

# Country institutional profiles: evidence from Colombian software exporters

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## Perfiles institucionales de país: Evidencia de empresas exportadoras de software de Colombia

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### Abstract

**Purpose** – The purpose of this paper is to illustrate how the perceived institutional environment of Colombian internationally operating small- and medium-sized enterprises (SMEs) in the software industry comes to determine their performance.

**Design/methodology/approach** – The research applies regression modelling to a sample of 43 internationally operating Colombian SMEs in the software development industry, collected via an online survey.

**Findings** – The results indicate that the normative dimension of the institutional environment comes to determine the export performance of the SMEs. Conversely, the cognitive and regulatory dimensions of the institutional forces do not have a significant effect.

**Research limitations/implications** – The cross-sectional nature of the survey tool, the single industry and the single country context place limitations on the generalisability of the results across different industry and country contexts.

**Practical implications** – The results highlight the need for entrepreneurship-friendly norms and values in the context of internationalising SMEs in Latin America. Governments should focus on the development and promotion of international entrepreneurs that inspire and serve as role models for other entrepreneurs rather than concentrate on the creation of regulatory frameworks and the provision of knowledge of how to start and manage risk for the internationalising SME.

**Originality/value** – The study is one of the first to apply the Busenitz *et al.* (2000) scale on the institutional country profile to real entrepreneurs. Previous studies have mainly applied the framework to a sample of students or officers assigned to US embassies. Besides Renko *et al.*'s (2009) conference paper, ours is the first one that links the country institutional profile to the performance of internationalising software firms and, especially, in the context of a Latin American country. The study, therefore, attempts to contribute to a better understanding of how a country's institutional environment impacts the performance of internationalising SMEs.

**Keywords** Institutions, Colombia, Latin America, Internationalization, Country institutional profile, Entrepreneurship

**Paper type** Research paper



### Resumen

**Propósito** – Este estudio muestra cómo el entorno institucional percibido por parte de las pequeñas y medianas empresas (Pymes) exportadoras de Colombia determina su desempeño.

**Diseño/metodología/acercamiento a la investigación** – Nuestra investigación aplica un modelo de regresión a una muestra de 43 Pymes exportadoras de Colombia de la industria de desarrollo de software recolectado a través de una encuesta en línea.

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**Resultados** – Los resultados muestran que la dimensión normativa del entorno institucional determina el desempeño exportador de las Pymes. Al contrario, las dimensiones cognitivas y regulatorias del entorno institucional no tienen un efecto significativo.

**Limitaciones de la investigación/implicaciones** – La característica transversal del método de encuesta y el enfoque en una sola industria y un sólo país genera limitaciones sobre la posibilidad de generalizar los resultados entre diferentes industrias y países.

**Implicaciones prácticas** – Los resultados resaltan la necesidad de normas y valores amigables con el emprendimiento en el contexto de Pymes exportadoras en América Latina. Los gobiernos deberían enfocarse en el desarrollo y el fomento de emprendedores internacionales que inspiren y sirvan como modelo a seguir para otros emprendedores. Esto en lugar de crear marcos regulatorios y el suministro de conocimiento para poner en marcha una empresa y gerenciar el riesgo para Pymes exportadoras.

**Originalidad/valor de la investigación** – Nuestro estudio es uno de los primeros en aplicar la medición del perfil del entorno institucional de Busenitz *et al.* (2000) a una muestra de emprendedores. Estudios anteriores aplicaron la medición a una muestra de estudiantes y oficiales de embajadas estadounidenses. Aparte del artículo de conferencia de Renko *et al.* (2009), nuestro artículo es el primero que relaciona el perfil institucional de país con el desempeño de empresas exportadoras de software y en especial en el contexto de un país Latinoamericano. Por lo tanto, nuestro estudio trata de contribuir a un mejor entendimiento de cómo el entorno institucional de un país impacta al desempeño de Pymes exportadoras.

**Palabras clave** Instituciones, Colombia, Latin América, Internacionalización, Perfil institucional de país, Emprendimiento

**Tipo de papel** Trabajo de investigación

## 1. Introduction

Empirical studies on the internationalisation of Latin American small- and medium-sized enterprises (SMEs) are scarce. Yet, institutional variables and their impact on internationalisation in the Latin American context offer significant promise for research (Kiss *et al.*, 2012). As similar institutions can have different effects in different contexts (Bruton *et al.*, 2008), it is important to research institutional country profiles in different country and industry contexts. However, the extant research applying institutional theory on entrepreneurship has neglected several important areas.

