min	2,750049	4,368297	3,361081	2,738634
	Max	85,72653	36,7395	61,64434	92,21187
foreign_invest	Observations	227	115	126	99
	Mean	5,92E+10	1,55E+10	5,66E+09	2,86E+09
	Std. Dev.	1,03E+11	3,41E+10	2,09E+10	6,49E+09
	Min	-1,14E+11	-2,86E+10	-1,18E+10	-7,02E+08
	Max	5,97E+11	1,83E+11	2,17E+11	4,84E+10
other_taxes	Observations	200	90	93	65
	Mean	2,961308	2,151774	2,107505	3,930165
	Std. Dev.	5,495644	3,296465	2,376487	4,278711
	Min	-0,0047365	-3,13663	0	-0,6943932
	Max	29,3487	20,13585	11,11613	19,69139
net_taxes	Observations	216	103	114	85
	Mean	1,04E+11	4,57E+10	3,98E+10	1,37E+10
	Std. Dev.	1,28E+11	7,33E+10	7,94E+10	4,13E+10
	Min	4,08E+07	3,67E+08	-6,45E+08	-6,41E+09
	Max	5,76E+11	2,95E+11	3,92E+11	3,69E+11
education	Observations	196	111	115	96
	Mean	2,828367	2,801982	2,844522	2,879167
	Std. Dev.	0,3164051	0,3151012	0,3625863	0,3934427
	Min	2,15	1,85	1,79	1,82
	Max	3,71	3,76	3,58	3,83
charges_intellectual_p	Observations	211	112	110	92
	Mean	9,18E+09	3,54E+09	1,46E+09	4,38E+08
	Std. Dev.	1,35E+10	8,64E+09	3,13E+09	1,60E+09
	Min	-4800000	0	0	0
	Max	7,61E+10	7,51E+10	2,40E+10	1,47E+10

time_start	Observations	211	115	112	94
	Mean	13,93175	21,56	26,90536	27,56277
	Std. Dev.	12,45415	29,89298	23,5469	18,7695
	Min	1,5	1,5	2,5	5,5
	Max	84,5	204,5	141	74,5
inflation	Observations	226	110	117	96
	Mean	2,356951	3,699385	6,506692	5,63245
	Std. Dev.	2,615126	4,472542	6,374678	4,568893
	Min	-1,735902	-1,429167	-1,070664	-3,748892
	Max	15,43052	26,09021	39,26636	27,28333
time_license	Observations	10	12	18	14
	Mean	28,81	47,1	32,4	43,47857
	Std. Dev.	21,16719	44,16418	23,83275	41,45695
	Min	3,2	16,1	2,5	9,3
	Max	57,4	176,1	108	169,2
time_register	Observations	211	115	112	93
	Mean	37,9	40,55478	43,26696	46,03871
	Std. Dev.	55,1287	41,92189	42,1967	42,28421
	Min	1	1	3	1,5
	Max	391	194	335	208
power_consumption	Observations	184	85	99	65
	Mean	8297,566	6013,681	2687,162	1649,206
	Std. Dev.	5708,288	8300,02	1987,905	2101,938
	Min	222,4599	1156,939	57,38598	142,6765
	Max	50063,95	51439,91	11688,32	15309,43
culture	Observations	197	110	116	96
	Mean	2,810761	2,742545	2,767155	2,934688
	Std. Dev.	0,4996886	0,5456625	0,4046164	0,376127
	Min	1,88	1,62	2,05	2,1
	Max	4,25	4,29	4,4	3,77
entr_intention	Observations	229	118	127	99
	Mean	8,029913	16,554883	27,16654	48,66667
	Std. Dev.	2,917814	2,424962	4,768596	11,43276
	Min	0,98	13,05	6,25	22,41
	Max	12,98	20,97	35,99	90,95

