Organizational antecedents and capabilities for sustainable supply chain management in developing economies: The case of Colombian focal firms*

*Jairo Raúl Chacón Vargas***
*Carlos Eduardo Moreno Mantilla****

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** Doctorando en Ingeniería de la Universidad Nacional de Colombia, Bogotá, Colombia, 2011. Profesor Asociado de la Facultad de Ingeniería Industrial de la Escuela Colombiana de Ingeniería Julio Garavito, Bogotá, Colombia.
E-mail: jairo.chacon@escuelaing.edu.co

*** Doctor en Ciencias del Medio Ambiente (Política Ambiental) de la State University of New York, College of Environmental Sciences and Forestry, Syracuse, NY, Estados Unidos, 2004. Profesor Asociado del Departamento de Ingeniería de Sistemas e Industrial de la Universidad Nacional de Colombia, Bogotá, Colombia.
E-mail: cemorenoma@unal.edu.co

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Abstract

Knowledge about sustainable supply chain practices in developing economies is still lacking. Consequently, this research empirically explores the organizational antecedents and the implementation of Sustainable Supply Chain Management (SSCM) practices for a purposeful sample of focal firms in Colombia. A semi-structured qualitative research design is followed. This study contributes to the development of SSCM theory by providing empirical grounds for understanding the nature of these practices and the extent of their implementation in a particular industrial context, as well as by assessing whether and how they affect the focal firms' competitiveness. Additionally, the main results suggest that environmental and social responsibilities are increasingly important issues for the stakeholders of focal companies in emergent economies.

Keywords: corporate social responsibility; sustainable development; sustainable supply chain management.
JEL classification: L21, M14, M11

Antecedentes organizacionales y capacidades para la gestión sostenible de la cadena de suministros en economías emergentes: El caso de las firmas focales colombianas

Resumen

Este artículo explora los antecedentes organizacionales y la implementación de prácticas de Gestión Sostenible de la Cadena de Suministro (GSCS) para una muestra de firmas focales en Colombia. Para tal efecto, se utiliza un diseño de investigación cualitativa semi-estructurada. Este estudio contribuye al desarrollo de la teoría de la GSCS al aportar bases empíricas para entender la naturaleza de estas prácticas y el alcance de su implementación en un determinado contexto industrial, así como para determinar sus efectos en la competitividad de las firmas focales. Adicionalmente, los resultados principales sugieren que las responsabilidades ambientales y sociales son cuestiones cada vez más importantes para los accionistas de las firmas focales en economías emergentes.

Palabras clave: responsabilidad social empresarial, desarrollo sostenible, gestión sostenible de la cadena de suministros.
Clasificación JEL: L21, M14, M11

Antecedentes organizacionais e capacidades para a gestão sustentável da cadeia de suprimentos em economias emergentes. O caso das empresas focais colombianas

Resumo

Este artigo explora os antecedentes organizacionais e a implantação de práticas de Gestão Sustentável da Cadeia de Suprimentos (GSCS) para uma amostra de empresas locais na Colômbia. Para isso, utiliza-se um desenho de pesquisa qualitativa semiestruturada. Este estudo contribui para o desenvolvimento da teoria da GSCS ao contribuir com bases empíricas para entender a natureza dessas práticas e o alcance de sua implantação num determinado contexto industrial, bem como para determinar seus efeitos na concorrência das empresas focais. Além disso, os resultados principais sugerem que as responsabilidades ambientais e sociais são questões cada vez mais importantes para os acionistas das empresas focais em economias emergentes.

Palavras-chave: desenvolvimento sustentável, gestão sustentável da cadeia de suprimentos, responsabilidade social empresarial.
Classificação JEL: L21, M14, M11

Introduction

Stakeholders both inside and outside the supply chain (*e.g.*, employees, customers, suppliers, NGOs, authorities and investors, as well as the public and the media) are now among the most important factors for the incorporation of sustainable development (SD) into supply chain management (SCM) (Chan, 2010; Klassen and Vachon, 2012). Although there is no consensus on a definition of SD, the concept remains an important political benchmark for the protection and improvement of quality of life and economic development whilst protecting the ecological systems (Holden *et al.*, 2014). A prevalent definition of SD is "development that meets the needs of the present without compromising the ability of the future generations to meet their needs" (WCED, 1987, p. 24).

From an organization context, Elkington (1997) considers that SD is only possible if companies simultaneously incorporate environmental, social and economic issues into their organizational management –what is known as the Triple Bottom Line approach. From the SCM perspective, sustainable supply chain management (SSCM) has emerged as a result of involving the three dimensions of SD in the activities of the core business. The literature provides several definitions of SSCM (Ahi and Searcy, 2013). For instance, Carter and Rogers (2008, p. 368) define SSCM as "the strategic, transparent integration and achievement of an organization's social, environmental, and economic goals in the systemic coordination of key inter-organizational business processes".

Many authors agree that sustainability will be a decisive factor in the design and management of supply chains, forcing managers to be prepared to evaluate and improve the social and environmental performance of their products, their services and their supply chains (Aschehoug *et al.*, 2012; Bhattacharya, 2010; Gavronski *et al.*, 2011; Klassen and Vereecke, 2012; Tate *et al.*, 2010; Vachon and Klassen, 2006). In fact, the United Nations Environment Program (UNEP) launched a report in 2014 dedicated to the Sustainability of Supply Chains and Sustainable Public Procurement, arguing that "achieving sustainability in the supply chains is a core issue" (UNEP, 2014).

Focal companies govern their supply chains/networks, design their own products and have direct contact with customers (Seuring *et al.*, 2005; Seuring, 2011). Depending on how the focal companies and their supply chains respond, some of these challenges may threaten their survival.

Therefore, paying attention to the actions of the focal companies and their supply chains will become increasingly vital for the future success of the economy (Buchholz, and Rosenthal, 2005; Koplin *et al.*, 2007; Laplume *et al.*, 2008; McDonagh and Prothero, 2014; Mittelstaedt *et al.*, 2014; Stank *et al.*, 2015; Visser, 2008).

A review of the literature shows that companies need to develop new organizational capabilities to respond to social and environmental pressures from stakeholders (Björklund *et al.*, 2012; Blackhurst *et al.*, 2012; Dangelico *et al.*, 2013; Darnall *et al.*, 2008; Glavas and Mish, 2015; Sarkis *et al.*, 2010; Sarkis, 2012; Shi *et al.*, 2012; Reuter *et al.*, 2010; Vachon and Klassen, 2006). According to the Resource-Based View of the Firm (RBV), organizational capabilities are understood as complex bundles of tangible and intangible resources controlled by a firm that are exercised through organizational processes and enable it to conceive and implement value-creating strategies (Barney, 1991; Barney and Clark, 2007; Gold *et al.*, 2010b; Olavarrieta and Ellinger, 1997). Likewise, the literature suggests that these capabilities might emerge when firms proactively address social and environmental issues in their business strategies (Sharma and Vredenburg, 1998).

Therefore, there is a need to pursue research that helps to identify the organizational antecedents (as internal competencies) and the firm capabilities necessary to display such responses from the focal companies and their supply chains, as well as to determine whether these capabilities confer any type of competitive advantage on the focal company. Such research is particularly timely because social considerations –beyond the established focus on greening– in SCM are yet to be discussed in depth by researchers or applied by practitioners (Carter and Rogers, 2008; Klassen and Vereecke, 2012; Freise y Seuring, 2015; Marshall *et al.*, 2015; Yawar and Seuring, 2015).

