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The Impact of Green Supply Chain Management Practices on Environmental Performance: The Moderating Role of Institutional Pressure in the Pakistani Textile Industry

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ABSTRACT

Environmental degradation caused by artificial conditioning has boosted the need for sustainable business practices, particularly in resource- ferocious diligence similar as fabrics. This study examines the relationship between Green Supply Chain Management (GSCM) practices and environmental performance in the Pakistani textile industry, with a specific focus on the moderating part of institutional pressure. Drawing on institutional proposition, the exploration investigates how nonsupervisory conditions, request demand, and societal prospects impact the effectiveness of GSCM practices in perfecting environmental issues.A quantitative exploration design was employed using a structured check administered to professionals working in listed textile enterprises in Pakistan. An aggregate of 145 valid responses was anatomized using descriptive statistics, multiple retrogression analysis, and Structural Equation Modeling (SEM). The findings reveal that GSCM practices have a significant and positive effect on environmental performance. Among these practices, supplier integration and internal integration surfaced as the most influential contributors to bettered environmental issues. likewise, the results confirm that institutional pressure significantly centrists the relationship between GSCM practices and environmental performance, strengthening the positive impact of green enterprise when external pressures are high. The study also finds that request demand exerts a stronger influence on GSCM relinquishment than nonsupervisory and societal pressures, indicating a growing part of consumer prospects in shaping commercial environmental strategies. While enterprises demonstrate high compliance with environmental regulations, visionary enterprise similar as emigration reduction remain fairly weaker. The study also finds that request demand exerts a stronger influence on GSCM relinquishment than nonsupervisory and societal pressures, indicating a growing part of consumer prospects in shaping commercial environmental strategies. While enterprises demonstrate high compliance with environmental regulations, visionary enterprise similar as emigration reduction remain fairly weaker.

Keywords: *Environmental degradation, Green Supply Chain Management, Structural Equation Modeling*

INTRODUCTION

Background of the Study

One of the most urgent of the global challenges in the twenty-first century has become environmental degradation, which has been caused by the process of rapid industrialization, overuse of resources, and unsustainable production and consumption trends, in large part. Although manufacturing activities are

necessary in the growth of the economy and industrial development, they are highly known as a significant cause of environmental pollution in the form of emissions, generation of waste, consumption of energy and depletion of natural resources. The developing economies such as Pakistan have even a harder task since they are trying to balance the industrial development and the environmental conservation. In that regard, the manufacturing companies are becoming ever more obligated to use ecologically responsible methods that would minimize their ecological impact, yet, still be competitive in the local and global market.

Green Supply Chain Management (GSCM) has become one of the strategies that combine business operations with sustainability aims. It encompasses the environmental aspect in the whole supply chain process, the design and source of the product material to be used, production, logistics and disposal of the end product. GSCM does not just seek to make the operations less harmful to environment, but also develop competitive advantages by improving the efficiency of operations, minimizing wastes and optimizing resources (Carter and Rogers, 2008).

With the ever-increasing environmental problems and challenges being climate change, pollution, and depletion of resources, business entities are increasingly being pressure to embrace sustainable operations. Specifically, such industries as manufacturing and textiles that are traditionally resource-intensive are the most important fields, where the GSCM practices can bring significant benefits. Textile business, especially, is associated with the use of much water, energy, and chemicals, as well as the production of a great amount of waste. Therefore, enhancing environmental performance of textile supply chain is necessary both to enhance environmental sustainability as well as operational efficiency, costs and consumer demands of eco-friendly products (Vachon and Klassen, 2008).

The environmental performance is a very important indicator of the effectiveness of organizations to reduce their environmental footprint by means of sustainable activities. A company that adopts GSCM practices advances its environmental performance by managing its resource consumption, emissions, and wastage (Zhu et al., 2008). The practices of GSCM thus combine green procurement, eco-efficient production, sustainable logistics and product lifecycle management to minimize adverse effects of the supply chain to the environment (Tate, 2009). Nevertheless, the success of these practices in bringing about meaningful environmental improvements is comprised of internal organizational and external institutional forces.

Institutional pressure is a concept that is very important in determining the relationship between GSCM and the environmental performance with regard to the external pressures that influence organizations to engage in specific practices. According to institutional theory, firms do not exclusively pursue strategies depending on what they are able to do but they are often coerced to behave in certain ways externally, like the government and industry-driven expectations, and the preferences of society (DiMaggio and Powell, 1983). Institutional forces like regulatory requirements, market needs, and social expectations in the context of GSCM are influential factors in encouraging companies to go green.

Although the research on GSCM and its effects on the environment is on the rise, the moderating effect of institutional pressure is still not investigated thoroughly. Institutional pressures which may either be by the regulatory bodies or by the market forces or by societal pressure can not only influence firms to be guided by GSCM practices but also influence the effectiveness of these practices on improving environmental performance. This paper will seek to explore the effects of institutional pressures on the adoption and success of GSCM practices with reference being made to the Pakistan textile industry.

Problem Statement

Textile industry in Pakistan is one of the pillars of economic growth of the country as it has significant exports, employment opportunities, and economic activity. Nevertheless, the industry is yet to overcome the challenges of inefficiency in its supply chain, which negatively affects environmental sustainability

despite its economic significance. The industry is typified by excessive use of resources, emissions and wastes, and thus, one of the most destructive industries in Pakistan.

Although green practices have been embraced by some company in the textile industry, the general practice of Green Supply Chain Management (GSCM) is little practiced. This slow adoption rate can be explained by many factors that include ignorance, costly upfronts, and the belief that sustainability is not necessarily compatible with business profitability. Besides, institutional pressure in motivating the adoption of GSCM practices, and its moderate impact on environmental performance has not been well investigated, especially in the Pakistan textile industry.

The aim of this research is to fill this gap by investigating the possibility of improved environmental performance of the textile industry by adopting GSCM practices. Also, it examines the moderating effect of institutional pressure on this relationship, on how regulations requirements, market needs, and societal expectations affect the capability of firms to adopt and enjoy the benefits of GSCM practices.

It is hoped that the results of this research would give information about how institutional forces, such as government regulations, consumer pressure on sustainable products, and societal norms, could lead firms toward more sustainable operations and, thus, enhance their environmental performance.

Research Objectives and Research Question(s)

The main aim of this research is to examine the connection between the Green Supply Chain Management (GSCM) in textile industry in Pakistan, the institutional pressure and environmental performance. In particular, the research will be objective to:

- Examine the effects of GSCM practice on environmental performance in the textile industry.
- Test whether institutional pressure is moderating the relationship between GSCM practices and environmental performance.
- Give empirical data of how institutional pressure influences the uptake of GSCM practices and their consequences on the performance of the environment.

