

# Determinants of performance outcomes in export markets

## Abstract

We study determinants of performance outcomes in export markets using a sample of 160 firms in Ecuador. We construct a model with backward and forward linkages as antecedents to export market effectiveness, through product innovation and market relationships, taking into account exploitative and explorative capabilities (product and market). The model shows significant goodness of fit. Backward and forward linkages, a key contribution, are precursors of market relations. The development of relations with overseas customers are in turn important for product innovation –a significant fact because product innovation translates into financial value and guarantees a successful entry into new markets.

**Key words:** linkages, exporting, capabilities

**Track:** Economic Environment and Regional Integration

## I. Introduction

### *Research context*

Ecuador is a dollarized economy that should draw its dollars from sources such as exports, foreign direct investment, and remittances (Ecuador adopted the US dollar as its own currency in January 2000). But this country has not been successful in attracting FDI (in 2009-2014, net FDI reached an annual average of 0.6 percent of GDP). Remittances, an important source of dollars in the early 2000s, have been declining in the past few years. Exports are then a key source of income and US dollars for this economy's needs; in the 2009-2014 period the share of exports on GDP has been 26 percent<sup>1</sup>, relatively low in comparison with the share of exports on GDP for other economies such as Chile (60.1 percent), Peru (44.2 percent) or Colombia (37.3 percent),<sup>2</sup> regional trade partners who have been much more successful in their export performance. As the country is about to sign a trade agreement with the European Union, one of its most important trade partners in nonoil exports, exporting activities should rise in importance and the identifications of factors that determine the export performance of firms is crucial.

### *Objective*

The present research combines two strands of literature. First, we borrow from the international marketing literature, in particular we use the resource-based view (RBV) and organizational learning concepts to examine, as in Lisboa et al. (2011) whether exploitative and explorative capabilities –both in product development and market-related capabilities are precursors of market effectiveness. On the other hand, we add to this framework the study of how backward linkages –ties to providers– influence the product development and market-related capabilities, as well as forward linkages –ties to overseas customers–,

1 Own estimations using data from the Central Bank of Ecuador.

2 Own calculations using data from the World Bank.

and in turn whether these constructs influence both relation-integration to export markets and product innovation. The backward and forward linkage requirements and export performance draws on concepts of linkages in trade economics, our second strand of literature. The market relationships and product innovation should, in turn, drive market effectiveness in exports. Figure 1 presents the research model and hypotheses. We test the hypotheses on a sample of 160 firms engaged in trade to main foreign markets in Ecuador constructing an integral model to explain export market performance with antecedents and consequents.<sup>3</sup>

The contribution of this study is then the combination of two key strands of literatures that should provide key insights on how resources and main client relational behavior impinges on export performance in Ecuador. The rest of the paper continues as follows: Section II with a discussion of the main theories applied in the study and research hypotheses. Section III explains the methodology, data collection and measures. Section IV presents preliminary results. The final section discusses preliminary findings of the study and their implications, their limitations and suggestions for further research.

## **II. Literature review**

There is a broad literature on the resource-based view (RBV) of the firm, and one of its main points is that the firm should continuously develop, integrate and remodel its skills and abilities to innovate and adapt to a changing business environment and to achieve competitive advantage. Another broad literature emphasizes exploitation and exploration, in particular in product development while still lacking on focus in other research contexts (Vorhies et al. 2011, Weerawardena 2003). Lisboa et al (2011) points to literature that highlights the importance of market-related exploration and exploitation capabilities but beyond the domestic markets, focusing on export markets as exploitative and explorative capabilities are an important learning mechanism that can help exporting firms. Precisely according to Lisboa et al., “the liability of foreignness”, or the advantage enjoyed by indigenous competitors for knowing the local culture, market structure, government requirements and local business culture can be overcome by such exploitative and explorative capabilities, both in product development and market-related capabilities –although Lisboa et al. introduce and put emphasis on market-related ones. The final goal of these authors is to study whether such resources and capabilities in turn result in new product differentiation advantage, which then determines market effectiveness. Unlike this authors we emphasize product innovation, that is, while Lisboa et al. (2011) use a construct of new product differentiation that highlights quality instead of quantity of a firm’s product development efforts and the extent to which its products are unique and differentiated, we use a construct for product innovation that emphasizes new and innovative products and new lines of products or services and whether the firm is able to introduce first new products or services, techniques, and technologies in its industry.

---

<sup>3</sup> For this call for paper proposals we only present the confirmatory model, including results on the testing of key hypotheses. The final impacts on export effectiveness will be done by the time the paper has to be handed in, if accepted in this conference.

In a developing country, such as Ecuador, it is key to account for export-import linkage requirements when trying to explain determinants of export performance. In this country not only domestic content requirements (which rewards final good producers if a stipulated percentage of value-added or total component usage is of domestic origin) has been applied, but also schemes that limits the value of imported components purchased by a domestic final good exporter to a stipulated percentage of the value of final good exports (Export-Import linkages). This policy aims to improve trade balance and also aims to protect domestic component producers. Herander and Thomas (1986) provide a theoretical scheme to explain the potential results of the export-import linkages (XML)<sup>4</sup> and using such framework these authors conclude that XML policies may fail to improve trade balance (as exports may not grow, or may not grow as much as imports). Thus, we want to understand the link between backward linkages (here defined by the sharing of production plans, demand forecasts and information on inventory levels with the main provider of the firm, with emphasis on foreign providers or imports) and forward linkages (defined as the sharing of information on demand forecast, production plan and the market with the main client of the firm in export markets). And, also in turn how backward linkages, as a precursor of forward linkages, and forward linkages are both determinants of market relations, which in turn should influence product innovation and, the latter together with market relation should in turn determine market effectiveness.

We define market relations as the strengthening of relations of the firm with its current dealers abroad, the creation of relations in new markets, or of new relations with distributors abroad. There are studies that emphasize relations as determinants of export performance and find an enhanced relation (cooperation) between exporters and their major overseas distributor and higher export performance (Racela et al. 2006).

Finally, we construct a scale measure from a quantitative measure of export market effectiveness (export intensity; we can also use export intensity growth). We model a range of 1 to 5 scale from the share of exports on total sales, taking an average of a number of years for each of the firms in the sample. It is worth noting that Beleska-Spasova (2014) assesses different measures (and determinants) of export performance and concludes that there are many analytical and methodological approaches and indicators to measure market performance; there is also a large and diverse number of (direct and indirect) determinants of export performance but results are inconclusive and inconsistent on the impacts of different determinants on export performance.

