The role of innovation and institutions in entrepreneurship and economic growth in two groups of countries

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ABSTRACT

Purpose: Economic growth is one the most relevant economic objectives for policy makers. In order to determine the variables that enhance such an objective it is important to consider different types of entrepreneurial activity. It is also necessary to consider the level of development and growth of a country to design the proper economic policy measures, given that entrepreneurship motivations and circumstances vary from country to country. Therefore, the objective of this study is to analyse the relationship between entrepreneurship and economic growth, including the role played by institutions and innovation considering two types of entrepreneurship (necessity and opportunity) and countries.

Design/methodology/approach: Data analysis of 31 countries with varying levels of growth and development yielded two large groups – either innovation-driven economies or efficiency-driven economies –following GEM classification based on the phases set out by the World Economic Forum. In order to test the hypotheses, a (partial least squares (PLS)) analysis is carried out to show the existing relationships between the different variables, specifically: innovation, institutions, entrepreneurship and economic growth.

Findings: The empirical analysis used demonstrates that innovation positively affects economic growth and entrepreneurship. In addition, adequate functioning of institutions is shown to enhance economic growth and opportunity entrepreneurship. Finally, there is a positive relationship between entrepreneurship and economic growth.

Originality/value: Unlike other studies, different types of entrepreneurship (by necessity and opportunity) are essential to this analysis of the relationship between entrepreneurship and economic growth. The country sample was divided considering some country-specific structural circumstances. Neither aspect is considered in the literature and should be considered relevant for designing measures to enhance economic activity.

Keywords: Innovation, Economic growth, Entrepreneurship, Institutions

1. Introduction

Economic growth is one of the most relevant economic objectives for policy makers, especially due to the important social benefits derived from a higher level of economic growth, including

employment and welfare. As a consequence of these beneficial effects derived from economic growth, a great deal of literature has been devoted to establishing the determinants of growth, especially after the publication of the Solow–Swan model (Solow, 1956; Swan, 1956). Solow marked the start of the modern era of economic growth analysis. Solow developed an exogenous growth model that implies that the variables are exogenously determined. The exogenous technological changes are the necessary condition to improve growth. Economic policy would have effects in the short-term but not over the long-term. However, the situation changed dramatically during the 1970s and 1980s with the appearance of endogenous growth models (Romer, 1986, 1987; Aghion and Howitt, 1998). In opposition to exogenous growth models these models stated that the variables are endogenously determined and questioned the convergence hypothesis. Therefore, from the endogenous model perspective, it would be possible to include new variables in the model apart from traditional variables such as labour and physical capital. From this new perspective, other types of growth determinants have been considered, including public capital (Romp and de Haan, 2007) and institutions (North, 1990, 2005). For this reason, policy makers have become interested in designing adequate economic policy to achieve this objective using two different types of actions (Rodrick, 2005): measures to ignite economic growth (mainly social reforms) and measures to sustain economic growth (mainly, long-term institutional policy to maintain productive mechanisms in time of economic shock).

In this context, among the different variables considered to have a positive effect on economic growth, three have attracted the attention of many scholars. First, entrepreneurship activity, following Schumpeter (1950, 1911), creates new industries and relevant structural changes in the economy, which have positive effects on employment, economic growth and social welfare. Second, innovation is also a factor to be considered because those new and better technological processes that are introduced enhance the economic activity, also having a positive effect on economic growth. It is also relevant to consider the role of the entrepreneurs in the process, as they must introduce new technologies that they consider adequate for advancing their activities. For this reason, various studies have analysed the relationship between entrepreneurship activity and innovation. And finally, institutions are the third variable to be considered, given that they provide entrepreneurship with the financial resources and human capital to carry out their objectives and the appropriate legal framework to carry out entrepreneurship activity (e.g. Thornton et al., 2011; Bruton et al., 2010; Bradley and Klein, 2016).

Due to these reasons, it has become imperative to analyse not only the relationship that exists between the three variables considered and economic growth but also the influence of institutions and innovation on entrepreneurship, thus showing a direct and indirect effect

(through their effects on entrepreneurship) on growth. In this analysis, two aspects that are not usually considered should be noted. Analysing the effects of the different types of entrepreneurship (opportunity and necessity) on economic growth could reveal if there are different results and if innovations and institutions influence each other in the same way. This analysis could also reveal the institutional context in which entrepreneurship activity is carried out. Some studies (Bjørnskov and Foss, 2016; van Praag and Versloot, 2007) show that the different effects that entrepreneurship has on growth in different countries could be explained through the institutional context.

In this context it would be necessary to consider that the level of development and growth of countries play an important role in order to design the economic policy measures since the entrepreneurships motivations and circumstances are different. Countries with a high level of growth usually show a higher opportunity entrepreneurship (OE) that is more stable and durable over time. In addition, institutions usually also show greater dynamism, the human capital that is promoted through them tends to favour the implementation and development of innovations, and credit institutions tend to be more dynamic in order to provide the financial resources that entrepreneurs need to carry out their activity.

Therefore, it is important to conduct an analysis of the variables that affect economic growth considering country-specific circumstances. The main objective of the study is to analyse the relationship between innovation and institutions on entrepreneurship and economic growth, considering two groups of countries: Group A includes innovation-driven economies that exhibit high values of the motivational index, and Group B consists of efficiency-driven economies that show low values of the motivational index. Section two considers the relationship among innovation, institutions, entrepreneurship and economic growth. In section three an empirical analysis is developed for the case of 31 countries using the partial least squares (PLS) method. Section four presents the conclusions.

2. Innovation and institutional effects on entrepreneurship and economic growth

Economic growth brings countless benefits to the welfare of society, unsurprisingly making it a highly targeted area of research. Determining the variables that can enhance it are critical in adopting corresponding measures.

In this sense, it should be noted that there are two types of actions to achieve this goal (Rodrick, 2005). First, actions that drive economic growth involve the introduction of reforms. Second, actions that sustain it require constructing a long-term institutional policy that allows the economy to resist shocks and maintain the dynamism of production.

Considering the difference, two main groups of policies could be developed (Nissan *et al.,* 2011). The first group is measures to stimulate economic growth. In this case, it is important to create an appropriate behavioural environment to take advantage of the returns and positive effects of the investment process. Some of the main variables to be considered are innovation process, the increase of human capital, reduction of tax burden and macroeconomic activity.

The second group consists of measures to sustain economic growth. In this case it is necessary to create appropriate institutions that facilitate and improve the market activity to avoid economic shocks (Acemoglu *et al.*, 2001). The rule of law, the defence of property rights and access to credit are the main variables to take into account.

Traditionally, research has focused on the relationship between innovation and entrepreneurship (e.g. Schumpeter, 1911, 1950). Schumpeter considers entrepreneurship activity as implying innovation through the introduction of a new product, organisation or process, generating a destruction process. One of the results of this innovation process is the creation of new industries that cause relevant structural changes in the economy (Baregheh *et al.*, 2009; Mas-Verdu *et al.*, 2010; Romero-Martínez *et al.*, 2010). Drucker (1998) points out that innovation is at the heart of entrepreneurship activity and it is due to innovation that many entrepreneurs carry out their activity. From this point of view, the innovation process would enhance their activity, creating a feedback effect such that entrepreneurs innovate and the innovations stimulate other entrepreneurs to carry out their activity (De Cleyn and Braet, 2012; Zortea-Johnston *et al.*, 2012).

Furthermore, some authors have also considered the relevance of innovation on economic processes and especially its effects on economic growth. From the modern economic growth perspective firms can achieve greater levels of success due to the globalisation process, and innovation can make it possible to take advantage of the positive effects of such a process. Technological diffusion and the catch-up process are some of the main aspects that have been considered in the modern economic growth literature (Galindo and Méndez-Picazo, 2013). In this context, it is important also to emphasise the role of the entrepreneurs because they introduce the innovations in the productive process. They have to avoid unwise risk when they make the decision to incorporate new technology into their firms, considering the positive and negative effects of the decision (Autio *et al.*, 2014). Thus, they also have an indirect effect on the economic growth process through their decisions on innovations.

