

Performance Impacts and Research Gaps in Sustainable Supply Chain Management Under a Triple Bottom Line Framework: A Systematic Review Based on Web of Science Literature

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Abstract

This study clarifies the relationship between Sustainable Supply Chain Management (SSCM) and Triple Bottom Line (TBL) performance, addressing fragmented research. Using Web of Science, 71 papers (2011-2025) were selected via bibliometric and content analysis. Findings show SSCM positively impacts TBL, but practice effects vary; firm size moderates, and supply chain ambidexterity mediates. It guides enterprises to prioritize effective SSCM practices, while noting geographic/industry research limitations. **Purpose:** This study aims to systematically clarify the relationship between SSCM and TBL performance, address the fragmentation of existing SSCM research (which often focuses on single TBL dimensions), and provide theoretical guidance and practical directions for enterprises to improve TBL performance via effective SSCM. **Design/methodology/approach:** A systematic literature review was conducted using the Web of Science database. Articles published between 2011–2025 were retrieved with targeted keywords, then screened by subject, language, and type. 71 valid papers were selected, and bibliometric analysis and content analysis were combined, with tools like PLS-SEM to verify variable relationships. **Findings:** SSCM positively impacts TBL performance overall, but effects of different practices vary: environmental management and supply chain integration influence all TBL dimensions, while socially inclusive community practices do not. Firm size moderates the SSCM-TBL relationship, and supply chain ambidexterity, firm capabilities, and integration play mediating roles. **Research limitations/implications:** Samples are geographically concentrated and industry-biased. Key variables and long-term analysis are missing. Data relies on subjective questionnaires, and analysis lacks sufficient qualitative exploration of mechanisms. **Practical implications:** Enterprises should prioritize SSCM practices with multi-dimensional TBL impacts and tailor strategies to firm size. Supply chains need sustainability-focused supplier selection and

differentiated integration. SSCM also drives industry sustainability, supports UN SDGs, and enhances public welfare. **Originality/value:** It integrates TBL's three dimensions to analyse SSCM's comprehensive impacts, filling gaps in prior fragmented research. It combines bibliometric and content analysis to clarify moderating/mediating factors, and emphasizes context-specific insights, enriching SSCM's theoretical framework and practical guidance.

Keywords: Sustainable Supply Chain Management, Sustainability, Tbl Performance, Sustainable Development

Introduction

SSCM is often viewed as a set of practices that blend skills and strategies to enable firms to balance economic, environmental, and social performance in their business processes (Eduardo Ortas & Moneva, 2014). SSCM, through the incorporating environmental and social factors, it aims to enhance the environmental and social performance of firms, suppliers and customers while maintaining economic efficiency (Pagell & Gobeli, 2009). This definition also implies that firms need to implement measures to not only minimize the environmental and social impacts of their internal operations, but also focus on and manage the impacts of their suppliers and customers at all points in the supply chain (Elcio & Wong, 2014).

Since the late 1980s, SSCM has begun to receive increasing attention from both academics and businesses (Carter & Jennings, 2002). Despite the fact that the concept of sustainable development has been proposed for a long time, the initial SSCM studies mainly focused on single dimensions such as environmental protection or social responsibility, and less on the intrinsic linkages between different sustainability factors. This fragmented approach highlights the need to introduce an integrated perspective in SSCM research and practice, i.e., focusing on the interactions among environmental, social and economic dimensions and their impacts on the overall sustainability of the supply chain.

Along with the advancement of economic globalization and infrastructure connectivity, energy projects and sustainable infrastructure development have become key to promoting economic stability and growth. Incorporating sustainability principles into supply chain activities, especially product design, sourcing, production, transportation, and disposal, not only reduces carbon emissions, conserves natural resources, and prevents pollution, but also promotes sustainable economic and social development on a global scale (Carter & Liane Easton, 2011; Seuring & Müller, 2008). This trend increasingly highlights the importance of studying the impact of SSCM on organizational performance and economic sustainability.