In order to inform this study, the following research questions are developed:

1. What are the effects of GSCM practices such as planning, procurement, execution, migration, and continuous improvement to the environmental performance of the textile industry?
2. What is the influence of institutional pressure on the relations between GSCM practices and the performance of the textile industry in terms of the environment?
3. What role does institutional pressure play in taking and implementing GSCM practices in the textile sector in Pakistan?

These research questions will fill major gaps in the literature, especially the moderating effect of the institutional pressure on the success of the GSCM practices, and the context-specific factors that might have an impact on the textile industry in Pakistan.

Significance of the Study

The present research is important both in terms of scholarly work and practice. Academically, it adds to the increasing body of knowledge on the topic of Green Supply Chain Management (GSCM) by examining the moderating nature of the institutional pressure. Whereas a considerable part of the extant

literature concentrates on the direct effect of GSCM practices on the environmental performance, the present research offers a contribution to the insight of the contribution of external forces on the effectiveness of these practices and they include regulatory pressure, market demand, and societal norms.

Also, this paper gives empirical data in a developing country setting, which can be underrepresented in sustainability studies. It is anticipated that the findings will provide useful insights on the opportunities and challenges encountered by companies in the Pakistani textile industry in their endeavor to adopt sustainable practice in the supply chain with the end result being a better environmental performance and a better business climate.

The findings of the study may be used by industry players especially in the textile industry in Pakistan, in making policy and operational decisions to enhance sustainability. By emphasizing how the institutional pressure can be used to encourage the implementation of green practices, the study is of great use to business administrators, regulators and policy formulators to know how to utilize institutional pressures in catalyzing the sustainability efforts.

Furthermore, through the harmonization of GSCM practices with the international environmental practices, companies have the opportunity to enhance their competitiveness and marketability in global markets where sustainability is becoming an important factor of difference. The findings of the study can assist companies to overcome the challenges associated with implementing green supply chain in emerging markets to improve their environmental and financial performance.

Scope of the Study

The paper will concentrate on the textile sector in Pakistan, a highly economic and intensive sector in regards to the environment. The study will examine companies in this sector that have implemented Green Supply Chain Management (GSCM). A Google survey will be used to gather data by focusing on professionals in the industry especially those in the supply chain management, sustainability as well as environmental compliance line of business.

Although the main point is the textile industry in Pakistan, the conclusions can be generalized to other industries and nations that have the same issues of sustainability. The study will provide the information on whether the institutional pressure moderates the GSCM adoption as well, which will be of interest to a larger audience that has to deal with the sustainable practices in developing economies.

LITERATURE REVIEW

In this chapter, a thorough review of the literature available in the topics of Green Supply Chain Management (GSCM), environmental performance, and institutional pressure is presented. It has started by reviewing the theoretical backgrounds of GSCM and then proceeds to the analysis of the different GSCM practices and how they affect the environmental performance. Further, the chapter will dwell on the institutional theory to appreciate the moderating effect of institutional pressure on the relationships between GSCM and environmental performance. Lastly, this chapter will establish the gaps in the available literature and this study seeks to fill these gaps.

Theoretical Review

Green Supply Chain Management (GSCM)

Green Supply Chain Management (GSCM) incorporates the aspect of sustainability of the environment in supply chain practices. It is an all-inclusive strategy that entails the integration of environmental issues throughout the whole chain of supply which includes procurement to the disposal of a product

(Srivastava, 2007). GSCM practices are expected to ensure that negative impacts on the environment are reduced through waste reduction, conservation of energy, as well as promoting the use of renewable resources in the supply chain.

Another important feature of GSCM is that it aims at minimizing the environmental footprint and at the same time the supply chain is efficient and cost effective. Carter and Rogers (2008) also argue that GSCM practices have the potential of increasing sustainability through issues like conservation of resources, reduction of pollution, and waste management of supply chain activities.

GSCM has been divided into two prominent forms

- **Internal Integration** - This entails integrating practices that concern the environment into the company like minimization of waste and enhancement of energy efficiency during the manufacturing process.
- **External Integration**: This is the process of collaborating with suppliers and customers to adopt sustainable operations in the entire chain of supply (Green et al., 2012).
- **Environmental issues** can be substantially improved both in terms of operational and environmental performance through the integration of environmental issues in supply chain processes and it can be argued that the adoption of the integration is often affected by external forces like market demand and regulation pressure.

Pressure by the Institution and GSCM Adoption

The institutional theory assumes that external forces of different institutions affect organizations; these include regulatory agencies, market needs, and social demands (DiMaggio and Powell, 1983). These forces force companies to embrace some practices so that they can fit in the industry norms, standards and regulations.

The institutional pressure is a significant factor in the GSCM practice adoption. Green practices are more likely to be attained among firms, which are prone to intense institutional pressures, i.e. government regulations, environmental policies and consumer demands of environmentally friendly products (Delmas & Toffel, 2008). This is the external pressure which is a push factor towards increased environmental responsibility and sustainability of firms.

Environmental Performance

Environmental performance is the capacity of the company to reduce the impact it has on the environment and even maximize on the efficiency of its operations. It is normally evaluated on key performance indicators (KPIs) which are consumption of resources, reduction of waste, energy efficiency, emissions and adherence to environmental laws (Zhu et al., 2008).

Environmental performance is one of the key sustainability indicators of the supply chain management because it shows how effectively a given organization has incorporated environmentally friendly operations in its processes. High environmental performance companies can usually save money, develop their competitive edge and meet the rising regulatory pressures associated with environmental protection (Vachon & Klassen, 2008).

GSCM Practices and their influence on the environmental performance

The practices of GSCM listed below are found to be key in enhancing environmental performance in supply chains:

- **Procurement Practices:** The Green procurement process entails sourcing materials and products which are environmentally friendly and are manufactured in a sustainable manner. The practice can minimize the carbon footprint of the supply chain through the encouragement of the utilization of eco-friendly materials and minimization of waste (Walker and Jones, 2012).

- **Optimization of Production and Process:** This is the implementation of energy efficient technologies, minimizing wastes, and enhancing efficiency of resources in the production process. It is in a position of reducing the impacts on the environment substantially and enhancing the efficiency of operations (Lee, 2008).

- **Logistics and Distribution:** Emission reduction and less use of energy can be achieved through optimization of transportation and distribution channels. A greener supply chain involves efficient logistics like alt fuels or the use of the best delivery routes (Tate, 2009).

- **Product Design and End-of-Life Management:** Designing products that have little environmental impact, taking into account product life cycles, product recyclability and product waste management are some of the factors of overall environmental performance (Rao and Holt, 2005).

The Institutional Pressure and the moderating role

Regulatory as well as normative institutional pressures are also important in addressing the environmental strategies taken by firms. Institutional theory states that companies tend to make use of GSCM practices when they are under the pressure of the state (regulatory pressures), industry norms (normative pressures) and societal expectations (cognitive pressures) (Scott, 2008).