These considerations are particularly relevant for developing countries, where environmental and social issues in SCM have not been extensively addressed by scholars or by business communities (Huq *et al.*, 2014). The literature has somewhat neglected covering corporate social responsibility in Latin America, and most of the existing evidence from this region comes from Argentina, Brazil and Mexico (Fahimnia *et al.*, 2015; Visser, 2008; Vives and Peinado-Vara, 2011). The study of sustainability issues in Latin America is necessary, as this region continues to confront issues such as poverty, income inequality, corruption, economic informality, environmental degradation, and heavy economic reliance on natural resources (García-Rodríguez *et al.*, 2013; Jabbour and de Sousa Jabbour, 2014; Nicholls-Nixon *et al.*, 2011; Vassolo *et al.*, 2011).

In this article, we answer the call from organizational researchers for additional qualitative studies in terms of how sustainable development is incorporated into supply chains (Glavas and Mish, 2015). We approach this task from the theoretical framework provided by the RBV, but also considering complementary insights coming from the Sustainable Supply Chain Management (SSCM), Stakeholder Theory (ST) and the Dynamic Capabilities (DCs) literature. In doing so, we explore various types of organizational capabilities and their organizational antecedents that focal companies demand when incorporating social and environmental issues into their SCM. Drawing on these theoretical perspectives, we also analyze the competitive advantages obtained through the development of such organizational capabilities by a set of focal companies in Colombia.

Based on the preceding argumentation, this study aims to provide answers to the following research questions:

1. What are the organizational capabilities adopted by focal firms in developing countries to incorporate social and environmental sustainability into their supply chains? (RQ1)
2. What are the organizational antecedents of these organizational capabilities? (RQ2)
3. What –if any– competitive advantage accrues to the focal firms from the incorporation of social and environmental sustainability practices into their SCM? (RQ3)

To achieve our research objectives, this paper is organized as follows: first, we describe the research method used in this study, which includes a reference to the relevant literature and prior research that was used for the coding of theoretical constructs, as well as a description of the sample of participants; next, we present the findings, discuss their implications and, finally, conclude by identifying the limitations of the study and offering directions for future research.

1. Research methodology

According to Wolf (2008) and Yin (2009), the types of research questions being asked will determine research methods. The questions identified above are all "what" questions, which justify the use of an open and emerging, semi-structured qualitative research design to obtain insights from a few participants (Creswell, 2009, p. 130). Semi-structured qualitative studies (SSQS) occupy a space between ethnography and surveys and typically involve interviews and observations. Accordingly, SSQS have some explicit structure in

terms of theory or method, but are not completely structured, and usually involve systematic coding of verbal data (Blandford, 2013; Blandford *et al*., 2016).

This type of process-oriented and experiential research provides scholars with a chance to develop their understanding of complex phenomena from the perspective of those who experience them (Barr, 2004; Miles and Huberman, 1994). One of the advantages of SSQS is that there is enough structure "to give accountability and rigor while also creating space for exploring important avenues that are discovered through the process of doing the study" (Blandford *et al*., 2016, p. 4).

As Wolf (2008) had previously shown, content analysis has been frequently applied in the field of SCM, including the studies by Chen *et al*. (2007), Fawcett *et al*. (2006), Kovács and Spens (2005), Seuring and Gold (2012), Seuring and Müller (2007), and Spens and Kovács (2006). A recent qualitative study conducted by Glavas and Mish (2015) explores whether firms that place the same importance on the social, environmental and economic dimensions of performance differ in their approach to stakeholders or their management of resources. In this regard, Denk *et al*. (2012) suggest that qualitative research methods have the potential to support the SCM field as it continues advancing and maturing conceptually and practically.

In this type of research, semi-structured interviews with experts and experienced practitioners in the industry are the main tools of data collection. The content of these interviews is then analyzed by searching for themes through qualitative data coding.

1.1 Data collection and description

This step involves the definition and delimitation of material collection, the definition of the unit of analysis, and the provision of a descriptive analysis of the collected material (Beske *et al*., 2014a). Here, the unit of analysis is understood as the data collected that is large enough to be considered, and small enough to allow the extraction/identification of units of meaning (also called content units, coding units or recording units). Evaluators assign these sets of words or textual statements (words, sentences, paragraphs and themes) to predefined or emergent categories (Abbasi and Nilsson, 2012; GAO, 1996; Graneheim and Lundman, 2004). Here, a category is understood as a specific classification that has clear limits, which allows the material to be grouped for a specific analysis (Liew, 2007).

One approach to content analysis is the use of well-grounded relevant literature or prior research as initial coding categories, *i.e.*, performing a directed or deductive variant of content analysis (Hisieh and Shannon, 2005; Potter and Levine-Donnerstein, 1999). This category system will further provide the basis not only for establishing the topics to be covered in the interviews but also for classifying the textual content of the transcribed interviews. Therefore, the process of content analysis started with the authors' review of the extant research on the organizational antecedents and capabilities demanded by SSCM (Chacón-Vargas and Moreno-Mantilla, 2014), which was grounded in RBV, DC and ST perspectives. Latent variables/constructs, as the initial coding categories, were subsequently deduced from this in-depth literature review with the research questions in mind (See Annex A).

In-depth, face-to-face, semi-structured interviews were selected as a consistent method with which to collect data about the predetermined categories. Interviewing is one of the most widely used and useful methods in qualitative studies to collect primary data, and interviews have been used by many researchers in the field of corporate social and environmental sustainability (Goworek, 2011; Willig, 2008). This study relies on purposeful sampling. This type of sampling applies when particular individuals are deliberately selected due to the important information they can provide to the researchers (Patton, 2002; Polkinghorne, 2005).

In qualitative studies, sample size is clearly determined by the research problem (Hesse-Biber, 2010). However, from a phenomenological research perspective, which is closely related to our research approach because it makes possible to identify people's experiences of various phenomena as described by participants, Mertens (2010) and Morse (1994) recommend a sample size of approximately six participants. Therefore, we chose to interview seven informants from four firms operating in Colombia who were invited through email to participate in the study. These specific participants/interviewees are high-level business executives with direct or extensive experience and/or with functions that are associated with social and/or environmental sustainability issues in their companies in Colombia. In this regard, this sample is homogeneous, as the people share similar features that are relevant to the matter under investigation.

We wanted to explore SSCM capabilities across several industries, so we selected our sample from participants in different industries and from companies with different characteristics (see Table 1). The invitation explained the objectives of the research,

provided a brief description of the matter in question and invited the participants to be interviewed for an hour and a half to two hours.

