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Socially responsible supply chain initiatives and their outcomes: a taxonomy of manufacturing companies

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Abstract

Purpose – This paper aims to propose a taxonomy based on socially responsible practices across supply chains. The authors compare and contrast different socially responsible initiatives in manufacturing supply chains and their effect on economic performance, socially responsible outcomes and manufacturing costs.

Design/methodology/approach – This study is based on survey data collected in 262 manufacturing plants located in 15 countries. Cluster analysis is conducted to develop the research taxonomy. Moreover, socially responsible initiatives were compared on a country level. Finally, multiple regressions were performed to identify associations between performance, manufacturing and socially responsible variables.

Findings – The taxonomy was constructed based on four socially responsible corporate dimensions (legal, ethical, discretionary and economic). The results identified three clusters of manufacturing organizations that adopt different approaches to socially responsible initiatives across supply chains and their performance.

Originality/value – Previous studies explored the elements and the impacts of the go-no-go decisions in the intersection between CSR and the supply chain. The present study brings new insights by analyzing how socially responsible initiatives in supply chains and their performance are different. Moreover, the sample encompasses 15 countries, and it proposes a taxonomy and directions to support the managers' decision-making process.

Keywords Corporate responsibility, Empirical study, Cluster analysis, Supply chain ethics, Supplier-manufacturer relationships, SCM performance

Paper type Research paper

1. Introduction

Social initiatives of companies and their suppliers have become essential guides for managing supply chains. Additionally, the concept of corporate social responsibility (CSR) has disseminated crucial obligations that businesses have to society in the past decades (Rolland and O'Keefe Bazzoni, 2009). Nevertheless, several examples in recent years have shown how companies have failed to invest resources and monitor their suppliers' social initiatives (Voss *et al.*, 2019). These failures have resulted in dramatic social, economic and environmental impacts. These issues include, for example, exploitation in the Bangladeshi garment industry and its collapse (Manik *et al.*, 2013; Sinkovics

et al., 2016) and a series of suicides in Foxconn (Chan and Pun, 2010; Lucas *et al.*, 2013), to cite just two. Furthermore, in 2016, an estimated 40.3 million people were believed to be the victims of modern slavery worldwide, being 5.9 adult victims of modern slavery for every 1,000 adults globally and 4.4 child victims for every 1,000 children (International Labor Organization & Walk Free Foundation, 2017).

The externalities that have harmed third parties have motivated stakeholders to demand that these same companies either create positive effects or reduce negative impacts

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(Freeman, 1984; Sarkis *et al.*, 2010). Based on the stakeholders' theory, managers should identify "[...] what kinds of relationships they want and need to create with their stakeholders to deliver on their purpose" (Freeman *et al.*, 2004, p. 364). Influential stakeholders can, either formally or informally, pressure companies to engage in socially responsible practices and require that their suppliers comply with ethical, regulatory and international labor laws (Sarkis *et al.*, 2010). As a result, a growing number of companies have recognized the need to audit and collaborate with suppliers and customers to strengthen the social responsibility of their supply chains (Sancha *et al.*, 2015). Nevertheless, it is unclear whether companies and their supply chains with higher levels of socially responsible initiatives present higher performance.

In this context, CSR initiatives provide supply chains with elements for dealing with social issues while simultaneously focusing on leveraging performance (Yawar and Seuring, 2015). However, despite the emergence of CSR as an element present in supply chain strategy (Rajesh, 2020), in practice, it is not easy to integrate socially responsible initiatives throughout the supply chain. Tensions arise between the orientation to maximize economic outcomes and the development of socially responsible initiatives (Richard *et al.*, 2015; Ferri and Pedrini, 2018; Chen and Chen, 2019). The increasing complexity of global supply chains has also presented organizations with additional challenges in managing social issues in their supply chains (Villena and Gioia, 2020). While organizations have increasingly tried to implement socially responsible initiatives in their supply chains, the uncertain impacts of these initiatives on performance can paralyze organizations in a traditional management paradigm that focuses only on the economic side and that ultimately has an opposite effect on social responsibility (Gold *et al.*, 2015). There is also a commonly held belief that socially responsible practices can be costly for organizations, despite a significant part of the researchers asserting that they pay off. Moreover, the literature on the intersection between supply chain management (SCM) and CSR provides insights into social responsibility and outcomes (Yawar and Seuring, 2015; Akbari and McClelland, 2020). However, these studies have presented mixed empirical findings (Seuring and Müller, 2008; Lee, 2016). Some inconsistency of results found regarding outcomes can be caused by the complexity of the theme (Wu *et al.*, 2017), the plethora of moderators for the relationship between practices and outcomes (Kauppi and Hannibal, 2017), sample choices (e.g. middle-size organizations in Lee, 2016) or countries' specificities (Chapple and Moon, 2005; Lee, 2016; Akbari and McClelland, 2020).

Considering these elements, one can easily infer that one size does not fit all. Precisely, there are different results found by prior studies on varying levels of adoption of social responsibility initiatives in supply chains and their relation with performance (Yawar and Seuring, 2015; Shafiq *et al.*, 2019). Therefore, more research is still needed (Miemczyk and Luzzini, 2019).

1.1 Purpose of this study and contributions

Much has changed in the past few decades about the worth of social responsibility in managing supply chains. Stakeholders' pressure are present not only in the focal companies but also throughout their supply chains. Leading companies from different industries, such as fashion, toys and information

technology have developed CSR initiatives in their supply chains. The examples are related to using a transparent, sustainable supply chain; developing policies related to inclusion and diversity; supporting local communities; and reducing environmental impact (CSR Journal, 2021). As a result, practitioners and scholars have increasingly recognized the social responsibility worth. At the same time, although there is a substantial body of research about the theme, few studies have empirically demonstrated their effective adoption. Without realizing the potential harm when CSR initiatives are not present, organizations attempting to reduce costs at all costs may negatively impact their supply chains, causing clear impacts on the workers living conditions (Musleh Alsartawi, 2020; Reinecke and Donaghey, 2021; LeBaron, 2021). Conversely, when organizations are aware of the value of socially responsible initiatives across their supply chains, positive effects will arise not only for their partners but also for their own performance. To better understand this phenomenon, we contrast different levels of socially responsible supply chain initiatives and analyze their relationship with different outcomes. By shedding light on this phenomenon, we expect to support organizations to advance practices to strengthen the sustainability of businesses and promote decent work conditions.

In that sense, this study aims to answer the following research questions:

- RQ1. Are there different levels of adoption of socially responsible supply chain initiatives in manufacturing companies?
- RQ2. Is there a relationship between the level of adoption of these initiatives, performance and other outcomes?

Using survey data collected in 15 countries from three industries, our findings contrast different choices to manage social initiatives and its impact on organization performance. This study draws some substantial practical and theoretical contributions. First, it minimizes the potential tension between economic consequences and socially responsible initiatives. Second, the results also present an evolving process of socially responsible initiatives for SCM and evidences that when companies excel in their socially responsible endeavors, they can perform better. Finally, we provide a taxonomy that describes the orientations of companies toward socially responsible initiatives across supply chains.

