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Research Article

Attitude Towards Business Activity Risk: Evidence Using Logit Models for Two Groups of OECD Countries

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Purpose – The low quality of current jobs around the world and their scarcity have led to the need to undertake. As a consequence of this, people have stopped being employees and have become entrepreneurs. However, the specialized literature ensures that there are factors, attributed to people or not, that characterize this undertaking.
Design/methodology/approach – In this article, an approach is made to the issue of aversion to the risk of failure that a person faces when deciding to be, precisely, an entrepreneur. The information integrated by the reports of the Global Entrepreneurship Monitor (GEM) served as input so that, through the non-linear models of logit probability, it is verified, during the period 2001-2016, if the factors education, experience, knowledge, skills, age, among others, directly influence a person to decide to start a business.
Findings – The results obtained made it possible to detect and compare the most distinctive factors in each of these groups. Finally, for each group of countries, statistically significant variables and odds ratios that increase the probability that a person feels aversion to the risk of failing when starting a new business were detected.
Originality/value – This article shows that when knowing the significant factors in the two groups of countries analyzed, to understand the aversion to failure of a person when they have decided to start a business, it was found that there are no great differences between the two profiles found.

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1. Introduction

Entrepreneurship is a complex activity; it is limited to seeing it only from a high-risk investment perspective where decisions are made concerning an objective remuneration of returns (Fellnhofer, 2017). The initiative to undertake in a changing world does not only require a special skill or factor; on the contrary, a series of elements also influence this decision (Sepúlveda and Bonilla, 2011; Åstebro *et al*., 2014). Entrepreneurship has the potential to empower and transform; it is an important factor for individual and organizational prosperity in a dynamic and complex world (Brieger *et al*., 2019). The study of entrepreneurship is relatively new: Without a doubt, the first transcendental contribution to this subject was made by Joseph Schumpeter (Andersen, 2011). The central argument of his thinking is that he associates the most important role of entrepreneurship with the inseparable and intrinsic innovative character of a person (Croitoru, 2012). Schumpeter's theory laid the foundations for the entrepreneur to have gone from being a reckless entity to being considered a transcendental and innovative component in generating economic growth in a country (Acs and Amorós, 2008). Furthermore, this theory served Porter (Beugelsdijk and Noorderhaven, 2004) to consider business entrepreneurship as the heart of national primacy: entrepreneurship contributes, among other things, to the economic performance of a country through the introduction of innovations, the creation of new productive capacities, and increased competitiveness (Wong *et al*., 2005; Crudu, 2019; Audretsch and Peña-Legazk, 2012; Amir *et al*., 2016). However, the benefits of entrepreneurship should not be reduced to the drive for the creation of innovative companies, economic growth, and new jobs (Sternberg and Wennekers, 2005; Galindo and Méndez, 2014; Decker *et al*., 2014). Entrepreneurship is a beneficial skill for all, but mainly, it helps the individual to be more creative and self-confident in everything they start (Trevelyan, 2008; Mathews, 2018; Dushnitsky, 2010).

In this context, the European Commission defines entrepreneurship as the ability of a person to transform ideas into actions (European Commission, 2008, p. 11). In other words, this type of entrepreneurship includes creativity, innovation, and taking risks, as well as the ability to plan and manage projects to achieve objectives. Different studies, from various perspectives, try to identify these elements that influence the decision, start-up, and consequences of entrepreneurship (Rauch, 2014; Kerr *et al*., 2014). Likewise, there are works where it is asserted that business entrepreneurship is a function of multiple factors such as personality traits, education, experience, gender, social and economic conditions, public order, and geographical area, among others (Zhao *et al*., 2010; Soomro and Shah, 2015; Shah and Ali, 2013; Bae *et al*., 2014; Antoncic *et al*., 2015).

Caliendo *et al*. (2014) state that entrepreneurs are individuals with distinctive and specific personalities and even health traits (Nikolova, 2019). Of course, the personality traits of the entrepreneur have a direct impact on many business activities, including the intention to create a new business, business success, and even increasing/supporting a certain set of innovative companies (Patterson and Kerrin, 2014; Korez-Vide and Tominc, 2016). As a consequence of the latter, Carlsson *et al*. (2009) found that in recent times, the entrepreneur has been identified as a mechanism that converts economic knowledge into economic growth. For their part, a large number of authors have dedicated themselves to investigating the reasons why new companies are created. Fitzsimmons and Douglas (2005) asked themselves a very important question: why do some people decide to start entrepreneurial activities, while others do not? The answer to this question is not simple; however, multiple investigations have delved into the possible reasons behind this questioning (Brinckmann and Kim, 2015; Baron, 2004). Some investigations did it from the perspective of the individuals themselves, and others from the economic factors and their environment (Kusmintarti *et al*., 2014; Choe, 2013).

Some works have even investigated the choice that a person makes of self-employment over their traditional professional opportunities (Wan, 2017). Thus, several authors of these investigations argue that individuals choose self-employment as a professional option if the economic gains derived from this option are greater than the economic gains from being employed (Ning, 2012; Douglas and Shepherd, 2002). On the other hand, being an entrepreneur is a trend in the different economic sectors around the world that has influenced, mainly, the field of business (Wiklund, 2019). This dynamic has made it easier for generations of young adults to become the social sector that undertakes (Halvorsen and Morrow-Howell, 2017). As a consequence, higher education institutions have become interested in training entrepreneurs and currently offer innovative courses and programs to students or interested persons to prepare for the future (Olugbola, 2017). In other words, study programs, courses, and workshops, among other activities, have been offered all over the world, which are aimed at training entrepreneurs and offer students the tools to think creatively, solve problems effectively, analyze business ideas objectively, and evaluate almost any project imagined (Valerio *et al*., 2014; Morris and Kuratko, 2014; Kantis *et al*., 2005; Fayolle and Redford, 2014; Eurydice, 2016). According to this trend, it is necessary to identify and understand the different factors that encourage students to start businesses and take risks (Schlaegel and Koenig, 2014; Abbasianchavari and Moritz, 2020).

