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GREEN PRACTICE MOTIVATORS AND PERFORMANCE IN SMES: A QUALITATIVE COMPARATIVE ANALYSIS

Lilia Rekik
TELUQ, Université du Québec

Francois Bergeron
francois.bergeron@teluq.ca
TELUQ, Université du Québec

ABSTRACT

Green practices are necessary to fight global warming and save scarce resources. SMEs, which represent more than 90% of organizations, play a critical role in this endeavor. This research uses a qualitative comparative analysis, based on Boolean mathematics, to explore SMEs' motivation to implement green practices and inquire about the resulting performance. This research model is based on Porter's Value Chain and Triandis' Theory of Reasoned Action. Fifteen (15) SMEs from three countries (Canada, Tunisia and Morocco) where interviewed for the research. Various groupings of SMEs' motivators associated with a high level of green practices were found. The grouping profiles involved the organizational culture, expected consequences, facilitating conditions, and socioeconomic factors. Implementing green practices was found to be beneficial to SMEs both in terms of financial and environmental performance. The specific green practices characterizing high financial performing SMEs varied among firms; the grouping profiles involved the inventory practices, waste treatment and disposal and inbound logistics. Green practices characterizing high environmental performing firms gathered in profiles based on the operations, waste treatment and R&D. No unique causal condition was found for green practice motivators but the culture revealed to be a sufficient condition for one of the green practice configurations, while inventory practices, operations, waste treatment and R&D appeared to be sufficient for specific configurations of high performing SMEs.

Keywords: sustainability, green practices, motivators, performance, SMEs, qualitative comparative analysis.

INTRODUCTION

The sustainable supply chain management phenomenon is gaining attention worldwide (Lee, Cheol & Lee, 2016; Lu & Taylor, 2016; O'Donohue & Torugsa, 2016). Supply chain stakeholders (i.e., investors, shareholders, employees, suppliers and customers) wonder whether their organization and the supply chain in which they participate are environmentally, economically and socially responsible (Arend, 2014; Cosimato & Troisi, 2015; Malviya & Kant, 2015; Seuring & Müller, 2008). According to Freeman and Moutchnik (2013), this is a legitimate question. Based on the stakeholder theory, anyone who has a stake or claim in the firm can be considered a determining factor. At the opposite end of the spectrum, Friedman (1970) bases his judgment on the neo-classical theory and states that one should do what is legal but no more, unless the absence of a practice affects their market. Thus, there is no consensus as to the extent to which the firm is environmentally and socially responsible, but in both cases, it should be appropriate if it contributes to benefits.

The Green Supply Chain Management (GSCM) paradigm (Nikbakhsh, 2009) focuses on economic and environmental issues. In this context, when designing and managing supply chains, one needs to consider several environmental issues related, for example, to energy use, greenhouse gas emissions, material consumption, waste generation and the impact on biodiversity (Lu & Taylor, 2016). Considering solely the economic impact and excluding the environmental influence can make life on Earth more vulnerable to various threats such as global warming, toxic waste and natural resource depletion. Thus, GSCM plays a key role in the sustainability issue.

GSCM is an emerging field, but most research deals with large companies. While the real contribution of GSCM to the bottom line is still a subject of debate (Freeman & Moutchnik, 2013), the question remains unanswered for SMEs (Seuring & Müller, 2008; Svensson, 2007). The contribution of SMEs in the fight against global warming is a strategic issue since they represent more than 90% of organizations. Application of the sustainability concept in SMEs is still at an embryonic stage (Arend, 2014). SMEs are often unaware of what to do in terms of GSCM and may face greater obstacles than larger firms (López, Côté & Marché, 2005; O'Donohue & Torugsa, 2016; Prud'homme, 2009; Tamlyn, 2007; Tamri, 2008).

