Early Entrepreneurship and Financial Development

Abstract

This paper examines determinants of the two types of entrepreneurship at an early stage. One that arises out of necessity characterized by being present in those difficult environments; and by opportunity related to positive environments, where the generation of new businesses becomes more attractive. We use data from the Global Entrepreneurship Monitor (GEM) for 64 countries, during the years 2003 to 2015. We explore how the financial development indicators, economic growth conditions, and characteristics at the cultural-cognitive level affect the decision to be an entrepreneur using a System-GMM dynamic data panel. We find that GDP per capita correlates positively to opportunity entrepreneurship, while financial development and afraid to failure have a negative effect on it. This research could be useful in the design of public policies that encourage entrepreneurship as an engine for the development of economies.

1. Introduction

Numerous studies evidence a positive correlation between financial development and the economic growth of an economy (Beck, et al., 2000; King & Levine, 1993; Rajan & Zingales, 1998; Ruiz, 2018). Financial intermediation facilitates that funds from different sources of savings are allocated to business investment. Besides, the literature suggests that one of the engines and drivers of productive development is entrepreneurship, since it allows the creation of wealth and increases the workforce in nations (Baumol, 1993; Davidsson & Wiklund, 2001; McGrath, 1999) where small and medium-sized companies (SMEs) have a preponderant role.

The Global Entrepreneurship Monitor (GEM) defines entrepreneurship as "Any attempt at new business or new venture creation, such as self-employment, a new business organization, or the expansion of an existing business, by an individual, a team of individuals, or an established business". Likewise, to examine the nature of entrepreneurship and its role in economic theory, two types of ventures are identified. One that arises out of necessity, which is characterized by being present in those difficult environments and limited circumstances; and another born by opportunity, which is related to positive environments, where the generation of new businesses becomes more attractive. Therefore, while opportunity entrepreneurship tends to involve innovative attempts to exploit new market niches, necessity entrepreneurship is more consistent with imitative ventures (Angulo-Guerrero, 2016). In this context, Klapper and Love (2011) indicates that there is a positive relationship between formal entrepreneurship and economic development. However, the relation between self-employment and economic development is inverse. For some years GEM has put attention on the phase that combines the stage before the start of a new firm (nascent entrepreneurship) and the stage owning-managing a new firm for less than 3.5 years old. This phase is defined as The Total Early-Stage Entrepreneurial Activity (TEA).

This study aims to analyze how financial development, economic growth, macroeconomic indicators and individual perceptions affect entrepreneurship at an early stage. The contribution of this article is triple: First, we find evidence that more developed economies have more solid foundations for opportunity entrepreneurship; Second, cultural characteristics influence the willingness to be an entrepreneur, such as fear of failure or knowing entrepreneurship; and Third, we show evidence of the existence of endogeneity that occurs between GDP per capita and TEA, which has not been treated in general by the entrepreneurship literature.

This article is structured as follows. Section 2 presents the literature review. Section 3 reports the model and hypothesis. Section 4 shows the data. Section 5 shows the methodology. Section 6 exhibits the results. Finally, section 7 provides the conclusions.

2. Literature review

Some studies consider the macroeconomic indicators and cultural conditions on the entrepreneurship decision (Fernández-Serrano & Romero, 2014; Lecuna et al. 2016; Pinillos & Reyes, 2011). Lecuna et al. (2016) point out that there is a triple effect of interaction between entrepreneurs based on opportunities with higher levels of education, an export orientation, and their growth expectations. Besides, they state that the motivation of some growth-oriented entrepreneurs, generally associated with the foundation of companies motivated by opportunities, are the most likely to create employment in developing countries. On the other hand, Pinillos & Reyes (2011) examine how a dimension of national culture (an individualist-collectivist orientation) relates to business activity depending on the level of economic development, measured by GDP per capita. Individualism represents a society in which ties between individuals are loose and collectivism represents a society in which people from birth are strongly integrated. Using GEM data in 52 economies, the results show that the rate of entrepreneurship correlates negatively (positively) to individualism when development is medium or low (high). Fernández-Serrano & Romero (2014) measure the importance of a country's cultural values in determining the level of business activity, calculated by the TEA. These authors use a model of structural equations for 56 countries, where they conclude that cultural values and regulatory barriers are not related to entrepreneurship in the same way in countries with different levels of development. On the contrary, the strength and nature of the influence of both factors on business activity depends on the GDP per capita of a country.

Institutional arrangements also contribute to explain the TEA. Urbano and Álvarez (2014) examine the influence of institutional dimensions (regulatory, normative and cultural-cognitive) on the probability of becoming an entrepreneur. The data were obtained from both the GEM and the International Institute for Management and Development for the year 2008, considering a sample of 30 countries, in which, through a logistic regression, they determine that a favorable, larger regulatory dimension media attention for new business and better business skills, less fear of business failure and better knowledge of respondents, increase the likelihood of being an

entrepreneur. Bosma and Sternberg (2014) study differences in entrepreneurship in urban and rural areas in countries of the European Union, through a multi-level analysis. They conclude that opportunity TEA appears more in urban areas, especially those with higher GDP and greater diversity of activities than necessity TEA, indicating that large cities offer advantages for entrepreneurship.

The literature is ambiguous about the effects of financial development on entrepreneurship activity. Kar & Ozsahin (2016) using panel data estimation methods, suggest that the development of the banking system and the development of the stock market are positively associated with entrepreneurship. Similarly, Bayar et al. (2018) report that the banking sector, capital market development and foreign direct investment inflows positively affect the TEA, where the crises had a negative impact on entrepreneurship. However, Bianchi (2012) finds dissimilar findings. This author explores the effects of financial development on the usefulness of employers in relation to workers, and postulates that, through the construction of a simple occupational choice model, financial restrictions can impede the creation of companies and depress labor demand, which would encourage individuals to self-employment due to lack of salaried jobs. Similarly, Yay et al. (2017) argue that institutions have heterogeneous impacts on entrepreneurship and provide evidence that GDP per capita and financial development have a U-shaped relationship with the formal entrepreneurial spirit. That is, in the early stages of financial development, entrepreneurs are expelled due to intense competition, therefore, institutional development encourages entrepreneurs to migrate from informal to formal (productive) sectors, which ultimately It will stimulate economic growth.