### **III. Model and research hypotheses**

Figure 1 presents our model, and it shows backward linkages (BL) as an antecedent of product development exploitative capabilities (PDEC), market development exploitative capabilities (MDEC), product development explorative capabilities (PDExC), and market development explorative capabilities (MDExC), and forward linkages (FL). In turn these constructs are

---

<sup>4</sup> Herander and Thomas also explain Export performance (XP) policy whereby the value of a firm's export must equal or exceed a stipulated percentage of total revenue.

antecedents, according to the criteria explained below, of product innovation as well as market relationships. Finally, figure 1 also shows the effects of all these factors on export market effectiveness. In what follows we explain the hypotheses that we test using our integral model.

***Backward linkages and product and market exploitative and explorative capabilities.-***

In economics it is customary to measure the *extent* of backward linkages of firms in a country as the percentage of inputs that these firms source in the country. This is done usually in the context of Foreign Direct Investment (FDI) and the multinational enterprises that carry it over in that country.<sup>5</sup> Another, more novel approach, seeks to capture the *intensity* of backward linkages through the direct and intentional knowledge flows between the foreign affiliate and local suppliers (Giroud, Jindra and Marek 2012). The economic literature also stresses that backward linkages from these foreign affiliates to domestic suppliers seem to facilitate technology spillovers (Damijan et al., 2008, Halpen and Muraközy 2007, Javorcik-Smarzynka 2004).

In our study, we also take BL as knowledge flows between the firms in the country (whether multinational enterprises or not) and their main provider of inputs (raw or intermediate) and we study the role of backward linkages as precursor (antecedent) of exploitative and explorative product development and overseas market-related capabilities –we take all of these four factors as aspects of technology spillovers. These concepts yield the following hypotheses:

***H1:*** *Backward linkages are positively related to product development exploitative capabilities (PDEC). The more integrated or linked the firms is with its main provider (whether local or through imports) the more a firm is able to deepen the skills and knowledge of existing products, technologies or activities.*

***H2:*** *Backward linkages are positively related to market development exploitative capabilities (MDEC). The more integrated or linked the firms is with its main provider (whether local or through imports) the more a firm is able to extracting key information, monitoring, and understanding the needs of existing markets.*

***H3:*** *Backward linkages are positively related to product development explorative capabilities (PDExC). The more integrated or linked the firms is with its main provider (whether local or through imports) the more a firm is able to learn new technologies and new skills for product development and strengthen capacities of innovation in new areas.*

***H4:*** *Backward linkages are positively related to market development explorative capabilities (MDExC). The more integrated or linked the firms is with its main provider (whether local or through imports) the more a firm is able to acquire information, assess the potential, and research competitors and new clients in new export markets.*

---

<sup>5</sup> This is the so-called production function approach and what it is included in inputs may vary by author. Görg and Ruane (2000) include total inputs (raw materials, intermediate inputs and services). O'Farrell and O'Loughlin (1981) define BL including only the percentage of raw materials and components sourced locally. McAleese and McDonald (1978) include also labor costs besides expenditures on materials and services.

Despite the importance of the study of BL and its role in development, and as a key element in export performance (as we later discuss), we find no previous studies that have explored such relations. The exploration of these four connections are a new contribution of our study to the existing literature.

#### ***Backward linkages and forward linkages<sup>6</sup>.-***

The study of backward linkages and forward linkages has considerable history in economic development (Hirschman 1969, Rostow 1960), but the use of models of backward and forward linkages in an open economy context is more recent (e.g. Krugman and Venables 1995, Venables 1996) and its analysis is increasingly important in trade theory as highlighted in Baldwin and Venables (2015). Precisely, these authors state that in the simplest case, all firms produce an intermediate variety while using all other varieties, thus creating forward and backward linkages –from their supply and demand, respectively. In our study we are interested in studying the effects that backward linkages (that flow of knowledge with the main provider – whether domestic or foreigner– of a firm, as stated in the section above) have on forward linkages (the flow of knowledge with the main client on overseas export markets). The interactions between backward linkages and forward linkages could be complex. In this study we do not try to model their relation, we point to a simpler story when we test the following relation as hypothesis.

***H5:*** *Backward linkages are positively related to forward linkages with export markets. The more integrated or linked the firms is with its main provider (whether local or through imports) the more a firm is able to link itself with its clients in export markets.*

#### ***PDEC, MDEC, PDExC, MDExC and product innovation and market relations***

As follows from the previous hypotheses, product development exploitative capabilities refers to the resources that a firm has to pursue technological innovation activities aimed at improving existing product-market domains (Gupta et al., 2006). These technological innovations are known in the academic literature as incremental innovation. An incremental innovation refers to specific improvements in products or extensions in product lines that are intended to meet the needs of existing customers. Involve small changes in technology and a small deviation from the experience that a company has with its current product-market. In contrast, radical innovations involve fundamental changes in technology, typically geared to meet needs of customers in emerging markets, are new to the business / industry and seek to offer substantial new benefits for customers (Chandy and Tellis, 1998).

---

<sup>6</sup> Usually forward linkages refer to the supply side, or linkages of goods produced domestically that are used as parts to produce final goods. In our study, when referring to forward linkages, we take a similar approach as with the backward linkages, and we focus on the direct and intentional knowledge flows between the local suppliers and the main foreign client.

In this perspective, Greve (2007) notes that exploitative product development capabilities make the innovations become more homogeneous within the company. This means that they will make improvements to existing products in a routine and repeated manner, applying existing technology, aimed at the same market segments (March, 1991). Therefore, the incremental exploitation capabilities increases innovations and may hinder radical innovations because it focuses attention on variety reduction and productivity improvements in existing products (Christensen and Boer, 1996; Danneels, 2002). In this regard, we propose the following hypothesis:

***H6:** Product development exploitative capabilities are negatively related to product innovation performance in export markets. The more a firm is able to deepen the skills and knowledge of existing products, technologies or activities the less it emphasizes, develops, or introduces new products or services.*

Market development exploitative capabilities refers to generated incremental knowledge related with customers, competitors, suppliers, and other constituents of market. Exploitation of knowledge generally involves modifying existing knowledge because of the knowledge that overseas customers can provide to local operations or to generate new knowledge from it (Özsomer and Gençtürk, 2003). Internal transfers of best practice within an importer-exporter context are an example of exploitation-type learning (Schulz, 2001). The resulting knowledge is usually more settled and less diverse than is the new knowledge.

