

# Uncertain Supply Chain Management

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## The effect of environmentally oriented leadership and public sector management quality on supply chain performance: The moderating role of public sector environmental policy

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### ABSTRACT

#### Article history:

Received May 18, 2023

Received in revised format July 29, 2023

Accepted September 3 2023

Available online

September 4 2023

#### Keywords:

*Environmentally-Oriented*

*Leadership*

*Public Sector Management*

*Quality*

*Public Sector Environmental*

*Policy*

*Supply Chain Performance*

This study examines the complex relationship between environmentally oriented leadership, public sector management quality, environmental policies, and supply chain performance within the public sector context in Indonesia. The research combines quantitative analysis and qualitative insights from key stakeholders to explore these dynamics comprehensively. The findings underscore the multifaceted nature of supply chain performance optimization, where environmentally oriented leadership demonstrates a nuanced connection to performance outcomes. Public sector management quality significantly enhances efficiency and overall supply chain performance. Notably, well-structured environmental policies positively impact supply chain performance and contribute to organizational sustainability. However, a weak policy framework can dilute the positive influence of leadership. The moderating effect of environmental policies on the relationship between management quality and supply chain performance might be less pronounced. The implications of this study offer both theoretical and managerial insights. The findings emphasize the need for holistic supply chain management strategies that integrate leadership styles, management practices, and policy frameworks to achieve sustainable performance outcomes. The study acknowledges limitations related to the specific context and variables studied. Future research can explore broader variables, diverse sectors, and regions by enhancing the understanding of these complex interactions. The novelty of this study lies in its comprehensive examination of the intricate relationship between leadership, management quality, policies, and supply chain performance within the public sector context, contributing to the growing body of knowledge in this vital area.

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### 1. Introduction

Environmentally-oriented leadership and management quality hold a central position in shaping and elevating supply chain performance in the public sector (Huge-Brodin et al., 2020; Malacina et al., 2022). Leadership centered around environmental considerations fosters sustainable practices, including waste management, energy-efficient utilization, and environmental impact reduction (Murino et al., 2023; Noorliza, 2020). On the other hand, effective management quality optimizes resource allocation, operational process arrangements, and inter-departmental collaboration to devise strategies for provisioning and distributing goods and services (Bhardwaj, 2021). Supply chain performance plays a pivotal role within the realm of the public sector (Hughes et al., 2019; Li et al., 2023; Siawsh et al., 2021). As an integral component of delivering goods and services to the populace, the public sector bears the responsibility of upholding efficiency, effectiveness, and quality throughout its supply chain (Panigrahi et al., 2019). A well-functioning supply chain has a positive impact on the smoothness of public services, asset management, and the optimal utilization of resources (Cohen & Kouvelis, 2021). Given the heightened

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ISSN 2291-6830 (Online) - ISSN 2291-6822 (Print)

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doi: 10.5267/j.uscm.2023.9.005

expectations of the public for high-quality services, enhancing supply chain performance becomes imperative (Daugherty et al., 2019; Irfan et al., 2020; Kopyto et al., 2020).

Public sector environmental policies wield substantial influence over supply chain performance (Tian et al., 2020; L. Wang et al., 2020; Zhao et al., 2022). When governmental bodies and public sector agencies adopt proactive environmental policies, such as embracing renewable energy sources, sustainable waste management practices, and environmental safety standards, these policies reverberate throughout the supply chain practices (Krueger et al., 2022; Tushar et al., 2023). Such policies stimulate the adoption of sustainable practices, fuel innovation in operational processes, and enhance the public sector's social responsibility toward the environment (Chang et al., 2017; Di Vaio et al., 2023). Recognizing the paramount importance of supply chain performance within the public sector, the critical roles of environmentally-oriented leadership and management quality, and the consequential impact of public sector environmental policies, this research endeavors to delve deeper into the interplay of these variables within the context of supply chain performance (Ioppolo et al., 2016; Viale et al., 2022). Through comprehensive analysis, it is anticipated that novel insights will be gleaned to bolster the development of strategies aimed at amplifying the efficiency and effectiveness of goods and services provisioning within the public sector.

