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Abstract

The purpose of this paper is to identify the drivers of Green Supply Chain Management (GSCM) practices among the manufacturing firms of a developing country, and to examine the impact of GSCM practices on firms' economic and environmental performance. A structural equation model is developed to study the hypothesized relationships between three drivers and GSCM practices. Furthermore, the relationship between GSCM practices and firm's economic and environmental performance is also investigated. A sample of manufacturing firms is taken from the companies listed in the local stock exchange. Cross-sectional data of 80 responses from these manufacturing firms is collected. The developed model is tested through Partial Least Square Structural Equation Modeling (PLS-SEM) technique. Results show that customer's pressure and firm's internal drive (enviropreneurship) positively impacts the adoption of GSCM practices whereas the relationship between governmental legislation GSCM practices adoption is not significant. GSCM practices positively impact the supply chain buying firm's economic and environmental performance.

Keywords: green supply chain management (GSCM), developing country, environmental performance, structural equation modeling, partial least square (PLS)

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1. Introduction

Recent age of globalization has resulted in an improved availability of products around the world during the last few decades (Bendul, Rosca, & Pivovarova, 2017). Such is the extant of this availability, that goods and services are now accessible in much larger quantities than required for the sustenance of world's population. Businesses spend great amount of resources not only to ensure the continual availability of these products, but also to attract customers. This has led to the resource exhaustion throughout the planet at a pace that is not sustainable (Aslam & Azhar, 2013).

Environmental degradation caused by industrialization has thus become one of the main issues of the present age (Luthra, Garg, & Haleem, 2016). This has raised concerns regarding environmental practices of business firms across the globe. Organizations are now being subjected to accountability about their environmental practices not only from their governments but also from social organizations and general public (Kamal, Irani, Sharif, & Love, 2017). As a response to the regulatory and public pressures, environmental sustainability has become one of the most crucial issues faced by the businesses around the globe (Agi & Nishant, 2017; Laari, Töyli, & Ojala, 2017).

In response to the challenge of conducting business activities with minimum adverse impact on the environment, green supply chain management (GSCM) has emerged as an important area of research and practice (Sarkis, 2012). Environmental degradation results from the transformation activity during the phases of production cycle including extraction of raw material, use of water and energy, air emissions, and environmental impacts generated during the production and disposal of goods (Govindan, 2014). Hence if the organizations seek to reduce the harmful effects of business activity, it is absolutely vital to focus on the entire chain of value adding processes.

GSCM involves a broad range of practices including green purchasing, integrated supply chains flowing from suppliers to manufacturers, to customers and the reverse processes (Kauppi,

Kauppi, Hannibal, & Hannibal, 2017). It integrates SCM and environmental protection objectives resulting in increased supply chain profitability and market shares and reduced ecological inefficiencies and risks (Kumar, Hong, & Haggerty, 2011). GSCM not only makes social sense but also business sense (Mefford, 2011).

Firms can perform better by adopting more advanced and proactive environmental strategies. The literature reveals that green initiatives help the firms to reduce energy and logistics costs and thus improve their operational and financial performance (Sari, 2017; Youn, Yang, Hong, & Park, 2013).

While financial performance is a key driver of a firms' strategy, it has traditionally not been the primary motivator for the firms taking GSCM initiatives (Koh et al., 2017). There are large initial infrastructural investments required for these initiatives that prohibit their implementation. Then what drives the business firms to implement GSCM practices? The institutional theory suggests that in such cases, firms' actions are not governed by rational economic outcome motivation; instead they are seeking legitimacy in the business environment.

In order to achieve legitimacy, firms respond to the regulatory and public pressures. This results in firms adopting homogeneous practices (DiMaggio, 1983). Internal and external environmental stimulators have indeed played a key role in GSCM adoption (Wu, Ding, & Chen, 2012). Pressures from downstream supply chain partners and consumers also force organizations to adopt green supply chain (Wolf, 2011).