The realization and sustainability awareness are restricted to the manufacturers and across the value chain, both upstream and downstream (Geng, 2017). Organizations are now more concerned with long-term survival than with competitive advantage. Concerns about supply chain sustainability have grown even in emerging economies. including sustainability. The traditional objective has been to make these elements and the chain efficient to garner higher profits; however, now, the sustainable supply chain is in focus, and Supply Chain Functions (SCFs) emphasize sustainability and profits (Reefke, 2017) both. With the added dimension of sustainability, environmental, social, and economics in the business, the importance of measuring the performance of the supply chain has grown over recent periods in emerging countries such as India, China, and other Southeast Asian nations (Jayaram, 2015). Measuring the performance of the supply chain helps firms analyze and improve Supply Chain

Performance (SCP) and is an effective tool. SCP is found to be helpful in measuring a business's entire value network within and outside its boundaries.

The economic dimension of TBL emphasizes the corporate role in creating sustainable economic value for broader systems, traditionally measured by metrics such as GDP growth, job creation, and tax contributions (Blakeley & Bradshaw, 2002). It critiques the sole reliance on conventional economic growth indicators, highlighting that economic growth does not automatically translate into social welfare improvements (Hammer & Pivo, 2017). The environmental dimension underscores practices to safeguard ecological resources through energy efficiency, reduction of emissions, and minimization of ecological footprints (Goel, 2018). Environmentally sustainable initiatives are integral to achieving operational efficiency and generating financial advantages (Alhaddi, 2015). The social dimension focuses on equitable and ethical business practices benefiting labor and the wider community, including fair wages, healthcare benefits, social equity, and enhanced quality of life (Elkington, 1997). Neglecting these social responsibilities can adversely impact corporate sustainability and performance, highlighting the necessity for mutually beneficial interactions between businesses and their communities (Pivo, 2015; Hammer & Pivo, 2017).

Integrating the economic, environmental, and social dimensions, TBL provides a holistic framework critical for comprehensively assessing corporate sustainability. In the context of SSCM, TBL principles encourage enterprises to develop integrated evaluation systems, simultaneously balancing profitability, environmental stewardship, and social equity, thus promoting long-term competitiveness and stakeholder engagement (Wittstruck, 2010; Juma, 2025). Despite its broad acceptance, implementing TBL remains challenging due to persistent gaps in research, particularly the lack of integrated analytical models linking all three dimensions to practical supply chain coordination (Brandenburg, 2014). Addressing these challenges necessitates continued interdisciplinary research and practical efforts, enhancing our understanding of the complex synergies and trade-offs inherent within the TBL framework and advancing its comprehensive application in sustainability strategies.

Based on the above discussion, this study proposes the following research questions (RQs) to identify future research directions:

RQ 1. How can enterprises effectively implement SSCM to build more sustainable and environmentally responsible supply chains?

RQ 2. How can enterprises effectively implement SSCM to build more sustainable and economically responsible supply chains?

RQ 3. How can enterprises effectively implement SSCM to build more sustainable and socially responsible supply chains?

Literature Review

Systematic Review Method Following PRISMA Protocol

This study follows the PRISMA 2020 guidelines to ensure transparency, replicability, and methodological rigor in conducting the systematic literature review. The review process consists of four stages: identification, screening, eligibility, and inclusion.

Identification

A comprehensive search was conducted in the Web of Science (WOS) Core Collection database, covering the period from 2011 to 2025. The search strategy combined the following

keywords: “sustainable supply chain management” “sustainability”, “triple bottom line performance” “TBL performance” The initial search generated 135 records.

Screening

Duplicate records were removed, followed by title and abstract screening to exclude irrelevant studies. The screening criteria included: non-English publications studies outside the fields of business, management, economics, supply chain management, environmental science, and decision sciences conference papers, editorials, working papers, and non-peer-reviewed sources. After screening, 102 articles remained.

Eligibility

The full texts of the remaining articles were reviewed based on the following inclusion criteria: The article empirically or conceptually examines SSCM. SSCM practices must be linked to at least one TBL dimension. The study must report empirical findings, clear conceptual frameworks, or validated models. The publication must be a peer-reviewed journal article or academic book chapter. A total of 71 articles met the eligibility criteria.

Included Studies

Finally, 71 studies were included in the systematic review. These serve as the basis for the bibliometric analysis, content synthesis, and development of SSCM–TBL relationships presented in this paper.

