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Analyzing the Moderating Role of Employee Involvement in the Relationship between Sustainable Supply Chain Practices and Sustainable Performance

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ABSTRACT

This study examines the complicated relationships between sustainable supply chain practices, resilience, employee involvement, top management support, and sustainable textile performance in Pakistan. Purposive sampling selected 283 supply chain specialists for data collecting. This study investigated sustainable supply chain management dynamics in a given sector and area. The study's main value is confirming Sustainable Supply Chain Management's fundamentals. This study proves that sustainable supply chain methods improve performance. The Pakistani textile sector recognizes the growing importance of sustainability in supply chain operations to maintain competitiveness and address social challenges, following global trends. Additionally, supply chain resilience is a key intermediary variable in this study. Sustainable supply chain practices improve an organization's resilience to disruptions and adaptability to changing environmental conditions, as shown in this statement. Supply chain resilience as a mediator improves sustainable supply chain management (SSCM) theory. It underlines that sustainability requires understanding mechanisms as well as consequences. Employee involvement moderates the debate, as shown in this study. This study found that engaged employees boost the favorable effects of sustainable supply chain strategies on overall sustainable performance. This supports the current trend of employee-led sustainability efforts, where motivated and engaged people drive organizational sustainability. The study found no indication that top management support moderates. This suggests that leadership's impact is contextual, requiring context-specific sustainable supply chain management strategies. This study challenges conventional wisdom and advocates for further research into top management support in sustainable supply chains. The study's practical findings are crucial for Pakistan's textile and related industries. The paper emphasizes the need of prioritizing sustainable supply chain practices, developing resilience, engaging employees at all levels in sustainability projects, and providing leadership support in the right context. The above practical principles reflect the changing sustainability landscape and provide a strategy for firms seeking economic success and environmental and social responsibility. A study in Pakistan's textile industry adds empirical evidence to Sustainable Supply Chain Management (SSCM) theory. This emphasizes the importance of industry-specific details and corporate cultures in sustainability initiatives. In conclusion, these results spur a greener future in textiles and global supply chain management.

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1. Introduction

The textile sector holds significant prominence and occupies a prominent position within the economic landscape of Pakistan. The industry plays a substantial role in bolstering the nation's economy, as it offers job opportunities to a vast number of individuals and generates a substantial amount of export earnings, amounting to billions of dollars. Nevertheless, it is important to acknowledge that the textile sector has a significant role in environmental degradation, as it actively contributes to several ecological issues like water pollution, air pollution, and climate change. The textile sector in Pakistan accounts for approximately 18% of the nation's industrial water consumption and 20% of its industrial trash output. The industrial sector also exerts a substantial influence on the release of air pollutants, such as Sulphur dioxide, nitrogen oxides, and particulate matter. In recent years, there has been a growing acknowledgment of the ecological implications linked to the textile industry in Pakistan. As a result, the textile sectors inside the country have adopted several sustainable supply chain practices (SSCPs). In the present-day setting of a globalized and highly competitive corporate environment, the notion of sustainability has become of utmost significance as a decisive element for the success and durability of businesses functioning across many industries. The textile industry in Pakistan, being a big and significant sector, is not immune to this existing trend. Given the widespread acknowledgement and apprehension surrounding the environmental, social, and economic ramifications linked to industrial operations, textile manufacturers in Pakistan are encountering increasing pressure to adopt sustainable supply chain approaches to ensure the long-term viability of their businesses. The term refers to a holistic approach that incorporates economic, environmental, and social dimensions, frequently referred to as the triple bottom line. Sustainable supply chain methods involve the incorporation of ethical and sustainable principles throughout the whole supply chain, which includes the sourcing of raw materials and the final distribution of the finished product to customers.

The textile industry in Pakistan plays a significant role in contributing to the country's economy. Nevertheless, the sector is a significant source of pollution, hence exacerbating environmental issues like water pollution, air pollution, and climate change. Sustainable supply chain practices (SSCPs) encompass a range of strategic measures that may be employed to mitigate the ecological footprint associated with the textile sector. Sustainable supply chain practices (SSCPs) encompass several strategies such as the use of recycled materials, the reduction of energy usage, and the enhancement of water management. The COVID-19 pandemic has brought to light the weaknesses inherent in global supply systems, hence emphasizing the criticality for organizations to prioritize the establishment of resilient supply chains in order to endure such crises. These practices are of utmost importance for enterprises to not only meet legal requirements and satisfy customer expectations, but also to create and sustain their position in the global marketplace.The textile industry holds a key position within the economy of Pakistan, making substantial contributions and serving as a major source of employment for millions of individuals. Nevertheless, the company is recognized for its activities that require significant resources, such as water consumption, use of chemicals, and the creation of substantial amounts of garbage. Consequently, the textile sector in Pakistan is confronted with significant pressure to effectively tackle the aforementioned environmental concerns and improve its overall sustainability performance. Sustainable Supply Chain Practices (SSCPs) encompass a range of strategic measures that may be employed to mitigate the ecological footprint associated with the textile sector. Potential strategies that may be implemented encompass the utilization of recyclable materials, the reduction of energy usage, and the enhancement of water management practices.

According to a study conducted by Diabat, Khodaverdi, and Olfat (2013), the implementation of Sustainable Supply Chain Practices (SSCPs) has been shown to have a beneficial influence on the sustainable performance of textile enterprises operating in India. The research revealed that organizations who adopted Sustainable Supply Chain Practices (SSCPs) exhibited reduced environmental footprints, decreased expenditures, and increased levels of customer satisfaction. Sustainable supply chain practices involve a diverse array of actions and initiatives that are designed to mitigate the adverse environmental and social consequences associated with supply chain operations, all while upholding or enhancing economic performance. The implementation of sustainable supply chain practices is driven by a set of principles that priorities the achievement of long-term sustainability objectives over short-term profits. Within the textile sector, sustainable supply chain practices encompass several strategies. These may encompass the utilization of organic or recycled fibers, the minimization

of water and energy usage throughout the manufacturing process, the adoption of equitable labor practices, and the creation of environmentally friendly packaging solutions. The implementation of these practices is crucial for textile producers in order to satisfy the growing need for sustainable and ecologically conscious products from both customers and regulatory entities (Islam, Tseng, Karia, & Lee, 2018; Yazdanian et al., 2022). Resilient supply chains are characterized by their possession of attributes such as flexibility, adaptability, and the capacity to maintain uninterrupted operations in the presence of unforeseen challenges.The existence of supply chain resilience may serve as a mediator in the relationship between sustainable supply chain practices (SSCPs) and environmental performance (Rejeb, Keogh, Zailani, Treiblmaier, & Rejeb, 2020). The study found that firms with higher levels of supply chain resilience were more likely to achieve improvements in environmental performance by adopting Sustainable Supply Chain Practices (SSCPs).