Regarding entrepreneurship by necessity and opportunity, Aparicio et al. (2016) using a three-stage least squares method, suggest that informal institutions have a greater impact on the entrepreneurial spirit of opportunity than formal institutions. Similarly, Angulo et al. (2016) investigated the extent to which economic freedom affects the opportunity and necessity entrepreneurship. By implementing a dynamic analysis of panel data, in OECD countries examine the relationship between index of economic values of the Fraser Institute, and the indicators of the GEM, finding that, economic liberalization tends to promote opportunity entrepreneurship and discourages necessity entrepreneurship.

According to the evidence presented, although the highest rates of entrepreneurship are observed in countries where institutions work best, the culture and values of society (informal

institutions) greatly affect the business creation process through of its moderating effect on formal institutions (Fuentelsaz et al. 2018). The individual's behavior towards entrepreneurship, influenced by the perception of the culture in which he is immersed and the abilities that the individual considers to have, is a predictor of his entrepreneurial intentions (Krueger et al., 2000).

3. Model and hyphotesis

The model considers the TEA as the explanatory variable, either for opportunity or necessity, and use as determinants macroeconomic, individual financial variables, and cognitive-cultural variables. In turn, entrepreneurship is related to GDP as an indicator of growth and the Financial Development Index, as a mechanism in the allocation of resources for the financing of new business units.

Individuals act according to their circumstances and convictions (Mitchell, 2002; Baum et al., 2006). But these conditions are influenced by the cultural environment of the country (Smith and Bond 1993, Hayton et al. 2002). The cultural dimension influences the entrepreneurial attitude. Nascent entrepreneurs, characterized by their perceptions regarding their attitudes and demographic characteristics, are going to relate at a macro level with the determinants of financial development and economic growth, and precisely this interaction, plays a preponderant role in explaining how countries differ in a context of entrepreneurship by necessity or opportunity.

A brief description of each of the dimensions and hypotheses that we try to address in this study are presented.

3.1. Financial dimension

Frequently, financial development is address through two deepening variables: i) The relationship between Private Credit and GDP, and ii) Stock market capitalization to GDP. However, these proxies seem to have certain deficiencies as financial development is rather a multidimensional process. Svirydzenka (2016) proposes that financial development is defined as a combination of depth (size and liquidity), access (the ability of individuals and companies to access financial services) and efficiency (ability to provide financial services at low cost and with sustainable income). This index follows the OECD Manual on the construction of composite indicators (OECD, 2008). The index is based on several data sources: the 2015 FinStats World Bank, the IMF Financial Access Survey, the Dealogic corporate debt database and the Bank of

International Settlement debt database (BPI). The sub-indices concentrates these indicators and allow a general evaluation of the characteristics of financial development. Figure 1 exhibits that the Financial Development Index is measured through the development of financial institutions and the development in financial markets.

The indices and sub-indices presented in Figure 1, allow a joint evaluation of the characteristics of the financial systems, revealing where the deficiencies in the financial development are located, and in turn, will provide us with relevant information regarding which aspects of the financial development affect the entrepreneurial capacity.

The subscript depth of financial institutions is a standard measure of the banking sector and is widely used in the literature. Access to financial institutions is rather specific to the bank and the efficiency sub-index of the institutions is based on aspects of efficiency in profitability, ratios, and margins.

On the other hand, financial market indicators focus on the stock market and the development of the debt market. The depth subscript includes the size of the stock market; in terms of access to the financial market, it corresponds to the percentage of market capitalization; and the financial market efficiency subscript is based on the stock market turnover rate. Table 1 provides a summary of the categories covered by each sub-index of financial development.

Figure 1. Pyramid of the Financial Development Index
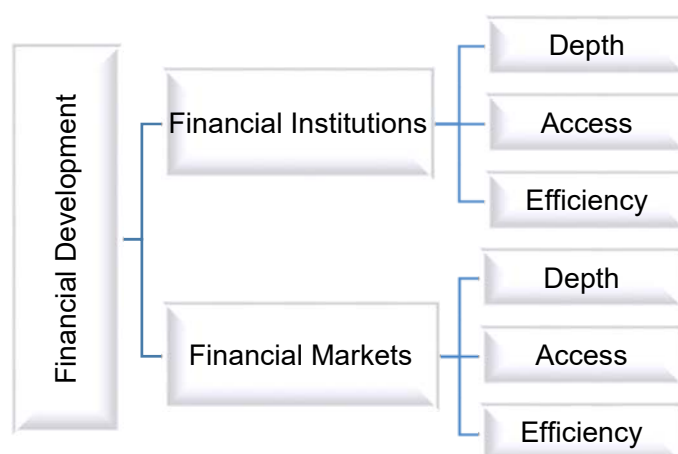
Source: Own elaboration, based on Svirydzenka (2016).

3.2. Macroeconomic dimension

Frequently, GDP per capita is used as a proxy for economic development. The entrepreneurial activity is directly related to the level of growth of the economies, where individuals will act according to their circumstances and convictions (Uhlaner and Thurik, 2007). It is established then, that the own conditions will be influenced by the cultural environment of the country. Therefore, individual and cultural characteristics will directly influence entrepreneurship, and will also shape the individual to economic development and entrepreneurial attitude. However, the relationship described above presents an endogenous problem, since the direction of causality between the two variables is not clear and although the literature includes this questioning, its treatment is less frequent.

3.3. Cultural-Cognitive dimension

This dimension considers the degree to which the social environment values entrepreneurial activity and entrepreneurs (Busenitz et al., 2000). The assessment is reflected through social respect and by the consideration that society has of entrepreneurship as a prestigious and desirable career. So, if an individual perceives positive attitudes in their environment, it is inferred that they will also positively influence entrepreneurial activity.

