



INNOVATION EFFORTS IN THE FACE OF INSTITUTIONAL OBSTACLES IN LATIN AMERICA

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ABSTRACT

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Among scholars, politicians and practitioners, innovation has become a priority. However, a consensus and convergence have yet to be reached in the literature regarding the factors that determine innovation efforts at the firm level regarding developing countries. Thus, the general aim was to gauge to what extent rapid internationalization and relational triggers enable a potential for innovation efforts in companies from Latin American countries faced with the perception of the gravity of institutional obstacles. In methodological terms, a database of the World Bank (Environment Surveys) was used, with 14,064 companies from 20 Latin American countries, with responses to question related to their innovation efforts. Unprecedented contributions were collected, as this was the first time that the perception of the gravity of institutional obstacles was jointly and empirically evaluated, together with evidence of rapid internationalization and the use of relational triggers, to explain innovation efforts, considering many firms from Latin American companies. This work also provides some clues about the potentializing effect of rapid internationalization in the relationship between institutional obstacles and innovation efforts. The main results allow a better understanding about inter- and intra-group analyses, demonstrating in which groups of Latin American company's innovation efforts are more significant and distinctive, and therefore require pro-market and pro-internationalization public policies.

Contribution/Originality: The paper's primary contribution is finding that what extent rapid internationalization and relational triggers potentialize the innovation efforts of Latin American companies regarding the perception of the gravity of institutional obstacles.

1. INTRODUCTION

Literature highlight a set of issues considered as a priority for companies that seek exposure to international competitiveness, namely: (a) agile management of innovation efforts (Doz & Kosonen, 2008; Walsh, Lee, & Nagaoka, 2016) (b) sensitivity to the institutional environment, including economic, social and environmental aspects (Colvin et al.,

2014; Henderson & Newell, 2011) (c) rapid initiatives in order to operate in international markets (Padilla-Pérez & Gaudin, 2014) and (d) the ability to use relational triggers to seek access to complementary resources (Kanter, 2009; Lin & Darnall, 2015).

These topics are demonstrative of a tendency towards a paradigm shift from analysis and work, previously defined as the company nucleus, to beyond its boundaries (Baldwin & Von Hippel, 2011) culminating in innovation efforts that are attentive, a priori, to institutional issues and whose potential can be enabled through rapid internationalization and relational triggers (Kanter, 2009; Lin & Darnall, 2015; Padilla-Pérez & Gaudin, 2014; Papazoglou & Spanos, 2018; Wang, 2018).

Therefore, the role of innovation strategies in exposure to international competitiveness is well known. However, there is no consensus regarding the levels of innovation efforts when faced with institutional obstacles in developing countries, considering the potential influences of rapid internationalization and relational triggers at the firm level.

To address the problematization presented above, an effort was made to answer the following research question: To what extent do rapid internationalization and relational triggers potentialize the innovation efforts of companies in Latin American countries when faced with the perception of the gravity of institutional obstacles?

In this study, the general aim was to gauge how far rapid internationalization and relational triggers potentialize the innovation efforts of companies in Latin American countries when they perceive the gravity of institutional obstacles. A specific effort was made to: (a) test the relationship between institutional obstacles and innovation efforts, taking into consideration the size of companies in Latin American countries; (b) test the relationship between institutional obstacles and innovation efforts, taking into account the age of companies in Latin American countries; (c) gauge, according to the size of companies in Latin American countries, whether rapid internationalization and relational triggers create a potential for innovation efforts in the face of the perceived gravity of institutional obstacles; and (d) ascertain, according to the age of companies in Latin American countries, whether rapid internationalization and relational triggers potentialize innovation efforts in the face of the perceived gravity of institutional obstacles.

It should be added that, in academia, empirical studies that have examined the relationship between institutional obstacles and the innovation efforts of companies in developing countries, such as Latin American countries, remain few in number (de-Oliveira & Rodil-Marzábal, 2019; Heimeriks & Schreiner, 2002; Lin & Darnall, 2015). Studies that jointly consider relational perceptions and those of rapid internationalization as forces that could potentialize the innovation efforts of companies in emerging economies are also scarce (Cohen, 2012; Hunt, Arnett, & Madhavaram, 2006; Vassolo, Anand, & Folta, 2004). This might be associated with the fact that it is only recently that the availability of data on companies' innovation efforts has been systematized as a result of the delayed structuring of national innovation systems (Ayyagari, Demircuc-Kunt, & Maksimovic, 2012; Goedhuys, Janz, & Mohnen, 2014).

Therefore, the present study makes unprecedented contributions to the field because this is the first time that a study has jointly and empirically evaluated perceptions of the gravity of institutional obstacles and evidence of rapid internationalization and the use of relational triggers to explain innovation efforts, considering many firms from Latin American countries as an analysis unit.

This research allows demonstrates the potentializing effect of rapid internationalization on the relationship between institutional obstacles and innovation efforts. It also contributes through inter- and intra-group analyses, showing in which groups of Latin American companies' innovation efforts are more significant and distinctive and consequently important to the development of pro-market and pro-internationalization policies in Latin American countries. Finally, and no less important, the study reveals positive patterns of correction between age, size, perception of the gravity of institutional obstacles and innovation efforts, evidencing the importance of the structuring of professionalization, expansion, and maturity programs for Latin American businesses.

The analysis context of the study was therefore Latin America, and the adopted quantitative and explanatory approach focuses on the firm. In specific terms, data on 14,064 companies from 20 Latin American countries were analyzed, namely: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Haiti,

Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, the Dominican Republic, Uruguay, and Venezuela. The study particularly considered those companies that answered questions related to the innovation efforts of the Banco (2018).

It should be explained that the secondary data considered in the study cover the period ranging from 2006 to 2018. These data were organized in a database as follows: (a) for the dependent variable, Innovation Efforts, the indicators of the introduction of new products in the last three years, the introduction of new processes in the last three years and investment in R&D in the last fiscal year of the Banco (2018) were adopted, following the guidelines of the Oslo (2005); (b) for the independent variable, Institutional Obstacles, the indicators of the Banco (2018) were also adopted, including Access to Finance, Corruption, Inadequate Workforce Skills, Labor Regulation, Political Instability, Practices of Informal Competitors, Taxation and Transport; (c) for the moderating variable, Rapid Internationalization, the presence of companies that had been operational for a maximum of 15 years and with a minimum of 5% of their sales directly exported, obtained from the Banco (2018) was used as evidence; (d) for the moderating variable, Relational Triggers, the use of licensed technology from foreign companies or internationally recognized quality certification obtained from the Banco (2018) served as evidence (2018); and (e) for the control variable, Business Characteristics, the company's age and size, according to the number of employees, were used as evidence.