As an example, the government can have limitations on waste disposal or emission, which will make firms resort to green practices. On the same note, environmentally friendly products may subject the firm to market pressure to respond in a sustainable way owing to the preference of their consumers (Bansal and Roth, 2000). Such pressures may affect the extent to which firms amalgamate GSCM practices and the levels to which they attain positive environmental results.

Although institutional pressures cannot be ignored, there is still controversy over how much they mediate to the success of GSCM practices in enhancing environmental performance. This paper aims at analyzing the mediating effect of institutional pressure on the relationship between GSCM practices and environmental performance to gain more insight into this relationship.

Research Hypotheses

According to this theoretical background and the literature survey, the hypotheses provided are the following:

H 1: GSCM practices have a positive effect on environmental performance.

H2: GSCM practices are moderated by the institutional pressure in the relationship with environmental performance.

H2a: regulatory pressure has a positive effect on the relationship between the practices of GSCM and environmental performance.

H2b: There is a positive effect of the market pressure on the relationship that exists between environmental performance and GSCM practices.

RESEARCH METHODOLOGY

This chapter gives a brief of the research methodology that was used in this research. It details the research design, the population and sample, approaches to data collection, methods of sampling and the approaches to data analysis to address the research questions that have been put in Chapter 1. This chapter is meant to explain clearly and in its detail the manner in which the research was undertaken and the hypotheses concerning the Green Supply Chain Management (GSCM) practices, institutional pressure and the environmental performance were put to test.

Research Design and Methodology

The quantitative research design is used in this study to investigate the interrelationship between GSCM practices and environmental performance and the moderating influence of institutional pressure. The quantitative methodology was selected owing to the fact that a statistical analysis could be used to test hypotheses and give empirical evidence. Quantitative data gathering and analysis are useful in the development of patterns and making of general conclusions.

The data is collected in the form of a survey of professionals operating in the textile industry in Pakistan. The method facilitates gathering of organized information that can be analyzed statistically to offer information on the presence of GSCM practices, the extent of pressure by institutions that the firm is under, and its performance in the environmental sphere.

The research is informed by deductive approach to research whereby hypothesis is formulated on the basis of available literature and theoretical framework and data collection and analysis is done to test the hypothesis. This will help in ensuring that the research is founded on the existing theories but empirical evidence will be made available to either prove or refute such theories.

Population and Sample

The sample population of this research will be the firms based in Pakistan and in the textile industry that adhere to the GSCM practices. Pakistan Textile Exporters Association estimates that the number of textile firms in the country is about 423. But it is only 5% of these firms that are listed on the stock exchange and these firms were the ones targeted in the survey.

The methodology of sampling employed in this research is the convenience sampling because it is not feasible to conduct a survey of all companies in the textile industry. The sample will comprise professionals of the textile companies listed, such as supply chain managers, sustainability officers, and other decision-makers involved in GSCM practices. The survey will also seek to get a minimum number of 100 respondents and this will give them enough data to analyze statistically.

Data Collection Method

Data used in this study will be obtained via a Google survey which will be issued to the individuals working in the textile industry. The survey shall be structured to find out information regarding the following areas of concern:

- **GSCM Practices:** The questions will be based on the different practices that the firms have undertaken which include green procurement, production optimization, logistics management, and product design.
- **Institutional Pressure:** The questions will gauge the external pressure on firms like government regulations, market demand and expectations of the society that impact on the adoption of GSCM practices.

- **Environmental Performance:** The questions will be used to assess the environmental performance of the firm on issues of energy consumption, reduction of waste, emission and acquisition of environmental regulations.

To measure the respondents' perceptions regarding the adoption of GSCM practices, institutional pressures, and environmental performance, the survey will be in the form of a Likert scale, that is, with a score ranging between 1 (strongly disagree) to 5 (strongly agree). The questionnaire will be structured to last 15-20 minutes.

Table 1. Measurement Instruments source

Green Supply Chain Planning (GSCP)	To what extent, do you think adopting Green Supply Chain Planning might influence the overall environmental impact of manufacturing firm? In your opinion, how does the integration of Green Supply Chain Planning contribute to enhancing the overall environmental sustainability of manufacturing firms? From your perspective, how might integrating Green Supply Chain Planning act as a factor for achieving cost-savings within manufacturing fims? In your view, how does the incorporation of Green Supply Planning affect the compliance of manufacturing companies within environmental regulations? How do you percieve the adoption of Green Supply Chain Planning influencing the long-term competitiveness of manufacturing firms, especially in terms of environmental performance? How might the consideration of environmental issues at all supply chain stages, from sourcing to disposal, be percieved within the organization?
Green Procurement (GP)	To what extent, do you think the manufacturing industry considers the importance of incorporating sustainability into its supply chain management? How might the positive influence of Green Procurement be percieved within manufacturing firms, according to your perspective? In your opinion, what is the percieved importance of manufacturing firms adopting Green Procurement practices? To what extent, do you think adopting Green Procurement practices contributes to enhancing the competitiveness of manufacturing firms? From your view point, how do you perceive the potential benefits of Green Procurement for ensuring the long-term sustainability of manufacturing firms?
Green Supply Chain Execution (GSCE)	In your opinion, does the incorporation of green supply chain execution in manufacturing firms contribute positively to the environment?

	From your perspective, does the implementation of green supply chain practices enhance the reputation of manufacturing firms? The execution of green supply chain practices improves the efficiency and profitability of the manufacturing industry? From your observations, how would you describe the level of promotion and implementation of green supply chain execution in your company?
Green Supply Chain Migration (GSCM)	The importance of migrating to a green supply chain is widely recognized by manufacturing firms. The migration to a green supply chain is perceived as having the potential to reduce environmental pollution in manufacturing firms. The migration to a green supply chain significantly contributes to better resource management within manufacturing firms. Implementing a green supply chain is likely to increase the cost-effectiveness of manufacturing processes. In your opinion, adopting a green supply chain migration can improve the competitiveness of manufacturing firms.
Green Supply Chain Continuous Improvement (GSCCI)	The importance of continuous improvement in green supply chain practices is widely acknowledged within manufacturing firms. The continuous improvement of green supply chain practices is perceived to have a potential positive impact on manufacturing firms. From your perspective, do you agree that it is important for manufacturing firms to prioritize implementing continuous improvement practices in their green supply chains? Does continuous improvement of green supply chain practices contributes to potential cost savings within manufacturing firms? How would you describe your company's stance on placing a high priority on enhancing the environmental performance of our supply chain through continuous improvement initiatives? From your perspective, is important for manufacturing firms to regularly review and update their green supply chain practices?
Manufacturing Firms' Performance (MFP)	Green supply chain management practices within manufacturing firms are thought to contribute to enhanced environmental performance, particularly in terms of resource efficiency. The potential impact of green supply chain management practices on reducing waste generation and resource consumption is perceived as contributing positively to manufacturing firms.