2. Literature review

2.1 Supply chain management and corporate social responsibility

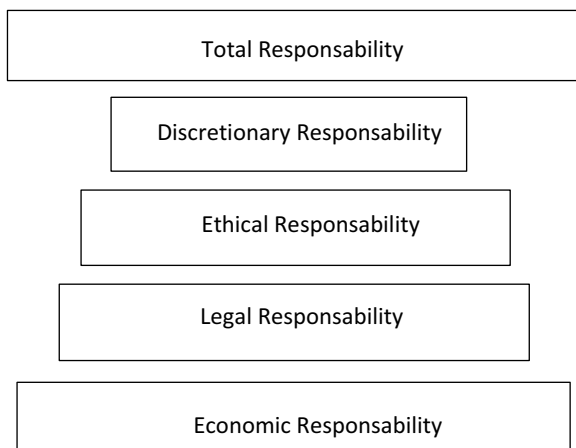
CSR in managing supply chains has gained increasing attention in recent years as organizations may be susceptible to suffering negative impacts (Manik *et al.*, 2013; Sinkovics *et al.*, 2016) because they neglect the socially irresponsible conduct of their suppliers. For example, China Labor Watch, a non-profit advocacy group, has investigated Apple and Foxconn (Apple's supplier) for violating a Chinese labor rule and creating harsh working conditions at Foxconn's plant in Zhengzhou in China (Gurman, 2019). It was not the first time that Apple's supplier had faced social issues involving its employees. In 2010, several workers committed suicide because of the bad-working conditions imposed by Foxconn (Merchant, 2017). Nike was

similarly accused of sourcing from suppliers using sweatshop labor in the 1990s; in some cases, the allegations even involved child labor (Conway, 2019). These incidents encouraged both organizations to develop a more thorough and socially responsible supply chain strategy because consumer retaliations have increased for indirectly involved organizations in socially irresponsible conduct.

Studies on CSR and SCM have often focused on different aspects, such as issues related to the social priorities implemented by purchasing managers and their effects on some of the dimensions of manufacturing performance (Miemczyk and Luzzini, 2019); the impact of modern slavery and how organizations should deal with this issue in their supply chains (Gold et al., 2015; New, 2015; Stevenson and Cole, 2018); and how ethical issues are considered in a supply-chain context (Eltantawy et al., 2009; Ferrell et al., 2013; Jiang, 2009; Maloni and Brown, 2006). Miemczyk and Luzzini (2019), for instance, found that supply chain social responsibility is positively related to performance when mediated by risk assessment practices. Thus, by developing CSR practices across supply chains, organizations seek to guarantee that economic gains are achieved through a value chain that acts respecting the law, adopting ethical behavior and supporting minority suppliers.

Nevertheless, the origins of the concept of CSR reveals a broad approach of principles ranging from economic issues to concerns with social responsiveness (Carroll, 1979). The main principles were integrated by Carroll (1979) in a framework to fully address the range of obligations that business has to society. These principles have enlightened the business practice in the past decades (Jamali and Mirshak, 2007). They are composed of four dimensions, namely, economic, legal, ethical and discretionary. They are not mutually exclusive or cumulative and do not represent a continuum (Carroll, 1979, 1991). However, the four dimensions are aggregative. Thus, an ethical corporation must be economically and legally responsible as well (Carroll, 1991). Jamali and Mirshak (2007, p. 247) stated that “[...] economic and legal responsibilities are socially required, ethical responsibility is socially expected while philanthropy (or discretionary) is socially desired.” Therefore, each of these responsibilities is a component of the total social responsibility, as shown in Figure 1.

Figure 1 Dimensions of CSR (Adapted from Carrol, 1991)



A revisited CSR model was proposed by Wood (1991). This new perspective addresses some aspects related to responsible behavior motivation, responsiveness process and outcomes. Wood (1991) stated that responsiveness complements the normative and motivational component of CSR. Environmental scanning/analysis of the external environment is the primary input for responsiveness. In this aspect, stakeholder management is a key aspect of CSR responsiveness. It is rooted in information directed to internal and external actors, including a set of devices such as employee newsletters, public affairs officials, labels and corporate social reporting (Rolland and O’Keefe Bazzoni, 2009). All these devices lead to transparency, an increasing requirement in CSR. Three policies for openness can enhance the companies CSR behavior as follows: command and control, facilitation (or self-governing actors) and self-regulating subsystems (Dubbink et al., 2008). Nevertheless, for a practical enhancement in CSR behavior, there is a need for more stringent policies as follows: “non-governmental organization (NGOs) complain that self-governance by companies is insufficient if only because the information produced is far too limited to be valuable to consumer and interest groups” (Dubbink et al., 2008, p. 402).

Moreover, CSR in SCM focuses on developing and implementing practices that serve a focal company’s economic objectives while addressing legal, ethical and discretionary responsibilities across supply chains (Carroll, 1991, 2016). Even though other aspects are used to measure CSR, these dimensions comprise the fundamental basis of socially responsible organizations, representing a growing and challenging trajectory (Carroll, 2016). Additionally, stakeholder theory helps us understand that CSR initiatives in supply chains should go beyond goals restricted to economic performance. Freeman et al. (2004, p. 365) claim that “[...] business is about putting together a deal so that suppliers, customers, employees, communities, managers and shareholders all win continuously over time.” Thus, companies (and consequently their supply chains) do not seek to act responsibly only to avoid growing stakeholder pressures. Instead, they would pursue an idea of a better or “good” society (Russo and Perrini, 2010), improving their actions related to social and ethical issues.

2.2 Legal responsibilities

Legal responsibilities comprise initiatives that organizations are obliged to follow by force (Carroll, 2016). Legal aspects that organizations face in their supply chains are related to bad working conditions, such as modern slavery and child labor (New, 2015; Stevenson and Cole, 2018; Cho et al., 2019). Among the many practices, organizations should adopt for dealing with modern slavery in their supply chains, ensuring that suppliers comply with child labor laws and do not employ sweatshop labor are crucial (Stevenson and Cole, 2018; Flanigan, 2018). Accordingly, even organizations that are not directly associated with suppliers that are eventually caught using child labor can be accused of complicity and face legal sanctions and damage to their reputations as a consequence (New, 2015).

Some initiatives allow organizations to play a more active role in restraining socially irresponsible behaviors in their supply chains. For instance, visiting a supplier’s operations can enable buyers to confront a supplier’s code of conduct with the social responsibility practices it adopts in its daily operations (New, 2015). Although

suppliers' codes of conduct shift over time (Altura *et al.*, 2019), visiting suppliers' plants helps avoid modern slavery, particularly in first-tier suppliers (Stevenson and Cole, 2018; Cho *et al.*, 2019). While visiting these plants enables illegal acts such as modern slavery to be detected, third-party monitors, who are widely employed for detecting supplier misconduct, can also be used as a remedy for dealing with criminal behavior (Stevenson and Cole, 2018). As a result, an increasing number of organizations have been exploring how to identify, evaluate and monitor supplier-related social issues and practices. Some possibilities are monitoring suppliers to ensure adherence to social expectations, carrying out audits and implementing independent certification (Awaysheh and Klassen, 2010; Hannibal and Kauppi, 2019; Outhwaite and Martin-Ortega, 2019).

Asking suppliers to pay a decent living wage according to the supplier's local costs is also an important socially responsible initiative (Campbell, 2007; Flanigan, 2018; Reinecke and Donaghey, 2021) that, if not practiced, may lead to working conditions that are similar to those of slavery (Crane, 2013). Locke *et al.* (2013) suggest that high-performance organizations are more highly motivated to demand that suppliers pay a decent or at least a minimum wage to their employees.