The present investigation, conducted by Yazdanian et al. (2022), reveals that there exists a noteworthy moderating effect of top management support on the relationship between sustainable supply chain practices (SSCPs) and sustainable performance. The study found that firms that demonstrated higher levels of supply chain visibility were more likely to achieve long-term improvements in performance through the implementation of Sustainable Supply Chain Practices (SSCPs). Sustainable performance refers to a corporation's ability to achieve its economic goals while simultaneously minimizing negative environmental and social impacts., including environmental stewardship, social responsibility, and ethical business practices. The assessment of an organization's efficacy in integrating sustainability into its fundamental operations is commonly carried out by utilizing key performance indicators (KPIs), which function as quantifiable measures for evaluating sustainable performance. In the textile industry, the assessment of sustainable performance encompasses various aspects such as the mitigation of greenhouse gas emissions, the optimization of water consumption, the adherence to equitable labor practices, and the promotion of environmentally conscious product development. Organizations that prioritize sustainable performance not only contribute significantly to environmental well-being but also enhance their public reputation, attract environmentally conscious consumers, and mitigate regulatory compliance risks.

Furthermore, the escalating pressure to embrace sustainable practices and mitigate environmental consequences has emerged as a pivotal concern for textile enterprises functioning inside the borders of Pakistan. Numerous scholarly investigations have been conducted to examine the various obstacles encountered in achieving supply chain resilience and implementing sustainable supply chain practices across diverse industries on a global scale. Nevertheless, there is a dearth of study pertaining to these matters within the context of the Pakistani textile sector. Hence, the primary objective of this study is to examine the obstacles encountered by textile enterprises in Pakistan when it comes to establishing robust supply chain resilience and embracing sustainable practices. The textile sector in Pakistan, which holds considerable significance for the nation's economy, is presently confronted with pressing sustainability challenges. The growing global awareness regarding environmental and social issues has created a demand for the textile industry to adopt sustainable supply chain strategies. The integration of sustainability concepts into supply chain operations has become a vital element in sustaining competitiveness, meeting customer expectations, and complying with international standards and agreements (Seuring & Müller, 2008). To effectively tackle these challenges, it is imperative to analyze the relationship between sustainable supply chain practices and sustainable performance specifically in the textile industry of Pakistan. The aim of this research is to investigate the previously described relationship, namely by examining the role of supply chain resilience as a mediator, and the potential impact of top management support and employee participation as moderators.

1.1. Research Objectives

Research objectives of this study are in the following:

1. To examine the relationship between sustainable supply chain management practices and supply chain resilience.
2. To study the relationship between sustainable supply chain management practices and sustainable performance.

3. To check the moderating role of employee involvement in the relationship between sustainable supply chain practices and sustainable performance.

1.2. Significance of the Study

The present study makes a substantial academic contribution to the existing literature on sustainable supply chain management. This is achieved by an analysis of the intricate connections among sustainable supply chain practices, supply chain resilience, top management support, worker engagement, and sustainable performance. The current research holds potential for enhancing the theoretical underpinnings of sustainable supply chain management and offering useful insights for future academic inquiries by offering a more intricate comprehension of the interconnectedness at play. The implementation of sustainable practices holds the potential to bestow a competitive edge onto textile manufacturers in Pakistan within the context of the global economy. Consumers in various industrialized nations are increasingly prioritizing textiles that exhibit both ecological sustainability and ethical production practices (Udimal, Jincai, Ayamba, & Owusu, 2017). Textile firms might potentially strengthen their strategies to appeal to discerning clients and enter profitable international markets by understanding the relationship between sustainable supply chain practices and sustainable performance. The textile industry operates within a global supply chain, which requires adherence to stringent international standards. Prominent international institutions, such as the United Nations and the International Labor Organization, have effectively adopted sustainability and labor principles that are widely recognized and followed. Understanding the relationship and impact of sustainable supply chain practices on adherence to global standards is crucial for enhancing the global competitiveness of the sector. Sustainability techniques often place a high emphasis on optimizing resource efficiency, a key feature that can yield substantial financial advantages for textile manufacturers. The textile production process is known for its high resource consumption, notably in terms of water and energy usage. This characteristic creates a significant potential for cost reduction by adopting sustainable practices in the supply chain (Jamil, Hang, Kim, & Kim, 2019). In addition, the research places particular importance on the resilience of supply systems, which is highly relevant considering the disruptions seen by supply chains due to the COVID-19 pandemic. The COVID-19 pandemic has highlighted the necessity for businesses to have resilient supply networks that can effectively endure unexpected disruptions.

2. Literature Review

Scholars have endeavored to investigate the complex dynamics of this association, taking into account several variables that could potentially influence or attenuate its effects (Duque-Uribe, Sarache, & Gutiérrez, 2019). This literature review explores the comprehensive range of research conducted on the topic of "The impact of Sustainable Supply Chain Practices on Sustainable Performance, with the mediating influence of Supply Chain Resilience and the moderating influence of employee involvement and top management support." Utilizing a diverse array of academic resources, the objective of this review is to amalgamate current knowledge, discern significant patterns, and underscore deficiencies in the body of literature in order to foster a thorough comprehension of the fundamental elements pertaining to sustainable supply chain management (Kaynak & Montiel, 2009).

