www.irbas.academyirmbr.com
International Review of Basic and Applied Sciences
January 2022
Vol. 10 Issue.1

The Impact of Internal and External Green Supply Chain Practices on Sustainable Performance of Manufacturing SMEs in Pakistan. A Triple-Bottom-Line Perspective

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Abstract

This research attempts to examine the impact of green supply chain management practices on a firm's overall sustainable performance. In a resource-deprived, developing Asian country, i.e. Pakistan, the concept of green production and corporate sustainability is an under-researched and novel concept, which calls for further investigation. In this regard, the current paper, while thoroughly reviewing the pertinent literature, has put forward a comprehensive conceptual framework, demonstrating linkages between GSCM practices (internal, external) and every pillar of firm's sustainable performance, based on triple bottom line concept. Moreover, the framework provided is backed up by strong theoretical foundations and logical reasoning from the prevalent literature. All the linkages between the research constructs are drawn upon two contemporary and widely adopted theories i.e. firm's natural resource-based view and relational view concept. For empirical validation of the framework, it went through rigorous statistical analysis techniques, such as, SEM, CFA, EFA etc. through advanced software packages available i.e. AMOS V.23, SPSS V.26. A self-administered questionnaire adopted from authentic sources was used for collecting data through cross-sectional survey mechanism, conducted within the manufacturing sector of Pakistan. A total of 264 manufacturing SMEs, operating in four major cities of Pakistan, i.e. Peshawar, Lahore, Islamabad and Rawalpindi were selected as this study's target population, with 405 respondents participating in the study, thus constituting its sample size. Results indicated that GSCM practices, both internal and external have strong positive influence on a firm's environmental, social and economic performance, as all our proposed hypotheses were statistically significant, and thus accepted. Therefore, our research framework holds excellently well together. In the context of manufacturing sector of an economically, environmentally and socially devastated country, this research is of considerable significance, offering multiple benefits towards the field of academia, regulatory authorities and practitioners. Besides adding enormously to the extant literature of corporate sustainability utilizing the entire TBL, and accomplishing depths of analytical and academic rigor, this study will facilitate manufacturers to undertake efficient, green, socially friendly and economically viable initiatives within and across supply chains, which is paramount for the well-being of the country.

Keywords: *Green Supply Chain Practices, Corporate Sustainability, SEM, SMEs, TBL.*

Introduction

The word sustainability means, satisfying rudimentary social, economic and security needs both in present and in the future with a minimal detrimental impact on the natural resources and quality of overall natural environment upon which human life relies (Robertson, 2021). From a corporate viewpoint, sustainability is a systematic effort made by the organizations, in order to improve their social, environmental and economic gains simultaneously, while creating a perfect balance among all these dimensions (Baumgartner & Rauter, 2017). It can therefore, be argued that increasing long-term stockholder's value and enhancing social value are the key objectives of sustainability, at the same time minimizing a firm's usage of materials and reducing the adverse impacts of its business practices on the overall natural environment (Ma et al., 2018). Hence, corporate sustainability or a firm's sustainable development must take into account economic, social and environmental aspects of the business simultaneously. This equilibrium is also referred to as the triple-bottom line (TBL) approach of sustainable development (Abbasi, 2017; Tseng et al., 2020).

The notion of sustainability is gaining emergence and is evolving with a rapid rate, while becoming a priority for business leaders, especially manufacturers in every country across the globe, giving rise to crucial and multi-disciplinary concepts, i.e., SSCM, GSCM, Eco-preneurship etc. (Pieroni et al., 2019; Schaltegger & Wagner, 2017). Such an increased emergence and popularity of corporate sustainability is an outcome of many factors both internal and external. These factors include pressures faced by an organization from various stakeholder groups, such as, government, highly aware customers and their sophisticated demands, suppliers and non-profit organizations (NGOs') etc. (Allaoui et al., 2019; Jabbour et al., 2020). Besides these external drivers, some internal drivers, such as, a firm's reputation in the global as well as local business arena, and its commitment to reduce costs and maximize efficiency, compel to ensure sustainability within and across the supply chain (Kamble et al., 2020; Moktadir et al., 2018; Mousa & Othman, 2020).

Therefore, these drivers and the anticipated streak of responsibilities (social, economic and environmental), along with the amplified forces from direct and indirect stakeholders have pushed firms to incorporate sustainable inputs in their production processes, in order to convert their traditional SCM practices to sustainable and ecologically viable productions (Fatorachian & Kazemi, 2018; Yadav et al., 2020). In today's volatile age of technology, globalization and immense competition, organizations are faced with complex and multi-faceted challenges in the industry. In order to survive, they need to overcome these challenges and find ways to develop their businesses, both in the present and in the future. In doing so, firms today, require fundamental rethinking and radical redesign of their entire business models, as a result, supply chain practices have widened in both scope and scale (Lambert & Enz, 2017). The role of SCM (supply chain management) is paramount, as every organization includes at least one or more of them, and it can be stated that the competition takes place among these supply chains (Lee, 2015; Nugraha & Hakimah, 2019). Therefore, manufacturing firms need to translate sustainability measures into the core business strategies, as it is imperative and the most impending growth strategy for a business to achieve a long-term and sustained superiority over its competitors (Xie et al., 2019).

The concept of sustainability or sustainable development within the context of business organizations and especially, within the field of SCM, still seems to be a novel viewpoint despite its rapid evolution, in terms of both theory and practice (Bergquist, 2017). Many business organizations especially in the third world countries have just recently started to identify the need to include such initiatives in their planning process by constantly looking out for the best possible means to translate and apply its doctrines across their supply chains (Banerjee, 2017). Furthermore, a notable dearth can be seen across various studies in the available literature concerning the linkage between GSCM practices and firm's TBL of sustainability, as some studies have highlighted a positive impact of implementation of GSCM practices on firm's sustainable performance (economic, social and environmental), while others have recognized a negative association between the two (Abdul-Rashid et al., 2017; Bowen et al., 2001; Chin et al., 2015).

In addition, some studies have focused primarily on the linkage between GSCM practices and firm's environmental performance, without either addressing the other two pillars of TBL and its dynamics as a whole (Abbasi, 2017; Das, 2018; Guerci et al., 2016). This lack of clarity in the linkages between GSCM practices and firm's sustainable performance coupled with the inconsistent findings and mixed views of various researchers calls for an in-depth analysis and further investigation within the field, in order to establish a better understanding of the implementation of green practices, both internally and externally across the critical function of the firm's supply chain. Therefore, from the theoretical lens of firm's Natural-Resource Based View (Hart, 1995), and Relational View concept (RV) (Dyer & Singh, 1998), this study will examine the influence of implementation of both internal and external GSCM practices on all the pillars of a firm's sustainability, based on TBL approach.

Apart from the degree of its implementation, most of the businesses, especially within the emerging economies have been unsuccessful in achieving the right balance between the three pillars of sustainable performance, and thus failed to identify and satisfy every demand posed by various stakeholder groups. It is mostly due to the complexities involved in the concept of sustainability, or defining the very concept too narrowly at a micro-level (Akhtar et al., 2018; Kim et al., 2017; Yusliza et al., 2020). As a result, the concept of sustainability, especially within the context of firm's SCM still remains open to myriad interpretations that are either too context-specific or frustrated towards providing a sound and conclusive theoretical operationalization of the concept, thus creating a potential gap in the existing literature (Ahi & Searcy, 2015; Purvis et al., 2019).

