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Innovation Climate and Leadership Support as Drivers of Sustainable Supply Chain Performance: The Mediating Role of Circular Economy Practices in Pakistan's FMCG Sector

[1]Talha Nisar Ahmad, [2]Nida Qamar & [3]Arooj Zeb
[1]Hailey College of Commerce, University of the Punjab Lahore
[2]Lecturer, Department of Management Sciences, Virtual University of Pakistan
[3]Assistant Professor, Department of Management Sciences, Virtual University of Pakistan

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ABSTRACT

This study examines how innovation climate and leadership support affect sustainable supply chain performance in Pakistan's fast-moving consumer goods (FMCG) sector. The research also investigates the mediating role of circular economy practices, aiming to understand how organizational innovation and leadership translate into eco-efficient supply chain outcomes. A quantitative, cross-sectional design was adopted. Data were collected from supply chain managers, logistics officers, and operations executives in leading FMCG firms across Karachi, Lahore, and Islamabad. Using stratified random sampling, 470 valid responses were analyzed. Smart-PLS 4.0 was applied to test the measurement and structural models. The study included two independent variables (innovation climate and leadership support), one mediating variable (circular economy practices), and one dependent variable (sustainable supply chain performance). Reliability, convergent validity, discriminant validity, and model fit were carefully assessed. The results indicate that both innovation climate and leadership support significantly enhance sustainable supply chain performance. Circular economy practices partially mediated these relationships, showing that innovation and leadership efforts are most effective when implemented alongside practices such as recycling, material reduction, and resource reuse. The model demonstrated strong reliability, validity, and predictive relevance, confirming robustness in the FMCG context.

Corresponding Author's Email: nida.qamar@vu.edu.pk
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1.0 Introduction

The fast-changing nature of the international markets, combined with the increasing environmental pressures, have forced manufacturing and consumer-based industries all over the globe reconsider their perspective in the design, production, and distribution of goods. Sustainability in this regard has actually become a strategic issue as opposed to a more marginal issue especially in the case of fast-moving consumer goods (FMCG) where large volumes of production, low product life cycles and extreme levels of competition leave enormous ecological imprints. The FMCG industry in Pakistan is among the most dynamic sectors of the country in terms of its contribution to the national GDP, employment and consumer demand; this industry will not be an exception to these increasing pressures (Hikmatullah, Ahad, Akhtar, & ul Islam, 2022). The growing demand of regulatory authorities, international trade partners, and ecologically aware consumers, to know and understand what goes on with their products are forcing organizations to re-structure their supply chain setups so as to attain not only operational efficiency but also environmental sustainability. This has led to companies looking at the internal forces factors, including a climate of innovation and a leadership enabling culture, which can help in the implementation of sustainability-based practices, particularly, the use of a circular economy that minimizes waste, optimizes resource use, and recycles materials (Osei, Agyemang, & Cobbinah, 2025).

The FMCG sector is economically significant; however, the environmental issues that the industry deals with in Pakistan are largely systemic such as solid waste overproduction, unproductive use of resources, dependency on non-renewable resources, and the use of linear production processes with a linear pattern of take-make-dispose. The main problem is that these challenges exist because there has been no systematic implementation of sustainability practices in the management of the supply chain. Despite the initiatives by some multinational companies working in Pakistan in favor of green operations, the overall industry is still grappling with the institutional barriers, a lack of technological development, low levels of innovation orientation, and poor leadership commitment to changes (Mehmood, Frooghi, Ikram, & Abbas, 2025). Under such circumstances, it would be essential to learn how internal climate to innovation and leadership support influence sustainable supply chain performance. These are organizational aspects that, in addition to affecting the strategic path of a firm, also define the kind of practices adopted in their supply chains. Together with the principles of the circular economy, which include recycling, remanufacturing, eco-design, and recovery of resources, they can radically change the structure of FMCG supply chains to more sustainable and resilient models (Sarna & Plotnikova, 2025).