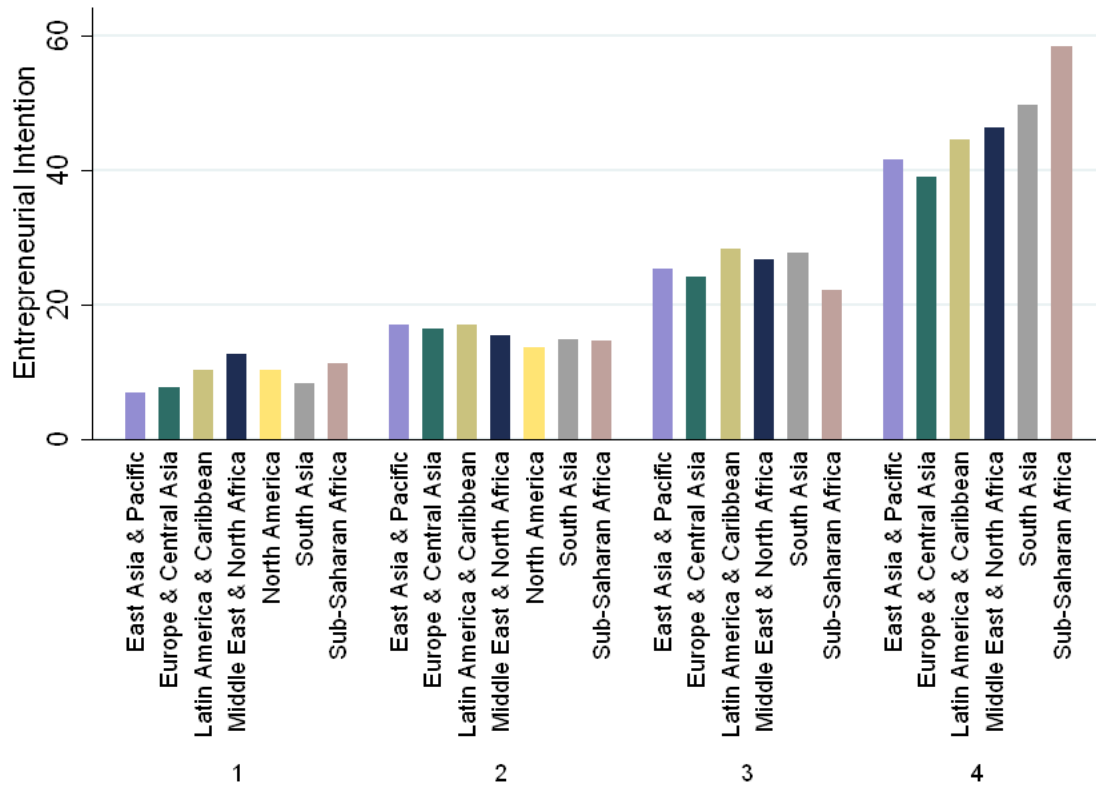


Figure 1. Entrepreneurial Intention by Continents and Incentive Groups (1-4) for the years 2007-2016

Table 5. Pearson Correlation Coefficient for the year 2013

	entr_~n	charge~p	powe~n	grants	foreig~v	inflat~n	net_ta~s	other_~s	time_l~e	time_r~r	time_s~t	educat~n	culture
entr_i~n	1.0000												
charge~p	-0.5405	1.0000											
power_~n	-0.5668	-0.1091	1.0000										
grants	-0.2587	0.4243	-0.0805	1.0000									
foreig~v	0.0961	-0.1347	0.3688	0.0492	1.0000								
inflat~n	0.7555	-0.0229	-0.4273	-0.3526	0.2170	1.0000							
net_ta~s	0.6472	0.2138	-0.5256	-0.0637	0.3059	0.9340	1.0000						
other_~s	-0.0667	0.7502	-0.5903	0.3082	-0.6050	0.2122	0.3507	1.0000					
time_l~e	0.4915	-0.3319	-0.7620	-0.2660	-0.2031	0.1443	0.1470	0.0370	1.0000				
time_r~r	-0.2390	-0.1386	0.0162	-0.6734	-0.0875	-0.2187	-0.3172	-0.2446	0.4905	1.0000			
time_s~t	-0.3822	-0.0226	0.2055	-0.1634	0.4832	-0.3724	-0.2751	-0.4752	0.2906	0.7126	1.0000		
educat~n	0.5308	-0.2695	-0.1448	-0.2527	-0.4618	0.4822	0.2524	0.2393	-0.1487	-0.4338	-0.9046	1.0000	
culture	0.5808	-0.3582	-0.0190	-0.0112	-0.1730	0.4546	0.2799	0.0462	-0.6891	-0.6891	-0.8900	0.9152	1.0000