This structured PRISMA approach ensures methodological robustness and provides a transparent workflow for replicating the systematic review process.

This systematic review aims to establish the relationship between SSCM, sustainable development, corporate performance, and supply chain management. Utilizing the Web of Science database, the review retrieved articles published between 2011 and 2025 using the keywords “sustainability and sustainable supply chain management” and “TBL performance.” Among 135 identified articles, 71 were reviewed. This review aims to deepen understanding of the current state of SSCM research and its relationship with sustainable development. The findings can inform future research and guide organizational efforts to adopt sustainable supply chain practices.

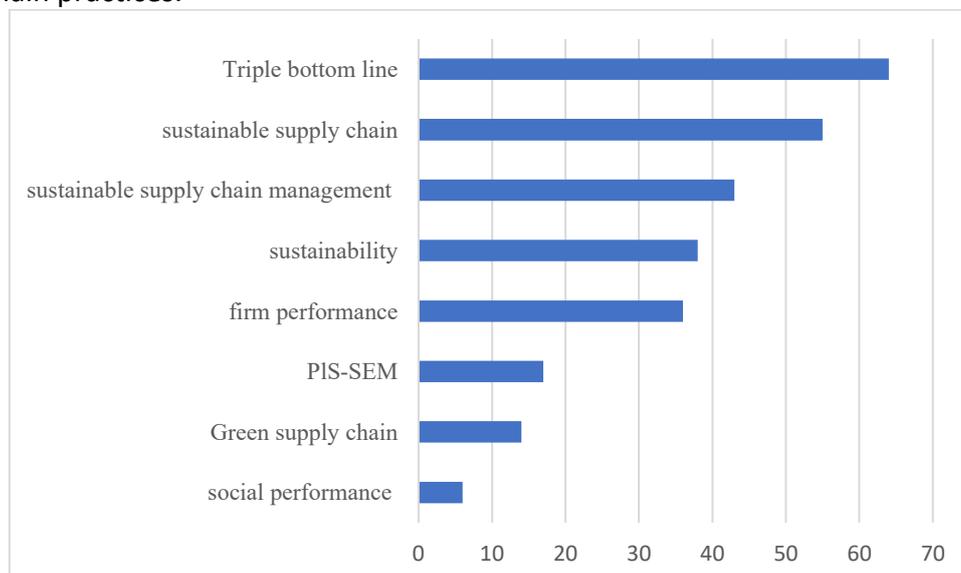


Figure1 Frequency of keywords in reviewed papers.

Descriptive Statistics of the Reviewed Papers

In our supply chain management research, we relied on the Web of Science database due to its comprehensive coverage of peer-reviewed studies (Goodwell, 2021). Given our access to more recent research, we employed the most frequently used keywords (Hashko, 2021). Table 1 illustrates the systematic methodology we used to compile our final dataset of 71 research papers. Within the academic field of quantitative scientific research, Web of Science serves as a rich and comprehensive source of bibliometric data (Donthu, 2021). Compared to Scopus and PubMed, the WOS database is renowned for its global accessibility, diverse research platforms, and highly cited literature. Consequently, the bibliometric analysis for this study was conducted using the WOS database. Since the initial manuscripts were retrieved from the WOS database via software, bibliometric and bibliographic information was also leveraged. Failing to cleanse data prior to converting such documents risks making unfounded assertions. Therefore, we examined the references in the data to cleanse it. The expansion, visualization, and comprehension of bibliographic data enabled this course of action. To obtain the filtered data described above, we employed “TBL Performance” and “Sustainable Supply Chain Management” as search terms.

Table 1

The summary statistics of literature used for bibliometric analysis are listed below.

Filtering Criteria	Reject	Accept
Search parameters		
Search engine: Web of Science		
Date of data Extraction: 03 Oct 2025		
Author's keywords: (“TBL performance” AND “sustainable supply chain management”)	0	135
Subject area: “Business, Management and Accounting”, “Economics”, “Econometrics and Finance”, “Social Sciences”, “Decision Sciences”, and “Environmental Science”.	33	102
Search year: 2020-2025	14	88
Language screening: “English”	0	71
Document type: “Articles”, “Book”	0	71

Journal of cleaner production (6 publications), sustainability (6 publications), operations research (3 publications), annals of operations research (2 publications), brazilian journal of operations production management (2 publications), business strategy and the environment (2 publications), corporate social responsibility and environmental management (2 publications), environment development and sustainability (2 publications), environmental science and pollution research (2 publications), international journal of production economics (2 publications), management of environmental quality (2 publications).