The climate of innovation is defined as the mutual sense of organizational support, encouragement, and reward of creativity, experimentation, and new ideas. It is an indicator of an internal environment where risk-taking, problem-solving and never-ending improvement are possible and help the firms break the standard procedure and implement new solutions. In the context of the supply chain, innovation climate supports the creation of new logistics procedures, methods of waste minimization, intelligent technologies, and environmentally friendly operational patterns (Rehman Khan, Ahmad, Sheikh, & Yu, 2022). Once the employees understand that

innovation is appreciated, they would be more willing to suggest and execute sustainability-related initiatives, such as circular processes that require reorganizing material flows, streamlining production input, and evaluating alternative business models. That is, the climate of innovation in an organization is central in establishing the extent to which the organization can easily shift towards the circular supply chain systems (Sehnem, de Queiroz, Pereira, dos Santos Correia, & Kuzma, 2022).

On the other hand, leadership support refers to the involvement, encouragement, and provision of resources provided by managerial and top levels of leadership to sustainability related initiatives. Leaders determine organizational priorities, budgetary allocation, strategic direction and motivation of employees. Leadership support in the framework of sustainable supply chain management is essential in the context of resisting internal resistance, organizing organizational capabilities, and consolidating long-term sustainability promises. Circular thinking can become normalized at all levels of the supply chain by leaders who promote environmental responsibility and sustainable practices and articulate a vision of sustainability (Bergman & Westh, 2025). In this way, leadership support proves to be one of the driving force that will turn sustainability goals into a strategic rhetoric to operational practices. Leaders with good environmental and social responsibility can immensely hasten the implementation of resource-efficient systems, eco-design concepts, reverse logistics, and waste reduction procedures through the whole chain of supply.

Circular economy practices are the mediator with the ability to transform organizational innovation and leadership into quantifiable sustainability results. The circular economy is based on the principles of regenerating resources, extending the lifecycle of products and minimizing waste and, as a result, it opposes the linear model of consumption that prevails in the functioning of most FMCG. Such practices involve recycling of materials, product design to guarantee durability and dismantling, component reuse, reclaimed resources in used products, and reverse logistics. The adoption of such practices needs a powerful internal drive to innovation and leadership direction, as it can imply structural changes, investing in technologies, and reorganization of relations with suppliers (Alqatan et al., 2025). Circular economy practices are the platform of operation that directs the impact of innovation climate and leadership support in sustainable supply chain performance by facilitating the firms to eliminate waste, lower emissions, enhance resource efficiency, and create environmentally friendly supply chains.

The theoretical background of these relations may be explained by such concepts as Resource-Based View (RBV) and its logical extension, Natural Resource-Based View (NRBV). RBV assumes that competitive advantages are generated in case organizational resources, including leadership capabilities and innovation-friendly environments, are valuable, rare, inimitable, and non-substitutable. Applying this argument in the framework of sustainability, NRBV states that companies should use the special internal resources to be able to react positively to environmental issues. In this framework, innovation climate and leadership support are strategic organizational skills that will allow firms to see the possibility of making the ecological improvement and adopt the practice of the circular economy (Kwarteng, Simpson, & Agyenim-Boateng, 2022). Circular economy practices serve as working abilities that help the firm to

transform these strategic orientations into improved sustainable supply chain performance. Using the innovation climate and leadership support as a cyclic model, the organizations will be able to develop supply chains, which lead to both economic and environmental value and, as a result, the long-term competitive advantage (Ju, Cheng, Chen, & Xing, 2025).

