



## CENTRUM Católica's Working Paper Series

No. 2015-09-0014 / September 2015

### **Non-technological innovations: market performance of exporting firms in South American emerging**

Cesar Pino, Christian Felzensztein, Anne Marie Zwerg and Leopoldo Arias

**CENTRUM Católica – Pontificia Universidad Católica del Perú**

Working papers are in draft form. This working paper is distributed for purposes of comment and discussion only. It may not be reproduced without permission of the author(s).

# **Non-technological innovations: market performance of exporting firms in South American emerging economies**

## **Abstract**

Innovation plays a key role in the economic growth of companies, sectors and countries. Even though there is great interest in researching innovation, there is little evidence on the influence of innovation on the performance of exporting firms in emerging economies.

This study aims to analyze the effects of non-technological innovations (organizational and marketing innovations) on the market performance of exporting firms. We collected data from firms in fast growing South American emerging economies: Colombia, Peru and Chile, with a final sample of 299 completed surveys. Hypotheses were tested with Structural Equation Modeling (SEM). Our results show that organizational innovations (new or improved organizational methods) have more influence on market performance than marketing innovations. Findings confirm the importance of innovative performance as a mediator between organizational innovations and market performance.

Our study contributes to the strategic innovation management field, the design of public policy and the strategy of exporting firms.

Keywords: Innovation, non-technological innovations, market performance, emerging economies, Latin America.

## **1. Introduction**

An important part of economic growth in developed countries is explained by the innovation capacity of firms (Grossman & Helpman, 1991; Pavitt , 2006; Scotchmer, 2004). For this reason, innovation is considered a key factor to improve productivity, competitiveness, business survival, growth and employment generation (Buesa et al., 2010; Fagenberg & Nelson , 2005; Tejinder , 2010).

Growth in emerging Latin American economies has been based mainly on the exploitation of its natural resources over the last decades (Felzensztein et al. , 2010, 2012). This scenario will not change radically in the medium term (Benavente, 2009). Therefore, the proper design and implementation of a public policy strategy to promote the generation of business innovation and entrepreneurship would significantly increase growth rates in emerging Latin American economies (Bravo-Ortega et al., 2011; Geldes & Felzensztein, 2013; Solleiro & Castañón, 2005).

Eventhough there is not a single definition of innovation, there is a consensus among specialists to consider innovation as the implementation of new or improved products, services, process, marketing and organizational methods in business practices aimed at enhancing results and performance (OCDE, 2005; Geldes & Felzensztein, 2013). Innovation is essential in order to enter new international markets (Chetty & Stangl, 2010; Gunday et al., 2011; Knight & Cavusgil, 2004). Then, the main questions of this study are twofold. Do non-technological innovations have an important effect on the performance of exporting firms? If so, are the effects of each type of innovation different?

The objective of this study is to analyze the effects of non-technological innovations (organizational and marketing innovations) on the market performance of the exporting firms in Colombia, Peru and Chile. These three countries have adopted an export oriented economy model and are part of the new Pacific Alliance, aiming to increase commerce and cooperation among South American economies and the Asia Pacific Region.

Our results show that non-technological innovations have different effects on market performance in exporting South American firms. Specifically, organizational innovations (OI) generate more impact on market performance in exporting firms. This effect is through Innovative Performance (IP) as a mediator. Simultaneously, IP has an indirect influence on Market Performance (MP). Our unique results provide useful new knowledge for policy makers and business managers in exporting South American firms. It also contributes to the literature on business innovation in exporting firms.

## **2. Literature and theoretical model**

This section provides the literature on innovation and performance, which are our constructs for the theoretical model of this study.

### ***2.1. Innovation***

Innovation has been investigated from various disciplinary fields including economics, sociology and technology management, among others (Golapakrishnan & Damanpour, 1997). This has led to various definitions and typologies around the innovation concept (Damanpour et al., 2009; Oke, 2007). Initially, innovation was defined as a set of inventions that are introduced in the market with an industrial development potential (Schumpeter, 1934). For Schumpeter, radical innovations allow for the generation of important changes in the organizations and markets through the process of creative destruction. In this process, the changes at the industrial level generated by the introduction of innovations destroy old elements by continuously creating new elements. This produces internal variations in the social economic structure, because radical innovations generate drastic social changes, while progressive innovations contribute systematically to the change process. This phenomenon explains the economic progress of the society.

Schumpeter states other important issue about the adaptation of the firms in the society. For this author, the firms that are capable to adapt better and faster to changes in the environment, would remain participating in the market, while other ones would disappear (Schumpeter, 1934). Currently, innovation is understood as an implementation of significant changes in products, services, process, marketing or organization of the firm aimed at enhancing company's performance (OCDE, 2005).

Among the variety of existing typologies, OECD typology is considered most relevant as it presents four different kinds of innovations: product innovation, process innovation, marketing innovation and organizational innovation (OECD, 2005). Product innovation and process innovation are grouped under the category of technological innovations, while marketing innovations and organizational innovations are recognized as non-technological innovations (Maine et al., 2012; Mothe & Nguyen, 2010, 2012; Schmidt & Rammer, 2007). Research conducted in service organizations suggest the existence of service innovation, technological innovation and administrative innovation (Damanpour et al., 2009). Other studies consider that innovation can be incremental or radical innovation (Sainio et al., 2012; Oke, 2007). Radical innovation

and incremental innovation could be viewed from their nature as autonomous innovation and systemic innovation, where the latest requires systemic changes in the environment in order to be implemented (Dattaa & Jessupb, 2013; Partanen et al., 2011).

In contrast to technological innovations, the non-technological innovations are indirectly related to the organization's basic work activity and mainly affect its management systems (Damanpour & Evan, 1984).

Organizational innovation is the implementation of a new organizational method in the business practices and procedures of the company. This type of innovation allows the improvement of the level of job satisfaction, increase labor productivity, and reduce administrative and transaction internal costs for customers and suppliers. Some examples of organizational innovations are the upgrades of knowledge management, changes in the organizational structure, changes in the relationship with customers and suppliers, and the introduction of systems for operations management, supply chain management, human resources management and quality management (Armbruster et al., 2008; Gunday et al., 2011; Knight & Cavusgil, 2004; OECD, 2005).