In addition, market development exploitative capabilities can help strengthen relationships with overseas customers and gathering updated market information can help firms track emerging trends in the export marketplace and changing export customer preferences (Lisboa et al. 2011). Enhanced understanding of existing overseas customer requires that close and lasting relationships are built with overseas customers. Under this assumption the following hypothesis is formulated:

***H7:** Market development exploitative capabilities are positively related to market relations. The more a firm is able to extract key information, monitoring, and understanding the needs of existing markets the more the firm would strengthen and build its relationships with current and new dealers (and new relations) in export markets and in new markets.*

Product development explorative capabilities refers to the resources available to a company for the development of technological innovation aimed at entering new product-market domains (Gupta et al, 2006). That is why the exploration capabilities involve experimentation that focuses on emerging markets and technologies for ideas to produce radical rather than incremental innovations that offer entirely new value for customers (Greve, 2007). Therefore, competition that comes from exploration that produces product innovation tends to be riskier than exploitation products because it requires acquisition of new knowledge, which is a difference that matters for theory of risk taking (Kwaku 2005). In this regard, the following hypothesis is proposed.

**H8:** *Product development explorative capabilities are positively related to product innovation performance in export markets. The more a firm is able to learn new technologies and new skills for product development and strengthen capacities of innovation in new areas, the more the firm emphasizes, develops, or introduces new products or services.*

Market development explorative capabilities refers to cultivate competence and to develop skills in areas such as: assessing the potential of new markets, building relationships in new markets, setting up new distribution and sales channels, etc. (Dannees, 2002). Essentially it refers to the ability to acquire entirely new market and customer knowledge, skills, and processes. These capabilities are supposed that could help companies to anticipate changes in the environment and to make better predictions about the commercial potential, and on the acceptance of a new product on the market (Lisboa et al., 2011). This aspect would certainly increase the likelihood that a company develops innovative products in export markets.

Although it seems obvious to have a positive and significant relationship between market development explorative capabilities and product innovation, empirical evidence in most cases does not show conclusive results (Lisboa et al 2011; Atuahene-Gima, 2005). Perhaps, and although it may sound paradoxical, that may be the case because the market core capabilities can simultaneously inhibit and/or facilitate product innovation. As a firm develops greater capabilities, greater rigidity in the process of decision making can be created in the same direction (Danneels 2002; Dorothy, 1992). Core rigidities are the flip side of core market explorative capabilities. They are not neutral; these set of deeply rooted knowledge actively create problems. While core rigidities are more problematic for product innovation, paradoxically these capabilities are often designed to create new, nontraditional capabilities (Dorothy, 1992). So rigidities can affect all projects, especially those related to innovations. In this regard, the following hypothesis is proposed.

**H9:** *Market development explorative capabilities are negatively related to product innovation. The more a firm is able to acquire information, assess the potential, and research competitors and new clients in new export markets the less it emphasizes, develops, or introduces new products or services. Unlike Lisboa et al (2011), we focus here in disruptive products (not just new product development), thus we believe that in Ecuador the knowledge of new markets may be contrary to the achievement of disruptive products.*

It is inherent to the market development explorative capabilities building relationships in new markets (Dannees, 2002). Building strong relationships, especially in export markets, contributes significantly to the market selection and entry, rather than solely from the strategic decisions of managers in the firm (Coviello and Munro, 1995). This statement is in relation to the relationship marketing approach by Morgan and Hung (1999), noting that building relationships is a desirable fact when they contribute to create competitive advantages. Due to the foregoing, the following hypothesis is formulated:

**H10:** *Market development explorative capabilities are positively related to market relations. The more a firm is able to acquire information, assess the potential, and research competitors and new clients in new export markets the more the firm*

*would strengthen and build its relationships with current and new dealers (and new relations) in export markets and in new markets.*

As previously mentioned, forward linkages refers to the flow of knowledge with the main client on overseas export markets (Giroud et al., 2012). Forward linkages are described as one of the determinants of successful operation and performance in export market (Welch and Joynt, 1987). This factor comprises initiatives of the exporter to acquire foreign marketing experience and market knowledge (solving internal and external export problems, contacts with foreign partners and information exchange). For these initiatives to be successful it is necessary that the early information flow with overseas customer facilitate the evolution of relationships towards solidarity, commitment and cohesiveness (Ghauri et al., 2003). However, they also warn that the firm should build a strong relationship with overseas customers before it starts to penetrate foreign markets. Given the significance of the forward linkages in the success of accessing foreign markets, we believe that the transfer of information with overseas customer favors building relationships in an exporter context. Due to this the following hypothesis is formulated:

***H11: Forward linkages are positively related to market relations. The more the firm shares production plans and market information with its main client and the main client shares demand forecast with the firm, the more the firm strengthen and build its relationships with current and new dealers (and new relations) in export markets and in new markets.***

By market relationships we understand the quantity and quality of information exchange in building the relationship between an exporter and an importer (Lages et al. 2005). That is, to the extent that an exporter-importer openly share information that might be useful to maintain and develop the relationship, they will build long-term beneficial relationships for them (Kaleka, 2002).

If the information flows both in quality and intensity between exporter-importer, it can influence business behavior in aspects such as: 1. Predicting future export-import plans, 2. Adopting an strategy to incur in the lowest costs, 3. Knowing consumers' wants and needs to adapt or improve products (Lages et al. 2005).

Obviously this requires that the information be used efficiently. In this sense, building relationships with key players in the new international market opens up a range of possibilities for joint and beneficial activities between the parties, especially for the exporting company allowing them access to a constant flow of information that would come to benefit aspects related to the improvement and development of new products (Lages et al. 2005, Kaleka, 2002). To address these issues we propose the following hypothesis:

***H12: Market relations are positively related to product innovation. The more the firm strengthens and builds its relationships with current and new dealers (and new relations) in export markets and in new markets, the more the firm emphasizes, develops, or introduces new products or services.***



### ***Export market effectiveness***

The academic literature underscores that an important factor for the success and growth of the firms is to be able to efficiently enter export markets. Nonetheless, there are few companies that can successfully undertake the work to expand into foreign markets. The fact that firms have to compete with companies with high levels of productivity and technological development make the internationalization barrier insurmountable for many national companies. Following this view we find several authors who argue that innovation is one of the decisive factors which would increase the likelihood of firms entering export markets (Bernard and Jensen, 1999; Cassiman and Golovko, 2011; Cohen and Klepper, 1996), and that product innovation, in particular, will increase this possibility (Cassiman and Golovko). In this regard, we consider the following scenario:

***H13: Product innovation is positively related to export market effectiveness. The more the firm emphasizes, develops, or introduces new products or services the more effective its performance in export markets is.***

The more the firm strengthens and builds its relationships with current and new dealers (and new relations) in export markets and in new markets, the more effective the firm's performance is in export markets. Empirical evidence about building relationships in an export context indicates that to build strong and lasting relationships with overseas customers directly influences having a better export performance (Kaleka, 2002). In this regard, the following hypothesis is formulated:

***H14: Market relations is positively related to export market effectiveness.***

## **IV. Methodology**

### ***Survey questionnaire development and pretests***

We adapt constructs and multi-item scales from Lisboa et al. (2011) to capture the product and overseas market-related capabilities (both exploitative and explorative) link. We also include entrepreneurial orientation (EO) in the questionnaire as a possible determinant factor of market effectiveness. We performed a series of pre-tests and interviews with industry experts and export managers and logistic officers to assess content and face validity of the constructs and measures in Lisboa et al. The interviews lasted around an hour. The pretests and interviews did not point to any particular problem or major difficulty in applying the same items in our questionnaire, except for the fact that we needed to add a logistic section (another resource, after all). The wording, item measurement, clarity of the instructions and layout of the questionnaire were in general fine. This pretest and interviews were conducted in early 2016.