In addition, review of extant literature also revealed a considerable lack of empirical research conducted in the field of green supply chains, especially within the manufacturing firms operating in developing countries (Amui et al., 2017; de Sousa Jabbour et al., 2017; Mishra, 2017; Nejati et al., 2017; ur Rehman et al., 2016). Keeping this in view, it can be stated that, besides academic gaps, the topic of GSCM is facing contextual gaps also. Since, greening inbound and outbound logistics, while collaborating within and across the firm's overall supply chain, including customers, suppliers, governmental bodies etc. is a venture in its early stages, specifically within the context of emerging Asian countries (Geng et al., 2017). Therefore, the current study, while addressing the contextual and theoretical gaps, attempts to provide potential empirical evidence by accomplishing the following objectives, central to this research.

1. To investigate the influence of internal GSCM practices on each pillar of firm's sustainable performance i.e., environmental, social and economic performance.
2. To analyse the impact of external GSCM practices on all the pillars of a firm's sustainable performance, namely, environmental, social and economic performance.

Theoretical Foundations and Hypotheses Development

Green Supply Chain Management Practices

Before embarking on the journey of providing theoretical discussion regarding the central research phenomenon, it is essential for a number of reasons to shed some light on the concept of SCM, as it is used as a foundation for discussing the concerned research topics, such as, sustainability and GSCM practices in a firm. The evolution of SCM as a separate discipline is rigorous and unique in its own way, which does not follow a pure descriptive mechanism (Carter & Ellram, 2003; Storey et al., 2006). Slack et al. (2010), described supply chain as a logistic channel providing basis for assimilating information about products or services through manufacturers or suppliers to the consumers in an efficient manner. It is perfectly safe to declare that a firm's supply chain is the combination of all the operations within an organization, which are connected together in a whole either directly or indirectly, with a sole purpose of delivering products and services from the supplier and manufacturer to the consumer (Harrison, 2001). A wide array of definitions of supply chain are present in the prevalent SCM literature, however, this study will follow the operational definition offered by Handfield and Nichols Jr (1999, p. 2),

"Supply chain management is a set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouses, and stores, so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time, in order to minimize system-wide costs while satisfying service level requirements."

Concisely, SCM is a multifaceted, complicated as well as parallel management process, ensuring the availability of product or service to the consumer in the most efficient way possible (Asgari et al., 2016; Storey et al., 2006). The key players involved in any firm's supply chain are suppliers, focal organization and customers. Its primary purpose is to build and manage healthy relationships among these actors and to achieve cost efficiency across a range of activities across the supply chain (Croxton et al., 2001).

In the latter half of twentieth century, the growth rate of demand for different products and services increased exponentially, as a result, manufacturing organizations across the globe ventured into profitable and economically viable modes of production. However, in this blind pursuit of enhanced profitability, they compromised the long-standing adverse effects of their actions on both the society and natural environment. As a result, this world faced numerous corporate accidents and disasters. Some of the notable accidents include the largest oil spill in France on March 16, 1978 from Amoco Cadiz oil tanker, Bhopal Gas tragedy on December 2, 1984, which was the largest chemical plant accident recorded in India until date. Similarly, Ukraine's Chernobyl nuclear disaster on April 26, 1986, and another Oil spill in United States on March 24, 1989 in Exxon Valdez. Disasters, such as these coupled with raising environmental issues, forced different stakeholder groups, for example, suppliers, customers, regulatory authorities and the general public, to compel organizations around the world to reconsider their business models in such a manner, that it also include concerns for the overall society and environment alongside economic gains (Matos & Silvestre, 2013).

As a result, organisations both in developed and underdeveloped economies are trying to review their business models and production processes within their supply chains by incorporating these issues into their overall strategic direction and implementing green and eco-friendly activities, in order to accept the environmental responsibilities, which is the reason GSCM has gained much prominence in the business world (Adriana, 2009). Despite this growing emergence of researches regarding GSCM and a firm's sustainable performance, many researchers have concentrated on particular dimensions of a GSCM, for instance, pollution or carbon emissions and they termed these studies as "green". Therefore, a concise and clear definition of a firm's GSCM was not institutionalized until the past few years. According to Hervani et al. (2005), who was probably amongst the pioneers of coining a comprehensive definition for GSCM in academia, state that,

"Green supply chain is a concept that combines green procurement, environmental management of manufacturing materials, environmental circulation, marketing, and reverse logistics" (Hervani et al., 2005, p. 334).

Later on, Sundarakani et al. (2010) extended the definition provided by Sarkis (1998), which was narrow in scope and focused primarily on reverse logistics and defined GSCM as,

"Green supply chain management can be defined as the integration of environmental thinking into supply chain management, including product design, supplier selection and material sourcing, manufacturing processes, product packaging, delivery of the product to the consumers, and end-of-life management of the product after its use".

In addition, according to studies conducted by Srivastava (2007), a firm's inclusion of environmental thinking at every stage across the entire supply chain, while the product passes through different stages including design, sourcing and selection of raw material, product manufacturing phase, its delivery and end-of-life management leads to the creation of the idea of GSCM. From this definition, it is evident that

GSCM is a vast area in terms of its applications. It can therefore be contended that conceptualization of GSCM emerges from the literature of environmental management and SCM, by adding the green aspect to a typical supply chain (Srivastava, 2007). GSCM is therefore, a multi-faceted and specialized procedure, which focuses on the environmental dimension of every supply chain activity of a firm, which takes into account multiple players rather than relying solely on an individual firm. In other words, this mechanism allows firms to integrate supplier firms, customers and other relevant participants to be incorporated at every stage of its product's life cycle.

Many researchers have categorized GSCM practices into different dimensions, with a purpose of greening all the supply chain activities i.e. inbound logistics, operations and outbound logistics (Rao & Holt, 2005). Others have stated that primary ecological activities consist of both internal and external activities (Shi et al., 2012; Zhu & Sarkis, 2004). In accordance with the views of these researchers, this study attempts to classify GSCM practices into two categories, i.e., external GSCM practices and internal GSCM practices, serving as separate predictor variables, and are explained in the following sections.

Internal Green Supply Chain Management Practices (IGSCM)

Based on the review of extant literature within the discipline of environmental management, it can be concluded that the main driver to enhance a firm's performance are its internal environmental management initiatives (Carter & Carter, 1998). One of the most important prerequisites for the implementation of such internal environmental management initiatives is to gain maximum backing from all the levels of management from top to bottom, including policy makers and executives, mid-level managers and operational staff (Zhu et al., 2005). A firm with an effective and conscious internal management structure regarding environmental initiatives, would be able to enhance its overall reputation, increase customer's brand loyalty, achieve competitive advantage and gain access to international market (Oliveira et al., 2016). This voluntarily engagement of a firm takes the shape of different initiatives, for instance, investment recovery, eco-design, green labelling, regular environmental audits and reporting, environmental citizenship behaviour among employees, internal environmental evaluations etc. (Green et al., 2012; Yu et al., 2019; Zsidisin & Hendrick, 1998).