In this way, the importance of the educational process has been recognized as one of the critical factors that foster a proactive attitude toward the decision to undertake (Volkmann *et al*., 2009; European Commission, 2011; Chiu, 2012). However, the entrepreneurial spirit should not be linked only to the educational context, much less to those careers related to business and/or economic sciences (Burton *et al*., 2016). What can be said is that entrepreneurship emphasizes an activity that promotes creativity, innovation, technology transfer, and self-employment in multiple areas of knowledge (World Bank, 2010; Grimm, 2019; Block *et al*., 2017; Audretsch, 2017). Another important factor related to business entrepreneurship, and that must be taken into consideration, is the fear/aversion to failure. Regarding this topic, it makes sense to ask the following question: Why does a person take the risk of creating a new company? The answer to this question has also been the subject of multiple investigations (Brown *et al*., 2006; Brown *et al*., 2011). Of course, a person's attitude towards the risk of entrepreneurship can vary from one region to another (Bosma and Schutjens, 2011; Chaudhary, 2017). Therefore, the attitude toward entrepreneurial risk has been considered a determining factor for business entrepreneurship in different countries or regions (Stel *et al*., 2005; Sorenson, 2017; Malecki, 2017). In this context, Ardagna and Lusardi (2008) studied the individual characteristics and the differences in the risk that a person takes when starting a business and its regulation between different countries: individual characteristics such as gender, age, employment status, the relevance of social networks, self-assessment skills, and attitude towards the risk of undertaking. These authors conclude that regulation (from regulation in product markets to regulation in labor markets and the legal system) plays a fundamental role in a person's decision when starting a new business. That is, one consequence in countries with high levels of regulation is that unemployed people are less likely to become entrepreneurs. However, and in general terms, it can be said that the entrepreneur has a greater need to achieve results but also has a certain tendency towards risk behaviors (Brachert *et al*., 2015; Ahn, 2010).

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1.1. Objectives of this study

The person who decides to undertake is, without a doubt, the key element that is required for the creation of a business. However, multiple elements that interact simultaneously and converge with the same purpose are needed. That is, both the aspects associated with the personality of an individual (attitudes, actions, aspirations towards entrepreneurship, among others) and the factors of their environment (social, political, economic, geospatial, among others) are important for understanding the creation of new companies in a country.

In this way, the main objective of this work is to make a first approach to the issue related to the aversion to the risk of failure that a person faces when deciding to be, precisely, an entrepreneur in some OECD countries. The information integrated by the reports of the Global Entrepreneurship Monitor (GEM)[1] (Bosma *et al*., 2017) is the main input for those nonlinear logit probability models (Klieštik *et al*., 2015; Guoa *et al*., 2016), during the period 2001-2016[2], where it is demonstrated if the factors called education, experience, knowledge, skills, age, among others, directly influence[3] (in addition to being statistically significant during the period 2001-2016) whether a person feels or does not feel averse towards the risk of failure when deciding to start a new business in some OECD countries[4]: the first group of countries is defined by the U.S.A., China, Japan, Switzerland, Germany, and France, while the second group of countries is made up of Spain, Italy, Brazil, Chile, Argentina, and Mexico. Subsequently, the statistically significant variables that increase the probability (odds ratios), in each group of countries, that a person feels aversion to the risk of failing when starting a new business during the period 2001-2016 were detected. This analysis also aims to reinforce the fact that a person, once they have decided to start a business, does not necessarily have a high educational level. Therefore, the hypothesis used in this work is the following:

H_0: The factors of education, experience, knowledge, skills, and age, among others, are not preponderant, in the two groups of OECD member countries, to define whether or not a person feels aversion toward the risk of failing when deciding to start a new business.

2. Method

Undoubtedly, the relationships and determinants of entrepreneurial activity in a country or region are complex, and their effects can in no way be considered homogeneous and much less predictable (or constant) in different economies. For this reason, the selection of the variables focused on those that provide more information and that, together, involve the educational level and preparation of the person interviewed to explain the factor that the GEM calls "fearfail" (The fear of failure would prevent you from starting a business). This selection of variables was carried out annually for the period 2001-2016 (see Table 1). The information integrated by the GEM was used as input so that through the logit nonlinear probability model[5] (Greene, 2016), it could identify first those factors that are most relevant in a person's behavior against the aversion to the risk of failing when starting a business in the two defined groups of OECD member countries. The calculation of the logit nonlinear probability model was carried out for each country in four periods, that is, the information from each country integrated by the GEM was considered for 4 years, from the period 2001-2016. In total, 48 logit nonlinear probability models were calculated to detect statistically significant variables in each country involved in this analysis. Subsequently, it was verified, for each OECD member country, if the statistically significant variables of each estimated logit nonlinear probability model, in the 4 periods of 2001-2016, remain constant in each period and if said significant variables increase the probability that a person will feel fear of failure when starting a business.

2.1. The logit nonlinear probability model

To prevent the estimated endogenous variable from taking values outside the interval [0,1], the available alternative is to use a non-linear probability model, where the specification function used guarantees an estimation result within the range 0-1. Given that the use of a distribution function of this nature guarantees that the result of the estimation is bounded between 0 and 1, in principle, there are several possible alternatives, one of the most common being the logistic distribution function, which has given rise to the logit model (Greene, 2016). In this context, the logit nonlinear probability model measures the intensity of the explanatory variables involved in the model. That is to say, each logistic model is intended to integrate a set of variables, statistically significant individually, that help to explain the dependent variable (in our case, "fearfail").