Table 6. Pearson Correlation Coefficient from the year 2007 to 2016

	entr_i~n	grants	foreign~v	other_~s	net_ta~s	educat~n	charge~p	time_~t	inflat~n	time_l~e	time_r~r	power~n	culture
entr_i~n	1.0000												
grants	0.4357	1.0000											
foreign~v	0.3520	0.2981	1.0000										
other_~s	-0.1357	-0.0618	-0.2297	1.0000									
net_ta~s	-0.0901	-0.0623	-0.0331	0.3152	1.0000								
educat~n	0.1082	-0.4944	-0.1180	-0.0287	0.0020	1.0000							
charge~p	-0.4913	-0.1162	-0.3706	0.7343	0.4651	-0.0566	1.0000						
time_s~t	0.1259	-0.3332	-0.0547	0.0212	-0.3216	0.2249	-0.2787	1.0000					
inflat~n	0.2006	0.4474	0.2689	-0.2445	0.2191	-0.3409	-0.1912	0.0088	1.0000				
time_l~e	0.2049	-0.1344	0.0997	-0.0100	0.1832	0.2039	0.0435	0.3423	0.3314	1.0000			
time_r~r	-0.1290	0.0429	0.0523	-0.2191	-0.3123	-0.1491	-0.2742	0.0918	0.2806	0.0907	1.0000		
power_~n	-0.5990	-0.2713	-0.2624	0.6911	0.1898	-0.1071	0.7024	-0.2455	-0.3879	-0.2196	-0.0724	1.0000	
culture	0.2145	0.0968	0.2594	0.3036	0.3839	0.2437	0.0839	-0.3031	-0.1454	-0.1374	-0.4804	0.1480	1.0000