Research related to GSCM for SMEs has great potential in promoting sustainable approaches in this field (Arend, 2014; Dubey, Gunasekaran & Ali, 2015; Green, Zelbst, Meacham & Bhadauria, 2012). Going green is a value-added strategy and favors company image, which can ultimately help companies sell and export (Rekik, El Kamel, De Santa Eulalia & Bergeron, 2014). Other potential benefits include the reduction of costs (e.g., raw material, energy and insurance costs), the reduction of risks (e.g., waste bills and pollution fines, water and energy shortage). As well as, the improvement of productivity (e.g., by using natural light and ventilation), an increase in property value (e.g., lowering operating costs), the creation of a healthier environment (e.g., less toxins and cleaner air, less hazardous production processes) and the improvement of public image (improved public perception and community support, proving company liability) (Nikbakhsh, 2009). These benefits can only occur if the SME owner-manager is determined to implement green practices. Thus, favorable individual and organizational conditions should exist for that purpose; however, there

is a dearth of research on which antecedent conditions motivate SME owner-managers to implement green practices. This relationship also needs to be studied.

Better understanding of the individual and organizational context that induce the owner-manager to implement green practices and the financial and environmental outcome of these actions will help fill the gap in the introduction of GSCM in SMEs. The goal of this study is to identify the antecedent conditions to the implementation of green practices and the contribution of these practices to the firm's financial and environmental performance.

CONCEPTUAL FOUNDATIONS

The building blocks in the study of green practices in SMEs are three-fold: green practices, motivations for adoption and performance.

Green practices

There are various approaches to studying green practices but the supply chain approach is undoubtedly very popular. For a 15-year period, ranging from 1998 to 2013, Malviya and Kant (2014) found 177 articles containing the term "green supply chain". One model of GSCM is the Green Supply Chain Reference Model (LMI 2010; SCC 2010). This model, developed by the Supply Chain Council, addresses the impact of sustainable activities at each stage of the product life cycle. It is a generic and has a cross-industry framework for GSCM that outlines best practices and potential metrics. For Rao and Holt (2005), this concept is related to inbound logistics, production and outbound logistics. It is based on Porter's value chain model which states that "pollution reduction provides future cost savings by increasing efficiency, reducing compliance costs, and minimizing future liabilities" (Lu & Taylor 2016, p.4). Like most research and relevant contributions to GSCM however, it has been designed and applied mostly to large organizations. Given the difference between large organizations and SMEs, the value chain model must be tested in the context of green SMEs.

As for information technology, Burke and Gaughran (2006) explain that its use in assisting SMEs in the management of their environmental impacts is a key research question. Despite the fact that the US Environmental Protection Agency (Lopez et al., 2005) notes that information has a key role to play in supply chain management, no comprehensive analysis of its role and impact on GSCM initiatives in SMEs has been found. The role of IT systems in the contribution to green supply chain management is unclear and therefore worth investigating.

Practices related to green product design have been recognized as important business practices in recent years and their influence on environmental and green performance was observed at an empirical level (Hong, Kwon, & Roh, 2009). That said, not much is known about green research and development activities in SMEs and their relationship with company performance.

Finally, in terms of key performance indicators, Rao, Singh, O' Castillo, Intal, and Sajid (2009) reported that SMEs implementing adequate metrics could enhance their environmental and business performance. Environmental indicators allow companies to measure their performance and identify gaps between actual performance and industry standards, norms and competitors. These authors recommend the use of environmental indicators for SMEs and recall

that a full-blown environmental management system is not necessary for that purpose.

Adoption motivations

Motivations for adopting green practices have not been well studied in literature (Arend, 2014; O'Donohue & Torugsa, 2016). Sarkis, Shu, and Lai (2011) conducted a theoretical organizational review of green supply chain management literature and identified the diffusion of innovation theory, path dependency theory, social embeddedness theory, structuration theory and agency theory as promising organizational theories for GSCM research. They concluded that there is ample room for new theories examining the introduction, diffusion and management of GSCM.