2. THEORETICAL FRAMEWORK

The Resource Based View and dynamic capabilities (Pandit, Joshi, Sahay, & Gupta, 2018; Teece, Pisano, & Shuen, 1997; Teece, 2007) establish the degree of alignment of resources, processes and values over time (Karimi & Walter, 2015) responding to changes in the institutional environment (Barasa, Knobens, Vermeulen, Kimuyu, & Kinyanjui, 2017; Kaufmann, Kraay, & Mastruzzi, 2011; Sirmon, Hitt, & Ireland, 2007; Wang, 2018). The importance of effective resource selection processes from the company's own pool and the processes of combining existing resources to guide pro-innovation decision making should also be highlighted (Drnevich & Kriauciunas, 2011). Therefore, greater synergy between resources and capabilities is required, as well as support from the top management, to establish the gradual allocation of resources and provide innovation efforts with the right kind of autonomy (Jamrog, Vickers, & Bear, 2006). The complementarity of resources, process and values thus implies a holistic conception of resources and dynamic capabilities that aid the performance of businesses (Drnevich & Kriauciunas, 2011).

Resources and dynamic capabilities (Teece et al., 1997; Teece, 2007) also lead companies to identify and exploit opportunities that arise from developments and investments, culminating in positive contributions to performance (Drnevich & Kriauciunas, 2011). Therefore, a company is capable of creating resources and dynamic capabilities in terms of efforts to introduce new products to the market, efforts to introduce new processes to the market and efforts of investing in R&D, altering, adapting or extending its existing resources, processes and values (Daniel, Ward, & Franken, 2014). These innovation efforts, in turn, should be orchestrated by a company in accordance with its perception of the gravity of institutional obstacles because, without this perception, the company may not be capable of improving the speed, effectiveness and efficiency with which it has to respond or adapt to the institutional environment (Karimi & Walter, 2015). Thus, to seek improvement in the performance of businesses, innovation efforts should be enhanced as perception of the gravity of institutional obstacles grows, which include: access to finance, corruption, inadequate workforce skills, labor regulation, political instability, practices of informal competitors, taxation and transport (Barasa et al., 2017; Kaufmann et al., 2011; Sirmon et al., 2007; Wang, 2018).

Therefore, the following hypothesis may be proposed: *Hypothesis 1: Perception of the gravity of institutional obstacles has a positive influence on innovation efforts.*

Innovation efforts in the face of perception regarding the gravity of institutional obstacles allow companies to advance quickly towards commercial and technological transformations, consequently offering more assertive products and services to consumers, involving them in new ways and connecting better to specific market niches that lack disruptive innovation (Drnevich & Kriauciunas, 2011; Karimi & Walter, 2015; Lai, Chang, & Chen, 2010; Teece et al., 1997; Teece, 2007). This occurs because such companies have a prior perception of the gravity of institutional obstacles,

consequently developing strategies that are adaptable to institutional conditions. This will also allow the addition of new services to traditional niches, creating new experiences and revenue streams (Assink, 2006). Therefore, without considering the gravity of institutional obstacles, it will not be possible to leverage innovation efforts, specifically with the introduction of new products, services, processes and investments in R&D for non-traditional niches, so far not exploited in developing markets and which could be generators of new revenue streams (Karimi & Walter, 2015).

The relationship between the perceived gravity of institutional obstacles and innovation efforts requires an international and ecosystem conception (Drnevich & Kriauciunas, 2011). Thus, rapid internationalization is likely to directly affect or moderate this relationship as it exposes the company to international competitiveness in a short space of time. Moreover, it provides an opportunity for access to complementary resources beyond the institutional boundaries (Acs, Stam, Audretsch, & O'Connor, 2017; Alvedalen & Boschma, 2017; Malerba & McKelvey, 2018). Rapid internationalization, therefore, can be evidenced by the presence of companies that have been operational for a maximum of 15 years and with a minimum of 5% of their sales directly exported (Dib, 2008; Hemais & Hilal, 2002; Machado, 2009; Oviatt & McDougall, 1994; Waltrick, 2015).

Thus, the following hypotheses may be proposed:

Hypothesis 2: Rapid internationalization has a positive influence on innovation efforts. Hypothesis 3: Rapid internationalization has a significant and positive moderating effect on the relationship between the perception of gravity of institutional obstacles and innovation efforts.

The literature emphasizes the relevance of complementary resources in the development of new products, integrating suppliers, customers and technological partners (Pavlou & El Sawy, 2006; Rai & Tang, 2010) as well as the importance of adopting and using technologies and processes through relational triggers that include international certifications or the use of licensed foreign technology (Chae, Koh, & Prybutok, 2014; Joshi, Chi, Datta, & Han, 2010). However, these relational triggers in turn depend on the company's ability to alter, adapt or extend its resources, processes and values dynamically to manage its innovation efforts effectively (Karimi & Walter, 2015; Zahra & George, 2002). Without these dynamic capabilities (Teece et al., 1997; Teece, 2007) the existing resources, processes and values in a company's pool can become rigid with time and the relational triggers might not play their potentializing role. Therefore, dynamic capabilities must be configured to create resources, resulting in the introduction of new products and processes and investment in R&D (Etzkowitz, 2003; Lai et al., 2010). Therefore, relational triggers can positively influence innovation efforts and also have a moderating effect on the relationship between the perception of gravity of institutional obstacles and innovation efforts (Lai et al., 2010; Schilke & Goerzen, 2010). The following hypotheses may be stated:

Hypothesis 4: Relational triggers have a positive influence on innovation efforts.

Hypothesis 5: Relational triggers have a significant moderating and positive effect on the relationship between perceptions of the gravity of institutional obstacles and innovation efforts.

3. METHOD

The study was quantitative and explanatory (Creswell & Creswell, 2017; Hair, Black, Babin, Anderson, & Tatham, 2009). The data used were secondary in nature, as they were obtained from the micro database of the World Bank Enterprise Survey. Other studies have been conducted based on the World Bank Enterprise Survey data, notably those of Khan, Shah, and Rizwan (2019) and Riaz and Cantner (2019).

The analysis unit is companies from emerging economies, specifically Latin American countries; in other words, economies in which there are latent institutional challenges, such as a drive to gain legitimacy and to overcome institutional obstacles. Furthermore, in these countries, innovation efforts are often due to rapid internationalization (born global) and the development of relational capability, in other words, a company's ability to form and systematize strategic alliances with external domestic and international partners.

It should be highlighted that for the final sample of the study only Latin American companies included in the World Bank Enterprise Survey of 2006 to 2018 that had answered questions related to their innovation efforts in the last three years were considered, indicating whether they had made innovations to products or processes or investments in research and development.

The final sample was composed of 14,064 companies from the following Latin American countries: Argentina, Bolivia, Chile, Colombia, Costa Rica, El Salvador, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Uruguay, and Venezuela.

The following figure shows the variables that guided the development of the study, especially the regression models. Therefore, details of the type of variable (dependent, independent, moderating and control), the questions from the World Bank Enterprise Survey that were considered, and the items, descriptions and transformations of the variables are provided in Table 1.

Table-1. Aggregated synthesis of the variables and the transformations that were made.