Despite the growing body of literature examining various aspects of supply chain performance, there remains a noticeable research gap concerning the intricate interplay between environmentally-oriented leadership, public sector management quality, and the moderating influence of public sector environmental policies on supply chain performance. Prior studies have often focused on either leadership's impact on organizational performance (Khan et al., 2018; Z. Wang et al., 2023) or the role of environmental policies in isolation. However, the specific nexus between leadership orientation, management quality, and policy moderation within the context of supply chain performance in the public sector requires further exploration.

This research brings novelty by integrating three key dimensions – environmentally-oriented leadership, public sector management quality, and public sector environmental policies – into a comprehensive framework to examine their collective impact on supply chain performance. This integrated approach, especially within the public sector context, presents a novel perspective that departs from the compartmentalized analyses prevalent in the existing literature. The primary objective of this study is to investigate and analyze the combined influence of environmentally-oriented leadership and public sector management quality on supply chain performance. Furthermore, the study seeks to assess the moderating role played by public sector environmental policies in shaping the relationship between these variables. By achieving these objectives, the research aims to provide a holistic understanding of the complex dynamics that underlie supply chain performance enhancement in the public sector.

The motivation behind this research stems from the imperative need to enhance the efficiency and effectiveness of public sector supply chains. Given the increasing demands for quality public services, the role of leadership orientation and management quality in improving supply chain performance is of paramount importance. Moreover, as environmental concerns take center stage, understanding how public sector environmental policies moderate the impact of leadership and management on supply chain performance becomes critical for sustainable governance and resource allocation. The aim of this research is to empirically investigate and elucidate the combined and moderated effects of environmentally-oriented leadership and public sector management quality on supply chain performance in the context of the public sector. By exploring the moderating role of public sector environmental policies, the study seeks to contribute valuable insights that can inform policy-making and strategic decision-making for enhancing supply chain efficiency and sustainability in the public sector.

## **2. Literature review and hypothesis development**

### *2.1 Environmentally-Oriented Leadership and Supply Chain Performance*

Andersén et al. (2020) assert that environmentally-Oriented Leadership encapsulates a distinctive leadership model rooted in its unwavering dedication to nurturing sustainable and ecologically-conscious practices. Leaders adhering to this framework systematically prioritize initiatives designed to mitigate environmental impact, optimize resource efficiency, and seamlessly integrate eco-centric principles into the very bedrock of organizational decision-making (Elie, 2020). This approach results in a profound transformation of organizational culture, fostering an all-encompassing commitment to environmental stewardship that permeates all operational domains (Tourish & Willmott, 2023). The nexus between Environmentally-Oriented Leadership and Supply Chain Performance manifests as a dynamic interplay of profound influence and mutual elevation (Zhang et al., 2023).

Central to the concept of Environmentally-Oriented Leadership is its profound influence on the formulation of organizational strategies that span the entire operational spectrum (Sarkis et al., 2019). According to Kumar (2022), by championing responsible sourcing, meticulous resource allocation, and strategies to minimize waste, these leaders imprint sustainability onto the essence of supply chain management. This strategic alignment not only shapes the fundamental underpinnings of supply chain operations but also nurtures an intrinsic synergy between sustainable practices and operational excellence (Tsolakis et al., 2023). Furthermore, the inculcation of an environmentally-conscious culture becomes emblematic of such leadership (Dhar & Case, 2023). This cultural ethos naturally extends its reach across supply chain networks, inspiring ethical

practices and engendering alignment with eco-friendly protocols among suppliers, partners, and stakeholders (Perkiss et al., 2021). Therefore, the proposed hypotheses are as follows:

**H<sub>1</sub>:** *Environmentally-Oriented Leadership positively influences Supply Chain Performance in the public sector.*