Marketing innovation is the implementation of a new marketing method that considers significant changes in the design, delivery, promotion or pricing of products or services. The design changes refers to changes in nonfunctional characteristics such as appearance, packaging, shape and volume of the product. The delivery changes consider new sales channels such as franchise development, direct sales and modifications in the shape of the product display. These changes do not include modifications in logistics processes for delivering of products or services. Changes in promotion include the modification on communication using new media, replacing the logo, loyalty systems and customization of customer relationship. Changes in pricing refer to price changes depending on the demand or the options offered. Marketing innovation has the main objective of better meeting the needs of consumers, improving the market position of the business, opening new markets and increasing sales (Chetty & Stangl, 2010; Geldes & Felzensztein, 2013; Gunday et al., 2011; Partanen et al., 2011).

## ***2.2. Innovation in Business Performance***

The pressures of the external environment (such as resource scarcity or customer demands) and internal decisions (such as obtaining resources or capabilities) motivate firms to innovate. This behavior allows the change and adaptation of the company in order to maintain or improve performance. At the same time, when the firm generates different types of innovation, the firm increases its ability to adapt to the changing environment (Damanpour et al., 2009).

In the resource-based view (RBV), firms build sustainable competitive advantage based on resources and capabilities that are rare, valuable, inimitable and non-substitutable in the market (Barney, 1991, Wernerfelt, 1984). Capabilities (or competencies) allow the firm use of resources in order to achieve a desired end result (Teece et al., 1997; Eisenhardt, 2000). Then, the integration of complementary resources and capabilities both enable the generation of innovation and increase the positive influence of innovation in higher firm performance (Christmann, 2000; Damanpour et al., 2009; Han et al, 1998;. Hurley & Hult, 1998). This is why innovation is considered a key factor for business survival, growth, employment generation, improved productivity and business competitiveness (Buesa et al., 2010; Fagenberg & Nelson , 2005; Hamel, 2006; Lin & Chen, 2007; Scotchmer, 2004; Tejinder , 2010).

Knowing the effects of innovation on performance is of great importance to the firm, specially when firms face the market with different configurations of turbulence and competitive intensity (Tsai & Yang, 2013). The performance can consider different dimensions of the firm such as: innovative performance, production performance, financial performance and market performance (Gunday et al., 2011; Jiménez-Jiménez & Sanz-Valle, 2011). Innovative performance in the narrow sense refers to results for firms in terms of the degree to which they introduce innovations into the market (Hagedoorn & Cloudt, 2003). Innovative performance corresponds to the combination of all organizational achievements that are a result of the renovation and improvement efforts undertaken in the different aspects of the firm, such as processes, products or services and organizational structure, among others (Gunday et al., 2011). Meanwhile, production performance is a combination of achievements including the cost efficiency, quality, flexibility and speed with which goods and services are generated in daily operations of the firm (Chenhall, 2007). Market performance considers achievements that are reflected in sales, market share and customer satisfaction (Gunday et al., 2011).

Study of the effects of different types of specific dimensions of performance in the organization is limited (Han et al., 1998; Damanpour et al., 2009; OECD, 2005). Thus, our study analyzes the influence of non-technological innovations on market performance. It also involves innovative performance and production performance as well.

### ***2.3. Hypotheses and Theoretical Model***

Organizational innovations are new approaches and practices with the intention of changing the organization's management processes through the improvement in the design of strategy and structure of its internal units and the motivation and reward of its members (Birkinshaw et al., 2008; Damanpour et al., 2009). Organizational innovations involve changes in the administrative systems, knowledge used in management, organization's structure, internal processes and managerial skills with the purpose of using resources effectively and achieve superior performance in the firm. This is achieved through an improvement in coordination and cooperation mechanisms within the organization. Therefore, organizational innovation acts as a support facilitator that helps create an environment that is conducive to the development of other types of innovation (Acar & Acar, 2012; Damanpour et al., 1984, 1989, 1991, 2009; Gunday et al., 2011; Wang & Ahmed, 2004).

Several empirical studies report positive effects of organizational innovations on innovation in products and processes in services and manufacturing institutions (Damanpour et al, 1989; Staropoli, 1998). Likewise, other studies reported an influence of organizational innovations on marketing innovations (Walker, 2008; Damanpour et al., 2009; Gunday et al., 2011). This relationship has been observed when the firm adopts novel market-oriented approaches that allow it to take place in a new market or an available market (Wang & Ahmed, 2004).

Based in this literature, we proposed:

*H1: The higher the level of organizational innovation (OI), the greater the level of marketing innovation (MI).*

Changes in the environment motivate firms in seeking adaptive change. When the firms adopt innovations, they can respond to environmental demands, operate efficiently and effectively in their processes, and maintain or improve their performance (Schumpeter, 1934; Damanpour et al., 1989, 2009).

Consistently with the RBV approach, firms make use of resources through their unique and valuable capabilities allowing them to gain competitive advantage. In this context, innovation is seen as the most important ability of the firm, therefore generating goods and services that are rare, valuable, inimitable and non-substitutable (Barney, 1991; Wernerfelt, 1984). Through the innovation, the firm can obtain superior performance outcome, which depends of the competitive intensity levels of the market (Acar & Acar, 2012; Tsai & Yang, 2013).

Empirical evidence states that innovation affects the firm's performance positively based on two theoretical approaches. First, when the organizations moves first in their environment, they can take advantage and generate a superior performance (Lieberman & Montgomery, 1988; Roberts & Amit, 2003). This approach has been observed in for-profit products or services organizations. Second, each firm has a performance gap. The gap is the difference between actual and potential achievement. This difference creates a need for change in the organization which would in turn provide motivation to generate innovations in order to reduce this gap (Zaltman et al., 1973).

Damanpour et al. (1989) report a positive influence of technological and non-technological innovations on the performance of public libraries. This trend was ratified in a research conducted on public institutions of the UK Government (Walker et al., 2011). An analysis of the commercial banking industry shows that there is a positive relationship between innovation and performance, influenced by the innovation speed and magnitud (Gopalakrishnan, 2000). This positive relationship has been confirmed through an integrated analysis between product innovations, non-technological innovations and performance in studies conducted in the traditional manufacturing industry (Gunday et al., 2011).