2.1. Sustainable Supply Chain Management Practices

The use of Sustainable Supply Chain Management (SSCM) techniques signifies a significant shift in organizational strategies, as it enables the integration of sustainability principles into supply chain operations. There are four primary activities that are considered to be the main pillars of Sustainable Supply Chain Management (SSCM). These practices include sustainable sourcing, energy-efficient operations, product design with sustainability in mind, and recycling and reuse. The concept of sustainable sourcing, often referred to as green procurement, entails the deliberate choice of suppliers and commodities that prioritize environmental conservation and uphold ethical labor standards (Carter & Jennings, 2002). The implementation of energy-efficient operations, which involve strategies such as the optimization of transportation and facilities to minimize carbon emissions, serves to not only alleviate environmental damage but also yield significant financial benefits (Sarkis, Zhu, & Lai, 2011). The field of product design for sustainability aims to develop goods that are environmentally conscious, with a focus on optimizing resource utilization and minimizing waste over their entire lifespan (Govindan, Soleimani, & Kannan, 2015).

2.2. Supply Chain Resilience

The concept of supply chain resilience holds significant importance in modern supply chain management, as it underscores the necessity for firms to effectively adjust and prosper within a context characterized by growing intricacy and unpredictability. Supply chain resilience is a multifaceted concept that encompasses the capacity to foresee, adjust to, and bounce back from disturbances while ensuring uninterrupted operations (Ponomarov & Holcomb, 2009). Various strategies and methods have been proposed in the literature to enhance resilience. These include diversifying suppliers, deploying real-time monitoring technology, and establishing robust risk management processes (Peck, 2006; Pettit, Croxton, & Fiksel, 2019; Sheffi & Rice Jr, 2005). In the current period characterized by the phenomenon of globalization, the intricate nature of supply chains, and a notable increase in disruptive occurrences, it is crucial to comprehend and enhance the resilience of supply chains. According to Pettit et al. (2019), companies that prioritize resilience not only save expenses associated with disruptions, but also improve their competitiveness and reputation by ensuring the continuity of their company operations. Ongoing advancements in supply chains necessitate the ongoing exploration and development of techniques and practices aimed at enhancing supply chain resilience. This is crucial in order to effectively navigate the ever-changing and interconnected business environment, which is characterized by heightened levels of uncertainty.

2.3. Sustainable Performance

The topic of sustainable performance has garnered considerable attention in current business literature due to its multidimensional nature. According to Epstein and Roy (2001), the evaluation of an organization's impact extends beyond conventional indicators of success, such as profitability, to encompass a comprehensive assessment of its influence on economic, environmental, and social aspects. The environmental factor places emphasis on the mitigation of an organization's ecological impact through the reduction of resource utilization, emissions, and waste production (Eccles & Serafeim, 2013). Sustainable performance within this realm includes the adoption of eco-efficient procedures, the preservation of resources, and the acquisition of environmental certifications. The social dimension of sustainable performance evaluates an organization's dedication to social responsibility, which includes factors such as the well-being of employees, diversity, participation with the community, and adherence to ethical labor standards (Epstein & Roy, 2001). Regulatory pressures play a significant role in motivating firms to embrace environmentally friendly practices and ethical behavior. This is evident as governments and international organizations implement legislation and standards that oblige organizations to comply with such practices (Dangelico & Pujari, 2010). The achievement of successful and enduring performance in sustainability is frequently reliant on the endorsement of senior management, since the dedication of leadership can enable the incorporation of sustainability principles into an organization's culture and strategic decision-making processes (Eccles & Serafeim, 2013). Moreover, the innovative capabilities of an organization play a vital role in facilitating the creation of sustainable products, services, and processes that are in line with its sustainability objectives (Dangelico & Pujari, 2010). In order to optimize sustainable performance, companies employ a variety of techniques and practices. Sustainable sourcing entails the deliberate choice of suppliers who demonstrate a commitment to environmentally friendly methods, ethical labor standards, and responsible sourcing of resources (Seuring & Müller, 2008). The adoption of circular economy concepts represents an additional strategic approach that places emphasis on enhancing resource efficiency, minimizing waste generation, and promoting product recycling across the whole lifespan of a product (Eccles & Serafeim, 2013).

2.4. Employee Involvement

According to the findings of Harter, Schmidt, and Hayes (2002), there exists a significant correlation between engaged employees and favorable business outcomes, such as increased profitability, enhanced customer loyalty, and improved staff retention. The factors that impact employee involvement encompass both internal elements, such as leadership techniques and organizational culture, as well as external influences, such as labor market conditions and societal trends (Bakker & Demerouti, 2017). According to Eisenbeiss et al. (2008), the implementation of effective leadership practices, such as cultivating trust, establishing explicit expectations, and providing assistance, can greatly contribute to increased employee engagement. Furthermore, it has been found that a favorable corporate culture, which is distinguished by traits such as transparency, cooperation, and acknowledgement of employees'

efforts, plays a key role in fostering employee engagement (Cameron et al., 2015). External influences are of significant importance in influencing employee engagement. In industries characterized by intense competition, firms frequently place a high priority on employee involvement as a means to attain a competitive advantage through fostering innovation and delivering exceptional customer service. Labor market factors, such as the scarcity of skilled workers, may necessitate firms to allocate resources towards implementing engagement methods in order to effectively attract and retain highly qualified personnel. Moreover, cultural trends, such as the pursuit of a harmonious equilibrium between work and personal life and the aspiration for fulfilling and purposeful employment, exert an impact on employee expectations and engagement. Organizations implement diverse tactics in order to augment employee engagement. The implementation of effective leadership and management strategies is of paramount importance. According to Bakker and Demerouti (2017), leaders that effectively communicate a well-defined vision, consistently offer feedback, and actively engage employees in decision-making procedures have the ability to cultivate a strong sense of ownership and commitment within their workforce. In addition, it has been suggested by Cameron et al. (2015) that organizations have the ability to establish a favorable work atmosphere through the cultivation of a culture that emphasizes acknowledgment and gratitude.