This paper studies the impact of internal and external drivers on implementation of GSCM initiatives. It also determines the impact of GSCM practices on organizations' environmental and economic performance. While empirical research in recent years has focused on GSCM drivers, many of these studies either do not consider internal and external drivers simultaneously (e.g. Islam, Karia, Fauzi, & Soliman, 2017; Zailani, Eltayeb, Hsu & Tan, 2012) or they do not focus on all the green practices of an organization (e.g. Hsu, Hu, Wei, & Huang, 2014). A similar study

by Zhu et al.,(2013) in the Chinese environment found mixed results highlighting the importance of further studies to strengthen the understanding about GSCM drivers. We study the GSCM drivers in a developing country environment. Researchers have argued that motivation for being socially responsible differs with the cultures (Mar Miras-Rodríguez, Carrasco-Gallego, & Escobar-Pérez, 2013). A lot of GSCM research in the DCs has been conducted in China, India, Taiwan and Brazil. These countries in the recent times have become the hub of world business and hence have relatively more resources and know-how to implement green initiatives (Vijayvargy et al., 2017). Research is also warranted in the other DCs with lesser developed infrastructure and weaker financial strength.

The rest of the paper is organized as follows. In the next section, literature review is presented, based on which a theoretical model is developed, and hypotheses are formulated. After that there are sections on research methodology, model evaluation and hypotheses, and discussion and implications. Last section presents the conclusions, current research limitations, and direction for future research.

2. Literature Review

2.1. Green Supply Chain Management

Green supply chain management concept is grounded in both environmental protection and SCM literature (Zhu, Qu, Geng, & Fujita, 2017). SCM opposes the myth that firms are isolated entities that try to avoid dependency on other firms (Lee., Kim, & Choi, 2012). It suggests that all firms in a supply chain must work in collaboration to achieve supply chain wide goals (Frödell, 2011). Environmental protection literature asserts that businesses should protect environment by introducing environmentally friendly systems (Innes, 2008).

GSCM integrates the SCM and environmental protection concepts. It adopts the definition of supply chain management by adding the green component to it (Frödell, 2011). GSCM is defined as; managing the supply chains in such a way that their adverse

impact on environment can be minimized (Holt, 2009; Lee, Kim, & Choi, 2012). GSCM practices not only help make the businesses environment friendly, but also help in optimum utilization of natural resources thus enhancing the profitability of the firms (Rao & Holt, 2005; Wong, Lai, Shang, Lu, & Leung, 2012)

GSCM practices include; environmental collaboration (Paulraj, 2011), Internal environmental management (Lee. et al., 2012; Paulraj, 2011; Zhu, Sarkis, & Lai, 2007), Green purchasing (Lee, Kim & Choi, 2012), Green production (Chien & Shih, 2007), Cooperation with customers (Lee et al., 2012), Eco design (Chien & Shih, 2007; Holt, 2009; Lee et al., 2012; Zhu & Sarkis, 2004), green logistics (Holt, 2009), and recycling (Chien & Shih, 2007).

2.2. Institutional Theory and GSCM Drivers

We use Institutional Theory as the theoretical anchor for this study. Institutional theory provides a perspective for researchers to study the influence of factors that affect and promote organizational practices and culture (DiMaggio, 1983). It explains the influence of social, political and economic factors in the organizational environment on its strategies and decision making practices (North, 1990). Meyer (1977) argued that organizations that operate in well-developed institutional environments do not become successful by merely executing their operations in an efficient manner.

Instead, they prosper by becoming similar to the other organizations in their environments in search of legitimacy and acquisition of resources necessary for survival, a phenomenon termed as institutional isomorphism. DiMaggio (1983) explained that most organizations in their quest to become different, adopt practices that instead make them similar to their competing organizations. This happens due to the influence of three environmental drivers i.e. coercive, normative and mimetic drivers. These drivers influence the organizational strategies, processes and structures;

- Coercive drivers arise due to the influence of formal and informal pressures such as governmental institutions and internal controls. Governments for example may apply

coercive pressure by imposing trade barriers and fines etc. (Rivera, 2004).