The initial model used in this work is the so-called dichotomous logit, which is used when the number of alternatives is two and mutually exclusive. For this research, the alternatives are: risk aversion to starting a business and no risk aversion to starting a business. Thus, in the framework of a binary response logistic model, it is assumed that the dependent variable only takes values 1 (aversion) or 0 (no aversion), that is, if the probability of y=1 is considered to be p and the probability of y=0 is (1-p), then the expected value of y is the probability that the event will occur:

$$E(y) = p \bullet 1 + (1 - p) \bullet 0 = p \tag{1}$$

If this probability is now considered as a function of a vector of explanatory variables **X** and a vector of unknown parameters **β**, then the general binary choice model can be written as:

$$\mathrm{Prob}(y = 1 \mid \mathbf{x}) = \mathrm{F}\left(\boldsymbol{\beta}'\mathbf{x}\right) \tag{2}$$

The estimator of **β** under this specification will be inconsistent if the distribution is not normal or if the estimated error is heteroscedastic, and where,

$$\mathrm{F}\left(\boldsymbol{\beta}'\mathbf{x}\right) = \varphi\left(\boldsymbol{\beta}'\mathbf{x}\right) = \frac{e^{\boldsymbol{\beta}'\mathbf{x}}}{1 + e^{\boldsymbol{\beta}'\mathbf{x}}} \tag{3}$$

where:

- $\varphi\left(\boldsymbol{\beta}'\mathbf{x}\right)$ – probability of default.
- x – is the vector that integrates the value of the k-th independent variables.
- $\boldsymbol{\beta}$ – is the vector of coefficients of individual indicators.

With logistic modeling, the result of the model is the estimation of the probability that a new individual belongs to one group or another, while, on the other hand, being a regression analysis, it also allows for identifying the most important variables that explain the differences between groups. Once the model has been estimated, the significance of the independent variables is assessed using the Wald statistic, which is precisely the square of the t statistic, and which therefore has an asymptotic distribution of a Chi-square with a degree of freedom. This statistic tests the null hypothesis H_0: β_k=0 (with k=1,., n). Therefore, the explanatory variable will be statistically significant if the level of significance is less than 0.05 (two tails), that is, the null hypothesis is that β_k=0 at 90% confidence. Now, if we differentiate (3) with respect to the independent variable X_{ki} it is obtained that:

$$\frac{\partial\varphi\left(\boldsymbol{\beta}'\mathbf{x}\right)}{\partial X_{ki}} = e^{\beta_k} \tag{4}$$

In (4), it is indicated how the probability of observing Y_i=1 (odds ratios) changes with a unit increase in the variable X_{ki}. So, when e^{β_k} >1, the variable X_{ki} increases the probability of seeing Y_i=1; when e^{β_k} <1, then the opposite happens.

2.2. Source data

Starting a business anywhere in the world is, without a doubt, a difficult decision that also involves a considerable number of factors. In this context, the GEM measures the perception of individuals towards entrepreneurship, their participation in entrepreneurial activity, and their aspirations to be entrepreneurs. This information, based on data collection through a questionnaire[6] (Cochran, 2017), generates representative samples of individuals and is supplemented by expert assessments of business conditions in a given country or region. The variables used in this article, which are integrated by the GEM in its reports titled Entrepreneurial Behavior and Attitudes[7] (Individual-Level), are presented in Table 1. These variables were integrated annually for the period 2001-2016 and are grouped by previously defined OECD member countries.

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No.	Variable	Concept	Values
1	year	Year when the survey was conducted.	2001, 2002, ……., 2016.
2	country	OECD member country.	Numeric key assigned to each country.
3	fearfail	Fear of failure would prevent you from starting a business.	0=No; 1=Yes
4	age	What is your current age (in years)?	15, 17, ……, n.
5	gender	What is your gender?	1=Male; 2=Female.
6	gemeduc	Educational level.	0=None; 111=Unfinished High School; 1212=Secondary; 1316=Unfinished High School; 1720=Graduate.
7	gemwork	Employment situation.	1=Full or part-time (includes self-employment); 2=Part time only; 3=Retired, disabled; 4=Housewife; 5=Student; and 6=Does not work/Other.
8	nbgoodc	In my country, most people consider starting a new business to be a desirable career option.	0=No; 1=Yes
9	nbstatus	In my country, people who start a successful business have a high level of status and respect.	0=No; 1=Yes
10	suskill	You have the knowledge, skill, and experience necessary to start a new business.	0=No; 1=Yes
11	teasic4c	Company type.	1=Extractive; 2=Transformation; 3=Business services; 4=Consumer-oriented; 9= Not classified.
12	teayynec	Participates out of necessity in business activity.	0=No; 1=Yes

Table 1. Variables used in logit models, 2001-2016.

Source: Author's own elaboration with GEM data.

2.3. Data processing and cleaning

The data were used as they are presented in the GEM annual reports called Entrepreneurial Behavior and Attitudes (Individual-Level Data), that is, the data reported by the GEM during the period 2001-2016 were not statistically processed[8]. These data were then input to create the best logit nonlinear probability model for each OECD member country that made up the two defined groups of countries. The results were generated and interpreted using the statistical package IBM SPSS (Gerber and Voelkl Finn, 2005). In this way, Table 2 shows the useful records by country that were processed in each logit model.