Cluster Analysis (Network Visualization)

The network visualization reveals four major clusters, each representing a research theme in SSCM:

Cluster 1: Environmental Sustainability and Green Operations

Typical keywords: “green supply chain management”, “environmental performance”, “carbon emissions”, “eco-design”, “green procurement” This cluster captures environmental practices within SSCM, reflecting strong research attention on pollution reduction, waste minimization, eco-design, and green procurement. Studies in this cluster often analyse how environmentally oriented practices affect environmental and economic performance.

Cluster 2: Triple Bottom Line and Sustainability Performance

Typical keywords: “sustainability performance”, “economic performance”, “social sustainability”, “triple bottom line”, “corporate sustainability” This cluster focuses on measuring sustainability outcomes using the TBL perspective. Research frequently investigates how specific SSCM practices contribute to economic, environmental, and social performance simultaneously, and explores trade-offs among these dimensions.

Cluster 3: Supply Chain Integration and Collaboration

Typical keywords: “supply chain integration”, “supplier collaboration”, “information sharing”, “capabilities”, “performance improvement” Cluster 3 highlights the importance of integration across suppliers, internal functions, and customers. Many studies reveal that integration acts as a mediator linking SSCM practices to TBL outcomes, often enhancing operational efficiency and sustainability capability.

Cluster 4: Social Sustainability and Responsible Management

Typical keywords: “social responsibility”, “community development”, “stakeholder engagement”, “ethical practices”, “labor conditions”

This cluster emphasizes the social dimension of SSCM, focusing on employee welfare, community engagement, ethical procurement, and corporate social responsibility. Research in this area is still emerging and comparatively less developed than environmental research.