But these decisions and activities are developed in an environment in which institutions play an important role. Acemoglu *et al.* (2005a, p. 386-387) state that institutions determine the incentives for and constraints on economic agents to develop their activity and the decisions adopted by them that would have effects on economic growth. Therefore, institutions have an

important role to play in the enhancement of economic outcomes through the distribution of resources derived from their activity (Elert and Henrekson, 2017; Alam *et al.*, 2019).

In our case, institutions must provide the adequate incentives to entrepreneurs, so that they are willing to continue developing their activity and expand it (Lim *et al.,* 2016; Bosma *et al.*, 2018; Dilli *et al.,* 2018). This is achieved by increasing employment in the country and providing more quantity of goods and services with the beneficial effect on economic growth that would facilitate a better distribution of income. This is achieved basically through the rule of law and protecting private property.[1]

This protection is important for those entrepreneurs that try to develop their businesses and are willing to invest their capital. Without such protection, they would be more willing to use their resources in more secure places (gold, land, etc.) than to create new jobs (Autio *et al.*, 2014; Tomaszewski, 2018). Thus, there would be a negative effect on the standard of living of society. The introduction of new technologies through investment makes products more competitive creating an additional stimulus for entrepreneurs to expand their activity. Likewise, institutions can facilitate the improvement of human capital that is necessary to generate and take advantage of technological advances that make companies more competitive.

However, it is necessary for institutions to include some characteristics to facilitate the achievement of such positive effect on economic growth (Acemoglu, 2003, p. 27). First, they must enforce the property rights for a broad section of society. Second, they must constrain the actions of some pressure groups, elites as well as politicians, to avoid actions that could damage property rights (for instance to expropriate incomes). And, finally, they must introduce degrees of equal opportunities for broad segments of the society so that more individuals can participate in productive economic activities. One way this goal is achieved is by facilitating access to a better human capital formation.

In this field, as in the case of innovations, entrepreneurs play an important role because they have to make their decisions in an environment that must be adequate and favorable to carry out their activity. For this reason, it is relevant to consider the relationship between innovation and institutions on entrepreneurship and also on economic growth (Simón-Moya *et al.*, 2014; Boudreaux, Nikolaev and Klein, 2019).

When contemplating entrepreneurship activity it is necessary to consider the different motivations when carrying out this activity (Fairlie and Fossen, 2018). According to the Global Entrepreneurship Monitor (GEM; Kelley *et al.*, 2012) there are three types of motives. First, the

[1] For studies of the relationship between institutions and economic growth, see Acemoglu and Robinson (2008), Justesen and Kurrild-Klitgaard (2013), Sirowy and Inkeles (1990) and Przeworski and Limongri (1993). For studies of the relationship between institutions, entrepreneurship and economic growth, see Acs et al. (2018), Bosma et al. (2018) and Urbano et al. (2019).

net use of a business opportunity is conceptualised as OE. Second, the need for entrepreneurs to create their own position in the absence of other work alternatives is named necessity entrepreneurship (NE). Finally, other reasons and intermediate situations are known as entrepreneurship for other reasons. Along with the previous ones, recently an additional index has been calculated: the motivational index. This index is a ratio between OE and NE, so that the greater the value of the index the greater the motivation by opportunity (Kelley *et al.*, 2012; Singer *et al.*, 2018).

Therefore, specialised literature has focused on analysing the relationship between institutions, innovation and economic growth, as well as the relationship between the first two variables and entrepreneurship, in both cases independently. However, it is interesting to analyse all these interrelationships in the same empirical analysis, taking into account the type of entrepreneurship, since the characteristics and objectives of NE are different from those of OE. It is important to know, in order to design a policy that favors growth, if there is any difference in the relationships among the variables, so that the measures to be taken may be modified according to the type of entrepreneurship. However, it is also relevant to develop the study by grouping countries, as they may present some kind of circumstance that involves applying different measures. Considering the above, the hypothesis to be tested would be the following:

H1: The countries that exhibit greater innovation present greater economic growth.

Innovation increases countries' competitiveness thanks to the improvements in the goods and services produced. In addition, an adequate human capital that can assimilate, implement and when possible, develop these innovations is necessary for enhancing entrepreneur capabilities (Alpkan *et al.*, 2010; Chilton and Bloodgood, 2010; Ho *et al.*, 2011). In the latter case, institutions play an important role in improving human capital, having an indirect effect on growth (e.g. Cameron, 1996; Rosenberg, 2006; Hasan and Tucci, 2010; Andergassen, *et al.*, 2017; Malecki, 2018; Potts, 2019; Risso and Sánchez, 2019).

H2: A suitable functioning of institutions contributes to economic growth.

A positive effect of institutions on economic growth is mainly achieved through the rule of law and the protection of property rights (Acemoglu *et al.,* 2005b; Bahmani *et al.*, 2012; Nissan *et al*., 2011). As already indicated, they also favour growth indirectly through institutions aimed at developing human capital and credit institutions that provide the funds that entrepreneurs need.

H3: Opportunity entrepreneurship occurs when the quality of institutions is higher.

The institutions introduce incentives for entrepreneurs to perform and develop their activities through measures to increase competition, reduce bureaucracy, improve communications between markets and so on (Autio *et al.*, 2014; Aparicio *et al., 2016;* Dilli *et al.,* 2018). Therefore, countries that have a legal framework that guarantees the protection of

property and economic and market freedom would have a positive effect on investment and entrepreneurship (Mendez-Picazo *et al.,* 2012; Kaufman *et al*., 2014; Eldomiaty, *et al*., 2019).

Nonetheless, governments use regulations and bureaucracy to implement different public policies in order to achieve certain aims for society that would not be reached without the imposition of obligations, such as the correct functioning of markets, equal conditions for companies and financial institutions competing in the single market and the safeguarding of the interests of workers and consumers. Regulations and legal formalities can become a problem in the current socio-economic environment, as they can hinder innovation or create obstacles that limit trade and investment, and, in short, hamper economic efficiency, leading to lower levels of economic growth (Autio and Fu, 2015; Bosma *et al.*, 2018; Chowdhury, *et al*., 2019).

This is of vital long-term importance because these costs reduce financial reserves and scale companies down, increasing their vulnerability in the face of economic difficulties, limiting opportunities for growth and the generation of employment copious (Jacob, and Michaely, 2017; Chambers and Munemo, 2019).

H4: There is a positive relationship between entrepreneurship and economic growth.

Numerous studies show this positive relationship (Acs *et al.*, 2012; Alpkan et al., 2010; Audretsch, 2005; Audretsch and Keilbach, 2004a,b; Galindo and Méndez, 2014; Méndez-Picazo *et al.*, 2012). Thanks to the activity of entrepreneurs, production is greater and employment also increases, which means a greater demand that leads to greater economic growth.

H5: Innovation has a positive effect on entrepreneurship.

Entrepreneurs set profit forecasts as a precondition for innovation decisions. From Schumpeter's point of view (Schumpeter, 1911) an entrepreneur in a better situation would achieve higher profits; that is, an improvement of the product thanks to the innovation process creates a better position for the entrepreneur, who then has the opportunity to achieve higher profits (e.g. Schmitz *et al*., 2017; Ferreira *et al*., 2017; Mazzarol and Reboud, 2017; Herrera *et al*., 2018; Malerba and McKelvey, 2019). Innovation performs this function. In this sense it is also interesting to consider Drucker's (1998) perspective. From his point of view innovation is at the heart of entrepreneurship activity, and it is due to innovation that many entrepreneurs carry out their activity. In those countries with high levels of economic activity new business opportunities arise more frequently, so entrepreneurs can access new markets by supplying products (Castaño *et al.*, 2015). Innovation facilitates this possibility, thereby increasing entrepreneurs' interest in introducing new technological processes (Galindo and Méndez, 2014).