### ***Measurement.-***

As mentioned before, items measuring entrepreneurial orientation, market-related explorative and exploitative capabilities, as well as product development explorative and exploitative capabilities were extracted from Lisboa et al (2011); we added constructs related to logistic resources.

An exploratory factor analysis was conducted to check the dimensionality and reliability of the scales. In general de explorative and exploitative capabilities scales used pass the tests, except for the dual dimensionality of the market-related explorative and exploitative capabilities which in the Lisboa et al.'s model are view as two different constructs, but in the case of Ecuador these two constructs load as one. In addition, three items are removed from the market-related explorative and exploitative capabilities (the last item on the exploitative market-related capabilities and the last two items in the explorative market-related capabilities).<sup>7</sup> These three items would later be tested as measures of relations in overseas market. The exploratory factor analysis also indicated that some items in the entrepreneurial orientation construct should rather be loaded in a separate factor which we call product innovation. The additional logistic section did not have any significant impacts and we, therefore, eliminate it from the study.

We perform an exploratory factor analysis on the 47 items used in the data collection instrument to determine the factor structure of the variables that seek to explain the entrepreneurial skills to access export markets. We apply a principal component analysis as a method for extracting factors and for the factorial rotation we use the Varimax method. The data are processed with the SPSS v.22 program.

The results reveal a solution of 8 factors. All factors have eigenvalues greater than 1. The measure of sampling adequacy Kaiser-Meyer-Olkin (KMO) showed a value of 0.79, and the Barlett sphericity test takes a value of  $X^2_{1128} = 4051.31$ ;  $p < 0.000$ , proving to be statistically significant. Both values allow us to conclude that the application of factor analysis is appropriate.

The reduction work leave us with 25 items with loading factors above 0.60, from the original 47 items in the survey questionnaire.

The checks performed on the exploitative and explorative market-related and product development capabilities, and the backward and forward linkages, together with the hypotheses testing analysis gives evidence of the validity of these constructs (to be explained in the results section). See Table 1.

Table A1 in the Annex provides a summary of the constructs used in hypotheses testing. That is, in addition to the items used in defining exploitative and explorative market-related and product development capabilities, this table presents the items used in definitions of other key constructs –backward linkages, forward linkages, product innovation, and market relation. As we focus on export markets, we measure market effectiveness constructing an export construct liker scale with an average of three years of export of the firms (2012-2014, or latest available).

---

<sup>7</sup> One item in the overseas market-related exploitative capabilities in Lisboa et al.(2011) was not included in the questionnaire –as advised in the pretest and interviews stage (“Reinforce contacts in current export markets”).

All items were measured under a 5-point Likert format (1: strongly disagree; 5 strongly agree), except for the items to measure backward linkages (with the main provider) and forward linkages (with the main client in export markets) comprising a 7-point scale (1: not integrated; 7: widely integrated).

When checking the relationships model, we apply a structural equation methodology for ordinal variables using the AMOS v.21 program with a maximum likelihood estimator.

#### *Data collection.-*

We obtain data on the exploitative and explorative capabilities, product innovation, market relations, and backward and forward linkages from interviews using the survey questionnaire developed with the items as explained in the previous section. The interviews were in person and by phone, depending on the time and preference of the interviewees (mostly chief exporters, or the person in charge of the trade department, or the export department; only in a few cases was the CEO or the owner the person answering the questionnaire). In a few cases the questionnaire was answered by email, following a request by the interviewee. We conducted the interviews from end of February to the end of July. We try to focus only on export manufacturing firms, however, given the importance for the Ecuadorian economy of firms that export agricultural products and others, we also included these firms (the latter, unlike in Lisboa et al. 2011).

Firms were contacted by phone to update their contact information, identify the key informant, and to obtain permission to conduct the interview. Our sample was a random sample of firms in the Central Bank of Ecuador exporting firms. However, after collecting the survey questionnaire we found out that some firms did not have any exports in recent years. Thus we have a few firms in our sample with no exports. We end up with a final sample of 160 surveys.

#### *Non response and common method biases.-*

Of the 160 surveys conducted in this investigation, it was found that 13 questionnaires had incomplete answers. Given the small sample size, it was decided to use an imputation procedure to avoid compromising the accuracy in the modeling process employed. In this regard, the algorithm Expectation Maximization (EM), which has the advantage of not affecting the estimation of the variance component (Little and Rubin, 1987) is used.

#### *Sample characteristics.-*

The sample is a multi-industry sample of 160 firms in Ecuador, most of them exporters (90 percent).<sup>8</sup> The average export intensity (exports over sales) is 52.4 percent. A bit over one third of the firms are in manufactures, similarly in commerce.

Almost a fourth are in agriculture and the rest in various other types of industries (2 percent in mining and quarrying, and 6

---

<sup>8</sup> Unless otherwise indicated, data in this section comes from own calculations using data from the Superintendence of Companies.

percent in others). 66 percent are large companies, 21 percent are medium size, 8 percent small size and 6 percent are classified as others (micro or personal firms).<sup>9</sup> The distribution of the location of our sample firms (declared by the firm sometimes for tax purposes) is: 41 percent in Guayaquil (the largest and most populated city of the country), 28 percent in Quito –the capital, 4 percent in Cuenca –the third city of the country, and a fourth in various other cities around this country.<sup>10</sup>

## **V. Preliminary results**

The method used to test the hypotheses of the theoretical model involves the application of a 2-stage (two-step) approach proposed by Anderson and Garbing (1988). First, we determine the quality of the measures used in the relationship model, then we contrast the causal relationships of the conceptual model.