2.3 Ethical responsibilities

Complying with economic and legal responsibilities might not be enough for an organization to maintain a competitive position in the market. Organizations have also been subject to *ethical* expectations (Carroll, 1999, 2016); that is, organizations are expected to undertake their activities fairly and objectively in the communities they operate. The firm's ethical responsibilities might also reflect honor and respect for the moral rights of customers, suppliers, employees, communities and other stakeholders. In the supply chain, it can include, for example, compliance with sourcing within particular codes of conduct (Roberts, 2003; Asif *et al.*, 2019; Altura *et al.*, 2019).

In this sense, compliance strategies are seen as a source of avoiding stakeholder criticism and legitimizing the socially responsible behavior of firms to achieve better economic performance (Yawar and Seuring, 2015). When addressing social and ethical issues, the literature is based on the guidelines and codes of conduct that buying organizations adopt, but this is insufficient for guaranteeing a socially responsible approach (Hoejmose and Adrien-Kirby, 2012). Organizations also need to implement additional initiatives with their supply chain partners to address their social expectations (Yawar and Seuring, 2015).

Ethical responsibilities also include worker well-being. Social support from supervisors and co-workers can stimulate well-being through the impact this has on job satisfaction and involvement (Węziak-Białowolska *et al.*, 2019). Social objectives, involving working conditions and the development of a social community, minimize the negative social impact of the supply chain network (Arampantzi and Minis, 2017).

2.4 Discretionary responsibilities

Discretionary responsibilities refer to the assumption that a company will voluntarily serve society (Forte, 2013). Most organizations adopt discretionary or philanthropic practices as a way of demonstrating their good citizenship. However, some

of them have a genuinely altruistic motivation (Carroll, 2016). Examples of discretionary responsibilities in the supply chain include actions that engage employees, suppliers and other stakeholders in volunteering projects that support the weakest players in the supply chain and community activities (Morais and Silvestre, 2018).

Purchasing from minority groups is a growing element of supply chain strategy that comprises discretionary initiatives. It entails purchasing goods or services from organizations that are at least 51% owned, operated and controlled by women (Women Business Enterprise – WBE) or minorities (Minority Business Enterprise – MBE), such as people of color, disabled veterans, Asians, Hispanics or indigenous people (Adobor and McMullen, 2007).

Despite the tensions between economic orientation, cost optimization activities and social responsibilities (Swanson, 1995), recent studies have shown that the implementation of guidelines for starting and maintaining corporate supplier diversity programs do not compromise financial outcomes (Sancha *et al.*, 2015; Wu, 2010; Richard *et al.*, 2015; Paiva *et al.*, 2020). Thus, large corporations have developed formal M/WBE supplier purchasing programs to help M/WBE organizations access new markets. These programs have long-term effects because M/WBE organizations continue to grow even after their participation in the program has come to an end (Bates and Williams, 1995; Shelton and Minniti, 2018). Furthermore, the buying firms' governance and strategies about their suppliers have a positive impact on the supply chain downstream (Venkatesh *et al.*, 2020) because formal supplier diversity purchasing programs mitigate "inequitable income distribution, thus aligning affirmative action and justice in decision-making to some degree" (Wu, 2010, p. 369).

2.5 Economic responsibilities and the outcomes of socially responsible initiatives in supply chains

Businesses have an economic responsibility to society as a core motive for their existence. They are expected to sustain themselves economically by being profitable and allowing shareholders to invest resources to keep business continuity (Carroll, 2016). Economic responsibility refers to those market-based social practices that impact a firm's economic performance (Thong and Wong, 2018). Revenue performance is the first observable outcome. Evidence in the literature shows that a socially responsible orientation toward organizational governance, human rights and the environment is beneficial to social performance and can positively impact financial performance (Zhu *et al.*, 2016). The integration of environmental and social aspects within the internal business process can contribute to the environmental, social and economic performance (Journeault, 2016), especially in times of economic crisis (Seles *et al.*, 2018).

The institutional theory allows deepening the discussion on why companies and their supply chains develop socially responsible initiatives. According to the institutional theory, organizations have different reasons to adopt isomorphic structures, strategies and processes. These reasons are related to perceived outputs externally (stakeholders) or internally (the own company) (Kauppi, 2013). DiMaggio and Powell (1983) identified three types of isomorphism. First, coercive isomorphism occurs when companies are under pressure from

other stakeholders to incorporate social, environmental and economic initiatives into their operations (Hoejmose *et al.*, 2014). Mimetic isomorphism occurs when uncertainty is present. Under this circumstance, corporations seek to increase legitimacy by imitating successful initiatives (Kauppi, 2013). Finally, normative isomorphism (DiMaggio and Powell, 1983) is present when managers seek legitimacy influenced by the initiatives of their pairs with similar educational backgrounds and professional experiences. Therefore, outcomes of socially responsible initiatives can be perceived by firms and stakeholders in several ways. In this sense, regulatory performance is associated with complying with government-imposed regulations. It can originate from voluntary initiatives for hazard prevention or, more commonly, because of coercive pressures (Zhu and Sarkis, 2007) for mitigating risks or recovering from harmful events. Non-regulatory stakeholders (e.g. the media, labor unions, community groups) can also influence public opinion based on the company's socially responsible initiatives or the absence of the same (Benn *et al.*, 2009). By upgrading their social working conditions, organizations are not only meeting the requirements of regulatory bodies or stakeholders but also improving productivity, reducing costs and enhancing the quality of life in those communities that are linked to their supply chains (workers, customers, suppliers, third parties and other stakeholders that are either directly or indirectly impacted by the supply chain).

Furthermore, because rapid globalization has changed consumer behavior and created new demands from stakeholders, organizations have assumed that corporate responsibility must be fully managed. It can intensely affect an organization's image and reputation. If an organization lacks credibility, its social initiative efforts may give consumers a negative view of it. However, its image is neutral when consumer confidence in the company is high. The reputation and the role of trust, in particular, have never been sufficiently explored. Trust is considered an essential element in an organization's social performance (Zasuwa, 2019). Therefore, it is vital for giving company credibility, practices that are implemented even more focused on the social side.

Although implementing socially responsible initiatives is vital for the supply chain members, undertaking these without showing what is being done reduces the importance stakeholders attribute to such initiatives. Hence, organizations should raise stakeholder awareness of these initiatives through proper communication and mention them in the media to leverage the relationship between social responsibility and financial performance (Rhou *et al.*, 2016). Furthermore, social responsibility helps organizations deal with economic crises, increase investment efficiency and establish better relationships with stakeholders and markets (Seles *et al.*, 2018).

Another economic outcome of socially responsible initiatives in a supply-chain context is the degree of supply chain integration and supplier relationship. Cooperation with local suppliers can be an effective way of improving working conditions. Poor working conditions are driven by fierce competition and unfair purchasing practices, which tend to shorten deadlines and lower prices. While there is no simple solution to poor working conditions, powerless suppliers in a buyer-dominated supply chain must work collectively to

stabilize their overall competitive relationship and ensure joint competitive advantages. In this sense, inferior working conditions hurt performance and productivity, thereby harming the entire supply chain in the long run (Jiang *et al.*, 2012). To achieve real progress through socially responsible initiatives, organizations need to build an inter-organization social responsibility agenda (Frigant, 2015). In short, supplier development, compliance and communication strategies address social concerns in supply chains (Yawar and Seuring, 2015).