Likewise, the Cultural-Cognitive dimension represents the estimate that the individual makes of his strength, of his preparation, of his previous experiences (Zhao et al., 2005) and of fears about the possibility of failure to develop the tasks of A successful entrepreneur. The perception of their knowledge and skills, is measured in the GEM by the variable "skills" and the fear that the beginning of their activities have an optimal and desired result, is measured by the variable "fear of failure". Besides, the variable "know an entrepreneur" indicates whether the entrepreneur knows and is related to an individual who has previously started a new business reliably. These components require that the potential entrepreneur perceive entrepreneurship as a possible career option, and they will be closely linked to their Socio-Cultural environment (Shapero & Sokol, 1982).

Given the above, after defining the model and characterizing the dimensions of this report, the following hypotheses are presented below:

Hypothesis 1: Financial development, evaluated by different subcategories (depth, access, and efficiency), positively affects entrepreneurial activity.

Hypothesis 2: Economic growth, measured by GDP per capita, positively affects entrepreneurial activity.

Hypothesis 3: Entrepreneurship and economic growth, measured by GDP capita, have an endogenous bias.

Hypothesis 4: The attitudes and capacities of the Cultural-Cognitive dimension positively affect entrepreneurial activity.

4. Data

Recent studies on entrepreneurship use the GEM database to explain the relationship between individuals, financial development, culture, society, economic development, and their ability to undertake. Thus, they can be classified depending on whether the analysis considered individual variables, financial-economic variables at the country level, or both together. The GEM Project is an international initiative to establish the measurement and characterization of entrepreneurial activity in different countries.

4.1. Dependent variable

We use the Global Entrepreneurship Monitor (GEM) database for the Total Early-Stage Entrepreneurial Activity (TEA). The sample covers 64 economies and the years from 2003 to 2015. The TEA is defined as the percentage of people between 18 and 64 years of age, who have started or have been involved in some entrepreneurial activity in the last 42 months, considering if this was carried out motivated by necessity or was carried out by opportunity, given the macroeconomic environment.

4.2. Control variables
4.2.1. Financial development variables

The variables to measure the Financial Development Index were obtained from the International Monetary Fund (IMF), specifically from the IMF Data Access to Macroeconomic and Financial Data. The International Monetary Fund is an organization of 189 countries, which works to foster global monetary cooperation, ensure financial stability, facilitate international trade, promote high employment and sustainable economic growth, and reduce poverty worldwide. Specifically, the Financial Development Index provides a series of indexes, which summarize how the financial institutions and the financial market are in terms of depth, access, and efficiency (Svirydzenka 2016).

4.2.2. Cultural-Cognitive variables

We use perceived skills and abilities obtained from the GEM database, in the APS survey. In this way, the perception of capabilities corresponds to the percentage of individuals in the adult population (18-64 years) who consider having the knowledge, skills, and experience required to start a business. On the other hand, the fear of failure is the percentage that considers this as an obstacle to launching a new business. Besides, we use a measure for the percentage that individuals value the choice of entrepreneurship as a career option. With respect to human capital and business experience, this measure by the variable meet an entrepreneur, which this measure as the percentage of people who have taken the experiences of other individuals, in order to have feedback on how they started their business units.

4.3 Other control variables
4.3.1. Macroeconomic controls

The GDP per capita was obtained from the International Monetary Fund (IMF), specifically from the World Economic Outlook (WEO). The macroeconomic variables were obtained from the World Bank (WB). Trade (% of GDP), that orresponds to the sum of exports and imports divided by the value of GDP, all in dollars. Government Expenditure (% of GDP), is the cash payments for the government's operational activities in the provision of goods and services. It includes compensation of employees (such as wages and salaries), interest and subsidies, grants, social benefits and other expenses such as rent and dividends. Population growth (annual %), is the annual population growth rate for year t is the exponential rate of population growth of half a year from

year t-1 to t. Inflation (annual %), is the inflation measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services.

Table 2 provides a descriptive summary of the variables.

5. Methodology

One of the issues that this study tries to solve is the possible endogeneity that occurs between the dependent variable of entrepreneurship and the explanatory variable of GDP per capita. This double causality can be solved by different alternatives, being one of the most usual the use of instrumental variables expressed as delays of the endogenous variable. Thus, Anderson & Hsiao (1981), Arellano & Bond (1991) propose the estimation using the GMM difference method, in which using lagged instruments of explanatory variables can obtain efficient estimates. However, Blundell & Bond (1998) and Bond et al. (2001) find that this type of GMM estimate is easily affected by weak instrumental variables and causes finite sampling errors. To overcome this problem, Arellano & Bover (1995) and Blundell & Bond (1998) propose the GMM system, which combines an equation in differences and an equation in levels, where systemic GMM estimators have a better property in finite samples. In addition, Caselli et al. (1996) and Bond et al. (2001) indicate that a dynamic estimate of the Generalized Moments Methods (GMM) panel is able to correct the unobserved heterogeneity of the country, the omitted variable bias, the measurement error and the endogeneity problems that frequently arise in the estimation of growth (Anees & Khan 2016). Also, the GMM estimate can be divided into a one-step estimate and a two-step estimate. The one-step estimate is consistent, but it depends on the hypothesis of the homoscedasticity of the disturbance term, while a two-step estimate is used for estimates under conditions of heteroskedasticity. This two-step estimator is efficient and robust against conditions of heteroskedasticity and cross-correlation of the covariance estimator models. In short, we use the methodology developed by Roodman (2006) to implement the two-step GMM estimation. Thus, the following dynamic panel model is proposed:

$$TEA_{it} = TEA_{it-1} + \beta_1 LNgdp_{it} + \beta_2 DF_{it} + \beta_3 Percep_{it} + \beta_4 Macro_{it} + \eta_{it} + e_{it} \qquad [Ec.3]$$

Where TEA_{it-1} is the entrepreneurship lag by opportunity and need, $LNgdp_{it}$ corresponds to the natural logarithm of GDP per capita, DF_{it} is a vector of financial development variables, which are the subscripts corresponding to the depth, access and efficiency of financial development in markets and institutions; $Percep_{it}$ is a vector that includes the variables that measure the skills and abilities perceived by the interviewee, such as their skills, fear of failure, if it is a desirable career and if you know other entrepreneurs who have already started an activity; $Macro_{it}$ is a vector that encompasses macroeconomic variables, such as trade openness, government spending, population growth and inflation; η_{it} is the specific effect per year; and e_{it} is the residual term.