3. Empirical analysis

The empirical analysis includes 31 countries that exhibit different levels of growth and development and that can be classified into two groups: (a) innovation-driven economies and

(b) efficiency-driven economies, following GEM classification based on the phases established by the World Economic Forum (Kelley *et al.*, 2012, p. 14):

(a) Innovation-driven economies are the most developed. In this phase, businesses are more knowledge-intensive, and the service sector expands. The main difference is that these economies are based on knowledge and innovations activities.

(b) Efficiency-driven economies are increasingly competitive, with more-efficient production processes and increased product quality. At this level of development, economies are characterised by higher education and training; goods market efficiency; labour market efficiency; financial market sophistication; technological readiness and higher market size.

(c) Factor-driven economies – which are excluded from this study – are the least developed. They are dominated by subsistence agriculture and extraction businesses, with a heavy reliance on (unskilled) labour and natural resources.

Traditionally, the motivations that drive entrepreneurial activity have been analysed, differentiating between economic motivations from social or psychological motivations. The former primarily seek income or benefits, whereas the latter have more diverse motivations such as the searching for autonomy and independence, having control of own's own work, taking full advantage of one's own abilities, being socially useful, acquiring a better social status and gaining recognition of achievement (Van Praag and Versloot, 2007; Oosterbeek, *et al*. 2010; Lee, *et al*. 2011; Barba-Sánchez and Atienza-Sahuquillo, 2018).

The GEM observatory measures the motivation behind each entrepreneurial activity, distinguishing three types of motivation: net exploitation of a business opportunity, known as opportunity entrepreneurship; the need to create one's own employment in response to the lack of other job alternatives, which is referred to as necessity entrepreneurship; and other motivations and situations which fall somewhere between the other two, known as entrepreneurship for other reasons. Together with the previous indicators, another has recently begun to be measured, which is the "motivational index". This index measures the relation between OE and NE, where the higher the score on the index, the greater the opportunity motivation (Kelley, *et al*. 2012).

Some studies have looked for links between both classifications. For example, necessity entrepreneurs have essentially economic motivations – they need to generate their own job to earn enough money for survival and sustenance (Block, *et al*. 2015; van der Zwan *et al*. 2016; Nasiri and Hamelin, 2018). However, opportunity entrepreneurs create a business to take advantage of new business opportunities not yet exploited by existing companies. Therefore, this type of entrepreneurial activity is influenced by motivations of various kinds such as increasing income,

better social status and professional prestige, being one's own boss, and creating new products and services.

From this perspective, two groups are considered:

Group A includes innovation-driven economies and countries that exhibit high motivational index values: Australia, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Luxembourg, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom, United States.

Group B are efficiency-driven economies that exhibit low motivational index values: Argentina, Brazil, Bulgaria, Colombia, Croatia, Ecuador, Indonesia, Latvia, Panama, Peru, Poland, Slovak Republic, Uruguay.

In order to test the hypotheses, a Partial Least Squares (PLS) analysis is carried out to show the existing relationships between the variables of innovation, institutions, entrepreneurship and economic growth.

3.1 Methods and data.

PLS path modelling is a variance-based technique recommended at an early stage of theoretical development in order to test and validate exploratory models (Henseler *et al.*, 2009). According to Barclay *et al.,* (1995), this covariance structure model enables the researcher to deal with the measurement errors. This is fundamental when the variables of interest are latent and must be operationalised through other measurable variables; In short, the goal is to combine a priori theoretical knowledge and hypotheses with empirical data. This is even more appropriate with a small sample. The models are complex and causal and require no multivariate normality, which is advantageous when resolving multicollinearity problems. They also yield consistent parameter estimates.

PLS focuses on analysing the relationships between the latent variables (inner model). However, latent variables are measured by means of a set of observed variables or indicators. In a reflective measurement model, the relationships between latent variables and its indicators (outer model) involve paths from the former to the latter. This technique is useful when concepts are abstract or when the current knowledge or data allows only imperfect empirical representations of them.

In addition, the absence of normality and the predictive orientation of the proposed model recommend the estimation of this model of structural equations under the partial least squares (PLS) methodology (Chin *et al.*, 2003; Becker and Ismail, 2016). This is one of the most used methodologies when the cause-effect relationships need to be analysed.

Table 1 shows the definition of each indicator included in the proposed latent variable model.

Table 1. Definition of variables

LATENT VARIABLE	INDICATORS
Economic Growth (Y)	**GDPgrowth:** GDP Growth Rate (World Bank, 2018)
Opportunity entrepreneurship (E0)	**OPP:** Opportunity-driven (% of TEA) GEM (Global Entrepreneurship Monitor (GEM), 2018)
	OPPmean: Mean of Opportunity-driven (% of TEA) to 2014-2016 GEM (Global Entrepreneurship Monitor (GEM), 2018)
Necessity entrepreneurship (EN)	**NEC:** Necessity-driven (% of TEA) GEM (Global Entrepreneurship Monitor (GEM), 2018)
Innovation (INN)	**INV1:** Product is new to all or some customers and few/no businesses offer the same product GEM (Global Entrepreneurship Monitor (GEM), 2018)
	INV2: Strong international orientation of entrepreneur, more than 25% of customers from outside country GEM (Global Entrepreneurship Monitor (GEM), 2018).
Institutions (INST)	**PR:** Property rights are effectively enforced and enshrined in the Basic Law. Commercial and company laws uphold the sanctity of contracts (Heritage Foundation, 2018).
	JE: Legal frameworks that work well are essential to protect the rights of all citizens against the illegal acts of others, including governments and powerful private parties. Judicial effectiveness requires efficient and fair judicial systems to ensure that laws are respected in their entirety and appropriate legal action (Heritage Foundation, 2018).
	BF: Business freedom is well protected within an efficient regulatory framework. Transparency encourages entrepreneurship, and the overall environment is conducive to the start-up of businesses (Heritage Foundation, 2018).
Unemployment rate (U)	Unemployment total (%total labour force) (World Bank, 2018)

The estimate was conducted using the partial least square (PLS) method with the SmartPLS 3.0.M3 program (www.smartpls.de). The results obtained for the sub-model confirmed the choice of indicators as shown in the next section.

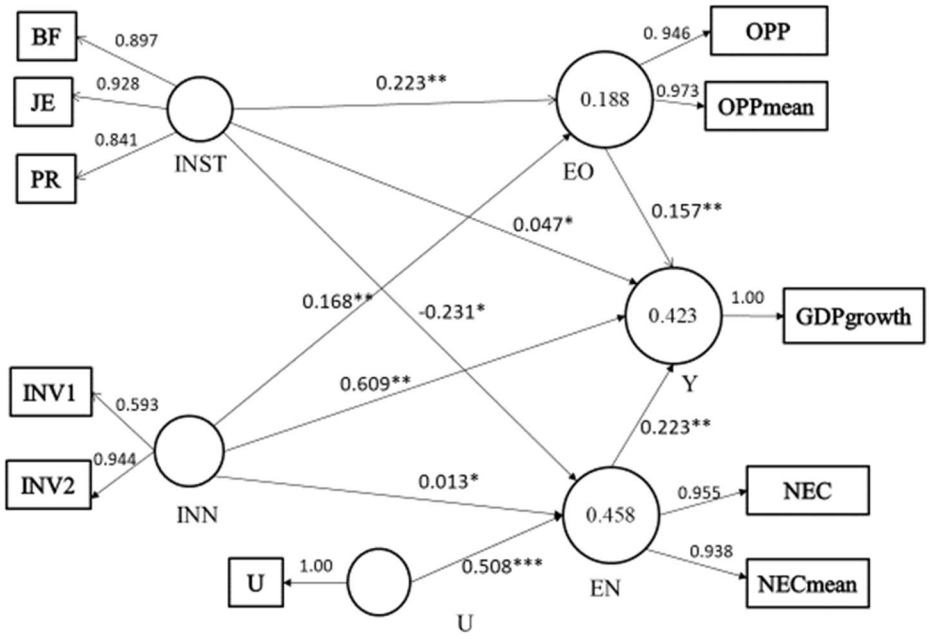
3.2 Results and Discussion

Figure show the path models. These diagrams represent the relationship among latent variables and the results of the estimation for each group (Hair, et al. 2011, 2016). A PLS path model consists of two elements: (a) the structural model or inner model represents constructs (circles) or latent variables and the relationship between exogenous and endogenous variables, and (b) measurement models or outer models of the constructs and the indicator variables (rectangles).