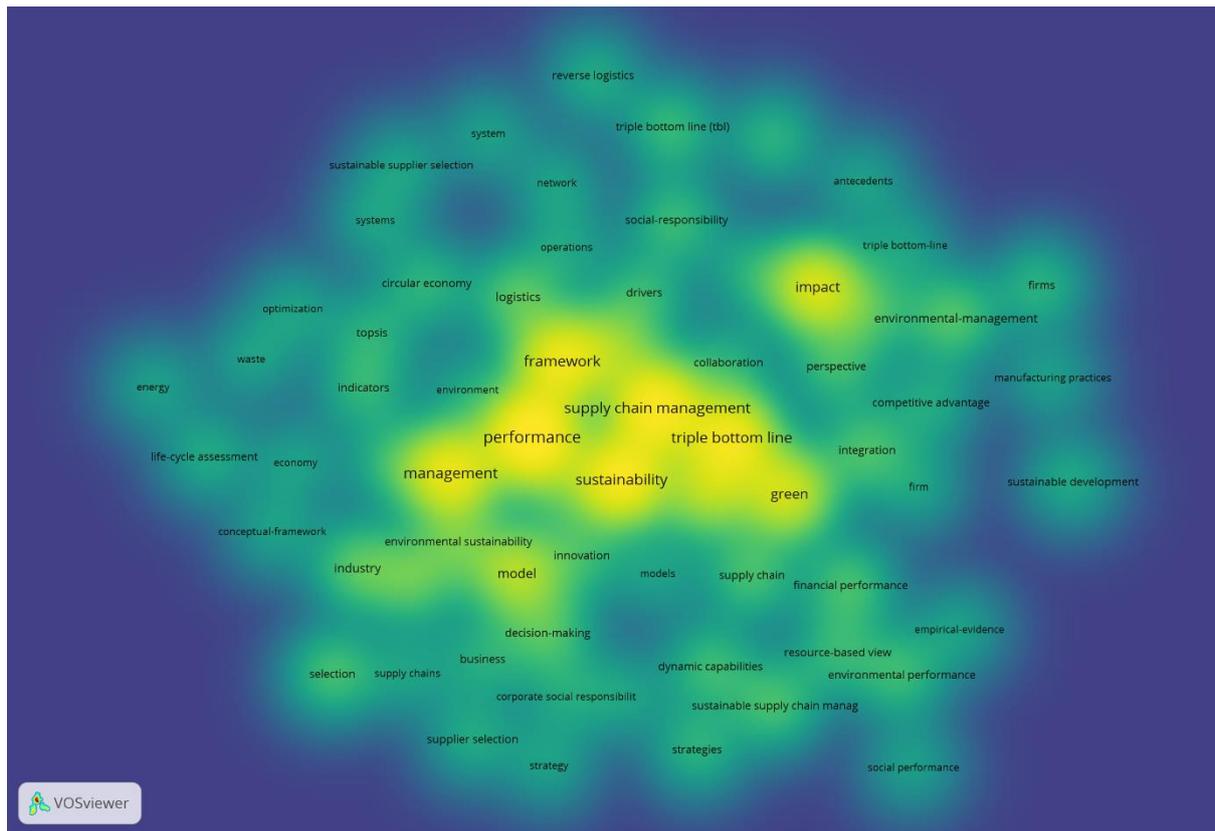


Figure 4. Density Visualization Interpretation

The density map shows “hotspot” terms with high frequency and centrality. Keywords such as: “sustainable supply chain management”, “sustainability” “performance” “Framework” “green” appear in high-density areas, indicating that these topics form the core of SSCM research from 2011 to 2025. This implies that research is predominantly focused on measuring performance impacts rather than developing new theoretical models or social sustainability frameworks.

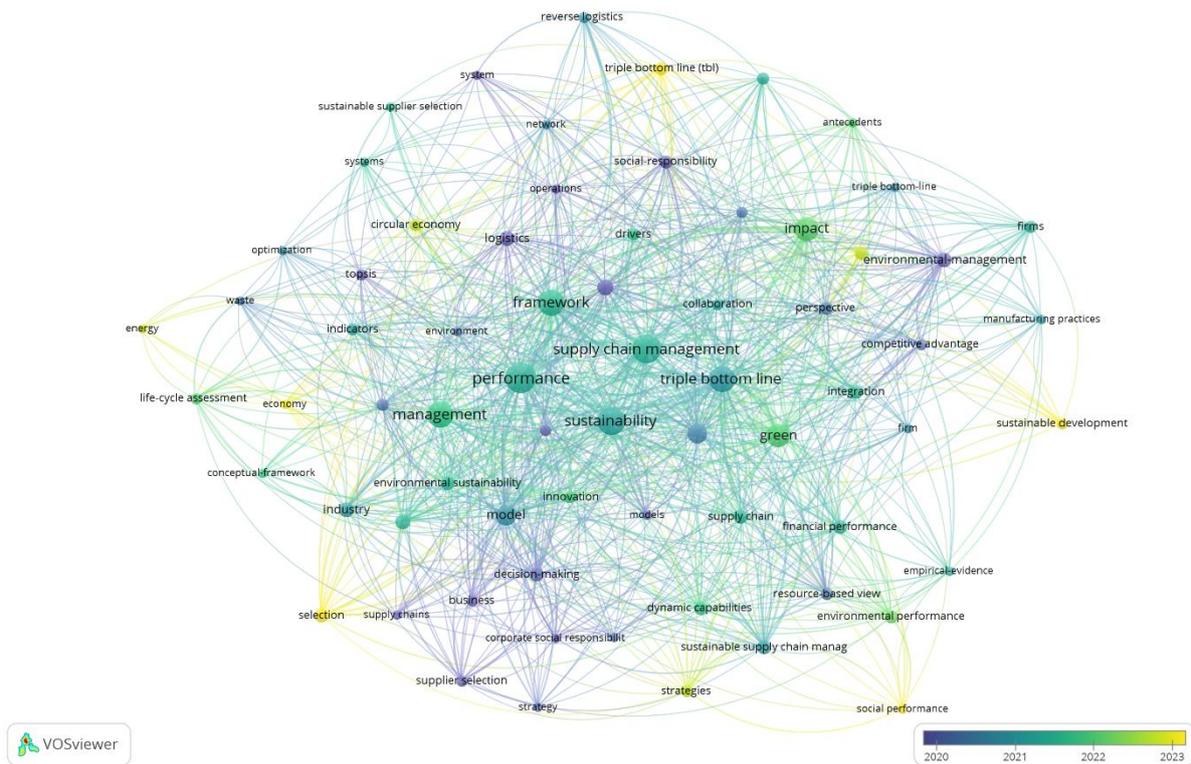


Figure 5. Overlay Visualization

Overlay visualization indicates the temporal evolution of research themes.