Tsai & Yang (2013) obtained similar results in an empirical research on high tech manufacturing firms in Taiwan. This study shows that the effects of innovations on business performance in these firms are different, and that it depends on the levels (high and low) of the competitive intensity and turbulence in the environment (Tsai & Yang, 2013). Also, the significant influence of innovations on business performance has been reported in the healthcare industry in Turkey (Acar & Acar, 2012).



Others studies investigated the specific relationship between different types of innovation and innovative performance in the firm. For instance, Oke (2007) reported that radical and incremental innovations were related with innovative performance in companies in the UK services sector. In a broad sense, the innovative performance (IP) can be defined as a synergistic combination of the results generated by the different types of innovation, which contribute positively to the growth and profitability of the firm (Han et al., 1998). In contrast, innovative performance (IP) can be understood as introducing new products or processes on the market. This definition considers technical aspects of innovation and simultaneously reflects the trajectory from idea generation up until market introduction of an invention (Hagedoorn & Cloudt, 2003). This definition does not involve the potential success of innovation in the market performance (MP) of the firm. Therefore, the measurement of such performance could be through indicators covering all states until product or service innovations arrive to the market (Hagedoorn & Cloudt, 2003; Gunday et al., 2001).

Based in this literature, we proposed:

*H2a: The higher the level of organizational innovation, the greater increase in innovative performance of exporting firms.*

*H2b: The higher the level of marketing innovation, the greater increase in innovative performance of exporting firms.*

Innovative performance (IP) reflects input and synergistic efforts of technological and non-technological innovations implemented by the firm. In addition, IP is seen as a key mediator between market orientation and firm performance (Han et al., 1998). Therefore, the IP has a positive effect on the business performance (Han et al, 1998; Walker et al, 2011).

This effect is generated when the firm creates new products or services that successfully enter the market, which can meet the expectations of today's consumers and attract new consumers (Wang & Wei, 2005). Therefore, the innovative performance (IP) has a positive influence on the market performance (MP) of the firm (Gunday et al., 2001).

The efforts of firms to renew administrative systems, production processes and the design of new products and services enable an effective coordination of the inner workings of the organization. This helps to

improve the quality, speed, flexibility and cost efficiency of the integrated processes and the generation of innovative products and services that the firm trades in the market at competitive prices (Koufteros & Marcoulides, 2006, Liu et al, 2009). Thus, innovative performance has a positive influence on production performance (Gunday et al., 2011).

Based in this literature, we proposed:

*H3a: Greater innovative performance enhancements result in increased market performance improvements.*

*H3b: Greater innovative performance enhancements result in increased product performance improvements.*

The operations management literature, suggests that the strategic objective of the firm's operations is to generate goods and services with quality that respond to the changing needs and expectations of consumers. The company achieves this through production processes with costs efficiency and flexibility that allow the firm to sell its products and services at competitive prices in the market. Furthermore, optimal management supply chain ensures reliable and speedy delivery of products and services to the customer (Jacobs et al., 2010). This results in an increase in total sales and market share of the firm.

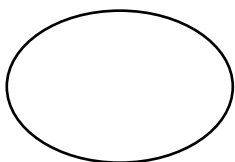
Various studies report the relationship between production performance and market performance. For instance, Pujari (2006) investigated environmental projects in the development of new products and showed the effect of eco-innovation activities on market performance (MP) in the North America companies. Li (2005) showed the influence of production control, staff skill and knowledge development in manufacturing process, on market performance for Chinese manufacturing firms by increasing customer satisfaction. Hence, production performance is able to improve the market position and the opening of new markets (Gunday et al., 2011).

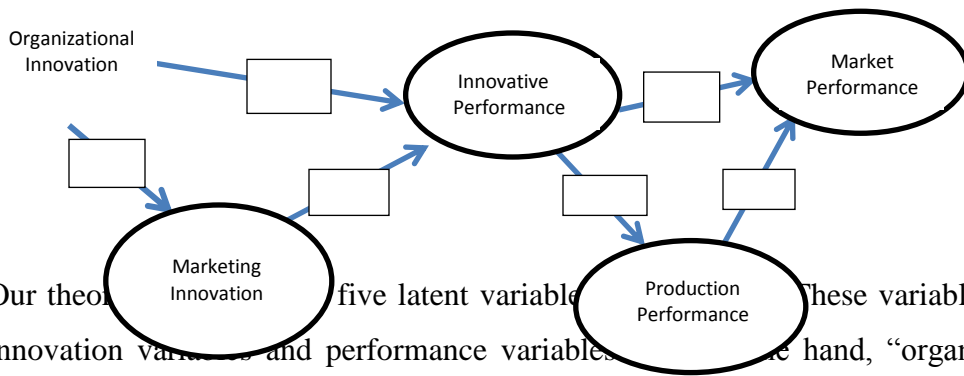
Based in this literature, we proposed:

*H4: Higher production performance improvements result in improvements in market performance.*

Our hypotheses are presented in the theoretical model (**Figure 1**).

**FIGURE 1: Theoretical Model**





Our theoretical model consists of five latent variables. These variables are separated in two groups: innovation variables and performance variables. On the one hand, “organizational innovation (OI)” and “marketing innovation (MI)” are the independent variables. On the other hand, “innovative performance (IP)”, “production performance (PP)” and “market performance (MP)” are dependent variables in the model. All these constructs can be measured by groups of observable variables. **Appendix A** shows the relationship between constructs and observable variables.

### 3. Methodology

#### 3.1. Sample and Data

The empirical analysis is based on data collected from exporting firms in Colombia, Peru and Chile. Aiming to explore the effect of non-technological innovations on market performance, a survey was adopted and adapted from a previous study of Gunday et al. (2011). This survey was conducted in Spanish (local language) during 2013/2014. It took 6 months for collecting firm level data in the three South American countries. The survey includes 4 sections with 39 individual questions about general information of the firms, measurements of innovations, measurements of performance and market for the exporting firms.

Initially, we applied a pre-test in Colombia, Peru and Chile with pilot interviews conducted in the local language (Spanish) with ten firm executives, ensuring that the survey was understood in each country. Then, the questionnaire was applied simultaneously by email and face-to-face interviews.