Despite the recognition of the global literature on the significance of the climate of innovation, leadership support, and circular economy in supporting sustainable supply chain performance, there are still a number of research gaps especially in new economies such as Pakistan. To begin with, a significant portion of the current literature is based on the experiential research of the developed nations, where the technological infrastructure, regulatory framework, and sustainability consciousness are much more varied than the socio-economic situation in Pakistan. This restricts the generalizability of global results to local industries which are featured with the limitation of resources, uneven policy execution and reduced technological preparedness. Second, there is a lack of empirical evidence on the practices of a circular economy in the FMCG sector of Pakistan, even though the sector has a significant negative environmental effect and is rapidly expanding (Chishty, 2023). Although there are studies that examine green supply chain management or overall approaches toward sustainability, very few studies look at the practice of a circular economy as a mediating factor, which connects aspects of organizations to sustainable results. Thirdly, the relationship between the climate of innovation and leader support, as two key internal forces, and their joint effect on the circular practices has been under-studied. Current studies frequently consider these variables separately and not in an integrated manner having an overall sustainability platform based on the combined effects (Böttcher, Empelmann, Weking, Hein, & Krcmar, 2024).

Fourth, FMCG sector of Pakistan is characterized by structural complexities which are peculiar to it such as fragmented supply chains, reliance on imported raw materials, high variability of consumer demand and lack of efficient waste management systems. All these contextual elements highlight the importance of the customized study that could help to determine how internal organizational enablers should be used to facilitate circularity in the given demanding environment. Unless these mechanisms are understood, companies will continue to work with old-fashioned linear models thus ending up not exploiting the strategic potential of sustainability (Falcke, 2025). Lastly, the empirical obscurity on how the practices of the circular economy can transform the organizational innovation and leadership orientations into better supply chain performance indicators like waste reduction, resource conservation, environmental compliance and long-term operational efficiency. This lack restricts scholarly information and managerial advice on how to design effective sustainability strategies.

2.0 Literature Review

The last decade of empirical studies has offered much legitimacy to relationships that are implied by RBV and NRBV, indicating the significance of innovation climate and leadership support in terms of promoting sustainable supply chain performance. The climate of innovation that encompasses the organizational firm impression that organizational creativity, experimentation and new ideas are promoted, rewarded and adopted has been continuously

attributed to improved environmental and operational performance in supply chains (Scott and Bruce, 1994; Carmeli and Schaubroeck, 2007). Research suggests that companies with desirable innovation environment will embrace process innovations like lean logistics, energy-efficient operations, and eco-design, which are all related to circularity and resource efficiency (Garcia-Muina et al., 2018; Lieder and Rashid, 2016). Managerial commitment to sustainability, resource allocation, and communication of environmental priorities as the type of leadership support have also been empirically demonstrated to have an impact on the adoption of green and circular practices (Yadav and Singh, 2018; Dubey et al., 2017). Sustainability-focused leaders establish a work culture that encourages employees to be environmentally conscious, makes strategic priorities meet, and establish a way to go around the supply chain functions through circular initiatives (Govindan et al., 2020). Combined with innovation climate and leadership support, the structural and cultural prerequisites become the basis on which the operationalization of the practices of the circular economy among firms is possible.

Practices of the circular economy, in their turn, have become a key process connecting drivers of organizations with sustainable supply chains. Circular practices focus on sealing material loops, lengthening of product lives, and efficient use of resources, which is problematic because of the common linear model of take-make-dispose (Geissdoerfer et al., 2017). It has been demonstrated through empirical research that the practice of circular application enhances environmental performance by minimizing waste, decreasing energy use, and carbon emissions and at the same time creates economic opportunities, including cost savings, increased process efficiency, and competitive advantage (Kirchherr et al., 2017; Saidani et al., 2019). As an example, a study in the manufacturing fields of Europe reveals that companies that implement the notion of circularity in the company have a significant enhancement in resource efficiency and sustainability performance, and that these enhancements require an already existing culture of innovation and a well-supported culture by the leadership (Masi et al., 2017). The same trends could be found in the Asian situations, where process innovation and leadership commitment are the mediating variables that facilitate the successful uptake of circular practices, which eventually foster sustainable supply chain results (Liu et al., 2020; Govindan et al., 2020). The results of these studies highlight the mediatory power of circular economy practices in converting organizations intention and ability into actual sustainability outcomes.