## 2.2 Public Sector Management Quality and Supply Chain Performance

Public Sector Management Quality encapsulates the adeptness with which public sector entities strategize, coordinate, and execute their operations, deeply influencing the delivery of services (Rahman, 2019). It encompasses strategic planning, resource allocation, process optimization, and stakeholder engagement (Johnsen, 2022). The relationship between Public Sector Management Quality and Supply Chain Performance is one characterized by a reciprocal elevation (Douglass, 2018). Effective management practices directly shape supply chain strategies, resource allocation, and collaboration mechanisms (Um & Kim, 2019). Skillful allocation of resources and meticulous process optimization foster efficient supply chain operations (Belhadi et al., 2022). Strategic planning ensures alignment between supply chain goals and broader organizational objectives, enhancing overall supply chain performance (Turker & Altuntas, 2014). Furthermore, collaboration with supply chain stakeholders is amplified by proficient management, streamlining communication and coordination (Azadegan et al., 2020). The result is an intertwined enhancement of both management quality and supply chain efficiency, collectively bolstering the public sector's operational effectiveness (Vafaei-Zadeh et al., 2020). This symbiotic relationship accentuates the significance of adept management in propelling streamlined supply chain processes and ultimately contributing to improved service delivery and organizational performance within the public sector. Therefore, the proposed hypotheses are as follows:

**H<sub>2</sub>:** *Public Sector Management Quality positively influences Supply Chain Performance.*

## 2.3 Public Sector Environmental Policy and Supply Chain Performance

According to Smith et al. (2016), Public Sector Environmental Policy encompasses the regulatory framework and initiatives crafted by public sector entities to address environmental concerns and promote sustainable practices. This entails measures aimed at reducing environmental impact, conserving resources, and adhering to eco-friendly standards across operations and supply chain activities (Panigrahi et al., 2019). The nexus between Public Sector Environmental Policy and Supply Chain Performance embodies a reciprocal dynamic (Huang & Li, 2017). These policies act as guiding principles that infuse supply chain strategies with eco-consciousness, fostering the integration of sustainable practices throughout the supply chain network (Turaga et al., 2019). Compliance with these policies augments stakeholder collaboration, encouraging ethical sourcing and transparency (Stranieri et al., 2019). Furthermore, the integration of environmental policies prompts innovation within supply chain operations, driving resource-efficient processes and enhancing operational efficacy (Neligan et al., 2023). The adoption of such policies mitigates regulatory risks, ensuring resilience against disruptions (Mishra et al., 2022). Beyond operational advantages, Public Sector Environmental Policies augment the organization's reputation and social responsibility, resonating positively with stakeholders (Javed et al., 2020). This symbiotic relationship between policy mandates and supply chain performance cultivates a streamlined, sustainable, and impactful operational paradigm within the public sector (Weldegiorgis et al., 2021; A. Zhang et al., 2023; Y. Zhang & Kimathi, 2022). Therefore, the proposed hypotheses are as follows:

**H<sub>3</sub>:** *Public Sector Environmental Policy positively influences Supply Chain Performance.*

## 2.4 Public Sector Environmental Policy as Moderator

In the context of this study, Public Sector Environmental Policy assumes a critical role as a moderator in the relationships between Environmentally-Oriented Leadership, Public Sector Management Quality, and Supply Chain Performance. This moderation framework provides a lens through which the impact of leadership orientation and management quality on supply chain performance can be augmented, tempered, or influenced by the presence and strength of environmental policies. Robust policies are anticipated to amplify the positive effects of leadership orientation and management quality, while also potentially mitigating any negative consequences. This nuanced examination of Public Sector Environmental Policy as a moderator enriches our understanding of the complex interplay between leadership, management practices, policy frameworks, and supply chain outcomes within the context of the public sector. Therefore, the proposed hypotheses are as follows:

**H<sub>4</sub>:** *Public Sector Environmental Policy moderates the relationship between Environmentally-Oriented Leadership and Supply Chain Performance.*

**H<sub>5</sub>:** *Public Sector Environmental Policy moderates the relationship between Public Sector Management Quality and Supply Chain Performance.*