### ***Measurement validation.- Analysis of the measures involved in the relationship model***

When analyzing the measures used in the model of relations, we perform a diagnosis of psychometric properties of reliability, convergent validity and discriminants (Table 1). Reliability is obtained through the Cronbach's alpha ( $\alpha$ ), achieving in all variables higher values than the limits recommended ( $>0.7$ ).

Concerning convergent validity, we obtain a composite reliability (CR) and an average variance extracted (AVE) above 0.70 and 0.50, respectively, ensuring the consistency of the measurements used.

Finally, we obtain a discriminant validity, which aims to verify that each variable share more variance with its own indicators than with those of other variables. For this, the square root of the AVE was removed and placed in the diagonal of the XXX table.

The result of the values found in the diagonal show that these are higher than the correlations between variables that are in the elements outside the diagonal, which gives full support for the discriminant validity of the measures used (Fornell and Larcker, 1981).

### ***Hypotheses testing.- Analysis of the structural model***

The results of the structural model show that there is a satisfactory fit to the data (see Figure 2). The ratio  $X^2/df$  (343.86 / 245) has a value of 1.42, which gives evidence of the statistical significance of the model. As for the incremental adjustment indices, both the comparative fit index (CFI) and the incremental fit index (IFI) show a value of 0.95.

---

9 According to the Superintendence of companies, large enterprises are those with more than 200 workers or revenues over US\$ 5,000,001; medium companies are those that have between 50 to 199 workers or revenues between US\$ 1,000,001 and US\$ 5,000,000; and, small companies are those that have between 10 to 49 workers or revenues US\$ 100,001 and US\$ 1,000,000. Microenterprises are those with 1 to 9 workers or with a revenue of less than US\$ 100,001. The revenue criterion predominates over the criterion of number of workers.

10 We could not find the location for the three firms classified as uni-personal.

Concerning indices of absolute fit, the goodness-of-fit index (GFI) takes a value of 0.89 and root mean square error of approximation (RMSEA) shows a value of 0.050. The relative ability of the model to explain the total variance of product innovation (measured by the value of  $R^2$ ) was 0.69, and 0.89 for the variable market relationships.

The results also indicate that the joint explanatory power of the factors that seek to explain the propensity to export success is high, as they explained 69% and 89% of the variability in two key variables that determine export market effectiveness – product innovation and market relations. These results suggest that the resulting estimations of the relationships model are above the recommended threshold for a good fit (Hu and Bentler, 1999).

Once demonstrated the goodness of fit of the model, the resulting relationships are analyzed to verify the validity of the hypotheses and thus dictate its predictive ability. We analyze first the relationships resulting from the hypotheses on the relationship between backward linkages and the factors considered as explanatory of the propensity to export (export market effectiveness).

The results related to this first set of hypotheses suggest:

(H1): there is a strong and direct resulting relationship between backward linkages and the PDEC (0.24), with a  $t$  value of 2.29, allowing the acceptance of this hypothesis.

(H2): a weak and nonsignificant relationship between backward linkages and MDEC (0.08) with a  $t$  value of 0.71, thus we cannot validate the hypothesis.

(H3): the results reflect a weak and nonsignificant relationship between backward linkages and PDExC (0.13) with a  $t$  value of 1.35.

(H4): results reflect a weak, non-significant and negative relationship between backward linkages and MDExC (-0.13) with a  $t$  value of -0.14  $t$ , which does not allow us to validate the hypothesis.

(H5): there is a significant positive effect between backward and forward linkages (0.37) with a  $t$  value of 3.42, allowing us to validate the hypothesis.

The second group of hypotheses relate to the relations between the resources studied in the previous set and each the market relationship and product innovation. The resulting relationships are as follows:

(H6): a negative and no significant relationship between PDEC and product innovation (-0.26) with a  $t$  value of -1.41, rejecting the hypothesis.

(H7): a positive and significant relationship between MDEC and market relationships (0.75 with a  $t$  value of 3.71 is obtained, accepting the hypothesis).

(H8): a strong, positive and significant relationship between PDExC and product innovation (0.82 with a  $t$  value of 4.41 is observed, allowing to validate his hypothesis).

(H9): a negative and significant relationship between MDExC and product innovation (-0.34 with a t value of -2.13, suggesting evidence of the validity of the hypothesis.

(H10): a positive and no significant relationship between market MDExC and market relationships (0.17 with a t value of 1.14).

(H11): a positive and significant relationship between forward linkages and market relationship (0.20 with a t value of 2.53, confirming the hypothesis.

(H12): a strong, significant and positive relationship between product innovation and market relationship (0.69 with a t value of 2.64 is displayed, corroborating the hypothesis suggested). The results of model relationships can be seen summarized in Table 2.

## **VI. Concluding remarks**

We study determinants of performance outcomes in export markets. We use a sample of 160 firms engaged in trade to main foreign markets in Ecuador. We construct a model that seeks to show whether backward and forward linkages are antecedents to market effectiveness, through product innovation and market relationships, taking into account exploitative and explorative capabilities (both in product and market-related realms). The results show a significant goodness of fit in the proposed model, although not all hypotheses are accepted.

Backward linkages, as an antecedent, shows a significant and positive relation with product development exploitative capabilities and forward linkages –which suggest that the more integrated or linked the export firms is with its main provider (whether local or through imports) the more a firm is able to deepen the skills and knowledge of existing products, or innovation in improving its product portfolio. Similarly, the more integrated or linked the firms is with its main provider (whether local or through imports) the more information flows the firm will develop over essential aspects of overseas customers. However, backward linkages did not work as a significant precursor in the relations related to aspects of explorative and exploitative market capabilities. This fact can be explained because the flow of information that is there distributed focuses more on specific improvements in existing product-market than in disruptive innovations for new export markets.

Regarding the effect of determinants of performance outcomes in export markets we find results that emphasize innovation process of new products. As we expected, product development explorative capabilities (PDExC) have a significant relation with product innovation, however, product development exploitative capabilities (PDEC) show no significant relation with product innovation. This result makes it clear that the PDEC directly point to the development of incremental innovation while PDExC do seek the development of new and innovative products.

Concerning market development explorative capabilities, the results suggest that although the firm develops important knowledge about new products and markets, this same capability can undermine the process of business innovation. Apparently more knowledge may also imply greater organizational rigidity which could bring about an inverse effect on the propensity to develop product innovation.

Similarly, the results on the determinants of performance outcomes in export markets over the variable market relationships unsurprisingly suggest that the MDEC have a large involvement in building relationships with customers overseas, an effect that does not arise with MDExC. This reflects that market introspection activities contribute little to current and critical process of building relationships with current customers. This is a fact that definitely requires a rethinking of the concept of outreach strategies and development of export markets for Ecuadorian companies. We also find that forward linkages constitute a fundamental element in building relationships with customers overseas. This is one of the main findings of this research since it involves two new variables studied in the determinants of success in export markets.