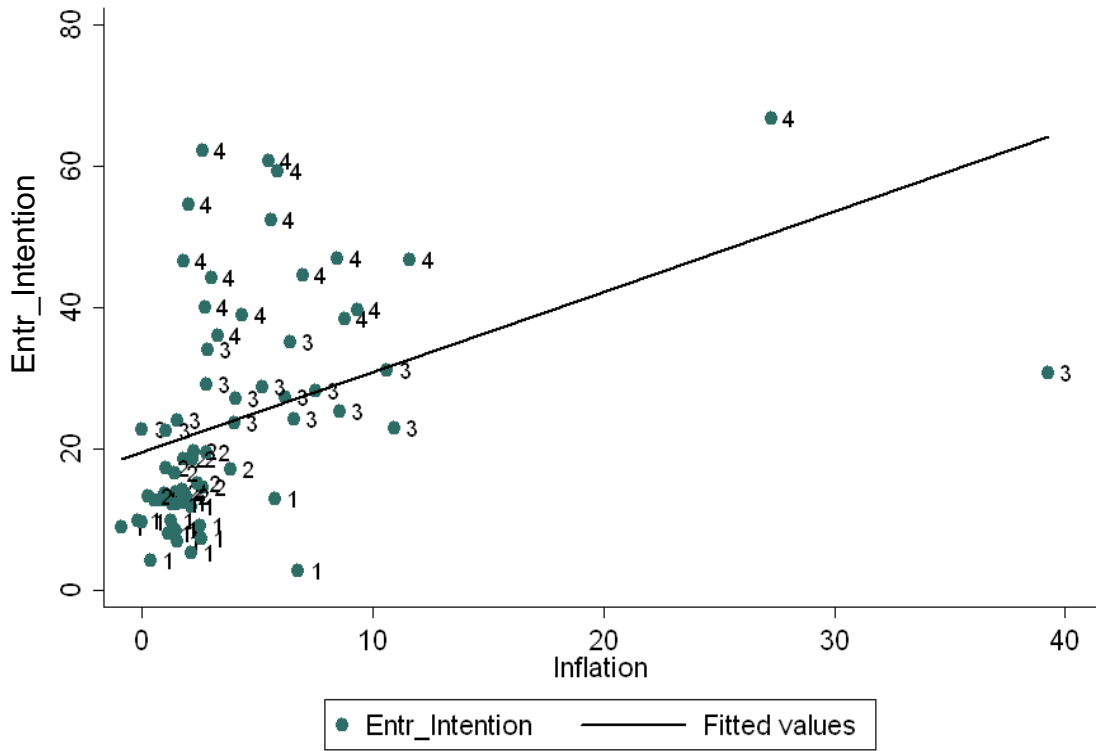


Figure 2. Scatter Plot Graph of the Entrepreneurial Intention and Inflation classified by Incentive Groups (1-4), year 2013.

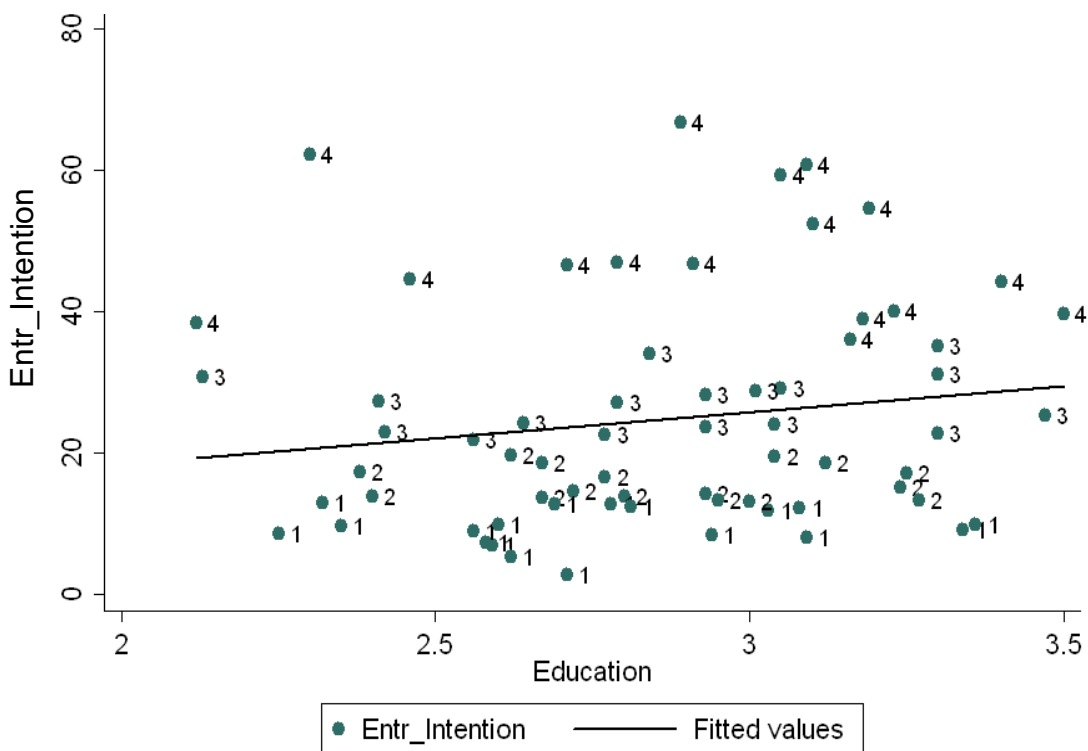


Figure 3. Scatter Plot Graph of the Entrepreneurial Intention and Education classified by Incentive Groups (1-4), year 2013.