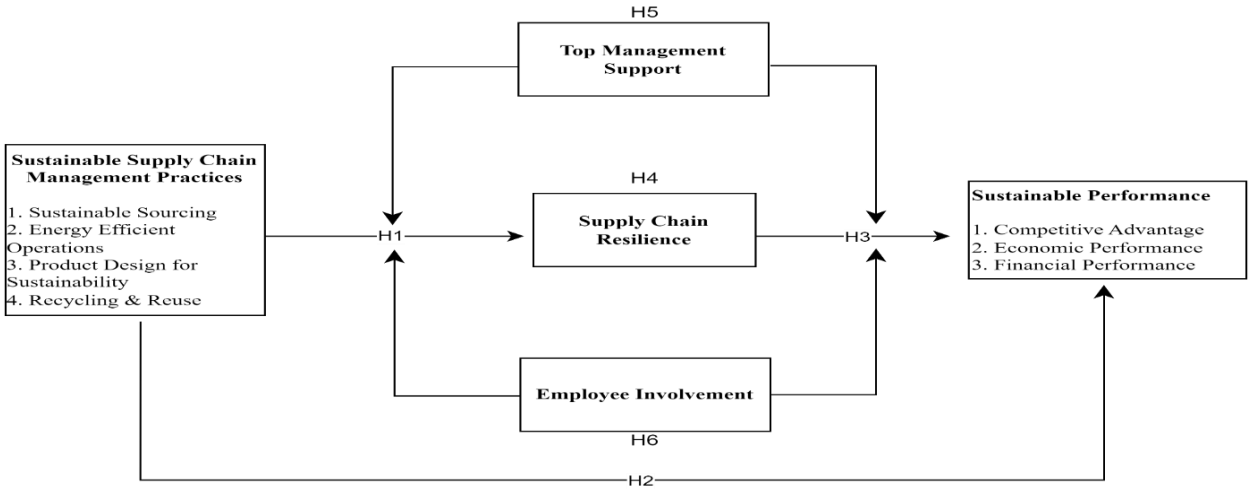
2.5. Moderation of Employee Involvement

Recent research has placed significant emphasis on the pivotal role of employee involvement (EI) as a mediator in the correlation between sustainable supply chain practices (SSCPs) and sustainable performance. The potential of SSCP activities to improve sustainable performance in many industries has been acknowledged by scholars (Carter & Rogers, 2008; Qingyun Zhu & Kouhizadeh, 2019). These initiatives include sustainable sourcing, energy-efficient operations, product design for sustainability, and recycling and reuse techniques. Nevertheless, the efficacy of these methodologies frequently hinges upon the level of involvement and active involvement exhibited by employees across the entire organizational structure (Jayaraman & Luo, 2007; Sarkis, Gonzalez-Torre, & Adenso-Diaz, 2010). Employee involvement is defined as the proactive participation, dedication, and authorization of employees across all organizational levels, enabling the integration of sustainability concepts into routine business activities (Schwartz et al., 2018). Consequently, these enhanced levels of satisfaction and commitment can contribute to the successful implementation and achievement of Supply Chain Sustainability Performance (SSCP) initiatives, as supported by (Handfield, Cousins, Lawson, & Petersen, 2015; Qingyun Zhu & Kouhizadeh, 2019). Therefore, emotional intelligence (EI) plays a crucial role in enhancing the positive impacts of sustainable supply chain practices (SSCP) on long-term performance. It emphasizes the significance of motivated and empowered employees in effectively incorporating sustainability principles into supply chain operations within a dynamic and environmentally conscious business environment.

3. The Conceptual Framework

The below diagram depicts the constructs and their relationships based on the hypotheses.

Figure 1



4. Research Methodology

This chapter comprises the detailed discussion on methods of the research, that are applied in this study. The discussion is mainly on the sampling, research design, instrumentation, sample characteristics, for data collection and data analysis techniques.

4.1. Research Design

When a researcher wants to conduct research, they must be clear about the research problem. They need to maintain the outline of all the steps that is considered during the research. These steps and procedures are described in research design. Rogelberg (2008) explained research design as a plan through which one is able to reason, step by step, from the observation the researchers intend to make to logically sound results about the problems and questions one is trying to resolve. For the results of research design analysis and reporting, it contains all the lines of hypothesis development. In research design, scholars have told us about which type of method have been selected for results, what is target population, sample size, sampling technique and detail about data collection method and analysis. It is also including details on why some techniques are selected. (Antonakis, JohnCurtis & Atwater, 2002).

4.2. Research Type

J. W. Creswell (2014) explains the three types of research design which are mixed, qualitative, and quantitative methods are but most commonly used is 1st two type (qualitative, quantitative) research design (Novikov & Novikov, 2013). Research philosophy is necessary to be explained before selecting the research design because research design is of different types which are selected on the basis of research philosophy being followed by the researcher.

4.3. Time Horizon

In order to collect data, cross-sectional study design was used. Data was collected within three months. From June 2023 to August 2023.

4.4. Method of Data Collection

The scientific method of research methodology can explain how to gather the data and information from the respondents or any other kind of resource (Bellamy, 2011). Questionnaire survey was used to collect the research data. This survey was circulated among the respondents through personally visiting and through LinkedIn. The questionnaire is based on 5-point Likert scale, where the respondents were given five options from strongly agree to strongly disagree to show their views.

4.5. Population and Sampling Frame

According to (Saunders, 2011) the population of study is defined as the full set of cases from which a sample is taken. Sampling frame is classifying and specifying the target population according to the nature of research. The subset of the population which is the actual target of the researcher is considered “Targeted Population”. According to the Pakistan Bureau of Statistics, the textile industry is one of the largest and most important industries in Pakistan, contributing significantly to the country's economy and employment. The textile industry is the largest industrial sector in Pakistan, employing around 15 million people directly or indirectly. The latest available data from the Pakistan Bureau of Statistics, there were 16,737 mansufacturing establishments in the textile sector in Pakistan. However, it is important to note that not all of these establishments may be textile manufacturing companies, as some may be involved in other aspects of the textile supply chain such as dyeing, printing, or finishing. According to the All-Pakistan Textile Mills Association (APTMA), there are around 1,221 textile mills in Pakistan, with a total spinning capacity of about 10 million spindles and a weaving capacity of about 450,000 looms. Each textile manufacturing concern must have a supply chain department but the number of employees working in that department cannot be estimated directly. So, the population for this study is unknown.