In Figure 1 the results of Group A are included. The factor loadings in the reflective measurement models must be greater than 0.70. This is the level at which 50% of the variance of the indicator is explained by its factor (Hair *et al.*, 2016). As can be seen all the loadings of the indicators are over 0.7 to the estimation of Group A. However, in the case of Group B, Figure 2, the value of the indicator JE is lower than 0.7.

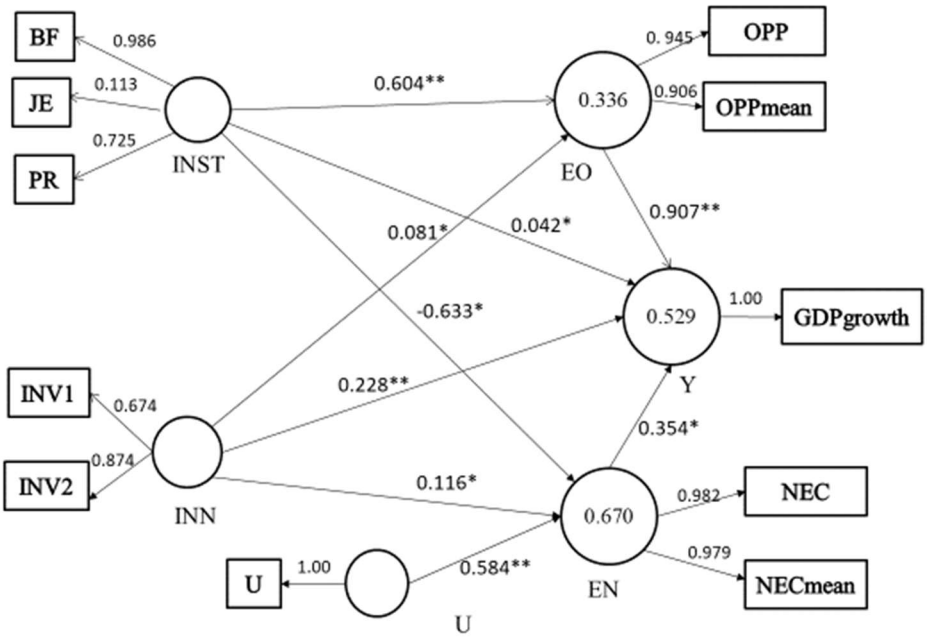
In order to analyse the mean degrees of fit to the structural model, Nagelkerke R2 coefficients associated with latent variable regressions only in the endogenous constructs are used. R^2 indicates the construct variance explained by the model, and all endogenous latent variables with values greater than 0.1 means that there is an acceptable fit to the model (Falk and Miller, 1992). The model analysed presents an acceptable fit in the case of the latent variables of institutions, innovation, entrepreneurship and economic growth (see Table 2) in both groups of countries.

Figure 1. Model estimated to group A



Notes: *p*-value *p_0.10; **p_0.5; ***p_0.1

Figure 2. Model estimated to group B



Notes: *p*-value *p_0.10; **p_0.5; ***p_0.1

Table 2. Reliability and validity of the measurement models

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)	R Square
Gruop A				
EN	0.885	0.945	0.896	0.458
EO	0.916	0.959	0.921	0.188
INN	0.553	0.757	0.621	
INST	0.868	0.919	0.791	
U	1.000	1.000	1.000	
Y	1.000	1.000	1.000	0.423
Group B				
EN	0.960	0.980	0.961	0.670
EO	0.835	0.923	0.856	0.336
INN	0.474	0.754	0.609	
INST	0.697	0.691	0.503	

U	1.000	1.000	1.000	
Y	1.000	1.000	1.000	0.529

The internal consistency of each variable is measured using Cronbach's alpha and composite reliability values; both measures must be over 0.70. The following range of Cronbach's alpha values are conventionally used to interpret the consistency of scales (Nunnally and Bernstein, 1994; Barclay *et al.*, 1995; Wong, 2013).

Convergent validity is assessed by the average variance extracted (AVE), with a minimum value of 0.50 being considered acceptable (Chin, 1998; Fornell and Larcker, 1981), which means that the factors must explain more than half the variance of their respective indicators. In this case, a value below 0.50 means that the error variance is greater than the explained variance. In our model, all the constructs have an AVE higher than 0.5. Thus, we can conclude that the estimates of both country groups have an acceptable level of reliability and validity.

Significance cannot be calculated conventionally using PLS and hence the bootstrapping technique must be used. This technique analyses the significance of the relationships between variables. Figure 1 and 2 shows that all relationships among variables are significant, (p-value * = p ≤10%; **= p ≤5%; ***= p ≤1%). In most settings, researchers choose a significance level of 5%, which implies that the p values must be lower than 0.05 in order to render the relationship under consideration significant. When researchers are very conservative or strict in their testing of relationships, the significance level is set to 1%. In studies that are exploratory, however, a significance level of 10% is commonly used (Hair *et al.*, 2016, p. 153).

After conducting our own analysis, our estimations indicate that hypothesis 1 is confirmed. The data show that there are positive and significant correlations between innovation and growth in both groups of countries (Figures 1 and 2). However, it should be noted that the value shown in the case of the countries of Group A (0.609) is greater than that of the Group B (0.228). This result could mean that opportunity entrepreneurs are more interested in product innovation and internationalisation of their activities than necessity entrepreneurs, possibly because opportunity entrepreneurs plan to maintain their activity over time and not abandon it when the economic situation improves, as happens in the case of necessity entrepreneurs. According to Wennekers *et al*. (2005), opportunity entrepreneurs takes advantage of new business opportunities and are typified by those who most frequently innovate and who have the best business outcomes (Wennekers *et al*., 2005). Casson (1982) and Shane and Venkataraman (2000) define entrepreneurial opportunities as situations in which new goods, services, markets and organisational methods can be introduced through the formation of new means, ends or means-ends relationships. Therefore, the results obtained indicate that in Group A there is a greater

positive correlation between innovation and growth (H1) and innovation and entrepreneurship (H5). These results would verify the previous theoretical approaches, since the Group A entrepreneurs are more dominated by opportunity than Group B entrepreneurs. Hypothesis 2 is also supported, since in both groups there is a positive correlation between the proper functioning of institutions and growth, exhibiting similar values in both groups (0.047 and 0.042, respectively).

Regarding the relationship between entrepreneurship and institutions (hypothesis 3), the data indicate that there is a positive correlation of 0.223 for the countries of Group A and 0.604 for the countries of Group B (Castaño-Martínez *et al.*, 2013; Vokoun and Daza Aramayo, 2017). Therefore, an adequate functioning of the institutions stimulates the entrepreneurial activity by opportunity. In other words, as institutions guarantee the defence of property rights and efficient regulation that stimulates entrepreneurial activity, OE concomitantly increases. In addition, in Group B this correlation is higher, indicating that economic policies that guarantee business freedom and property rights should generate direct positive effects on entrepreneurial activity but a positive indirect moderating effect on economic growth.

Despite the above, we must take into account the existence of a negative correlation with NE in both groups: Group A (-0.231) and Group B (-0.663). Perhaps one of the explanations for this negative correlation is related to characteristics of opportunity entrepreneurs, who attempt to implement a business idea that they consider would have growth potential and therefore long-term value. This would presumably lead to more dependence on institutions, given that opportunity entrepreneurs understand that their activities must be supported by a more efficient and effective institutional environment. In contrast, necessity entrepreneurs seek to solve an immediate problem (loss of job, for example) until they find a stable replacement. They understand that institutions are not only unlikely to support short-term profitability, but such a route can also lead to discouraging bureaucratic obstacles.