Socially responsible initiatives are also assumed to positively affect manufacturing performance through employee commitment and productivity (Croom *et al.*, 2018). By improving the workforce environment, organizations can increase worker well-being and involvement, thus boosting employee productivity overall (Macduffie, 1995). In an SCM context, manufacturing performance is related to improving product quality, lead times and other operational processes (Croom *et al.*, 2018; Miemczyk and Luzzini, 2019).

Nevertheless, Acquier *et al.* (2017) showed that there are still some challenges for implementing CSR initiatives. According to them, transaction and cooperation costs may explain some difficulties in implementing these initiatives. There is a growing consensus that the benefits are higher than the costs associated with CSR initiatives, Sprinkle and Maines (2010) stated that "[...] the relationship between costs and benefits is concave, suggesting that returns diminish as the level of CSR increases." Finally, benefits will be higher when visibility is present. Visibility is a CSR strategic dimension related to "building customer and stakeholder awareness of product with CSR value-added" (Husted and Allen, 2007, p. 599).

3. Research methodology

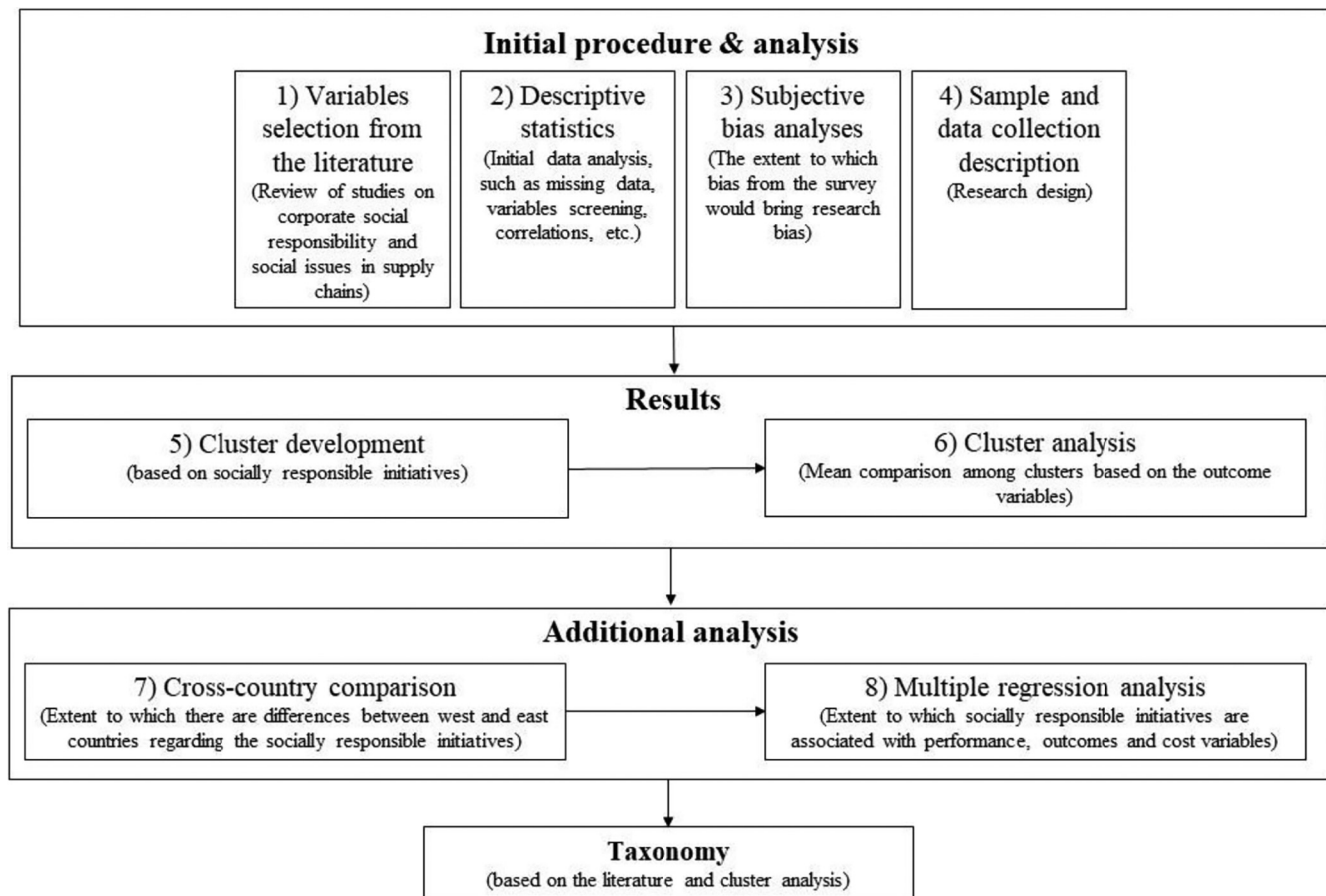
We used survey data to develop the empirical taxonomy. First, the socially responsible initiatives that comprise legal, ethical and discretionary responsibilities were used to identify patterns among the manufacturing plants. Then, once these patterns were identified, they were compared based on the economic outcomes, country location and industry types. Next, we present all the steps performed from the initial data analysis to the development of the proposed taxonomy. Figure 2 presents the research framework, including cluster analysis, additional data analysis and taxonomy development.

3.1 Survey design

We used data from the fourth round of the High-Performance Manufacturing Project (HPM) (Schroeder and Flynn, 2001). The questionnaire comprises 17 items divided into nine socially responsible initiatives (legal – 4 items, ethical – 3 items and discretionary – 2 items), six economic performance and other outcomes and two operation cost items. The items were measured through a five-point Likert scale. The questionnaire also included questions that focused on the characteristics of the respondents, the firms and the industries.

Social responsibility items were administered to environmental affair managers and similar positions who indicated the degree to which their plants were engaged for each initiative, from (1) no extent whatsoever to (5) a very great extent. Economic performance, other outcome variables and

Figure 2 Research framework



operation cost items were administered to plant and environmental affair managers who indicated the performance impact resulting from undertaking environmental and social initiatives, from (1) much worse to (5) much better on a competitive basis. Table 1 shows the survey items, the measures related to each socially responsible initiative, economic performance and costs and the corresponding literature.

We used perceptual measures. A potential subjective bias that perceptual items may introduce was addressed through the design of the research. First, data was collected from different sources within each plant and each item was answered by at least two informants (Flynn *et al.*, 2018). Second, selected informants were the most experienced and knowledgeable in the subject inside the organization (Krause *et al.*, 2018). Third, items were at an appropriate level of analysis correspondent to informants' roles (Flynn *et al.*, 2018; Krause *et al.*, 2018). Finally, the questionnaires were carefully designed to eliminate ambiguous terms, make terms as clear and simple as possible, maintaining questions simple, specific and concise.

3.2 Sample and data collection

The data were collected between 2013 and 2018. The sample contains 262 manufacturing plants located in 15 countries in the electronics, machinery and transportation industry segments (Table 2). As the HPM Project took place in multiple

countries and the original instrument was in English, questionnaires were translated into each country's native language(s). After data collection, the items were translated back into English by different research participants, who translated them back into the original terms to ensure consistency.

4. Analysis and results

Data were analyzed through RStudio and SPSS. RStudio was used to conduct the initial cluster analysis following each step depicted in Table 3. First, the socially responsible initiatives provided the cluster groups based on their centroids. Each group's centroid was compared through analysis of variance (ANOVA) analyzes in SPSS to find statistically significant differences among them. Next, performance dimensions and other outcomes were manually assigned to each cluster group and their means computed, which were analyzed through ANOVA to test for statistically significant differences.