Although the global literature is quite informative regarding the interconnections between innovation, leadership, and circular practices, as well as sustainable performance, the studies in the emerging economies are scarce. Majority of research is based on developed nations with well-developed technological systems, good regulatory frameworks, and greater environmental consciousness, and direct extrapolation is problematic when applied to developing situations (Zhu et al., 2018). In developing countries like Pakistan, companies tend to experience a lack of resources, disjointed supply chains, weak regulation, and poor uptake of green technologies, which constitute a big impediment to the implementation of the circular economy (Ali et al., 2020). In these regards, therefore, it is especially important to comprehend the contribution of internal organizational drivers. Early research in South Asia suggests that internal conditions including

innovation climate and leadership support could possibly have a more conclusive influence in facilitating circular practices and offset less powerful external enablers (Khan et al., 2019; Bhattacharya and Rahman, 2020). Nevertheless, only a few empirical studies were able to explicitly study these connections in the context of FMCG sector in Pakistan, which indicates a significant intellectual gap.

The FMCG sector in Pakistan is of specific interest because it is highly resource intensive, fast-paced in terms of production and has a significant impact on the environment. FMCG companies have to deal with high consumer demand variability, a vast amount of distribution, and dependence on imported raw materials, which makes the implementation of the circular economy practices challenging but necessary (Ahmed and Rehman, 2020). The available literature on the topic in the industry is focused on green supply chain management in broad strokes or studies individual sustainability efforts, without a systematic review of how the climate of innovation and leadership support can facilitate circular practices and, thus, sustainable supply chain operations. In addition, the majority of studies in the Pakistani setting are conducted using qualitative or exploratory research designs, which implies a research gap regarding rigorous quantitative studies to study the mediating role of the circular economy practices. It is crucial to address this gap in order to come up with actionable insights that can assist in managerial decision making, policy interventions, and strategic investments in sustainable supply chains.

3.0 Methodology

The current research follows a quantitative research design which is based on the positivist research philosophy which focuses on objectivity, measurement and testing of the hypothesized relationships using empirical data. Positivism will also be helpful to the goals of this study since it aims to undertake causal relationships between innovation climate, leadership support, and circular economy practices to sustainable supply chain performance in a systematic and replicable way. The research design is cross-sectional such that the data can be gathered at a given time when the relevant parties are available hence it is easy to measure the existing relations between the variables of interest. This design will be suitable especially in determining how organizational factors can affect sustainable supply chain deliverables in the environment of the fast-moving consumer goods (FMCG) industry, where market dynamics and operational intensity are high in Pakistan, and timely empirical information is of high value in managerial and strategic decision-making. The study balances empirical rigor with feasibility by requiring a cross-sectional snapshot, which allows the researcher to produce a sound analysis of the hypothesized relationships without the time-sensitivity of longitudinal study designs.

The sample will include MC managers, logistics officers, and operations executives working in major urban centers of Pakistan, such as Karachi, Lahore, and Islamabad, and other top FMCG companies in these areas. They are strategically placed in their organizations to offer sound and informed information about the innovation in organizations, its leadership practice, circular economy initiatives and sustainable supply chain performance. The selection of various cities will guarantee the presence of different organizational settings, firms, and practices that can be applied in the Pakistani FMCG industry, and make the research findings more generalizable to the

Pakistani FMCG sector, in particular. The stratified random sampling is the main method used in the study, and in this strategy, the population can be stratified into the cities and organizational levels and sampled randomly using the available participants in the stratums. The methodology is a way of making the sample representative of the population that the research is based on to help in reducing possible biases that can be caused by uneven organizational representation and also improves reliability and validity of the results of the study. Four hundred and seventy valid responses were collected, which is more than the minimality in terms of sample size required to conduct structural equation modeling (SEM) analysis and has adequate statistical power to confirm or dismiss the hypotheses.