Hypothesis 4 is also confirmed because OE – Group A (0.157) and Group B (0.907) – and NE – Group A (0.223) and Group B (0.354) – generate positive effects on economic growth (Figures 1 and 2; Doran *et al.*, 2018). Furthermore, these correlations are greater in the countries of Group B, hence the important role of entrepreneurs in the growth strategy of these countries.

Finally, it is observed that there is a positive relationship between innovation and entrepreneurship, confirming hypothesis 5. However, there are differences in the groups of countries considered. In the case of OE, innovation shows a greater correlation in the countries of Group A (0.168) than in Group B (0.081). The opposite occurs for NE: Group A (0.013) and Group B (0.116). This result may be because OE dominates in Group A, whereas NE predominates in Group B, as previously mentioned.

In addition, in the direct positive effect between innovation and growth, there are two positive indirect moderating effects through OE and NE. The first indirect moderating effect is greater because the correlation between innovation and OE is greater in the two groups.

4. Conclusions

Economic growth is one of the important economic policy objectives due to the beneficial effects in terms of social welfare. Therefore, it is important to determine the variables that enhance economic growth. Two types of actions can be considered: policies that stimulate economic growth and policies that sustain economic growth. To stimulate economic growth, an adequate behavioural environment in which innovations play an important role is necessary to take advantage of the beneficial effects inherent to that environment. To sustain economic growth, institutions play an important role because an adequate rule of law, defence of property rights and so on facilitate and improve market activity.

In this sense, entrepreneurship activity plays an important role in both cases, in order to introduce and to develop innovations to improve his activity, as well as to promote economic growth. The two types of entrepreneurship, OE and NE, then become ever more salient. The former implies the intention to maintain the activity over time, and the latter tends to disappear when the economic situation improves.

Therefore, it is important to analyse the existing relationship between the variables of entrepreneurship, innovation, institutions and growth, while taking into account the circumstances of the countries. Thus, our sample of countries was divided into two groups: Group A, innovation-driven economies, where OE predominates; and Group B, efficiency-driven economies, where NE predominates.

Regarding the relationship between institutions and entrepreneurship, the role played by regulation must be considered. Inefficient and excessive regulation is generally considered to be associated with less efficient market results, having a negative effect on entrepreneurial activity (Djankov *et al*. 2010). In addition, Djankov et al. (2002) showed that stricter regulation is associated with greater inefficiency of public institutions, leading to greater corruption and a more submerged economy.

The results obtained in the empirical analysis show that adequate regulations that guarantee the protection of property rights and business freedom would stimulate OE and economic growth. Correspondingly, the political decision makers should design economic policies that guarantee the proper functioning of markets and the guarantee of property rights, especially since excessive regulations are associated with negative results such as greater informality and corruption (Audretsch *et al*. 2006; Klapper *et al*. 2009; Klapper and Love 2011; Motta *et al*. 2010). Clearly defined regulation and equal access to property rights are essential to allow companies to expand their operations, given that the protection of property rights is

associated with greater investment, better access to finance and increased productivity and economic growth (World Bank, 2019).

Innovation also has a positive relationship with entrepreneurs and growth. Measures aimed at fostering innovation (tax cuts, promotion of R&D, etc.) will stimulate entrepreneurial activity because they allow entrepreneurs to adapt to environmental changes faster than large organisations can because of agility and rapid decision making while helping entrepreneurs to compete better in the market (Rosenbusch *et al*. 2011). From this point of view, we must also consider that adequately prepared institutions and greater innovations not only encourage overall productivity and economic growth through creating competition in the market (Klapper *et al*. 2006; Djankov *et al*. 2002), but also favour entrepreneurship and economic growth (Aghion *et al*., 2009; Black and Strahan, 2002 and Hause and Du Rietz, 1984). Thus, younger companies contribute much more to job creation than more mature companies (Ayyagari *et al*. 2011; Haltiwanger *et al*. 2010). From this perspective, actions by institutions aimed at improving this entrepreneurial activity and the social climate (educational improvement, better income distribution, etc.), would favour entrepreneurship and through it the correlated economic growth.

The empirical analysis presented here considers two groups of countries, indicating that in both cases the institutions and innovations show a positive effect on growth, thus confirming the results in the specialised literature. Moreover, in both cases, the policies designed to stimulate the generation and implementation of innovations would be beneficial, as well as the introduction of measures to improve the functioning of institutions. The same result has been obtained in the case of both types of entrepreneurs considered, showing a positive relationship with the objective of economic policy. Also, innovations would have a positive effect on both types of entrepreneurship. Thus, the measures adopted to encourage innovation would also foster entrepreneurship and indirectly stimulate growth.

However, the empirical analysis also shows that there are some important differences between the different groups of countries. First, entrepreneurship activity causes positive effects on the economic growth of both groups of countries, although the correlation is greater in the countries of Group B. Second, the adequate functioning of institutions has positive effects on growth and OE, but the correlation is negative in the case of NE. And third, the correlation between innovation and OE is greater in Group A.

This would imply that it would be necessary to improve the functioning of institutions to promote NE activity, by reducing bureaucratic obstacles and introducing regulations that facilitate the generation of entrepreneurial activity. However, institutions can also play an important role by influencing through of actions on human capital so that the relationship between OE increases with respect to NE.

Finally, it should be noted that the study presents some limitations, such as the number of countries in the sample, especially in the case of Group B, which should be increased for future studies. In addition, the inclusion of qualitative variables, such as level of bureaucracy, could give us more information about potential impacts on institutional behaviour. It would also be of interest to introduce variables related to social relations, such as trust and rule of law. Thus, this study opens new lines of research, which would benefit from the inclusion of new groups of countries, as well as the incorporation of both quantitative and qualitative decision variables.

References

Acemoglu, D. (2003), 'Root Causes. A historical approach to assessing the role of institutions in economic development', *Finance & Development*, Vol. 40 No. 2, pp. 27–30.

Acemoglu, D., Johnson, S. and Robinson, J. A. (2001), 'The colonial origins of comparative development: An empirical investigation', *American Economic Review*, Vol. 91 No. 5, pp. 1369–1401.

Acemoglu, D., Johnson, S. and Robinson, J. A. (2005a), 'Institutions as a fundamental cause of long-run growth', in Aghion, P. and Durlauf, S. (Eds.) *Handbook of Economic Growth*. Elsevier, pp. 385–472.

Acemoglu, D., Johnson, S. and Robinson, J. A. (2005b), 'The rise of Europe: Atlantic trade, institutional change and economic growth', *American Economic Review*, Vol. 95 No.3, pp. 546–579.

Acemoglu, D. and Robinson, J. (2008), *The role of institutions in growth and development*. 10. Available at: www.growthcommission.orgcontactinfo@growthcommission.org (accessed: 27 January 2019).

Acs, Z. J., Audretsch, D. B., Braunerhjelm, P. and Carlsson, B. (2012), 'Growth and entrepreneurship', *Small Business Economics*, Vol. 39 No. 2, pp. 289–300.

Acs, Z. J., Estrin, S., Mickiewicz, T. and Szerb, L. (2018), 'Entrepreneurship, institutional economics, and economic growth: an ecosystem perspective', *Small Business Economics*, Vol. 51 No.2, pp. 501–514.

Adrián Risso, W. and Sánchez Carrera, E. J. (2019), 'On the impact of innovation and inequality in economic growth', *Economics of Innovation and New Technology*, Vol. 28 No. 1, pp. 64-81.

Aghion, P. (2017), 'Entrepreneurship and growth: lessons from an intellectual journey', *Small Business Economics*, Vol. 48 No 1, pp. 9-24.

Aghion, P., Blundell, R., Griffith, R., Howitt, P. and Prantl, S. (2009). 'The effects of entry on incumbent innovation and productivity', *Review of Economics and Statistics*, Vol. 91 No. 1, pp. 20-32.