The first of these is that most of the research on the institutional profile has been conducted at national (see Bruton *et al.*, 2010) rather than international entrepreneurial level. In the literature on international entrepreneurship, its application has developed only recently and is considered a fruitful area for continued research (Jones *et al.*, 2011; Kiss *et al.*, 2012; Szyliowicz and Galvin, 2010).

Second, the impact of institutional forces on entrepreneurship is particularly heightened in emerging economies (see Gupta *et al.*, 2014; Kiss *et al.*, 2012; Peng *et al.*, 2008). In Latin America, Colombian and Chilean entrepreneurs particularly show a high international orientation (Amoros *et al.*, 2015). This suggests that the potential impact of the institutional environment on internationalisation is further heightened in certain Latin American countries.

Third, an increasingly holistic view of institutional factors has been called for (Jones *et al.*, 2011; Kiss *et al.*, 2012; Veciana and Urbano, 2008), and, although the constructs allowing for the measurement and investigation of the institutional environment have been developed in theory (Busenitz *et al.*, 2000; Kostova, 1997; Manolova *et al.*, 2008), they have seldom been empirically tested in the context of internationalising SMEs.

This study aims to fill this gap in the literature by examining the impact of institutional forces on the internationalisation of Latin American SMEs. We do so by investigating the role of the institutional environment in the Colombian context, the country being the third largest economy in Latin America. We see this context as fruitful for two main reasons: first, according to the GEM (2016a,b), Colombia shows one of the highest motivations for entrepreneurship world-wide, one where entrepreneurship is an established discipline. Second, in Colombia, several policies aiming at changing the institutional environment to be more conducive to entrepreneurship have been implemented by the government in recent

years (e.g. the “Entrepreneurship law” 1014 from 2006), making the country a suitable empirical context in which to explore the impact of institutional forces on entrepreneurship.

Through the analysis of our empirical sample on Colombian SMEs, we apply the country institutional profile measure introduced by Busenitz *et al.* (2000), which establishes a three-pillar construct of the institutional environment, based on normative, regulatory and cognitive forces (Scott, 1995). We find that it is the normative pillar rather than the regulatory or cognitive that determines firms’ international performance. In doing so, we illustrate how the suggestion by Busenitz *et al.* (2000, p. 1001) to go beyond the “study focused on industrialised Western countries with relatively small differences on each of the three dimensions” can be applied through the country institutional profile in the Latin American context. Therefore, we are able to extend the framework to an emerging market in Latin America while further responding to the suggestion by Kiss *et al.* (2012, p. 267) to “assess whether theoretical perspectives developed in mature market contexts are valid in emerging economies”.

We continue by introducing the literature suggesting linkages between institutional theory and international entrepreneurship in the Latin American context and Colombia and develop our hypothesis. Next, we introduce the empirical context of the Colombian software industry followed by the description of the research methodology and variables measurement. The section that follows presents the results and we conclude by discussing our contributions and their impact on the theory and practice.

## 2. Literature review and hypotheses development

### 2.1 Institutional theory and international entrepreneurship

The institutional environment needs to be accounted for in studies on international entrepreneurship (Szyliowicz and Galvin, 2010). When discussing institutions, we refer to North’s (1990, p. 3) definition of them as the “rules of the game in a society or, more formally [...] the humanly devised constraints that shape human interaction” and the taken-for-granted assumptions and ways to operate that individuals or organisations have to deal with (DiMaggio and Powell, 1983). Institutions are the “macro-level rules of the game” (North, 1990, p. 27) that introduce both formal and informal constraints on organisations and individuals (North, 1996). Ostrom (2005) describes institutions as the rules and norms that constitute the “generally accepted moral fabric of a community” (p. 831).

Cultural practices affect both the entrepreneurial entry and the growth aspirations of enterprises (Autio *et al.*, 2013), and culture manifests at the national level through the prevailing official and unofficial rules that entrepreneurs and society in general recognise and abide by. The institutional theory postulates that these external social forces determine the behaviour of enterprises (Scott, 1991, 1995) and are expressed through the institutional profile at the country level (Kostova, 1997; Busenitz *et al.*, 2000). The institutional theory has gained the most foothold in management and business studies (Weerakkody *et al.*, 2009), and it is most often conceptualised through the “three pillars” of institutional environment, distinguishing between regulative, normative and cognitive forces (Scott, 1995).

The normative pillar consists of values and norms exerted through individual and organisational interaction. In the context of international entrepreneurship, this may imply the extent to which entrepreneurship and internationalisation are encouraged or discouraged by society. The cognitive pillar, in turn, represents the beliefs and models of behaviour based on subjective rules and meanings that, in practice, limit the potential actions that individuals and organisations (e.g. entrepreneurs and internationalising SMEs) may, in practice, carry out (Bruton *et al.*, 2010). Finally, the regulative pillar encompasses the laws and regulations that individuals and organisations are to follow if they experience sanctions and formal penalties (e.g. governmental legislation and industrial standards aimed to promote or discourage internationalisation).