Table 1

Companies and participants in the semi-structured interviews

Company	Sustainability profile	Participants interviewed
Company A is a Colombian agribusiness company operating in palm oil and citrus cultivation. Currently, it also operates a processing plant that produces palm oil, palm kernel oil and palm kernel cake. The company has approximately 258 direct employees and manages a cultivation area of 6,700,000 m^2.	The company includes a commitment to sustainability in their strategic business lines and it has recently calculated its carbon footprint.	- Quality and Environment Project Leader - Purchasing Manager
Company B is a small, independent specialty coffee shop. It sells high-quality, single-origin Colombian coffee beverages at one cafe in Bogotá.	Its single-origin coffee is Rainforest Alliance certified. The owner is strongly committed to social responsibility, especially to worker welfare and to the social, environmental and economic development of the company's small suppliers.	- Owner-Manager
Company C is a leader in the Colombian cement business, the fifth largest company in Latin America and the second largest producer in southeastern United States. It also maintains plants in the United States and Central America. It owns clinker mills in Colombia, the United States, Haiti, Panama, the Dominican Republic, Honduras, French Guyana and Surinam, as well as twenty-four ports and terminals for receiving and packaging. The total installed capacity is 21 million tons of cement per year. In the concrete business, the company is a leader in Colombia and is the third largest producer in the United States. The total installed capacity is 18 million cubic meters of concrete annually.	The business is client-centered and oriented towards sustainable development. It is a member of the Dow Jones Sustainability Index and adheres to initiatives such as the Global Reporting Initiative (GRI), the UN Global Compact, the Cement Sustainability Initiative, the CEO Water Mandate, Business for Peace, and the Anti-Corruption Call to Action. It maintains the following certifications: - Quality Management Systems ISO 9001 - Health and Safety Management System OHSAS 18001 - Environmental Management Systems ISO 14001 - Business Alliance for Secure Commerce (BASC)	- Director of Supplier Management - Director of Climate Change - Sustainability Director
Company D is an international retail chain with holdings in countries such as Chile, Peru, Colombia, Argentina, Uruguay and Brazil.	The company is committed to reduced packaging, supplier development and the sustainable construction of its stores. It adheres to initiatives such as the GRI.	- Head of Environmental Management

Source: Own elaboration.

The researchers then conducted face-to-face interviews with the participants following an interview protocol/guide. Conducted in Spanish, each interview lasted, on average,

two hours. With the interviewees' permission, the 7 interviews were recorded to preserve the interviewees' exact words, and the interviews were subsequently transcribed and saved as Word documents (232 single-spaced pages, with an average of 33 single-spaced pages per full-length interview transcript) for later analysis. An average of 2 hours of recorded audio demanded approximately 20 hours of transcription work (an approximate total of 140 hours).

1.2 Category selection and application to the collected material

Once the 7 interviews were transcribed, these data were coded for further analysis. Common recording units include single words or terms, sentences, paragraphs and themes. We selected themes as the most appropriate recording unit for our study. A theme can include words or single concepts, sentences, and paragraphs. A theme "captures something important about the data in relation to the research questions and represents some level of patterned response or meaning within the data set" (Braun and Clarke, 2006, p. 82). From the interview transcripts, we identified 586 themes.

Following the recommendations of Berg (2001) and Cullinane and Toy (2000), we decided to integrate both manifest and latent content into this content analysis. In doing so, we labeled recording units either as content units or context units (Krippendorff, 2004, p. 101). The selection of content units is based on the predetermined categories (Liew, 2007). Context units are generally the same recording units as content units, but correspond to the surroundings, characteristics and behaviors that cue analysts to the context that should be considered when assigning the recording unit to a specific category (Riffe *et al.*, 2008).

In content analysis, the allocation of the different themes identified in the textual segments to the predetermined categories is a task that must be performed in a transparent way, *i.e.*, so that the process can be replicated and the findings are reliable. We considered the suggestions made by Macqueen *et al.* (2009) and Neuendorff (2002; 2015) and thus (i) developed a code book (also called a coding manual), (ii) trained coders, and (iii) evaluated reliability through inter-coder agreement using Cohen's Kappa index.

Following Gibbs (2007; cited in Creswell, 2009, p. 190), we employed several reliability procedures, in particular using a coding manual to make sure that codes did not shift during the process of coding, coordinating the communication between coders by regular meetings and by sharing the analysis, and computing an inter-coder reliability index.

Although the study does not triangulate from different data sources, it employed several validity strategies mentioned by Hernández-Sampieri *et al*. (2014, p. 458), such as using a thick description to convey the findings, and discussing new or discrepant information that does not necessarily match the general perspective of the themes.

We recruited and trained two coders who were soon-to-graduate industrial engineering students from a prestigious local university, with no prior coding experience. Qualitative researchers seem to agree that coder training is very important for content analysis studies (Berends and Johnston, 2005; GAO, 1996; Neuendorf, 2002). The coders' training lasted approximately 4 hours, in which they were presented with (i) a brief introduction to content analysis and its role in research activities; (ii) a brief presentation of the relevant literature; (iii) the objectives of the study; (iv) the coding manual; and (v) hard and electronic copies of the 7 interview transcripts, along with an Excel spreadsheet with the themes that had been selected from the transcripts and numbered consecutively by the researchers.

It is important to pre-test and revise the codebooks to reduce the potential bias of the coders (Miles and Huberman, 1994; Riffe *et al.*, 2008). To do so, it is acceptable to use a sample of the same interview transcripts (Krippendorff, 2004). There is little agreement on the appropriate sample size; some researchers suggest using 10% of the documents, while others argue that a few pages are enough (Campbell *et al.*, 2013). We selected (select) 15 pages from one interview transcript and then held a session with the two coders to simulate the coding process to detect possible problems with the instructions in the coding manual, to resolve the coders' doubts and to allow them to discuss their coding experience with the researchers. As a result, some minor revisions were made to the coding manual. Once this task was complete, the next step was to code the interview transcripts. Each coder performed this task by hand, working in isolation and with the assistance of the Excel spreadsheet. This task took each coder approximately a day's work for each interview transcript (approximately 120 total hours).

Once this first coding was performed, the researchers and coders computed the level of reliability achieved, *i.e.*, "the extent to which independent coders evaluate a characteristic of a message or artifact and reach the same conclusion" (Lombard *et al.*, 2002, p. 589). Based on Gwet (2014), the researchers created (create) an Excel spreadsheet to compute the intercoder reliability index, which resulted in a Cohen's kappa of 0.7706. The researchers judged (judge) that intercoder reliability could be improved, thus scheduling a second meeting with both coders to address possible problems with the coding process

and evaluating potential adjustments to the coding manual. It is important to note that a new category emerged during these discussions, which was subsequently incorporated into the coding manual: social and environmental partnerships (SEPs).

After resolving the coding issues, it was decided that the two coders would recode all the transcripts. After a second round of coding, a Cohen's kappa of 0.8013 was reached, which the researchers judged appropriate based on Landis and Koch (1977), who argue that kappa coefficients of 0.61-0.80 are substantial, and on Banerjee *et al*. (1999), who suggest that a 0.75 index for Cohen's kappa indicates an excellent level of agreement that is beyond chance.

2. Results

For the purposes of this research, the data collected provides evidence with which to assess how participants perceived their companies' efforts to manage sustainability issues in their supply chains, which according to our review of the extant literature, could be comprised in thirteen SSCM practices (see Appendix A). Consequently, we first frame the results in terms of these practices and then evaluate the competitive advantage that could be emerging from their implementation. We now return to our research questions:

(RQ1) What are the organizational capabilities adopted by focal firms in developing countries to incorporate social and environmental sustainability into their supply chains?

The extent of the implementation of SSCM practices in this group of companies is limited (See Annex B). Some practices identified in content analysis were associated with a capability that is not originally identified in the literature (by Chacón-Vargas and Moreno-Mantilla, 2014). The authors refer to this capability, which emerged from the collected data, as the formation of social and environmental partnerships (SEPs). Based on the work of Jamali and Keshihian (2009), SEPs are defined as the socially- or environmentally-motivated collaboration that is established between a corporation and a non-profit organization, between a corporation and competing firms, or between a corporation and the government sector, where the partners pursue common goals while leveraging joint resources and capitalizing on their respective competences and strengths (adapted from Jamali and Keshihian, 2009). According to the interviewed participants, the focal firms seem to have developed these types of partnerships, as the following examples illustrate.