Aghion, P. and Howitt, P. (1998), *Endogenous Growth Theory*, The MIT Press, Cambridge, Mass.

Alam, A., Uddin, M. and Yazdifar, H. (2019), 'Institutional determinants of R&D investment: Evidence from emerging markets', *Technological Forecasting and Social Change*, Vol. 138, pp. 34–44.

Alpkan, L., Bulut, C., Gundy, G., Ulusoy, G. and Kilic, K. (2010), 'Organizational support for intrapreneurship and its interaction with human capital to enhance innovative performance', *Management Decision*, Vol. 48 No. 5, pp. 732-755.

Andergassen, R., Nardini, F., & Ricottilli, M. (2017), 'Innovation diffusion, general purpose technologies and economic growth', *Structural Change and Economic Dynamics*, Vol. 40 No. C, pp. 72-80.

Aparicio, S., Urbano, D. and Audretsch, D. (2016), 'Institutional factors, opportunity entrepreneurship and economic growth: Panel data evidence', *Technological Forecasting and Social Change*, Vol. 102 No. 1, pp. 45–61.

Audretsch, D. B. (2005), 'The knowledge spillover theory of entrepreneurship and economic growth', in Vinig, G. T. and Van Der Voort, R. C. W. (Eds.) *The Emergence of Entrepreneurial Economics*. Emerald Group Publishing Limited, pp. 37–54.

Audretsch, D. B. and Keilbach, M. (2004a), 'Does entrepreneurship capital matter?', *Entrepreneurship Theory and Practice*, Vol. 2 No. 5, pp. 419–429.

Audretsch, D. and Keilbach, M. (2004b), 'Entrepreneurship capital and economic performance', *Regional Studies*, Vol. 38 No 8, pp. 949–959.

Audretsch, D. B., Keilbach, M. C. and Lehmann, E. E. (2006), *Entrepreneurship and economic growth.* Oxford University Press.

Autio, E., Kenney, M., Mustar, P., Siegel, D. and Wright, M. (2014), 'Entrepreneurial innovation: The importance of context', *Research Policy*, Vol. 43 No 7, pp. 1097–1108.

Autio, E. and Fu, K. (2015), 'Economic and political institutions and entry into formal and informal entrepreneurship', *Asia Pacific Journal of Management*, Vol. 32 No. 1, pp. 67-94.

Ayyagari, M., Demirguc-Kunt, A. and Maksimovic, V. (2011), 'Small vs. young firms across the world: contribution to employment, job creation, and growth. Policy Research working paper No. WPS 5631. World Bank, Washington, DC. Available at: http://documents.worldbank.org/curated/en/478851468161354807/Small-vs-young-firms-across-the-world-contribution-to-employment-job-creation-and-growth (accessed: 23 September 2019)

Bahmani, S., Galindo, M. A. and Méndez, M. T. (2012), 'Non-profit organizations, entrepreneurship, social capital and economic growth', *Small Business Economics*, Vol. 38 No 3, pp. 271–281.

Barba-Sánchez, V. and Atienza-Sahuquillo, C. (2018), 'Entrepreneurial intention among engineering students: The role of entrepreneurship education', *European Research on Management and Business Economics,* Vol. 24 No. 1, pp. 53-61.

Barclay, D., Higgins, C. and Thompson, R. (1995), 'The partial least squares (pls) approach to casual modeling: computer adoption and use as an illustration'. *Technology Studies*, Vol. 2 No. 2., pp. 285-309.

Baregheh, A., Rowley, J. and Sambrook, S. (2009), 'Towards a multidisciplinary definition of innovation', *Management Decision*, Vol. 47 No 8, pp. 1323–1339.

Becker, J. M. and Ismail, I. R. (2016), 'Accounting for sampling weights in PLS path modeling: Simulations and empirical examples', *European Management Journal*. Vol. 34 No. 6, pp. 606–617.

Bjørnskov, C. and Foss, N. J. (2016), 'Institutions, entrepreneurship, and economic growth: what do we know and what do we still need to know?', *The Academy of Management Perspectives*, Vol. 30 No. 3, pp. 292–315.

Black, S. E. and Strahan, P. E. (2002), 'Entrepreneurship and bank credit availability', *The Journal of Finance*, Vol. 57 No. 6, pp. 2807-2833.

Block, J. H., Kohn, K., Miller, D. and Ullrich, K. (2015), 'Necessity entrepreneurship and competitive strategy', *Small Business Economics*, Vol. 44 No. 1, pp. 37-54.

Bosma, N., Content, J., Sanders, M. and Stam, E. (2018), 'Institutions, entrepreneurship, and economic growth in Europe', *Small Business Economics*, Vol. 51 No. 2, pp. 483–499.

Boudreaux, C. J., Nikolaev, B. N. and Klein, P. (2019), 'Socio-cognitive traits and entrepreneurship: The moderating role of economic institutions', *Journal of Business Venturing*, Vol. 34 No 1, pp. 178–196.

Bradley, S.W. and Klein, P. (2016), 'Institutions, economic freedom, and entrepreneurship: the contribution of management scholarship', *The Academy of Management Perspectives*, Vol. 30 No. 3, pp. 211–221.

Bruton, G. D., Ahlstrom, D. and Puky, T. (2009), 'Institutional differences and the development of entrepreneurial ventures: a comparison of the venture capital industries in Latin America and Asia'. *Journal of International Business Studies*, Vol. 40 No. 5, pp. 762–778.

Cameron, G. (1996), *Innovation and economic growth.* Centre for Economic Performance, London School of Economics and Political Science, London, UK.

Casson, M. (1982), *The Entrepreneur*, Barnes and Noble Books, Totowa, NJ.

Castaño, M. S., Méndez, M. T. and Galindo, M.A. (2015), 'Innovation, internationalization and business-growth expectations among entrepreneurs in the services sector', *Journal of Business Research*, Vol. 69 No 5, pp. 1690–1695.

Castaño-Martínez, M. S., Ruiz-Fuensanta, M. J. and Martínez-Rodríguez, I. (2013), 'The influence of socioeconomic factors on entrepreneurship and innovation', *Journal of Small Business Strategy*. Vol. 23 No 2, p. 15-28.

Chambers, D., and Munemo, J. (2019), 'Regulations, institutional quality and entrepreneurship'. *Journal of Regulatory Economics*, Vol. 55 No. 1, pp. 46-66.

Chilton, M. A. and Bloodgood, J. M. (2010), 'Adaption-innovation theory and knowledge use in organizations', *Management Decision*, Vol. 48 No 8, pp. 1159–1180.

Chin, W. W. (1998),. 'The partial least squares approach to structural equation modeling'. In Macoulides, G.A. (Ed.), *Modern methods for business research,* Lawrence Erlbaum, Mahwah, NJ. pp. 295-236.

Chin, W. W., Marcolin, B. L. and Newsted, P. R. (2003), 'A partial least squares latent variable modeling approach for measuring interaction effects: results from a monte carlo simulation study and an electronic-mail emotion/adoption study', *Information Systems Research*, Vol. 14 No 2, pp. 189–217.

Chowdhury, F., Audretsch, D. B. and Belitski, M. (2019), 'Institutions and entrepreneurship quality', *Entrepreneurship Theory and Practice*, Vol. 43 No. 1, pp. 51-81.

De Cleyn, S. H. and Braet, J. (2012), 'Do board composition and investor type influence innovativeness in SMEs?', *International Entrepreneurship and Management Journal*, Vol. 8 No 3, pp. 285–308.

Dilli, S., Elert, N. and Herrmann, A. M. (2018), 'Varieties of entrepreneurship: exploring the institutional foundations of different entrepreneurship types through "Varieties-of-Capitalism" arguments', *Small Business Economics*, Vol. 51 No 2, pp. 293–320.