Earlier studies (2011–2017) focused on green SCM, environmental management, and lean-green integration.

Mid-period studies (2018–2021) emphasized TBL performance, operational capabilities, and sustainable manufacturing.

Recent studies (2022–2025) shift toward: ambidexterity, stakeholder engagement, innovation-oriented SSCM

, digitalization and Industry 4.0 enabling SSCM. This shows a clear evolution from operational environmental practices toward more strategic, capability-oriented, and innovation-driven SSCM research.

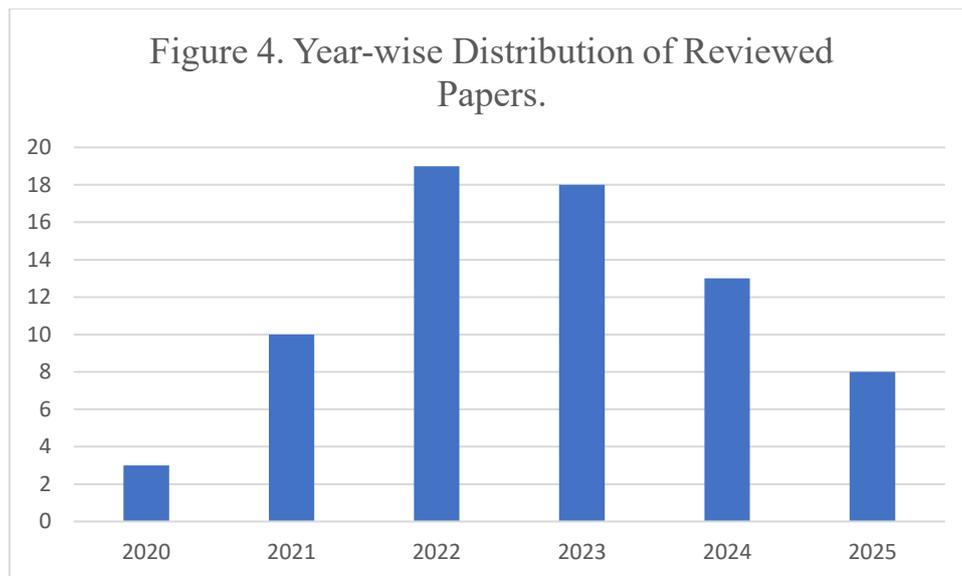


Figure 6. Year-wise distribution of reviewed papers.

Table 2

Methods used for performance measurement/management in the reviewed papers. Tools/Methods Papers

Tools/Methods	Counts
PLS-SEM	1
Fuzzy-TOPSIS	38
SEM	6
Qualitative Framework	17
Quantitative Modelling	6
AHP	1
Fuzzy MCDM	2

Sustainable Supply Chain Management framework

Sustainable Supply Chain Management (SSCM) integrates environmental, social, and economic considerations into supply chain activities to support long-term sustainability. The most influential SSCM framework is proposed by Carter and Rogers (2008), which positions SSCM at the intersection of the Triple Bottom Line (TBL) and supply chain strategy.

SSCM is often viewed as a set of practices that blend skills and strategies to enable firms to balance economic, environmental, and social performance in their business processes (Eduardo Ortas & Moneva,2014). SSCM, through the incorporating environmental and social factors, it aims to enhance the environmental and social performance of firms, suppliers and customers while maintaining economic efficiency (Pagell & Gobeli,2009). This definition also implies that firms need to implement measures to not only minimize the environmental and social impacts of their internal operations, but also focus on and manage the impacts of their suppliers and customers at all points in the supply chain (Elcio & Wong,2014).