Various internal and external sources impact a company's decision to implement green practices. External motivation may come from customers and buyers who request particular services such as recycled paper or environmental certifications. Other sources of external motivation are the government, competitors, society, banks and insurance companies (Tachizawa, Gimenez, & Sierra, 2015). Adoption motivation can also be internal to the company. The CEO's (owner) culture, beliefs and values may be a major source of motivation. The expected consequences such as a low cost of implementing green practices can also be a source of motivation. Facilitating conditions such as employee and shareholder support and financial support from governments can play a role.

In SMEs where the owner-manager plays a central decisional and managerial role, Triandis' Model of Reasoned Action (1988, 1971), which is an extension of Ajzen and Fishbein's framework (1980), can be useful in explaining an SME's motivation to embrace green practices. In his attempts to explain user behaviors, Triandis (1980) proposed a model of beliefs, attitudes and behavior that includes a network of factors that may influence behavioral intentions and behavior itself. Triandis' model includes a large number of variables that relate behavior to intentions and to other factors such as habits, relevant arousal and facilitating conditions (Bergeron, Raymond, Rivard, & Gara, 1995). In the context of GSCM, Triandis' Model of Reasoned Action helps to focus on a large number of factors that may influence behavior. For the purpose of this study, the selected factors are: culture, values, consequences, facilitating conditions and socioeconomic factors.

Performance

The relationship between environmental responsibility and firm performance is important. "… Stricter environmental regulation will force firms to focus on technology innovation while paying attention to pollution reduction, production costs and increasing sales. We may call this a win-win approach" (Lee et al., 2016, p.41). The benefits of implementing green practices can be divided into three categories: economic, social and environmental (Paulraj 2011; Seuring & Müller, 2008; Thoo, Abdul Hamid, Rasli & Zhang, 2014). The economic dimension refers to the company's financial performance. Evidence in scientific literature shows a positive financial impact resulting from the adoption and implementation of green practices. This impact comes from "two mechanisms: 1) increased revenue via improved access to existing and new markets based on enhanced products and services differentiated by their greenness; 2) improved cost management via better risk management, and reductions in cost of production, materials

and services, labor and capital" (O'Donohue & Torugsa, 2016, p. 243). Financial performance can be measured by improved growth and profitability, and indirectly through image improvement (El Kamel, Rekik, Taieb, & Bergeron, 2015; Venkatraman, 1989). The social dimension refers to the company's social responsibility and is linked to its corporate image. Environmental performance generally refers to the protection of the natural environment (Prud'homme & Raymond, 2013). It can be observed in improvements in pollution level, the use of scarce resources including energy, and fewer wasted resources.

RESEARCH MODEL

This research aims at understanding what motivates SMEs to implement green practices, the green practices implemented and the results in terms of environmental and economic impacts. The research model is presented in Figure 1.

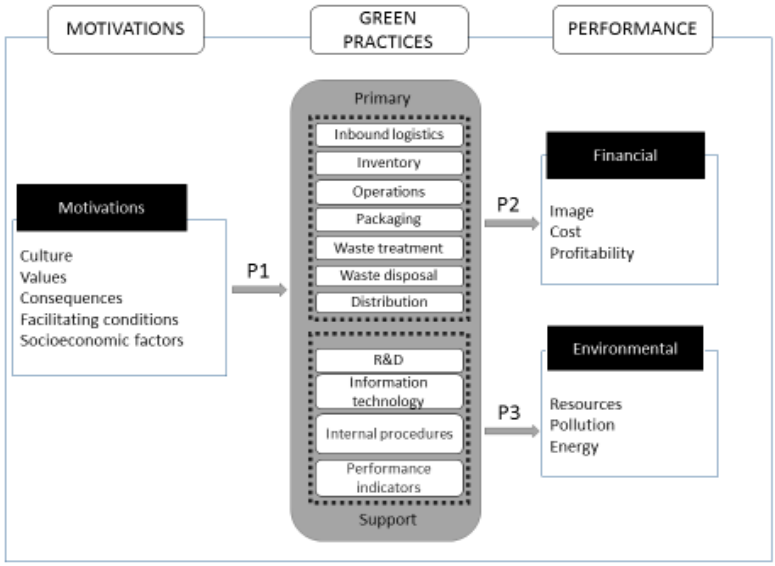

Figure 1. Research model

This model can be situated in a global economy perspective but in this case, it is more specifically applied to SMEs. Green practices for SMEs vary but can be linked to the value chain's primary activities (inbound logistics, production, outbound logistics, sales and marketing) and support activities (information technology, product development and green performance indicators).