On public-private partnerships:

> "And we have an agreement with the Ministry of National Education for the improvement and restructuring of twenty schools nationally. It is a great project that is already moving forward; we have already started to inaugurate several schools this year".

> "At the Ministry of the Environment and Sustainable Development, we work on a standard to be issued that has do with a program for the rational use of plastic bags, which is a program that is only for Bogotá and not for the whole country. We are helping this ministry with this aspect, and many companies see us with different eyes because of our environmental management".

> "We work very closely with government agencies, with the autonomous regional corporations, with the ministries of the environment and of labor".

> "We worked with the government in working groups on post-consumption rules and their mission; we were there, and today we are working on a regulation standard for WEEE [waste electrical and electronic equipment] and always work very closely with the authorities".

On private-non-profit partnerships:

> "We have developed a carbon footprint project. We did it with MIT [Massachusetts Institute of Technology] to get a sustainability indicator, or indeed, what we are doing is responding to our corporate strategy; we initially focus internally due to the magnitude of the environmental impacts that we generate".

> "We have that [partnerships]; we have many others [partnerships], such as the UN Global Compact, which has ten principles under which we also guide [company social and environmental efforts]".

On partnerships with competing companies:

> "Today, we are sitting at the same table with Sylvania, General Electric, Phillips and all the largest retailers that are competing with us in the country, and we have succeeded in talking only about environmental issues and promoting this program

> [used light bulb collection], without talking about issues of competition and disloyalty. This was a complete hit".

> "I told you, we, as an industry sector, do not see ourselves as competition; rather, it is like a bond of brotherhood, and I find that this is something that is worth highlighting. Then, we can go to another plantation, or other plantations can come to visit us and share with each other specific environmental things".

> "Yes, one of [these partnerships], which I think is the strongest for the cement sector, is the CSI [The Cement Sustainability Initiative]. The initiative for sustainable cement of the World Council for Sustainable Development has a special chapter called CSI for the cement industry, and this space allows us to permanently meet with all the companies participating in this initiative that compete with us. It is a working group with thematic sessions; we share many practices, and we have thus been able to learn a lot".

Green manufacturing. Some preliminary steps in incorporating environmental aspects into supply chains concern the adoption of environmental practices in the focal companies' production processes, including those suggested in the literature, such as pollution prevention, environmental restoration, environmental monitoring, environmental training, environmental management systems (*e.g.*, ISO 14001), materials recycling, or product reuse (Das and Mulholland, 2005; Dornfeld *et al.*, 2014; Marshall *et al.*, 2015a; Pigosso *et al.*, 2013; Vachon, 2007; Zhu *et al.*, 2012). The interview transcripts reveal that the companies apply most of these practices and, to a lesser extent, investment recovery and life cycle assessment, which can be considered as internal environmental practices (Alves Teixeira *et al.*, 2012; Potting *et al.*, 2010; Sonesson *et al.*, 2015; Zhu and Sarkis, 2004). Some examples are presented below.

On reducing the consumption of materials and energy:

> "[company name omitted] set a goal in 2014 to reduce a percentage of its carbon footprint, and to be able to do it, it had to change certain processes. This then involves making certain investments to meet this goal that we set, which depends on plants; every plant is in a different area and has different processes".

On reusing, using recycled material or recovering used resources (*e.g.*, water, raw materials, parts or components):

> "Centrifuging recovers oil. This oil returns to the process, *e.g.*, it returns to the clarifier, and the sludge goes to Florentine tanks that, like underground tanks, have decanters; and what they do is separate solids, and there is also recovery of oil".

On training employees to engage in reducing or managing (hazardous and non-hazardous) waste:

> "Additionally, we have many campaigns, personnel trainings. My environmental assistants have to train work groups every day. Why? Because there are 1500 workers, and almost 12000 hectares where they should go. Then, to reach a wide range of people, they have to go to an area every day and carry out training talks of twenty to thirty minutes on how to classify wastes and the type of colors of mugs that are appropriate to collect used cardboard and PET wastes because it is important to keep the areas clean".

Labor practices. Socially responsible labor practices (*e.g.*, employment, labor management practices, occupational health and safety, training and education, diversity and equal opportunity, and human rights) respond to social issues that stakeholders deem important and expect the focal companies to address in their supply chains (ISO, 2010; Klassen, 2009). Participant companies were (are) found to use some of the following labor practices.

On health and social welfare programs that are different from those required by national regulations:

> "In education issues, here the company gives employees the opportunity to study something associated with their work, and the company funds a portion".

> "The company supports many sports events and championships to integrate employees; in Villanueva, the company participates in tournaments and provides financial support for the company team".

> "We also have housing projects for direct and indirect workers to give them subsidies. The company and municipalities established alliances; for example, the company buys municipal land at a low cost because it is going to be used for workers' housing; the company gives the worker financial support for a part of the construction, and the company then deducts the payment from the monthly salary".

On diversity and equal opportunities:

> "Exactly, in some areas, we are tending to promote the work of mothers over a certain age; for example, there are many female heads of households over thirty-five or forty years old, and they do not easily obtain work due to their age. [...] We also employ people with certain disabilities, people with Down syndrome".

The labor practices applied by these companies and that are typically implied by regulatory requirements have primarily focused on (i) developing documents, manuals and templates containing instructions about how to control risks that cause accidents or transmit diseases; (ii) training all employees in work accident prevention, occupational disease prevention, emergency prevention and management, safety inspections, and basic elements of the occupational safety and health system; and (iii) providing regular medical examinations to quickly identify diseases.

In contrast, the application of the globally recognized OHSAS 18001 standard and training programs on international labor standards and human rights is not observed. Additionally, none of the companies had implemented ISO 26000.

Eco-design. The third type of intra-organizational practice focuses on eco-design. This practice is derived from regulations and stakeholder pressures that demand that products be socially and environmentally friendly throughout their life cycle, which includes resource extraction, production, distribution, product use, and end of life. In particular, companies that eco-design their products evaluate and implement reuse, recycling and remanufacturing opportunities to ensure that the product will not be eco-destructive during the disposal phase (Pigosso *et al.*, 2013; Romli *et al.*, 2015). It was evident that this set of practices is implemented to a limited extent by the investigated companies. However, there is a company that has used fly ash generated from thermal coal plants as cementitious material to replace the concrete. This same company has also developed permeable concrete, which allows the water falling on the concrete to rapidly filter through to the natural soil, thus facilitating infiltration into natural terrain and feeding underground reservoirs. On the other hand, a second company has started to test the elimination of plastic bags in their packaging, exhibiting products in their shelves without using those.

Product responsibility. Another practice which is not widely extended among these companies concerns product responsibility, which relates to how companies address the effects of products and services on their customers and users (GRI, 2013). One of the

participants mentioned that they focused on avoiding damage to the health or safety of their clients, although they did not consider aspects such as providing information on how to appropriately dispose of the product or on traceable variables such as place of origin and carbon footprint.

Green logistics. Some examples of initiatives to "green" the transport, storage and handling of products as they move from the procurement of raw materials to the point of consumption to satisfy customer necessities were observed:

> "And with the issue of transportation in large companies [*i.e.*, third-party logistics], [...] I can come help you to measure it and determine how we will reduce it because, ultimately, it is our chain. We are one, then this is it".

> "...your sustainable strategy and that of your supply chain are to model your chain so that your plants, with your distribution centers and your transportation, ensure that you have the most efficient routes and fewer long routes for fuel consumption".