The respondents were one or two managers from the top level management team. They were asked to complete the survey in consultation with other area managers. This is because the questions asked covered a wide spectrum of disciplines. This is consistent with some suggestions of Podsakoff et al. (2003), which suggest different ways to control for common method biases. Our study considers suggestions such as: obtaining measures of the variables from different sources in the firm (at least two informants), protecting respondent anonymity, improving scale, and showing the definition of the main variables (including

ambiguous concepts). We used different scales for each type of construct (innovation and performance variables), among others technical issues on design. All of them allow for the improvement of data collection.

In Colombia, the surveys were distributed to member firms through the national business association: *Asociación Nacional de Empresarios de Colombia* (ANDI). The association consists of 28 sectorial subsections. Of these, the following were identified to be pertinent to this study: cotton, fibers and textiles; medical supplies; food product cultivation; processed foods manufacturing; cosmetics and cleaning supplies; flavors and fragrances; pulp and paper; and home appliances.

In Chile, the surveys were applied to member firms of the Export Promotion Agency (PROCHILE). The surveys were also applied to exporting firms members of different trade associations: aquaculture (*Asociación de la Industria del Salmón en Chile* SALMONCHILE, *Asociación Mitilicultores de Chile* AMICHILE), mining (*Sociedad Nacional de Minería*, SONAMI), wines (*Vinos de Chile*), and fruits (*Asociación de Exportadores de Fruta de Chile*, ASOEX).

In Peru, the surveys were applied to exporting firms in the exporters association: *Asociación de Exportadores* (ADEX), which is a non-for-profit trade association with the purpose of promoting peruvian exports in sectors such as tourism, mining, fishing, manufacture and services, among others.

The cross section data was compiled from exporting firms associated to these institutions in each country. Our empirical analysis is based on a sample of 299 firms from Colombia, Chile and Peru. The response rate was 10.1% in Colombia, 11.7% in Chile and 12.3% in Peru.

### **3.2. Measurement**

The survey asked respondents to rate their perceptions regarding to the implementation of innovations activities in the last two years. The innovations constructs were measured by a 5 point likert scale (1= not implemented, 2 = imitation from national market, 3 = imitation from international market, 4 = improvements, 5 = implementation of original innovations).

The survey also asked respondents to rate the level of achievement of different dimensions of performance observed in their organization in the last 2 years, compared to previous years. Performance constructs were measured by a 4 point likert scale (1 = not successful, 2 =slightly successful, 3 = successful, 4 = very successful).

In the pre-test stage, also we applied a 5 point likert scale for measuring firm performance. The firm's executives showed confusion regarding the neutral level in this scale (level 3). Whenever they were not sure about the level of achievement of performance observed in their organization, they answered in the neutral level of the scale. With the 4 point likert scale, the firms's executives completed the survey in consultation with managers of other areas. This is why we used a 4 point likert scale, according with the suggestions of Podsakoff et al (2003) regarding to bias control.

In addition, the survey included general information on exporting firms such as type (producing goods or services), main allocations, economic sector, size (number of employees), age, legal nature, foreign investment (yes or no), international markets and number of export markets.

Our sample of 299 exporting firms are from Colombia (36.1%), Chile (30.5%) and Peru (33.4%). It includes microenterprises (12.4%), small businesses (34.8%) and medium size businesses (29.4%), and large firms (23.4%). 73.6% of the firms generate products. Additionally, the main sector in the sample is manufacture with 37.8%, most companies were born after 1990 (young firms). More details on the characteristics of the sample are presented in **Appendix B**.

### ***3.3. Multivariate Analysis***

The procedure for analyzing the data had two stages. First, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were conducted for all constructs to test their reliability and validity (Hair, 2010; Byrne, 2010). Second, Structural Equation Modeling (SEM) in AMOS 20 was used to test the proposed model and hypotheses (Byrne, 2010; Hair, 2010).

We did an Exploratory Factor Analysis (EFA) to determine the assignment between each constructs and their observable variables. We also did a Confirmatory Factor Analysis (CFA) to measure the model fit and the reliability and validity of the constructs. We analyzed innovation constructs and performance constructs separately.

We applied EFA on innovation constructs and the results confirm the display of all observable variables on two factors (two constructs). Likewise, we analyzed (EFA) the performance constructs and the results suggest the distribution of observable variables in two constructs, not three. For this reason, we analyzed and compared two models, one model with three performance constructs and another model with two

performance constructs. This analysis demonstrated that the model of three performance constructs represents the data better than the model of two performance constructs (**Appendix C**).

We continued with a CFA to evaluate the reliability and validity of all the constructs. For reliability, we considered Cronbach’s alpha  $> 0.7$ . For convergent validity, we used: i) standardized factor loading (FLs  $> 0.5$ ); ii) average variance extracted (AVE  $> 0.5$ ); and iii) construct reliability (CR  $> 0.7$ ). For discriminant validity, we used AVE  $>$  average shared squared variance (ASV).

#### 4. Results

After applying EFA and CFA, the analysis reduced the originally proposed number of items from 27 to 21 (**Appendix A**). For this analysis, we eliminated observable variables with errors higher than their loadings.

The reliability and validity tests of constructs indicate that all latent variables have good indices of validity and reliability (**Table 1**). For each construct, AVE  $> 0.5$ , which means that over 50% of the construct’s variance is due to observable variables (or items). Also, all constructs have a good level of reliability, with Cronbach’s alpha  $> 0.7$  and CR  $> 0.7$ , which means that consistency exists in the items that form the construct.

In addition, the discriminant validity presents good levels for the performance constructs, with ASV less than AVE. However, innovation constructs do not show discriminant validity together because there is a high correlation between these two latent variables. One possible explanation for this result is that both types of innovation belong to the category of non-technological innovations and, like organizational innovations, are also based in the firm for developing marketing innovations. For purposes of the development of this study, the importance of the validity of these constructs is that they are good indicators of reliability and validity independently.

**Table 1.**Confirmatory factorial analysis for the survey.

Construct	Cronbach’s alpha	AVE	CR	AVE $>$ ASV
Organizational Innovation	0.897	0.520	0.812	No
Marketing Innovation	0.866	0.540	0.778	No
Innovative Performance	0.886	0.541	0.891	Yes
Production Performance	0.787	0.635	0.874	Yes
Market Performance	0.774	0.729	0,889	Yes

According to the indicators of model fit for the measurement model and structural model, such as: CMIN/df, GFI, NFI, CFI, RMSEA and AGFI (**Table 2 and Table 3**). These indicators allow us to confirm that our scale provides good means for measuring these phenomena.