### 3. Methodology

This study adopts a quantitative research design to empirically investigate the relationships between Environmentally-Oriented Leadership, Public Sector Management Quality, Public Sector Environmental Policy, and Supply Chain Performance within the public sector context. The research employs a cross-sectional survey approach to collect data from diverse public sector organizations. Primary data is collected through structured questionnaires distributed to key stakeholders within the selected public sector organizations. The questionnaire is designed to measure the variables of Environmentally-Oriented Leadership adopted by (Dhar & Case, 2023), Public Sector Management Quality adopted by Azadegan et al. (2020), Public Sector Environmental Policy adopted by (Mishra et al., 2022), and Supply Chain Performance adopted by (Neligan et al., 2023) using established scales from previous research. The survey instrument also includes demographic questions to ensure the sample's representation across different organizational levels and functions (Marwanto et al., 2020). The sampling strategy involves a combination of purposive and stratified random sampling (Basrowi & Maunnah, 2019). The population comprises various public sector organizations, focusing on those involved in supply chain activities (Soenyono & Basrowi, 2020). The sample is stratified based on organizational size and geographical location to ensure representation across diverse contexts (Suwarno et al., 2020). Sufficient sample size is determined to ensure statistical robustness. The study's sample consists of 145 respondents, meticulously selected to uphold the highest data integrity and analytical validity standards.

Data analysis comprises several steps. Descriptive statistics are used to summarize the demographic characteristics of the sample. The relationships between Environmentally-Oriented Leadership, Public Sector Management Quality, Public Sector Environmental Policy, and Supply Chain Performance are analyzed using advanced statistical techniques. Multiple regression analysis is employed to examine the main effects of these variables on supply chain performance. Moderation analyses are conducted to explore the moderating role of Public Sector Environmental Policy on the relationships between leadership, management quality, and supply chain performance. Ethical guidelines are followed throughout the research process. Informed consent is obtained from participants, ensuring their voluntary participation and confidentiality of responses. The study adheres to data protection regulations and institutional ethical standards. This research contributes to theoretical understanding and practical insights within the public sector supply chain management field. By empirically examining the relationships between leadership, management quality, environmental policy, and supply chain performance, this study aims to enhance our comprehension of the factors that shape efficient and sustainable supply chain practices in the public sector.

### 4. Results and findings

#### 4.1 Outer Model Analysis

Applying the convergent technique allowed us to assess the validity of the indicators, which was subsequently quantified as the external loading factor's value. It indicates that a loading factor value within the range of 0.50 to 0.70 is still deemed suitable for preliminary exploratory investigations, which constitute the initial stages of developing a measurement scale. In this specific study, the outer loading value for each indicator exceeded 0.70, confirming its successful fulfillment of the convergent validity criterion.

**Table 1**  
Explanatory result

Construct	Items	Outer Loading	Cronbach's Alpha	rho_A	CR	AVE
Environmentally-Oriented Leadership	ENLEAD1=Deep Environmental Awareness	0.928	0.961	0.966	0.97	0.865
	ENLEAD2=Commitment to Sustainability	0.952				
	ENLEAD3=Integration of Environment in Decision-Making	0.931				
	ENLEAD4=Driver of Sustainable Innovation	0.950				
	ENLEAD5=Engagement in Environmental Advocacy	0.887				
Public Sector Management Quality	PSMQ1=Strategic Planning and Governance	0.850	0.829	0.839	0.879	0.593
	PSMQ2=Service Delivery Excellence	0.816				
	PSMQ3=Transparency and Accountability	0.706				
	PSMQ4=Efficient Resource Management	0.758				
	PSMQ5Stakeholder Engagement and Participation	0.711				
Public Sector Environmental Policy	PSEP1=Clear Environmental Goals and Objectives	0.702	0.92	0.987	0.935	0.743
	PSEP2=Integration into Decision-Making	0.867				
	PSEP3=Regulatory Compliance and Enforcement	0.907				
	PSEP4=Climate Change Mitigation and Adaptation	0.912				
	PSEP5=Ecosystem Conservation and Biodiversity	0.904				
Supply Chain Performance	SCP1=On-Time Delivery	0.872	0.908	0.91	0.932	0.733
	SCP2=Inventory Management Efficiency	0.873				
	SCP3=Lead Time Reduction	0.901				
	SCP4=Quality Control and Defect Rate	0.884				
	SCP5=Sustainability and Ethical Practices	0.743				