- Normative drivers are morally oriented and suggest a legitimate course of action in the light of what is considered to be acceptable behavior by industry, professional or academic institutions. This guides the firms so that they become focused towards certain objectives and develop their skills accordingly (Hsu et al., 2014; Zailani et al. 2012)
- Mimetic or cognitive processes arise when the environment is uncertain and technologies are poorly understood. In such cases organization mimic the behavior of other similar organizations (DiMaggio, 1983). This occurs because the organizations with similar environment are faced with similar issues. Thus by modeling themselves on the other similar organizations, they try to tackle the uncertainty and reduce the risks by not becoming worst amongst the competition.

2.3.GSCM Drivers in Developing Countries

The developing countries have traditionally been more focused on economic growth instead of green growth. They pay less attention and spend fewer resources on environmental issues, yet their environmental problems are more severe than the developed countries. Most DCs face problems such as water contamination, soil erosion and polluted cities. Many countries have enforced some environmental controls to reduce air and water pollution and disposal of waste materials (Maignan & Ferrell, 2001) but even these policies are more effective in developed countries (Kimber & Lipton, 2005).

Firms in DCs do not face strict regulation from the governments. Where the regulations exist, business firms can get away with activities that endanger the life of common citizens due to weak governmental controls and corruption. Furthermore, export driven economies are part of the race to drive down costs in order to remain competitive in the world markets. Here the governments have less incentive to check the practices of the firms that bring *precious* foreign exchange. Factors such as lack of awareness and resources also hinder the implementation of green practices (Dögl & Behnam, 2014).

GSCM is an emergent area of research in the DCs. Studies has researched this topic from various aspects in recent times (e.g. Dögl & Behnam, 2014; Roehrich et al., 2017; Zailani et al., 2012). This study focuses on the drivers that lead organizations towards implementation of GSCM practices. Amongst these drivers government regulations can prove to be important contributors towards encouraging environmentally responsible practices (Zhu. et al., 2013). Strict environmental regulations in DCs like China have forced the manufacturing firms to apply GSCM initiatives (Zhu et al., 2007). A contributing factor could be that the application of GSCM practices in DCs is more focused on reducing environmental degradation rather than adopting a proactive approach towards minimizing the actual source of waste and pollution (Zhu., Geng, Sarkis, & Lai, 2011).

On the customer side, many DC organizations are suppliers of developed countries. Thus DCs not only need to fulfill the requirements of the stakeholders in their home countries but also the expectations of their client countries that are having different regulations and market expectations (Dögl & Behnam, 2014). Furthermore the research has indicated that normative pressure from the customers in DCs has also increased in recent times and they have started paying more attention towards environmental friendly products (Harris, 2006). While the importance of external drivers for DCs has been highlighted above, research related to internal drivers has been relatively scarce. In this paper we study the impact of both the internal and the external drivers on GSCM practices.

3. Hypotheses Formulation

3.1. Governmental Legislation and Adaptation of GSCM Practices

Government regulations bind organizations to adopt environmental practices. Recent times have seen depletion of natural resources at an increasing rate. Government authorities in this situation have solid reasons to introduce (green) regulations to protect these scarce resources. While green trade barriers have forced the firms to become ISO 14000 certified, increasing regulatory and

community pressures have played a key role in forcing firms to balance the environmental and economic performance by introducing strategies that minimize the negative impact of their supply chain activities on environment (Pan, 2003).

Previous research has indicated that government regulations and legislations are prominent among the drivers of GSCM implementation (Campbell, 2007; Jones, 2010). Pressures from government agencies influence the adoption of environmentally responsible behaviors (Zailani el al. 2012). Holt (2009) in their empirical study showed that governmental legislation is the most influential factor in the adaptation of GSCM practices among United Kingdom's manufacturing sector. Similar results were found in Zhu, et al. (2013) study on the Chinese manufacturing firms. It is thus hypothesized that;

H_1: Governmental legislation positively impacts the adaptation of GSCM practices.