Now, as suggested by the literature we use the two specification tests (Arellano & Bond, 1991; Arellano & Bover, 1995; Blundell & Bond, 1998). First, the Hansen test measures the general validity of the instruments, detecting the over-identification of the model, so that the interpretation of the test is as follows:

Ho: overidentification restrictions are valid

Therefore, a higher p-value is better (insignificant). Roodman (2009) recommends that the probability should be in the range: $0.05 \leq \text{Prob. chi}^2 < 0.8$

If the probability is outside the range, the model could be over-identified, where its parameters should be analyzed with caution. The second test examines the null hypothesis that the error term of the differential equation is not serially correlated, particularly in the second-order (AR2). In conclusion, the null hypothesis of both tests should not be rejected.

However, the dynamic data panel methodology arises from the need to incorporate in the estimates, the causal relationships that are generated in the model, that is, a way of treating endogeneity. Consistent with this, a recurring problem in these types of models is heteroskedasticity, therefore, to test this condition, it is proposed to carry out the Modified Wald test, where the null hypothesis is that there are no problems of heteroskedasticity.

Also, it is necessary to perform the unit root test, to measure the stationarity of the panel. The test generally used corresponds to the Dickey-Fuller and Phillips-Perron test. In effect, these tests will give us stochastic trend indications within the panel.

The literature that uses TEA as a dependent variable is abundant, however, methodologies that use data panels are less frequent. Likewise, the literature regarding entrepreneurship, in

particular, does not consider the possible endogenous relationship between either the opportunity or necessity TEA, and GDP. Given these characteristics, this study reflects the possibility that there is simultaneity between the dependent variable and the explanatory variable, and at the same time, it aims to contribute with technical rigor, to determine how the financial development of the institutions and the market impacts on entrepreneurship.

6. Results

Table 3 shows the Pearson correlation matrix for the study variables, in which the degree of the linear relationship between each pair of existing elements is measured, where a large number of them are statistically significant at 5%.

Regressions were made with the estimates in Ordinary Least Squares (see Appendix B and C) in both types of entrepreneurship applying robustness. In addition, collinearity tests performed by calculating the inflation factors of variance for the independent variables (VIFs), do not show signs of multicollinearity between the exogenous explanatory variables, (see Appendix D) therefore, it is unlikely that a problem in estimating regression with this data.

From the results in Table 3, it is evident that entrepreneurship at an early stage seems to have a strong relationship with economic development measured by GDP per capita, which yields a correlation of -73.82% for those who say they undertake by necessity and -52.34% by opportunity. It is observed that the highest correlation of entrepreneurship, with the perception variables extracted from the GEM, corresponds to the perception of skills, experience, and knowledge that individuals claim to possess to undertake in future business units, with 61.20% for opportunity TEA and 61.52% for necessity TEA.

Regarding the variables of financial development, it is observed that they have a correlation of less than 50%, which will be analyzed independently in different regression models, it is of interest to point out that these correspond to a global index, subdivided into different categories (access, depth, and efficiency), both in the development of institutions and the market, so it is consistent with the expected results. For macroeconomic variables, there are low correlations with the other exogenous variables, however, the level of economic growth, measured by GDP, seems to have a strong relationship with them. Indeed, the literature points out that as countries progress and improve their conditions, it positively impacts the development of institutions and financial markets.

Table 4 shows the descriptive statistics of the study variables. It can be seen that individuals in countries report undertaking a higher percentage by opportunity than by necessity, which is consistent with the literature. For the variables of the Financial Development Index, measured by both institutions and the market, Svirydzenka (2016) points out that, if the data series is not completely available for a country, it is set to zero, indicating that this market does not it exists or that its access or efficiency properties are very poor, otherwise it happens with countries with high performance, taking the value one.

It is also clear that countries such as Malaysia, Singapore, Luxembourg, and Ireland have adopted open market systems, impacting on the percentage that measures trade openness, this leads to it being quite high compared to other countries in the world. On the other hand, government spending is considerably higher in countries such as Greece and Latvia, especially in terms of social policies. Regarding inflation, Iran and Jamaica have high inflation rates, considering that these countries have a high degree of political and economic turmoil.

Table 5 reports the estimation of the System-GMM dynamic data panel model for entrepreneurs who reported starting their business activities by opportunity. In addition, the different tests are included, which indicate the relevance and validity of the instruments used, in addition, it is pointed out that both the unit root tests turned out to be non-stationary and the existence of heteroskedasticity was also proved with which the proposed model is appropriate. Six estimated models are observed, the first corresponds to the model with the GEM explanatory variables, including the different macroeconomic controls, perception indicators, and the financial development index, adding in each of them, the sub-index of both the development of financial institutions and the development of the financial market.

For each of the models, there are 367 observations, considering 64 countries under study (see Appendix 1), it should be noted that these differ from year to year, however, the methodological proposal admits this imbalance. Likewise, it is indicated that the estimates were included: dummies of time to control their specific effects, robustness and two-step estimates. It can be seen that the GDP per capita variable is found to be significant at 1% and the positive sign indicates that it is going in the same direction as the literature reviewed, that is, at greater economic development, the probability of being an entrepreneur increases. Consequently, hypothesis 2 is not rejected.

Our explanatory variable of interest, measured with the development index in financial institutions, turns out to be statistically significant at 1% for both access and depth, while efficiency only has a statistical significance at 10%. The same results are obtained by evaluating the estimates of the development of the financial markets. However, the negative sign of their coefficients is striking, since this seems to be contrary to what some authors postulate, which suggest that a financial development produces an improvement in economic conditions and consequently leads to a higher probability to undertake.