Finally we can see that the development of relations with overseas customers works as an element of vital importance for product innovation in export firms. This is a significant fact because, as Tellis et al. (2009) indicate, product innovation translates into financial value for a company and guarantees a successful entry into new markets (Kaleka, 2002).

We acknowledge the limitations of the sample and advise cautious taking of the results. We expect to perform further checks to address the robustness of the results.

## References

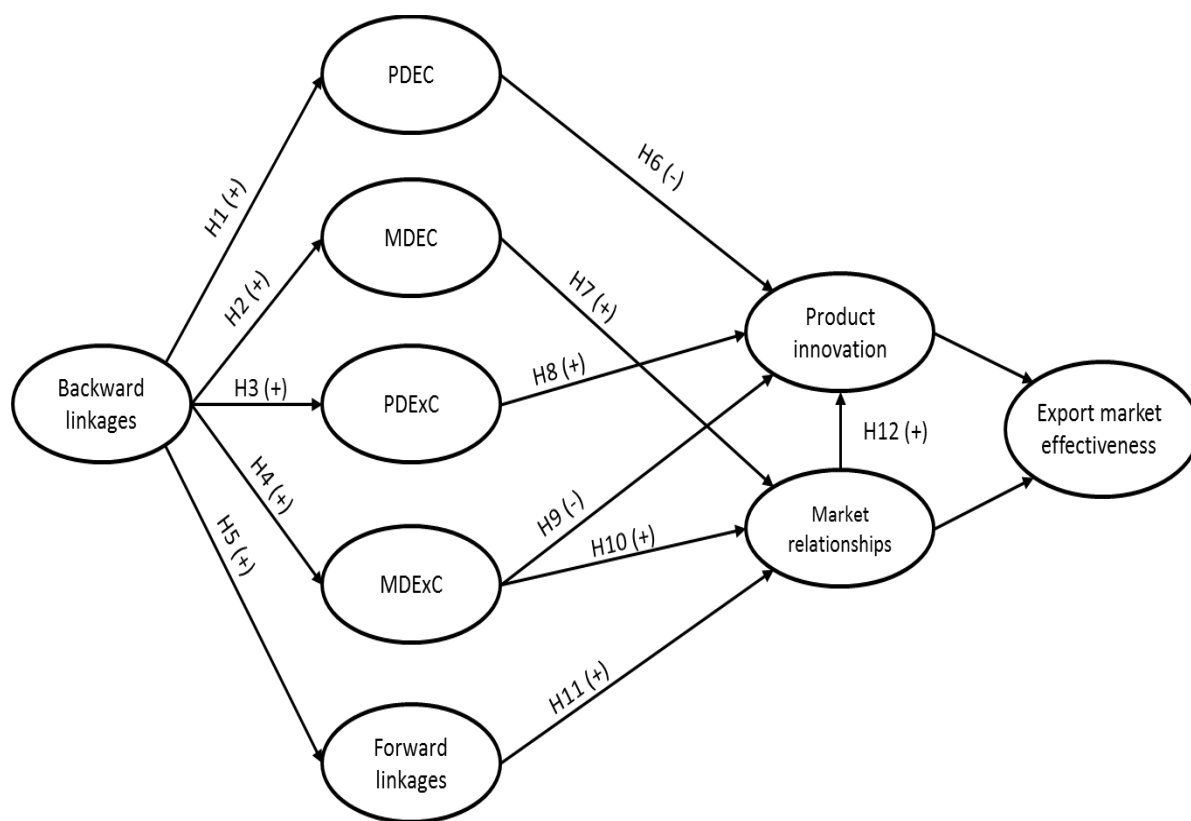
- Anderson, C. and W. Gerbing (1988), "Structural equation modelling in practice. A review and recommended two-step approach." *Psychological Bulletin* 103(3), pp. 411–423.
- Atuahene-Gima, K. (2005). Resolving the Capability– Rigidity Paradox in New Product Innovation. *Journal of Marketing*, 69 (October), pp. 61–83.
- Baldwin, R., and A. Venables (2015), "Trade Policy and industrialization when backward and forward linkages matter," *Research in Economics*, No. 69, pp. 123-131.
- Beleska-Spasova, E. (2014), "Determinants and measures of export performance - Comprehensive Literature Review." *JCEBI*, Vol. 1, pp. 63-74.
- Bernard A. and J. Jensen. (1999). Exceptional exporter performance: cause, effect, or both? *Journal of International Economics*, 47(1), pp.1-25.
- Cassiman, B., and Golovko, E. (2011). Innovation and internationalization through export. *Journal of International Business Studies*, 42 (1), pp. 56-75.
- Chandy, R., and Tellis, G. (1998). Organizing for Radical Product Innovation: The Overlooked Role of Willingness to Cannibalize. *Journal of Marketing Research*, 35 (November), pp. 474–88.