Home and host-country institutional environments are crucial for international entrepreneurship in particular; they come to determine both overall decision making in internationalising entrepreneurs (Lim *et al.*, 2010) and their entry mode choice (Ferreira *et al.*, 2009).

### *2.2 Institutional environment and international entrepreneurship in Latin America*

The impact of the institutional environment on internationalisation and international entrepreneurship in Latin America has yielded ambiguous results. Saka-Helmhout and Geppert (2011) posit that institutions can act as barriers to internationalisation. Cardoza *et al.* (2016) echo these notions. The authors conducted a three-country study in Brazil, Peru and Colombia and found that SMEs originating in these economies tend to perceive difficulties when internationalising due to domestic regulations and the lack of information about foreign markets. They further go on to posit that having the government as a customer may be a major facilitating factor in their successful internationalisation.

In contrast to these results, however, Ferreira Ribeiro *et al.* (2014) have posited in the context of technology-based SMEs in Brazil that enterprises can also benefit from pro-internationalisation government policies during their internationalisation. We suggest that one underlying reason may be that the impact of formal and informal institutions can be distinct: as Alvarez and Urbano (2011) have noted, formal institutions such as business and entrepreneurship skills may not have a beneficial impact on entrepreneurship in Latin America as in other contexts. They posited instead that it can be the informal institutions as role models that determine the creation of new ventures in the Latin American country context. In addition, Alvarez and Urbano (2012) noted that informal institutions can be more important for entrepreneurship in low- and middle-income countries, whereas formal institutions seem to be more important in high-income countries.

In sum, the dynamics between the institutional environment and international entrepreneurship can still benefit from clarification through added research focus. Since Colombia presents a particularly interesting domain for studying these phenomena, we continue for hypothesising the relationships between the institutional forces and internationalisation outcomes in the context of Colombian software SMEs.

### *2.3 Institutional environment and international entrepreneurship in Colombia*

Latin America – Brazil, Mexico, Argentina, Venezuela, Colombia and Chile – is home to the world's largest economies in terms of their gross domestic product. Countries like Argentina, Colombia, Costa Rica and Uruguay created the needed skills in order to serve as global export-hubs for the outsourcing of business processes to companies in the USA, India and Europe (Ciravegna *et al.*, 2016). Innovation and entrepreneurship is also thriving within the region led by Chile, Colombia, Costa Rica, Mexico and Uruguay. Brazil has the world's fifth-highest number of start-ups, start-up Chile has been recognised as one of the world's best incubator programs by *Fast Company Magazine*, and the city of Medellin in Colombia was recently recognised as the world's most innovative city by Citi Bank and the *Wall Street Journal*.

In Colombia specifically, different policies have been put in place in order to support entrepreneurship. Law 1014 (2006) (the “entrepreneurship law”) defined an extensive support system for entrepreneurship including educational orientation and financial support systems. Laws 590 (2000) and 905 (2004) (the “SME laws”) defined support systems for SMEs. Moreover, since GEM (2016b) started its annual survey in 2006 in Colombia, the lack of adequate government policies seems to be a consistent weakness for entrepreneurship in the country, yet also according to Global Entrepreneurship Monitor, government support programs are continuously improving, with particularly strong social and cultural norms regarding entrepreneurship.

For several reasons, we should expect a positive relationship between the favourability of the institutional environment and the extent of success of internationalising SMEs originating in Colombia. For one reason, technology-based SMEs in Latin America stand to benefit significantly from policies favouring internationalisation efforts (Ferreira Ribeiro *et al.*, 2014). Acs and Correa (2014) noted that entrepreneurs consider their skills and know-how as critical success factors in the region. Moreover, the impact of role models on entrepreneurship is noted (Alvarez and Urbano, 2011), suggesting that a normative institutional environment celebrating international entrepreneurs would be expected to have a positive impact on their enterprises. Similarly, a more supportive regulatory environment should be expected to impact entrepreneurial performance positively: Alvarez *et al.* (2014) found a positive link between regulative support (government spending) and entrepreneurship activity. Based on these notions, we would expect that, in the Colombian context, more favourable formal and informal institutions as outlined through the normative, regulative and cognitive pillars would have an impact on entrepreneurship as follows:

- H1. The more conducive the normative environment to entrepreneurship, the better the performance of internationalising SMEs originating in Colombia.
- H2. The more conducive the cognitive environment to entrepreneurship, the better the performance of internationalising SMEs originating in Colombia.
- H3. The more conducive the regulatory environment to entrepreneurship, the better the performance of internationalising SMEs originating in Colombia.