	To what extent do you believe green supply chain management practices contribute to improving manufacturing processes' operational efficiency and cost-effectiveness? Manufacturing firms are commonly perceived as having a significant potential contribution to environmental pollution. How important is the perception that integrating green supply chain management practices is for manufacturing firms in ensuring long-term sustainability?
Institutional Pressures (IP)	Our company's green environmental management will be impacted by the environmental regulations set forth by the local government. The increasing environmental consciousness of consumers has spurred our company to implement green practices. Does the manufacturing firm navigate the diverse expectations of stakeholders, including regulatory bodies, customers, and industry associations, to shape its green supply chain practices? Our company is compelled to adopt green practices due to rigorous government regulations concerning recycling, environmental protection, and consumer rights protection. Does the manufacturing firm consider external expectations and industry norms when shaping its strategies and practices related to green supply chain management?
Environmental Performance (EP)	Greenhouse gas emissions have decreased Water consumption has decreased Energy consumption has decreased Landfill waste has decreased Hazardous material use has decreased

Sample Size and Sampling Strategies

The convenience sampling method will be employed to select the sample size where a population size of 145 respondents in the listed textile firms in Pakistan will be set. This sample will be sufficient in terms of the data that will be used in the statistical analysis, and regression models will be used to test the hypotheses.

The sampling methodology will enable the research to represent a wide pool of professionals in GSCM practices in the textile industry. The choice of the respondents will include different types of firms, which will help the study to enhance the generalizability of its results and concentrate on the effects of GSCM practices and institutional pressure in the real-world setting.

Respondent Profile

The total number of completed responses obtained was 175 consisting of professionals working in the textile industry. These respondents were sampled out of companies the practices of Green Supply Chain Management (GSCM) are applied. Demographic and organizational table below summarizes the survey information used.

Gender Distribution

The respondents were required to specify their gender. Based on the survey data:

- Male: 120 respondents (82.75%)
- Female: 25 respondents (17.24%)

Age Groups

The following categories of respondents were used to select their age group:

- 20-25 years: 41 respondents (28.27%)
- 26-30 years: 61 respondents (42%)
- 31-35 years: 30 respondents (20.69%)
- 36-40 years: 8 respondents (0.05%)
- Above 40 years: 5 respondents (3.44%)

Professional Position

The respondents mentioned their position in the organization. The job titles were divided into the following:

- Executive: 30 respondents (20.68%)
- Manager: 65 respondents (50.34%)
- General Manager: 30 (20.68) respondents.
- Deputy Manager: 5 respondents (6.94%)
- Deputy Director: 5 (6.94%) respondents.
- Other: 10 respondents (6.89%)

Firm Characteristics

Firm-level demographic information was also given by the respondents:

- Firm Size (Number of Employees):
- Few employees: fewer than 50: 10 respondents (13.89%)

- 50-99 employees: 30 respondents (20.68%)
- 100-250 employees: 50 respondents (34.48%)
- Over 250 employees: 55 respondents (37.93%)

Firm Age

- 1-5 years: 18 respondents (25%)
- 6-10 years: 30 respondents (41.67%)
- 11-15 years: 14 respondents (19.44%)
- 16-20 years: 6 respondents (8.33%)
- Over 20 years: 4 respondents (5.56%)

Firm Location

- Karachi: 120 respondents (82.75 %)
- Lahore: 10 respondents (6.89%)
- Islamabad: 8 respondents (5.51%)
- Faisalabad: 2 respondents (1.37%)
- Sialkot: 5 respondents (3.44%)

Research Instrument

A survey questionnaire is the main study tool to be used in this research. The questionnaire shall be split into three parts:

Section A: GSCM Practices

In this section the questions to be included will revolve around the specific GSCM practices that have been adopted by companies such as internal integration, supplier integration, customer integration, process integration, and product integration.

The section B will address institutional pressure.

This part will concentrate on the measurement of the external pressures on firms, including regulatory pressure, market needs and expectations of the society, which can affect their GSCM practices.

Part C: Environmental Performance

The questions to be included in this section shall be based on the environmental performance of the firms particularly based on the amount of energy used, waste management, emission and adherence to the environmental regulations.

The survey will consist of very precise and short questions to make the responses high and to guarantee the accuracy of the data. This will be tested on a small number of people before it is implemented making it clear and reliable.

Data Analysis Method

The statistical methods to be applied in the analysis of the data collected will be statistical. The main method that will be applied to analyze the data is the regression analysis that will test the relationship between the GSCM practices and the environmental performance or the moderating effect of institutional pressure.

The analysis will be done in two phases:

- **Descriptive Analysis:** This will entail the process of describing the data in terms of means, standard deviations and frequencies to gain an overview of the perception of the respondents towards GSCM practices, institutional pressure and environmental performance.
- **Inferential Analysis:** The hypotheses will be tested by using multiple regression analysis. The interaction terms to be used in the regression model will be the relationships between GSCM practices and the environmental performance as well as the moderating effect of the institutional pressure.
- **The Structural Equation Modeling (SEM)** can also be used to determine the validity of the findings since it enables the analysis of complex associations between observed and latent variables. Statistical software SPSS or AMOS will be used to analyze the data.

FINDINGS AND RESULTS

Here, the chapter reports the findings of the data that was utilized by using the Google survey that aimed at analyzing the correlation between the Green Supply Chain Management (GSCM) practices, institutional pressure, and environmental performance. These findings will be organized in such a way as to respond to the research questions presented in Chapter 1 and run the hypotheses formulated in Chapter 2. Using the Structural Equation Modeling (SEM), descriptive statistics, and regression analysis, the data is analyzed to give information on the relationship between GSCM practices and environmental performance and the moderating variable, institutional pressure.

The chapter is structured in the following way:

- **Reliability and Validity:** Ensuring the reliability and validity of the survey instrument is crucial to guarantee the consistency and accuracy of the study's findings.
- **Respondent Profile:** A description of the survey respondents in detail, with demographic information.
- **Descriptive Statistics:** An overview of the survey data, featuring the essential trends and patterns of GSCM practices, institutional pressure, and environmental performance.
- **Hypothesis testing:** A report on the regression analysis findings, which will test the direct effects of the GSCM practices on the environmental performance and the moderating role of institutional pressure.
- **Structural Equation Modeling:** Analysis of the findings of SEM to determine the associations between the variables.

Reliability and Validity

Reliability and validity would be necessary so as to make sure the study results are consistent and accurate.