- Christensen, C., and Bower, J.L. (1996). Consumer Power, Strategic Investment, and the Failure of Leading Firms. *Strategic Management Journal*, 17 (3), pp. 197–218.
- Cohen, W. and S. Klepper. (1996). Firm size and the nature of innovation within industries: The case of process and product R&D. *Review of Economics & Statistics*, 78(2), pp.232-243.
- Coviello, N., and Munro, H. (1995). Growing the entrepreneurial firm. Networking for international market development. *European Journal of Marketing*, 29 (7), pp. 49-61.
- Danneels, E. (2002). The dynamics of product innovation and firm competences. *Strategic Management Journal*, 23 (12), pp. 1095-1121.
- Damijan, J. P, M. Rojec, B. Majcen, and M. Knell (2008), “Impact of firm heterogeneity on direct and spillover effects of FDI: Micro evidence from 10 transition countries.” LIOS Discussion Paper Series, 218/2008.
- Dorothy, L.B. (1992). Core capabilities and core rigidities: A paradox in managing new product development. *Strategic Management Journal*, 13 (S1), pp. 111-125.
- Fornell, C. and D. Larcker (1981), “Evaluating structural equations models with unobservable variables and measurement error.” *Journal of Marketing Research*, 18(1), 39–50.
- Ghauri, P., Lutz, C., and Tesfom, G. (2003). Using networks to solve export-marketing problems of small- and medium – sized firms from developing countries. *European Journal of Marketing*, 37 (5/6), pp. 728-752.
- Giroud, A., B. Jindra, and P. Marek (2012), “Heterogeneous FDI in Transition Economies – A Novel Approach to Assess the Development Impact of Backward Linkages.” *World Development*, Vol. 40, No. 11, pp. 2206-2220.
- Görg, H., and F. Ruane (2000), “An Analysis of Backward Linkages in the Irish Electronics Sector,” *The Economic and Social Review*, Vol. 31, No. 3, pp. 215-235.
- Greve, H. (2007). Exploration and exploitation in product innovation. *Industrial and Corporate Change*, 16 (5), pp. 945-975.
- Gupta, A., Smith, K., and Shalley, C. (2006). The interplay between Exploration and Exploitation. *The Academy of Management Journal*. 49 (4), pp. 693-706.
- Halpern, L., and B. Muraközy (2007), “Does distance matter in spillover? the economics of transition.” The European Bank for Reconstruction and Development, No. 15, pp. 781-805.
- Herander, M. G., and C. R. Thomas (1986), “Export Performance and Export-Import Linkage Requirements,” *The Quarterly Journal of Economics*, Vol. 101, No.3, pp. 591-608.
- Hirschman, A. (1969), “The Strategy of economic development,” In: Agawarl, A. N., Singh, S.P. (Eds.) *Accelerating Investment in Developing Economies*. London Oxford Press.
- Hu, L. and P. Bentler (1999), “Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives.” *Structural Equation Modeling*, 6(1), 1–55.
- Javorcik-Smarzynka, B. (2004), “Does foreign direct investment increase the productivity of domestic firms? In search of spillovers through backward linkages.” *American Economic Review*, 94(3), pp. 605-627.
- Kaleka, A. (2002). Resources and capabilities driving competitive advantage in export markets: guidelines for industrial exporters. *Industrial Marketing Management*, 31 (3), pp. 273-283.
- Kwaku, A. (2005). Resolving the capability-rigidity paradox in new product innovation. *Journal of Marketing*, 69 (October), pp. 61-83.
- Krugman, P. and A. Venables (1995), “Globalization and the inequality of nations,” *Quarterly Journal of Economics*, No. 110, pp. 857-880.
- Lages, C., C. R Lages, and L. Lages (2005), “The RELQUAL scale: a measure of relationship quality in export market ventures.” *Journal of Business Research*, 58 (8), pp. 1040-1048.