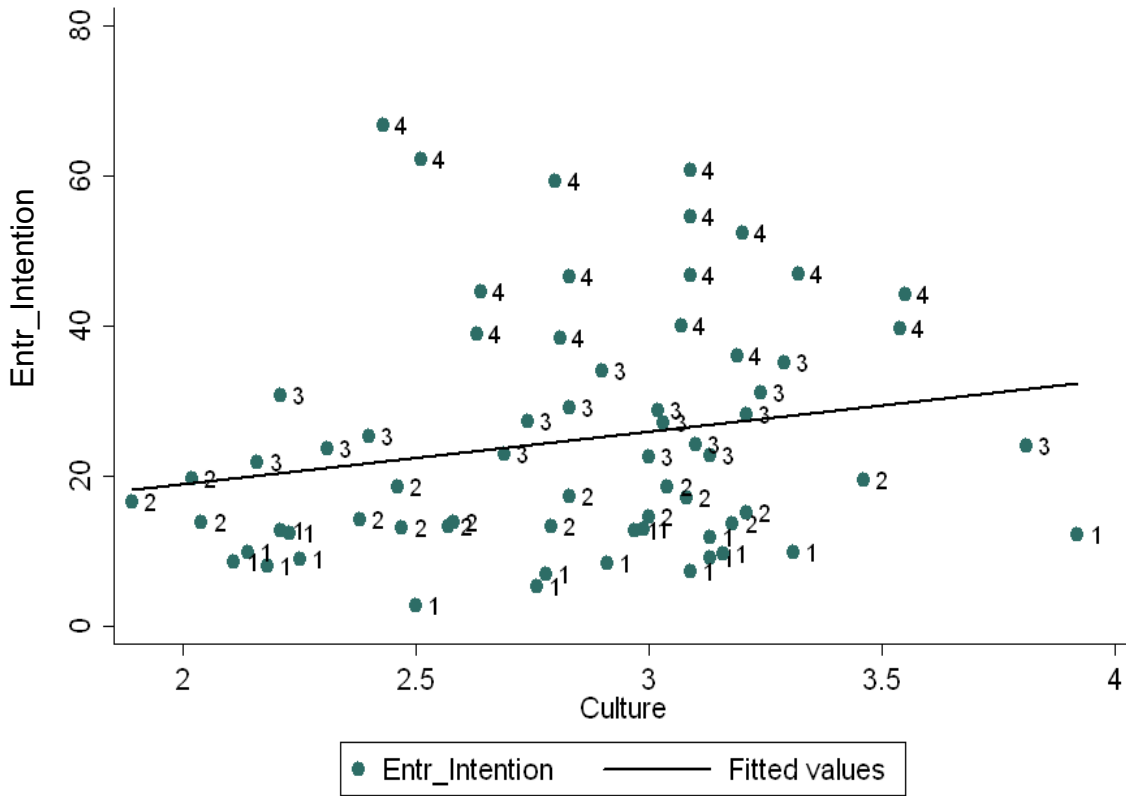


Figure 4. Scatter Plot Graph of the Entrepreneurial Intention and Culture classified by Incentive Groups (1-4), year 2013.