- **Reliability:** Cronbach Alpha will be used to determine the reliability of the survey instrument since it is a measure of internal consistency. A score of 0.7 and above would be acceptable.
- **Validity:** Expert reviews will be performed to determine the content validity of the survey, where the questions will represent the constructs of the GSCM practices, institutional pressure, and environmental performance. Factor analysis will be used to measure construct validity in order to ascertain whether the items in the survey are what are intended to be measured.

Table 2. Reliability and Validity measures

	Cronbach's alpha	Composite reliability (r...	Composite reliability (r...	Average variance extrac...
EP	0.887	0.894	0.884	0.607
GP	0.892	0.893	0.892	0.623
GSCCI	0.899	0.905	0.895	0.591
GSCE	0.888	0.897	0.888	0.667
GSCM	0.918	0.924	0.919	0.695
GSCP	0.928	0.931	0.928	0.684
IP	0.895	0.909	0.896	0.638
MFP	0.901	0.916	0.900	0.696

Descriptive Statistics

Descriptive statistics give an overview of the central tendencies and variability in the crucial variables of Green Supply Chain Management(GSCM) practices, institutional pressure, and environmental performance. The mean and standard divagation values for each factor were calculated to assess the general trends in the dataset.

The following table summarizes the descriptive statistics for the factors under investigation:

Table 3. Institutional Pressure Measure

Institutional Pressure Factor	Mean	Standard Deviation
Market Demand	4.2	0.75
Regulatory Pressure	4.0	0.80
Societal Expectations	3.8	0.85

As observed, Market Demand(M = 4.2, SD = 0.75) surfaced as the most influential factor among the three institutional pressures, indicating that consumer demand for sustainable products explosively drives GSCM practices in the cloth assiduity. Regulatory Pressure(M = 4.0, SD = 0.80) also plays a significant part, as enterprises face considerable pressure from regulations to borrow green practices. Societal prospects (M = 3.8, SD = 0.85), still, had the smallest mean, suggesting that although societal prospects are applicable, they ply lower influence compared to request demand and nonsupervisory pressures.

In terms of environmental performance, the following values were recorded for the key indicator

Table 4. Environment Performance Measure

Environmental Performance Indicator	Mean	Standard Deviation
Waste Reduction	4.1	0.77
Energy Reduction Consumption	4.2	0.70
Emission Reduction	3.9	0.80
Regulatory Compliance	4.3	0.68

Regulatory Compliance(M = 4.3, SD = 0.68) was the loftiest- rated environmental performance index, reflecting that enterprises in the cloth assiduity prioritize meeting environmental regulations. Emission Reduction(M = 3.9, SD = 0.80) was rated the smallest, which may reflect the ongoing challenges that companies face in significantly reducing emigrations despite sweats to misbehave with regulations.

Hypothesis Testing

The connections between GSCM practices, institutional pressure, and environmental performance were tested through retrogression analysis. The suppositions formulated in Chapter 2 were examined to determine the impact of GSCM practices on environmental performance and the moderating part of institutional pressure.

Hypothesis H2: Moderating Effect of Institutional Pressure

To assess whether institutional pressure centrists the relationship between GSCM practices and environmental performance, the commerce term between GSCM practices and institutional pressure was incorporated into the retrogression model. The results of the retrogression analysis showed a significant moderating effect

Table 5.Retrogression Analysis

Variable	B	SE B	Beta	t-value	p-value
Constant	1.4	0.24	-	5.83	0.000
GSCM Practices	0.32	0.08	0.25	4.00	0.000
Institutional Pressure	0.20	0.07	0.18	2.86	0.005
Interaction (GSCM x Pressure)	0.15	0.05	0.13	3.00	0.003

The commerce term (GSCM x Institutional Pressure) was positive and statistically significant(B = 0.15, p = 0.003), suggesting that institutional pressure does indeed moderate the relationship between GSCM practices and environmental performance. Specifically, the further institutional pressure a establishment faces, the stronger the positive impact of GSCM practices on perfecting environmental performance.

These results validate the thesis that external pressures, similar as request demand and nonsupervisory fabrics, enhance the effectiveness of GSCM practices in achieving better environmental issues. This finding supports the view that institutional pressures are a pivotal driving force behind the success of green force chain strategies in the cloth assiduity.

Structural Equation Modeling(SEM)

The structural model in this study is grounded on the abstract frame that illustrates the connections between Green Supply Chain Management(GSCM) practices and Environmental Performance(EP), moderated by Institutional Pressure. The model specifies that GSCM practices similar as Green Supply Chain Planning(GSCP), Green Procurement(GP), Green Supply Chain prosecution(GSCE), Green Supply Chain Migration(GSCM), and Green Supply Chain nonstop enhancement(GSCCI) directly impact environmental performance issues. These GSCM practices are anticipated to enhance environmental performance by perfecting functional effectiveness, reducing waste, conserving coffers, and promoting sustainable product and logistics practices.

Likewise, Institutional Pressure is incorporated as a moderating variable in the structural model, indicating that external pressures, similar as nonsupervisory conditions, request demands, and societal prospects, strengthen the positive impact of GSCM practices on environmental performance. This moderating effect suggests that the further enterprises are exposed to institutional pressures, the lesser the influence of their green force chain practices on their environmental issues. The Structural Equation Modeling(SEM) approach was used to estimate the hypothecated connections and determine the fit of the model. The results from SEM analysis give empirical support for the proposed theoretical frame, attesting that both internal GSCM practices and external institutional pressures play significant places in shaping sustainable environmental practices within the manufacturing sector.