4.1 Cluster analysis

We performed a cluster analysis to explore the different adoption levels of socially responsible supply chain initiatives. Cluster analyzes were based on the steps recommended by Brusco *et al.* (2017) and Steinley and Brusco (2011).

Table 1 Questionnaire details

Survey questions	Socially responsible dimensions	Measures	Authors
Please indicate the degree to which your plant is engaged in the following initiatives/practices: (1. No extent whatsoever, 2. Little extent, 3. Moderate extent, 4. Great extent, 5. Very great extent)	Legal	Ensuring that suppliers comply with child labor laws Visiting suppliers' plants or ensuring that they are not using sweatshop labor Asking suppliers to pay a "living wage" Using a third party to monitor working conditions at supplier facilities	Campbell (2007); Crane (2013), Locke <i>et al.</i> (2013); Shafiq <i>et al.</i> (2019), Yawar and Seuring (2015); New (2015), Stevenson and Cole (2018)
	Ethical	Improving the work force environment	Turban and Greening (1997); Shafiq <i>et al.</i> (2019); Verbos <i>et al.</i> (2007); Wu <i>et al.</i> (2008); Arampantzi and Minis (2017)
	Discretionary	Complying with an industry code of conduct Other compliance audit programs focusing on your plant (not on your suppliers)	Emmelhainz and Adams (1999); Carter and Jennings (2002); Roberts (2003), Awaysheh and Klassen (2010); Foerstl <i>et al.</i> (2010); Shafiq <i>et al.</i> (2019), New (2015); Sancha <i>et al.</i> (2015), Gold <i>et al.</i> (2015); Asif <i>et al.</i> (2019); Zhang <i>et al.</i> (2020)
		Starting or maintaining a formal M/WBE supplier purchase program Purchasing from M/WBE suppliers	Krause <i>et al.</i> (1999); Carter and Jennings (2002); Adobor and McMullen (2007); Prieto-Carron (2008); Yawar and Seuring (2015); Tang (2018)
As a result of undertaking environmental initiatives, we have experienced: (1. Much worse, 2. Somewhat worse, 3. Average, 4. Somewhat better, 5. Much better)	Economic	Regulatory performance Corporate reputation/image Stakeholder (community, investor) relationships Supply chain integration and supplier relationships Revenue performance Manufacturing performance	Zhu and Sarkis (2007), Benn <i>et al.</i> (2009) Gold <i>et al.</i> (2015), Zasuwa (2019) Rhou <i>et al.</i> (2016), Seles <i>et al.</i> (2018) Frigant (2015); Jiang <i>et al.</i> (2012); Yawar and Seuring (2015) Zhu <i>et al.</i> (2016) (Croom <i>et al.</i> , 2018); (Miemczyk and Luzzini, 2019)
		Unit cost of manufacturing	(Baumers <i>et al.</i> , 2017); (Baumers and Holweg, 2019); (Rojo-López <i>et al.</i> , 2020)
		Operating expense: funds spent to generate turnover, including direct labor, indirect labor, rent, utility expenses and depreciation	(Álvarez, 2009); (Sharma <i>et al.</i> , 2016); (Lowalekar and Ravi, 2017)
How your plant compares to its competitors in its industry, on a global basis: (1. Poor, much worse than global competitors, 2. Somewhat below global competitors, 3. Average, 4. Somewhat better than global competitors, 5. Superior, much better than global competitors)	Costs	Unit cost of manufacturing	(Baumers <i>et al.</i> , 2017); (Baumers and Holweg, 2019); (Rojo-López <i>et al.</i> , 2020)

First, we selected our variables considering the elements underpinning the literature on corporate and supply chain social responsibility. Second, standardization of the variables was unnecessary, as they were measured on the same scale. Third, the k-means algorithm with 5,000 iterations was performed, with 3 clusters as the inputs. Fourth, we used model-based cluster analysis for the number of sets similar to the lower bound technique (Steinley and Brusco, 2011), which provided the optimal number of clusters from the ratio between the sum of squares and the total sum of squares. Fourth, we also validated the number of clusters using the Bayesian information criterion (BIC), which indicated that the best clustering model had three groups. Fifth, we established internal consistency by randomly splitting the data into two subsamples. Next, k-means with 5,000 iterations were performed for each subsample. Again, the results were similar and consistent with the original cluster solution. Finally, we validated our clusters by performing the k-means algorithm

calculation on the outcome variables and comparing the centroids using ANOVA. Because of missing values for the performance items, the clusters in Table 5 have fewer manufacturing companies than they did in the original sample. Table 3 shows a summary of the steps used in the cluster analysis.

Figure 3 presents the final centroids for the socially responsible initiatives of each cluster. The centroids represent the means of each variable for each cluster. We ran an ANOVA analysis to test the differences between the cluster centroids. Table 4 shows that all the initiatives were statistically different from each other. Cluster 1 comprises 67 observations, the highest levels of socially responsible initiatives. Cluster 2 has 114 organizations and a central focus on ethical issues. Cluster 3 comprises 81 organizations with the lowest levels of implementation for socially responsible initiatives. Socially responsible initiatives that generally focus on internal labor conditions (LeBaron, 2021) had the highest levels of adoption

Table 2 Sample details

Country	Electronics	Machinery	Transport	Total
Brazil	1	6	10	17
Germany	5	11	5	21
China	10	14	4	28
Spain	5	6	8	19
Israel	12	0	0	12
Sweden	2	3	1	6
Italy	7	16	5	28
Japan	6	5	6	17
Korea	7	5	13	25
Finland	6	6	4	16
Taiwan	18	10	1	29
Switzerland	2	5	2	9
UK	0	2	0	2
Vietnam	9	6	7	22
USA	3	5	3	11
Total	93	100	69	262

Table 3 Cluster analysis processes

#	Steps	Description
Step 1	Variable selection	Variables were selected based on socially responsible corporate and supply chain literature
Step 2	Variable standardization	Variables were measured on the same scale. No need for standardization
Step 3	Algorithm implementation	K-means with 5,000 iterations
Step 4	Number of cluster selections	Model-based cluster and BIC
Step 5	Internal consistency	Data set divided randomly into two data sets ($n1 = 129$ and $n2 = 133$). K-means algorithm performed for the two sub samples with 5,000 iterations
Step 6	Validation of external variables	K-means with 5,000 iterations and ANOVA performed for the outcome variables