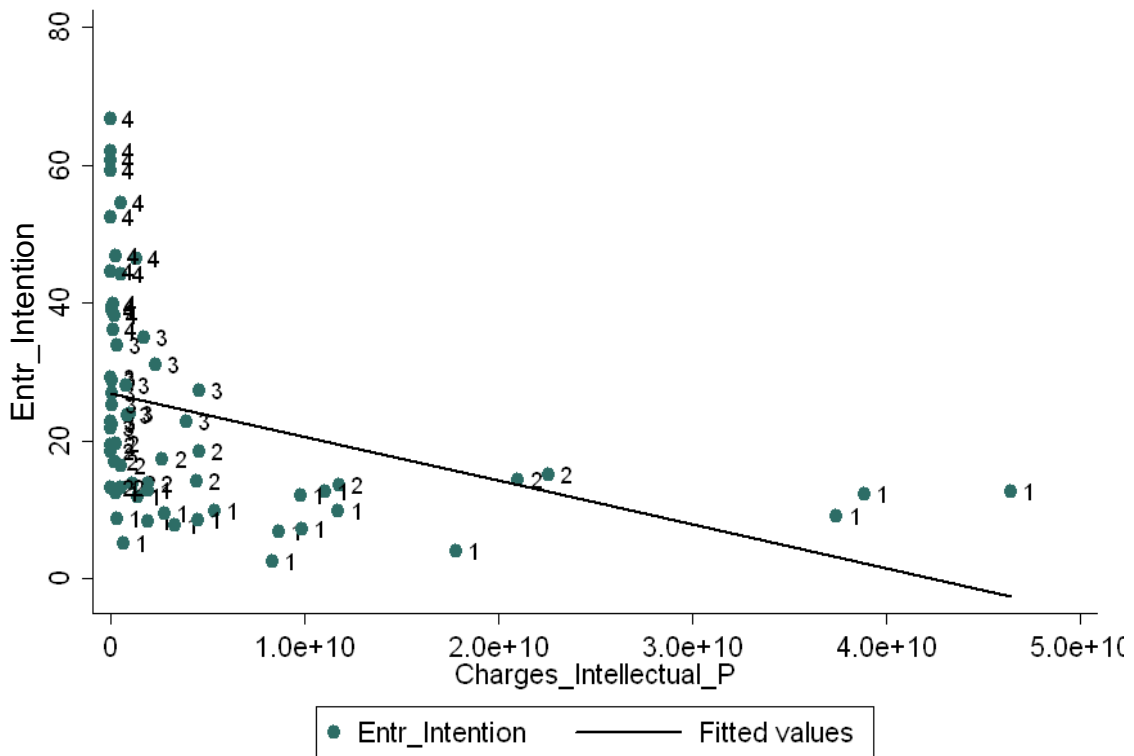


Figure 5. Scatter Plot Graph of the Entrepreneurial Intention and Charges of Intellectual Property classified by Incentive Groups (1-4), year 2013.