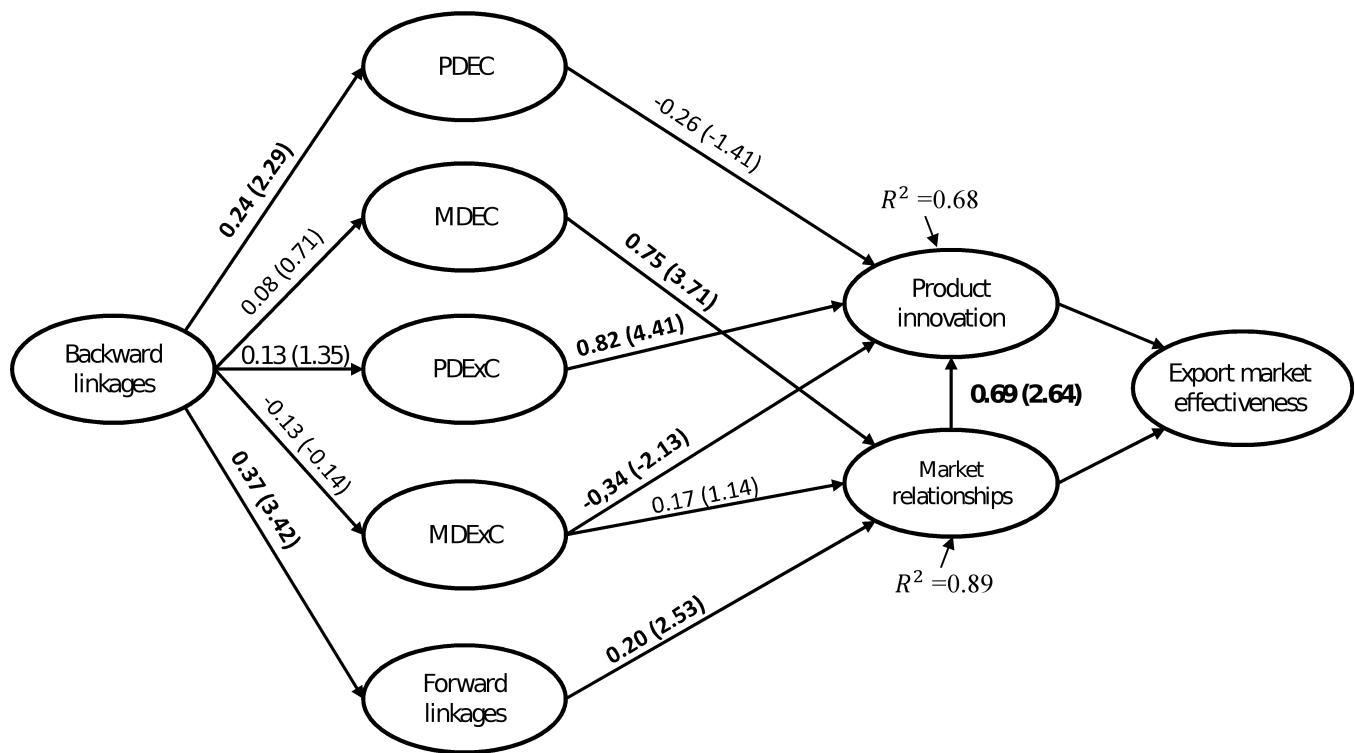


- Lisboa, A., D. Skarmeas, and C. Lages (2011), "Entrepreneurial orientation, exploitative and explorative capabilities, and performance outcomes in export markets: A resource-based approach." *Industrial Marketing Management*, Vol. 40, pp. 1274-1284.
- Little, R. and D. Rubin (1987), "Statistical Analysis with Missing Data," Series in Probability and Mathematical Statistics. John Wiley & Sons, Inc. New York.
- March, J.G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2 (1), pp. 71-87.
- McAleese, D., and D. McDonald (1978), "Employment Growth and the Development of Linkages in Foreign-Owned and Domestic Manufacturing Enterprises," *Oxford Bulletin of Economics and Statistics*, Vol. 40, No. 4, pp. 321-339.
- Morgan, R., and Hung, S. (1999). Relationship-Based Competitive Advantage: The Role of Relationship Marketing in Marketing Strategy. *Journal of Business Research*, 46 (3), pp. 281-290.
- O'Farrell, P., and B. O'Loughlin (1981), "New Industry Input Linkages in Ireland: An Econometric Analysis." *Environment and Planning A*, Vol. 13, No. 3, pp. 285-308.
- Özsomer, A., and Gençtürk, E. (2003). A resource-based model of market learning in the subsidiary: The capabilities of exploration and exploitation. *Journal of International Marketing*, 11 (3), pp. 1-29.
- Racela, O.C., C. Chaikittisilpa, and A. Thoumrungroje (2006), "Market orientation, international business relationships and perceived export performance." *International Marketing Review*, Vol. 24, No. 2, pp.144-163.
- Rostow, W. (1960), "The Five Stages of Growth-A Summary. The Stages of Economic Growth: A Non-Communist Manifesto. Cambridge University Press.
- Schulz, M. (2001). The uncertain relevance of newness: Organizational learning and knowledge flows. *Academy of Management Journal*, 44 (4), pp. 661-681.
- Tellis, G.J., Jaideep, C.P., and Rajesh, K.C. (2009). Radical innovation across nations: The preeminence of corporate culture. *Journal of Marketing*, 73 (January), pp. 3-23.
- Venables, A. (1996), "Equilibrium locations of vertically linked industries." *International Economics Review*, No. 37, pp. 341-359.
- Vorhies, D. W., L. M. Orr, and V. D. Bush (2011), "Improving customer-focused marketing capabilities and firm financial performance via marketing exploration and exploitation." *Journal of the Academy of Marketing Science*, Vol. 39, No.5, pp.736-756.
- Weerawardena, J. (2003), "Exploring the role of market learning capability in competitive strategy." *European Journal of Marketing*, Vol. 33, No. 3/4, pp. 407-429.
- Welch, L.S., and Joint, P. (1987). Grouping for export an effective solution? in Rosson, P.J. and Reid, S.D. (Eds), *Managing Export entry and Expansive: Concepts and Practice*, Praeger, New York, NY.

**Figure 1.- Model**



**Figure 2.- Relations model results**



**Table 1.- Indices of reliability and discriminant validity**

Variable	A	$\alpha$	CR	AVE	1	2	3	4	5	6	7	8
Backward linkages	4.32	0.72	0.83	0.61	<b>0.78</b>							
PDEC	4.20	0.78	0.78	0.55	0.24	<b>0.74</b>						
MDEC	3.31	0.82	0.80	0.57	0.11	0.25	<b>0.76</b>					
PDExC	3.43	0.80	0.75	0.51	0.17	0.65	0.21	<b>0.71</b>				
MDExC	3.33	0.89	0.88	0.65	-0.03	0.22	0.57	0.22	<b>0.81</b>			
Forward linkages	4.51	0.79	0.80	0.57	0.35	0.12	0.23	0.21	0.28	<b>0.76</b>		
Product innovation	2.97	0.79	0.81	0.57	-0.07	-0.22	-0.30	0.68	-0.30	0.02	<b>0.76</b>	
Export Market relationships	3.05	0.71	0.74	0.50	0.08	-0.05	0.71	0.13	0.18	0.17	0.21	<b>0.71</b>

**Note:** A = Average point value for all items that compose the variable;  $\alpha$  = Alpha Cronbach; CR = Composite reliability; AVE = Average variance extracted. The numbers in bold on the diagonal are the square root of the AVE. The elements outside the diagonal are the correlations between variables.

**Table 2.- Resultados del modelo de relaciones causales**

Relations model	Relationship model (n= 160)	Hypothesis	Result
X <sup>2</sup> /gl	1.42	---	---
RMSEA	0.050	---	---
CFI	0.95	---	---
IFI	0.95	---	---
GFI	0.89	---	---
Backward linkages →	0.24 **	H1	Accepted

PDEC			
Backward linkages → MDEC	0.08	H2	Rejected
Backward linkages → PDExC	0.13	H3	Rejected
Backward linkages → MDExC	-0.13	H4	Rejected
Backward linkages → Forward linkages	0.37 ***	H5	Accepted
PDEC → Product innovation	-0.26	H6	Rejected
MDEC → Market relationships	0.75 ***	H7	Accepted
PDExC → Product innovation	0.82 ***	H8	Accepted
MDExC → Product innovation	-0.34 **	H9	Accepted
MDExC → Market relationships	0.17	H10	Rejected
Forward linkages → Market relationships	0.20 **	H11	Accepted
Market relationships → Product innovation	0.69 ***	H12	Accepted
Coeficiente de determinación R <sup>2</sup>			
R <sup>2</sup> Product innovation	0.68		
R <sup>2</sup> Market relationships	0.89		

\*\*\* p-valor < 0,01; \*\* p-valor < 0,05; \* p-valor < 0,10.

## ANNEX

**Table A1.- Model's constructs and items**

<b>Constructs and items</b>	
1	<i>Backward linkages</i>
1.1	The firm shares its production plans with its main provider.
1.2	The firm shares its demand forecasts with its main provider.
1.3	The firm shares information on inventory levels with its main provider.
2	<i>Product-development exploitative capabilities</i>
2.1	Your company updates knowledge and skills on known technologies, products and services.
2.2	Your company invests in improving skills in the exploitation of established technologies that improve business productivity.
2.3	Your company strengthens the knowledge and skills that facilitate the implementation of projects that seek to improve the efficiency of existing activities of the company.
3	<i>Overseas market-related exploitative capabilities</i>
3.1	Your company improves the extraction of key market information on the countries to which it currently exports.
3.2	Your company improves monitoring of competitive products in current export markets.
3.3	Your company improves understanding of the needs of foreign customers in existing markets.
4	<i>Product-development explorative capabilities</i>
4.1	In your business people learn about technologies that have not been used before in the industry.
4.2	In your business people learn skills for the development of entirely new products and processes within the industry.
4.3	In your business it strengthen the innovation capacity in areas where there is no previous experience.
5	<i>Overseas market-related explorative capabilities</i>
5.1	Your company acquires market information on new markets to which they export.
5.2	Your company evaluates the potential of new export markets.
5.3	Your company investigates new competitors and new customers in foreign markets.
6	<i>Forward linkages</i>
6.1	The main client shares with you their demand forecasts.
6.2	The firm shares its production plan with the main client.
6.3	The firm exchanges market information with the main client.
7	<i>Product innovation</i>
7.1	Your company gives a strong emphasis on the development of new and innovative products.
7.2	Your company is constantly developing new product lines or services.
7.3	Your company is the first to introduce new products or services, techniques and technologies in its industry.
8	<i>Market relationships</i>
8.1	Your company strengthens relationships with its existing distributors abroad.
8.2	Your company builds relationships in new markets.
8.3	Your company builds new distribution relationships abroad.