Various environmental standards and certifications, such as, ISO 14001, should also be implemented, in order to place the firm on the track of environmental conservation and formulate an eco-friendly policy. This policy will enable the firm to demonstrate activities and cultivate a green culture within the firm that will address major environmental concerns by preventing air and water pollution, minimizing emission of greenhouse gases while production, effective solid waste management techniques, preventing deforestation etc. (Arts & Faith-Ell, 2010; Boehlje, 1993; Melnyk et al., 2003). However, prevalent literature suggests that a firm's IGSCM practices are essential but not the only factor that will ensure a firm's remarkable performance in terms of its environmental responsibilities (Vachon & Klassen, 2008). There is wide array of other factors that needs to be taken into consideration, while implementing IGSCM practices effectively within an organization, such as, strong green organizational culture, EGSCM practices and other proactive initiatives that will incorporate all the supply chain actors i.e. customers, suppliers, government entities etc.

External Green Supply Chain Practices (EGSCM)

The only factor that differentiates EGSCM from a firm's IGSCM is its collaboration with other supply chain participants i.e. suppliers and customers, in other words it is an inter-firm collaboration for adopting green practices across a firm's supply chain. Based on the review of existing literature EGSCM construct can be further divided into two categories, i.e. upstream collaboration and downstream collaboration also referred to as supplier's perspective and customer's perspective respectively. From the viewpoint of Zhu et al. (2010), these two perspectives are also called a firm's green purchase activities and collaboration with customers for the adoption of environmental initiatives, respectively.

Supplier collaboration (green purchasing) is significant for identifying common ground and achieving mutual environmental objectives. It enables the focal firm to monitor its suppliers regularly through rigorous internal environmental audits mechanism and helps in enforcement of a strong and cohesive environmental policy by persuading them to comply with different environmental standards offered by various regulatory authorities, such as, ISO 14001 certification (Zhu & Sarkis, 2004; Zhu et al., 2005). These practices also include putting pressure on supplier firms to take strong action, in order to mitigate environmental issues through effective use of sophisticated technology.

The second category of a firm's EGSCM practices i.e. downstream collaboration, which is also known as green distribution, within the context of GSCM mainly deals with customers. It is all about greening the outbound logistics, which are closely associated with customers' demands (Shi et al., 2012; Zaid et al., 2018). Therefore, greening the outbound logistics or greening the forward distribution of a firm's supply chain involves greening multiple functions i.e. packaging, labelling, modes of transportation and reverse logistics. In other words, this aspect of a firm's EGSCM practices require a downstream collaboration with multiple supply chain actors, as it can be observed that product's packaging can influence the creation of the amount of solid waste and its management. Beyond green distribution, firms also tend to manage their reverse logistics activities with an emphasis on environmental conservation. Drawing upon the studies conducted by Sarkis (2003), firms initially concentrated on reuse and recycling activities, while managing their reverse logistics.

Firm's Sustainable Performance

The current study focuses on all the three pillars of sustainable firm's performance and tends to present a holistic view, as discussed earlier. These aspects of sustainable performance based on the notion of triple bottom line approach, serving as our outcome variables are discussed in detail below;

Environmental Performance

According to the TBL approach of sustainability, environmental aspect of a firm's sustainable performance mainly deals with tools, techniques and objectives that facilitate a firm to accept greater environmental responsibility by promoting environmentally friendly technologies (Ardito & Dangelico, 2018; Corbett & Kleindorfer, 2001; Klassen & Whybark, 1999). However, it is very difficult for an organization to achieve sustainability goals by standing alone, which means that upstream and downstream collaboration for effective undertaking of sustainability initiatives across its supply chain is vital. Firms should persuade their suppliers to adopt sustainability measures i.e. minimal usage of natural resources, ethical labour practices and lowest amount of emission of greenhouse gases, to name only a few.

In the current literature, numerous definitions of environmental performance presented, concentrate on collaborating with multiple stakeholders regarding environmental problems (Tetteh & Burn, 2001). The focus of firms on environmental aspect of sustainability overshadows the social aspect in terms of generating more quantifiable outcomes, however, it still remains insufficient in terms of its assessment to the full extent (Banerjee, 2003; Hervani et al., 2005). ISO 14031 classifies ecological aspect of a firm's performance into three primary categories namely, indicators for evaluating the performance of management, indicators for evaluating operational performance and indicators evaluating a firm's environmental performance. Many other researchers define a firm's environmental performance with different perspectives using their own measures for evaluating performance. For instance, Zhu and Sarkis (2004) categorized environmental performance of a firm in 6 items i.e. reduction in emission into air, reduction in water contamination, reduction of solid wastes, minimizing consumption of toxic, harmful and hazardous material, reduction in the number of environmental accidents per year and a firm's overall improvement of environmental situation.

Economic Performance

The most fundamental goal of every business organization is to make profits. Therefore, incorporating sustainability initiatives across the supply chain without taking into consideration the economic aspect of a firm's performance, while ensuring the conservation of environment and society is not a viable choice. Supply chain managers should adopt sustainable initiatives, keeping in view the long-term financial stability of the firm (Carter & Easton, 2011). As a result, economic aspect of a firm's sustainable performance is the most critical and fundamental dimension for all the firms, specifically in the context of emerging economies (Zhu & Sarkis, 2004). Several studies have identified the significance of social and environmental aspects of a firm's sustainable performance that leads to enhanced economic performance (Ortas et al., 2014; Zailani & Rajagopal, 2005; Zailani et al., 2012).

Many researchers have included economic dimension along with the social and environmental aspects of a firm's sustainable performance i.e. firm's financial performance, firm's ability to minimize its production costs, firm's sources of competitive advantage and a firm's overall profitability (Winter & Knemeyer, 2013). However, some of these studies have focused primarily on a firm's financial performance, while others have also incorporated marketing performance measures in their studies, alongside financial aspect (Esfahbodi, 2016; Green Jr et al., 2008; Kang et al., 2018; Rao & Holt, 2005; Suansawat, 2013; Zaid et al., 2018).

Jennings and Haist (2004), explained the difference between a firm's financial performance and its economic performance by stating that financial performance primarily deals with a firm's financial matters i.e. money provisions, consumption time and place, investment made in a particular business and figuring out a firm's financial position presented in its annual reports, books and financial statements. While, firm's economic performance deals with a society's utilization of human and natural resources, while pursuing human welfare goals. It provides the means by which an organization is able to enhance the quality of human life by appropriate use of human and natural resources. Therefore, a firm's economic performance expands its boundaries to capture the social and ecological aspect of a firm's sustainable performance and does not focuses solely on a single firm. Therefore, the construct used in the current study for the measurement of the economic aspect of a firm's sustainable performance, which in the light of this discussion is an essential part of the entire sustainable performance framework includes multiples facets i.e. financial components, marketing dimensions etc.

Social Performance

The social aspect of a firm's sustainable performance within the context of SSCM follows the concept of inclusion on individual as well as on organizational level (Gladwin et al., 1995). This inclusion means that the decisions undertaken by the top-level management including supply chain managers for formulating a business strategy or a comprehensive plan for action within the context of supply chain should not violate the fundamental ethics and humanitarian values (Sharma & Ruud, 2003). Thus making it their prime responsibility to provide and sustain a safe and healthy community in which the firm operates.