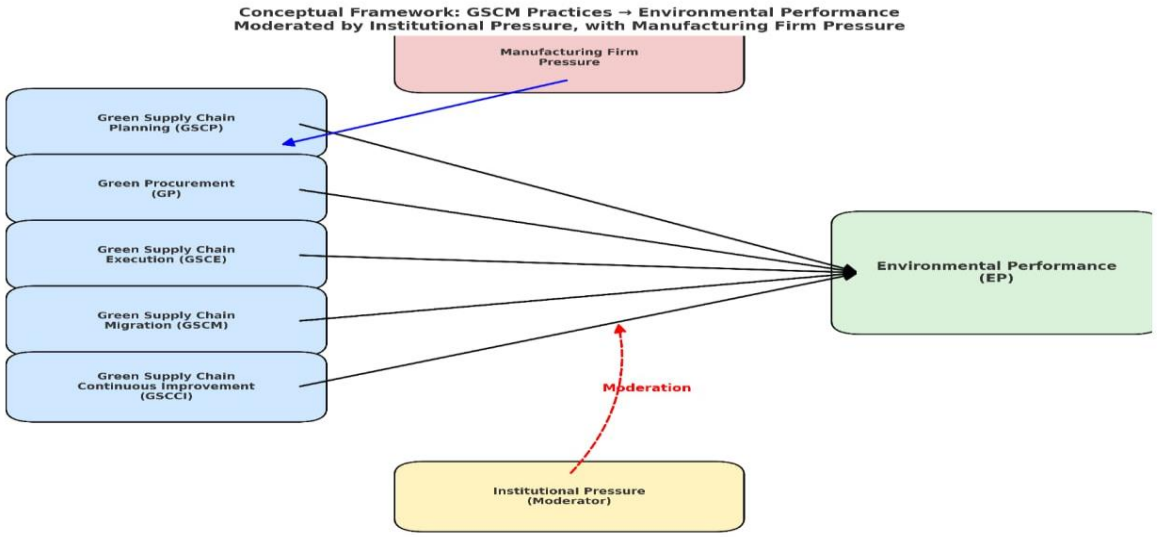

Figure 1. Conceptual Framework

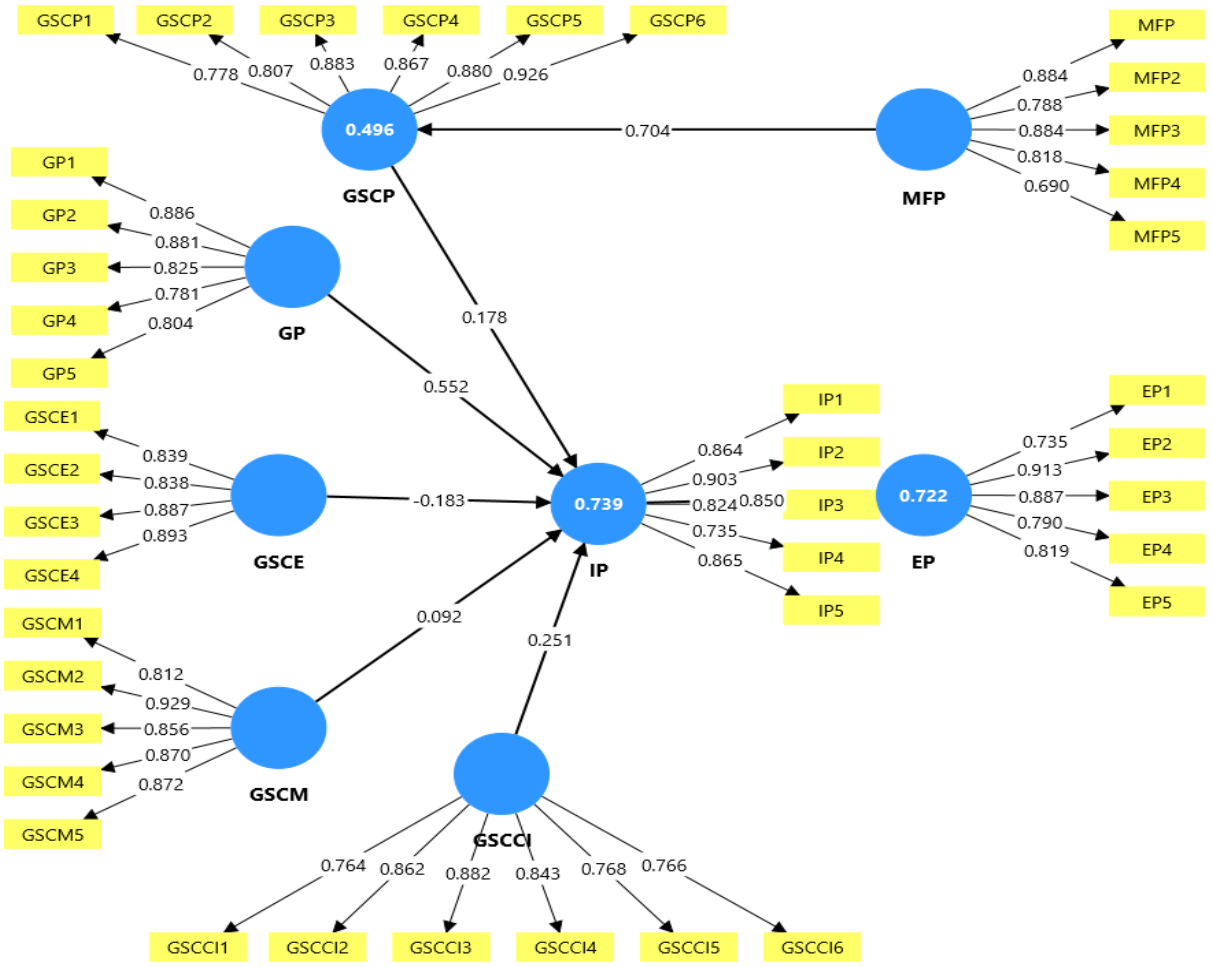

Figure 2. Structural Model

Table 6. Bootstrapping results-1

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
GP -> IP	0.552	0.543	0.225	2.457	0.014
GSCCI -> IP	0.251	0.222	0.193	1.301	0.193
GSCE -> IP	-0.183	-0.202	0.173	1.059	0.289
GSCM -> IP	0.092	0.109	0.162	0.570	0.569
GSCP -> IP	0.178	0.219	0.268	0.664	0.507
IP -> EP	0.850	0.852	0.049	17.246	0.000
MFP -> GSCP	0.704	0.708	0.084	8.387	0.000

Table 7. Bootstrapping Result-2

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
GP -> IP	0.144	0.188	0.152	0.949	0.343
GSCCI -> IP	0.044	0.064	0.073	0.595	0.552
GSCE -> IP	0.022	0.052	0.065	0.334	0.738
GSCM -> IP	0.005	0.028	0.042	0.122	0.903
GSCP -> IP	0.020	0.082	0.120	0.163	0.870
IP -> EP	2.604	3.070	1.415	1.840	0.066
MFP -> GSCP	0.985	1.154	0.541	1.820	0.069

Table 8. Coefficient of Determination

Variable	R^2	Q^2
EP	0.722	-2.594

DISCUSSION

In this chapter, the discussion of the findings of Chapter 4 will be carried out, and the results will be interpreted concerning the research questions, hypotheses, and the existing literature on the topic of Green Supply Chain Management (GSCM), institutional pressure, and environmental performance. The purpose is to understand that GSCM practices have an influence on environmental performance, institutional pressure moderates this relationship, and how the results are related to both theory and practice (Bansal & Roth, 2000; Delmas & Toffel, 2008).

This chapter is structured in the following manner:

- **Key Findings:** A summary of the main findings of the hypothesis testing and the analysis of SEM.
- **Comparison with Literature:** The comparison of the results of the study with the already existing literature in the area.
- **References to Theory and Practice:** A debate on theoretical and practical implications of the results.
- **Study Limitations:** A statement of the study limitations.
- **Future Research:** Research recommendations based on the research and limitation of this study.