The subsequent phase involved the evaluation of discriminant validity for the variables by contrasting the square root of the extracted coefficient of variance (AVE) from each latent factor against the correlation coefficient with other factors in the model. It was performed to ascertain the variable's capability to differentiate between distinct groups. The AVE value indicated a significance exceeding 0.5. As indicated in Table 1, the constructs under examination in this study exhibited a discriminant validity exceeding 0.50, as established by Fornell & Larcker (1981). Determining variable indicator values occurred in the final stage through composite reliability. Results were deemed reliable when both composite reliability and Cronbach's alpha exceeded 0.70 by Chin (2010). (Refer to Table 1 for details). The determination of composite reliability resulted in a spectrum spanning from 0.879 to 0.970, surpassing the threshold of 0.70. This finding unequivocally establishes the reliability of the variable's indicators. The computed Cronbach's alpha values, ranging from 0.829 to 0.961, further reinforce the high reliability of these indicators. It implies that the indications are dependable and can be confidently deemed error-free (Chin, 2010).

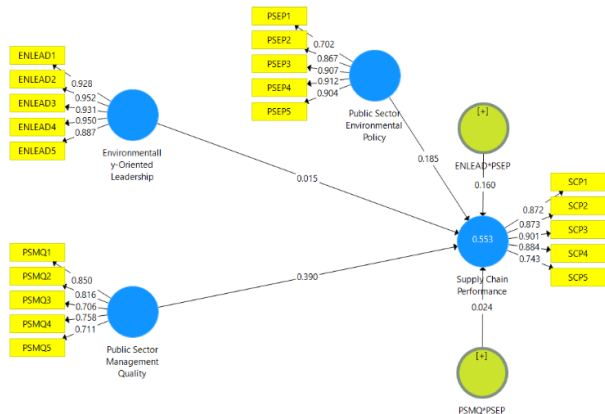


Fig. 1. Path Analysis

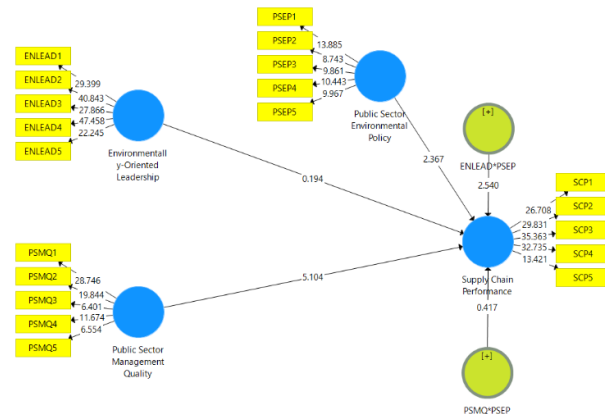


Fig. 2. Bootstrapping Inner Model

Fig. 1 illustrates the outcomes of data processing through SmartPLS, revealing that every construct manifestation in this study boasts loading values surpassing 0.70. This observation demonstrates that the manifest variable, characterized by a loading value exceeding 0.70, significantly meets the criteria for convergent validity owing to its substantial validity level.

Inner Model Analysis

Each relationship within the sample is subjected to scrutiny through a simulation employing the bootstrap approach. This test is designed to mitigate the occurrence of atypical research data. The results of the tests conducted using the bootstrap approach are presented in Fig. 2. Analyzing the P-Values enables one to ascertain the level of significance associated with hypothesis acceptance. If the P-values fall below 0.05, the research hypothesis can be validated. SmartPLS employs a bootstrapping procedure on a model that meets the criteria for validity, reliability, and feasibility to derive the P-value of the model. The outcomes of the bootstrapping procedure are presented in the subsequent table (Table 2).