3.2. Customer's Pressure and Adaptation of GSCM Practices

Various studies have highlighted the significance of customer pressure in driving firms towards green practices (e.g. Zailani et al., 2012; Zeng, 2011). As the environmental awareness within the society increases, customers become a critical pressure group in forcing firms to adopt the GSCM practices (Wong et al., 2012).Increasing pressures from community and customers encourage the firms to integrate green practices into their routine operations and overall strategy (Zhu, Sarkis, & Lai, 2008).

Customers prefer to engage in business relations with organizations that are able to match their environmental values and avoid doing business with those organizations that fail to do so (Bai & Sarkis, 2010).Industrial customers particularly start forcing firms to be ISO 14000 certified. Even some of them include it as a criterion in their selection process. Therefore those companies which adopt green practices and are ISO 14000 certified are considered favorable by customers particularly in export business (Wong et al., 2012). Previous research in the area has shown that customer pressure positively impacts the adaptation of GSCM

practices (Holt, 2009; Wong et al., 2012; Zhu, Geng, Sarkis, & Lai, 2011).Thus we propose:

H_2: Customer's pressure positively impacts the adaptation of GSCM practices.

3.3. Enviropreneurship and Adaptation of GSCM Practices

Menon (1997) defined enviropreneurship as, "an entrepreneurial orientation that accommodates the needs of the environment and society while simultaneously satisfying the economic objectives of organizations". In fact, enviropreneurship is an organizational culture which requires huge investment and time (Paulraj, 2011). It is not easy for the organizations to acquire enviropreneurial orientation therefore they have to make huge investment in terms of time and resources to develop the organizational culture (Lee &Pennings., 2001). Enviropreneurial orientation of organizations shows their risk taking ability, and proactive nature that enable them to acquire necessary resources and capabilities which are essential to meet the requirement of people, profit and planet (Lee & Pennings., 2001).

Firms with a culture of enviropreneurship develop innovative and environmentally friendly product designs identify green raw materials for the production of the green products (Paulraj, 2011). Such firms invest heavily in research & development (R&D) to devise innovative green processes. These initiatives help the firms in enhancing the level of GSCM practices, and make them environmental friendly. Based on the previous research studying similar relationships (e.g. Paulraj, 2011; Rao, 2002) we suggest that;

H_3: Enviropreneurship positively impacts the GSCM practices.

3.4. GSCM Practices and Firm's Economic and Environmental Performance

Under competitive regulatory and community pressures it has become essential for the firms to balance their economic and environmental performance (Shultz, 1999). Various studies on supply chain management and related issues provide an insight

into the possible patterns of supply chain relations that may improve the environmental performance (Florida, 1996; Geffen, 2000; Sarkis, 1995). Developing relationship with suppliers can be helpful in adoption and implementation of innovative and environmental technologies. Moreover joint research and development projects and partnership between customers and suppliers leads to improve the environmental performance (Geffen, 2000).

Environment friendly production processes and products enable the organizations to save corporate and financial resources such as reduction in usage of packaging material (Dögl & Behnam, 2014). Green products and technology can enhance productivity and reduce compliance cost (Chan, 2010). Regulatory practices for disposal of waste materials, implementing re-cycling and re-use and environmental packaging not only improve organization's brand image but also has a significant impact on cost (Hitchcock, 2012).

With an institutional theory perspective, organizations that conform to the environmental requirements of their stakeholders are rewarded more and show better financial results than the organizations that neglect pressures of forces present in their external and internal environment (DiMaggio, 1983). Previous studies in the context of developed countries (e.g. Azevedo, Carvalho, & Machado, 2011) and developing countries such as India and China (Zhu & Liu, 2010; Zhu et al., 2007) have shown positive effects of GSCM practices on economic and environmental performance. A recent study of Korean manufacturing firms showed that GSCM practices provide tangible performance outcomes involving improved environmental performance, improved brand image and sales growth (Youn et al., 2013). We thus hypothesize that;

H_{4a}: GSCM practices positively impact the firm's economic performance.

H_{4b}: GSCM practices positively impact the firm's environmental performance.