Social concerns within the context of a firm's supply chain means a process or product related aspects of a firm's operations that influence the overall human safety, welfare and development of the community as a whole. However, many firms continue to struggle to find ways of defining social issues across their supply chains and realize the competitive benefits attached to them (Hall & Matos, 2010; Roth et al., 2008). Carroll (1979), has conceptualized a firm's social responsibility by categorizing it in a hierarchy, which includes a firm's economic responsibilities, legal responsibilities, ethical responsibilities and social/discretionary responsibilities, in order to understand and classify central supply chain activities that will cater to a firm's social responsibility. However, social sustainability is associated with justice, poverty alleviation, transparency, ensuring human rights and overall betterment and welfare of the employees (Krause et al., 2009). It is a crucial task to comprehend the interrelationship of economic, environmental

and social aspects of a firm's sustainable performance, not to mention the employment of these issues, such as, socially sustainable practices within a firm's supply chain poses a serious challenge (van der Heijden et al., 2012).

Addressing social concerns within the context of a firm's SSCM should answer three questions, who is being targeted, which issues are being addressed, and how are they being addressed (Wood, 1991). Social initiatives across a firm's supply chain takes many different shapes, for instance, a value-based and ethical relationship with the supplier firms and ethical collaboration with other supply chain actors, in order to facilitate ethical purchasing. Similarly, increase in demands of the customers for sustainable products in fashion and tourism industries due to their increased awareness about social issues and rapid knowledge diffusion (Cervellon & Wernerfelt, 2012). Hence, the social aspect of a firm's sustainable performance, based on the concept of triple bottom line (TBL) is an integral yet complicated aspect of the overall sustainability framework, which cannot be ignored, as it has been overshadowed in previous studies by environmental and economic aspects (Dubey et al., 2016).

Relationship between GSCM Practices and Firm's Sustainable Performance

As discussed earlier, this study intends to examine the individual linkages between firm's IGSCM and EGSCM practices with each pillar of its overall sustainable performance, based on the concept of triple bottom line. All the proposed associations are elaborated in the following sections.

Internal and External GSCM practices and Firm's Environmental Performance

Ecological orientation of a firm's strategic direction is a knowledge intensive and learning based process about environmental consciousness (Shrivastava, 1995). These environmental initiatives emerge out of organization's values and are deeply ingrained in its culture, which further results in the execution of EMS (Environmental Management Systems) in the organization (Fraj-Andrés et al., 2009). Raising ecological issues such as climate change, pollution, rapid depletion of natural resources etc. also play a central role to persuade an organization to go green in terms of its production across supply chain and seek out new ways of competition with its rivals, which add value to its key success factors (Chu et al., 2017). Furthermore, an inter-firm and intra-firm collaboration offers formal and informal procedures that help in mitigating risks, enhances trust, eventually boosts innovation, and ultimately increases profitability (Zhu & Sarkis, 2004).

In an organization, to introduce and implement environmental management systems and implement ecological initiatives across its whole supply chain, the support of top and mid-level management is an essential driver (Carter & Carter, 1998; Esfahbodi, 2016). Therefore, if the management is not concerned about the environmental issues and fails to persuade its employees to get involved in addressing these issues, ultimately results in loss of the firm's repute and hence, its competitive advantage. Firms also need to collaborate with its supply chain partners i.e. customers and suppliers within the same network, as this collaboration is considered to have positive influence on the overall sustainable performance including environmental performance (Bowen et al., 2001; Carter & Carter, 1998).

There are several researches in the existing literature demonstrating a positive linkage between a firm's GSCM practices and its environmental performance as(Chien & Shih, 2007; Choi & Hwang, 2015; Eltayeb et al., 2011; Feng et al., 2018; Laari et al., 2016; Muma et al., 2014; Younis et al., 2016; Zhu & Sarkis, 2004; Zhu et al., 2013). For instance, Zhu and Sarkis (2004) concluded their findings by mentioning a positive association between a firm's internal environmental management and its environmental performance, along with both negative and positive relationship with the firm's economic performance. In addition, Zhu et al. (2010) came up with varying set of results after comparing these results of different firms in two different countries i.e. Japan and China. According to this study, a firm's IGSCM practices in Japanese firms have a positive linkage with its environmental performance, while in China both IGSCM and EGSCM practices have a positive relationship with the organisation's environmental performance.

Apart from above mentioned evidences from the extant literature, the relationship between an organisation's GSCM practices including IGSCM and EGSCM, and its overall environmental performance is based upon different theories i.e. N-RBV (Hart, 1995), and Relational View concept (RV) (Dyer & Singh, 1998) etc. Inspired by conventional RBV concept, the N-RBV claims that by prioritising environmental and social environments, organisations will benefit from improved competitiveness (Golicic & Smith, 2013; Hart, 1995).

Based on the discussion above, this study propose the following hypotheses,

H1a: IGSCM practices positively influence a firm's environmental performance.
H1b: EGSCM practices positively influence a firm's environmental performance.

Internal and External GSCM Practices and Firm's Economic Performance

Firm's economic performance is primarily concerned about a firm's capabilities to reduce its overall cost of production associated with manufacturing plant and machinery, purchase mechanisms and relationship with suppliers, consumption of energy sources, waste management and disposal practices, environmental accidents, fines etc. (Zhu et al., 2008). The current study also takes into account the firm's profitability and sales, while addressing its economic performance in relation with firm's EGSCM and IGSCM practices. However, there are some reservations in the existing literature concerning the relationship between a firm's GSCM practices and its overall cost, some of which considers GSCM as an extra cost on the business (Hart & Ahuja, 1996). For instance, studies conducted by Bowen et al. (2001) concluded their findings by mentioning that green practices do not influence a firm's short-term profitability measures and its sales performance. On the other hand, Min and Galle (2001) indicated a negative relationship between green practices i.e. GSCM, and a firm's financial performance, by stating that GSCM practices is an extra cost on the business.

However, according to the notion of N-RBV, green practices enhance a firm's economic performance considerably, in two major ways (Hart, 1995). Firstly, green practices emphasize mainly on reduction of energy and fuel sources, while encouraging the firms to gain efficiencies at every level of their production process and operate in a smart manner, thus directly benefiting the firm by enhancing its economic performance. Secondly, a firm can also generate indirect economic benefits from these environmental practices across its supply chain, in the form of increased customer's loyalty and enhanced firm's reputation, which resultantly maximize its profitability and enhance its overall economic performance (Schmidt et al., 2017).

Several studies in the existing literature have already underlined positive linkages of a firm's GSCM (IGSCM, EGSCM) with its economic performance (Ahmed & Najmi, 2018; Akhtar, 2019; Carter et al., 2000; Green et al., 2012; Rao & Holt, 2005; Saeed et al., 2018; Zhu & Sarkis, 2004). In addition, several studies conclude their finding with mixed views regarding the association between GSCM practices and economic performance. For instance, Pullman et al. (2009) in their study concluded that a firm's green practices, including conservation of resource, solid waste management practices via reuse and recycling, and land management practices, are indirectly linked with the firm's economic performance. Similarly, according to the studies conducted by De Giovanni (2012), firms IGSCM and EGSCM practices are not positively related with its overall economic performance in terms of reflective model, however, in terms of formative model; only IGSCM practices signifies a direct positive relationship with economic performance.