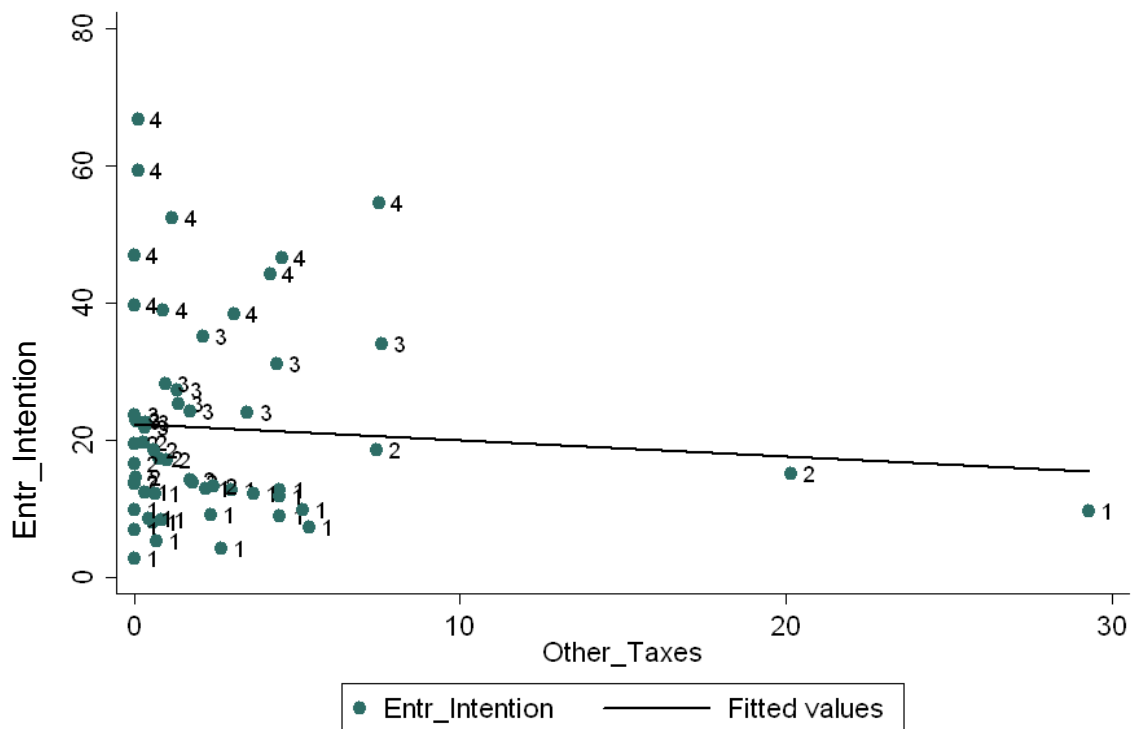


Figure 6. Scatter Plot Graph of the Entrepreneurial Intention and Other Taxes classified by Incentive Groups (1-4), year 2013.

Table 7. Linear Regression between the Entrepreneurial Intention and the rest of the variables, for the years 2007-2016

Source	SS	df	MS		
Model	25420.9968	9	2824.5552	Number of obs =	287
Residual	37308.2246	277	134.686731	F(10, 22) =	20.97
Total	62729.2214	286	219.332942	Prob > F =	0.0000
				R-squared =	0.4052
				Adj R-squared =	0.3859
				Root MSE =	11.605

entr_intention	Coef.	Std. Err.	t	P> t		[95% Conf. Interval]
charges_in~p	-3.54e-10	9.68e-11	-3.66	0.000	***	-5.45e-10 -1.64e-10
power_cons~n	-.0014576	.0001746	-8.53	0.000	***	-.0018012 -.0011139
foreign_inv	1.45e-11	1.70e-11	0.85	0.396		-1.90e-11 4.80e-11
inflation	.3667011	.2052681	1.79	0.075		-.0373825 .7707846
net_taxes	-2.68e-11	8.60e-12	-3.11	0.002	**	-4.37e-11 -9.83e-12
time_regis~r	-.0273856	.0146984	-1.86	0.063		-.0563203 .0015491
time_start	.0243943	.0323875	0.75	0.452		-.0393626 .0881513
education	1.477626	2.602579	0.57	0.571		-3.645721 6.600972
culture	4.236159	1.799159	2.35	0.019	*	.6943972 7.777921
_cons	13.85821	7.535976	1.84	0.067		-.9768476 28.69327

Table 8. VIF of the variables for the years 2007-2016

Variable	VIF	1/VIF
foreign_inv	2.04	0.490542
charges_in~p	1.71	0.584708
net_taxes	1.48	0.677640
inflation	1.35	0.741888
culture	1.30	0.768010
education	1.29	0.773680
time_start	1.26	0.793549
power_cons~n	1.25	0.800254
time_regis~r	1.06	0.946893
Mean VIF	1.41	

Table 9. Linear Regression Models, years 2007-2016

	(1)	(2)	(3)	(4)
	entr_intention	entr_intention	entr_intention	entr_intention
inflation	0.845*** (5.87)	1.026*** (5.76)	0.971*** (6.53)	1.182*** (6.52)
net_taxes	-4.63e-11*** (-6.54)	-3.50e-11*** (-4.48)	-4.71e-11*** (-6.36)	-3.67e-11*** (-4.37)
time_start	0.0902** (2.76)	0.0789* (2.33)	0.0618 (1.83)	0.0521 (1.52)
charges_intell		-1.81e-10* (-2.17)		-2.86e-10** (-3.22)
foreign_inv		-9.90e-12 (-0.73)		-2.93e-12 (-0.16)
time_register			-0.00286 (-0.18)	-0.0110 (-0.69)
education			3.678 (1.80)	1.671 (0.72)
culture				5.658*** (3.40)
_cons	18.21*** (16.93)	18.47*** (16.37)	8.654 (1.45)	-0.628 (-0.10)
N	468	434	425	392