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Along with the advancement of economic globalization and infrastructure connectivity, energy projects and sustainable infrastructure development have become key to promoting economic stability and growth. Incorporating sustainability principles into supply chain activities, especially product design, sourcing, production, transportation, and disposal, not only reduces carbon emissions, conserves natural resources, and prevents pollution, but also promotes sustainable economic and social development on a global scale (Carter & Liane Easton, 2011; Seuring & Müller, 2008). This trend increasingly highlights the importance of studying the impact of SSCM on organizational performance and economic sustainability.

In its early stages, socially responsible initiatives—such as SSCM—were often viewed as burdensome measures that could undermine a firm’s competitiveness (McWilliams & Siegel, 2001). However, an increasing number of studies indicate that investing in sustainability not only pays off over time but can also reduce overall capital requirements and yield long-term profits (Sarkis, 2011). Hart (2011) Natural Resource-Based View (NRBV) further corroborates these findings, suggesting that incorporating sustainability principles into supply chain operations can enhance a firm’s capacity to manage uncertainty, ultimately boosting overall performance. Empirical evidence also shows a generally positive correlation between corporate sustainability practices and firm performance (Das, 2018). Extending this line of research, (Krhil, 2023) confirms a positive link between SSCM and TBL performance, pointing out that regulatory pressure moderates the relationship between environmental and social performance. These findings collectively highlight the rising importance of SSCM, along with its positive societal and environmental impacts that continue to attract scholarly attention. Supply chain management plays a vital role in the economy by creating close interdependencies between the economy and appropriate supply networks. The importance of sustainable supply chains in promoting economic growth, environmental protection and social progress. However, there are fewer papers and more lack of research in which scholars put SSCM to play a mediating effect (Peng, 2023).

Integrating the Environmental and Social Dimensions. Previous research has predominantly focused on the environmental and economic dimensions of SSCM, while paying relatively less attention to social aspects. Nevertheless, amid increasing concern over environmental protection and social welfare among consumers and various stakeholders, the social dimension of SSCM has gained growing significance (Sezen & Çankaya, 2019). When consumers or local communities concentrate primarily on the final product or service, any non-compliance with environmental or social standards by one member of the supply chain can negatively affect the core firm’s reputation and brand image. To mitigate such risks, all supply chain participants need to adhere consistently to social and environmental standards—an alignment that SSCM helps institutionalize and operationalize.

In Conclusion, the core practices of SSCM span environmental, economic, and social dimensions, collectively contributing to reduced environmental impacts, enhanced social

welfare, and strengthened economic benefits. These practices can effectively promote sustainability and competitiveness across diverse countries and industries. As public and regulatory attention to sustainable development continues to expand, how to further integrate SSCM into corporate strategy and ensure efficient implementation has emerged as a pressing concern for both academia and industry. Through empirical investigation, this study aims to offer more targeted strategies and pathways for Chinese firms and policymakers, thereby driving broader advancement of SSCM at both regional and global levels.

TBL Performance

Environmental Performance

Environmental performance refers to a firm's efforts to reduce environmental pollution beyond legally mandated requirements, thereby reflecting both proactive environmental management and tangible environmental outcomes (Duanmu, 2018). It encompasses reductions in air emissions, wastewater, and solid waste, as well as decreased consumption of hazardous substances and fewer environmental incidents. As an essential source of competitive advantage, strong environmental performance enables firms to address ecological challenges while complying with regulatory demands (Younis, 2016). However, the intangible nature of environmental impacts and industry-specific differences complicate measurement, with common indicators including energy consumption, pollutant reduction, adherence to environmental standards, and improvements in corporate environmental reputation.

Recent research consistently highlights the positive influence of SSCM practices on environmental performance. For instance, Mugoni (2024) demonstrates that green procurement, green manufacturing, and eco-design initiatives significantly lower resource consumption, promote recycling, and support the adoption of clean technologies, thereby mitigating the environmental impacts of corporate activities. In this context, close collaboration with suppliers, robust environmental management systems, and mechanisms such as green labeling, audits, and internal evaluations are recommended to strengthen environmental outcomes and enhance corporate reputation.