The adoption of green practices and its consequences on performance are studied using Triandis' Model of Reasoned Action (Triandis 1980). Triandis' model relates individual behavior to intentions while complementing it by various background factors. Triandis' model has already been used in an organizational context (Bergeron et al., 1995). It is adapted here to explain an individual's (owner-manager) intention to act within a SME organizational context. It gives

more emphasis to external and internal motivators. Small companies can be influenced by external elements such as customers, suppliers, non-governmental communities and governments (Arend, 2014; Chie & Shih, 2007; Lee, 2008;). In conjunction with the institutional theory (DiMaggio & Powell, 1983), companies can also be influenced by green practices implemented in other organizations. Attitudes and perceptions can influence the adoption of new technologies within SMEs (O'Donohue & Torugsa, 2015; Perron, 2005). In this research, the background factors involved in the implementation of green practices are 1) organizational culture, 2) personal values, 3) expected consequences, 4) facilitating conditions and 5) socioeconomic factors. When applied to the behavior of introducing, disseminating and managing green practices in a SME, Triandis' Model of Reasoned Action should allow to understand what motivates SMEs (through its owner-manager) to implement green practices. This rationale leads us to this first proposition:

Proposition #1: Culture, consequences, facilitating conditions, values and socioeconomic factors are linked to the adoption of green practices.

Another important element in the proposed research is organizational performance. Chie and Shih (2007), Dubey et al., (2015) and, Rao and Holt (2005) demonstrated that companies that adopted green practices in response to the current wave of global green issues generated favorable environmental and financial performances. The viability of achieving good balance between environmental and financial performance is a serious concern among companies implementing green practices (Lee et al., 2016). Financial performance is based on three elements. The first is related to costs (e.g., cost cuts due to material purchasing, energy consumption, waste processing and discharge, and the avoidance of a fine in the case of an environmental accident, for instance). The second is profitability (e.g., new products and growth of market niches for green products). The third element is the company's social responsibility, which contributes to financial performance (e.g., through a better company image). SMEs have limited financial resources (Arend, 2014; Rao, 2002) and as such, any action ultimately has an effect on the bottom line. Environmental performance is related to emissions (mainly greenhouse gases), energy consumption, resource consumptions, waste disposal and biodiversity preservation (Malviya & Kant, 2015). This potential link between the implementation of green practices and performance leads us to the second and third propositions:

Proposition #2: Green practices are linked to financial performance.

Proposition #3: Green practices are linked to environmental performance.

METHODOLOGY

Data collection

A multiple-case study method was used, as proposed by Linton, Klassen, and Jayaraman (2007) who advocate the importance of relying on different data collection approaches to study sustainable development. Given a lack of research on sustainable development in SMEs, we used a deductive approach based on multiple-case studies. To increase the sample size, we used personal contacts and the "snowball technique" where respondents were asked to refer potential SMEs with similar

organizational characteristics to the researchers (Brace-Govan, 2004).

The respondents were owner-managers of 15 SMEs from three countries: Tunisia (6), Canada (5) and Morocco (4), and 2 industries: chemical (8) and agro-chemical (7). These two sectors were selected to examine areas where sustainable development is likely to occur and to limit the variability linked to different industrial sectors The number of employees was: less than 15 (4), 16 to 45 (6) and more than 45 (5). None of the SMEs were green certified but all had adopted some green practices.