Table 2  
Path Coefficient Result

Hypothesis	Construct	Original Sample	STDEV	T Statistics	P Values	Result
H1	ENLEAD → SCP	0.015	0.079	0.194	0.846	Rejected
H2	PSMQ → SCP	0.390	0.076	5.104	0.000	Accepted
H3	PSEP → SCP	0.185	0.078	2.367	0.018	Accepted
H4	ENLEAD×PSEP → SCP	-0.160	0.063	2.540	0.011	Accepted
H5	PSMQ×PSEP → SCP	0.024	0.058	0.417	0.677	Rejected

\*) ENLEAD=Environmentally-Oriented Leadership; PSMQ=Public Sector Management Quality; PSEP=Public Sector Environmental Policy; SCP=Supply Chain Performance

Based on the acquired path coefficient of 0.015 between Environmentally-Oriented Leadership and Supply Chain Performance, accompanied by a P-Value of 0.846 (>0.05), it can be affirmed that Environmentally-Oriented Leadership does not significantly influence Supply Chain Performance. Consequently, H1 is not substantiated. In contrast, the correlation between Public Sector Management Quality and Supply Chain Performance is 0.390, with a P-value of 0.000 (<0.05). It substantiates a significant relationship between the two, affirming the support for H2. Furthermore, the evident enhancement of Supply Chain Performance due to Public Sector Environmental Policy is underscored by the original sample value of 0.185 and a robust statistical T value of 2.367. Thus, it can be concluded that H3 is accepted. The Simple Slope Analysis Data is illustratively presented in Fig. 3 and Fig. 4 for a more comprehensive elucidation of the moderating relationship among variables.

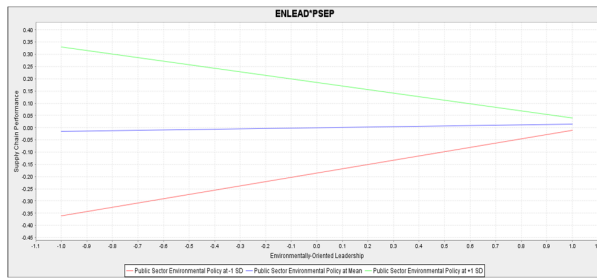


Fig. 3. ENLEAD on SCP and PSEP as moderator

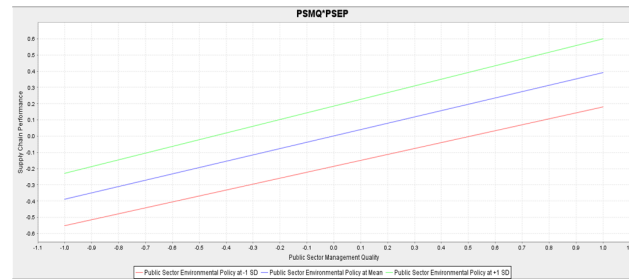


Fig. 4. PSMQ on SCP and PSEP as moderator

Derived from Fig. 3 mentioned above, it becomes evident that respondents exhibiting a high degree of environmentally oriented Leadership tend to display diminished levels of Supply Chain Performance in the presence of Public Sector Environmental Policy. This impact, while subtle, is indicated by the equation line's representation within the figure. From this, the conclusion can be drawn that the presence of Public Sector Environmental Policy does indeed mitigate the connection between Environmentally-Oriented Leadership and Supply Chain Performance. A strong Public Sector Management Quality is associated with elevated Supply Chain Performance when Public Sector Environmental Policy is in effect. Conversely, a lower Public Sector Management Quality influences reduced Supply Chain Performance in the presence of Public Sector Environmental Policy. This trend is visually represented by the equation line in the figure (refer to Figure 4). Consequently, it can be deduced that Public Sector Environmental Policy enhances the connection between Public Sector Management Quality and Supply Chain Performance. Based on the moderation test, where the P value is 2.540 ( $>1.96$ ) and the significance level is 5%, Public Sector Environmental Policy significantly impacts both environmentally-oriented Leadership and Supply Chain Performance. Consequently, Public Sector Environmental Policy possesses the potential to either strengthen or weaken the link between environmentally-oriented Leadership and Supply Chain Performance. As a result, Hypothesis 4 is confirmed despite the moderation leading to the weakening of the relationship. Furthermore, Public Sector Environmental Policy significantly influences Public Sector Management Quality and Supply Chain Performance, evidenced by a P value of 0.417 ( $<1.96$ ) and a significance level of 5%. It implies that the effects of Public Sector Environmental Policy do not moderate the association between Public Sector Management Quality and Supply Chain Performance. Thus, this leads to the rejection of Hypothesis 5.