Drawing upon these arguments from the literature, and the concept of N-RBV, this study proposes the following hypotheses.

H2a: IGSCM practices positively influence a firm's economic performance.
H2b: EGSCM practices positively influence a firm's economic performance.

Internal and External GSCM Practices and Firm's Social Performance

Different studies have scrutinized the relationship between a firm's external and internal GSCM practices with its overall environmental and economic performance, however the social dimension of a firm's sustainability remains highly neglected in the existing literature regarding GSCM and operations management, as mentioned earlier (Eltayeb et al., 2011; Rajeev et al., 2017). Therefore, with the rapid advent and continues development in the concept of firm's corporate social responsibility (CSR) (Barnea & Rubin, 2010; Fernández-Gago et al., 2020; Jo & Harjoto, 2011), it has become critical for all the firms to take into account the social aspect of their overall sustainable performance and manage ways to address social issues alongside environmental and economic issues across their supply chains (Aguinis & Glavas, 2012; Malik et al., 2021; Székely & Knirsch, 2005).

A firm capable of undertaking green initiatives across its supply chain i.e. green supply chain practices is more successful in creating a strong positive image in the eyes of its diverse stakeholder groups including suppliers, customers, government and regulatory authorities, employees and the overall society, as these sustainable initiatives allow them to minimize environmental degradation caused by their production. This positive reputation of the firm is important in multiple ways to different stakeholders, for instance, it helps in maximizing the loyalty of environmentally conscious customers towards the organisation, similarly, it also facilitates in enhancing an employee's job satisfaction levels within the firm, thus enhancing their productivity and eventually improving the firm's overall performance outcomes (Abbas et al., 2019; Anwar et al., 2020; Hoffman, 2001; Malik et al., 2021). According to the studies conducted by Testa and Iraldo (2010) and Xie and Breen (2012), a firm's internal and external GSCM practices enhance its overall brand image, assists in establishing long-term healthy relations with its stakeholders and improve employee's motivation levels within the firm. Therefore, it can be contended that an organisation's internal and external GSCM practices positively influences its social performance by strengthening its relationship with multiple stakeholder groups.

Moreover, firm's GSCM practices (IGSCM, EGSCM) are considered to be the means of an effective strategic management, which contributes towards the enhancement of the firm's environmental performance, especially in the context of manufacturing sector. Besides enhanced environmental performance, it also allows these manufacturing firms to improve other sustainable performance targets (Geng et al., 2017; Younis et al., 2016). This argument is further supported by De Giovanni (2012), suggesting that a firm's internal and external GSCM practices are not merely tools for enhancing its overall environmental performance, but also a unique element that should be incorporated in the overall strategic direction, in order to provide economic as well as social benefits. Furthermore, empirical evidences from the prevalent literature underlines the vital role of GSCM practices played in the exhibition of a decent social performance of the firm by enhancing customer's loyalty and improving the overall corporate image, as discussed above (Çankaya & Sezen, 2019; Eltayeb et al., 2011).

It can therefore, be stated safely in a generalized manner, while drawing upon the empirical evidences and theoretical basis (N-RBV), mentioned above, that a firm's adoption of IGSCM and EGSCM practices positively influence its social performance. Keeping in view, the integral role of enhancing customer's loyalty, corporate image, health care opportunities, safe and healthy working conditions, safe and eco-friendly products and services, promotion of equality and ethical behaviours and respecting the law and regulations (De Giovanni, 2012; Eltayeb et al., 2011). Hence, the current study proposes the following hypotheses.

H3a: IGSCM practices positively influence a firm's social performance.
H3b: EGSCM practices positively influence a firm's social performance.

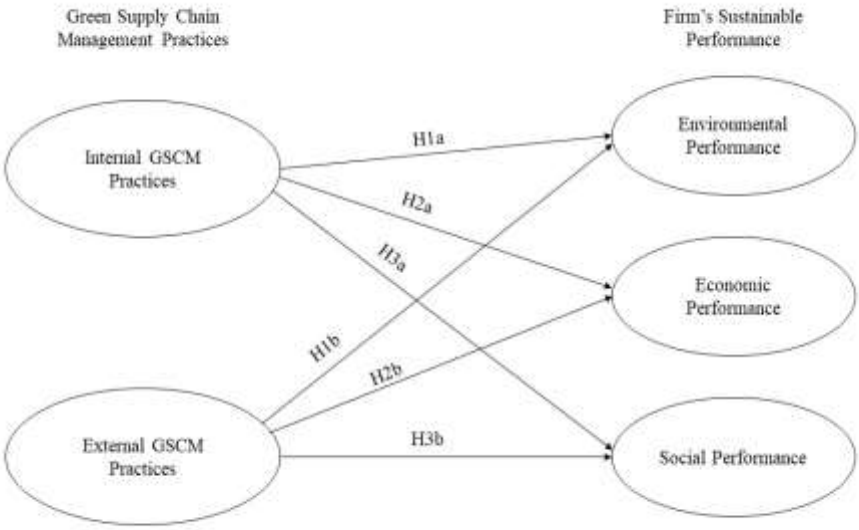

Figure 1: Proposed Conceptual Framework

Research Methods

Sampling and Data Collection

Target population for this study included all the manufacturing SME's operating in four major cities of Pakistan i.e., Islamabad, Rawalpindi, Peshawar and Lahore. These cities are emerging markets for SME's in Pakistan. One of the primary reasons for selecting these particular cities is that head offices of the majority of SME's are located in these regions. Relevant data and lists of registered firms in this region were obtained from Islamabad Chamber of Commerce and Industry (ICCI), Rawalpindi Chamber of Commerce and Industry (RCCI), Lahore Chamber of Commerce and Industry (LCCI) and Khyber-Pakhtunkhwa Chamber of Commerce and Industry (KPCCI). Manufacturing medium-sized firms were given special preference, keeping in mind the nature and scope of this study. These firms are concerned with strategic approaches towards a product, service and structure (Kastalli & Van Looy, 2013).

Industries including transportation, textile, automotive, warehousing, chemicals, pipes and fittings, pharmaceuticals, cosmetics, software and engineering firms, textiles, automotive, food items, electronics and electric equipment etc. will be our target population, as it is deemed appropriate and consistent with the main theoretical model of this study. In the current study, the researcher employed the use of structural equation modelling (SEM) through AMOS, therefore, using small sample size for advanced statistical techniques, such as structural equation modelling (SEM), will not ensure the amount of accuracy required (Hair et al., 2010). Similarly, using a large sample size cannot guarantee accuracy in results each time, thus ends up in the wastage of resources, such as time and money (Bryman & Bell, 2011). According to Hair et al. (2010) and Kline (2011), an appropriate sample size for SEM analysis ranges between 150 and 400. However, this sample size could be varying, based on the complexity of research model and the number of variables involved. In order to carry out factor analysis, they suggested a minimum of five cases per observed variable. Therefore, based on the justifications provided above and keeping in mind the complexity of research model of current study in terms of constructs and variables involved and its ratio of respondents, a minimum sample size for this study should be at least 400.