Figure 3 Final centroids for socially responsible initiatives

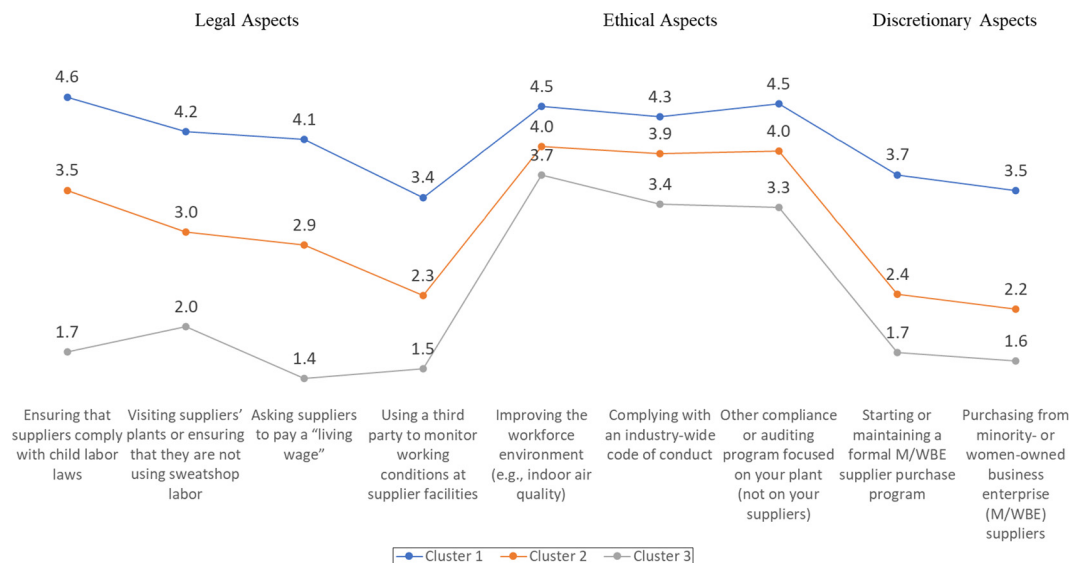


Table 4 ANOVA for socially responsible initiatives

Clusters (n = 262)		1	2	3	
Dimensions	Variable	n = 67 Mean (SD)	n = 114 Mean (SD)	n = 81 Mean (SD)	F- statistics
Legal	Ensuring suppliers comply with child labor laws	4.6 (0.64) [2, 3]	3.5 (0.9) [1, 3]	1.7 (0.81) [1, 2]	239.55
	Visiting suppliers' plants or ensuring that they are not using sweatshop labor	4.2 (0.74) [2, 3]	3 (0.83) [1, 3]	2 (0.91) [1, 2]	126.30
	Asking suppliers to pay a "living wage"	4.1 (0.98) [2, 3]	2.9 (1) [1, 3]	1.4 (0.65) [1, 2]	164.96
	Using a third party to monitor working conditions at supplier facilities	3.4 (1.08) [2, 3]	2.3 (0.89) [1, 3]	1.5 (0.72) [1, 2]	84.29
	Improving the workforce environment (e.g. indoor air quality)	4.5 (0.56) [2, 3]	4 (0.67) [1, 3]	3.7 (0.84) [1, 2]	22.11
Ethical	Complying with an industry-wide code of conduct	4.3 (0.76) [2, 3]	3.9 (0.76) [1, 3]	3.4 (0.98) [1, 2]	26.03
	Other compliance or auditing program focused on your plant (not on your suppliers)	4.5 (0.55) [2, 3]	4 (0.76) [1, 3]	3.3 (0.98) [1, 2]	40.26
	Starting or maintaining a formal M/WBE supplier purchase program	3.7 (0.9) [2, 3]	2.4 (0.84) [1, 3]	1.7 (0.9) [1, 2]	98.34
Discretionary	Purchasing from M/WBE suppliers	3.5 (0.97) [2, 3]	2.2 (0.71) [1, 3]	1.6 (0.7) [1, 2]	113.60

Notes: The numbers in parentheses are sample standard deviations. The numbers in brackets indicate the group means from which this group is significantly different at the 0.05 significance level, as indicated by Tukey's pairwise comparison test

across all clusters. In contrast, minority and women-owned business initiatives scored the lowest values.

4.2 Cluster results

Figure 4 presents the cluster means for each outcome variable. Cluster 1 has the highest values across all outcome variables, followed by Clusters 2 and 3. Socially responsible initiatives are perceived to have the most significant impact on regulatory performance, corporate reputation/image and stakeholder relationships. The minor effect is on revenue and manufacturing performance. Additionally, Cluster 1 perceives a better unit cost of manufacturing and operating expenses than

its competitors on a higher level than that perceived by Clusters 2 and 3. Table 5 shows that all outcome and cost variables of Cluster 1 are significantly different from Clusters 2 and 3. For Clusters 2 and 3, statistical differences were found only for corporate reputation/image and stakeholder relationships.

4.3 Additional analysis

Using ANOVA, we compared the socially responsible initiative means on a country and industry levels. As sample size on a country level is small and varied across countries, we allocated countries into two categories as follows: West and East/Asia, as previous studies, did (Bruton *et al.*, 2004; Farhangdoust *et al.*, 2020;

Figure 4 Final centroids for outcome variables

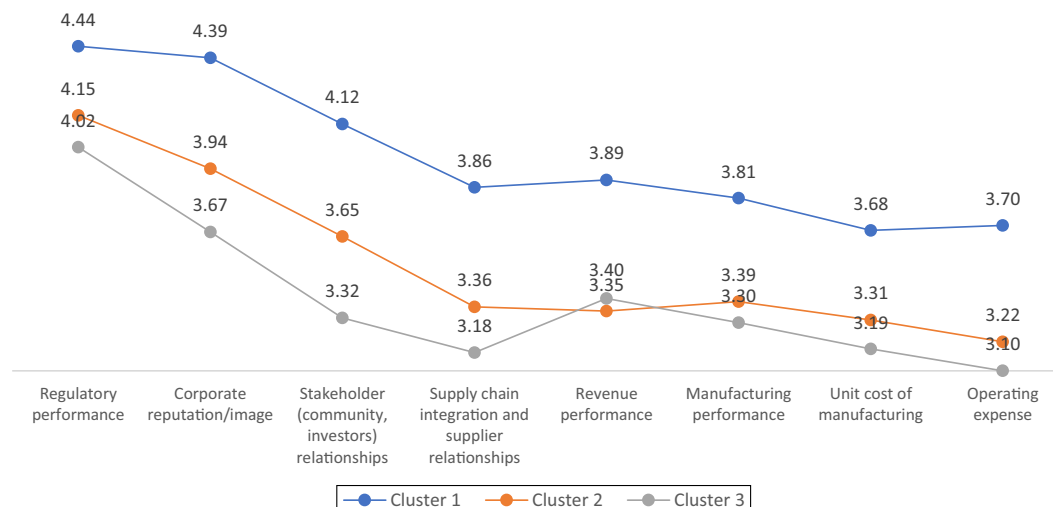


Table 5 ANOVA for outcome variables

Clusters (<i>n</i> = 255)	1	2	3	
Variable	<i>n</i> = 65 Mean (SD)	<i>n</i> = 113 Mean (SD)	<i>n</i> = 77 Mean (SD)	<i>F</i> -statistics
Corporate reputation/image	4.4 (0.85) [2, 3]	3.9 (0.69) [1, 3]	3.7 (0.8) [1, 3]	15.92
Stakeholder (community, investors) relationships	4.1 (0.73) [2, 3]	3.7 (0.63) [1, 3]	3.3 (0.7) [1, 2]	25.14
Supply chain integration and supplier relationships	3.9 (0.75) [2, 3]	3.4 (0.65) [1]	3.2 (0.7) [1]	18.58
Regulatory performance	4.4 (0.68) [2, 3]	4.2 (0.68) [1]	4 (0.87) [1]	5.88
Revenue performance	3.9 (0.85) [2, 3]	3.3 (0.63) [1]	3.4 (0.76) [1]	12.61
Manufacturing performance	3.8 (0.81) [2, 3]	3.4 (0.63) [1]	3.3 (0.71) [1]	11.11
Unit cost of manufacturing	3.7 (1.04) [2, 3]	3.3 (0.89) [1]	3.2 (0.84) [1]	5.40
Operating expense: funds spent to generate turnover, including direct labor, indirect labor, rent, utility expenses and depreciation	3.7 (0.80) [2, 3]	3.2 (0.74) [1]	3.1 (0.82) [1]	10.97

Notes: The numbers in parentheses are sample standard deviations. The numbers in brackets indicate the group means from which this group is significantly different at the 0.05 significance level as indicated by Tukey's pairwise comparison test

Vignoles *et al.*, 2016). The West group is comprised by Brazil, Finland, Germany, Italy, Spain, Sweden, Switzerland, UK and the USA, totaling 129 plants. The East/Asia group comprehends China, Israel, Japan, South Korea, Taiwan and Vietnam, counting 133 plants.