4.6. Sampling Technique

The main purpose for selecting a sample form the population is to select a representative group which will truly to a maximum possible way imitate the characteristics of the whole population, as collecting data from the entire population is very difficult if not impossible. Since, the results generated are to be generalized over the whole population from the sample, care has to be taken. From the two main types of sampling techniques i.e., probability and

nonprobability, probability sampling technique gives equal chance to each member of the population for selection. Among various non-probability sampling techniques this study uses purposive sampling because our concern is to collect data from a specific group of people. Purposive sampling, alternatively referred to as judgmental or selective sampling, is a non-probability sampling methodology employed in research to intentionally choose particular individuals or instances that exhibit specific features or qualities that are pertinent to the research objectives (J. D. Creswell, 2017). In contrast to random sampling, which ensures that each member of the population has an equal probability of being selected, purposive sampling involves the researcher's deliberate selection of a sample based on their expertise and judgement.

4.7. Data Collection Criteria

Purposive sampling is a valuable method when the researcher aims to investigate a specific subgroup, desires to collect comprehensive information on specific cases, or faces constraints in terms of resources and time. This approach aims to obtain valuable insights or accurately represent the essential characteristics of the target population (Palinkas et al., 2015). The questionnaire was sent to the individuals working in the supply chain department only.

4.8. Measures

4.8.1. Sustainable Supply Chain Management Practices

The measurement of SSCM practices was conducted using a construct consisting of 12 items, each with five response alternatives (Qinghua Zhu, Sarkis, & Lai, 2008). The present study was undertaken to validate a measurement model for the implementation of sustainable supply chain management practices. The study successfully established the reliability and validity of the scale used in this context. The selection of things was made based on the scope of this investigation.

4.8.2. Supply Chain Resilience

The Supply Chain Resilience Index (SCRI) is a metric that was created by the Global Supply Chain Forum. The utilization of this scale was derived from previous research endeavors, wherein it has been regularly employed over an extended period of time. Initially, the scale comprised of 30 items. However, based on the findings of the literature review, 4 items related to proactive capabilities were selected from the studies conducted by Pettit et al. (2019) and (Chowdhury & Quaddus, 2017). Additionally, 4 items pertaining to reactive capabilities were adopted from the research conducted by (Chowdhury & Quaddus, 2017). Furthermore, 4 items related to supply chain design quality were chosen from the studies conducted by Chowdhury and Quaddus (2017); Colicchia, Creazza, Noè, and Strozzi (2019). In summary, the assessment comprised a total of twelve items, each designed with five response alternatives.

4.8.3. Sustainable Performance

Global Reporting Initiative (GRI) and Sustainability Accounting Standards Board (SASB), provided guidance on measuring and reporting sustainable performance. Following the literature, we used 12 items construct with five response options. The measurement tool we used is a general framework that incorporates commonly used metrics for measuring sustainable performance across financial, environmental, and competitive dimensions. "Sustainable Performance Measurement for Organizations: A Systematic Literature Review" by Chien-Wei Wu, Li-Chuan Chu, and Chin-Wei Huang (2019) - This study endorsed this scale of sustainable performance measurement frameworks and discusses various dimensions, including financial, environmental, and competitive aspects. Prajogo et al. (2016) & Cao et al. (2018) also used this scale to measure sustainable performance.

4.8.4. Employee Involvement

Employee involvement is a construct that refers to the extent to which employees are involved in decision-making processes within an organization. There are several measurement scales that have been developed to assess employee involvement. One commonly used scale is the Employee Involvement (EI) scale developed by Lawler (1986). The Employee Involvement (EI) scale consists of 10 items construct with five response options that measure the extent to which employees are involved in decision-making processes in their organization.

4.9. Analytical Model

For the data analysis, SPSS was used. Initially data was screened for Missing Data and Outliers. Questionnaires with missing values were excluded from the analysis. Univariate outliers were removed from data using boxplot technique and multivariate outliers were identified using Mahalanobis and Cook's distances. Confirmatory Factor Analysis (CFA) was used to evaluate the measurement model's validity and reliability (Hair Jr. et al., 2017). Following this, the Heterotrait-Monotrait (HTMT) ratio was calculated in order to assess the discriminant validity, hence confirming the distinctiveness of the constructs (Henseler, Ringle, & Sarstedt, 2015). In the study conducted by Hair Jr, Matthews, Matthews, and Sarstedt (2017), the confirmation of the hypothesis was achieved through the utilization of indirect effects analysis. This analytical approach was employed to establish the connections between sustainable supply chain practices, supply chain resilience, employee involvement, top management support, and sustainable performance. The implementation of a rigorous approach in this study ensures the robustness and validity of its findings.

4.10. Data Collection Procedure

Data was gathered from all respondents (respondents were assured anonymity) during working days using a questionnaire by face-to-face meeting and over the LinkedIn meetups. Purposive sampling was used technique to ensure the data reliability. Also, providing guidelines to all participants for understanding the concept used in the study, whenever it was required. The current study questionnaire contains 63 questions. It was assured that data has only been accessible to the research team and not used for non-research purposes. The initial portion of the survey questionnaire encompassed inquiries pertaining to demographic information, while the subsequent section focused on the research variables, namely Sustainable Supply Chain Management Practices, Supply Chain Resilience, Sustainable Performance, Top Management Support, and Employee Involvement. All inquiries were formulated as closed-ended questions utilizing the five-point Likert scale, encompassing a range of responses from 5, indicating strong agreement, to 1, indicating strong disagreement. The variable of interest in this study is sustainable performance, which is being examined in relation to the independent variable of sustainable supply chain management practices. The role of moderators in an organizational context pertains to providing support to top management and facilitating employee involvement. On the other hand, the mediator's function revolves around enhancing supply chain resilience.