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Year/Country	USA	China	Japan	Switzerland	Germany	France	Spain	Italy	Brazil	Chile	Argentina	Mexico	Total
2001	1,951		1,538		5,752	1,844		1,771	1,940		1,917		16,713
2002	6,577	1,876	1,734	1,931	14,519	1,836	1,805	1,763		1,933	1,932	906	36,812
2003	5,721	1,032	1,076	1,174	4,510		1,918	897	1,687	1,922	989		20,926
2004	1,255		817		3,390	476	16,321	2,709	3,137		967		29,072
2005	1,241	2,086	963	3,372	3,885	1,188	11,202	1,171	1,494	1,267	1,218	1,961	31,048
2006	1,869	1,780	1,048		2,342	1,869	27,087	1,118	1,537	1,405	956	1,847	42,858
2007	1,349	2,047	1,043	2,080		1,975	26,553	1,308	1,490	3,040	1,353		42,238
2008	2,938		1,163		1,977	643	28,763	1,917	1,538	1,468		2,285	42,692
2009	2,821	2,697	886	1,213	3,595	756	27,930	1,630	1,541	3,680	1,369		48,118
2010	3,058	3,035	1,806	1,903	5,313	1,970	25,776	2,744	1,957	7,036	1,978	2,405	58,981
2011	557	699	100	113	237	88	831		267	1,475	347	192	4,906
2012	537	403	69	86	234	146	963	73	1,548	366	306	265	4,996
2013	475	434	62	112	299	57	1,052	62	1,585	1,259	280	191	5,868
2014	316	475	54	112	234	79	1,022	59	1,458	1,226	265	307	5,607
2015	219	414		107	178		1,114	70	404	1,298	398	774	4,976
2016	288	333		197	157	72	815	72	386	1,871	245	376	4,812
Total	31,172	17,311	12,359	12,400	46,622	12,999	173,152	17,364	21,969	29,246	14,520	11,509	400,623

Table 2. Records used in each logit model by OECD member country, 2001-2016.

Source: Author's own elaboration with GEM data.

3. Results

Based on the information integrated by the GEM reports, during the period 2001-2016, 400,623 useful records were obtained (33.2% in first-world countries, while 66.8% were accounted for in Latin American countries) for the two groups of countries defined in this analysis. Table 3 presents the statistically significant variables, through a logit model, for the group of developed countries and members of the OECD. In the same way, Table 4 presents the statistically significant variables, using a logit model, for the group of Latin American countries and members of the OECD.

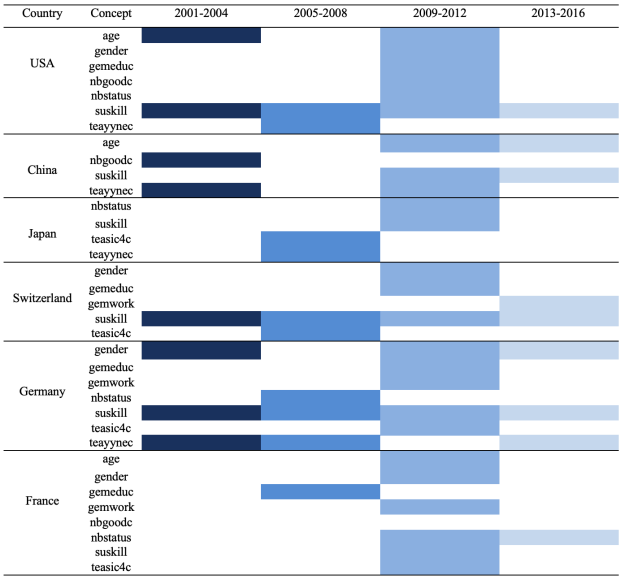

Table 3. Statistically significant variables, through a logit model, for the group of developed countries and members of the OECD, 2001-2016.
Source: Author's own elaboration with GEM data.

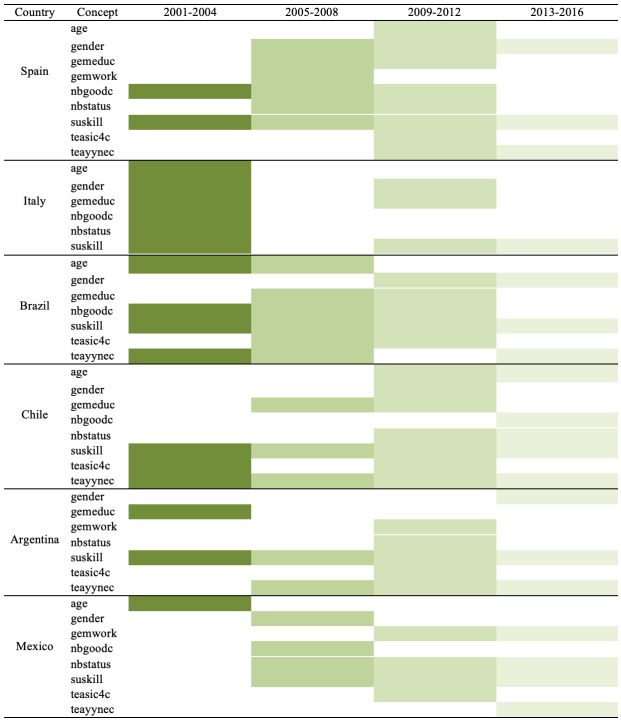

Table 4. Statistically significant variables, using a logit model, for the group of Latin American countries and members of the OECD, 2001-2016.
Source: Author's own elaboration with GEM data.