### 3. Empirical context: the Latin American and Colombian software industries

For several reasons, in testing our hypotheses, we concentrated on the software industry specifically. The promotion and consolidation of the digital economy is considered an important driver for economic growth and the poverty reduction in Latin America (CEPAL, 2013). Public policies that aim at the promotion of economic and social activities in the information and communication technology (ICT) sector are increasingly introduced in a variety of countries within the region. Chile and Colombia can be considered pioneers in the introduction of a national digital policy agenda already at the beginning of the new millennia (CEPAL, 2013).

The software industry is an important driver of economic growth within the larger ICT sector of many Latin American countries. Some countries such as Brazil and Mexico are focusing on their large domestic markets for software sales, whereas Costa Rica and Uruguay are more export-oriented due to the smaller size of their internal markets. Argentina, Chile and Colombia, however, are trying to stimulate both domestic and export sales of software (CEPAL, 2013).

In general, software sales in Argentina account for a high percentage of the country's gross domestic product followed by Brazil, Chile, Colombia and Mexico (see Table I). The export of software and information services again is highest in Argentina followed by Brazil, Chile and Colombia. However, inasmuch as the country's gross domestic product, the export of software services during 2010 was negligible in both Brazil and Colombia, but Colombia's share of export value increased significantly from \$46,000,000 in 2010 to \$235,000,000 in 2013 (ALETI, 2015; UNCTAD, 2012).

A country's potential for software development and eventual export depends on a variety of macro- and micro-economic factors such as institutional factors for ICT (e.g. laws, investment promotion, strategic importance of the software development sector), economic factors (e.g. Internet use costs, export volume of software-related services), infrastructure (e.g. availability and accessibility to the internet) and human capital (e.g. availability of

Country	Composite index for ITC development <sup>a</sup>		Software and information services export 2010 <sup>b</sup>			Software sales 2011 <sup>a</sup>		CMMI appraisals 2012 <sup>a</sup>		Greenfield FDI projects in software and IT services (2007–2011) <sup>b</sup>	
	Year	2013	Ratio to total software		As percentage of GDP	As		Number of appraisals		Number of projects	
			Total USD millions	and information services spending		Total in USD millions	percentage of GDP				
Argentina	4.07/10		1,184	0.7	0.4	1,138	16.52	42		92	
Brazil	4.53/10		210	0.0	0.0	5,400	6.61	101		200	
Chile	4.44/10		91	0.1	0.1	3,480 (total IT sector)	1.4	22		57	
Colombia	3.96/10		46	0.1	0.0	3,000	0.9	28		63	
Mexico	3.75/10		–	–	–	5,534 (in 2010) (total IT sector)	0.5 (in 2010)	94		146	

**Notes:** <sup>a</sup>CAF (2013); <sup>b</sup>UNCTAD (2012)

education in software development, people with software development skills) (CAF, 2013). The Latin American development bank CAF developed an index in order to measure the aforementioned factors that spur the development of a country's ICT in general including software. For 2013, Brazil was on top of the list with the best performance in ICT followed by Chile, Argentina, Colombia and Mexico (see Table I). The investment and presence of foreign software development firms is also an important trigger for the development of local software firms (UNCTAD, 2012). Between 2007 and 2011, Argentina, Brazil, Chile, Colombia and Mexico received most foreign direct investment projects in Latin America in software and information technology services. As shown in Table I, Brazil and Mexico received most of the projects followed by Argentina, Colombia and Chile.

Certifications in software development are important indicators that create trust in the software product or service and demonstrate quality and reliability to international buyers (CAF, 2013). This contributes to the competitiveness of the local incumbent *vis-à-vis* international competitors. Brazil and Mexico are the countries with most appraisals of organisations using a CMMI model followed by Argentina, Colombia and Chile[1] (see Table I).

Although software development is still a relatively small industry in Colombia as compared to Brazil, Mexico and Argentina, its importance is increasing in terms of economic diversification, innovation-potential and value-added exports. In fact, software development is one of the main drivers of Colombia's information technology industry (Fedesoft, 2015). According to the latest census of the information technology industry in Colombia in 2015, the software sector is comprised of 3,718 firms. Most firms in the software industry offer data management services (851 companies or 25 per cent of the total). This is followed by companies dedicated to software development (772 companies or 23 per cent of the total). Software firms dedicated to help-desk software occupy third place with 477 companies or 14 per cent of the total. The rest is divided among firms dealing with software testing, consultancy and implementation, maintenance and support services, cloud computing, among others. The USA is the primary export destination for Colombian software products followed by Spain, Ecuador, Mexico, Chile and Peru (Fedesoft, 2015).