Data was collected using face-to-face interviews with the owner-managers of the selected SMEs. Semi-structured interviews with open questions were used. These questions were written in such a way as to ensure that the respondents addressed all dimensions of the research model, leaving them free to comment on their approach to sustainable development, green practices and the results obtained. The interviews were conducted at the firms and lasted between 60 and 90 minutes. The interview guide includes four themes. The first is a general introductory set of questions related to sustainable practices in SMEs. These questions address the existence of an explicit internal green management policy within the company and the conditions to the implementation of such practices. The second theme relates to the company's motivations leading to the adoption of sustainable practices in the GSCM process. The third theme attempts to guide the respondent toward a detailed description of its green practices in terms of the value chain. The fourth theme addresses the financial and environmental impacts of the adoption of such practices. The data collected during the interviews was coded as crisp and fuzzy sets, which were then used for data analysis.

DATA ANALYSIS

This study uses a set-theoretic approach based on a Qualitative Comparative Analysis (QCA), an analytic technique that provides suitable means to accommodate complex complementarities and nonlinear relationships among constructs (Ragin, 2000, Woodside, 2010). This type of analysis is based on a configurational understanding of how conditions or causes combine to produce a specific outcome. The basic intuition underlying QCA is that cases are best understood as configurations of attributes resembling overall types and a comparison of cases can allow a researcher to remove attributes that are unrelated to the outcome (Fiss, 2011). QCA uses an approach to solve causality that investigates an outcome as the product of how conditions combine together (Blackman, Wistow, & Byrne, 2011). QCA seeks to explain why certain cases have specific outcomes. It has its roots in qualitative case study, but the method has a mathematical foundation and uses Boolean algebra and algorithms that change the logical reduction of numerous complex causal conditions into a reduced set of configurations leading to the outcome. It combines the benefits of case-oriented and variable-based methods (such as regression techniques). QCA is particularly suited for small (5-15) sample sizes (Ragin, 2008b, 2000, 1987). The small-N aspect is one of the most significant benefits of QCA.

The truth tables were generated using the fs/QCA software. Raw coverage shows the proportion of memberships in the outcome that are accounted for by each particular combination of attributes. Unique coverage is the proportion of membership in the outcome that is attributable only to the particular combination. In this study, we consider all configurations characterized by 1 or more to

be empirical observations. Coverage scores are used for judging the empirical relevance of solutions (Rihoux & Ragin, 2009). Consistency refers to the degree of conformity with necessity/sufficiency hypotheses. It equals the proportion of cases that exhibit a given configuration of attributes as well as the outcome. The solution coverage indicates the proportion of cases that are covered by all reported configurations. The solution consistency assesses the degree to which configurations are subsets of the outcome (Ragin, 2008b).

The following results applied to the parsimonious solutions of the three truth tables. In this study, the consistency cut-off point was set at .80 and the minimum frequency was equal to 1. All consistency values and solution consistencies met these criteria, satisfying the consistency threshold of .8 set by Ragin. The solution coverage varied between .82 and .92, satisfying indicating that these configurations represent the large majority of high performing SMEs.

MEASUREMENT

In the QCA technique, both the causal conditions (i.e., motivators) and outcome (i.e., green practice performance) are represented using a crisp or fuzzy set of scores. The crisp set, analogous to dummy variables, codifies variable 1 when the condition is present and 0 when it is not. The fuzzy set transforms the data into an interval scale varying between 0 and 1. The variables of the current study were measured using a combination of crisp and fuzzy sets. The type of set and the calibration values were selected using Ragin's (2008b, 2008a, 2000, 1987) recommendations.

Culture (crisp set). The culture refers to the degree to which sustainability has characterized the organization for a long period of time. This variable is coded 1 if the culture is cited as a motivation for adopting green practices and 0 otherwise.

Values (crisp set). This refers to the manager's personal values. This variable is coded 1 if the manager's personal values are cited as a motivation for adopting sustainable practices in the company and 0 otherwise.

Consequences (crisp set). The consequences are the expected outcome of implementing and using green practices. This variable is coded 1 when perceived consequences of using green practices in the company's value chain are expected and 0 otherwise.