For the statistically significant variables in Table 3 and Table 4, a frequency analysis was performed. In this way, Graph 1 shows the participation of statistically significant variables for developed countries and members of the OECD during the period 2001-2016. In this context, for all the countries considered in this first group, 52 significant variables were counted in the four periods analyzed (see Table 3); the variable suskill (You have the knowledge, skills, and experience necessary to start a new business) was the variable with the greatest relative presence in all the countries in this group (33%), while the variable nbgoogc (In my country, most people consider starting a new

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business a desirable career choice) had a relative share of 4%. In other words, the suskill variable, of all the statistically significant variables, is an important criterion[9] to explain the variable fearfail (Fear of failure would prevent you from starting a business) in this first group of countries. For its part, the nbgoodc variable, although statistically significant for some countries in this first group, is not an important variable to explain the fearfail variable.

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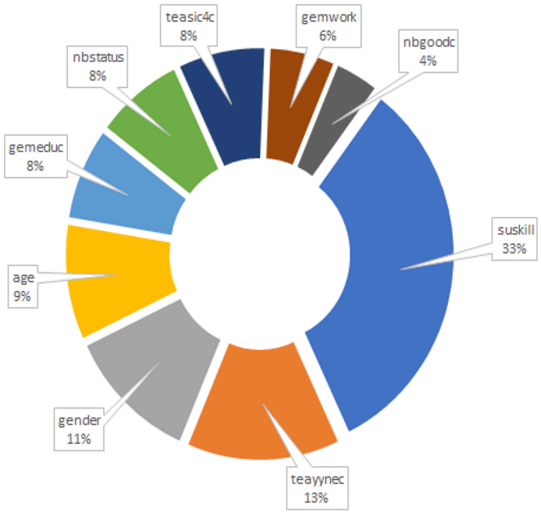

Graph 1. Participation of statistically significant variables for the group of developed countries and members of the OECD, 2001-2016.
Source: Author's own elaboration with GEM data.

Graph 2 shows the participation of statistically significant variables for Latin American countries and members of the OECD during the period 2001-2016. In this second group of countries, it was found that the suskill variable is also an important criterion (with a relative 24%) to explain the fearfail variable, while the nbgoodc variable continues to be a variable of little relevance (with a relative 10%) for explaining the dependent variable fearfail. The results of Graph 1 and Graph 2 allow us to affirm that the distribution of the statistically significant variables is considerably homogeneous in the two groups of countries. In other words, there are no substantial differences in the distribution of frequencies for the statistically significant variables in the two groups of countries. The most significant result for these two groups of variables is that the variable nbgoodc (In my country, most people consider starting a new business to be a desirable career option) had an importance of 8.3% for first-world countries, while said participation was 37.5% for Latin American countries. In the same way, the variable teayynec (Participates by necessity in business activity) registered an importance of 29.2% for first-world countries, while this participation was 54.2% for Latin American countries.

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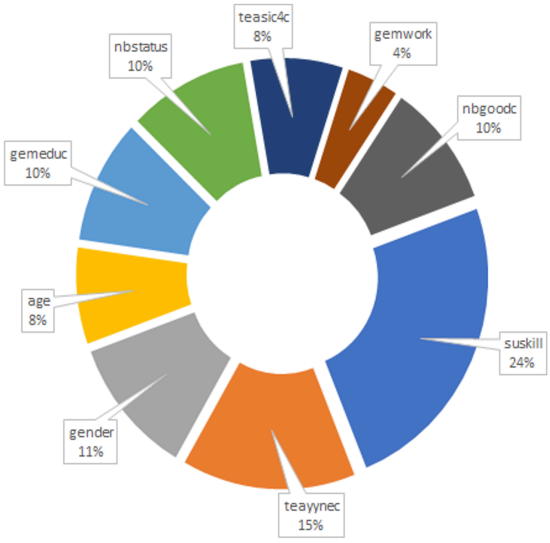

Graph 2. Participation of statistically significant variables for the group of Latin American countries and members of the OECD, 2001-2016.
Source: Author's own elaboration with GEM data.

These last results allowed us to make the arithmetic difference[10], in the two groups of OECD countries, between the vectors obtained from the frequencies for the statistically significant variables (see Figure 3). Due to the fact that the frequencies of the statistically significant variables were higher, in all of them, for the Latin American countries, the interpretation of the results shown in Graph 3 is as follows: the variable nbgoodc (In my country, most people consider that starting a new business is a desirable career option) showed the greatest distance (7 units, which represented 18% of the vector of distances) between both groups of countries, which allows us to mention that this variable is considered more relevant for the Latin American countries when explaining the variable fearfail (The fear of failure would prevent you from starting a business). In the same way, the variable teayynec (Participates by necessity in the business activity) also registered a considerable distance (6 units, which represented 16% of the distance vector) between the two groups of countries. In other words, the teayynec variable is also very important for Latin American countries when explaining the fearfail variable.

This same analysis can be seen for the other statistically significant variables, where the variable gemwork (Employment situation) presented the smallest distance (1 unit, which represented 3% of the vector of distances) between both groups of OECD countries. In other words, the employment situation has the same importance in the two groups of OECD countries to explain the fear of failure to start a new business, although the importance of this variable did not transcend to extraordinary levels in each group of countries of the OECD (12.5% of importance -6% of the total frequencies of statistically significant variables- for developed countries and 16.7% of importance -4% of the total frequencies of statistically significant variables- for Latin American countries).