The software industry in Colombia has growth significantly since 2003 when the law for the promotion of software was passed. Other laws have been introduced during the same time in order to provide a support framework for especially SMEs (Laws 590/2000 and Law 905/2004 – the “SME laws”). The so-called “entrepreneurship law” was passed in 2006 in order to facilitate entrepreneurship in general (Law 1014/2006). The introduction of these laws also benefited companies dedicated to the development of software considering that most of them fall into the SME category and are measured by their assets and number of employees (Fedesoft, 2015).

Regarding the activity of software development in particular, Colombia is one of the few countries in the region that actively supports software development with a regulatory governmental framework (Fedesoft, 2014). In 2011, the government passed an amending law regarding the software regimen in order to benefit firms that invest in software-related research and development activities. In order to further stimulate the export of software, the government introduced tax exemptions in 2012 regarding the export of services in general, which includes software products and services.

## 4. Research methodology and variables measurement

### 4.1 Data collection

The empirical data to test the hypotheses were collected from Colombian SMEs operating in the software industry. We opted for data collection through a survey, basing the questionnaire on the study by Renko *et al.* (2009), where the instruments related to country institutional profiles were previously validated in a multi-country study.

The questionnaire was translated into Spanish by a native speaker with experience in business studies and high proficiency in English. It was then back-translated into English by the researcher and the two versions were then compared to ensure that the intended meaning had been retained. The survey was pre-tested with managers of six different software companies and comments for its development were also sought from four industry experts and two export promotion organisations. Specifically, the following changes were made based on the process:

- we adjusted the type of professional degrees to the Colombian educational context;
- we changed the local currency to Colombian Pesos, instead of US dollars; and
- we specified “product sales” as “sale of packaged software” as recommended by an industry expert in the pre-testing phase.

As there is no public register of Colombian software companies available to use, based on the comments of the experts in the pre-testing phase, we identified two main sources of data collection: the member list of the national software association (Fedesoft) and the member list of the software cluster initiative Corporación INTERSOFTWARE. Consequently, we used the following sampling criteria: first, software development and sales should be the firm’s principal activity, and second, firms had to be independently operating entities, thus restricting subsidiaries of larger companies and other non-independent organisations from the data.

Through Fedesoft’s membership list, 815 firms were identified. Three additional firms, not included in Fedesoft’s list, were added by comparing with the information provided by Corporación INTERSOFTWARE. Thus, the total sample to be contacted consisted of 818 firms.

The questionnaire was administered online through a commercial survey website directly sent by Fedesoft and Corporación INTERSOFTWARE to their members. Invitations to participate were sent to the identified companies, with two reminder e-mails sent to those who had not responded. As a result, we received 70 completed responses, making for a response rate of 12 per cent. In total, 46 of the respondents indicated that they had international operations and thus form the final effective sample for this study.

The most central items in the study (e.g. country institutional profile for entrepreneurship) were placed in the first pages of the survey in order to prevent potential respondent fatigue being a factor in measuring the development. We also checked for potential biases by following Armstrong and Overton’s (1977) suggestions for checking against non-response bias in the survey by comparing early and late respondents to the survey. No significant differences between the two groups were found. The resulting sample companies employed on average 61 people, were on average 17 years old and had been involved in international operations for an average of 13 years.

#### 4.2 Measure development

In testing the hypotheses, we applied established scales for institutional profiles from extant literature, as established by Busenitz *et al.* (2000) that was based on the earlier work by Scott (1995). The three-factor solution proposed by Scott captures the regulatory, cognitive and normative pillars of the institutional environment and the scale by Busenitz *et al.* has been successfully replicated in the emerging market context by Manolova *et al.* (2008). We conducted factor analysis in order to ensure a reliable and valid structure of the three-dimensional institutional survey instrument. The resulting three-factor structure adhered to the three-pillar structure suggested by extant literature, explaining 75 per cent of the variation through the solution, with the individual factor loadings (Appendix) ranging between 0.89 and 0.47. The Cronbach’s  $\alpha$  values for the regulatory, cognitive and normative dimensions were 0.87, 0.67 and 0.76, respectively. Thus, we deemed the measure sufficiently



reliable and valid to be used in the analysis. For the performance measure, we applied a subjective scale inquiring the respondents upon the extent of success of their company using a Likert-scale measure. The one-factor solution with four items covered 75 per cent of the total variation between the variables, and Cronbach's  $\alpha$  value for the performance measure was similarly high at 0.88. The definitions of the variables are listed in Table II, while the individual items for the institutional and performance variables with their factor loadings, means and standard errors can be found in the Appendix.