**Table 2.**Confirmatory factorial analysis for the measurement model.

Model Fit	CMIN/df	GFI	NFI	CFI	RMSEA	AGFI
Model	1.782	0.911	0.910	0.958	0.051	0.882
Minimum	$2 < x < 3$	0.90	0.90	0.95	$0.05 < x < 0.1$	$x > 0.80$
Good	$x < 2$	0.95	0.95	0.99	$x < 0.05$	$x > 0.85$

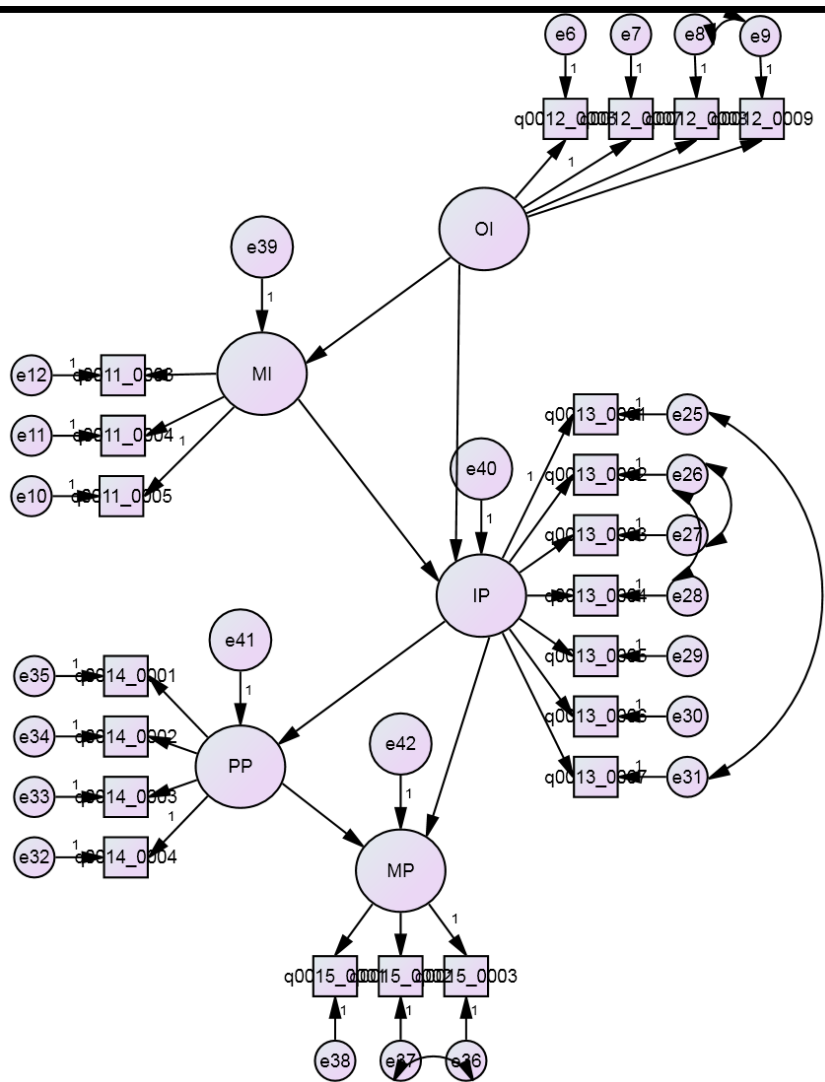
**Table 3.**Confirmatory factorial analysis for the structural model.

Model Fit	CMIN/df	GFI	NFI	CFI	RMSEA	AGFI
Model	1.775	0.909	0.908	0.957	0.051	0.881
Minimum	$2 < x < 3$	0.90	0.90	0.95	$0.05 < x < 0.1$	$x > 0.80$
Good	$x < 2$	0.95	0.95	0.99	$x < 0.05$	$x > 0.85$

For the structural model, the indicators show that there is a good fit for CMIN/df and AGFI (CMIN/df =1.775 and AGFI =0.881). Likewise, the indicator RMSEA is in the limit of a good fit (RMSEA = 0.051). And also, the rest of indicators are between minimum and good fit (GFI = 0.909, NFI = 0.908 and CFI =0.957).

The SEM of the proposed model (**Figure 3**) reveals that there is not a statistically significant relationship in the following cases: Marketing Innovation (MI) – Innovative Performance (IP) and Performance (IP) – Market Performance (MP). Also, the SEM shows that there is a positive and significant relationship between Organizational Innovation (IO) and Innovative Performance (IP) with a 95% significance level. The relationship between Innovative Performance (IP) - Production Performance (PP), and Production Performance (PP) - Market Performance (MP), relationships have a 99% significance level. Therefore, it is possible to note that IO has a significant effect on IP and, simultaneously, IP has an indirect effect on MP through the PP construct.

**FIGURE 3: Structural Model**





In relation to the hypotheses (**Table 4**), the analysis concludes that the hypotheses H1, H2a, H3b and H4 are supported. In the case of H1 (*“The higher the level of Innovation (OI), the greater the level of marketing innovation (MI)”*), this hypothesis is supported, because there is a positive and significant relationship between OI and MI (coefficient regression = 0.812, SE = 0.058, p = \*\*\*). While H2a (*“The higher the level of organizational innovation increases the innovative performance of exporting firms”*) is validated as well (coefficient regression = 0.138, SE = 0.062, p = 0.026). Also, H3b (*“Greater innovative performance enhancements result in increased product performance improvements”*) is supported (coefficient regression = 0.544, SE = 0.066, p = \*\*\*). H4 (*“Higher production performance improvements result in improvements in market performance”*) is supported as well (coefficient regression = 0.912, SE = 0.139, p = \*\*\*). The hypotheses H2b and H3a are not supported. For the case of H2b is not supported (*“The higher the level of innovation in marketing, the greater increase in innovative performance of exporting firms”*) (coefficient regression = 0.064, SE = 0.061, p = 0.292), while H3a (*“Greater innovative performance enhancements result in increased market performance improvements”*) is not validated (coefficient regression = -0.003, SE = 0.073, p = 0.969).