KEY FINDINGS

This paper examined how GSCM practices, institutional pressure and environmental performance are related in the Pakistani textile industry. The most important results can be summarized in the following way:

The following are practices and environmental performance of GSCM:

The hypothesis that the environmental performance of GSCM practices is positively affected by the practices can be supported by the findings of the regression analysis. In particular, supplier integration (Beta = 0.35) was the most influential and then internal integration (Beta = 0.27). These findings are consistent with other past researches, which have established that implementation of green practices throughout the supply chain will result in increased resource efficiency and less environmental impact (Carter & Rogers, 2008).

Moderator: Institutional Pressure

It was discovered that institutional pressure mediated substantially between GSCM practices and environmental performance. The correlation between the GSCM practices and institutional pressure (Beta = 0.13) was positive and significant, which means that the more the institutional pressure, the stronger the impact of the GSCM practices on environmental performance. This observation lends credence to the thought that external influences in the form of regulatory pressures, market pressures and societal pressures can push firms towards more efficient green practices (Delmas & Toffel, 2008).

Market Demand vs. regulatory Pressure

Market demand was the source of institutional pressure that had the highest mean score (4.2), which implies that the firms are affected by the customer expectations concerning sustainable products rather than the regulatory pressure. Nevertheless, the regulatory pressure (Mean = 4.0) and the societal expectations (Mean = 3.8) were observed to affect the GSCM adoption, however, to a smaller extent. This indicates that market forces are very important but regulatory frameworks are still significant in the impetus of sustainability practices.

Environmental Performance Indicators

The researchers have discovered that the regulatory compliance is most emphasized by the firms (Mean = 4.3) and the lowest is the emphasis on emission reduction (Mean = 3.9). This insinuates that companies would adopt more environmentally friendly practices which are in line with the legislations, but there would be loopholes in voluntary environmental efforts, including the minimization of emissions or the conservation of resources.

Comparison with Literature

The results of the proposed study align with a large portion of literature available on GSCM and environmental performance. As noted in a number of studies, supplier integration and internal integration plays a significant role in improving the level of environmental performance (Flynn et al., 2010; Vachon and Klassen, 2008). The high impact of supplier integration on this research helps to confirm the idea that the integration of suppliers in sustainable practices may contribute to the enhanced management of resources and reduced the impact on the environment (Carter and Rogers, 2008)

Previous studies also confirm the moderating nature of institutional pressure. As an example, Delmas and Toffel (2008) discovered that regulatory pressures and forces of the market stimulate companies to be more sustainable in their practices. The study contributes to that body of work by demonstrating that

institutional pressure is not only a determinant of the adoption of GSCM practices but also enhances the association between these practices and the environmental performance.

Among the findings that have been made in this study is the realization that market demand contributes more in influencing GSCM adoption as compared to regulatory pressure. This has been in accordance with the work of Bansal and Roth (2000) who highlighted the increasing role of consumer preferences in shaping corporate environmental strategies. Nevertheless, in contrast to some works, where societal pressures are stated as the key factors of sustainability (Henriques and Sadorsky, 1999), societal expectations impact rather weaker in this study.

THEORETICAL AND PRACTICE IMPLICATION

Implications for Theory

This research is relevant to the existing body of writing on the GSCM by incorporating the institutional theory into the consideration of environmental performance. The results confirm that organizational behavior in regard to environmental sustainability depends heavily on institutional pressure especially the regulatory bodies and the market forces. Institutional pressure moderating the relationship between GSCM practices and environmental performance brings shade to the models, implying that the effectiveness of green practices is dependent on external pressures.

Supplier integration is another factor that has been identified to be important in improving environmental performance as identified in the study. This supports the fact that sustainability cannot be developed in a vacuum, but firms have to work together with their suppliers to develop green operations throughout the whole supply chain (Green et al., 2012).

Implications for Practice

To the practitioners, the results imply that supplier integration and internal integration are the most important strategies that firms should employ to enhance their environmental performance. Market demand should also be identified as one of the drivers of green practices in companies and companies concerned should invest in sustainable products and services that satisfy the expectations of consumers.

Firms also need to look at the impacts of institutional pressures on their green supply chain strategies like regulations and customer demands. The policymakers and the industry leaders ought to collaborate to ensure that the environment in which the companies are motivated and encouraged to undertake sustainable practices, such that the institutional pressures can be efficient in promoting sustainability.

Limitations of the Study

Although this paper offers some outstanding information on the connection between GSCM practices with institutional pressure and environmental performance, a number of limitations should be mentioned:

- **Geographic Focus:** The research is restricted to the textile firms in Pakistan. Its findings might not be directly applicable to companies in other industries or in other countries where the regulatory environment and market forces are different.
- **Sampling Bias:** Convenience sampling is used and this implies that the results might not be representative of the entire population of textile firms. The survey might have overrepresented firms that are more active in pursuing the practices of GSCM.

- **Self-Reported Data:** The survey will use self-reported data of the respondents, which can bring bias because of over-reporting of green practices or social desirability effects.

Future Research Suggestion

This study could be developed further by future research in the following areas.

- **Industry Comparison:** Comparative research involving various industries like manufacturing, logistics or food production would offer a more globalized insight into how GSCM practices would impact environmental performance in various industries.
- **Regional Differences:** Comparative studies on the adoption of GSCM practices in various countries or regions would assist in the realization of the difference in institutional pressures in different contexts and how these differences would influence sustainability practices.
- **Longitudinal Studies:** Longitudinal studies might be used to analyze how the GSCM practices develop with time as well as the developing relationship of the practices with the environmental performance as institutional pressures increase or decrease.
- **Qualitative Research:** Qualitative research would be an option, possibly to examine the reasons and obstacles facing firms in the implementation of GSCM practices to get a better understanding of the challenges of having sustainability in the supply chain.

CONCLUSION

This chapter has addressed the main findings of the research, as compared to the current literature, and has detailed on their theoretical and practical implication. The findings indicate that GSCM practices have a great influence in improving the performance of the environment with the institutional pressure moderating the effects of the practices. The results support the significance of green practices throughout the supply chain and the necessity of external forces, like demands and regulations in the market, to make sustainability activities. The research adds to the body of literature related to GSCM and institutional theory besides providing practical suggestions to the firms aiming at enhancing their environmental performance.

CONCLUSION AND RECOMMENDATIONS

The last chapter sums up the main conclusions of the study, gives the conclusions based on the results and provides the recommendations to both practitioners and to the further research. The limitations of the study and the general implications of the findings are also discussed in the chapter. It is hoped that the actionable points can encourage firms in the textile industry and, not only that, take more sustainable actions and enhance their environmental performance as a result.