Since both the institutional profile items and the performance items were inquired about using a five-point Likert-scale items, we considered the potential issues from common method variance. In doing so, we followed the guidelines established by Podsakoff *et al.* (2003) and conducted Harman's one-factor test to ensure the lack of common method bias. No signs of a common factor underlying the data were found. The summary statistics and intercorrelations between the variables used in the analysis are illustrated in Table III.

As we can see in Table III, the three dimensions of the institutional environment measure were highly inter-correlated, as were expected since they are also conceptually closely related. There was a positive correlation between the performance measure and all of the institutional variables, which was also expected based on the literature review and the hypotheses. However, the correlation between the cognitive pillar variable and performance was statistically non-significant, and the coefficient, while positive, was smaller than with the normative and regulative pillars. This suggested that cognitive factors were not as likely to be associated with performance in the following analysis. In addition, the overall institutional profile indicated that the overall level of normative support was average (3.0), while the regulative and cognitive forces (2.4 and 2.1, respectively) were perceived by the respondents as less supportive by comparison. Altogether, the descriptives and correlations provided a sufficient basis for testing the hypotheses through regression modelling with SPSS software.

## 5. Results

Due to the high intercorrelations between the institutional environment dimensions, we conducted separate regression models to account for any potential issues on multicollinearity. With each dimension, we ran the model with the Enter method in two steps: in the first step, only the control variables were included in the model, to be complemented then in the second step by the main predictor variable. This two-step assessment allowed us to differentiate between the potential impact of the control variables and that of the main predictor, and thus provide an accurate indication of the extent of the power of the predictor.

Variable	Definition
Normative institutional environment	The extent to which a country's residents admire entrepreneurial activity and value creative and innovative thinking of entrepreneurs <sup>a</sup>
Cognitive institutional environment	The extent to which there is widely shared social knowledge and skills possessed by the people in the country establishing and operating a new business in the country <sup>a</sup>
Regulatory institutional environment	The extent to which laws, regulations and government policies provide support for new businesses in the country <sup>a</sup>
Performance	The extent to which the company has performed well in its sales growth rate, market share, profitability and return on investment in comparison to its major competitors in the last 12 months
Firm age	The number of years since the foundation of the firm
Firm size	The amount of employees in the firm

**Note:** <sup>a</sup>Kostova (1997) and Busenitz *et al.* (2000)

**Table II.**  
Definition of the  
variables included in  
the empirical analysis

**Table III.**  
The summary statistics and intercorrelations of the variables used in hypotheses testing

	Observations	Mean	SE	Min.	Max.	SD	1	2	3	4	5	6
1 Performance	30	3.16	0.13	2.00	4.40	0.92	1					
2 Normative pillar	34	3.03	0.14	1.00	4.75	0.83	0.36* (0.05)	1				
3 Cognitive Pillar	34	2.41	0.15	1.00	4.20	0.80	0.35 (0.06)	0.57** (0.00)	1			
4 Regulative pillar	34	2.01	0.09	1.00	3.25	0.53	0.06 (0.75)	0.26 (0.14)	0.26 (0.14)	1		
5 Firm age	29	9.72	1.33	9	40	7.18	0.07 (0.74)	0.17 (0.37)	0.31 (0.11)	0.22 (0.26)	1	
6 Firm size	29	67.86	24.11	3	550	129.84	0.40* (0.03)	-0.03 (0.88)	0.29 (0.13)	0.03 (0.89)	0.50** (0.001)	1

Notes: \* $p < 0.05$ ; \*\* $p < 0.01$

First, we tested for *H1*, and as seen in Table IV, the controls-only model (0) was non-significant, as were both of the coefficients. Thus, we deemed that the age and size of the company were not directly linked to the performance measure. When adding the variable to the normative dimension (Model 1), the model overall became statistically significant ( $F = 4.26$ , sig.  $< 0.05$ ). In addition, the normative variable coefficient was both positive and significant ( $F = 0.43$ , sig.  $< 0.05$ ). The  $R^2$  value was 0.35, indicating that the normative dimensions explained ca. 35 per cent of the total performance in the companies. Thus, *H1* was supported by the analysis.

Next, we tested for the effect of the cognitive dimension of the institutional environment on performance (*H2*). As we can see in Table IV, the cognitive model (2) was non-significant ( $F = 1.69$ , sig.  $> 0.05$ ) and none of the coefficients were significant at the 95 per cent statistical level. Similarly, the regulatory model (3) was non-significant ( $F = 2.71$ , sig.  $> 0.05$ ) with all of the coefficients, again, non-significant. Therefore, while both the cognitive and regulatory coefficients were positive as expected, they were non-significant and thus, *H2* and *H3* were not supported by the analysis.