5. Results and Discussion

In this chapter, the data screening and analyzing processes along with its outcomes are reported which are generated by running various tests and procedures. The objective of this chapter is to provide empirical evidence of theories presented in our conceptual model.

5.1. Data Screening

5.1.1. Missing Values

In the following study, a total number of 385 questionnaires were distributed. Among which questionnaires received back were 320. This makes it about 83% response rate. After initial screening, questionnaires having more than 12% of missing values were discarded. On questionnaires having less than 20% missing values MCAR test was used to identify the pattern of missing values. Hair Jr et al. (2017) proposed that missing values of a questionnaire should not exceed 10% in the single case. Any given scenario would benefit from an enhancement in which the number of missing values is reduced by more than 10%. In 1988, Little proposed the Missing Completely at Random (MCAR) test as a means of examining the missing data pattern within datasets using the Statistical Package for the Social Sciences (SPSS). The findings of the study revealed that the questionnaire data contained random missing values, which can be attributed to the lack of statistical significance in the test results ($p = 0.763$). Hair et al. (2010) have provided a number of methodologies to address missing completely at random (MCAR) values. The Full Information Maximum Likelihood (FIML) method was employed to address the issue of missing values in the questionnaire data. This method was chosen due to its superior performance in comparison to alternative methods (Acock, 2005). Following the completion of the missing value analysis, additional tests were conducted on the finalized data set. After completing the aforementioned procedures, a total of 288 questionnaires were chosen for further evaluation.

5.1.2. Outliers

Univariate and Multivariate outlier detection is an important process in the screening of data. These outliers in data can be misleading and can mislead or disrupt the regression results. So, for outlier detection, we used multivariate linear regression models and three distances of Mahalanobis, Cooks and Leverage were calculated and 6 questionnaires with high distances were removed. And the remaining data set of 283 questionnaire is selected for analysis.

5.1.3. Factor Analysis

The Smart PLS 4 was used for Exploratory Factor Analysis (EFA). The study's method for data analysis uses partial least squares structural equation modeling. Structural and measurement model already paste below for the clarification of test result while reporting it. The values clearly stated that all of our hypothesis is creating significantly positive relations between the variables of study.

5.2. Measurement Model

Figure 2

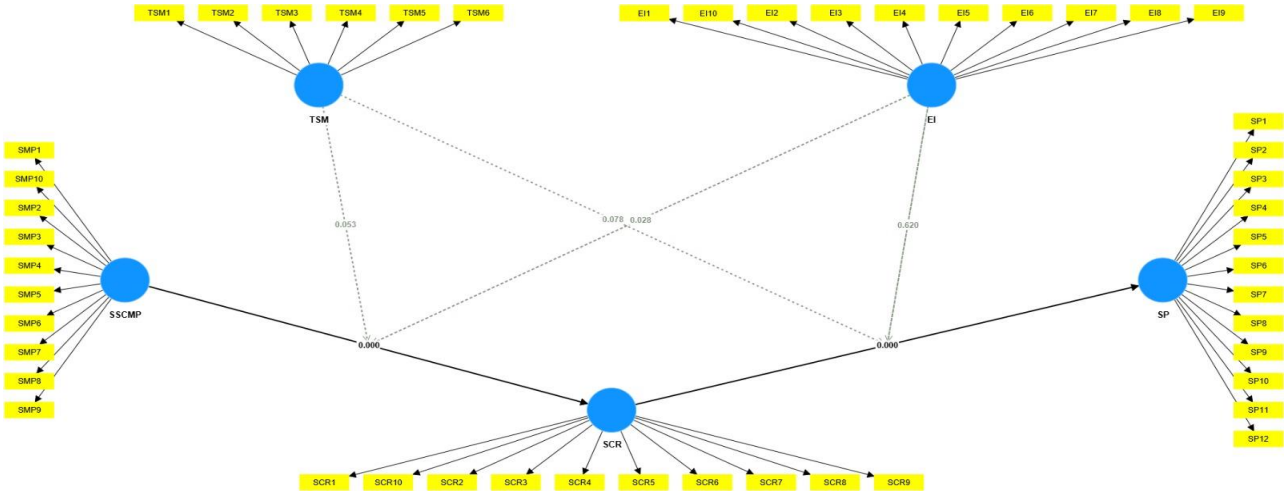
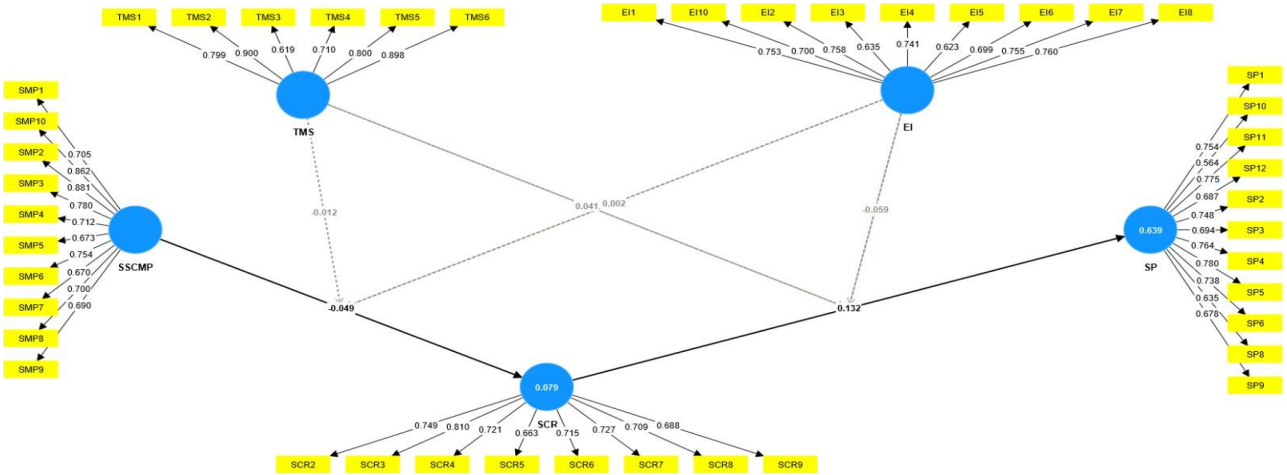