Variables	Items	Descriptions	Transformations*
Innovation Efforts (<u>Dependent</u>)	IE1	Introduction of new products in the last three years	0 = no introduction of new or significantly improved products or services in the last three years. 1 = introduction of new or significantly improved products or services in the last three years.
	IE2	Introduction of new processes in the last three years	0 = no introduction of new or significantly improved processes in the last three years; 1 = introduction of a new or significantly improved process in the last three years.
	IE3	Investment in R&D in the last fiscal year	0 = no investment in research and development (R&D) in the last fiscal year. 1 = investment in research and development (R&D) in the last fiscal year.
Institutional Obstacles (<u>Independent</u>)	IO1	Access to finance	0 = is not an obstacle. 1 = is a minor obstacle. 2 = is a moderate obstacle. 3 = is the main obstacle. 4 = is a serious obstacle that affects the company's current operations.
	IO2	Corruption	
	IO3	Inadequate workforce skills	
	IO4	Labor regulation	
	IO5	Political instability	
	IO6	Practices of informal competitors	
	IO7	Taxation	
	IO8	Transport	
Rapid Internationalization (<u>Moderating</u>)	RI	Company operational for a maximum of 15 years and with at least 5% of its sales directly exported.	0 = Company with no evidence of rapid internationalization. 1 = Company with evidence of rapid internationalization. Evidence of rapid internationalization is: (a) company operational for a maximum of 15 years; and (b) with at least 5% of its sales directly exported.
Relational Triggers (<u>Moderating</u>)	RT	Use of technology licensed from foreign companies or internationally recognized quality certification.	0 = Company with no evidence of using relational triggers. 1 = Company with evidence of using relational triggers. Evidence of the use of relational triggers is: (a) use of technology licensed from foreign companies; or (b) obtaining internationally recognized quality certification.
Business Characteristics (<u>Control</u>)	AG	Company age in years	AG = Number of years since the company was founded considering the year of data collection.
	SZ	Size according to the number of employees	1 = Small Size: 5-19 workers. 2 = Medium size: 20-99 workers. 3 = Large Size: 100+ workers

Note: Legend: *Transformation of the data obtained from the World Bank Enterprise Survey from 2006 to 2018.

Regarding the data treatment and analysis, the starting point was the preparation of the microdata, including cleaning and standardization, from the treatment of the missing data and outliers. In the missing data analysis, no blank cells were found for the instruments.

In the descriptive analysis of the variables, the absolute and relative frequencies were used, as well as the mean and standard deviation. It should be highlighted that the Likert scale was set between 0 and 4, with 0 corresponding to “is not an obstacle” and 4 being “is a serious obstacle” for the independent variable (Institutional Obstacles).

The indicators of the dependent variables (Innovation Efforts) and the independent variables (Institutional Obstacles) were created using a Factor Analysis. For this to be possible, the variables underwent a validation process, in which the (a) dimensionality, (b) reliability and (c) adaptation of the sample to the model were evaluated.

The (a) dimensionality of each construct was ascertained by the Parallel Analysis criterion (Hoyle & Duvall, 2004). As for the (b) reliability, it was verified when the Cronbach’s Alpha (CA) and Composite Reliability (CR) indicators (Chin, 1998) presented values greater than 0.70 (Tenenhaus, Vinzi, Chatelin, & Lauro, 2005) or higher than 0.60 in the case of exploratory studies (Hair et al., 2009). Meanwhile, to evaluate the (c) adaptation of the sample, the Kaiser-Meyer-Olkin (KMO) indicator was used, which verifies the proportion of variance of the data common to all the variables. The values of this measurement vary between 0 and 1 and the use of the Factor Analysis is adequate for the data when the KMO is greater than or equal to 0.50. In the specific case of the dependent variable (Innovation Efforts), which was made up of dichotomous items, the tetrachoric correlation was used in the calculations of the indicators to deal with the binary structure (Dragow, 2004).

To gauge the influence of Institutional Obstacles on Innovation Efforts, the Linear Regressions (Montgomery, Peck, & Vining, 2012) were hierarchically adjusted. In other words, the hypotheses were inserted one by one until the final model was obtained. Furthermore, to gauge the moderating effect of the variables of interest on the relationship between Institutional Obstacles and Innovation Efforts, the due interactions were included in the last model. A moderating effect is caused by a variable that influences the strength or direction of the relationship between an independent variable and a dependent variable (Baron & Kenny, 1986; Hayes & Montoya, 2017; Matos, Henrique, & Rosa, 2007; Prado, Korelo, & Da Silva, 2014; Vieira & Faia, 2014).

To relate the categorical variables of characterization with the Institutional Obstacle and Innovation Effort indicators the Mann-Whitney test was used (Hollander, Wolfe, & Chicken, 2013). Moreover, to gauge the correlation between the numerical or ordinal variables and the indicators, Spearman’s correlation was used (Hollander et al., 2013). Spearman’s correlation is a limited measurement between -1 and 1, and the closer the coefficient is to -1, the greater the negative correlation, and the closer the coefficient is to 1, the greater the positive correlation. The software used in the analysis was R (version 3.5.0) (IBPAD, 2020).

4. RESULTS

Regarding the innovation efforts, most companies in the sample (60.9%) introduced new or significantly improved products or services in the last three years, and over half the companies (53.3%) introduced a new or significantly improved process in the last few years. However, most of the companies in the sample (61.7%) did not invest in R&D in the last fiscal year.

Concerning perception of the gravity of institutional obstacles, the Latin American companies that comprised the sample viewed transport as the main or a serious obstacle (54.3%), followed by corruption (48.8%), political instability (40.4%) and practices of informal competitors (41.3%). As a moderate obstacle, the Latin American companies pointed to taxation (31.3%) and inadequate workforce skills (30.8%). Finally, the Latin American companies did not view, or identified as a minor obstacle, access to finance (47.4%) and labor regulation (46.3%).

It should be highlighted that most of the companies in the sample did not use technology licensed from foreign companies (85.8%) and did not have internationally recognized quality certification (77.1%). Consequently, most of the companies showed no evidence of the use of relational triggers (69.2%), which may be partly associated with the

predominance of small companies in the sample and likely restrictions on their resources. Another relevant aspect was that most of the companies (92.9%) showed no evidence of rapid internationalization. In other words, the number of companies that had been operational for a maximum of 15 years and with at least 5% of their sales directly exported was not expressive when the entire sample was considered (total of 14,064 Latin American companies).

4.1. Factor Analysis

The factor analysis showed that all the items of all the constructs had a factor load higher than 0.50, except item IO8 (Transport), which was therefore excluded from the analysis. It should be stressed that in the final model presented in the table below, the items with the highest factor loads for the Innovation Efforts construct were, respectively: Introduction of new or significantly improved products or services in the last three years (IE1) (F.L. 0.86); Introduction of new or significantly improved process in the last three years (IE2) (F.L. 0.86); Investments in research and development in the last fiscal year (IE3) (F.L. 0.79). For the Institutional Obstacles construct, the items with the highest factor loads were, respectively: Political instability (IO5) (F.L. 0.72), Corruption (IO2) (F.L. 0.71), Taxation (IO7) (F.L. 0.68), Labor regulation (IO4) (F.L. 0.64), Inadequate workforce skills (IO3) (F.L. 0.61), Access to finance (IO1) (F.L. 0.54) and Practices of informal competitors (IO6) (F.L. 0.50) (Table 2).