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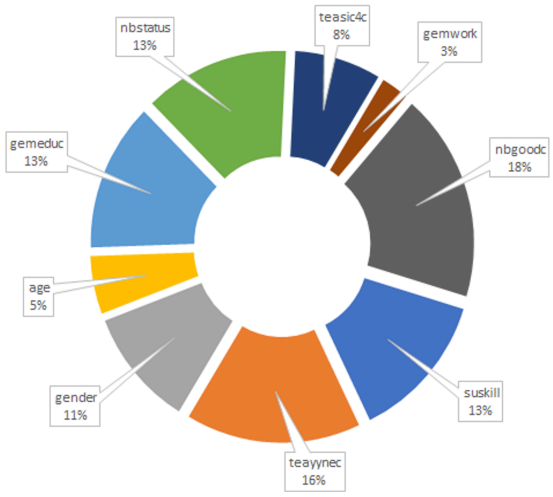
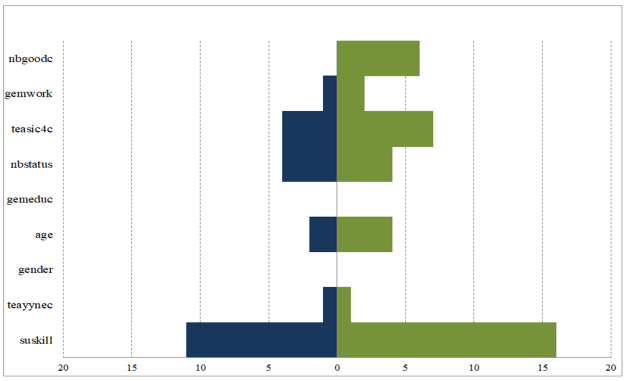


Graph 3. Differences of statistically significant variables between first-world countries (OECD) and Latin American countries (OECD), 2001-2016.
Source: Author's own elaboration with GEM data.

On the other hand, Graph 4 shows the participation of the statistically significant variables that also had odds ratios greater than 1. With the results of Graph 4, the variables that increase the probability of the result Y=1 for the fearfail variable are identified, that is, those variables that, in addition to being statistically significant, increase the probability that a person feels fear of failure, which would prevent them from starting a business in the country where they lived at the time of integrating the GEM data. When contrasting the results of the aforementioned Graph 4, it can be seen that the profiles found for both groups of countries did not show substantive differences again. However, it is important to mention that the frequency vector for the group of Latin American countries and OECD members was greater than or equal to, in all concepts, the frequency vector for developed countries and OECD members. That is, in the group of Latin American countries, there are seven concepts (two are characteristics of the person: age and gemwork, while five are characteristics of the image and perception of an entrepreneur: nbgoodc, nbstatus, suskill, teasic4c, and teayynec) that predominate in their population and make this conglomerate of potential entrepreneurs considerably increase their fear of failure when starting a new business.

In this context, two important results can be highlighted (see Figure 4): 1) In underdeveloped countries, the variable nbgoodc is added (In my country, most people consider that starting a new business is a desirable career option), and 2) The variable suskill (You have the knowledge, skills, and experience necessary to start a new business) presented the highest relative participation in both groups of countries (47.8% for developed countries and 40.0% for Latin American countries). This last result implies that the knowledge, ability, and experience of a person ultimately lack meaning when starting a new business, that is, these characteristics could be counterproductive for a person in both groups of countries when the time comes to start a new business. What is surprising is that in both groups of countries, the variables that refer to gender (gender) and educational level (gemeduc) are not concepts that maximize the probability that a person feels fear of failure in starting a new business.



Graph 4. Variables with odds ratios greater than 1, for the group of developed countries (left) and Latin American countries (right) members of the OECD, 2001-2016.
Source: Author's own elaboration with GEM data.

To conclude this section, Figure 1 shows the concepts that result from the difference between the vectors of both groups of OECD member countries for the period 2001-2016 (see Figure 4). In other words, the intensity of the concepts that increase the probability that a person feels fear of failure at the precise moment of starting a business in the country where they were interviewed is shown. As the vector of frequencies, in all the concepts involved in this analysis, was greater than or equal to that of the group of Latin American countries, then the difference of these frequencies should be interpreted as follows: In the Latin American countries, 5 concepts predominate (age, teasic4c, gemwork, nbgoodc, suskill), which also exist in developed countries - but with less intensity - that characterize their population as old enough to start a new business. However, these 5 concepts do not favor the entrepreneurial spirit in these countries; on the contrary, these concepts generate (increase) greater insecurity (fear of failure) in their population when deciding to create a new business.

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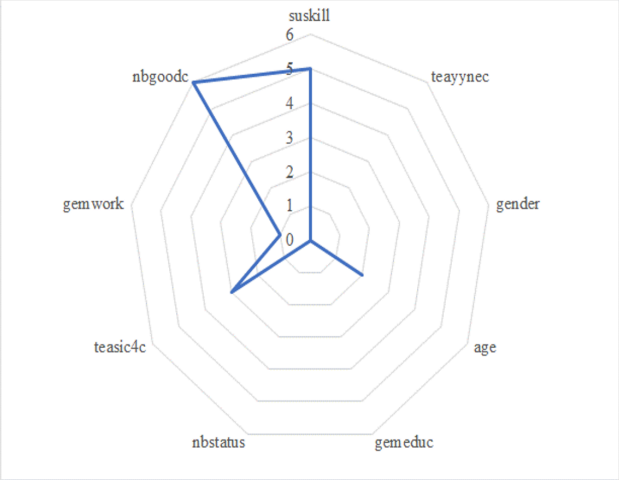

Figure 1. Differences in the resulting concepts between both groups of OECD countries, for the period 2001-2016, increase the probability of the dependent variable fearfail.
Source: Author's own elaboration with GEM data.

4. Discussion

Currently, an entrepreneur has gone from being a reckless entity to being considered a component of great importance in generating economic growth in a country. Furthermore, in recent times, the entrepreneur has been identified as a mechanism that, in conjunction with other elements of an economy, converts his knowledge and experience into economic growth. Undoubtedly, the entrepreneur has a greater need to achieve results, has a tendency towards risky behavior, and has a strong belief that people can take their destiny into their own hands. Therefore, in a large number of countries, an entrepreneur is seen as a generator of employment, with social and economic status, an essential link in innovation, and even a creator of social equity.