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Our explanatory variable of interest, measured with the development index in financial institutions, turns out to be statistically significant at this point, we must remember an important condition of this study. Our dependent variable measures the average number of nascent entrepreneurs, this means that individuals are at a stage before the condition of being an established entrepreneur, as shown in Figure 1. As an example, Yay et al. (2017) clarifies this difference regarding the entrepreneurship process, these authors observe the relationship between institutions and entrepreneurship, noting that financial development has a U-shaped relationship with the formal entrepreneurial spirit. Therefore, based on the results obtained in the estimates of Table 5, in the early stages of life, despite the fact that the institutions improve their conditions, the entrepreneurs, being not formalized, have greater difficulties in accessing these opportunities, since they do not have the economic conditions, nor do they qualify for their business to take advantage of these favorable circumstances. Likewise, the estimates obtained for the development in the financial markets, show a negative sign in their coefficients, this suggests that the countries when developing improvements in the stock market, either increasing the amount of debt issuers, increasing the rotation efficiency of financial papers or increasing the market capitalization of companies, they encourage entrepreneurs to migrate from informal to formal (productive) sectors,

which ultimately discourages entrepreneurship, and given economic and financial conditions, lead to individuals look for salaried jobs.

Table 5 also reports the perception of their skills, experience, and knowledge have greater relevance, since in the variable "skills" its parameter shows that it is significant at 1%, with a positive sign for all models. This suggests that the more they perceive their abilities, they are more likely to be an entrepreneur and form a business unit. besides, the variable fear of failure has a sign that it behaves according to our expectations, that is, the greater the fear, the less likely it is to be an entrepreneur, which turns out to be statistically significant at 1% to the models from three to six and not significant for the first two. On the other hand, the variable "knowing an entrepreneur" positively affects entrepreneurship, this turns out to be not statistically significant for the first model, but significant at 1% for others. The perceived aptitudes, Desired career, turns out to be statistically significant at 1% for most models and their sign, seems to indicate that individuals value the fact of becoming entrepreneurs. In the aggregate, the estimates do not reject hypothesis 4, so we can point out that individuals have a high social value towards entrepreneurship, because their perceptions about their abilities and aptitudes increase the probability to be an entrepreneur.

Regarding the macroeconomic dimension, government spending shows a negative and statistically significant sign at 1% in all models. This can be explained, because despite the fact that several countries have a budget to promote entrepreneurship, these resources are poorly controlled in terms of their objectives and very few companies are able to have lasting businesses over time, transformed the state into a welfare, which leads to a disincentive to the training of successful entrepreneurs, who eventually become microentrepreneurs.

Commercial openness turns out to be significant for all models, where the result of the estimates shows a negative sign. An economy open to the world brings its diversification, where the consumer can opt for goods and services at lower costs from abroad, therefore, the negative sign may be due to the disincentive to undertake, arises because it is more feasible to acquire their needs at a more competitive international prices, in this way, early-stage entrepreneurs have a greater difficulty starting with their business units, since they are easily replaced if local companies turn out to be inefficient with respect to their competition.

The control referred to population growth only turns out to be significant only for models three, four and six, where the positive sign would indicate that, in the face of an increase in the population, there is a greater probability of undertaking. And finally, inflation turns out to be not

significant for most of the models evaluated, however, for models one and four, they turn out to be significant when the variable referring to access is incorporated, both for the development of institutions and the market, These results are consistent with those found by Reynolds et. (1999), who argue that reducing government participation in the economy and the tax burden of companies and individuals will have a positive impact on entrepreneurship.

However, it has been pointed out in previous sections, that the relevance and validity of the instruments must be tested, in such a way, to corroborate if the instruments satisfy the overidentification restriction conditions indicated in the methodology. As can be seen in Table 5, the number of instruments used in the estimates is equal 51 for all models, this number being lower than the groups, this gives indications that there should be no overidentification problems. Likewise, the Hansen test, which measures the validity of the instruments, reports values that are within the range $0.05 \leq \text{Prob. chi}^2 < 0.8$, indicating that the instruments are valid and there is no overidentification. And as for the Arellano-Bond AR (2) test, for all models the null hypothesis is not rejected, therefore the necessary conditions are presented to conclude that there is no second-order serial correlation.

Table 6 corresponds to the estimates of the system-GMM dynamic data panel model for entrepreneurs who reported starting their business activities by necessity. Under this type of entrepreneurship, there are dissimilar data, where the variable referring to the "skills" that individuals believe they possess in the Cultural-Cognitive dimension and government expenditure, in the macroeconomic dimension, turn out to have statistical significance at 1%. We can conclude then that, possessing knowledge and skills increases the probability of undertaking out of necessity, while higher government spending discourages the probability of improving entrepreneurship.

These results are not entirely surprising, since, when analyzing these data through the econometric model, we provide empirical evidence that the dimensions analyzed have a greater and more positive effect on the opportunity entrepreneurship, compared when analyzed through a venture for necessity. We can then establish a clear differentiation in terms of the two types of entrepreneurship, where the former seeks attractive business opportunities, leading to improvements in economic growth, while, in the entrepreneurial spirit of need, people are driven by circumstances, generating a more modest impact on economic development.

Regarding the financial dimension, access to institutions retains the negative sign and is statistically significant at 1%, so the importance of being a nascent venture and the difficulties that

this entails not being in a formalized business continues to predominate. However, if we analyze the efficiency of the institutions, it turns out to have a positive and significant sign at 5% when assessing entrepreneurship by necessity, this may be because, if banking conditions improve, they could eventually carry out institutional programs in which they can support Entrepreneurs who do not have the means to directly access the financing required to start the early stages of the business.

Regarding the development of financial markets, access and depth maintain negative and statistically significant signs at 1% for the access and depth of the stock market. This is relevant since when markets improve, the economy of the countries is benefited, leading people to the search for salaried jobs, thus reducing entrepreneurship at an early age by necessity.

7. Conclusions

This research analyzes the factors that affect the entrepreneurial activity of 64 countries using the GEM survey that covers from 2003 to 2015. Among the explanatory variables, the relationship with the economic development measured by the GDP per capita, the financial development, both institutions and the market, also considering various dimensions of perception, both of skills and abilities that entrepreneurs believe they possess.