Djankov, S., Ganser, T., McLiesh, C., Ramalho, R. and Shleifer, A. (2010) 'The effect of corporate taxes on investment and entrepreneurship'. *American Economic Journal: Macroeconomics*, Vol. 2 No. 3, pp. 31–64.

Djankov, S., La Porta, R., Lopez-de-Silanes, F. and Shleifer, A. (2002), 'The regulation of entry', *The Quarterly Journal of Economics*, Vol. 117 No. 1, pp. 1-37.

Doran, J., McCarthy, N., O'Connor, M. and Nsiah, C. (2018), 'The role of entrepreneurship in stimulating economic growth in developed and developing countries', *Cogent Economics & Finance*, Vol. 6 No. 1, art. 1442093.

Drucker, P. F. (1998), 'The discipline of innovation.', *Harvard Business Review*, Vol. 76 No 6, pp. 149–57. Available at: http://www.ncbi.nlm.nih.gov/pubmed/10187245 (Accessed: 28 January 2019).

Eldomiaty, T., Hammam, R., Said, Y. and Safwat, A. (2019), 'How Does Governance Help World Stock Market Development?'. In Grima, S., Özen, E., Boz, H., Spiteri, J. and Thalassinos, E. (Ed.) *Contemporary Issues in Behavioral Finance* (Contemporary Studies in Economic and Financial Analysis, Vol. 101), Emerald Publishing Limited, pp. 261-281

Elert, N. and Henrekson, M. (2017), 'Entrepreneurship and institutions: A bidirectional relationship', *Foundations and Trends® in Entrepreneurship*, Vol. 13 No. 3, pp. 191–263.

Fairlie, R.W. and Fossen, F.M. (2018), ' Opportunity versus Necessity Entrepreneurship: Two Components of Business Creation', Working Paper No. 11258, Discussion Papers of IZA Institute of Labor Economics, Bonn, Germany.

Falk, R. F. and Miller, N. B. (1992), *A primer for soft modeling,* University of Akron Press, Akron OH.

Ferreira, J. J., Fernandes, C. I. and Ratten, V. (2017), 'Entrepreneurship, innovation and competitiveness: what is the connection?'. *International Journal of Business and Globalisation*, Vol. 18 No. 1, pp. 73-95.

Fornell, C., & Larcker, D. F. (1981), 'Evaluating structural equation models with unobservable variables and measurement error', *Journal of Marketing Research,* Vol. 18 No. 1, pp. 39–50.

Galindo, M. A. and Méndez-Picazo, M. T. (2013), 'Innovation, entrepreneurship and economic growth', *Management Decision*, Vol. 51 No 3, pp. 501–514.

Galindo, M. A. and Méndez, M. T. (2014), 'Entrepreneurship, economic growth, and innovation: Are feedback effects at work?', *Journal of Business Research*, Vol. 67 No 5, pp. 825–829.

Global Entrepreneurship Monitor (GEM) (2018), *Entrepreneurial behaviour and attitudes Database*. Available at: https://www.gemconsortium.org/data (accesed 8 September 2018).

Hair, F. J., Hult, G. . T. M., Ringle, C. and Sarstedt, M. (2016), *A primer on partial least squares structural equation modeling (PLS-SEM)*, SAGE Publications, Los Angeles, CA.

Hair, J. F., Ringle, C. M. and Sarstedt, M. (2011), 'PLS-SEM: Indeed a Silver Bullet'. *Journal of Marketing Theory and Practice,* Vol. 18 No. 2, pp. 139-152.

Hair, J. F., Ringle, C. M. and Sarstedt, M. (2012), 'Partial Least Squares: The better approach to structural equation modeling?' *Long Range Planning,* Vol. 45 No. 5, pp. 312-319.

Hair, J. F., Risher, J. J., Sarstedt, M. and Ringle, C. M. (2019), 'When to use and how to report the results of PLS-SEM', *European Business Review*, Vol. 31 No. 1, pp. 2-24.

Haltiwanger, J. C., Jarmin, R. S. and Miranda, J. (2010), 'Who creates jobs? Small vs. large vs. young' (No. w16300). National Bureau of Economic Research. Available at: https://www.nber.org/papers/w16300.pdf (Accessed 22 September 2019).

Hasan, I. and Tucci, C. L. (2010), 'The innovation–economic growth nexus: Global evidence', *Research Policy*, Vol. 39 No. 10, pp. 1264-1276.

Hause, J. C. and Du Rietz, G. (1984), 'Entry, industry growth, and the microdynamics of industry supply', *Journal of Political Economy*, Vol. 92 No. 4, pp. 733-757.

Henseler, J. J., Ringle, C. M. and Sinkovics, R. R. (2009), 'The use of partial least squares path modeling in international marketing', *Advances in International Marketing*, Vol. 20, pp. 277–319.

Heritage Foundation (2018), *2018 Index of Economic Freedom*. Available at: https://www.heritage.org/index/ (accessed 20 November 2018)

Herrera, F., Guerrero, M., and Urbano, D. (2018), 'Entrepreneurship and Innovation Ecosystem's Drivers: The Role of Higher Education Organizations'. In Leitão, J., Alves, H., Krueger, N. and Park, J. (Eds.) *Entrepreneurial, Innovative and Sustainable Ecosystems,* Springer, pp. 109-128.

Ho, Y. C., Fang, H. C. and Lin, J. F. (2011), 'Technological and design capabilities: is ambidexterity possible?', *Management Decision*, Vol. 49 No 2, pp. 208–225.

Jacob, M. and Michaely, R. (2017), 'Taxation and dividend policy: the muting effect of agency issues and shareholder conflicts', *The Review of Financial Studies*, Vol. 30 No. 9, pp. 3176-3222.

Justesen, M. K. and Kurrild-Klitgaard, P. (2013), 'Institutional interactions and economic growth: the joint effects of property rights, veto players and democratic capital', *Public Choice*, Vol. 157 No 3–4, pp. 449–474.

Kaufmann, D., Kraay, A. and Mastruzzi, M. (2014), 'The Worldwide Governance Indicators' (1996-2014). http://info.worldbank.org/governance/wgi/index.aspx#home (Accessed 16 August 2019)

Kelley, D. J., Singer, S. and Herrington, M. (2012), *Global Entrepreneurship Monitor 2011 Global Report*. Global Entrepreneurship Research Association, London Business School. Available at: https://bib.irb.hr/prikazi-rad?rad=680770&table=knjiga&lang=EN&print=true (Accessed: 28 January 2019).

Klapper, L., Laeven, L. and Rajan, R. (2006), 'Entry regulation as a barrier to entrepreneurship', *Journal of Financial Economics,* Vol. 82 No. 3, pp. 591–629.

Klapper, L., Lewin, A. and Delgado, J.Q. (2009), 'The impact of the business environment on the business creation process'. World Bank Policy Research Working Paper 4937, World Bank, Washington, DC. Available at: http://documents.worldbank.org/curated/en/537121468149672866/The-impact-of-the-business-environment-on-the-business-creation-process (Accessed 24 September 2019)

Klapper, L. and Love, I. (2011), 'The impact of the financial crisis on new firm registration', *Economics Letters*, Vol. 113 No. 1, pp. 1-4.

Lee, L., Wong, P. K., Der Foo, M. and Leung, A. (2011), 'Entrepreneurial intentions: The influence of organizational and individual factors', *Journal of Business Venturing*, Vol. 26 No. 1, pp. 124-136.

Lim, D. S. K., Oh, C. H. and De Clercq, D. (2016), 'Engagement in entrepreneurship in emerging economies: Interactive effects of individual-level factors and institutional conditions', *International Business Review*, Vol. 25 No 4, pp. 933–945.

Malecki, E. J. (2018). 'Technological innovation and paths to regional economic growth'. In Schmandt, J. and Wilson, R. (Eds.), *Growth Policy in the Age of High Technology*, Routledge, pp. 97-126).

Malerba, F. and McKelvey, M. (2019), 'Knowledge-Intensive Innovative Entrepreneurship', *Foundations and Trends® in Entrepreneurship*, Vol. 14 No. 6, pp. 555-681.