Facilitating conditions (fuzzy set). This variable indicates the extent to which conditions facilitate the implementation of green practices in the value chain. Facilitating conditions include employee collaboration, stakeholder collaboration and government support. The variable of facilitating conditions is calibrated as a five-value fuzzy set (support of: employee + stakeholder + government = 1; employee + government = .9; employee = .8; government = .6; none = 0). The cross-over value was set at .5.

Socioeconomic factors (fuzzy set). This variable considers three socioeconomic factors that can influence the company's use of green practices: certification (i.e., ISO 14000, ISO 9000, EMAS, etc.), intentions to obtain a certification and the constraint of a certified client. The variable of socioeconomic factors is coded as a six-value fuzzy set (presence of: certification + certification intention + buyer requirement =1; certification + buyer requirement =1; certification intention + buyer requirement = .9; buyer requirement = .9; certification + certification intention = .8;

certification = .7; certification intention = .3; none = 0). The cross-over value was set at .5.

Green practices (crisp set). The green practices considered in our analysis are linked to two types of activities: primary and support activities. Primary activities refer to inbound logistics, inventory, operations, packaging, waste treatment, waste disposal and distribution. Support activities refer to research and development, internal green management procedures (like paper or plastic procedures), information technology and use of financial and environmental performance indicators. Green practice level is measured by the number of primary and support activities in which green practices are implemented, as reported by the interviewees. If this number is equal to 6 or more, the green practice variable is coded 1, indicating a high level of company commitment to sustainable development activities and 0 otherwise, showing a low level of green practices.

Financial performance (crisp set). This variable indicates the perceived impact of using green practices on the company's financial performance, which is measured using four items: a positive impact on company profit, improved company image, an economic impact related to waste treatment or recycling and cost saving linked to the use of recycled packaging. If the interviewee cites three or more of these items, the variable is coded 1, indicating a high performance company using green practices and 0 otherwise (if two items or less are cited).

Environmental performance (crisp set)

This variable is coded 1 if the company perceives that using green practices in its chain value has a positive environmental impact (reduction of pollution, energy savings, or another environmental impact) and 0 if no environmental impact is perceived.

RESULTS AND DISCUSSION

The goal of this study was to identify the motivators toward the adoption of green practices, the green practices linked to financial performance and the green practices linked to environmental performance. The results of the parsimonious solutions are presented in Tables 1, 2, and 3. The intermediate solutions are in the Appendix. In the solution tables, black circles indicate the presence of an element, white circles indicate the absence of an element, blank spaces indicate a "do not care" situation in which the causal element may be either present or absent (notation adapted from El Sawy, Malhotra, Park, & Pavlou, 2010; Fiss, 2011; Misangyi & Acharya, 2014).

Testing of Proposition #1: *Culture, consequences, facilitating conditions, values and socioeconomic factors are linked to the adoption of green practices.* Results in Table 1 show that three different configurations were found to be associated with the adoption of green practices.

According to the solution, SMEs that adopt green practices are characterized by either 1- culture, 2- expected consequences, facilitating conditions and socioeconomic factors, or 3- values, expected consequences or facilitating conditions. In general, no cause is either necessary or sufficient to characterize the outcome, a high level of green practices in the supply chain, except for the causal condition culture, in one configuration. The first configuration (solution 1) indicates that 67% of SMEs characterized by an organizational culture promoting sustainable development have implemented green practices.