Data was collected through self-administered questionnaire, employing measurement scales for our latent constructs, adopted from various sources in the extant literature. Measurement scales for all the three constructs employed in this study for investigation were adopted from Zhu and Sarkis (2004), Green et al. (2012), Shi et al. (2012), Perotti et al. (2012), Rao and Holt (2005), Lee et al. (2012), Zhu et al. (2010), Vachon and Klassen (2008), Gimenez and Tachizawa (2012) and Suansawat (2013). A 5 point Likert-Type scale was employed to record the responses against each measurement item.

Data Analysis and Results

Sampling Profile

Out of 500 questionnaires distributed within the specified sample, 468 were returned. Collected questionnaires were evaluated carefully, in order to look for any errors, and non-usable responses. Resultantly, 405 questionnaires were found to be appropriate for final analysis. After the initial data cleaning process, including outlier assessment, missing data, non-response bias etc. the responses were sorted, in order to present a more organized picture of our data. As presented in table 1 below, manufacturing firms falling into the specified sampling frame of the study include automotive industries comprising a percentage of 1.2, automotive components industries with a percentage of 6.4. Similarly, electronic components industries (20.7), food & beverage industries (15.3), petrochemicals and chemicals industries (0.2), Industrial material and machinery industries (3.7), transportation & logistics industries (9.1), textile industries with a percentage of 19, clothing industries (2.7) and other industries comprising a percentage of 21.5.

Another sub-dimension of firm's profile is concerned with firm's size, which is determined on the basis of number of employees. Drawing on the values mentioned in the table above, zero percent firms were having less than 50 employees, while firms with a number of employees between 50 and 100 made up a total percentage of 36.8. Similarly, firms with total number of employees falling between the range of 100 and 200 constituted a percentage of 25.7, 33.6 percent firms had total number of employees between 200 and 300, while 04 percent firms had more than 300 employees. Another sub-dimension of the firms' profile is concerned with ISO certifications, including ISO 9000 and ISO 14001 certifications. Based on the results mentioned in the table above, 84.9 percent of the targeted firms received their ISO 9000 certification, while 24.7 percent firms have received their ISO 14001 certification.

Lastly, the firm's characteristics of its primary product, which is classified as a sub-dimension of firms' profile in the current study deals with collecting information regarding the firm's product and its main characteristics. According the results, 38.5 percent firms that manufacture their products or services with "assemble-to-order" as a main characteristic. Similarly, 20.7 percent firms within the specified sample manufacture their products with "made-to-stock" as the primary product's characteristic. In addition, 26.2 percent manufacturing firms had "make-to-order" as their primary product's characteristic, and 14.6 percent firms were placed in the "others" category based on their responses.

Besides firms profile, a comprehensive description of respondents' profile is also presented in table 1 below. According to these results, 7.4 percent of CEOs contributed towards the data collection process by providing responses, similarly, logistics managers constituted a percentage of 2 in terms of responses. Furthermore, production managers with a percentage of 16.3, operations managers with a percentage of 14.8, plant managers constituting a percentage of 10.6, and employees falling in the category of "others" constituting a percentage of 44.4, contributed towards the study by providing the required data in the shape of their responses for further analysis. Zero percent of employees with a job title of purchasing managers contributed to the survey, as they were performing their jobs with their specific job titles placed in "others" category, for instance, procurement officers.

Table 1 : Sampling Profile

Variable	Number	Percentage
Industrial Group		
Automotive Industry	05	1.2
Automotive Components	26	6.4
Electronic Components	84	20.7
Food & Beverages	62	15.3
Industrial Material	15	3.7
Petrochemicals	01	0.2
Transportation & Logistics	37	9.1
Textile Industries	77	19.0
Clothing Industry	11	2.7
Others	87	21.5
Firm's Size in terms of number of employees		
Under 50 Employees	0	0
Over 50 to 100 Employees	149	36.8
Over 100 to 200 Employees	104	25.7
Over 200 to 300 Employees	136	33.6
Over 300 Employees	16	4.00
ISO 9000 Certification		
Certified Firms	344	84.9
Non-Certified Firms	61	15.1
ISO 14001 Certification		
Certified Firms	100	24.7
Non-certified Firms	305	75.3
Main Characteristics of Primary Product of the Firm		
Assembled-to-order	156	38.5
Made-to-stock	84	20.7
Make-to-order	106	26.2
Others	59	14.6
Respondents' Profile		
CEOs	30	7.4
Logistics Managers	08	2.0
Supply Chain Managers	18	4.4
Production Managers	66	16.3
Purchasing Managers	00	00
Operations Managers	60	14.8
Plant Managers	43	10.6
Others	180	44.4

Measurement Model Assessment

Prior to conducting CFA, the data was subjected to a thorough factor analysis, in order to find out that each measurement item loads onto its corresponding factor. Resultantly, two measurement items i.e. EP01 and IGSCM10 were discarded from further analysis, due to cross-loading on two different factors with values of 0.648 and 0.958, respectively. After the deletion of these two items, the remaining items resulted in one-factor solution, by generating 5 distinct factors, measured by 34 items in total. IGSCM was measured by 09 items, EGSCM by 08 items, ENP by 07 items, EP by 05 items and SOP by 05 items.

To evaluate the measurement model and its overall model fit, confirmatory factor analysis (CFA) was employed, through AMOS V.23 using maximum likelihood estimation approach. Chi-square for the sample size of 405 was found significant at $p<0.001$ i.e., $CMIN_{(df = 484.000)} = 730.874$. Similarly, other model-fit

indices employed in this study for the evaluation of our measurement model include normed chi-square, NFI, CFI and TLI with a recommended threshold of 0.9 by Hair et al. (2010). In addition, RMSEA and SRMR, whose values should fall between the range of 0.03 and 0.08 for a good model fit (Hair et al., 2010). Based on the findings, all the fit indices (CMIN/*df* = 1.510, CFI = 0.972, RMSEA = 0.036, TLI = 0.969, NFI = 0.921 and SRMR = 0.034) demonstrated that our measurement model fits the data perfectly. A two-step method for the assessment of validity of our measurement model was adopted in the current study, as per the recommendations of Anderson and Gerbing (1988). The initial step is concerned about assessing convergent validity and reliability. Three conditions should be satisfied for specifying convergent validity, i.e., factor-loading scores exceeding 0.5 (Bagozzi & Yi, 2012), secondly composite reliability (CR) scores should exceed the threshold of 0.7 (Bagozzi & Yi, 2012), and average variance extracted (AVE) values should surpass 0.5 (Fornell & Larcker, 1981). As a result, another measurement item i.e. EGSCM 05 was discarded due to low factor-loading score i.e. 0.466, which is below 0.5. The remaining measurement items, in terms of factor-loading scores fulfilled the criteria i.e. exceeding the value of 0.5, as shown in the table 2 below.