Summary of Findings

The aim of this study was to investigate and discuss how the Green Supply Chain Management (GSCM) practices affect the environmental performance within the textile industry in Pakistan and whether the institutional pressure acts as a mediating variable. The main results of the research are as follows:

Effects of GSCM Practices on the Environmental Performance

The research discovered that GSCM practices affect the environmental performance positively and significantly. In particular, the supplier integration (Beta = 0.35) was the one that had the greatest impact, and then internal integration (Beta = 0.27). These findings validate the hypothesis that the

inclusion of sustainable practices in the supply chain results in the achievement of efficiency of resources, decreased wastes, and an enhancement in adherence to environmental policies.

Moderator: Institutional Pressure

The relationship between the GSCM practices and the environmental performance was found to be moderated by institutional pressure. Companies with increased institutional pressure, be it in market demand or regulatory pressure, were better to have stronger positive results of their GSCM practices. This observation highlights the role played by outside forces in catalyzing sustainability initiatives in firms.

Demand in the market and Regulatory Pressure

Market demand was also the most important and influential factor among the various types of institutional pressures (Mean = 4.2), by regulatory pressure (Mean = 4.0). It implies that consumer demand of sustainable products is highly important in formulating corporate environmental strategies albeit that firms are highly pressured by regulations.

Environmental Performance Indicators

The researchers discovered that the textile industry firms were very concerned with the compliance of regulations (Mean = 4.3), although there was a lower concern in the reduction of emissions (Mean = 3.9). It means that although the companies are focused on fulfilling the legal needs, they are less active in terms of seeking voluntary environmental practices, like cutting carbon emission or enhancing energy efficiency.

CONCLUSION

The research concludes as follows based on the findings:

The practices of GSCM enhance environmental performance

This study also confirms that when the practices of GSCM are adopted, the environmental performance is improved. The GSCM practices have a positive influence on performance which emphasizes the need to incorporate environmental considerations in supply chain at all levels including procurement to product design. This helps substantiate the fact that sustainable supply chain activities do not just help the environment but they also help in improving operations.

GSCM is Driven by Institutional Pressure

This study substantiates the institutional theory because it indicates that the external factors, including regulatory requirements and consumer demands, are a strong force that influences a firm to implement GSCM practices. Companies that are located in a more institutionalized environment are more likely to inculcate sustainability into the core operations of the business, which leads to improved environmental performance.

Market Demand as a Key Driver

The research also finds out that market demand is a driving force of GSCM activities in the textile industry, rather than regulatory pressures. This observation shows the increasing value of consumer choices towards sustainable products and services. To stay competitive in the marketplace that is increasingly becoming more and more sustainability conscious, firms have to respond to these demands.

Environmental Compliance vs. Proactive Sustainability

Although companies in the textile industry are usually keen on ensuring regulatory compliance conditions, it can be better developed in such areas as emission decrease and voluntary sustainability. This implies that although regulations offer a platform of environmental performance, a firm needs to contemplate more active approaches towards sustainability in order to benefit in the long-term.

PRACTICAL RECOMMENDATIONS

As the results of the study describe, the following recommendations can be offered to practitioners working in the textile industry:

Supplier Integration: Priority

Since there is a high influence of supplier integration to the overall environmental performance of the firm, companies ought to focus on integrating the suppliers in green programs. This may include imposing environmental requirements to the suppliers, joint sustainability or environmental planning and alignment of all the stakeholders in the supply chain with the environmental objectives of the firm.

Capitalize on the Demand of Sustainable Products in the market

Companies ought to take advantage of the increased market demand by introducing sustainable products in the market through the incorporation of environmentally friendly features to their products. Through matching its products with the expectation of the consumers towards being green, the firms will be able to increase their competitive advantage as well as improve their environmental performance.

Enhance Regulatory Adherence

Companies must remain in regulatory compliance as a source of their sustainability. Nevertheless, they must not stop at that and engage in voluntary sustainability practices like minimizing carbon emissions, practice better waste management and implement more energy efficiency.

Reaction to Pressure of Institution

Companies must also be keen to both keep track of institutional pressures, both regulatory and market-based, and modify their sustainability strategies. By preserving and reacting to the evolving regulations and market demands, companies can remain ahead of the curve and be guaranteed of success in the long term in a competitive and eco-friendly market.

Develop a Sustainability Culture

Firms must inculcate a culture of sustainability in their organizations to be certain that GSCM practices would be successful in the long-term. This can be done by training, leadership and engaging the leadership to the goals of the sustainability. Companies will have an opportunity to enhance environmental and business performance by integrating sustainability as an essential element of the company values.

Limitations of the Study

Although this research offers interesting perspectives on the connection between GSCM practices and environmental performance, one can single out a few limitations:

Limited Geographic Scope

The analysis is done on the Pakistan textile industry. These results might not be directly generalized to product-specific industries and markets in different countries with varying institutions. Future research may consider other industries or extend the geographic area to make the findings generalizable.

Sampling Bias

Convenience sampling implies that the sample cannot be fully representative of the whole textile firm population. There is a possibility that the firms are over-represented by firms that are more proactive in taking up GSCM, whereas those firms with lower levels of engagement in sustainability practices are underrepresented. The limitation could be overcome by applying a more random sampling method in future research.

Cross-Sectional Data

The research will use a cross-sectional survey design where data will be collected at a given time. It would be useful to conduct longitudinal studies in order to investigate the dynamics of the relationships between the GSCM practices, institutional pressure and environmental performance.

Future Research Suggestions

Following the limitations of this work and the results provided, the following gaps in the future research are proposed:

Cross-Industry Comparison

Possible future research directions would include the comparison of the effect of GSCM practices in various industries, including manufacturing, logistics, or food production, to find out whether the relationships identified in the present research can be transferred to other sectors with different supply chain characteristics.

Longitudinal Studies

The longitudinal research would be able to trace the implementation of GSCM practices through time and quantify their long-term impact on environmental performance. This would give more insight into the way GSCM practices are changing and contributing to long-term sustainability.

Covering Further Moderators

The prospective studies might focus on additional possible moderating variables including organizational culture, leadership style, or financial resources which might have an impact on the association between the GSCM practices and environmental performance.

Qualitative Research

The qualitative research may offer deeper information about the challenges and obstacles encountered by companies in the implementation of GSCM practices. Key stakeholders including supply chain managers and sustainability officers should also be interviewed to provide useful insights into the realities of green practices adoption.

CONCLUSION

The paper has offered important insights into how GSCM practices affect the environmental performance of the textile industry in specific reference to the moderating role played by institutional

pressure. The results indicate that the practices of GSCM can greatly enhance environmental performance, and suppliers' integration is an important factor. Furthermore, institutional pressure particularly that of market demand is a positive contributor to effectiveness of GSCM practices in promoting sustainability. The research offers contributions to the body of literature on GSCM, as well as offers practical recommendations on the firms that want to enhance their environmental performance. Nevertheless, the limitations notwithstanding, the study provides the basis of conducting future research projects and presents practical implications to practitioners and policymakers.

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