## 5. Discussion

The rejection of Hypothesis H1, which proposed a significant positive relationship between environmentally oriented leadership and supply chain performance in the public sector, suggests that the observed data does not support such a connection. This outcome underscores the complexity of the interplay between environmentally-oriented leadership and supply chain performance, indicating that other variables or contextual factors may influence this relationship. From a managerial perspective, organizations should recognize the multifaceted nature of supply chain performance enhancement, which may involve a combination of leadership styles, technological interventions, and process improvements. Decision-makers should consider adopting a holistic approach that integrates leadership strategies with sustainability practices and innovation initiatives to optimize supply chain performance in the public sector. While the direct link between environmentally oriented leadership and supply chain performance might not be evident, this finding underscores the importance of fostering a comprehensive organizational environment that prioritizes sustainability and efficiency across the supply chain for long-term success.

The acceptance of H2, stating that "Public Sector Management Quality positively influences Supply Chain Performance," underscores the pivotal role that adept management practices within the public sector assume in enhancing the efficiency and effectiveness of supply chain operations. When public sector entities prioritize strategic planning, optimal resource allocation, and streamlined processes, it engenders an improved overall supply chain performance (Belhadi et al., 2022). This correlation accentuates the paramount significance of proficient management for achieving enhanced supply chain outcomes within the public sector. From a managerial perspective, this finding underscores the urgency of fostering a culture of excellence in management practices. Organizations are encouraged to invest in training and development initiatives that enhance management acumen, ultimately leading to optimized supply chain operations, reduced operational bottlenecks, and overall heightened organizational performance.

The validation of H3, asserting that "Public Sector Environmental Policy positively influences Supply Chain Performance", underscores the pivotal impact that well-structured environmental policies within the public sector exert on enhancing the efficiency and effectiveness of supply chain operations. When public sector organizations establish comprehensive environmental policies encompassing sustainable practices, responsible resource utilization, and eco-friendly standards, it engenders an elevated overall supply chain performance (Azadegan et al., 2020). This connection underscores the pivotal role of a robust policy framework in shaping the convergence of sustainable practices and supply chain outcomes within the public sector (Weldegiorgis et al., 2021; A. Zhang et al., 2023; Zhang & Kimathi, 2022). From a managerial standpoint, this finding

underscores the strategic importance of implementing and reinforcing environmental policies. Organizations are encouraged to prioritize the formulation and enforcement of policies that align with sustainability objectives, thereby fostering a harmonized approach to supply chain operations that delivers enhanced performance outcomes, reduced environmental impact, and fortified organizational reputation.

The acceptance of Hypothesis H4, which indicates that a Public Sector Environmental Policy weakens the relationship between environmentally oriented leadership and supply chain performance, highlights the significance of regulatory frameworks in shaping organizational dynamics. The findings suggest that while environmentally-oriented leadership can improve supply chain performance, a weak environmental policy framework might dilute this positive influence. This outcome underscores the pivotal role of institutional mechanisms in harnessing the full potential of leadership initiatives. From a managerial perspective, organizations operating in the public sector should recognize the intricate interplay between leadership and policy contexts. Decision-makers should prioritize developing and enforcing robust environmental policies that align with environmentally-oriented leadership efforts. By strengthening the environmental policy framework, organizations can create an environment that synergistically reinforces supply chain performance through leadership initiatives. This managerial insight emphasizes the need for a harmonious integration of leadership practices and policy mechanisms to achieve sustainable and effective supply chain outcomes, particularly in the public sector context.

The rejection of Hypothesis H5, indicating that Public Sector Environmental Policy does not moderate the relationship between Public Sector Management Quality and Supply Chain Performance, underscores the complex interplay of factors within the public sector context. This finding suggests that environmental policies in the public sector might not significantly impact the relationship between management quality and supply chain performance. It highlights the need for a nuanced understanding of how different dimensions interact within the public sector environment. From a managerial standpoint, public sector organizations should recognize that while environmental policies are crucial for sustainability, their moderating effect on the relationship between management quality and supply chain performance may not be as pronounced as expected. Decision-makers should adopt a comprehensive approach that includes effective management practices and robust environmental policies to enhance supply chain performance. Rather than relying solely on policy-driven moderating effects, organizations should optimize management quality and concurrently strengthen environmental policies to achieve better supply chain outcomes. This managerial insight highlights the importance of integrating management strategies and environmental initiatives to create a synergistic effect that positively influences supply chain performance in the complex landscape of the public sector.