In terms of the analysis, we checked for potential heteroscedasticity issues by examining the distribution of residuals. Through a graphical investigation, they were found to have been normally distributed, indicating no issues. We also examined the statistical tolerance and variance inflation factor scores, both of which were within reasonable limits. Thus, no issues related to heteroscedasticity were found.

In sum, the analysis indicated that the normative institutional dimension explained increased performance among internationalised SMEs while the regulatory and cognitive dimensions did not. In other words, the analysis showed that among internationally operating Colombian software SMEs, the admiration of entrepreneurs and the social acceptance of entrepreneurship are linked to increased performance. The non-significant results of the regulatory dimension might be an effect of the lack of awareness about government policies for entrepreneurship in Colombia, also taking into account the fact that the mean value for perceived regulative environment variable was comparatively low. With the cognitive dimension, the lack of education for entrepreneurs, for example, is not a critical barrier for achieving success, and knowledge of how to become an international entrepreneur may be gained along the way.

## 6. Conclusions, limitations and implications

Our aim in this study was to determine how the institutional environment is linked to the performance of internationalising SMEs in the Latin American context. In doing so, we sought to fill the gaps in international entrepreneurship literature by shedding light on

	0	1	2	3
Normative institutional environment		0.43* (0.16)		
Cognitive institutional environment			0.02 (0.28)	
Regulatory institutional environment				0.30 (0.17)
Firm age (years)	-0.15 (0.02)	-0.26 (0.02)	-0.16 (0.03)	-0.22 (0.02)
Firm size (number of employees)	0.47* (0.001)	0.54** (0.001)	0.47** (0.001)	0.42 (0.001)
Observations	29	28	28	28
$R^2$	0.17	0.35*	0.17	0.25
$F$ -statistics	2.62	4.26*	1.69	2.71

**Notes:** The dependent variable is performance. All regressions include a constant (not reported). Below the  $\beta$  values, standard errors are reported in parentheses. Models as follows: 0 = control variables only, 1 = normative institutional environment, 2 = cognitive institutional environment, 3 = regulatory institutional environment. \*,\*\*Significant at the 5 and 1 per cent risk levels, respectively

**Table IV.**  
Results of the linear  
regressions testing for  
the hypotheses

the impact of the institutional environment on SME internationalisation, thus, responding to calls for this type of research in general (Bruton *et al.*, 2010; Jones *et al.*, 2011; Kiss *et al.*, 2012). We specifically focused on the Latin American context where the role of the institutional environment has been argued to be heightened (Amoros *et al.*, 2015) and where more specific research on internationalising SMEs is required (Vendrell-Herrero *et al.*, 2017). In our empirical analysis, we focused on Colombia in particular, due to its potential for this type of research (Cardoza *et al.*, 2016).

Through our analysis, we found that the normative aspect of the institutional environment, rather than the regulatory and cognitive ones, determines the performance of international SMEs. In other words, according to the results, the admiration of entrepreneurs and the social acceptance of entrepreneurship are linked to the international success of SMEs originating in Latin America, namely Colombia. The result was thus contrary to Bruton *et al.*'s (2009) proposition regarding the absence of normative institutions that support entrepreneurship, and suggests that normative institutions are well established in Colombia.

Regulatory and cognitive aspects of the institutional environment were not found to have impacted the international success of these companies. We consider this to be an effect of the lack of awareness about government policies for entrepreneurship in Colombia. Our results, therefore, mirror those found by Alvarez *et al.* (2014), who found the relationship between government spending and entrepreneurial activity in Latin American countries to be insignificant. Similarly, the fact that the cognitive pillar was non-significant suggests that an overall lack of education among the entrepreneurs was not a critical barrier for achieving success internationally, and the knowledge necessary to be an international entrepreneur may be gained along the way. Hence, our present study extends the implications of these findings to internationalising SMEs and beyond the domestic entrepreneurship context.

In sum, the main contribution of this study is threefold: first, our study is one of the first to apply the Busenitz *et al.* (2000) scale on the institutional country profile to real entrepreneurs. Previous studies have mainly applied the framework to a sample of students (e.g. Busenitz *et al.*, 2000; Gupta *et al.*, 2014; Manolova *et al.*, 2008) or officers assigned to US embassies (Spencer and Gomez, 2004). Besides Renko *et al.*'s (2009) conference paper, ours is the first that links the country institutional profile to the performance of internationalising SMEs, and especially in the context of a Latin American country. Therefore, our study tries to contribute to a better understanding of how a country's institutional environment impacts the performance of internationalising SMEs. Second, by examining internationalising SMEs through the institutional profile concept, this study responds to several calls for adding to the knowledge on international entrepreneurship through institutional theory (Jones *et al.*, 2011; Kiss *et al.*, 2012; Szyliowicz and Galvin, 2010). Third, our study supplements available studies on entrepreneurial internationalisation in the Latin American and Colombian context, which has tended to favour organisation and entrepreneur-specific phenomena while not accounting for the societal and institutional ones (e.g. Ferreira Ribeiro *et al.*, 2014; Fuerst and Zetting, 2015; Tabares *et al.*, 2015).