Table-2. Factor analysis of the constructs.

Construct	Item	Initial model			Final model		
		F.L. ¹	Com. ²	Weight	F.L. ¹	Com. ²	Weight
Institutional Obstacles	OI1	0.54	0.30	0.18	0.54	0.30	0.19
	OI2	0.69	0.48	0.23	0.71	0.51	0.25
	OI3	0.61	0.38	0.21	0.61	0.37	0.22
	OI4	0.64	0.41	0.22	0.64	0.41	0.23
	OI5	0.70	0.49	0.24	0.72	0.51	0.26
	OI6	0.49	0.24	0.17	0.50	0.25	0.18
	OI7	0.68	0.46	0.23	0.68	0.47	0.24
	OI8	0.44	0.20	0.15	-	-	-
Innovation Efforts	EI1	0.86	0.74	0.41	0.86	0.74	0.41
	EI2	0.86	0.74	0.41	0.86	0.74	0.41
	EI3	0.79	0.63	0.38	0.79	0.63	0.38

Note: ¹Factor load; ²Communality; Access to finance (IO1); Corruption (IO2); Inadequate workforce skills (IO3); Labor regulation (IO4); Political instability (IO5); Practices of informal competitors (IO6); Taxation (IO7); Transport (IO8); Introduction of new or significantly improved products and services in the last three years (IE1); Introduction of a new or significantly improved process in the last three years (IE2); Investments in research and development in the last fiscal year (IE3).

The verification of the measurements of validity and quality of the constructs is shown in Table 3. Thus, it can be seen that: all the constructs had a Cronbach's Alpha (CA) and/or Composite Reliability (CR) higher than 0.60, i.e., all attained the required levels of reliability; in all the constructs, the adjustment of the factor analysis was adequate, since all the KMO greater than or equal to 0.50; and all the constructs were one-dimensional according to the Acceleration Factor criterion.

Table-3. Validation of the constructs.

Indicator	Mean	S.D.	Min.	1stQ	2ndQ	3rdQ	Max.
Institutional Obstacles	1.89	0.84	0.00	1.30	1.92	2.51	4.00
Innovation Efforts	0.51	0.37	0.00	0.00	0.65	0.69	1.00

The descriptive analysis of the indicators extracted from the factor analysis is shown in Table 4. Thus, it should be highlighted that the mean of the Institutional Obstacles indicator was 1.89, with a standard deviation of 0.84, and the mean of the Innovation Efforts indicator was 0.51 (standard deviation 0.37).

Table-4. Descriptive analysis of the indicators.

Construct	Items	CA ²	CR ³	KMO ⁵	Dim. ⁵
Institutional Obstacles	7	0.75	0.77	0.75	1
Innovation Efforts	3	0.63	0.81	0.64	1

4.2 Regression Models

Table 5 presents 3 Linear Regression models (Montgomery et al., 2012) adjusted to gauge the influence of the perception of the gravity of the Institutional Obstacles on the Innovation Efforts of the Latin American companies. The first model shows the relationship between the two constructs controlled by the size of the company and the age of the company. In the second model, there is the first model plus the variables of Rapid Internationalization and Relational Triggers as a direct relationship. As for the third model, we have the complete model considering the control variables and the moderating variables (Rapid Internationalization and Relational Triggers). Thus, it can be observed that:

- **MODEL 1:** (a) There was a positive influence (p-value < 0.001; $\beta = 0.051$; [0.044; 0.058]) of the Institutional Obstacles on the Innovation Efforts. Therefore, to each unit added to the indicator of the Perceived Gravity of Institutional Obstacles of a Latin American company, an average increase of 0.051 units is expected in its Innovation Efforts indicator; (b) There was an influence of company size on the Innovation Efforts. Thus, when compared with a small company, a medium-sized company has an average increase of 0.131 [0,117; 0,145] units in the Innovation Efforts indicator (p-value < 0.001). Meanwhile, a large company has an average increase of 0.229 [0,213; 0,244] units in the indicator in question (p-value < 0.001); and (c) There was a positive influence (p-value = 0.047; $\beta = 0.003$; [0.000; 0.006]) of the company's age on Innovation Efforts. Thus, for every 10 years added to the age of a company, an average increase of 0.003 units is expected in the Innovation Efforts indicator (Table 5).
- **MODEL 2:** (a) There was a positive influence (p-value < 0.001; $\beta = 0.062$; [0.038; 0.086]) of Rapid Internationalization on Innovation Efforts. Thus, in the presence of Rapid Internationalization, there is an average increase of 0.062 units in the Innovation Efforts indicator; and (b) There was a positive influence (p-value < 0.001; $\beta = 0.144$; [0.130; 0.159]) of Relational Triggers on Innovation Efforts. Thus, in the presence of Relational Triggers, there is an average increase of 0.144 units in the Innovation Efforts indicator (Table 5).
- **MODEL 3:** (a) There was a positive influence (p-value = 0.001; $\beta = 0.048$; [0.020; 0.075]) of Rapid Internationalization on the relationship between Institutional Obstacles and Innovation Efforts. Thus, in the presence of Rapid Internationalization, there is an increase in the strength of the influence of perception of the gravity of Institutional Obstacles on Innovation Efforts, i.e., rapid internationalization potentializes the strength of the relationship (Table 5).

Linear Regression models 4, 5 and 6 (Montgomery et al., 2012) are presented in Table 6, adjusted to gauge the influence of the Perception of the Gravity of Institutional Obstacles on the Introduction of New Products (formative item of the Innovation Efforts construct). The fourth model shows the relationship between the two constructs controlled by company size and company age. The fifth model contains the fourth model plus the Rapid Internationalization and Relational Triggers variables as a direct relationship. In the sixth model, we have the complete model considering the control variables and moderating variables (Rapid Internationalization and Relational Triggers). Thus, it can be observed that:

- **MODEL 4:** (a) There was a positive influence (p-value < 0.001; $\beta = 0.069$; [0.006; 0.079]) of Institutional Obstacles on the Introduction of New Products. Thus, to each unit added to the Perception of the Gravity of Institutional Obstacles indicator of a Latin American company, an average increase of 0.069 units is expected in the Introduction of New Products indicator; (b) There was an influence of the size of the company on the Introduction of New Products. Thus, when compared with a small company, a medium-sized company has an average increase of 0.117 [0.099; 0.136] units in the Introduction of New Products indicator (p-value < 0.001). Meanwhile, a large company has an average increase of 0.175 [0.154; 0.196] units in the indicator in question

(p-value < 0.001); and (c) There was a positive influence (p-value = 0.020; $\beta = 0.005$; [0.001; 0.009]) of company age on the Introduction of New Products. Thus, for every 10 years added to a company's age, an average increase is expected of 0.005 units in the Introduction of New Products indicator (Table 6).