Table 1
Truth Table of Green Practices Motivators- Parsimonious Solution

Solution	Causal conditions					Coverage		Consistency
	Culture	Values	Consequences	Facilitating conditions	Socio-economic factors	Raw	Unique	
1	●					.67	.67	0.86
2			●	●	●	.19	.00	1.00
3		●	●	●		.19	.00	1.00

Frequency cut-off: 1.00
Consistency cut-off: 0.83
Solution coverage: 0.82
Solution consistency: 0.89

Table 2
Truth Table of High Financial Performance - Parsimonious Solution

Solution	Causal conditions							Coverage		Consistency
	Inbound logistics	Inventory	Operations	Packaging	Waste treatment	Waste disposal	Distribution	R&D	Raw	Unique	
1		●							.43	.29	1.00
2					●	●			.29	.14	1.00
3	●				○	○			.29	.29	1.00

Frequency cut-off: 1.00
Consistency cut-off: 1.00
Solution coverage: 0.86
Solution consistency: 1.00

Table 3
Truth Table of Environmental Performance - Parsimonious Solution

Solution	Causal conditions								Coverage		Consistency
	Inbound logistics	Inventory	Operations	Packaging	Waste treatment	Waste disposal	Distribution	R&D	Raw	Unique	
1			●						.75	.25	1.00
2								●	.50	.00	1.00
3					●				.50	.00	1.00

Frequency cut-off: 1.00
Consistency cut-off: 1.00
Solution coverage: 0.92
Solution consistency: 1.00

The second and third configurations (solutions 2 and 3) share expected consequences and facilitating conditions as causal conditions, whereas manager values and socioeconomic factors are additional conditions exhibiting a substitutive relationship with respect to the outcome. Both manager values and socioeconomic factors must be combined with expected consequences and facilitating conditions to represent groups of SMEs characterized by a high level of green practices (in 19% of cases).

Testing of Proposition #2*: Green practices are linked to financial performance.* Three different configurations were found to associate the adoption of green practices with high financial performing firms (Table 2). According to the solution, high financial performing SMEs were characterized by the adoption of green practices for either 1- inventory, 2- waste treatment and waste disposal, or 3- inbound logistics but no waste treatment or waste disposal. No specific green practice is either necessary or sufficient to characterize high financial performing firms, except for the inventory causal condition which is sufficient in solution 1, representing 43% of the cases.

Testing of Proposition #3: *Green practices are linked to environmental performance.* Again, three different configurations were found to associate the adoption of green practices with high environmental performing firms (Table 3). The solution indicates that high environmental performing firms are characterized by the adoption of green practices for either 1- operations, 2- R&D or waste treatment. In general, no specific causal condition was identified as either necessary or sufficient for all the cases but three causal condition taken separately was sufficient for some solutions: operations (75%), R&D (50%) and waste treatment (50%).

The research model, based on Triandis' Theory of Reasoned Action and the Porter's value chain, proved useful is characterizing high performing SMEs. The choice of culture, values, consequences, facilitating conditions and socioeconomic factors as main causal conditions of green practices implementation in SMEs revealed to be adequate. Indeed, the high levels of solution coverage and solution consistency confirm that Triandis' behavioral theory is a powerful approach to identify the motivators of green practices implementation. Another contribution of this research is to learn which configurations of green practices characterize high financial and high environmental performing organizations. There are however some limitations to these findings concerning the reliability of data obtained from interviews, the sampling method, the limited diversity of industry respondents and the need to increase the sample size to generalize the results.

IMPLICATIONS

Better understanding of the individual and organizational context that induce the owner-manager to implement green practices and the financial and environmental outcome of these actions will help fill the gap in the introduction of GSCM in SMEs. The goal of this study is to identify the antecedent conditions to the implementation of green practices and the contribution of these practices to the firm's financial and environmental performance.

This research has several implications for practitioners and academics. For practitioners, various conditions may lead SMEs to implement green practices. On an organizational basis, SME culture is certainly an important aspect. On an individual basis, it is the values of the SMEs' owner-manager that can make a difference. In financial and managerial terms, the expected consequences,

facilitating conditions and a favorable socio-economic environment are often the drivers of green practice implementation. Not all conditions need to be met simultaneously to succeed in implementing green practices. In terms of financial performance, there are very few quantifiable results and most of what is perceived is more of a qualitative type. Still, owner-managers generally do not feel that they are losing money in this endeavor. They are generally more inclined to conclude in positive financial results. The same goes for environmental performance as SMEs admit not being able to measure the exact effect of their actions on the environment but feel that they are on the right track on several dimensions of sustainability. For academics, it is suggested to work on validated measures of the green practices implemented in SMEs, and on the refined measure of financial and environmental performance. It is also appropriate to continue studying the causal conditions of effective implementation of green practices in SMEs. Future research could be conducted in various service and manufacturing industries since they should differ somewhat on various aspects of this research. Research could be done on facilitating conditions and socioeconomic factors since these factors can be supported and improved by governments or industrial associations. Finally, it would be useful to develop tools that SMEs could use to better evaluate the environmental impact of their green practices.