Table 2: Assessment of Measurement Model

Constructs	Measurement Items	CFA Loadings	CR	AVE	MSV
IGSCM Practices	IGSCM01	0.801	0.919	0.558	0.494
	IGSCM02	0.771			
	IGSCM03	0.763			
	IGSCM04	0.638			
	IGSCM05	0.683			
	IGSCM06	0.746			
	IGSCM07	0.796			
	IGSCM08	0.701			
	IGSCM09	0.805			
EGSCM Practices	EGSCM01	0.669	0.891	0.539	0.454
	EGSCM02	0.719			
	EGSCM03	0.709			
	EGSCM04	0.763			
	EGSCM06	0.765			
	EGSCM07	0.803			
	EGSCM08	0.703			
Environmental Performance (ENP)	ENP01	0.776	0.925	0.637	0.499
	ENP02	0.812			
	ENP03	0.812			
	ENP04	0.803			
	ENP05	0.775			
	ENP06	0.806			
	ENP07	0.799			
Economic Performance (EP)	EP02	0.800	0.887	0.611	0.566
	EP03	0.785			
	EP04	0.786			
	EP05	0.773			
	EP06	0.766			
Social Performance (SOP)	SOP01	0.797	0.914	0.679	0.566
	SOP02	0.830			
	SOP03	0.846			
	SOP04	0.831			
	SOP05	0.816			

Model fit indices: CMIN/*df* = 1.510; CFI = 0.972; RMSEA = 0.036; TLI = 0.969; NFI = 0.921; SRMR = 0.034

In addition, drawing upon the findings shown in table 2 below, CR values for all the constructs i.e. IGSCM (0.944), EGSCM (0.904), ENP (0.925), EP (0.887) and SOP (0.914), exceeded the recommended threshold of 0.7, thereby providing strong evidence of accomplishment of sufficient convergent validity. Similarly, AVE scores for all the constructs i.e. IGSCM (0.604), EGSCM (0.542), ENP (0.637), EP (0.611) and SOP (0.679), also surpassed the minimum requirement of 0.5.

Having analysed the convergent validity, this analysis now moves on towards the assessment of discriminant validity of our research constructs. It can be evaluated by comparing the value of AVE (average variance extracted) with squared correlation between the construct and other constructs within the model. If AVE value for the construct is higher than the squared correlations, it means that discriminant validity is achieved for the said construct (Hair et al., 2010). The squared correlation matrix generated by AMOS portrays achievement of sufficient convergent validity, as the squared correlations are greater than the AVE scores of all the constructs. The findings of discriminant validity are presented in table 3 below.

Table 3: Discriminant Validity assessment

	MaxR(H)	IGSCM	EGSCM	ENP	SOP	EP
IGSCM	0.923	**0.747**				
EGSCM	0.895	0.608***	**0.734**			
ENP	0.925	0.609***	0.575***	**0.798**		
SOP	0.914	0.592***	0.682***	0.707***	**0.824**	
EP	0.888	0.646***	0.603***	0.695***	0.753***	**0.782**

Structural Model Assessment

Having examined the measurement model, this step provides a comprehensive assessment of the structural model, which is concerned about testing our hypothesized relationships. Table 4 below, presents the findings of hypotheses tests, along with path diagram of our structural model in figure 2. Based on the findings, all 6 hypotheses demonstrating the direct linkages between our research constructs were accepted. Model fit of the structured model was evaluated using the same criteria adopted for measurement model earlier. Results of the model-fit indices after repetitive re-specifications of our structural model by employing modification indices, suggest that our structural model was an excellent fit of the data with CMIN (df = 487) = 3210.534, CMIN/df = 1.812, CFI = 0.956, NFI = 0.905, TLI = 0.946, RMSEA = 0.046 and SRMR = 0.058. Measurement item EGSCM02 was discarded from the analysis due to high MI value associated with error term e12. Moreover, the error terms of items IGSCM04 and IGSCM05 were correlated, due to high MI values.

For hypotheses testing, conducting the path analysis is considered a necessary pre-requisite, which is mainly determined by t-values or critical ratios of each path, for example, t-value should be greater than 2.576 for the statistical significance of a particular path at a critical value of 0.01. The researcher also relied upon path coefficients (β) values, at $p<0.001$, $p<0.01$ and $p<0.05$. Based on the results, H1a (IGSCM→ENP), H2a (IGSCM→EP) and H3a (IGSCM→SOP) were statistically significant with β = 0.408; 0.438 and 0.291 at $p<0.001$, respectively, and therefore, accepted. Similarly, H1b (EGSCM→ENP), H2b (EGSCM→EP) and H3b (EGSCM→SOP), with β values of 0.369, 0.381 and 0.540, were statistically significant at $p<0.001$, hence approved. The findings of our hypotheses tests implies that both IGSCM and EGSCM practices are strongly and positively related with firm's sustainable performance, by enhancing each pillar i.e. environmental, economic and social performance, based on the concept of triple bottom line.

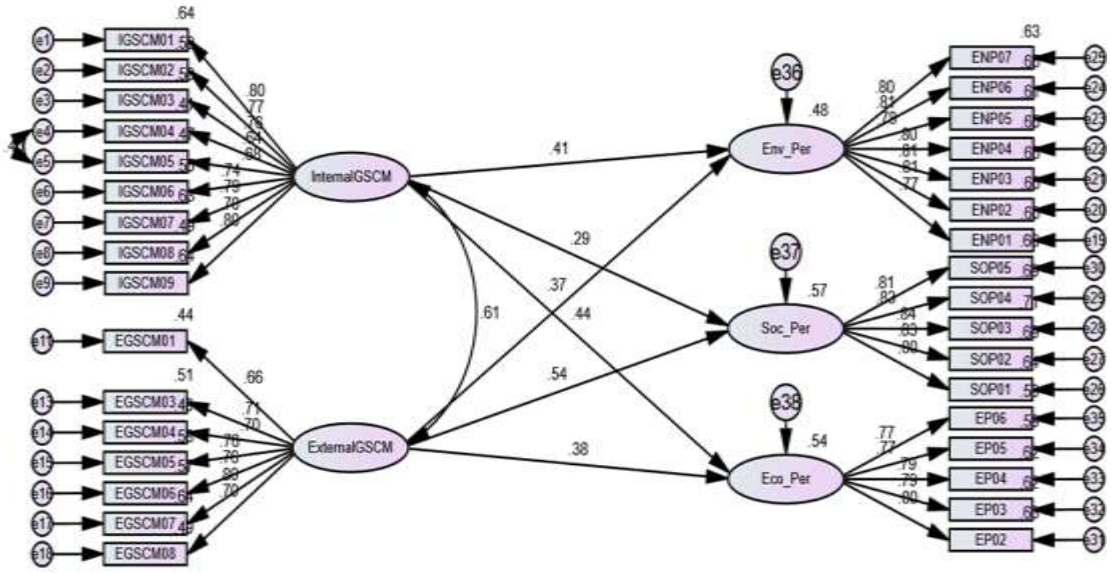

Figure 2: Path diagram (Structural model)

Table 4: Hypotheses Test Results

Hypothesis	Relationship	Beta value (β)	S.E	Critical Ratio	P-value	Accepted/Rejected
H1a	IGSCM→ENP	.408	.054	6.934	***	**Accepted**
H2a	IGSCM→EP	.438	.052	7.444	***	**Accepted**
H3a	IGSCM→SOP	.291	.060	5.382	***	**Accepted**
H1b	EGSCM→ENP	.369	.070	6.071	***	**Accepted**
H2b	EGSCM→EP	.381	.069	6.278	***	**Accepted**
H3b	EGSCM→SOP	.540	.090	8.421	***	**Accepted**