Figure 3



SSCMP = Sustainable Supply Chain Management Practices, SCR = Supply Chain Resilience, SP = Sustainable Performance, TMS = Top Management Support, EI = Employee Involvement

Table 1: Reliability and Validity Analysis

Items	Loadings	Cronbach's alpha	CR	AVE
EI1	0.753	0.883	0.888	0.512
EI10	0.7			
EI2	0.758			
EI3	0.635			
EI4	0.741			
EI5	0.623			
EI6	0.699			
EI7	0.755			

EI8	0.76			
SCR2	0.749	0.87	0.878	0.524
SCR3	0.81			
SCR4	0.721			
SCR5	0.663			
SCR6	0.715			
SCR7	0.727			
SCR8	0.709			
SCR9	0.688			
SSCMP1	0.705	0.918	0.989	0.557
SSCMP10	0.862			
SSCMP2	0.881			
SSCMP3	0.78			
SSCMP4	0.712			
SSCMP5	0.673			
SSCMP6	0.754			
SSCMP7	0.67			
SSCMP8	0.7			
SSCMP9	0.69			
SP1	0.754	0.918	0.989	0.557
SP10	0.564			
SP11	0.775			
SP12	0.687			
SP2	0.748			
SP3	0.694			
SP4	0.764			
SP5	0.78			
SP6	0.738			
SP8	0.635			
SP9	0.678			b
TMS1	0.799	0.881	0.914	0.63
TMS2	0.9			
TMS3	0.619			
TMS4	0.71			
TMS5	0.8			
TMS6	0.898			
TMS x SSCMP	1			
TMS x SCR	1			
EI x SSCMP	1			
EI x SCR	1			

SSCMP = Sustainable Supply Chain Management Practices, SCR = Supply Chain Resilience, SP = Sustainable Performance, TMS = Top Management Support, EI = Employee Involvement

5.3. Cronbach's Alpha Reliability

Cronbach's Alpha ranges from 0 to 1. Cronbach's Alpha Reliability should be greater than 0.70 which shows an acceptable internal consistency. As per the results shown above the Cronbach's Alpha of Sustainable Supply Chain Management Practices is 0.989 > 0.70, Cronbach's Alpha of Supply Chain Resilience is 0.878 > 0.70, Cronbach's Alpha of Sustainable Performance is 0.989 > 0.70, Cronbach's Alpha of Top Management Support is 0.914 > 0.70, and Cronbach's Alpha of Employee Involvement is 0.883 > 0.70 which shows that all of the constructs have an acceptable internal consistency.

5.4. Composite Reliability

Composite Reliability ranges from 0 to 1. Composite Reliability should be greater than 0.70 which shows an acceptable internal consistency. As per the results shown above the Composite Reliability of Sustainable Supply Chain Management Practices is 0.918 > 0.70, Composite Reliability of Supply Chain Resilience is 0.870 > 0.70, Composite Reliability of Sustainable Performance is 0.918 > 0.70, Composite Reliability of Top Management Support is 0.881 > 0.70, and Composite Reliability of Employee Involvement is 0.888 > 0.70 which shows that all of the constructs have an acceptable internal consistency.

5.5. Convergent Validity

Convergent Validity ranges from 0 to 1. To check convergent validity, we have to check item loadings and average variance extracted (AVE). High loadings indicate that the indicator is strongly related to the latent construct and these should be greater than 0.70 and the average variance extracted must be greater than 0.50. As per the results shown above the item loadings of Sustainable Supply Chain Management Practices is 0.989 > 0.70 and average variance extracted is 0.557 > 0.50, Item loadings of Supply Chain Resilience is 0.878 > 0.70 and average variance extracted is 0.524 > 0.50, Item loadings of Sustainable Performance is 0.989 > 0.70 and average variance extracted is 0.557 > 0.50, Item loadings of Top Management Support is 0.914 > 0.70 and average variance extracted is 0.630 > 0.50, and Item loadings of Employee Involvement is 0.888 > 0.70 and average variance extracted is 0.512 > 0.50 which shows that all of the constructs are strongly related to the latent construct.

Table 2: HTMT Ratio

Items	EI	SCR	SP	SSCMP	TMS	EI x SCR	EI x SSCMP	TMS x SCR	TMS x SSCMP
EI									
SCR	0.269								
SP	0.799	0.389							
SSCMP	0.093	0.082	0.076						
TMS	0.102	0.095	0.136	0.3					
EI x SCR	0.336	0.431	0.391	0.045	0.052				
EI x SSCMP	0.119	0.083	0.114	0.025	0.054	0.068			
TMS x SCR	0.085	0.182	0.023	0.028	0.055	0.067	0.021		
TMS x SSCMP	0.041	0.052	0.075	0.175	0.085	0.032	0.05	0.185	

SSCMP = Sustainable Supply Chain Management Practices, SCR = Supply Chain Resilience, SP = Sustainable Performance, TMS = Top Management Support, EI = Employee Involvement

HTMT Criterion suggests that the values must be less than 0.85 or 0.90 (Henseler, Ringle, & Sarstedt, 2015). As per the results shown above all of the values are below 0.85 which proves the constructs' validity.