The survey questionnaire is a structured survey instrument that was used to collect data because it is a standardized tool used in capturing perceptions and practices of the study variables. The questionnaire was well constructed using previously tested scales that are validated so that items are a good measure of innovation climate, leadership support, practices of the circular economy, and sustainable supply chain performance. A Likert scale with five points was used in order to represent the attitudes of respondents that included the items strongly disagree and strongly agree and made it possible to quantify subjective perceptions into numbers and further use them in the process of statistical analysis. The survey was done through the internet and physical methods to maximize the number of responses, considering the differences in access to digital platforms among organizations. Before the actual data collection, a pilot test was carried out using a sample of the respondents to clarify, check the reliability of the items as well as their contextual relevance, resulting in some slight alterations in wording and scale anchors. Such intensive procedure reinforced the validity and reliability of the measurement tool which is critical in further analysis of SEM.

To analyze the data, the study will use partial least squares structural equation modeling (PLS-SEM) with SmartPLS 4.0, which is an effective method that can be used to test complex models that have mediating variables, latent constructs, and direct and indirect impacts. The PLS-SEM is especially useful in regard to this study since it can take smaller to medium sample sizes, data is not required to be normally distributed, and it can evaluate the measurement and structural model at the same time. This analysis starts with an analysis of the measurement model which involves reliability analysis in terms of composite, Cronbach alpha, convergent, AVE, and discriminant validity in terms of heterotrait-monotrait (HTMT) ratio. The measurement model is then tested and the structural model is tested to test hypothesized relationships such as, are direct effects of innovation climate and leadership support on sustainable supply chain performance and are circular economy practices mediating. Bootstrapping procedures using 5, 000 resamples are used to determine the statistical significance of path coefficients, whereas predictive relevance (Q2) and effect sizes (f2) are determined to determine the soundness of the model. This high quality of analysis also means that the findings are empirically sound and theoretically significant giving a valid foundation to test and interpret hypotheses.

The ethical principles were strictly followed during the process of conducting the research to guarantee the accuracy of data gathering and safety of the respondents. The survey was

undertaken on a voluntary basis and informed consent was taken in all the participants before the survey was conducted. The respondents were assured of confidentiality and anonymity of their responses and all the data collected were kept securely to avert an unauthorized access. Also, the research complied with ethical principles in terms of transparency, data accuracy, and responsible results reporting, and, thus, ensured the high level of research integrity. There was no data associated with the identities of the respondents and the analysis and reporting of the aggregated data were done to protect the privacy of the participants. These ethical considerations will make the study maintain both methodological rigor and moral accountability, which will lead to an increase in the credibility, reliability, and practical usefulness of the research findings.

To conclude, the present study approach is a combination of a positivist research philosophy and a cross-sectional design and involves supplying chain professionals in Pakistan in the FMCG sector based on stratified random sampling. The data were gathered through the use of a structured survey questionnaire founded on validated scales and strict PLS-SEM analysis was utilized to validate the proposed model, both direct and mediating effects. The ethics was observed in every step and measure that ensured that data was kept confidential, participated in on a voluntary basis, and that data was handled in a responsible manner. This combined methodological approach offers a strong platform on the sustainability of supply chain performance examination based on the innovation climate and leadership support through the mediation of the circular economy practices in the situation of the emerging economy.

4.0 Findings and Results

4.1 Reliability Analysis (Composite Reliability & Cronbach's Alpha)

Table 4.1 Reliability Analysis

Construct	Cronbach's Alpha	Composite Reliability (CR)	Comment
Innovation Climate (IC)	0.872	0.911	Reliable
Leadership Support (LS)	0.856	0.902	Reliable
Circular Economy Practices (CEP)	0.869	0.915	Reliable
Sustainable Supply Chain Performance (SSCP)	0.883	0.923	Reliable

In the reliability analysis of the measurement model, the constructs show high internal consistency as shown by the value of Cronbachs Alpha and Composite Reliability (CR). To be more precise, the Cronbachs Alpha coefficient of Innovation Climate (IC) is 0.872 and CR is 0.911, Leadership Support (LS) is 0.856 and 0.902, Circular Economy Practices (CEP) 0.869 and 0.915, and Sustainable Supply Chain Performance (SSCP) has the highest reliability, with 0.883 and 0.923 respectively. As all the Alpha of Cronbach are better than the expected level of 0.70 and

all the CR value are greater than 0.70, there is the conclusion that items used to measure each of the constructs are consistent and reliable. This means that the survey instrument is a good measure of the latent variables underlying it thus it forms a good basis to be used to further analyze the structural relationship among the variables in the model.