**Table 4:** Summary of Hypotheses and structural model path coefficients.

Hypothesis	Path	Estimate	SE	P	Result
H1	Organizational Innovation-Marketing Innovation	0.812	0.058	***	Supported
H2	Organizational Innovation-Innovative Performance	0.138	0.062	0.026	Supported
	Marketing Innovation- Innovative Performance	0.064	0.061	0.292	Not Supported
H3	Innovative Performance- Market Performance	-0.003	0.073	0.969	Not Supported
	Innovative Performance- Production Performance	0.544	0.066	***	Supported
H4	Production Performance- Market Performance	0.912	0.139	***	Supported

## 5. Discussion

Based on the findings, we can conclude that our scale provides good means for measuring these phenomena with good levels of reliability and validity (AVE and CR index). Also, our theoretical model has adequate fit regarding data.

Our structural model of SEM (**Fig. 3**) analyzed the influence of different types of innovation on firm performance and tested different relationships between innovations and performance latent variables. Relationship is a hypothesis. Our proposed paths of relations matching innovation with firm performance are analyzed and their hypotheses are validated by their positive and significant ( $p < 0.005$ ) path estimate. Two hypotheses, H2b and H3a, are not supported or validated.

The findings show us that organizational innovation has a direct influence on innovative performance, but marketing innovation does not. Innovative performance has an indirect influence on market performance through the production performance.

The results of our study provide two significant lessons:

First, organizational innovations (OI) produce more impact on market performance, when compared to marketing innovations (MI). Our findings confirm that the OI are the main base for developing other types of innovation within the firm. This is consistent with other studies that suggest that OI has a positive and significant effect on others innovation types (Acar & Acar, 2012; Damanpour et al., 1984, 1989, 1991, 2009; Gunday et al., 2011; Wang & Ahmed, 2004). On the other hand, this result contrasts with the logical approach indicating that the MI have a much more active and direct participation on the MP of the firm (Gunday et al, 2011), specifically, if we consider that the target of MI is meeting the needs of consumers, opening new markets and increasing sales (Chetty & Stangl, 2010; Damanpour, 1991; Geldes & Felzensztein, 2013; Gunday et al., 2011).

Second, innovative performance (IP) is a mediator of the effect of all types of innovation on market performance (MP). At the same time, it may be noted the indirect influence of IP on MP through production performance (PP). This could motivate a new analysis on the likely effects of technological innovations (product and process innovations) on the MP of exporting firms, given that, in theory, the observable variables of the PP are associated with technological innovations (Damanpour & Evan, 1984; Gunday et al., 2011; Mothe & Nguyen, 2012; Schmidt & Rammer, 2007).

## **6. Conclusions**

This research contributes to the innovation management field by investigating the influence of non-technological innovations on market performance in the Latin America context.

The main conclusions of our study are the following:

First, our findings confirm that innovation has a significant performance impact on the company. This is in line with other studies reported in our literature such as Damanpour et al. (2009), Walker et al. (2011), Gopalakrishnan (2000) and Gunday et al. (2011). However, differentiating what types of innovations are those that produce more or less impact on market performance is very important for South American exporting firms.

Second, the specific findings of this study show that when comparing innovations in marketing and organizational innovations, the latter are those that exert a significant effect on market performance. This is not in line with the perspective presented in our literature regarding the main objectives of marketing innovations, which are the consolidation of existing markets, opening new markets and the improvement of levels of customer satisfaction. All of them are directly associated with the market performance in the firm. Thus, our results show contrary evidence in regards to the main driver of market performance. One possible explanation for this is that the impact of marketing innovations depends in great part on success of the products or services that the firm delivers to its market. Then, marketing innovations should be jointly evaluated with product innovations.

Third, firm strategy should consider developing the resources and capabilities required for the generation of organizational innovations, ensuring the achievement of superior performance in its markets.

Consistent with the Resource Based View, the results of this study can guide strategic decisions of managers in companies to achieve superior performance. Our study specifically suggests that enhancing organizational innovations rather than marketing innovations is most appropriate, given that organizational innovations are the basis of other types of innovation, including technological innovations.

Similarly, our results could guide strategic decisions of policy makers, because the governments of Colombia, Chile and Peru play a key role in both the enhancement of innovation capacity and the export promotion of their different economic sectors.

Regarding the limitations of this study, our findings are based on measurements at a cross sectional level rather than as a longitudinal assessment and, thus, this does not reflect the dynamic nature over time of the phenomena under analysis.

### ***6.1. Future Research***

Based on the conclusions, an interesting question arises: Does the effect of marketing innovation on market performance change with the presence of technological innovations?

This new research question becomes more relevant in light of the second lesson reported in the discussion. Specifically regarding the measurement of the observable variables of performance production, they are associated to technical aspects of the processes that generate goods and services and the design of them. Based on our results, we propose to incorporate in future research the effect of technological innovations. We also propose to evaluate the incorporation of new measurement variables on the performance of the market, such as scope and the number of destination countries for exporting. This will give us a much more complete and integrated view regarding the influence of innovations on the market performance of exporting firms from South American economies.

## References

- Acar, A., & Acar, P. (2012). The effects of organizational culture and innovativeness on business performance in healthcare industry. *Procedia - Social and Behavioral Sciences*, 58, 683-692.
- Armbruster, H., Bikfal, A., Kinkel, S., & Lay, G. (2008). Organizational innovation: The challenge of measuring non-technical innovation in large-scale surveys. *Technovation*, 28, 644-657.
- Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99-120.
- Benavente, J. (2009). El desafío de la innovación para la América Latina. *Serie de Estudios Socio/Económicos CIEPLAN*, 1-36.
- Birkinshaw, J., Hamel, G., & Mol, M. (2008). Management innovation. *Academy of Management Review*, 33(4), 825-845.
- Bravo-Ortega, C., Benavente, J., & Gonzalez, A. (2011). Innovation, Exports and Productivity: Learning and Self Selection in the Chilean case. *Working Paper*.
- Buesa, M., Heijts, J., & Baumert, T. (2010). The Determinants of Regional Innovation in Europe: A combined factorial and regression knowledge production function approach. *Research Policy*, 39(6), 722-735.
- Byrne, B. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. Taylor and Francis Group.
- Chenhall, R. (2007). Multiple Perspectives of Performance Measures. *European Management Journal*, 25(4), 266-282.
- Chetty, S., & Stangl, L. (2010). Internationalization and innovation in a network relationship context. *European Journal of Marketing*, 44(11/12), 1725-1743.