Mas-Verdu, F., Ribeiro, D. and Dobón, S. R. (2010), 'Government policies and services: an approach to the international context', *The Service Industries Journal*, Vol. 30 No 1, pp. 1–10.

Mazzarol, T. W. and Reboud, S. (2017), *Entrepreneurship and Innovation,* Tilde Publishing and Distribution, Australia.

Méndez-Picazo, M. T., Galindo-Martín, M.A. and Ribeiro-Soriano, D. (2012), 'Governance, entrepreneurship and economic growth', *Entrepreneurship and Regional Development*, Vol. 24 No. 9–10, pp. 865–877.

Motta, M., Oviedo, A.M. and Santini, M. (2010). 'An open door for firms'. Public policy for the private sector; Note no. 323.: World Bank, Washington, DC. Available at: http://documents.worldbank.org/curated/en/236741468167379748/An-open-door-for-firms (Accessed 23 September 2019).

Nasiri, N. and Hamelin, N. (2018), 'Entrepreneurship Driven by Opportunity and Necessity: Effects of Educations, Gender and Occupation in MENA', *Asian Journal of Business Research*, Vol. 8 No. 2, pp. 57-71.

Nissan, E., Galindo Martín, M. A. and Méndez Picazo, M. T. (2011) 'Relationship between organizations, institutions, entrepreneurship and economic growth process', *International Entrepreneurship and Management Journal*, Vol. 7 No 3, pp. 311–324.

North, D. C. (1990), *Institutions, institutional change and economic performance*. Cambridge University Press, Cambridge.

North, D. C. (2005), *Understanding the process of economic change*, Princeton University Press, Princeton.

Nunnally, J. C. and Bernstein, I. H. (1994), *Psychometric Theory*, McGraw-Hill, New York.

Oosterbeek, H., Van Praag, M. and Ijsselstein, A. (2010), 'The impact of entrepreneurship education on entrepreneurship skills and motivation', *European Economic Review*, Vol. 54 No. 3, pp. 442-454.

Porter, M., Sachs, J. D. and McArthur, J. W. (2002), 'Executive Summary: Competitiveness and Stages of Development', *Global Competitiveness Report.* http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.476.4940&rep=rep1&type=pdf (Accessed: 20 August 2019).

Potts, J. (2019), *Innovation Commons: The Origin of Economic Growth*, Oxford University Press.

Przeworski, A. and Limongi, F. (1993), 'Political regimes and economic growth', *Journal of Economic Perspectives*, Vol. 7 No 3, pp. 51–69.

Rodrik, D. (2005), 'Growth strategies'. In P. Aghion & S. Durlauf (Eds.), *Handbook of economic growth Vol.I* , Elsevier, Amsterdam, pp. 967–1014.

Romer, P. M. (1986), 'Increasing returns and long-run growth', *Journal of Political Economy*, Vol. 94 No. 5, pp. 1002-1037.

Romer, P. M. (1987), 'Growth based on increasing returns due to specialization', *American Economic Review*, Vol. 77 No. 2, pp. 56-62.

Romero-Martínez, A. M., Ortiz-de-Urbina-Criado, M. and Ribeiro Soriano, D. (2010), 'Evaluating European Union support for innovation in Spanish small and medium enterprises', *The Service Industries Journal*, Vol. 30 No 5, pp. 671–683.

Romp, W. and de Haan, J. (2007), 'Public Capital and EconomicGrowth: A Critical Survey', *Perspektiven der Wirtschaftspolitik,* Vol. 8 No. S1, pp. 6–52

Rosenberg, N. (2006), 'Innovation and Economic Growth', in *Innovation and Growth in Tourism*, OECD Publishing, Paris. https://www.oecd.org/cfe/tourism/34267902.pdf (Accessed: 2 september 2019)

Rosenbusch, N., Brinckmann, J. and Bausch, A. (2011), 'Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs'. *Journal of business Venturing*, Vol. 26 No. 4, pp. 441-457.

Schmitz, A., Urbano, D., Dandolini, G. A., de Souza, J. A. and Guerrero, M. (2017), 'Innovation and entrepreneurship in the academic setting: a systematic literature review'. *International Entrepreneurship and Management Journal*, Vol. 13 No. 2, pp. 369-395.

Schumpeter, J. A. (1911), *The theory of economic development: An inquiry into profits, capital, credit, interest and business cycle*. Harvard University Press, Cambridge, MA.

Schumpeter, J. A. (1950), *Capitalism, socialism, and democracy*. Harper & Brother Publishers, New York.

Shane, S. and Venkataraman, S. (2000), 'The promise of entrepreneurship as a field of research', *Academy of Management Review*, Vol. 25 No. 1, pp. 217-226.

Simón-Moya, V., Revuelto-Taboada, L. and Guerrero, R. F. (2014), 'Institutional and economic drivers of entrepreneurship: An international perspective', *Journal of Business Research*, Vol. 67 No. 5, pp. 715–721.

Singer, S., Herrington, M. and Menipaz, E. (2018), *GEM 2017/18 Global Report*. Available at: https://www.gemconsortium.org/report/50012 (accesed 10 January 2019).

Sirowy, L. and Inkeles, A. (1990), 'The effects of democracy on economic growth and inequality: A review', *Studies In Comparative International Development*, Vol. 25 No. 1, pp. 126–157.

Solow, R. M. (1956), 'A contribution to the theory of economic growth', *Quarterly Journal of Economics*, Vol. 70 No. 1, pp. 65-94.

Swan, T. W. (1956), 'Economic growth and capital accumulation', *Economic Record*, Vol. 32 No. 2, pp. 334–361.

Thornton, P. H., Ribeiro-Soriano, D. and Urbano, D. (2011), 'Sociocultural factors and entrepreneurial activity: an overview', *International Small Business Journal*, Vol. 29 No 2, pp. 105–118.

Tomaszewski, M. (2018), 'Corruption- a dark side of entrepreneurship. Corruption and innovations', *Prague Economic Papers*, Vol. 27 No 3, pp. 251–269.

Urbano, D., Aparicio, S. and Audretsch, D. (2019), 'Twenty-five years of research on institutions, entrepreneurship, and economic growth: what has been learned?', *Small Business Economics*, Vol. 53 No.1, pp. 21–49.

van der Zwan, P., Thurik, R., Verheul, I. and Hessels, J. (2016), 'Factors influencing the entrepreneurial engagement of opportunity and necessity entrepreneurs', *Eurasian Business Review*, Vol. 6 No. 3, pp. 273-295.

Van Praag, C. M. and Versloot, P. H. (2007), 'What is the value of entrepreneurship? A review of recent research', *Small Business Economics*, Vol. 29 No. 4, pp. 351-382.

Vokoun, M. and Daza Aramayo, L. G. (2017), 'Business environment index for developing countries: The case of Latin America', *Latin American Business Review*, Vol. 18 No. 2, pp. 121–137.

Wennekers, S., Van Wennekers, A., Thurik, R. and Reynolds, P. (2005), 'Nascent entrepreneurship and the level of economic development', *Small Business Economics*, Vol. 24 No. 3, pp. 293-309.

Wong, K. K. (2013), 'Partial least squares structural equation modeling (PLS-SEM): techniques using SmartPLS'. *Marketing Bulletin*, Vol. 24 No 1, pp- 1-32.

World Bank (2018), 'World Development Indicators'. Available at: http://datatopics.worldbank.org/world-development-indicators/ (accessed 14 June 2018).

World Bank (2019), *Doing Business 2019: Training for Reform*. World Bank, Washington, DC. Available at: https://www.doingbusiness.org/content/dam/doingBusiness/media/Annual-Reports/English/DB2019-report_web-version.pdf (Accessed 20 June 2019)

Zortea-Johnston, E., Darroch, J. and Matear, S. (2012), 'Business orientations and innovation in small and medium sized enterprises', *International Entrepreneurship and Management Journal*, Vol. 8 No. 2, pp. 145–164.