- **MODEL 5:** (a) There was a positive influence (p-value < 0.001; $\beta = 0.067$; [0.035; 0.099]) of Rapid Internationalization on the Introduction of New Products. Thus, in the presence of Rapid Internationalization, there is an average increase of 0.067 units in the Introduction of New Products indicator; and (b) There was a positive influence (p-value < 0.001; $\beta = 0.111$; [0.092; 0.130]) of Relational Triggers on the Introduction of New Products. Thus, in the presence of Relational Triggers, there is an average increase of 0.111 units in the Introduction of New Products indicator (Table 6).
- **MODEL 6:** (a) There was no influence (p-value > 0.050) of Rapid Internationalization or Relational Triggers on the relationship between Institutional Obstacles and the Introduction of New Products.

Linear Regression Models 7, 8 and 9 (Montgomery et al., 2012) are presented in Table 7, adjusted to gauge the influence of the Perception of the Gravity of Institutional Obstacles on the Introduction of New Processes (formative item of the Innovation Efforts construct). The seventh model shows the relationship between the two constructs controlled by company size and company age. Meanwhile, the eighth model contains the seventh model with the addition of the Rapid Internationalization and Relational Triggers variables as a direct relationship. As for the sixth model, we have the complete model considering the control variables and moderating variables (Rapid Internationalization and Relational Triggers). Thus, it can be observed that:

- **MODEL 7:** (a) There was a positive influence (p-value < 0.001; $\beta = 0.035$; [0.025; 0.045]) of Institutional Obstacles on the Introduction of new processes. Thus, for each unit added to the Perception of the Gravity of Institutional Obstacles indicator of a Latin American company, an average increase is expected of 0.035 units in the Introduction of New Processes indicator. Thus, compared with a small company, a medium-sized company has an average increase of 0.111 [0.092; 0.130] units in the Introduction of New Processes indicator (p-value < 0.001). Meanwhile, a large company has an average increase of 0.175 [0.154; 0.197] units in the indicator in question (p-value < 0.001) (Table 7).
- **MODEL 8:** (a) There was a positive influence (p-value < 0.001; $\beta = 0.131$; [0.112; 0.151]) of Relational Triggers on the Introduction of New Processes. Thus, in the presence of Relational Triggers, there is an average increase of 0.131 units in the Introduction of New Processes indicator (Table 7).
- **MODEL 9:** (a) There was a positive influence (p-value = 0.023; $\beta = 0.045$; [0.006; 0.083]) of Rapid Internationalization on the relationship between Institutional Obstacles and the Introduction of New Processes. Thus, in the presence of Rapid Internationalization, there is an increase in the strength of the influence of Institutional Obstacles on the Introduction of New Processes, i.e., rapid internationalization potentializes the strength of the relationship (Table 7).

Table 8 presents Linear Regression models 10, 11 and 12 (Montgomery et al., 2012) adjusted to gauge the influence of Perception of the Gravity of Institutional Obstacles on Investments in Research and Development (formative item of the Innovation efforts construct). The tenth model shows the relationship between the two constructs controlled by company size and company age. Meanwhile, in the eleventh model, there is the tenth model with the addition of the Rapid Internationalization and Relational Triggers variables as a direct relationship. Regarding the twelfth model, we have the complete model with the control and moderating variables (Rapid Internationalization and Relational Triggers).

Table-5. Influence of the factors of interest on the Innovation Efforts⁸ of Latin American companies.

Variables	Model 1				Model 2				Model 3			
	β	S.E. (β)	95% C.I. (β)	p-value	B	S.E. (β)	95% C.I. (β)	p-value	β	S.E. (β)	95% C.I. (β)	p-value
Institutional Obstacles (IO) ¹	0.051	0.004	[0.044; 0.058]	<0.001	0.050	0.004	[0.043; 0.057]	<0.001	0.049	0.004	[0.041; 0.058]	<0.001
Size: small ²	-	-	-	-	-	-	-	-	-	-	-	-
Size: medium ³	0.131	0.007	[0.117; 0.145]	<0.001	0.101	0.007	[0.087; 0.115]	<0.001	0.101	0.007	[0.087; 0.115]	<0.001
Size: large ⁴	0.229	0.008	[0.213; 0.244]	<0.001	0.149	0.009	[0.132; 0.166]	<0.001	0.149	0.009	[0.132; 0.166]	<0.001
Company age (x10) ⁵	0.003	0.002	[0.000; 0.006]	0.047	0.004	0.002	[0.000; 0.007]	0.024	<0.001	<0.001	[0.000; 0.001]	0.025
Rapid Internationalization (RI) ⁶					0.062	0.012	[0.038; 0.086]	<0.001	-0.030	0.030	[-0.087; 0.028]	0.316
Relational Triggers (RT) ⁷					0.144	0.007	[0.130; 0.159]	<0.001	0.159	0.017	[0.126; 0.192]	<0.001
AG x IO									0.048	0.014	[0.020; 0.075]	0.001
RT x IO									-0.007	0.008	[-0.023; 0.008]	0.358

Note: ¹Perception of the gravity of Institutional Obstacles: Access to finance (IO1), Corruption (IO2), Inadequate workforce skills (IO3), Labor regulation (IO4), Political instability (IO5), Practices of informal competitors (IO6) and Taxation (IO7); ²Small size: 5-19 workers; ³Medium-sized: 20-99 workers; ⁴Large size: 100 workers or more; ⁵Company age (x10): in years; ⁶Rapid internationalization (RI): Company operational for a maximum of 15 years and with a minimum of 5% of its sales directly exported; ⁷Relational Triggers (RT): Use of technology licenses from foreign companies or internationally recognized quality certification; ⁸Innovation Efforts: Introduction of new or significantly improved products or services in the last three years (IE1); Introduction of a new or significantly improved process in the last three years (IE2); Investments in research and development in the last fiscal year (IE3).

Table-6. Influence of factors of interest on the Introduction of New Products⁸ by Latin American companies.

Variables	Model 4				Model 5				Model 6			
	β	S.E. (β)	95% C.I. (β)	p-value	β	S.E. (β)	95% C.I. (β)	p-value	β	S.E. (β)	95% C.I. (β)	p-value
Institutional Obstacles (IO) ¹	0.069	0.005	[0.060; 0.079]	<0.001	0.069	0.005	[0.060; 0.078]	<0.001	0.069	0.006	[0.057; 0.080]	<0.001
Size: small ²	-	-	-	-	-	-	-	-	-	-	-	-
Size: medium ³	0.117	0.009	[0.099; 0.136]	<0.001	0.093	0.010	[0.075; 0.112]	<0.001	0.093	0.010	[0.075; 0.112]	<0.001
Size: large ⁴	0.175	0.011	[0.154; 0.196]	<0.001	0.111	0.012	[0.088; 0.135]	<0.001	0.111	0.012	[0.088; 0.135]	<0.001
Company age (x10) ⁵	0.005	0.002	[0.001; 0.009]	0.020	0.006	0.002	[0.002; 0.010]	0.006	0.001	0.000	[0.000; 0.001]	0.006
Rapid Internationalization (RI) ⁶					0.067	0.016	[0.035; 0.099]	<0.001	-0.001	0.040	[-0.079; 0.077]	0.986
Relational Triggers (RT) ⁷					0.111	0.010	[0.092; 0.130]	<0.001	0.124	0.023	[0.080; 0.168]	<0.001
AG x IO									0.035	0.019	[-0.002; 0.073]	0.063
RT x IO									-0.007	0.011	[-0.027; 0.014]	0.527

Note: ¹Perception of the gravity of Institutional Obstacles: Access to financing (IO1), Corruption (IO2), Inadequate workforce skills (IO3), Labor regulation (IO4), Political instability (IO5), Practices of informal competitors (IO6) and Taxation (IO7); ²Small size: 5-19 workers; ³Medium size: 20-99 workers; ⁴Large size: 100 workers or more; ⁵Company age (x10): in years; ⁶Rapid Internationalization (RI): Company operational for a maximum of 15 years and with a minimum of 5% of its sales directly exported; ⁷Relational Triggers (RT): Use of technology licensed from foreign companies or internationally recognized quality certification; ⁸Introduction of New products (IE1): Introduction of new or significantly improved products or services in the last three years.