- Christmann, P. (2000). Effects of “Best Practices” of Environmental Management on Cost Advantage: The Role of Complementary Assets. *Academy of Management Journal*, 43 (4), 663-680.
- Damanpour, F., Szabat, K., & Evan, W. (1989). The Relationship Types of Innovation and Organizational Performance. *Journal of Management Studies*, 26(6), 587-602.
- Damanpour, F. (1991). Organizational innovation: a meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, 34(3), 555-590.
- Damanpour, F., & Evan, W. (1984). Organizational innovation and performance: the problem of “organizational lag”. *Administrative Science Quarterly*, 29(3), 392-409.
- Damanpour, F., Walker, R., & Avellaneda, C. (2009). Combinative Effects of Innovation Types and Organizational Performance: A Longitudinal Study in Service Organizations. *Journal of Management Studies*, 46(4), 650-675.
- Dattaa, A., & Jessup, L. (2013). Looking beyond the focal industry and existing technologies for radical innovations. *Technovation*, 33(10-11), 355-367.
- Eisenhardt, K., & Martin, J. (2000). Dynamic Capabilities: What are They? *Strategic Management Journal*, 21(10/11), 1105-1121.
- Fagenberg, M., & Nelson, E. (2005). *The Oxford Handbook of Innovation*. Oxford University Press.
- Felzenstein, C., Gimmon, E., & Aqueveque, C. (2012). Entrepreneurship at the Periphery: Exploring Framework Conditions in Core and Peripheral Locations. *Entrepreneurship Theory & Practice*.
- Felzensztein, C., Gimmon, E., & Carter, S. (2010). Geographical Co-location, Social Networks and Inter-Firm Marketing Cooperation: The Case of the Salmon Industry. *Long Range Planning*(43), 675-690.
- Geldes, C., & Felzensztein, C. (2013). Marketing innovation in the agribusiness sector. *Academia Revista Latinoamericana de Administración*, 26(1), 108-138.
- Gopalakrishnan S. (2000). Unraveling the links between dimensions of innovation and organizational performance. *The Journal of High Technology Management Research*, 11(1), 137-153.
- Gopalakrishnan, S., & Damanpour, F. (1997). A review of innovation research in economics, sociology and technology management. *Omega*, 25(1), 15-28.
- Grossman, G., & Helpman, E. (1991). *Innovation and Growth in the Global Economy*. Massachusetts Institute of Technology, MIT press.
- Gunday, G., Ulusoy, G., Kilic, K., & Alpkan, L. (2011). Effects of Innovation Types on the Firm Performance. *Journal of Production Economics*, 133(2), 662-676.
- Hagedoorn, J., & Cloudt, M. (2003). Measuring innovative performance: is there an advantage in using multiple indicators? *Research Policy*, 32(8), 1365-1379.
- Hair, J., Black, B., Barry, B., & Anderson, R. (2010). *Multivariate Data Analysis*. Pearson Prentice Hall.
- Hamel, G. (2006). The Why, What and How of Management Innovation. *Harvard Business Review*, February.

- Han , J., Kim , N., & Srivastava , R. (1998). Market Orientation and Organizational Performance: Is Innovation a Missing Link? *Journal of Marketing*, 62(4), 30-45.
- Hurley, R., & Hult , G. (1998). Innovation, Market Orientation, and Organizational Learning: An Integration and Empirical Examination. *Journal of Marketing*, 62(3), 42-54.
- Jacobs, R., Chase, R., & Aquilano, N. (2010). *Operations and Supply Chain Management*. McGraw Hill Higher Education.
- Jiménez-Jiménez, D., & Sanz-Valle , R. (2011). Innovation, organizational learning, and performance. *Journal of Business Research*, 64(4), 408–417.
- Knigh, G., & Cavusgil, S. (2004). Innovation, organizational capabilities and the born-global firm. *Journal of International Business Studies*, 35(2), 124-141.
- Koufteros, X., & Marcoulides, G. (2006). Product development practices and performance: A structural equation modeling-based multi-group analysis. *International Journal of Production Economics*, 103(1), 286–307.
- Li, L. (2005). Assessing intermediate infrastructural manufacturing decisions that affect a firm's market performance. *International Journal of Production Research*, 43(12), 2537-2551.
- Lieberman , M., & Montgomery , D. (1988). First-mover advantages. *Strategic Management Journal*, 9(1), 41–58.
- Lin, C., & Chen, M. (2007). Does innovation of lead to performance? An empirical study of SME's in Taiwan. *Management Research News*, 30(2), 115-132.
- Liu , Y., Li, Y., & Wei, Z. (2009). How organizational flexibility affects new product development in an uncertain environment: Evidence from China. *International Journal of Production Economics*, 120(1), 18–29.
- Maine, E., Lubik, S., & Garnsey, E. (2012). Process-based vs. product-based innovation: Value creation by nanotech ventures. *Technovation*, 32(3-4), 179–192.
- Mothe , C., & Nguyen , T. (2010). The link between non-technological innovations and technological innovation. *European Journal of Innovation Management*, 13(3), 313 – 332.
- Mothe, C., & Nguyen, T. (2012). Non technological and technological innovations: Do services differ from manufacturing? An empirical analysis of Luxembourg firms. . *International Journal of Technology Management*, 57(4), 227-244.
- OECD. (2005). *Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data* (Third Edition ed.).
- Oke , A. (2007). Innovation Types and Innovation Management Practices in Services Companies. *International Journal of Operations and Production Management*, 27(6), 564-587.
- Partanen, J., Chetty, S., & Arto, R. (2011). Innovation Types and Network Relationships. *Entrepreneurship Theory and Practice*, 38(5), 1027-1055.
- Podsakoff , P., MacKenzie , S., & Podsakoff , N. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, 88(5), 879–903.