The Cultural-Cognitive dimension positively affects entrepreneurship, a result that goes in line with our hypothesis. Besides, the entrepreneurship increases as the GDP per capita increases. On the other hand, the existence of endogeneity between entrepreneurship and GDP per capita is verified for all the models. In addition, the results show that the approach should be aimed at opportunity entrepreneurship, since it is this who will ultimately improve economic and financial conditions.

Finally, financial development, in most of its subcategories, has a negative impact on the probability of being an entrepreneur. This, despite being counter-intuitive, occurs because the explained variable corresponds to nascent entrepreneurs, that is, those who have just started their activities. It is possible to point out then, that public policies must put their efforts, not only in the generation of new ventures but rather, in the formalization of these. Once the entrepreneurs have consolidated their stage towards entrepreneurs or microentrepreneurs and have labor contracts, pay taxes and become a formally established company, their impact will be relevant to economic

growth. Therefore, the financial development variables will have a positive impact on the entrepreneurial activity.

The main challenge in terms of limitations is to improve the sample size of the countries, which allows the evaluation of both types of entrepreneurship and their subsequent impact on financial development, with respect to dynamic analysis.

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Table 1. Variable categories for Financial Development

	Financial institutions	**Financial markets**
Depth	- Credit to the private sector	- Stock market capitalization (as % PIB)
	- Pension fund assets	- Shares traded (as % PIB)
	- Mutual fund assets	- Government debt securities
	- Life and non-life Insurance premiums	- Total corporate debt securities
Access	- Bank branches	- Market Capitalization Percentage
	- ATM´s	- Total number of debt issuers
Efficiency	- Net interest margin	- Stock market turnover ratio
	- Disseminated loan-deposits	
	- Income not related to interest at total income	
	- Gastos generales a activos totales	
	- ROA	
	- Profitability on own resources	

Source: Own elaboration.

Table 2. Variable characteristics

Dimension	Name	Description
Entrepreneurship	TEA for necessity	Necessity entrepreneurship
	TEA for opportunity	Opportunity entrepreneurship
Perceived skills	Desired career	Do you think starting a new business is a desirable career option?
Perceived abilities	Abilities	Do you think you have knowledge and skills to be an entrepreneur?
	Afraid to failure	Are you afraid of failure?
	Know entrepreneur	Do you know someone who started a business in the last 2 years?
Macroeconomic dimension	GDP per capita	Ln GDP per capita
	Openness (%)	Sum of exports and imports divided by GDP
	Governement expenditure (% del PIB)	Cash payments for the government's operational activities in the provision of goods and services
	Population growth (% anual)	The annual population growth rate
	Inflation (%)	Consumer Price Index (CPI)
Financial Development	Institutional depth	Institution development subcategory
	Institutional access	Institution access subcategory
	Institutional efficiency	Institution efficiency subcategory
	Market depth	Market development subcategory
	Market access	Market access subcategory
	Market efficiency	Market efficiency subcategory

Source: Own elaboration.

Tabla 3. Correlation matrix for variables

	Variables	1	2	3	4	5	6	7	8	9
1	TEA for opportunity	1								
2	TEA for necessity	0.77*	1							
3	Ln GDP per capita	-0.52	-0.73*	1						
4	Desired career	0.45*	0.53*	-0.56*	1					
5	Abilities	0.61*	0.61*	-0.56*	0.58*	1				
6	Afraid to failure	-0.21	-0.12*	0.07	-0.07	-0.27*	1			
7	Know entrepreneur	0.41*	0.35*	-0.39*	0.26*	0.56*	-0.22*	1		
8	Openness	-0.09	-0.16*	0.31*	-0.19*	-0.20*	0.08	-0.14*	1	
9	Government expenditure	-0.40*	-0.33*	0.29*	-0.12*	-0.13*	0.18*	-0.18*	0.08	1
10	Inflation	0.23*	0.30*	.-0.44*	0.32*	0.33*	-0.18*	0.38*	-0.20	-0.14*
11	Population	0.36*	0.20*	-0.06	0.16*	0.23*	.-0.29*	0.30*	0.07	-0.38*
12	Institutional access	-0.43*	-0.43*	.0.47*	-0.23*	-0.32*	0.30*	-0.31*	-0.14	0.22*
13	Institutional efficiency	-0.37*	-0.45*	0.49*	-0.40*	-0.44*	0.13*	-0.27*	0.27*	0.15*
14	Institutional depth	-0.32*	-0.50*	0.68*	-0.37*	-0.39*	-0.15*	.-0.29*	0.15*	0.11*
15	Market access	-0.14*	-0.36*	0.57*	-0.33*	-0.24*	0.00	.-0.19*	0.11*	-0.04
16	Market efficiency	.-0.39*	-0.43*	0.50*	-0.31*	-0.44*	0.07	-0.25*	-0.19*	0.05
17	Market depth	-0.34*	.-0.51*	0.66*	-0.33*	-0.42*	-0.04	.-0.29*	0.04	0.03
		10	11	12	13	14	15	16	17	
10	Inflation	1								
11	Population	0.16*	1							
12	Institutional access	-0.23*	-0.18*	1						
13	Institutional efficiency	-0.55*	-0.02	0.12*	1					
14	Institutional depth	-0.40*	0.19*	0.29*	0.48*	1				
15	Market access	-0.27*	0.28*	0.32*	0.25*	0.48*	1			
16	Market efficiency	.-0.25*	-0.04	0.36*	0.30*	0.52*	0.39*	1		
17	Market depth	-0.37*	0.20*	0.33*	0.44*	0.86*	0.55*	0.71*	1	

Source: Own elaboration.