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Codebook

grants

Grants

type: numeric (float)
range: [2.7386343,92.211868] units: 1.000e-07
unique values: 606 missing .: 434/1040
mean: 18.403
std. dev: 14.22
percentiles: 10% 25% 50% 75% 90%
7.01489 9.19278 13.4954 23.7989 36.7395

foreign_inv

Foreign_Inv

type: string (str12)
unique values: 997 missing "": 0/1040
examples: "10715798180"
"1970034441"
"3442000"
"62259233758"

other_taxes

Other_Taxes

type: numeric (float)
range: [-3.1366298,29.348701] units: 1.000e-10
unique values: 669 missing .: 296/1040
mean: 2.71964
std. dev: 4.35368
percentiles: 10% 25% 50% 75% 90%
0 .181422 1.41768 3.54826 5.8353

net_taxes

Net_Taxes

type: numeric (double)
range: [-1.084e+10,5.762e+11] units: .1
unique values: 907 missing .: 133/1040
mean: 4.3e+10
std. dev: 8.5e+10
percentiles: 10% 25% 50% 75% 90%
9.1e+08 2.5e+09 8.2e+09 3.6e+10 1.1e+11

education

Education

type: numeric (float)
range: [1.79,3.83] units: .01
unique values: 145 missing .: 514/1040
mean: 2.83563
std. dev: .341943
percentiles: 10% 25% 50% 75% 90%
2.4 2.61 2.85 3.07 3.25

charges_intellectual_p

Charges_Intellectual_P

type: numeric (float)
 range: [-13920000,7.606e+10] units: .001
 unique values: 883 missing .: 119/1040
 mean: 3.2e+09
 std. dev: 8.2e+09
 percentiles: 10% 25% 50% 75% 90%
 2.8e+06 2.5e+07 2.5e+08 1.9e+09 9.3e+09

time_start

Time_Start

type: numeric (float)
 range: [1.5,690.5] units: .1
 unique values: 150 missing .: 76/1040
 mean: 26.8781
 std. dev: 57.5497
 percentiles: 10% 25% 50% 75% 90%
 5.5 8 15 29.2 48.5

inflation

Inflation

type: numeric (float)
 range: [-4.8632779,109.68105] units: 1.000e-18
 unique values: 976 missing .: 64/1040
 mean: 5.05818
 std. dev: 6.82742
 percentiles: 10% 25% 50% 75% 90%
 .071762 1.48318 3.46296 6.66294 10.7076

time_license

Time_License

type: numeric (float)
 range: [1.4,176.1] units: .1
 unique values: 100 missing .: 928/1040
 mean: 34.2429
 std. dev: 31.6277
 percentiles: 10% 25% 50% 75% 90%
 6.5 14.4 27.35 41.2 65.4

time_register

Time_Register

type: numeric (float)
 range: [1,391] units: .1
 unique values: 154 missing .: 81/1040
 mean: 47.2808
 std. dev: 51.4874
 percentiles: 10% 25% 50% 75% 90%
 7 16 31 60 111

power_consumption

Power_Consumption

type: numeric (float)
range: [39.407207,54799.176] units: 1.000e-06
unique values: 768 missing .: 272/1040
mean: 5028.36
std. dev: 6369
percentiles: 10% 25% 50% 75% 90%
537.782 1365.69 3476.89 6404.79 10612.4

culture

Culture

type: numeric (float)
range: [1.62,4.4] units: .01
unique values: 175 missing .: 513/1040
mean: 2.81118
std. dev: .474084
percentiles: 10% 25% 50% 75% 90%
2.21 2.46 2.79 3.11 3.4

entr_intention

Entr_Intention

type: numeric (float)
range: [.98,90.95] units: .01
unique values: 531 missing .: 467/1040
mean: 21.0479
std. dev: 15.6315
percentiles: 10% 25% 50% 75% 90%
5.64 9.11 16.28 28.94 44.12