> "The advantage is that there are not many [logistics providers]; there are three companies; they provide us with transportation. They distribute raw materials from the mines to our plants, and they distribute the cement product. Then, we took the three largest companies that provide us these services, and with them, we developed a tool to calculate their carbon footprint. And we trained them, let's say, to give to them the tool so that they will continue doing calculations, and indeed, we did it as a pilot project last year here in Medellín. And, from this experience, we want to start bringing it to other regions and begin to develop this model with all our logistics providers".

> "And, on packaging, there are important things to tell you. When we transport goods to the distribution center, we have to check them there. If they are imported, for example, from a port, you have to unpack these goods, and that's one package that we are losing. And then, we have to repack the goods so that we can dispatch them to the selling point. If we do it through the omnichannel retailing mode, we do it online, and the goods can be dispatched directly to suppliers or customers without our customers having to go to our retail shops to buy what they need. So, this way of distributing goods helps save on packing and transportation, so this omnichannel retailing is helping us save packaging and additional transportation. We have done

this with goods like mattresses and those in the white line [a set of appliances used in the kitchen, such as washing machines, refrigerators, and stoves]".

The results indicate that the focus is on logistics providers, specifically on vehicle maintenance, reduced packaging, logistics optimization, fewer trips, e-business and e-logistics, and carbon footprint measurement and reduction. No evidence was found of practices such as reducing the environmental impacts of warehousing or optimizing truck loads, which have been studied in the literature (Cherrett *et al.*, 2010; Edwards *et al.*, 2010; Eglese and Black, 2010; Marchant and Baker, 2010; McKinnon and Edwards, 2010; Piecyk, 2010) were included.

Green purchasing. The literature has broadly discussed green purchasing practices (Lamming and Hampson, 1996; Toke *et al.*, 2010) These practices include supplier environmental audits; environmental criteria for selecting suppliers; joint development of cleaner technology/processes with supplier(s); reduced packaging; reuse/recycling of materials requiring co-operation with supplier; and collaboration on environmental issues. The data collected indicates that the companies in our study are actively implementing green purchasing practices, as the quotations below show:

"Another clear policy is that the supplier is examined holistically; that is the policy – being socially and environmentally sustainable but obviously economically feasible – because there is something beyond the contract that the price obviously does not reveal".

"Our supplier assessment process covers the competitive matter at the service level and covers social, environmental and economic issues. It is important to look at the price but also at [legal environmental standards and human rights issues that must be met] because that is the way to make suppliers sustainable".

"because you often want a supplier to be developed on sustainability issues to ensure continuity because sustainability also requires certain investments and also takes time; it takes time to develop a supplier. What we want to get in the future is long-term contracts, which ensure sustainability for both the supplier and for us. It's a win-win relationship. [...] Ultimately, our suppliers are a part of our supply chain".

"We have helped develop suppliers, such as in their handling of hazardous wastes, debris management. We have made them an important partner; today there are some

> important suppliers who tell me that, 'thanks to [company name was omitted], I am now as successful as I am'".
>
> "Ah well, on the social aspect, what I tell you now is that they [suppliers from other countries] do not have problems with child labor; they must meet all the standards of their countries in this regard, and we visit their plants to verify all these issues".

Environmental collaboration with customers. Authors such as Vachon and Klassen (2008) have found that environmental collaboration with customers derives from environmental challenges that require complex solutions, and the authors have suggested that this kind of collaboration can generate some benefits, such as the development of knowledge-sharing routines and the development of the capability to integrate external resources, which, in turn, can provide companies with some competitive advantages. This close work between focal companies and their customers could help companies solve the environmental problems associated mainly with their products and packaging. The results show that these firms have not paid much attention to joint environmental efforts with their clients; one company has instead focused on providing training and improving customer awareness to reduce the environmental impact of the focal company's products during their use.

Reverse logistics. Reverse logistics deals with the return, recovery and recycling of products for the purpose of recapturing value or practicing proper disposal (Grant *et al.*, 2013). One of the participants explains their reverse logistics initiative as follows:

> "There is another project, not with suppliers but with customers, which has to do with the collection of empty cement sacks on the construction site. This work is already implemented with the builders. This program is called 'Green Sacks' and is operated by logistics management; the used sacks are then reused as raw material in the fiber cement industry or in the cardboard industry. This has not been easy, and we are still in the stage of deployment".

Community relations. This construct is not easy to narrow down, and the range of activities can appear overwhelming (Klassen, 2009). However, community relations might be oriented towards (i) an open dialogue with stakeholders who want to voice their concerns; (ii) the provision of welfare and quality-of-life programs for the community; (iii) donations to NPOs with social and environmental purposes; and (iv) the development of inclusive businesses. The content analysis results yielded the following examples:

> "and regarding the social part, we have two different approaches. The first is an intervention, more through philanthropy, in which we invest through the [name is omitted] Foundation. We invest in the infrastructure and quality of education in different areas of Colombia, and the second approach, at the social level, is the social dimension of our operations, which pays attention to the communities surrounding our plants and has to do with different social issues that are not necessarily linked with education but with housing issues, local infrastructure or other aspects that the neighboring areas require. This touches other areas of our company, like those in charge of hiring local staff".

> "We have a program called 'Customer Educates'. With this program, our clients voluntarily contribute to our social causes, donating their change/money when they pay at the checkout of our shops. Then, all that change that was donated by customers was dedicated to education; two years ago, we were able to educate more than 3,500 children. We gave them books; we collaborated to provide their snacks. All this supports education".

The companies engage in most of the practices associated with community relations, although we found no evidence of inclusive businesses, which shows that there is room for development in this regard.

Socially responsible purchasing. Based on the literature review, this practice can be summarized as the implementation of activities such as (i) checking suppliers' application of a code of conduct; (ii) securing adequate working conditions in suppliers' facilities; and (iii) collaborating with suppliers on labor issues. The following are some findings from the data collected:

> "On child labor, overtime work, we are auditing these things permanently; it is part of our purchasing strategy".

> "If we are going to hire security guard services, we make sure the company is in good standing with social security; that is, there are legal minimums that the company must comply with to be able to negotiate with us; then, the company has to have these requirements in place all the time and cannot break them if they want to be hired by us".

Our analysis of the transcribed interviews shows that the companies mostly apply socially responsible purchasing practices, except those associated with labor practice collaboration with suppliers, which indicates that opportunities also exist in this area.

(RQ2) What are the organizational antecedents of these organizational capabilities?

Supply management capability. According to the literature, these practices can be summarized as the competencies manifested in purchasing expertise to manage buyer-supplier relationships to gain competitive advantages for the firm and satisfy the end customer (Chen *et al*., 2004; Cousins and Spekman, 2003). The results indicated that the focus was limited to (i) the use of contract policies known by suppliers; (ii) cross-functional teams to carry out specific projects, including environmental and social projects, which require the collaboration of people from various departments of the companies; (iii) highly qualified/trained individuals for the purchasing function to properly develop its functions and duties; and (iv) the use of information and communication technologies to supply management.

Support from upper and middle management for social and environmental initiatives. The support of upper management to develop sustainability activities in the supply chain has been recognized as a crucial organizational antecedent by some researchers (Beske, 2012; Brik *et al*., 2013; de Bakker and Nijhof, 2002; del Brío *et al*., 2008; Gavronski *et al*., 2011; Paulraj, 2011). SSCM in a focal company is largely associated with how the mental models of top managers interpret the internal and external factors affecting their organizations (*e.g.*, environmental and social legislation, internal resources and capabilities, stakeholders concerns, and uncertainty) (Hambrick, 2007; López-Gamero *et al*., 2011; Sharma, 2000). Top management delivers sustainability policies and provides financial resources to different company divisions and specific projects to motivate workers to apply sustainability practices within the organization and the supply chain; these policies also foster close relationships with suppliers and customers (Allen *et al*., 2012; Banerjee, 2003; Zutshi and Sohal 2004).