- Pujari D. (2006). Eco-innovation and new product development: understanding the influences on market performance. *Technovation*, 26(1), 76–85.
- Roberts , P., & Amit , R. (2003). The Dynamics of Innovative Activity and Competitive Advantage: The Case of Australian Retail Banking, 1981 to 1995. *Organization Science*, 14(2), 107 - 122.
- Sainio, L., Ritala, P., & Hurmel, P. (2012). Constituents of radical innovation—exploring the role of strategic orientations and market uncertainty. *Technovation*, 32(11), 591–599.
- Schmidt, T., & Rammer, C. (2007). Non-technological and Technological Innovation: Strange Bedfellows? *ZEW - Zentrum für Europäische Wirtschaftsforschung / Center for European Economic Research, Working Paper(07-052)*.
- Schumpeter, J. (1934). *The theory of economic development: an inquiry into profits, capital, credit, interest and business cycle*. Harvard University Press.
- Scotchmer , S. (2004). *Innovation and Incentives*. MIT press.
- Solleiro, J., & Castañón, R. (2005). Competitiveness and innovation systems: the challenges for Mexico's insertion in the global context. *Technovation*, 25(9), 1059–1070.
- Staropoli C. (1998). Cooperation in R&D in the pharmaceutical industry — The network as an organizational innovation governing technological innovation. *Technovation*, 18(1), 13-23.
- Teece , D., Pisano , G., & Shuen , A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, 18(7), 509-533.
- Tejinder , S. (2010). Innovations and Development. *Perspectives of Innovations, Economics and Business*, 4(1), 15-17.
- Tsai , K.-H., & Yang , S.-L. (2013). Firm innovativeness and business performance: The joint moderating effects of market turbulence and competition. *Industrial Marketing Management*, 42(8), 1279-1294.
- Walker , R., Damanpour , F., & Devece , C. (2011). Management Innovation and Organizational Performance: The Mediating Effect of Performance Management. *Journal of Public Administration Research and Theory*, 21(2), 367-386.
- Walker, R. (2008). An empirical evaluation of innovations types and organizational and environmental characteristics: towards a configuration framework. *Journal of Public Administration Research and Theory*, 18(4), 591-615.
- Wang, C., & Ahmed, P. (2004). The development and validation of the organisational innovativeness construct using confirmatory factor. *European Journal of Innovation Management*, 7(4), 303-313.
- Wang, E., & Wei, H.-L. (2005). The importance of market orientation, learning orientation, and quality orientation capabilities in TQM: an example from Taiwanese software industry. *Total Quality Management*, 16(10), 1161–1177.
- Wernerfelt B. (1984). A Resource- Based View of the Firm. *Strategic Management Journal*, 5(2), 171-180.
- Zaltman , G., Duncan , R., & Holbek , J. (1973). *Innovations & Organizations*. Wiley.

**APPENDIX A**  
**Descriptive Statistics**

**Table A.1**

<b>Constructs / observables variables (items)</b>	<b>N</b>	<b>Mean</b>	<b>Variance</b>
<b>Marketing Innovation</b>			
Renewing the promotion techniques used for current or new products or services.	299	2,8562	1,875
Renewing of the techniques used for fixing prices of current or new products or services.	299	2,6020	1,784
Renewing general marketing management activities.	299	2,7324	1,915
<b>Organizational Innovation</b>			
Renewing of organizational structure to facilitate teamwork.	299	2,8194	1,920
Renewing of the organizational structure to facilitate coordination between different functions such as marketing and manufacturing (operations).	299	2,6823	1,983
Renewing of the organizational structure to facilitate projects at the organizational level.	299	2,6388	2,070
Renewing of organizational structure to facilitate strategic alliances and collaborative business long term.	299	2,7358	2,108
<b>Innovative Performance</b>			
Ability to introduce new products and / or services to market before competitors.	299	2,8528	,690
Percentage of new products and / or services in the existing portfolio of the company.	299	2,7592	,834
Number of projects relating to new products and / or services.	299	2,8060	,801
Innovations in methods and work processes.	299	2,8997	,654
Quality of new products and / or services introduced.	299	3,0903	,599
Number of protected intellectual property innovations.	299	2,3913	1,132
Renewing of the administrative system and the mentality of the company, aligned with the environment in which the firm operates.	299	2,8194	,860
<b>Production Performance</b>			



Quality conformity.	299	3,2274	,445
Efficiency in production costs.	299	2,9833	,527
Flexibility in production volume.	299	2,9766	,634
Production and delivery speed.	299	2,9799	,550
<b>Market Performance</b>			
Customer satisfaction.	299	3,2575	,400
Total Sales.	299	3,1070	,492
Market share	299	3,0234	,526
N	299		

The survey was adopted and adapted from a previous study of Gunday et al. (2011).

**APPENDIX B**  
**Characteristics of the Sample**

**Table B.1**

Type of Firm	Frequency	Percent
Productive	220	73,6
Service	79	26,4
Total	299	100,0

**Table B.2**

Localization of Firm	Frequency	Percent
Chile	91	30,5
Colombia	108	36,1
Peru	100	33,4
Total	299	100,0

**Table B.3**

Sector	Frequency	Percent
Mining	41	13,7
Aquaculture and fisheries	30	10,0
Turism and Services	30	10,0
Agroindustry (viculture, fruit, etc.)	64	21,4
Financial Services and outsourcing	21	7,0
Manufacture	113	37,8
Total	299	100,0

**Table B.4**

Size (number of employees)	Frequency	Percent
Less than 10	37	12,4
Between 10 - 50	104	34,8
Between 51 - 200	88	29,4
More than 201	70	23,4
Total	299	100,0

**Table B.5**

Age of Firm	Frequency	Percent
Before of 1980 (old)	65	21,7
Between 1980-1990	94	31,4
Válidos		



**Non-technological innovations: market performance of exporting firms in  
South American emerging economies**

César Pino  
Universidad Austral de Chile &  
Business School Adolfo Ibañez University-Chile  
[Cesarpino@spm.uach.cl](mailto:Cesarpino@spm.uach.cl)

Christian Felzensztein  
Center for International Competitiveness  
Business School Adolfo Ibañez University-Chile  
[c.felzensztein@uai.cl](mailto:c.felzensztein@uai.cl)

Anne Marie Zwerg-Villegas  
Internacional School of Economics Science and Administration  
Sabana University - Colombia  
[Anne.zwerg@unisabana.edu.co](mailto:Anne.zwerg@unisabana.edu.co)

Leopoldo Arias  
CENTRUM, Universidad Católica del Peru, Peru  
[lariasb@pucp.edu.pe](mailto:lariasb@pucp.edu.pe)