Table-7. Influence of the factors of interest on the Introduction of New Processes* by Latin American companies.

Source	Model 7				Model 8				Model 9			
	β	S.E. (β)	95% C.I. (β)	p-value	β	S.E. (β)	95% C.I. (β)	p-value	β	S.E. (β)	95% C.I. (β)	p-value
Institutional Obstacles (IO) ¹	0.035	0.005	[0.025; 0.045]	<0.001	0.03	0.005	[0.025; 0.044]	<0.001	0.034	0.006	[0.022; 0.046]	<0.001
Size: small ²			-				-				-	
Size: medium ³	0.111	0.010	[0.092; 0.130]	<0.001	0.085	0.010	[0.066; 0.104]	<0.001	0.085	0.010	[0.066; 0.104]	<0.001
Size: large ⁴	0.175	0.011	[0.154; 0.197]	<0.001	0.106	0.012	[0.082; 0.130]	<0.001	0.106	0.012	[0.082; 0.130]	<0.001
Company age (x10) ⁵	-0.004	0.002	[-0.008; 0.001]	0.092	-0.004	0.002	[-0.008; 0.000]	0.072	<0.001	0.000	[-0.001; 0.000]	0.071
Rapid Internationalization (RI) ⁶					0.033	0.017	[0.000; 0.066]	0.053	-0.053	0.041	[-0.133; 0.028]	0.200
Relational Triggers (RT) ⁷					0.131	0.010	[0.112; 0.151]	<0.001	0.147	0.023	[0.101; 0.192]	<0.001
AG x IO									0.045	0.020	[0.006; 0.083]	0.023
RT x IO									-0.008	0.011	[-0.029; 0.014]	0.474

Note: ¹Perception of the gravity of Institutional Obstacles: Access to finance (IO1), Corruption (IO2), Inadequate workforce skills (IO3), Labor regulation (IO4), Political instability (IO5), Practices of informal competitors (IO6) and Taxation (IO7); ²Small size: 5-19 workers; ³Medium size: 20-99 workers; ⁴Large size: 100 workers or more; ⁵Company age (x10): in years; ⁶Rapid Internationalization (RI): Company operational for a maximum of 15 years and with a minimum of 5% of its sales directly exported; ⁷Relational Triggers (RT): Use of technology licensed from foreign companies or internationally recognized quality certification; ⁸Introduction of New Processes (IE1): Introduction of new or significantly improved processes in the last three years..

Table-8. Influence of factors of interest on Investment in R&D* by Latin American companies.

Variables	Model 10				Model 11				Model 12			
	β	S.E. (β)	95% C.I. (β)	p-value	β	S.E. (β)	95% C.I. (β)	p-value	β	S.E. (β)	95% C.I. (β)	p-value
Institutional Obstacles (IO) ¹	0.048	0.005	[0.039; 0.057]	<0.001	0.047	0.005	[0.038; 0.056]	<0.001	0.045	0.006	[0.034; 0.056]	<0.001
Size: small ²			-				-				-	
Size: medium ³	0.168	0.009	[0.150; 0.186]	<0.001	0.127	0.009	[0.109; 0.145]	<0.001	0.127	0.009	[0.110; 0.145]	<0.001
Size: large ⁴	0.344	0.010	[0.324; 0.365]	<0.001	0.236	0.011	[0.214; 0.258]	<0.001	0.236	0.011	[0.214; 0.259]	<0.001
Company age (x10) ⁵	0.008	0.002	[0.005; 0.012]	<0.001	0.009	0.002	[0.005; 0.013]	<0.001	0.001	0.000	[0.001; 0.001]	<0.001
Rapid Internationalization (RI) ⁶					0.088	0.016	[0.057; 0.119]	<0.001	-0.036	0.038	[-0.111; 0.038]	0.342
Relational Triggers (RT) ⁷					0.195	0.009	[0.177; 0.213]	<0.001	0.210	0.022	[0.167; 0.252]	<0.001
AG x IO									0.065	0.018	[0.029; 0.101]	<0.001
RT x IO									-0.007	0.010	[-0.027; 0.013]	0.479

Note: ¹Perception of the gravity of Institutional Obstacles: Access to finance (IO1), Corruption (IO2), Inadequate workforce skills (IO3), Labor regulation (IO4), Political instability (IO5), Practices of informal competitors (IO6) and Taxation (IO7); ²Small size: 5-19 workers; ³Medium size: 20-99 workers; ⁴Large size: 100 workers or more; ⁵Company age (x10): in years; ⁶Rapid Internationalization (RI): Company operational for a maximum of 15 years and with a minimum of 5% of its sales directly exported; ⁷Relational Triggers (RT): Use of technology licensed from foreign companies or internationally recognized quality certification; ⁸Investment in R&D (IE3): Investments in research and development in the last fiscal year.

Thus, it can be observed that:

- **MODEL 10:** (a) There was a positive influence (p -value < 0.001 ; $\beta = 0.048$; $[-0.039; 0.057]$) of Institutional Obstacles on Investments in Research and Development. Thus, for each unit added to the Perception of the Gravity of Institutional Obstacles of a Latin American company, an average increase is expected of 0.048 units in the Investments in Research and Development indicator; (b) There was an influence of company size on Investments in Research and Development. Thus, compared with a small company, a medium-sized company has an average increase of 0.168 $[-0.150; 0.186]$ units in the Investments in Research and Development indicator ($\text{valor-}p < 0.001$). Meanwhile, a large company has an average increase of 0.344 $[-0.324; 0.365]$ units in the indicator in question (p -value < 0.001); and (c) There was a positive influence (p -value < 0.001 ; $\beta = 0.008$; $[0.005; 0.012]$) of company age on Investments in Research and Development. Thus, for every ten years added to a company's age, an average increase is expected of 0.008 units in the Investments in Research and Development indicator (Table 8).
- **MODEL 11:** (a) There was a positive influence (p -value < 0.001 ; $\beta = 0.088$; $[0.057; 0.119]$) of Rapid Internationalization on Investments in Research and Development. Thus, in the presence of Rapid Internationalization, there is an average increase of 0.088 units in the Investments in Research and Development indicator; and (b) There was a positive influence (p -value < 0.001 ; $\beta = 0.195$; $[0.177; 0.213]$) of Relational Triggers on Investments in Research and Development. Thus, in the presence of Relational Triggers, there is an average increase of 0.195 units in the Investments in Research and Development indicator (Table 8).