For all socially responsible initiatives, but for "Improving the workforce environment (e.g. indoor air quality)," West countries' means were statistically significantly different ($p < 0.05$) from those of East/Asia countries. For all the differences, East/Asia countries presented a higher level of adoption of these initiatives than that of Western countries. We found no difference ($p < 0.05$) among industries. As the study focuses on developing a taxonomy of manufacturing companies based on the adoption of socially responsible initiatives, we do not discuss the theoretical implications of the unexpected differences between West and East/Asia countries.

To identify which socially responsible initiative is associated with each performance, outcome and cost variable, we conducted a multiple regression analysis to insert these items as dependent variables. Socially responsible initiatives are independent variables in each model. Table 6 shows the results along with correlational effects. Accordingly, corporate reputation/image variance is associated with ethical initiatives, explicitly improving the workforce environment and complying with an industry-wide code of conduct. Similarly, stakeholder relationships' variance is significantly associated with complying with an industry-wide code of conduct. Supply chain integration and supplier relationships performance's variance is associated with asking suppliers to pay a living wage and purchasing from M/WBE suppliers. Regulatory performance variance is related to improving the workforce environment and other compliance or auditing program. Revenue performance's variance is associated only with asking

suppliers to pay a living wage. Similarly, manufacturing performance's variance is associated with asking suppliers to pay a living wage and purchasing from M/WBE suppliers. The unit cost of manufacturing and operating expenses are not significantly associated with any socially responsible initiative.

4.4 Discussion

Our study identifies different levels of adoption of socially responsible initiatives in a supply-chain context and their effect on several dimensions of organizational performance, other outcomes and manufacturing costs. Accordingly, Cluster 1 goes beyond internal ethical issues and adopts other socially responsible initiatives across the supply chain. Profitability is essential, but only when it is combined with correct initiatives and ethical issues. Consequently, these organizations are profitable while obeying the law and complying with regulations and doing what is just and fair and being good corporate citizens (Carroll, 2016). Hence, these organizations encourage their supply chains to comply with laws relating to child labor, anti-sweatshop labor and a minimum living wage. Some organizations, such as Johnson & Johnson, Nestle and Verizon, also use third parties to monitor conditions in their suppliers (Phillips, 2016). Other organizations prefer to evaluate their suppliers base on themselves. For example, Natura, a Brazilian beauty product company, directly engages with minority suppliers located in the rainforest and pays them more than other buyers while encouraging the preservation of the rainforest (Schipani, 2019). Therefore, we call these companies morally engaged organizations.

While some organizations are highly engaged in ethical and moral issues, others are less sensitive to such matters. For example, Cluster 2 is composed of organizations that focus on the well-being of their employees and illegal supplier practices.

Table 6 Standard coefficients from multiple regressions

Corporate social responsible dimensions	Performance				Costs		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Corporate reputation/ image	Stakeholder (community, investors) relationships	Supply chain integration and supplier relationships	Regulatory performance	Revenue performance	Manufacturing performance	Unit cost of manufacturing
Legal	Visiting suppliers' plants or ensuring that they are not using sweatshop labor	0.009 (0.054) [0.274*]	0.102 (0.049) [0.367*]	-0.113 (0.051) [0.150*]	0.077 (0.053) [0.244*]	0.095 (0.051) [0.249*]	0.044 (0.070) [0.174*]
	Ensuring that suppliers comply with child labor laws	0.058 (0.056) [0.293*]	0.050 (0.049) [0.356*]	0.124 (0.052) [0.196*]	-0.133 (0.054) [0.173*]	-0.154 (0.052) [0.159*]	-0.047 (0.074) [0.152*]
	Using a third party to monitor working conditions at supplier facilities	-0.004 (0.05) [0.182*]	0.038 (0.045) [0.264*]	0.095 (0.046) [0.291*]	0.028 (0.049) [0.230*]	-0.004 (0.047) [0.202*]	-0.043 (0.065) [0.211*]
	Asking suppliers to pay a "living wage"	0.126 (0.053) [0.299*]	0.121 (0.047) [0.347*]	0.190* (0.048) [0.328*]	0.190* (0.051) [0.268*]	0.180* (0.049) [0.251*]	0.094 (0.073) [0.185*]
Ethical	Improving the workforce environment (e.g. indoor air quality)	0.245* (0.073) [0.359*]	0.044 (0.065) [0.264*]	0.086 (0.067) [0.204*]	0.020 (0.071) [0.113*]	0.009 (0.068) [0.123*]	-0.039 (0.093) [0.194*]
	Complying with an industry-wide code of conduct	0.219* (0.070) [0.325*]	0.253* (0.063) [0.374*]	0.014 (0.066) [0.174*]	0.055 (0.071) [0.114*]	0.079 (0.067) [0.142*]	0.032 (0.080) [0.142*]
	Other compliance or auditing program focused on your plant (not on your suppliers)	-0.151 (0.073) [0.220*]	-0.050 (0.066) [0.298*]	0.021 (0.068) [0.194*]	-0.095 (0.073) [0.085]	-0.067 (0.069) [0.109*]	0.030 (0.097) [0.120*]
	Purchasing from M/WBE suppliers	0.061 (0.066) [0.287*]	0.070 (0.059) [0.338*]	0.248* (0.061) [0.391*]	0.152 (0.065) [0.337*]	0.202* (0.062) [0.342*]	0.120 (0.088) [0.244*]
Discretionary	Starting or maintaining a formal M/WBE supplier purchase program	0.080 (0.058) [0.259*]	0.064 (0.052) [0.310*]	0.008 (0.054) [0.303*]	0.144 (0.057) [0.316*]	0.094 (0.054) [0.293*]	0.133 (0.078) [0.245*]
	Adjusted R ²	0.192*	0.215*	0.163*	0.120*	0.114*	0.074*
	Observations	255	258	259	258	259	242
							238

Notes: * $p < 0.05$. The numbers in parentheses are standard errors. The numbers in brackets represent Pearson correlations

This cluster, however, is unaware of those ethical issues in the supply chain that fall outside the legislation. The results suggest isomorphic behavior that values and reinforces individualistic, market-driven and competitive economic interests (Srikantia and Bilimoria, 1997). According to Benn *et al.* (2009), stakeholders play a critical role in this kind of group. This cluster aims at ensuring (sometimes coercively) that members of the network engage in meaningful dialogue that commits them to minimum requirements of compliance that do not go much beyond their self-interest. We call this cluster willing-to-comply organizations.

Cluster 3 comprises organizations that are less interested in legal and discretionary aspects than the other two clusters. Organizations in this cluster are moderately interested in socially responsible practices and primarily focus on internal routines merely to comply with the industry-wide code of conduct. Criminal behavior and supplier morality are not relevant to these organizations. Therefore, we called Cluster 3 self-serving organizations.