Note: ***p<0.001, **p<0.01, *p<0.05

Discussion

In accordance with the empirical findings, we consider that our proposed theoretical model demonstrating the impact of GSCM practices both internal and external on sustainable performance of the firm in terms of economic, environmental and social performance is a good representative of all the hypothesized theoretical linkages among postulated constructs, while reflecting on different research clusters. The positive influence of GSCM (IGSCM, EGSCM) on all the pillars of a firm's sustainable performance could be the result of a strong strategic "fit" amongst all these practices. According to Schmidheiny (1992), IGSCM is strongly associated with effective implementation of assets and inputs. It further results in cost reduction through undertaking initiatives, such as reuse, recycling and minimal use of energy sources, waste management, re-work minimization and enhanced quality, along with the creation of new processes and goods (Kitazawa & Sarkis, 2000; Yang et al., 2010; Zhu & Sarkis, 2004; Zhu et al., 2005).

One of the most essential component, which is also common in all these practices, is the enhancement of firm's image in the eyes of all the key stakeholders, such as, suppliers, customers, employees, governmental entities etc. (Abdullah et al., 2016; Abdullah et al., 2017). Innumerable social advantages are associated with a firm's improved image, including the motivation and morale of employees, customers' loyalty and satisfaction, to name only a few (Eltayeb et al., 2011). Therefore, the findings of the current

study regarding the association of internal and external GSCM with firm's sustainable performance in terms of social, environmental and economic performance are in line with the above mentioned studies and our underpinning theory i.e. N-RBV.

In addition firm's upstream collaborative practices, including the ethical selection of suppliers, monitoring and evaluation mechanism and level of collaboration might not have positive impact on firm's economic performance, specifically in the short run, but these practices might end up influencing the economic performance positively in a longer period (Lai et al., 2012). Longoni and Cagliano (2018) and Luthra et al. (2017) contended that benefits resulting from such practices require relational investments with suppliers, including cost reductions and higher revenue generations, which are hard to notice and cannot be achieved immediately.

Naturally, spending of a focal firm, while purchasing raw material from suppliers obliged to make eco-friendly investments increases in the short term. However, in the long run positive impacts of GSCM on firm's sustainable performance, especially in terms of economic and environmental performance are observed frequently. Furthermore, based on the findings of the study conducted by Lai et al. (2012), a firm's upstream and downstream environmental collaboration with various stakeholders is an integral element in determining and implementing GSCM practices, which in turn leads towards a firm's improved sustainable performance. Therefore, it can be stated safely that the findings of the current study are in line with the mentioned studies within the prevalent literature.

Theoretical and Managerial Implications

This study has contributed majorly to the field of supply chain management and corporate sustainability, within existing literature by putting forward a comprehensive theoretical framework. It has the potential to examine the impact of every dimension GSCM practices on all the three pillars of a firm's sustainable performance, operating within the manufacturing sector of Pakistan. The current study contributes considerably to the existing body of knowledge through conceptualizing and developing the central research constructs GSCM and firm's sustainable performance (SP). In contrast with previous studies, for example, Stank et al. (1999) and Rosenzweig et al. (2003), in which they were treated as a uni-dimensional constructs, this study has divided the same constructs into separate dimensions i.e. IGSCM and EGSCM, while firm's sustainable performance (SP) was classified into three dimensions, including environmental, social and economic performance, supported by the concept of triple bottom line of sustainability.

In addition, this research contributes significantly to on-going research and to the existing body of knowledge by bridging different concepts i.e. GSCM practices and firm's sustainable performance, asserting on the point that undertaking such sustainable initiatives lead towards enhanced sustainable performance, which is beneficial to future researchers, practitioners and policy makers in a number of ways. Besides theoretical contributions, several implications can be advocated, which are significant to both the policy makers and managers working within the manufacturing sector, specifically, procurement managers/purchase managers, supply chain managers, plant managers, operations managers and production managers, to name only a few.

Pakistan is a South-Asian developing country paving its way towards progress, however it is facing a number of severe challenges in its way. The economy of the country is in shambles due to its depressing track record of a number of economic, social and environmental parameters (Ali & Rehman, 2015). In environmental aspect, the country is listed 7th among the most vulnerable countries prone to climate change, according to Global Climate Index report published in 2017 (Eckstein et al., 2017). Keeping in view the active membership of Pakistan in the Paris Agreement on Climate Change, it is crucial for the managers and policy makers working in manufacturing sector to undertake green and sustainable initiatives across their supply chain management activities strategically, in order to ensure the accomplishment of a sustained competitive advantage in the face of potential rivals from other countries within the region.

In addition, this study is equally beneficial to policy makers and other regulatory authorities, as it provides an in-depth understanding necessary for the motivation of manufacturing firms to adopt and implement GSCM initiatives for sustainable performance. On one hand, authorities could compensate manufacturing firms by maximizing subsidies and reducing taxes on environmentally friendly products, encouraging them to go green and implement initiatives like internal and external GSCM practices for eco-friendly production, thereby promoting a "win-win" opportunity balancing out economic gains and better environmental and social protection. On the other hand, governmental bodies have the authority to impose environmental, social and economic regulations upon manufacturing firms coercively, as these forces are considered powerful precursors leading towards the adoption and implementation of GSCM practices among firms. These regulations are also beneficial to the manufacturing firms, and are considered as a foundation for undertaking eco- friendly initiatives voluntarily by manufacturing firms, stated by Karra and Affes (2014).

Conclusively, this study is beneficial to the managers in general and managers working in the manufacturing sector of Pakistan in particular, who are either interested or required to transform their traditional supply chains into environmentally friendly and more collaborative supply chains.

Limitations and Future Research Directions

Despite its many potential contributions, this study also highlights some limitations faced by the researcher. Firstly, despite achieving a fairly acceptable degree of generalisability in the local context with a sufficient sample size and usable response rate meeting the criteria required by various statistical tests, data was collected in only four major cities of a single country. Future studies should overcome this constraint by collecting data using larger samples within larger populations from different places including a wide and diverse spectrum of respondents, as using larger samples enhance generalizability. Secondly, our theoretical model has been designed with a primary emphasis on manufacturing firms, which could be amended, in order to reflect other types of firms, for example, wholesale and retail firms, service firms etc. Furthermore, this study employed cross-sectional survey strategy for data collection within manufacturing Pakistan firms, thus putting a cap on the capabilities of research findings to grasp the long-term perspective. Future researchers should consider employing longitudinal survey techniques.

Another limitation is of this study is the use of Likert-scale in our data collection instrument i.e. self-administered questionnaire, thus putting a limit on the response by restricting the respondents to stick to the item only. Future studies should consider different data collection techniques, such as, structured and semi structured interviews, and open ended questionnaires etc.

Lastly, future studies should analyse our conceptual framework using different theoretical perspectives, e.g. dynamic capability theory (Eisenhardt & Martin, 2000; Teece et al., 1997), in order to extend the scope of the constructs employed in our research model, while developing novel concepts and theories in the process.

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