4. Research Methodology

4.1. Sample and Data Collection

In order to study the relationships between drivers of GSCM, GSCM practices, and performance data was cross-sectional data was collected from the manufacturing firms operating in Pakistan. Survey methodology was used for data collection. Sampling frame included all the manufacturing firms listed on Lahore Stock Exchange (LSE). Sample was drawn using random sampling technique. In first round, questionnaire including cover letter was sent to respondents of 325 companies operating at managerial post in environmental control, procurement, production, research and development (R&D), marketing, and supply chain management departments.

Table 1: Sample Demographic

Department	Number of Responses Collected
Environmental Control	10
Procurement	7
Production	17
Research & Development	8
Marketing	13
Supply Chain Management	14
Others	4
Total	73

This criterion was selected because many previous similar studies employed these criteria (e.g. Chien & Shih, 2007; Holt, 2009). Reminders were sent after two weeks. Unfortunately, these efforts generated only seven responses. In second round of data collection, we utilized personal contacts in the targeted firms to get the required data. This effort generated 80 responses out of which 73 responses were useable.

4.2.Survey Instrument Development

Survey instrument for this study was adopted from the previous studies. Items for governmental legislation were adopted from Holt (2009). Scales for enviropreneurship, economic and environmental

performance were adopted from Paulraj (2011). Scales for customer pressure and GSCM practices were adopted from Wong, et al., (2012) and Rao (2002) respectively. Five point Likert Scale was used to measure each construct. In enviropreneurship and customer's pressure section, respondents were asked to respond to each item on a scale ranging from 1 (= Strongly Disagree) to 5 (= Strongly Agree). For all other sections, respondents were asked to evaluate their firms against each item on a scale ranging from 1 (= Very Low) to 5 (= Very High).

4.3. Construct Validity

Before testing the theoretical model, each scale was evaluated for content validity, reliability, convergent validity, and discriminant validity. Guidelines provided by Fernandes (2012) were followed in the validation process. Content validity was established through extensive review of available literature. Reliability of the data was examined through Cronbach Alpha coefficients. The Alpha coefficients for governmental legislation, enviropreneurship, customer pressure, green practices, economic performance, and environmental performance were 0.87, 0.81, 0.85, 0.93, 0.84, and 0.89 respectively.

All the coefficients were higher than 0.7 thresholds. Hence, scales were considered reliable. In order to estimate convergent and discriminant validity, confirmatory factor analysis was performed using partial least squares (PLS) technique of structural equation modeling (SEM). Guidelines provided by Peng & Lai (2012) were followed in the construct validation as well as hypotheses testing.

Convergent validity was assessed in terms of factor loadings and average variance extracted (AVE). All the items loading were higher than 0.60 thresholds except two items of green practices construct which were deleted. AVE for each construct was higher than 0.50 thresholds (Peng & Lai, 2012). These results overall show acceptable convergent validity. Discriminant validity was examined by comparing the square root of AVE with the correlations between the constructs. Square root of AVE was higher than the inter-construct correlations and indicates sufficient discriminant validity.

Table 2: Measurement Model

Item	Loading	CR	AVE	Cronbach Alpha
Governmental Legislation				
Influence of Pakistan's current environmental legislation	0.873	0.912	0.722	0.87
Pakistan's current environmental legislation	0.927			
Forthcoming environmental legislation	0.803			
Possible environmental legislation in the future	0.783			
Enviropreneurship				
Our organization has a cultural emphasis on innovation and R&D in environmentally friendly products	0.860	0.922	0.748	0.81
Our organization has a high rate of environmentally friendly product introductions	0.909			
We have a bold, innovative, environmentally friendly product development approach	0.777			
Our organization has a proactive posture to the environmental market	0.863			
Our organization is one of the first to introduce new environmentally friendly technologies and products	0.783			
Customer Pressure				
Responsibility to retrieve reusable products from the markets	0.755	0.901	0.696	0.85
Our customers require us to be ISO 14000 certifies	0.826			
Our customers carry out environmental audits of our firm	0.915			
Our customers take part in our product return program	0.834			
Green Practices				
Use of environment-friendly raw materials	0.696	0.936	0.599	0.93
Choice of suppliers by environmental criteria	0.693			
Urging/pressuring supplier(s) to take environmental actions	0.681			