The results show that Cluster 1 (Morally engaged organizations) has the best performance outcome variables. The difference in outcome levels is even more noticeable when Cluster 1 is compared with Cluster 3 (Self-serving organizations). Organizations from Cluster 1 have distinguishing performance indicators, including regulatory performance, corporate reputation/image, revenue performance and manufacturing performance. Beyond these aspects, this Cluster has a good relationship with external actors, including the community, investors and suppliers. Additionally, organizations in Cluster 1 perceive better manufacturing costs than their competitors at a higher level than that realized by organizations in Clusters 2 and 3.

Cluster 2 (Willing to comply) is in an intermediate position. Cluster 2 performs better than Cluster 3 (Self-serving organizations) because of external aspects, specifically corporate reputation and stakeholder relationships. In comparing Clusters 2 and 3, there was no statistically significant difference between all the economic performance, outcome and cost variables. These results suggest that organizations willing to comply (Cluster 2) integrated well with the community and investors and built a good reputation and external image. According to Parguel *et al.* (2011, p. 23), “the perceived CSR effort also seems to offer a key variable for explaining CSR communication efficiency.”

Nevertheless, there is no significant difference in revenue or manufacturing performance between organizations willing to comply (Cluster 2) and self-serving organizations (Cluster 3). Thus, we may conjecture that, as these organizations are satisfied with their reputation and image, they do not “need” to increase their socially responsible initiatives. The concern here is the potential presence of “social washing,” when organizations “adopt social initiatives as a public relations exercise, with little accompanying action” (Liao *et al.*, 2018, p. 3). In this case, the same problems that have been identified in greenwashing activities can be found in socially responsible initiatives.

We understand, therefore, that organizations with a precise and distinctive performance seek to develop a comprehensive range of socially responsible initiatives. However, the results also suggest that even when these organizations develop initiatives with an apparent absence of performative intent, such as purchasing policies related to diversity, there is no identifiable loss in their performance.

5. Conclusions

Existing research studies on socially responsible initiatives pay attention on the costs of these practices for organizations. Despite the common misperception that socially responsible initiatives can be costly, the results of this study demonstrate that this is not necessarily true. While our research did not identify any evidence of a causal relationship, the findings indicate that high performers might focus on socially responsible initiatives while obtaining outstanding results.

This study demonstrates that greater adoption levels are reflected in superior results across different dimensions. The results indicate the existence of three clusters with clearly distinct profiles. Morally engaged organizations have the highest levels of socially responsible initiatives in their supply chains. These high levels seem to influence the performance of several of their outcome variables, such as their reputation and external image. The other two clusters (Willing-to-comply and Self-serving organizations), also have different implementation levels of socially responsible initiatives but significantly different levels in their outcome variables for the relationship with external stakeholders and reputation/image. Thus, we infer that organizations should establish a threshold level for socially responsible initiatives in their supply chains if they want to impact outcome variables positively. Therefore, the results suggest that these organizations should achieve “world-class” performance to accrue the benefits of socially responsible initiatives. Our study also makes several contributions.

5.1 Research implications

This study contributes to the literature on SCM and CSR. While the literature sought to determine whether CSR and corporate financial performance are positively or negatively associated, we offer novel insights on different degrees of socially responsible initiatives in a supply-chain context and their effects on several organizational performance outcomes and manufacturing costs.

The present study also brings theoretical contributions to research on stakeholder and institutional theories and supply chains. First, we were able to recognize some institutional forces and isomorphic movements. Upon the cluster structure, we explicitly identify the higher the preoccupation to attend to external pressures, the higher the organization response and willingness to participate in socially responsible actions. For example, the higher the organization’s recognition of performing better at the regulatory level, reputation and stakeholders’ relationship higher the perception of managers to care about child labor control, decent living wages and the inclusion of women/minority-owned business into the supplier base. Through these findings, we expand the CSR literature by creating a taxonomy of socially responsible initiatives, highlighting their role in some organizations’ economic performance and manufacturing costs. Second, we suggest three groups of companies based on their levels of socially responsible initiatives. Consequently, each group “reaps what it sows.” Additionally, the theoretical perspective of the three dimensions – legal, ethical and discretionary – as the effect of CSR in the management of the supply chain is confirmed in parallel with the three discovered groups.

In this study, the analytical approach points out that, depending on efforts in socially responsible initiatives, economic performance is increased on a competitive basis. In other words, involvement

with CSR is no longer just activism to be content, whether by shareholders or stakeholders. The adoption of socially responsible initiatives now offers a competitive advantage, in addition to meeting the many expectations of consumers, communities and other stakeholders. It can be expected, therefore, that not only factories but also wholesalers and retailers will use this evidence to implement socially responsible initiatives to accrue positive results in multiple outcome performance. Even more, these results may stimulate organizations to start asking their suppliers to engage in socially responsible activities. Finally, our findings support the notion that socially responsible initiatives are important decision-making elements that should be part of a supply chain strategy to increase economic performance.

5.2 Managerial implications

This study has illustrated the importance that organizations should increasingly expand their stakeholder perspective. A special report in the Wall Street Journal recently encouraged top leaders to pay attention to serving “all stakeholders” instead of just “some stakeholders” (Wartzman, 2019). Hence, in the current environment, the adoption of socially responsible initiatives has become an important issue for management. The incorporation of practices seems to be measured in a very practical way, making it possible to infer taxonomy at different levels.

Our findings provide important implications for managers whose companies are embedded (or wish to integrate) in a socially responsible perspective. When identifying the initiatives that, at a certain level, influence the performance of companies, managers become aware that more than simply expressing support or being favorable is not enough. In practice, the effort to implement socially responsible initiatives to the supply chain has the primary purpose of responding to new consumer behaviors and meeting the demands of interested parties. Moreover, organizations must manage this new perspective, especially the social priorities implemented by purchasing managers, given that they have a high potential to affect the organization's image and reputation, be it transparent and engaging – for positive effects or not integrating practices or stop practicing them – for adverse effects.

5.3 Limitations and future research

This study relied on survey data and cluster analysis to examine socially responsible initiatives and compared the effects of levels of these initiatives on performance, limiting cause-effect relationships. To the best of our knowledge, this study is the first to propose a taxonomy based on socially responsible initiatives across supply chains. This study has some limitations for future scholars to address, as outlined below.

Empirical findings were solely based on survey data. Future research should also look at different levels of socially responsible initiatives using qualitative research approaches. Additionally, the survey used for this study is considered as secondary data, as the survey was not designed specifically for this study. Thus, future study should develop specific research protocols for investigating socially responsible initiative levels across supply chains.

While the present study focused on legal, ethical and discretionary responsibilities, future researchers may be interested in examining mimetic, coercive and institutional pressure implications of adopting socially responsible practices. Due to sample size constraints, we were unable to analyze whether the country, industry or other contextual dimension had an impact on

this model. Future researchers might also investigate the similarities and differences between countries in the East and West. Our sample comprises organizations from 15 countries, each of them having different political, cultural, religious and individual social values. Recent studies have highlighted the influence of culture and religion on adopting sustainable practices (Ives and Kidwell, 2019; Johnston, 2013). We suggest future studies should include elements for reflecting on the particular perspective of each different context. This would enable a more focused analysis of socially responsible practices.

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