On the other hand, the middle manager –referred to here as the mediator between the top management and the lower level personnel for the implementation of the organizational strategy (Wooldridge *et al*., 2008; Yang *et al*., 2010)– receives and transmits information to and from upper management and across company areas to align the environmental and social strategies with operations and the environment (Wooldridge *et al*., 2008; Shi *et al*., 2009). The way that middle managers understand, behave and translate these strategies

is important and directly affects the expected outcomes derived from these strategies or even the failed implementation of them (Balogun, 2003, 2006).

It was evident from the interviews that the companies receive support from upper and middle management for the development of environmental and social initiatives across their supply chains. The following examples illustrate how this type of organizational antecedent could explain the development of the capabilities demanded by SSCM:

> "Talking about management being understood as the top senior executives of the company, for us, it has been really gratifying as a company to find such significant support for these [social and environmental] issues from upper management, including the board of directors. Our president, Dr. [name was omitted], and all the vice-presidents are committed to all sustainability actions, whether social, environmental or economic, and we are working very hard on these three dimensions".

> "For example, there is a case in which people from a casino were taking untreated water from a deep well. Then, I prepared a proposal for one the owners in the top management to install a water treatment plant in one of the farms; then, he said yes; then, I sent him a quote and got it approved without any problems".

> "For each plant, plant managers make investment decisions that are related with aspects of maintenance and improvement of their equipment to have information and improve their environmental performance. In this case, I have the information about what percentage of the key performance indicators is spent on environmental investments".

(RQ3) What – if any – is the competitive advantage for focal firms that results from the incorporation of social and environmental sustainability practices into the management of their supply chains?

Based on the discussion by Masoumik *et al*. (2014) on the link between environmentally sustainable supply chain practices and competitive advantage, we might argue that the natural-resource-based view (NRBV) developed by Hart (1995) is the theoretical perspective that best helps to explain the relation between sustainability practices and competitive advantage. According to the NRBV, environmental practices can help companies obtain a competitive advantage, as manifested in lower costs, reputation, legitimacy, a better future position and competitor pre-emption. Our results indicate that some participants

perceive a positive relationship between these two constructs in terms of lower costs, enhanced reputation and brand equity (*i.e.*, attraction of new investors and improved image with other companies), competitive preemption (*i.e.*, access to new markets and being ahead of regulatory requirements), and protection of social license to operate; however, one of the interviewees expressed that today there is no positive relationship in terms of social and environmental product certification and increased sales.

From the data collected, we found the following declarations:

> "...when we start exporting our palm oil, there will be markets that will require the issue of greening the supply chain; then, they will start selecting those who are green and those who are not. How do you handle green issues? In this case, we would have to show that we treat water in this way, but right now the market is not asking that we differentiate environmentally, so there is no competitive advantage".

> "on the social side they [*i.e.*, the local community] have perceived us as leaders... [the company] works a lot with the people of the area, gives them work..., we are leaders due to not having social problems with the community, as is the case with other companies like in Santander, where they had to close the plantations because of problems with trade unions and public order; here in the company we promote many social projects with both its workers and the surrounding areas."

> "If the certificate is annual [*e.g.*, the Rainforest certificate], then we must renew it. However, in my personal experience, I've talked to other farmers, and next year we are not going to renew the certificate because, sadly, it was an economic investment for farmers with limited economic resources. It was a great effort to get the certificates, but we have not seen an economic return in terms of coffee prices. Then, this greatly discourages the coffee grower guild in [name of the coffee-growing region], which is why we are not willing to continue with the certification".

> "I really think that companies that have achieved a certain maturity in terms of this issue have begun to realize that, in fact, sustainability is social, environmental and economic, and it is what actually guarantees durability over time. Then, it is not that I am investing in environmental and social activities and it is hurting your pocket but I have to do it as a matter of reputation. I realize that if I address the right issues and manage environmental and social issues correctly, this will be translated

into economic benefits for me, be it income or [cost] savings, and I think that, although many of these initiatives or these environmental and social benefits are very difficult to quantify or to monetize, some will be easier than others, and that is why we strive to translate them into key performance indicators. Shareholders are increasingly noticing that their investments are sustainable and lasting; we are attracting more qualified and more educated shareholders regarding social and environmental issues, who want to allocate their resources in companies like ours. In this sense, there begins to be a very strong competitive advantage".

"We are acknowledged here by the Ministry of the Environment, last year we received a recognition for our environmental management; at the Ministry level, also, for example, regarding the standard to be issued on the rationalization of plastic bags, initially intended for Bogotá and not for the whole country, we are helping the Ministry and many companies already see us with different eyes due to our environmental management."

3. Discussion

This research has empirically explored the organizational antecedents and capabilities needed for SSCM and the latter's relationship with competitive advantage, based on the implementation of sustainable supply chain practices across a group of focal firms in Colombia. Our results clearly show that the extent of the implementation of SSCM practices in this group of companies is limited. However, the identification of an inter-organizational practice related to social and environmental partnerships is worth noting. This practice involves partnerships through which focal companies can address complex social and environmental problems in their supply chains that exceed the management abilities of any one organization (Clarke and Fuller, 2010). Such partnerships are characterized as a mechanism through which focal firms generally seek to address a social or environmental problem with solutions that simultaneously benefit the partners and society. In this way, such practices help align strategic focal company interests with the social and environmental expectations of their stakeholders (Berger *et al.*, 2004; Seitanidi and Crane, 2009). Such implementation could lead to what Austin (2000) has called *strategy enrichment* (*e.g.*, improved reputation).

In regard to social issues, and specifically labor practices, the lacking implementation of the ISO 26000 standard is evident. The main topics covered by this standard are human rights, organizational governance, fair operating procedures, labor practices, the envi-

ronment, consumer issues, and community involvement and development (Habidin *et al.*, 2014; ISO, 2010). These issues are addressed to some extent by most of the companies in our sample. The small and medium-sized enterprises in our study may have found ISO 26000 to be too broad, complex, and extensive, not addressing the specific concerns of the industry sectors in which they operate, or to be too costly to implement (Hahn, 2013; Perera, 2008, 2009). However, as noted by Castka and Balzarova (2008), the decision to apply the standard would be based on the firm's capability to balance the cost of implementing it and the expected benefits from its adoption. In regard to the larger companies in our study that did not implement ISO 26000, based on the practical experience of the authors participating in environmental and social projects in Colombia's industrial sector, the companies that have adhered to the GRI received suitable guidance that helped them report their corporate sustainability practices, covering the same topics as ISO 26000; therefore, these companies might consider applying the latter unnecessary, which is more plausible given that this standard is not compulsory in international markets.

Strategic alliances among businesses, government and civil society (*i.e.*, social and environmental partnerships), are a growing feature of emerging economies and developing countries, since no company can understand the complexities of sustainable development alone (Etemad *et al.*, 2001). Following Clarke and Fuller (2010), this practice involves partnerships through which focal companies under study can address the social, environmental, economic and complex problems in their supply chains of a country like Colombia that exceed the management abilities of any of these organizations. Such partnerships are characterized as a mechanism through which these focal firms generally seek to address social or environmental problems with solutions that simultaneously benefit the partners and society. In this way, such practices help align strategic focal company interests with the social and environmental expectations of their stakeholders (Berger *et al.*, 2004; Seitanidi and Crane, 2009).