Our study naturally contains several limitations. For one, the cross-sectional nature of the survey tool, while allowing us to view the predictors of performance through regression modelling, is still, by nature, fixed in time. Thus, any long-term development in either the perceived institutional forces or indeed the dynamics of its effects on export performance in the long term was not assessed longitudinally in this study. Bruton *et al.* (2009) note that there may be a feedback loop between business actors such as venture capitalists with developing institutions. Their findings, therefore, imply that longitudinal effects into the dynamics of institutional forces and enterprises could yield an increasingly holistic understanding of how country institutional profiles are intertwined with entrepreneurship. The impact of the institutional context on phenomena such as

networking practices should also be clarified further (Jones *et al.*, 2011), and, our present study was limited to examining the direct effect of the institutional environment on performance outcomes; it is quite possible that organisation and individual-specific capabilities, social capital and networks may moderate or even partially mediate the relationship. Future studies should thus extend these results to form an increasingly holistic view of the role and dynamics of formal and institutional forces on SME internationalisation.

Moreover, the data sample was restricted to Colombia and the country is unique in the Latin American context in that the population holds one of the most positive views about entrepreneurship in the world and the international orientation of entrepreneurs is comparatively high for the continent.

In sum, the cluster of emerging markets that constitute the Latin American region may yet prove to offer substantial potential for extending the results of this study further: emerging markets overall constitute a distinct phenomenon on research in entrepreneurial internationalisation, one that is rapidly growing and that offers methodological plurality (Kiss *et al.*, 2012). This study has contributed to providing a view into country-specific dynamics of SME internationalisation with an interesting implication for policy-makers: should we focus our efforts on creating an environment that admires and celebrates international successful entrepreneurs rather than create policies and educational programs that foster entrepreneurship overall? There is still a lot to be understood about the concepts embodying international entrepreneurship in the Latin American context.

## Note

1. The Capability Maturity Model Integration is a process level improvement training and appraisal programme, often, but not exclusively, applied for software development.

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**Appendix. The scale measure items**

Institutional profile: "Based on your opinion, please indicate the degree to which you agree or disagree with each of the following statements concerning your company's home country": (1 = disagree completely, 5 = agree completely).

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**Table AI.**  
The institutional  
dimensions

Main constructs and items	Factor loadings	Mean (SE)
<i>Regulative institutional dimension</i>		
Reg1: government organisations in this country assist individuals in starting their own businesses	0.89	2.18 (0.20)
Reg2: the government sets aside government contracts for new and small businesses	0.78	2.85 (0.19)
Reg3: local and national governments have special support available for individuals who want to start a new business	0.76	2.91 (0.17)
Reg4: the government sponsors organisations that help new businesses develop	0.75	3.15 (0.19)
Reg5: after failing in an earlier business, the government assists entrepreneurs in starting again	0.58	2.12 (0.15)
<i>Cognitive institutional dimension</i>		
Cog1: individuals know how to legally protect a new business	0.88	2.26 (0.14)
Cog2: those who start new businesses know how to deal with much risk	0.85	2.09 (0.12)
Cog3: those who start new businesses know how to manage risk	0.80	2.12 (0.09)
Cog4: most people know where to find information about markets for their products	0.77	3.24 (0.15)
<i>Normative institutional dimension</i>		
Norm1: turning new ideas into businesses is an admired career path in this country	0.84	3.06 (0.15)
Norm2: in this country, innovative and creative thinking is viewed as a route to success	0.78	2.15 (0.11)
Norm3: entrepreneurs are admired in this country	0.75	3.15 (0.16)
Norm4: people in this country tend to greatly admire those who start their own business	0.47	3.12 (0.17)

Company performance: in the last 12 months, in comparison to major competitors... (1 = poor, 5 = excellent).

**Table AII.**  
Company performance

Items	Factor loadings	Mean (SE)
Our company's performance measured by the growth rate for sales was...	0.92	3.43 (0.20)
Our company's performance measured by market share was...	0.87	3.10 (0.16)
Our company's performance measured by profitability was...	0.83	3.17 (0.17)
Our company's performance measured by return on investment (ROI) was...	0.82	3.37 (0.16)

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