MODEL 12: (a) There was a positive influence (p -value < 0.001 ; $\beta = 0.065$; $[0.029; 0.101]$) of Rapid Internationalization on the relationship between Institutional Obstacles and Investments in Research and Development. Thus, in the presence of Rapid Internationalization, there is an increase in the strength of the influence of Institutional Obstacles on Investments in Research and Development, i.e., Rapid Internationalization potentializes the strength of the relationship (Table 8).

The set of results of the hypotheses of the hypothetical theoretical model is shown in Table 9. All the hypotheses (H1, H2, H3 and H4) were confirmed, except for Hypothesis H5, which was not confirmed.

Table-9. Synthesis of the hypothesis tests.

Hypotheses	Test Results	Models	
H1	Perception of the gravity of institutional obstacles has a positive influence on innovation efforts.	Confirmed	Models 1, 4, 7 and 10.
H2	Rapid internationalization has a positive influence on innovation efforts.	Confirmed	Models 2, 5 and 11.
H3	Rapid internationalization has a significant and positive moderating effect on the relationship between the perception of gravity of institutional obstacles and innovation efforts.	Confirmed	Models 3, 9 and 12.
H4	Relational triggers have a positive influence on innovation efforts.	Confirmed	Models 2, 5, 8 and 11.
H5	Relational triggers have a significant moderating and positive effect on the relationship between perceptions of the gravity of institutional obstacles and innovation efforts.	Not confirmed	

A comparison of the categorical variables of characterization in relation to the Institutional obstacles is presented in Table 10, considering randomly collected paired samples. Thus, it should be highlighted that there was a significant difference (p -value = 0.027) between companies that used technology licensed from foreign companies and companies that did not about the Perception of the gravity of institutional obstacles indicator, with the companies that did not use this technology having a lower mean. There was also a significant difference (p -value = 0.015) between companies that had and did not have internationally recognized quality certification for the Perception of gravity of Institutional Obstacles indicator, with the companies that did not have this certification having a higher mean for the indicator.

Table-10. Comparison of the categorical characterization variables in relation to Institutional Obstacles.

Variables		N	Mean	S.E.	1stQ	2ndQ	3rdQ	p-value ¹
Use of technology licensed from foreign companies	No	500	1.87	0.04	1.28	1.88	2.53	0.027
	Yes	500	1.99	0.04	1.41	2.07	2.58	
Internationally recognized quality certification	No	500	1.97	0.04	1.39	2.02	2.62	0.015
	Yes	500	1.85	0.04	1.29	1.85	2.43	
Rapid Internationalization	No	500	1.85	0.04	1.29	1.88	2.42	0.198
	Yes	500	1.91	0.04	1.33	1.94	2.52	
Relational Triggers	No	500	1.84	0.04	1.22	1.92	2.47	0.177
	Yes	500	1.92	0.04	1.36	1.93	2.51	

A comparison of the categorical variables of characterization regarding Innovation Efforts is shown in Table 11, considering randomly collected paired samples. Thus, it can be observed that: (a) There was a significant difference ($p\text{-value} < 0.001$) between companies that used technology licensed from foreign companies and companies that did not do so in relation to the Innovation Efforts indicator, with companies that used it having a higher mean for the indicator; (b) There was a significant difference ($p\text{-value} < 0.001$) between companies that had and did not have internationally recognized quality certification with regard to the Innovation Efforts indicator, with the companies that had the certification having a higher mean for the indicator; (c) There was a significant difference ($p\text{-value} < 0.001$) between companies that had evidence of Rapid Internationalization and companies that did not regarding the Innovation Efforts indicator, with the companies that had evidence having a higher mean for the indicator; and (d) There was a significant difference ($p\text{-value} < 0.001$) between companies that showed evidence of Relational Triggers and companies that did not with regard to the Innovation Efforts indicator, with companies that had evidence having a higher mean for the indicator.

Table-11. Comparison of the categorical characterization variables regarding Innovation Efforts.

Variables		N	Mean	S.E.	1stQ	2ndQ	3rdQ	p-value
Use of technology licensed from foreign companies	No	500	0.49	0.02	0.00	0.34	0.68	<0.001
	Yes	500	0.68	0.01	0.34	0.68	1.00	
Internationally recognized quality certification	No	500	0.47	0.02	0.00	0.34	0.68	<0.001
	Yes	500	0.66	0.02	0.34	0.68	1.00	
Rapid Internationalization	No	500	0.51	0.02	0.00	0.66	0.68	<0.001
	Yes	500	0.62	0.02	0.34	0.68	1.00	
Relational Triggers	No	500	0.48	0.02	0.00	0.34	0.68	<0.001
	Yes	500	0.66	0.02	0.34	0.68	1.00	

The correlation between the numerical and ordinal variables and the Institutional Obstacles and Innovation Efforts indicators is presented in Table 12. It should be highlighted that: (a) There was a significant ($p\text{-value} < 0.050$) and positive correlation ($r > 0.00$) between the Institutional Obstacles indicator and the Year of Collection, Company Size and Company Age. Thus, the greater these variables are, the greater the indicator tends to be and vice versa; and (b) There was a significant ($p\text{-value} < 0.001$) and negative correlation ($r < 0.00$) between the Innovation Efforts indicator and the Year of Collection i.e., the more recent the year of collection, the greater the indicator tends to be and vice versa. Meanwhile, regarding the other variables, there was a significant ($p\text{-value} < 0.050$) and positive correlation ($r > 0.00$) between them and the Innovation Efforts indicator. Thus, the greater any of these variables is, the greater the indicator tends to be and vice versa.

Table-12. Correlation between the numerical and ordinal variables and the Institutional Obstacles and Innovation Efforts indicators.

Variables	Institutional Obstacles		Innovation Efforts	
	r ¹	p-value	r ¹	p-value
Year of collection	0.07	<0.001	-0.11	<0.001
Company size	0.02	0.009	0.23	<0.001
Company age	0.02	0.004	0.06	<0.001
Proportion of total sales directly exported	0.01	0.077	0.20	<0.001

5. DISCUSSION OF THE RESULTS

In this study, the aim was to gauge to what extent rapid internationalization and relational triggers potentialize the innovation efforts of companies in Latin American countries in the face of the perception of the gravity of institutional obstacles. For this purpose, an analysis was conducted with 14,064 companies from Latin American countries based on data from the World Bank Enterprise Survey from 2006 to 2018 (World Bank, 2018). The direct effects of the perception of the gravity of institutional obstacles, rapid internationalization, and relational triggers in the innovation efforts of Latin American companies were tested. The moderating effects of rapid internationalization and relational triggers in the relationship between institutional obstacles and innovation efforts were also evaluated.