Other practices that are not applied or are partially applied by the companies are eco-design, product responsibility, reverse logistics, and collaboration with customers. As Marshall *et al.* (2015b) argue, SSCM requires that these practices be embedded within the companies *and* across their supply chains. From the perspective of the Natural-Resource-Based View - NRBV (Hart, 1995), this requires the development of both intra- and inter-organizational resources and capabilities. Furthermore, Swafford *et al.* (2006, p. 172) invoke "the generally accepted paradigm in the strategy literature, that capabilities are externally focused while competencies are internally focused and considered

antecedents of capabilities" (Prahalad and Hamel, 1990; Roth and Jackson, 1995; Teece *et al.*, 1997, cited in Swafford *et al.*, 2006), or, in other words, that capabilities are derived from competencies.

In this regard, our findings indicate that some of the internal competencies comprising the organizational antecedent of supply chain management are limited among the focal firms in the study (*e.g.*, the involvement of the company's purchasing function in strategic management processes, the company's active collaboration with suppliers regarding customer demand planning and forecasting, or the speed and effectiveness with which the company's supply chain has responded to changes in the needs of customers and suppliers), which could explain the limited development of inter-organizational capabilities for SSCM, according to this strand of the literature (see for example Braunscheidel and Suresh, 2009, and Chacón-Vargas and Moreno-Mantilla, 2014).

The internal competencies demanded by SCM require that the focal company develops a supply chain *orientation* (Mentzer *et al.*, 2001). The findings of our study show that some companies are more aware than others of a supply chain orientation. Applying this approach to their SCM requires a well-developed, internal/external supply chain integration through customer integration, supplier integration, purchase function integration, and long-term orientation (Chen *et al.*, 2004; Das *et al.*, 2006). In other words, the focal company must collaborate with its supply chain partners (Wolf, 2011), which takes a long time and is not easy to achieve due to the causally ambiguous and socially complex nature of the resources that it demands (Barney, 1991, 2012; Chen *et al.*, 2004).

Framing our results in the NRBV may be appropriate in terms of interpreting the evidence that was found to support the association between a firm's SSCM and its competitive advantage. Our results seem to confirm what Esty and Simmons (2011, p. 39) have stated, in terms that green and social efforts have the potential to create significant business benefits that are important enablers of future revenues and shareholder value, even if they are not easily measured, as it is the case with the companies in our study. However, our results suggest that the competitive advantage derived from proactive environmental and social practices can also be found in measurable tangible benefits in terms of cost reduction and business risk reduction. In this way, the competitive benefits of sustainable supply chain management can be strategically oriented by firms towards either taking advantage of business opportunities or reducing risks in the chain (Harms *et al.*, 2013; Seuring and Müller, 2008).

Yet, although the relationship between SSCM practices and competitive advantage seems obvious, our results also offer discrepant evidence in one case for a small firm. Recent literature has suggested that the advantage derived from environmental and social practices in the supply chain depends on moderating environmental factors such as industry, firm size, economic conditions or geographic region (Aragón-Correa and Sharma, 2003; Golicic and Smith, 2013; Moreno and Reyes, 2013). This seems to confirm that there are still opportunities for further progress in determining the type of relationships that exist between sustainable supply chain practices and competitive advantage, particularly in the context of developing economies.

However, from a dynamic perspective, our results suggest that environmental and social responsibility are increasingly important issues for the stakeholders of the participating companies, which reflects a trend that has been reported in the literature (Post and Carroll, 2006; Rondinelli and London, 2003). If this trend continues or it reinforces focal companies' efforts to implement some kind of SSCM, they will be able to gain access to additional resources (particularly inter-organizational resources) to which they would otherwise not have access to, thus making competitive advantage from SSCM more likely in the future, as it has been suggested in the literature (Austin, 2000; Dahan *et al.*, 2010; Graf and Rothlauf, 2011; Seitanidi and Crane, 2009; Walters and Anagnostopoulos, 2012).

Conclusions

Drawing on complementary theoretical perspectives, we empirically probed into the internal competencies (antecedents) and capabilities demanded by focal companies when incorporating social and environmental responsibility into their SCM, particularly for the case of a group of focal companies in an emergent economy. The study followed a semi-structured qualitative research design with the aid of an interview protocol organized around two dimensions of Sustainable Supply Chain Management (SSCM) practices: intra- and inter-organizational practices, further exploring the association between the implementation of such practices and competitive advantage among focal firms. Our results have identified some gaps between the content of each conceptual category and the extent of the implementation of these practices at the companies involved in the study.

In terms of qualitative generalization (Creswell, 2009, p. 192; Yin, 2009, p. 43), this research has made several contributions to the emerging theoretical field of SSCM. First,

it has provided empirical evidence to advance in the definition and operationalization of social and environmental partnerships among internal and external stakeholders in the focal companies' supply chains, something that has not been comprehensively addressed in the SSCM literature. Second, it has supported previous claims in the literature (Bowen *et al.*, 2001; Paulraj, 2011; Swafford *et al.*, 2006) that indicate that the development of advanced inter-organizational supply management capabilities demands the previous development of internal competencies such as strategic purchasing and top and middle management support. And, third, it has also offered empirical support to help validate the relationship between green manufacturing and cutting costs and reducing risks (*i.e*, stay ahead of regulatory requirements), and between inter-organizational –social and environmental– practices and build brand and intangible value (*i.e.*, enhance reputation and brand equity, protect social license to operate) (Esty and Simmons, 2011; Harms *et al.*, 2013; Hart, 1995; Seuring and Müller, 2008a).

Furthermore, the study has provided a practical contribution, which is the evaluation of the scope of social and environmental practices for SSCM adopted among companies in a developing economy. This allows making an inquiry into the type of competitive advantages that focal firms in this setting could obtain from fostering such practices. In addition, general ignorance about the type of organizational antecedents and capabilities applied in this type of economy prevails; therefore, this research has broadened the understanding in this field and has provided additional elements to support future studies on SSCM.

This study has some limitations. First, the questions are addressed from one angle because the researchers asked focal company representatives about the organizational antecedents and capabilities related to the incorporation of social and environmental issues into SCM. The interviewed participants primarily come from large companies, some of which are internationally owned; therefore, it is likely that they possess specific resources and capabilities that can help them implement specific practices to pursue corporate social responsibility. Clearly, had the research questions also been posed to focal firms' suppliers or other actors in the supply chain (*e.g.*, their customers or the suppliers of the direct suppliers), our findings would have probably been different.

Second, this study was conducted with participants who belong to companies in a single country. The outcomes could have been more complete if the various cultural, social and economic contexts of other countries in Latin America had been considered

in a multiple case study research design to validate the theoretical assumptions for the entire region.

This study remains timely and can yield valuable results in regard to the type of social and environmental practices adopted by companies in developing countries. We think this research could provide an opportunity to further explore other factors. First, further research could examine the relationships between internal and intra-organizational practices. Such research might provide more insights into the likely synergistic/reinforcing relationships between these practices, the trade-off situations that could emerge from these relationships, or the ways in which they support or impede the spread of SSCM. Second, the relationships between each organizational antecedent and internal and external practices, and between these and competitive advantage are worth evaluating in the future through a causal, inferential/hypothesis testing approach. And, third, there is also potential to conduct comparative studies between firms in the service sector and firms in the manufacturing sector.