Item	Loading	CR	AVE	Cronbach Alpha
Optimization of processes to reduce solid wastes	0.695			
Optimization of processes to reduce water use	0.664			
Optimization of processes to reduce air emissions	0.727			
Optimization of processes to reduce noise	0.674			
Use of cleaner technology processes to make savings (energy, water, wastes)	0.621			
Use of alternative sources of energy	0.783			
Helping suppliers to establish their own EMS	0.768			
Eco-labeling	0.800			
Environmental improvement of packaging	0.807			
Taking back packaging	0.783			
Providing consumers with information on environmental friendly products and/or production methods	0.831			
Change for more environmental-friendly transportation	0.604			
Economic Performance				
Decrease in cost of materials purchased	0.665	0.894	0.681	0.84
Decrease in cost of energy consumption	0.874			
Improvement in return on investment	0.869			
Improvement in earnings per share	0.872			
Environmental Performance				
Reduction in air emission	0.712	0.891	0.673	0.89
Reduction in waste (water and/or solid)	0.724			
Decrease in consumption of hazardous/harmful/toxic materials	0.781			
Decrease in frequency for environmental accidents	0.883			
Increase in energy saved due to conservation and efficiency improvements	0.709			

CR = Composite reliability, AVE = Average variance extracted

Table 3: Correlation Matrix

	Mean	Standard Deviation	GL	ENP	CP	GP	ECO-Per	ENV-Per
Governmental Legislation (GL)	3.36	0.7	0.85					
Enviropreneurship (ENP)	3.95	0.59	0.56	0.86				
Customer Pressure (CP)	3.88	0.76	0.45	0.57	0.83			
Green Practices (GP)	3.75	0.62	0.38	0.71	0.51	0.78		
Economic Performance (ECO-Per)	3.9	0.6	0.36	0.5	0.34	0.68	0.83	
Environmental Performance (ENV-Per)	3.96	0.66	0.27	0.55	0.22	0.75	0.63	0.82

Square root of AVE is shown on the diagonal of each matrix in bold; inter construct correlation is shown off the diagonal

Table 2 provides items loading, composite reliability, AVE and Cronbach alpha for each scale. Table 3 shows mean, standard deviation, square root of AVE and inter-construct correlations.

4.4.Model Evaluation and Hypothesis Testing

Figure 1 shows the results of structural model obtained through PLS-SEM. The results' outputshows that enviropreneurship and customer pressure significantly impact the level of GSCM practices thus providing statistical support for H_2, and H_3 ($t > 2.58$) while governmental legislation was not found to be a significant driver. Thus, no support for H_1 was found.

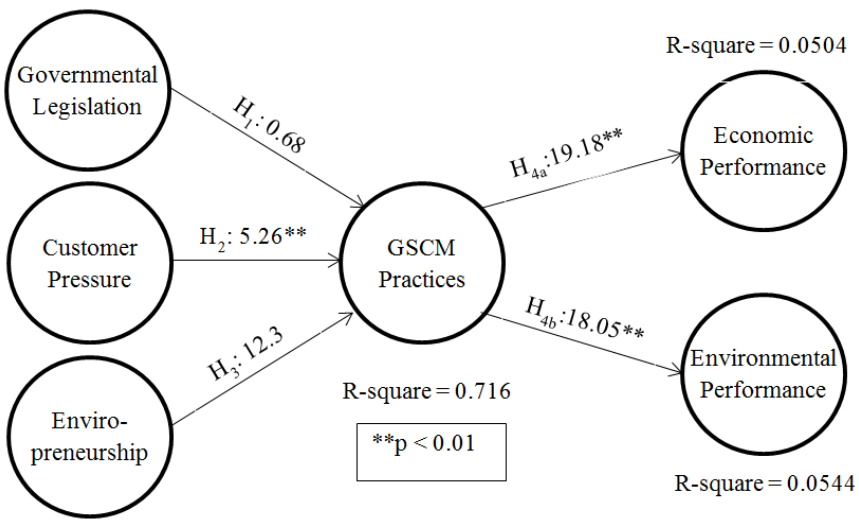

Figure 1: Structural Model Results

Further, the level of GSCM practices positively impacts the firm's economic and environmental performance. Thus, H_{4a} and H_{4b} were supported ($t > 2.58$). Overall quality of the measurement and structural model was assessed through Goodness of Fit (GOF) test (Peng & Lai, 2012). The GOF is calculated as:

$$GOF = \sqrt{(\text{Communality} \times R^2)}$$

$$GOF = \sqrt{(0.1113 \times 0.5880)} = 0.2558$$

The value of 0.2558 indicates overall high statistical power of the study.

5. Discussion and Implications

This study is an attempt to identify the factors which influence firms to adopt GSCM practices and examine its economic and financial outcomes. Based on the structural equation estimates, it has been found that all but one hypothesis in the study were supported from the data collected from the manufacturing sector in Pakistan. These findings support the results of various previous studies. However, conflict prevails about the role of governmental legislation as an influencing factor towards adoption of GSCM practices. Prior research indicates that with environmental requirements and support from customers, along with government pressures, organizations are motivated to implement green supply chain management practices (Zhu et al., 2013).

The results of this study support the development of a more proactive stance towards environmentally oriented organizational practices. The estimates of structural equation model identify that in Pakistan, governmental legislation is not a driving force to encourage firms in adopting environmentally friendly business practices. However, customer's pressure is significantly influencing the adaptation of GSCM practices. Along with these external factors, firms themselves are also trying to develop innovative product designs and process designs to ensure environmental safety. Further, the findings supported the argument that GSCM not only improves the environmental performance but also enhances the economic performance of the supply chain firms. Thus the contributions of this study are both towards the theoretical as well as empirical side of the research. On theoretical side, we established an association between institutional theory and GSCM practices. On practical side, the study provides empirical evidence by investigating the phenomenon of GSCM on the basis of primary data obtained from the manufacturing companies of Pakistan.

6. Limitations and Future Research Implication

Environmental sustainability is a critical issue in today's world. Previously environmental protection has been neglected due to which environment has been deteriorated. However, during last decade the trend of environmental friendly businesses evolved. Researchers are trying to identify the positive outcomes associated with adopting GSCM practices. As with any research study the limitations may exist but these limitations also provide opportunities and directions for future research.

First, we found that general hypotheses do not necessarily provide insight into all the specific relationships that allows additional investigation. For example, the coercive pressures related to the government regulations have no impact on the implementation of GSCM practices. This raises further questions such as; are government regulations regarding environmental initiatives not strict enough or not enforced in DCs? Second, this study has been conducted taking the perspective of manufacturing firm in the supply chain, thus economic and environmental benefits associated are discussed with the manufacturer taken as the focal firm. Future research may be conducted in perspective of other entities in the supply chain. The comparison of the results from manufacturing firm and supplier firm may further contribute towards this area. Third, the study uses a small sample and should be replicated in a larger group. Fourth, the longitudinal data will be useful to determine whether the effect of variables is short term or enduring? Longitudinal data might indicate how changes in certain variables may affect economic and environmental performance outcomes. Finally, each country of the world has its own culture, economic policies etc. This study has been conducted in Pakistan which has its own unique set of characteristics. Future research may test the research model in other countries and compare the findings.

In summary, the overall findings indicate that green supply chain management practices represent an interesting area of research and practice which opens further research avenues. Greater external pressures from different stakeholders and internal voluntary environmental practices of the organization drive the

firms to implement GSCM practices effectively which ultimately lead to improvement in their environmental and economic performance. Firms may resist adopting environmental practices if they are not responsive to the external pressures from multiple stakeholders that may lead to a negative impact on performance and reputation. Thus to effectively respond to the rising environmental pressures, and demands, manufacturing companies in DCs like Pakistan need more emphasis on the adoption of GSCM practices. This study attempts to set a solid theoretical and empirical basis for this area of research.

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