## 6. Conclusion

This study delved into the intricate dynamics of environmentally oriented leadership, public sector management quality, environmental policies, and supply chain performance within the public sector. The results brought forth valuable insights and implications for both theory and practice. The rejection of Hypothesis H1 underscores the complexity of the relationship between environmentally oriented leadership and supply chain performance in the public sector. Organizations must recognize that enhancing supply chain performance involves a multifaceted approach encompassing various factors beyond leadership alone. From a managerial standpoint, decision-makers should consider adopting an integrated strategy that combines leadership styles, technological advancements, and process improvements to optimize supply chain performance while embedding sustainability practices. The acceptance of H2 underscores the significance of adept public sector management in driving supply chain performance. This finding emphasizes the crucial role of strategic planning, resource allocation, and streamlined processes in achieving efficient and effective supply chain outcomes. Managers should prioritize enhancing management understanding through training and development initiatives, fostering a culture of excellence that can lead to optimized operations and heightened organizational performance.

The validation of H3 highlights the critical impact of well-structured environmental policies on supply chain performance within the public sector. Public sector organizations should prioritize formulating and enforcing comprehensive environmental policies that align with sustainability objectives. This approach optimizes supply chain outcomes and reduces environmental impact, contributing to a strengthened organizational reputation. The acceptance of Hypothesis H4 emphasizes the role of regulatory frameworks in shaping the impact of environmentally oriented leadership on supply chain performance. While leadership can enhance supply chain performance, organizations should recognize that a weak environmental policy framework might hinder this positive influence. Managers should strive to harmonize leadership efforts with robust environmental policies to create a synergistic effect that drives sustainable and effective supply chain outcomes. The rejection of Hypothesis H5 indicates that Public Sector Environmental Policy does not significantly moderate the relationship between Public Sector Management Quality and Supply Chain Performance. This finding underscores the complex interplay of factors within the public sector context. Managers should adopt a comprehensive approach that combines effective management practices and robust environmental policies to optimize supply chain performance, acknowledging that policy-driven moderating effects may not be as pronounced.

### 6.1 Implications for Theory and Managerial Practice

The study's findings contribute to understanding the interrelationships among environmentally-oriented leadership, management quality, environmental policies, and supply chain performance in the public sector. Organizations should recognize the importance of a comprehensive approach that integrates leadership strategies, management practices, and environmental policies to optimize supply chain outcomes. Decision-makers should foster an organizational culture promoting adept management, responsible leadership, and sustainability initiatives. Moreover, the pivotal role of regulatory frameworks in shaping the impact of leadership on supply chain performance underscores the significance of effective policy formulation and enforcement.

### 6.2 Limitations and Recommendations for Future Research

It is important to acknowledge that this study has limitations. The research scope focused on specific variables within the public sector context, potentially omitting other influential factors. Future research could explore additional variables, contextual factors, and external influences to understand supply chain performance comprehensively. Moreover, the study's findings are based on a specific geographic area and time frame, limiting the generalizability to broader contexts. Replication of the study in diverse settings could provide a more robust understanding of the relationships examined. Additionally, qualitative research methods could complement quantitative findings by delving into the nuanced mechanisms driving supply chain dynamics in the public sector.

The novelty of this study lies in its examination of the interplay between environmentally-oriented leadership, management quality, environmental policies, and supply chain performance in the public sector context. The study contributes to existing literature by highlighting the intricate relationships and providing nuanced insights into the mechanisms influencing supply chain outcomes within the public sector. This study contributes to understanding supply chain performance within the public sector. The findings emphasize the importance of leadership, management quality, and environmental policies as influential factors. Public sector organizations can enhance their supply chain performance by adopting a holistic approach that considers these dimensions, ultimately contributing to more efficient and sustainable operations.

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