The perception of the gravity of institutional obstacles directly and positively affected innovation efforts. In other words, the greater the perception of the gravity of institutional obstacles, the greater the level of the innovation efforts of Latin American companies. This direct and positive effect makes sense if we analyze how innovation efforts must be orchestrated by a Latin American company in the face of its perception of the gravity of institutional obstacles (Barasa et al., 2017; Kaufmann et al., 2011; Sirmon et al., 2007; Wang, 2018) because, without this perception, it may not be able to improve how quickly, effectively and efficiently it must respond or adapt to the institutional environment (Drnevich & Kriauciunas, 2011; Teece et al., 1997; Teece, 2007). Therefore, to see to improve the performance of businesses, the innovation efforts of a Latin American company should be expanded as its awareness of the gravity of institutional obstacles grows. These obstacles include access to finance, inadequate workforce skills, labor regulation, political instability, practices of informal competitors and taxation (Barasa et al., 2017; Kaufmann et al., 2011; Sirmon et al., 2007; Wang, 2018).

In the case of rapid internationalization, it was found to affect innovation efforts directly and positively. In other words, when rapid internationalization is involved, Latin American companies make greater innovation efforts (Dib, 2008; Drnevich & Kriauciunas, 2011; Hemais & Hilal, 2002; Machado, 2009; Oviatt & McDougall, 1994; Waltrick, 2015). These results show that innovation efforts intensify if a Latin American company is exposed to international competition through direct exports in its first 15 years of existence.

To a lesser extent, it was also found that rapid internationalization potentialized a stronger relationship between institutional obstacles and innovation efforts. In other words, when rapid internationalization is involved, there is a higher level of innovation efforts on the part of Latin American companies when faced with a prior perception of the gravity of institutional obstacles. These results show that rapid internationalization can create an opportunity for access to complementary resources beyond the institutional boundaries of a country (Acs et al., 2017; Alvedalen & Boschma, 2017; Malerba & McKelvey, 2018). This can encourage Latin American companies to conduct a preliminary examination of how serious institutional obstacles are, consequently making efforts to introduce more adherent and assertive new products and processes in the light of institutional conditions.

Regarding relational triggers, their effect on innovation efforts was direct and positive. In other words, the more relational triggers are used, the greater the level of innovation efforts by Latin American companies. This direct and positive effect makes sense when we consider the importance of these companies adopting and using standardized processes and technologies that are often made feasible through relational triggers, which include international certifications and the use of licensed foreign technology (Chae et al., 2014; Joshi et al., 2010).

On the other hand, it was found that the use of relational triggers did not have a potentializing effect on the relationship that exists between perception of the gravity of institutional obstacles and innovation efforts. These results may indicate that companies, facing the perception of the gravity of institutional obstacles (Banalieva, Eddleston, Jiang, & Santoro, 2018; Dau & Cuervo-Cazurra, 2014) prefer to indulge in innovation efforts without using relational triggers, perhaps as a way of ensuring a competitive advantage or parity only with internal resources, seeking survival, adaptation or innovation in specific niches that lack disruptive innovation (Karimi & Walter, 2015; Lai et al., 2010; Teece et al., 1997; Teece, 2007).

6. CONCLUSIONS

The general objective of this study was to gauge to what extent rapid internationalization and relational triggers potentialize the innovation efforts of Latin American companies regarding the perception of the gravity of institutional obstacles. For this purpose, an analysis was conducted with 14,064 companies from Latin American countries based on the data of the World Bank Enterprise Survey from 2006 to 2018 (World Bank, 2018). Of all the Latin American companies included in the sample (totaling 14,064), 75.50% were small (5 to 19 workers) (39.1%) and medium sized (20 to 99 workers) (36.4%). It should be highlighted that the average age of the companies in the sample was 26.26 years.

The factor analysis that was conducted enabled the conclusion that the items with the greatest power of validity and quality for the Innovation Efforts construct were, respectively: introduction of new or significantly approved products or services in the last three years; introduction of new or significantly improved processes in the last three years; and, finally, investments in research and development in the last fiscal year. For the Institutional Obstacles construct, the items with the greatest power of validity and quality were, respectively: Political instability; Corruption; Taxation; Labor regulation; Inadequate workforce skills; Access to finance; and, finally, Practices of informal competitors.

It should be added that significant and distinctive innovation efforts were identified, respectively, in the groups of Latin American companies with internationally recognized quality certification, with evidence of the use of licensed foreign technology, rapid internationalization and, finally, with evidence of the use of relational triggers. Nevertheless, it was the group that did not have internationally recognized quality certification that had the highest mean of perception of the gravity of institutional obstacles.

In the analyzed data of the Latin American companies, a significant and positive correlation was identified between age, size, perception of gravity concerning institutional obstacles and innovation efforts. Thus, the greater the age and size of a Latin American company, the greater its perception of the gravity of institutional obstacles and its innovation efforts tend to be.

In the modeling, the direct and positive effects of the perception of gravity regarding institutional obstacles, rapid internationalization, and relational triggers on the innovation efforts of Latin American companies were gauged (introduction of new products and processes and investments in R&D). Furthermore, the moderating effect of rapid internationalization on the relationship between institutional obstacles and innovation efforts was investigated.

Thus, it can be inferred that, when considering the gravity of institutional obstacles and then guiding innovation efforts, Latin American companies may be capable of making more rapid advances towards technological and commercial transformations, using relational triggers and, consequently, offering products, processes and investments in R&D that are more assertive to consumers, involving them in new ways and connecting better to specific niches that lack disruptive innovation. This occurs because these companies can enjoy a keener perception of the gravity of institutional obstacles, consequently making innovation efforts based on adaptive strategies or disruption, also benefitting from the potentializing effect of rapid internationalization.

Regarding its contributions, it should be emphasized that the present study makes unprecedented contributions because this is the first time that a study has jointly and empirically evaluated the perception of gravity regarding institutional obstacles and the evidence of rapid internationalization and the use of relational triggers to explain innovation efforts, considering many firms from Latin American countries as an analysis unit.

The value of the present study also lies in the fact that it demonstrates the potentializing effect of rapid internationalization on the relationship between institutional obstacles and innovation efforts. The study also contributes to the field with inter- and intra-group analyses, demonstrating in which groups of Latin American companies' innovation efforts are more significant and distinctive, consequently being important to the development of pro-market and pro-internationalization public policies in Latin American countries. Finally, in terms of importance, the study shows positive patterns of correlation between age, size, perception of the gravity of institutional obstacles and innovation efforts, evidencing the importance of the structuring of programs for the professionalization, expansion, and maturity of Latin American businesses.

However, the study has two limitations. First, as it was conducted with companies of all kinds and sizes, many of them could not pinpoint the degree of innovation in their efforts. Therefore, our innovation measurements might be criticized for perhaps representing an incipient innovation effort. Nevertheless, small, and medium-sized companies represent a section that cannot be ignored in the economy of Latin American countries, and this measurement, despite being simple, is important because nowadays it is the only possible measure for this kind of company. The second limitation has to do with the frequency of the study. The World Bank Enterprise Survey requires many resources and as a result it cannot be conducted every year, resulting in countries with two or three focal years in the sample. Future studies could complement our results, resolving these limitations by analyzing secondary data that are available every year, such as patent applications per country per year.

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