CONCLUSION

This exploratory study on the adoption of green practices in SMEs and their effects on performance is a first step in understanding the dynamics of greener SMEs. The primary conclusion is that no unique cause is either necessary or sufficient to explain the adoption of green practices by SMEs and its effect on performance. There are however group of causal conditions that are sufficient to lead to the outcome. Thus, the answer to the research question is in various configurations that all lead to the desired outcomes. In terms of adoption motivations, three groups of motivators have been observed linking the implementation of more green practices in firms. A first group of SMEs is characterized by only one motivator, the organizational culture. A second group of SMEs is characterized by the owner-manager's perceived positive consequences of adopting green practices, facilitating conditions and socioeconomic factors. The third group is similar to the second except that the owner-manager's values replace socioeconomic factors.

The financial and environmental outcomes of the green practices implemented are also of interest. Three profiles of green practices are observed in high financial performing SMEs. They get their positive financial results either from a green inventory management approach, waste treatment and disposal practices, or optimized inbound logistics with no particular waste treatment and disposal. It can be concluded that implementing green practices is not necessarily costly. It can even profit the company. The environmental outcome is also positive. Owner-managers from high environmental performing SMEs perceive that green practices lead to positive environmental results when these practices target operations, waste treatment or R&D.

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APPENDIX

Table A1

Truth Table of Green Practices Motivators- Intermediate Solution

Solution	Causal conditions					Coverage		Consistency
	culture	values	consequences	facilitating conditions	socioeconomic factors	Raw	Unique	
1	●	●	○	●		.53	.53	0.84
2	●	○	○	○	●	.10	.10	1.00
3	○	●	●	●	●	.19	.19	1.00

Frequency cut-off: 1.00
Consistency cut-off: 0.83
Solution coverage: 0.82
Solution consistency: 0.89

Table A2

Truth Table of High Financial Performance - Intermediate Solution

Solution	Causal conditions								Coverage		Consistency
	Inbound logistics	Inventory	Operations	Packaging	Waste treatment	Waste disposal	Distribution	R&D	Raw	Unique	
1	●	○	○	●	○	○	●	○	.14	.14	1.00
2	●	○	●	●	○	○	○	●	.14	.14	1.00
3	○	●	●	●	●	●	○	○	.14	.14	1.00
4	●	●	●	●	○	●	○	○	.14	.14	1.00
5	●	●	●	●	●	○	○	○	.14	.14	1.00
6	●	○	●	●	●	●	○	●	.14	.14	1.00

Frequency cut-off: 1.00
Consistency cut-off: 1.00
Solution coverage: 0.86
Solution consistency: 1.00

Table A3

Truth Table of Environmental Performance - Intermediate Solution

Solution	Causal conditions								Coverage		Consistency
	Inbound logistics	Inventory	Operations	Packaging	Waste treatment	Waste disposal	Distribution	R&D	Raw	Unique	
1	●	○	●	●			○	●	.33	.33	1.00
2		○	●	●	○	●	○	○	.17	.08	1.00
3	●		●	●	○	●	○	○	.17	.08	1.00
4	●	○	○	●	●	○	○	●	.17	.17	1.00
5	○	●	●	●	●	●	○	○	.08	.08	1.00
6	●	●	●	●	●	○	○	○	.08	.08	1.00

Frequency cut-off: 1.00
Consistency cut-off: 1.00
Solution coverage: 0.86
Solution consistency: 1.00