However, entrepreneurial activity should not be reduced to the creation of companies and/or jobs. The entrepreneur must face many challenges to achieve his goal and, as if that were not enough, he must also face the fear of failing at the precise moment that he has already decided to create a business. Consequently, and to face the fear of failure that an entrepreneur feels, all kinds of activities that strengthen both their security and their entrepreneurial environment should be sought. However, the latter does not imply, for example, that strengthening the confidence of the entrepreneur at a mature age is the best strategy to trigger, precisely, his entrepreneurial spirit. What does strengthen the entrepreneurial context, in any country, is knowing over time how the environment of an entrepreneur has changed. Therefore, any study that provides information to know the aversion to the fear of failure that a person feels when starting a business, without a doubt, will allow all the elements involved in an economy to be favored.

In this context, the large amount of data used (400,623 records) in this study made it possible to statistically identify the variables and/or concepts that predominate in the two defined groups of OECD member countries during the period 2001-2016. This is to learn more about the characteristics of a person, in particular their attitude towards risk, when they have decided to start a business. In this way, it was found that the 9 variables considered in this analysis turned out to be statistically significant in each of the groups of defined countries; however, the frequency of all these variables turned out to be heterogeneous (although without great substantive differences in the relative participation of each concept). That is, the group of first-world countries had a total frequency of 52 statistically significant concepts, while the Latin American countries had a total frequency of 92 concepts. The analysis of these total frequencies allowed us to know that in Latin American countries, all the concepts (which can also be called profile or vector of frequencies), which serve to explain the fear of failure of an entrepreneur, turned out to be more homogeneous. What these total frequency vectors did coincide with is that the 3 variables suskill, teayynec, and gender were the ones with the highest frequency (relative participation) in each group of countries (57.7% for developed countries and 50.0% for Latin American countries). That is, the ability and experience necessary to start a new business, the gender of the person interviewed, and whether this person participates out of necessity in the business activity are significant characteristics to explain the fear of failure of a person who has decided to create a new business.

When examining the similarity between the total frequency vectors for these two groups of countries, it was found that the dominant frequency vector (profile) was the one defined by the Latin American countries. This result is based on the fact that all the concepts in the frequency vector of the Latin American countries were greater than or equal to the concepts in the frequency vector of the developed countries. Consequently, it can be said that entrepreneurs in Latin American countries are more insecure because there are predominant factors in their environment that do not provide them with enough security to start a business. Therefore, the resulting profile (arithmetic difference of the total frequencies obtained in each group of countries) of this first analysis was headed by the following concepts: nbgoodc (18%), teayynec (16%), suskill (13%), gemeduc (13%), and nbstatus (13%), which had a relative participation of 73.7%, and where only one attribute (gemeduc) associated with the characteristics of the person interviewed is appreciated.

Although the vectors of total frequencies for the two groups of OECD countries, which were defined by the statistically significant variables, did not have great differences, for the analysis of the vectors integrated by the variables with odds ratios greater than 1 (that is, the concepts that increase the probability that a person feels aversion to the risk of starting a business), no great differences were found either. Furthermore, the variables that increase this probability are almost the same in the two groups of countries, except that in Latin American countries the concept nbgoodc is added (In my country, most people consider that starting a new business is a desirable career option). That is, the set of variables in Graph 4 represents the concepts that hinder a person and, consequently, cause them not to feel safe when starting a business. As can also be seen in Graph 4, the frequency of all concepts is slightly higher in Latin American countries, which implies that these concepts are predominant in their population; that is, in first-world countries, there are slightly safer people (who are less risk-averse) when starting a business. This last result is reflected in the resulting vector of Graph 5, where it can be seen that the concepts nbgoodc, suskill, teasic4c, age, and gemwork are dominant characteristics in Latin American countries.

In this resulting vector, which can be seen as a profile, it can be observed that four concepts refer to the perception and/or consequences of an entrepreneur (nbgoodc, suskill, teasic4c, and gemwork), while one concept refers to the characteristics typical of an entrepreneurial person (age). What is surprising is that this characteristic refers to the person's age, which implies that in Latin American countries this concept plays a negative role in starting a business. Could it be that in these countries older people are more afraid of failing when deciding to start a business? Undoubtedly, this question, like others, must be answered with future works that address this issue concerning entrepreneurs in different economies.

5. Conclusion

In a globalized world of rapid changes, the best way for a person to grow is to undertake and thereby create, perhaps, the only way to return to change opportunities. However, this requires that entrepreneurship itself be organized and treated as a systematic activity: individual characteristics such as gender, age, employment status, the relevance of social networks, self-assessment skills, and attitude towards the risk of the undertaking, among others, should be elements analyzed in greater depth. In particular, a person's attitude toward the risk of starting a business should be considered a determining factor for business entrepreneurship in different countries.

Entrepreneurship has grown within the world's universities faster than in any other area. Perhaps this is due to poor-quality jobs, fewer and fewer job opportunities, increasing job turnover, or simply because people want to be their own bosses. However, understanding how to build entrepreneurship programs that empower and transform people remains a challenging field for higher education institutions around the world. The literature on entrepreneurship has made great strides in explaining a) the determinants of entrepreneurship; b) the relationships between entrepreneurship; and c) economic growth. In this research work, the behavior of the individual against the risk of starting a business is studied in two groups of countries: developed countries and Latin American countries. For these blocks of countries, some elements were found that can explain the behavior of an entrepreneur. These factors directly or indirectly influence a person's aversion to starting a business and, consequently, knowing that the greater the risk aversion, the longer the person will seek to remain as an employee.