Table 4. Descriptive statistics for variables

Variable	Obs	Mean	Std. Dev.	Min	Max
TEA for opportunity (%)	367	6.57	4.67	1.08	33.51
TEA for necessity (%)	367	2.22	2.28	0.15	16.13
Ln GDP per capita	367	10.16	0.60	8.18	11.48
Desired career (%)	367	62.11	13.98	25.40	95.62
Abilities (%)	367	47.94	14.35	9.22	92.28
Afrais to failure (%)	367	38.57	10.32	15.12	73.62
Know entrepreneur (%)	367	38.26	11.37	14.01	79.78
Openness (%)	367	89.21	59.76	22.11	430.39
Government expenditure (%)	367	31.02	10.83	2.17	60.28
Inflation (%)	367	3.07	2.89	-1.74	15.40
Population (%)	367	0.64	0.81	-2.08	3.49
Institutional access	367	0.61	0.24	0.09	1.00
Institutional efficiency	367	0.73	0.14	0.28	0.92
Institutional depth	367	0.55	0.27	0.06	1.00
Market access	367	0.47	0.27	0.00	1.00
Market efficiency	367	0.49	0.37	0.00	1.00
Market depth	367	0.53	0.31	0.01	1.00

Source: Own elaboration.

Table 5. Opportunity entrepreneurship and financial development

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
L.TEA for opportunity	0.162***	0.234***	0.170***	0.143***	0.193***	0.170***
	(0.052)	(0.036)	(0.055)	(0.040)	(0.039)	(0.052)
Ln GDP per capita	5.837***	3.870***	6.133***	5.905***	3.036***	4.606***
	(1.605)	(1.119)	(1.258)	(1.342)	(0.969)	(1.137)
Desired career	2.803	5.825**	7.156***	3.059	5.112***	7.742***
	(2.964)	(2.326)	(2.070)	(2.398)	(1.899)	(2.224)
Abilities	18.435***	14.754***	14.582***	16.768***	12.781***	12.970***
	(2.051)	(1.756)	(1.750)	(1.912)	(1.475)	(1.537)
Afraid to failure	-4.469	-3.372	-10.794***	-8.414***	-5.304**	-6.283**
	(2.760)	(2.269)	(2.797)	(3.060)	(2.240)	(2.372)
Know entrepreneur	0.139	8.370***	5.807***	3.657**	7.002***	7.817***
	(2.835)	(1.816)	(2.104)	(1.821)	(1.758)	(2.116)
Openness	-0.019***	-0.004	-0.010***	-0.013***	-0.007*	-0.007*
	(0.006)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)
Government expenditure	-0.170***	-0.100***	-0.098***	-0.178***	-0.104***	-0.101***
	(0.034)	(0.033)	(0.028)	(0.031)	(0.024)	(0.030)
Inflation	0.285***	0.135*	0.075	0.267***	0.125*	0.091
	(0.074)	(0.068)	(0.058)	(0.081)	(0.06407)	(0.06719)
Population	-0.222	0.113	0.801***	0.805***	0.192	0.739***
	(0.309)	(0.206)	(0.235)	(0.229)	(0.197)	(0.216)
Institutional access	-7.019***					
	(2.221)					
Institutional efficiency		-3.286*				
		(1.753)				
Institutional depth			-7.588***			
			(1.557)			
Market access				-6.024***		
				(1.139)		
Market efficiency					-1.534*	
					(0.820)	
Market depth						-4.344***
						(1.129)
Observations	367	367	367	367	367	367
N. of groups	64	64	64	64	64	64
N. of instruments	51	51	51	51	51	51
Overidentification Hansen test	0.275	0.147	0.171	0.543	0.104	0.165
Arellano-Bond AR(2) test	0.388	0.494	0.449	0.385	0.467	0.495

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

Source: Own elaboration.

Table 6. Necessity entrepreneurship and financial development

VARIABLES	Model 1 Tea Nec	Model 2 Tea Nec	Model 3 Tea Nec	Model 4 Tea Nec	Model 5 Tea Nec	Model 6 Tea Nec
L.TEA for neccesity	0.384***	0.468***	0.344***	0.381***	0.349***	0.327***
	(0.070)	(0.062)	(0.058)	(0.058)	(0.060)	(0.055)
Ln GDP per capita	1.080*	-0.045	-0.781*	0.259	-0.797***	-0.589
	(0.569)	(0.388)	(0.407)	(0.332)	(0.254)	(0.379)
Desired career	1.231	1.901**	0.845	0.835	0.848	0.998
	(1.076)	(0.844)	(0.676)	(0.860)	(0.696)	(0.755)
Abilities	4.572***	3.798***	3.649***	4.068***	4.278***	3.765***
	(0.957)	(0.663)	(0.656)	(0.769)	(0.664)	(0.601)
Afraid to failure	-0.463	-0.532	-0.666	-1.038	-0.578	-0.552
	(0.885)	(0.602)	(0.647)	(0.819)	(0.597)	(0.536)
Know entrepreneur	0.434	1.202*	0.660	0.828	0.940*	0.801
	(1.037)	(0.559)	(0.559)	(0.768)	(0.467)	(0.559)
Openness	-0.004*	-0.001	0.001	-0.00094	0.001*	0.000
	(0.002)	(0.009)	(0.008)	(0.007)	(0.009)	(0.008)
Government expenditure	-0.030**	-0.019***	-0.015***	-0.028***	-0.011**	-0.018***
	(0.012)	(0.005)	(0.004)	(0.006)	(0.004)	(0.004)
Inflation	0.108	0.085*	0.018	0.079	0.047	0.021
	(0.031)	(0.027)	(0.018)	(0.018)	(0.019)	(0.018)
Population	-0.115	-0.024	0.115	0.147*	0.045	0.125**
	(0.111)	(0.086)	(0.070)	(0.085)	(0.059)	(0.059)
Institutional access	-2.897***					
	(0.785)					
Institutional efficiency		1.370**				
		(0.579)				
Institutional depth			-0.501			
			(0.501)			
Market access				-1.582***		
				(0.273)		
Market efficiency					0.2408	
					(0.150)	
Market depth						-0.728**
						(0.311)
Observations	367	367	367	367	367	367
N. of groups	64	64	64	64	64	64
N. of instruments	51	51	51	51	51	51
Overidentification Hansen test	0.511	0.283	0.428	0.300	0.504	0.379
Arellano-Bond AR(2) test	0.324	0.388	0.324	0.288	0.277	0.277

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

Source: Own elaboration.