4.2 Validity Analysis – HTMT (Discriminant Validity)

Table 4.2 Validity Analysis – HTMT

Constructs	IC	LS	CEP	SSCP
Innovation Climate (IC)	1	0.654	0.682	0.598
Leadership Support (LS)	0.654	1	0.671	0.635
Circular Economy Practices (CEP)	0.682	0.671	1	0.712
Sustainable Supply Chain Performance (SSCP)	0.598	0.635	0.712	1

The discriminant validity test based on the HTMT criterion indicates that all the constructs in the model are different. The values of HTMT between the meanings of Innovation Climate (IC) and the rest are between 0.598 and 0.682, Leadership Support (LS) and the rest are between 0.635 and 0.671 and between Circular Economy Practices (CEP) and Sustainable Supply Chain Performance (SSCP) is between 0.712 and 0.712. Each of the values is less than the conservative level of 0.90 which means that each of the constructs is assessing a distinct concept without too much overlap. This proves that the measurement model has a high level of discriminant validity, and the latent variables are clearly different and can be useful to reflect various dimensions of drivers in the organizations, circular economy practices, and sustainable performance in the supply chains.

4.3 Variance Inflation Factor (VIF) (Collinearity Assessment)

Table 4.3 Variance Inflation Factor

Construct	VIF Value	Interpretation
Innovation Climate	2.105	Acceptable (<5)
Leadership Support	2.267	Acceptable (<5)
Circular Economy Practices	1.987	Acceptable (<5)

The collinearity test based on Variance Inflation Factor (VIF) reveals that there are no

multicollinearity problems that affect all constructs in the model. The VIF of Innovation Climate (IC) is 2.105, Leadership Support (LS) is 2.267, and Circular Economy Practices (CEP) is 1.987. All the VIF values are found to be below the conservatism level of 5, so it can be deduced that there is no excessive linear correlation in regards to the predictor constructs. This will make the estimated path coefficients of the structural model to be stable and reliable in order to make valid judgments of the associations amid innovation climate, leadership support, circular economy practices, and sustainable supply chain performance.

4.4 Model Fit (PLS-SEM Model Fit Indices)

Table 4.4 Model Fit

Fit Index	Value	Threshold	Interpretation
SRMR (Standardized Root Mean Square Residual)	0.058	<0.08	Good fit
NFI (Normed Fit Index)	0.912	>0.90	Acceptable fit
RMS_theta	0.075	<0.12	Acceptable fit

The structural model is fit assessment shows that the structural model has a good fit in general. The value of SRMR is 0.058, and it is less than the expected value of 0.08 which implies that there is a good approximation between the real and anticipated correlations. The Normed Fit Index (NFI) is also 0.912, which is higher than the permissible value of 0.90, which shows that the model fits adequately as compared to a null model. Also, the value of RMS theta is 0.075, which does not exceed the value of 0.12, also proves that the residual correlations of the model are not exceeded. All of these indices indicate that the measurement and structural model gives a valid and satisfactory account of the linkages between the innovation climate, support of leadership, circular economy practices, and sustainable supply chain performance.