In many countries, there is no government strategy, at almost all levels of government, that encourages its population to undertake. Furthermore, the high rate of bureaucracy involved in registering a business has become one of the main obstacles to entrepreneurial activity. If we add to this that the support and financial resources available do not favor new companies and those in full growth, then entrepreneurial activity becomes more of a risk activity than one of opportunities. However, when knowing the significant factors in the two groups of countries to understand the aversion to failure of a person at the time of undertaking, it was found that there are no great differences between the two profiles found. This result confirms that entrepreneurial activity in the world does not depend on the country, since a person behaves in the same way when facing fear at the time of undertaking. In other words, fear, and in particular the fear of failure, is a characteristic of human beings, and the conditions offered by a country to facilitate its entrepreneurial environment do not turn out to be important factors in reducing risk aversion.

Undoubtedly, the entrepreneurial activity of a person has a great impact on the economy of their country and, in some cases, transcends the world. However, this activity should not be considered solely from the perspective of providing greater income or independence to an individual. This paper shows that some logical concepts associated with a person, such as age, educational level, work experience,

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status, or image of being an entrepreneur, are not necessarily essential factors for a person to reduce their aversion to risk at the precise moment that they have decided to start a business. Furthermore, the concepts that maximize the probability that a person feels afraid to start a business are almost the same (except for one factor in Latin American countries) in the two groups of countries considered in this research. In other words, a person feels just as insecure when starting a business either in a developed country or in a Latin American country that made up this study. However, in the Latin American countries analyzed, some factors predominate in the entrepreneurial environment that increase the insecurity of people to create a business. The results of this work imply that, roughly speaking, the environment for the two groups of countries analyzed and where entrepreneurs operate is equally insecure and, consequently, the entrepreneurial spirit of people is not favored.

Study programs, courses, and workshops, among other activities aimed at training entrepreneurs, can offer people, whether men or women, the tools to think creatively, solve problems effectively, analyze business ideas objectively, and evaluate almost any project imagined. With adequate preparation in these priority areas, people could feel more confident in starting their own businesses and, as a result, they could test their business ideas in an academic and advisory environment before starting their projects. All this strengthens the entrepreneurial spirit of a person, which is, without a doubt, a beneficial aspect for everyone, but mainly helps the individual to be more creative and self-confident in everything that he initiates.

Finally, it is important to mention that the data obtained from the GEM, although they provide information that constitutes a starting point in the global economic framework, need to delve into the specific case of each country on the reasons why there is difficulty in starting a business based on the context of each of them. However, the experiences of countries that allocate a considerable percentage of their Gross Domestic Product (GDP) to R&D, which makes it possible to grant subsidies and allocate capital to public and private research centers, facilitate access for entrepreneurs so that they can, in turn, encourage and promote the transfer of technology with their research.

Footnotes

[1] In particular, to the information integrated by the Open Population Survey (OPS), which allows characterizing the levels of entrepreneurial activity in a country according to three main elements: attitudes, actions, and aspirations towards entrepreneurship.

[2] It is important to mention that more recent data would provide a better appreciation of the phenomenon under study. However, in the absence of more recent data, the study period is considered to be representative and in no way distorts the present study.

[3] It is assumed that each factor collects all the information involved in its measurement and that it is not partially influenced by one or more other factors. That is, in this work, it is assumed that the relationship of all the variables involved is linear. In other words, each factor involved has a direct influence in explaining the fear of failure that a person feels when starting a business in some OECD countries. This is because the relationship between the dependent variable (fearfail) and all the exogenous variables in the logit nonlinear regression model is 1 to 1.

[4] The definition of these two groups of countries, members of the OECD, had the purpose of differentiating the preponderant factors to explain the risk aversion of starting a business (variable fearfail) between the most representative economies of the first world and the economies with greater similarity to the Latin American countries.

[5] In each logit model, the method used to select the subset of variables is the "Forward" or Wald forward. This stepwise method uses the Rao Efficiency Score statistics and the Wald statistic, which are used to check the covariates that should be included or excluded in each logit model. In addition, the advantage of the "Forward" method is that the researcher does not decide which variables are introduced/extracted from the model, since it starts with a model that does not contain any explanatory variables (Greene, 2016).

[6] This analysis makes sense because in the GEM the unit of analysis is the individual and does not address the classic theme of entrepreneurial activity, which is focused on the level of companies.

[7] Not all entrepreneurs are alike. The Adult Population Survey (APS) looks at the characteristics, motivations, and ambitions of individuals starting businesses, as well as social attitudes towards entrepreneurship.

[8] What was carried out for all the variables was a standardization; that is, the invalid data were omitted. For example, in the AGE variable, negative data were omitted, while for the GENDER variable, records other than 1 (Male) or 2 (Female) were omitted.

[9] The SUSKILL variable was counted in 17 periods for all the countries in this first group. The maximum number of frequencies for each variable is 24 (4 periods x 6 countries). So, if the variable SUSKILL is counted in all the periods of each country (24 times), this will imply that said variable is 100% important to explain the variable FEARFAIL during the period 2001-2016. The importance of the variable SUSKILL for this first group of countries is 70.8% (17/24).

[10] This arithmetic difference was calculated for each variable, and the "absolute value" function was considered in all results. This is because the difference obtained for all the statistically significant variables between developed and Latin American countries was always negative. Furthermore, if $a, b \in \mathbf{R}$, then the function is the distance between elements a and b. Therefore, it makes sense to take the distance of the vectors integrated by the statistically significant variables between both groups of countries.

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