Appendix A

Country list

United States	China
Russia	Turkey
South Africa	India
Greece	Pakistan
Netherlands	Iran
Belgium	Canada
France	Tunisia
Spain	Nigeria
Hungary	Angola
Italy	Barbados
Romania	Zambia
Switzerland	Botswana
United Kingdom	Portugal
Denmark	Luxembourg
Sweden	Ireland
Norway	Iceland
Poland	Finland
Germany	Lithuania
Peru	Latvia
Mexico	Estonia
Brazil	Serbia
Chile	Croatia
Colombia	Slovenia
Malaysia	Bosnia And Herzegovina
Australia	Macedonia
Indonesia	Slovakia
Philippines	Guatemala
New Zealand	Uruguay
Singapore	Kazakstan
Thailand	Dominican Republic
Japan	Jamaica
Korea	Israel

Appendix B

Modelo OLS Model for Opportunity Entrepreneurship

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Ln GDP per capita	-1.082**	-1.679***	-1.527***	-2.143***	-1.360**	-1.231**
	(0.495)	(0.462)	(0.521)	(0.517)	(0.538)	(0.582)
Desired career	3.016**	2.443*	2.842**	3.086**	2.991**	3.105**
	(1.395)	(1.379)	(1.405)	(1.436)	(1.408)	(1.421)
Abilitites	12.920***	11.648***	12.403***	12.316***	11.690***	12.024***
	(1.827)	(1.833)	(1.884)	(1.851)	(1.905)	(1.967)
Afraid to failure	1.522	-0.370	-1.000	-0.718	-0.323	-0.734
	(1.626)	(1.595)	(1.750)	(1.589)	(1.581)	(1.623)
Know entrepreneur	0.737	1.872	1.275	1.760	1.613	1.175
	(2.053)	(1.974)	(2.026)	(2.045)	(1.966)	(2.023)
Openness	0.002	0.007**	0.006*	0.007**	0.003	0.004
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Government expenditure	-0.095***	-0.091***	-0.094***	-0.092***	-0.100***	-0.098***
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Inflation	-0.134*	-0.226***	-0.157**	-0.133*	-0.147**	-0.166**
	(0.071)	(0.082)	(0.076)	(0.069)	(0.069)	(0.074)
Population	0.860***	0.991***	0.990***	0.754**	0.921***	1.080***
	(0.276)	(0.278)	(0.325)	(0.302)	(0.280)	(0.339)
Institutional access	-3.097***					
	(0.741)					
Institutional efficiency		-4.433***				
		(1.586)				
Institutional depth			-1.054			
			(1.031)			
Market access				1.266		
				(0.838)		
Market efficiency					-1.317**	
					(0.624)	
Market depth						-1.726
						(1.068)
Constant	13.142**	21.446***	17.107***	21.673***	15.782***	14.639**
	(5.497)	(5.134)	(5.368)	(5.538)	(5.632)	(5.743)
Observations	367	367	367	367	367	367
R-squared	0.548	0.542	0.535	0.536	0.539	0.539

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source: Own elaboration.

Appendix C

Modelo OLS Model for necessity entrepreneurship

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Ln GDP per capita	-1.991***	-2.106***	-2.013***	-2.159***	-2.137***	-1.891***
	(0.296)	(0.276)	(0.306)	(0.276)	(0.346)	(0.212)
Desired career	1.183	0.978	1.157	1.133	1.140	1.278*
	(0.771)	(0.750)	(0.758)	(0.790)	(0.783)	(0.698)
Abilities	4.783***	4.280***	4.583***	4.721***	4.680***	4.422***
	(0.863)	(0.856)	(0.866)	(0.889)	(0.886)	(0.786)
Afraid to failure	0.657	0.231	-0.101	0.201	0.209	0.061
	(0.745)	(0.725)	(0.796)	(0.709)	(0.729)	(0.768)
Know entrepreneur	-1.486*	-1.137	-1.415	-1.318	-1.313	-1.450*
	(0.854)	(0.837)	(0.862)	(0.876)	(0.828)	(0.826)
Openness	0.002	0.003***	0.002**	0.003***	0.002*	0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Government expenditure	-0.024***	-0.022***	-0.024***	-0.024***	-0.025***	-0.026***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.008)
Inflation	-0.051**	-0.090***	-0.062**	-0.052**	-0.052**	-0.064**
	(0.026)	(0.029)	(0.028)	(0.026)	(0.025)	(0.030)
Population	0.190	0.240*	0.250	0.196	0.199	0.286**
	(0.139)	(0.136)	(0.153)	(0.158)	(0.137)	(0.114)
Institutional access	-0.719**					
	(0.301)					
Institutional efficiency		-1.935***				
		(0.551)				
Institutional depth			-0.565			
			(0.446)			
Market access				0.011		
				(0.412)		
Market efficiency					-0.059	
					(0.327)	
Market depth						-0.814**
						(0.360)
Constant	20.804***	23.259***	21.189***	22.155***	21.993***	20.140***
	(3.199)	(3.000)	(3.143)	(2.983)	(3.476)	(2.273)
Observations	367	367	367	367	367	367
R-squared	0.643	0.647	0.641	0.639	0.639	0.644

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source: Own elaboration.

Appendix D

Variance Inflation Factors

Variables	VIF	1/VIF
Market Depth	7.03	0.142223
Institutional depth	5.48	0.182532
Ln GDP per capita	4.37	0.22882
Market Efficency	2.81	0.355313
Abilities	2.68	0.373435
Market Access	2.02	0.495266
Institutional efficiency	1.93	0.516921
Desired career	1.91	0.524407
Population	1.90	0.525989
Institutional access	1.78	0.562655
Know entrepreneur	1.77	0.565798
Inflation	1.75	0.570868
Openness	1.68	0.594553
Afraid to failure	1.52	0.658076
Government expenditure	1.43	0.699229
Mean VIF	2.67	

Source: Own elaboration.