4.5 Structural Model Results (Direct Effects)

Table 4.5 Structural Model Results

Hypothesis	Path	β (Beta)	t-value	p-value	f^2	Decision
H1	IC → SSCP	0.351	6.184	<0.001	0.123	Supported
H2	LS → SSCP	0.287	5.423	<0.001	0.098	Supported
H3	IC → CEP	0.423	7.112	<0.001	0.152	Supported
H4	LS → CEP	0.366	6.871	<0.001	0.141	Supported
H5	CEP → SSCP	0.412	7.558	<0.001	0.168	Supported

The results of the structural model point out that the hypothesized direct relationships are statistically significant and supported. The innovation climate (IC) has a positive impact on

Sustainable Supply Chain Performance (SSCP) with path coefficient (b) of 0.351, t-value of 6.184, and p-value less than 0.001 indicating a medium effect size (f2 = 0.123). Leadership Support (LS) also has a strong influence on SSCP (b = 0.287, t = 5.423, p < 0.001, f2 = 0.098), which is in favor of H2. Both the IC and LS produce a strong positive effect on Circular Economy Practices (CEP) with b values of 0.423 and 0.366, t-values of 7.112 and 6.871 and p-values of less than0.001 which validates H3 and H4. Moreover, CEP has a strong positive correlation with SSCP (b = 0.412, t = 7.558, p = 0.001, f 2 = 0.168), which underpins H5. The overall results of these findings are that the climate of innovation and leadership support has direct promotion on sustainable supply chain performance and adoption of circular economy practices, which consequently lead to better sustainability performance.

4.6 Mediation Analysis (Indirect Effects – Bootstrapping)

Table 4.6 Mediation Analysis

Mediation Path	Indirect β	t-value	p-value	Effect Size	Type of Mediation
IC → CEP → SSCP	0.174	5.891	<0.001	Medium	Partial
LS → CEP → SSCP	0.151	5.432	<0.001	Medium	Partial

The mediation analysis illustrates that Circular Economy Practices (CEP) mediate the relations between the two Innovation Climate (IC) and Leadership Support (LS) to Sustainable Supply Chain Performance (SSCP) to a certain extent. In particular, the indirect effect of IC on SSCP by CEP is 0.174 with t-value of 5.891 and p-value less than 0.001, which has a medium effect size and partially mediated. On the same note, the indirect impact of LS on SSCP through CEP is 0.151 with a t-value of 5.432 and p-value of less than 0.001, both standards of medium effect and partial mediation. The findings indicate that IC and LS do not have a direct impact on sustainable supply chain performance, but when combined with the adoption of circular economy practices, it becomes even more significant and, therefore, the importance of CEP as the mechanism that can transform the internal organizational capabilities into the visible sustainability results becomes especially prominent.

5.0 Discussion & Conclusion

In conclusion, the present research validates that innovation climate and leadership support are essential organizational predispositions of sustainable supply chain performance, and that circular economy principles can be viewed as an efficient intermediary variable that helps the given antecedent to be converted into environmentally efficient performance. The empirical data indicate that the companies that can concurrently develop an innovation-receptive culture, facilitate sustainability at the leadership stage, and translate the concepts of circular economy can attain high supply chain sustainability results. These lessons offer theoretical confirmation of the NRBV based models and practical advice to managers interested in improving the environmental

and operational performance.

According to the results, the study suggests that companies operating in the FMCG sector in Pakistan ought to invest in the promotion of the culture of innovation, align leadership priorities with the goals of sustainability, and systematically introduce the initiatives of the circular economy to all the processes in the supply chains. The policymakers are encouraged to add to these endeavors by incentivizing circular practices, encouraging collaborations in industries, and instituting regulations to promote eco-efficient supply chains. Further studies might build on them, including the longitudinal impacts of organizational drivers on sustainability performance, the moderating influences of firm size and market dynamics, or cross-industrial differences to enhance the external validity of the findings. In general, the research can make contributions to theory and practice by clarifying how organizational resources and leadership can be used to facilitate sustainable supply chain performance in the conditions of emerging economies.

Talha Nisar Ahmad: Problem Identification and Theoretical Framework
Nida Qamar: Methodology and Data Analysis
Arooj Zeb: Literature Review

Conflict of Interests/Disclosures

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