Table 3: Path Analysis and indirect Effects

Hypothesis	Relationship	Beta	S.D Err	T values	P values	Decision
H1	SSCMP -> SCR	0.29	0.044	6.627	0	Supported
H2	SSCMP -> SP	0.209	0.088	2.377	0	Supported
H3	SCR -> SP	0.173	0.046	3.767	0	Supported
H6	EI x SSCMP -> SP	0.1	0.045	2.201	0.028	Supported

Table 4

Hypothesis	Relationship	Beta	S.D Err	T values	P values	Decision
H5	TMS x SSCMP -> SP	-0.015	0.009	1.694	0.09	Not Supported
H4	SSCMP -> SCR -> SP	0.05	0.017	3.006	0.003	Supported

Note: *p < 0.05 (t >1.65); **p < 0.01 (t > 2.33)
SSCMP = Sustainable Supply Chain Management Practices, SCR = Supply Chain Resilience, SP = Sustainable Performance, TMS = Top Management Support, EI = Employee Involvement

Based on the aforementioned findings, it is evident that all of the hypotheses put out have received support, with the exception of the hypothesis pertaining to the moderation of Top Management Support. The observed P value above the threshold of 0.05, indicating that the results are not statistically significant.

6. Conclusion and Policy Implication

The purpose of the study that was carried out in the textile industry in Pakistan was to gain a better understanding of the relationship between overall sustainability performance and the interplay of sustainable supply chain practices, supply chain resilience, employee involvement, and top management support. In line with earlier academic studies that emphasized the importance of incorporating sustainability principles into supply chain operations, this study offered data to show a beneficial correlation between sustainable supply chain practices and sustainable performance. A growing awareness of environmental and social responsibility on the part of corporations has resulted in a growing need for environmentally responsible business practices throughout the supply chain. According to the findings of the study on mediation, the resilience of the supply chain acts as a mediator in the connection

between environmentally responsible supply chain practices and environmentally responsible performance. Supply networks that are resilient are better able to tolerate disturbances and adapt to changing conditions in their surrounding environment. The incorporation of sustainable supply chain techniques can improve the robustness of supply chains by addressing vulnerabilities caused by limited resources, regulatory changes, and other sustainability concerns. This can help to reduce the likelihood of supply chains failing in the future.

The research also showed that senior management support and employee participation play a moderating role in the relationship between sustainable supply chain practices and sustainable performance. Participation from employees is widely acknowledged to be one of the most important factors in bolstering the connection between environmentally responsible supply chain practices and effective long-term performance. Increased commitment to the organization's efforts to meet its sustainability goals can be achieved through direct participation in the decision-making processes that pertain to sustainability. This underscores the necessity of building a culture that is durable and engaging people across the organization at all levels of the hierarchical structure. The findings of the study, on the other hand, did not provide any evidence to support the hypothesis that assistance from top management serves a moderating effect. This opens up the possibility for additional research and thinking about the topic. When compared to other industries in which the engagement of senior management plays a more significant role in the regulation of relationships, the textile industry in Pakistan may have a distinctive organizational culture or leadership style that differs from other industries. As a result of the complex nature of the problem, there is a clear need for further advancement in the evaluation of the support provided by top management. This is because effectively capturing the full impact that leadership has on sustainable supply chain practices is difficult.

This study, which primarily focuses on the textile industry in Pakistan, makes a substantial contribution to our current understanding of sustainable supply chain management. It is emphasized how important it is to incorporate sustainability concepts into supply chain operations by highlighting the connection between sustainable supply chain practices and sustainable performance and highlighting the connections between the two. The importance of investigating not just the results of sustainability efforts but also the fundamental mechanisms by which they are accomplished is emphasized by the fact that the study recognizes the resilience of supply chains as a potential mediator. The outcomes of this research shed light on the significant role that employee participation plays as a moderator in the process of supporting sustainability efforts. The absence of a strong moderating influence from the aid provided by top management, on the other hand, makes it necessary to do additional research into the contextual factors that influence the effectiveness of leadership support in sustainable supply chain environments.

In another piece of research, researchers in the Brazilian automotive sector analyze the relationship between environmental management and the efficiency of their business operations. It places an emphasis on the role that lean manufacturing processes and effective management of human resources play in this connection. The structure that is commonly utilized for scholarly publications, such as those published in the Journal of Cleaner Production, the Journal of Purchasing and Supply Management, and the International Journal of Logistics Management, is followed by the citation that has been provided. Using an organizational theoretical framework, Sarkis et al. (2011) conducted a different study that provides a comprehensive analysis of the existing body of literature on green supply chain management. This study was published in 2011. The study also investigates the impact that collaborative practices within the supply chain have, not only on environmental management but also on the performance of production.

The purpose of this study is to validate the favorable association between sustainable supply chain practices and sustainable performance by investigating the intricate workings of sustainable supply chain management within the textile industry in Pakistan. The study underlines the need for additional research into contextual factors that influence the effects of leadership support and highlights the need of adopting a sophisticated and situation-dependent strategy towards Sustainable Supply Chain Management (SSCM). Additionally, the study indicates the importance of adopting a sophisticated and situation-dependent strategy towards Sustainable Supply Chain Management (SSCM). In subsequent study, longitudinal and cross-

industry studies should be incorporated, and an investigation into the impact of external factors on these practices should also be conducted. These efforts will improve our understanding of sustainable supply chain management and its implications for businesses that want to strike a healthy balance between economic growth and environmental and social responsibility. This will allow us to better serve businesses who want to be good corporate citizens.

6.1. Policy Implications

This study provides strong support for the hypothesis that there is a positive association between sustainable supply chain practices and sustainable performance, which is a significant contribution to the overall comprehension of the Sustainable Supply Chain Management (SSCM) theory. It emphasizes the significance of incorporating sustainable business practices into supply chain operations while presenting concrete facts from Pakistan's textile industry as a supporting argument. In addition to this, the study adds supply chain resilience as an intermediary for the purpose of comprehending the fundamental mechanisms of SSCM. Previous studies have shown that there is a connection between environmentally friendly business practices and successful outcomes. The purpose of this study is to carry out a more in-depth investigation of the methods and elements that contribute to this relationship, with the incorporation of supply chain resilience as a component that acts as an intermediary. This research is in line with the existing body of literature on supply chain resilience, which places an emphasis on the significance of incorporating measures for creating resilience within sustainable practices. More research is required if we are going to understand the aspects that determine the moderating function of top management support and find ways to lessen its influence.

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