Annex A. Initial dimensions and categories used for content analysis (category system)

Each theme is classified into one of the following categories.

Dimension/Domain 1: Intra-organizational capabilities (practices)

CATEGORIES

A: Green manufacturing

In relation to manufacturing processes, these practices seek to eliminate the environmental burden in areas such as input resources, chemical substances used, energy consumption, and liquid, solid and gaseous wastes as much as possible. These practices include training of human resources, monitoring and incentives (Adapted from Chuang and Yang, 2014).

B: Labor practices

These practices involve the organization's workers or contract workers, including training and development, occupational safety and health, and any other practice that could affect working conditions (Adapted from ISO 26000: 2010).

C: Eco-design

These actions in product development aim to minimize a product's environmental impact during its entire life cycle, without compromising other essential product criteria, such as performance and cost (Adapted from Johansson, 2002).

Dimension/Domain 2: Inter-organizational capabilities (practices)

CATEGORIES

D: Green purchasing

This initiative tries to ensure that purchased products or materials meet the environmental policies and criteria set by the purchasing firm, including monitoring of suppliers' environmental performance, their selection based on green standards and environmental collaboration (Adapted from Eltayeb *et al.*, 2010).

E: Environmental collaboration with clients

An organization is directly involved with its customers to jointly plan environmental management and environmental solutions (Adapted from Vachon and Klassen, 2008).

F: Reverse logistics

The process of planning, implementing and controlling the reverse distribution of materials and returned products includes reducing the amount of materials in the forward system (Adapted from Meade and Sarkis, 2002).

G: Green logistics

These activities aim to minimize the environmental impacts of the transport, storage and handling of products as they move from the raw material source, through the production system and onto their final point of sale or consumption (McKinnon, 2012).

H: Community relations

These company activities positively affect the quality of life and welfare of the community where the company operates (the authors).

I: Product responsibility

The organization develops these activities to address issues related to the products and services that directly affect stakeholders, particularly customers (Adapted from GRI, 2013 and Klassen, 2009).

J: Socially responsible purchasing

It involves the consideration of social issues advocated by organizational stakeholders in purchasing decisions (Maignan *et al.*, 2002).

Dimension/Domain 3: Organizational antecedents

CATEGORIES

K: Supply management capabilities

Supply management capabilities comprise bundles of skills and resources that are developed through a more strategic supply approach. This approach involves cross-functional teamwork (liaisons between purchasing and other functions), a collaborative or partnering approach with suppliers, a basic understanding among purchasing managers of the environmental issues and the ways in which they affect supply, the technical skills of purchasing personnel, and detailed purchasing policies and procedures (Adapted from Bowen *et al.*, 2001).

L: Proactive social and environmental support from top and middle management

The extent to which senior management and middle managers understand the importance of environmental protection, the development of human potential, and the protection of human beings against damage or hazards, as well as the degree to which they are involved in sustainability programs and their commitment to deploy monetary and non-monetary resources to push these environmental and social issues beyond the sphere of laws and regulations (Adapted from Colwell and Joshi, 2013; McFadden, 2009; Mentzer *et al.*, 2000; Krause, 1999; and, Chen and Paulraj, 2004).

Dimension/Domain 4: Competitive advantage

M: Competitive advantage

Competitive advantage is achieved when a firm is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors (Adapted from Barney, 1991).

Annex B. Extent of adoption of SSCM practices by participating companies

SSCM practices	Company A	Company B	Company C	Company D
Green manufacturing	It focuses on reuse of wastes, and environmental education and awareness of operators and production supervisors	No integration to service production	It focuses on strengthening green performance through reducing the amount of energy and resource utilization in the production processes via new technologies	It focuses on sustainable construction from the perspectives of the improvement of the quality of the internal environment, and efficient water and energy consumption
Labor practices	Apart from legally required benefits and health and safety dispositions, it focuses on sponsoring housing assistance and education programs for workers	Apart from legally required benefits and health and safety dispositions, it focuses on helping workers to finance higher education	The actions taken on labor practices, attraction, retention and development of human talent are framed on Global Compact principles	Apart from legally required benefits and health and safety dispositions, it focuses on quality of working life and the promotion of and generation of employment for people who are in physical, cognitive or sensory disability
Eco-design	Not yet integrated	Organic or eco-friendly coffee from organic farming with no chemical fertilizers and with other socially sustainable practices	Development of a new product called *green cement*, which contributes with less CO_2 emissions, water, and energy consumption	Partially integrated into packaging choices for consumers
Product responsibility	Not yet integrated	Not yet integrated	Not yet integrated	Not yet integrated
Green logistics	Not yet integrated	Not yet integrated	Partially integrated; it focuses on reducing carbon footprint	Integrated; focus on reducing packing, load planning and optimization, and route optimization
Green purchasing	Not yet integrated: it focuses on traditional criteria in the selection and evaluation of suppliers (price, quality and delivery) and still pays little attention to environmental criteria	Not yet fully integrated; environmental criteria for the selection of packaging supplier	Traditional and environmental criteria are considered in the selection and evaluation of green suppliers: focus on assessment and collaboration (supplier development)	Traditional and environmental criteria are considered in the selection and evaluation of suppliers: focus on assessment and partially on environmental collaboration (supplier development)

SSCM practices	Company A	Company B	Company C	Company D
Environmental collaboration with customers	Not yet integrated	Not yet integrated	Partially integrated through consumer training towards end-of-life cement bag recovery	Not yet integrated
Reverse logistics	Not yet integrated	Not yet integrated	Partially integrated in end-of-life bag collection	Partially integrated (focus on recycling of electrical and electronic equipment)
Community relationships	Direct involvement on welfare programs for the surrounding community: focus on cultural activities (fairs, sports championships)	Not yet integrated	Direct involvement through funding welfare programs for the surrounding community: focus on education (infrastructure and quality), construction and improvement of housing of social interest, community infrastructure, and economically sustainable productive projects	Direct involvement on welfare programs to the surrounding community: focus on enhancing the participation of its workers in volunteering, stretching alliances with institutions that share interests, and supporting national government education programs
Social and environmental partnerships (SEPs)	Partially integrated (housing projects in alliances with local administrations and industrial associations)	Not yet integrated	Completely integrated (diverse partnerships with academic, industry and governmental actors, at both the national and international levels)	Completely integrated (partnerships at the national level with governmental and industry actors)
Socially responsible purchasing	Not yet integrated	Partially integrated: focus on buying some items from small suppliers and emerging businesses	Partially integrated: focus on requiring the contractor / supplier the compliance with industrial safety standards, social protection standards, and social security regulations	Partially integrated: focus on requiring the contractor / supplier the compliance with industrial safety standards, social protection standards, and social security regulations
Supply chain management capability	Purchasing policies and written procedures	Clearly intended purchasing policies, but with no documented procedures	Clearly stated documented purchasing procedures and cross-functional teams in environmental activities	Clearly stated documented purchasing procedures and cross-functional teams in environmental activities
Support from upper and middle management for social and environmental initiatives	Evidence of top management support, but low middle management support	Evidence of strong top management support	Evidence of strong top and middle management support	Evidence of top and middle management support

SSCM practices	Company A	Company B	Company C	Company D
Competitive advantage	Improvement of corporate image with local community and access to new markets	No competitive advantage derived from product certification	Improvement of operating efficiencies and reduction of production costs; enhanced reputation with shareholders	Improved relationship with regulators and staying ahead of regulatory requirements; enhanced reputation with other companies.

Source: Own elaboration.

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