Furthermore, economic incentives play a crucial role in driving environmental initiatives. Mohammad (2023) emphasizes that firms are more inclined to adopt environmental policies when such practices yield economic benefits, such as lower operational costs through efficient resource utilization and the elimination of hazardous substances. These strategies not only enhance environmental performance but also improve public image and can positively influence stock prices.

Empirical evidence further supports the link between SSCM and environmental improvements. Chen (2024) illustrates that integrating sustainability principles into sourcing, manufacturing, and operations positively impacts environmental outcomes. Studies across industries, including Chinese manufacturing and the Korean tea sector, confirm that SSCM practices contribute significantly to reducing industrial environmental impacts, enhancing product and process sustainability, and improving corporate competitiveness in an era of heightened environmental awareness.

Additional studies reinforce these findings. Abdallah (2019) highlights that increasing consumer demand for eco-friendly products drives the adoption of practices such as eco-design and green procurement, which collectively reduce energy use, minimize waste, and improve environmental performance. Similarly, Ravindra Baliga (2019) notes that sustainable product and process design—through the use of recyclable materials and emission-reducing alternatives—effectively optimize resource utilization and reduce waste, further strengthening environmental outcomes.

Organizational culture also plays a pivotal role. Roberto Chavez (2021) stresses the importance of fostering an environmentally oriented culture by integrating environmental considerations into strategic planning and encouraging environmental information exchange with customers. Such collaborative approaches help companies refine their environmental strategies, thereby enhancing environmental performance and securing competitive advantages.

Quantitative assessments also corroborate these conclusions. Zhang (2023), using Thomson Reuters' ASSET4 database, finds that higher environmental pillar scores—reflecting resource efficiency, emissions reduction, and eco-friendly product design—are positively associated with firms' environmental performance.

In summary, the literature consistently demonstrates that SSCM practices—through green procurement, eco-design, sustainable operations, and stakeholder collaboration—serve as effective mechanisms for enhancing environmental performance, strengthening corporate reputation, and contributing to long-term sustainable development.

Economic Performance

In this study, economic performance primarily refers to a firm's financial performance, measured through indicators such as sales revenue and profit. Drawing on Bansal (2004), a seven-item scale was adopted to capture financial performance across multiple dimensions, including after-tax profits, total economic impact, and revenue generation. While economic sustainability can be assessed through both financial and non-financial metrics, most existing studies emphasize quantifiable financial indicators, although some incorporate non-financial aspects such as employee attractiveness, corporate image enhancement, and new customer acquisition to reflect broader economic outcomes.

Empirical evidence generally supports a positive relationship between SSCM practices and improved economic performance. Wiredu (2024) found that SSCM initiatives significantly strengthen financial outcomes, while Ravindra Baliga (2019) demonstrated that optimizing procurement processes, reducing operational costs, and enhancing supply chain efficiency through SSCM positively influence a company's economic standing. Although certain SSCM activities—such as green material adoption or waste reduction programs—entail upfront investments, they ultimately reinforce a firm's competitive advantage and foster long-term economic sustainability.

The motivations behind SSCM adoption further shape economic impacts. Instrumental motivations, especially those focused on enhancing profitability and shareholder value, strongly drive the pursuit of SSCM strategies that deliver tangible financial benefits. In this

regard, Rubén Michael (2022) emphasized that green investments, when coupled with effective information sharing and environmental collaboration, enhance sustainability capabilities and provide firms with competitive advantages in global markets, thereby translating into superior economic performance.

Moreover, several scholars argue that economic performance should not be evaluated in isolation. Omid Narimissa (2019) asserted that integrating environmental and social dimensions is essential for a holistic assessment of SSCM effectiveness. Environmental initiatives, although potentially increasing short-term costs, often improve corporate reputation and customer loyalty, stimulating long-term economic growth. Similarly, strong social performance—reflected in employee satisfaction and community engagement—can drive productivity gains, further enhancing financial outcomes.

Operational efficiency emerges as a central pathway through which SSCM contributes to economic gains. Thanh Tiep Le (2022) confirmed that resource optimization, sustainable consumption, advanced technologies, and stakeholder engagement significantly reduce operational and environmental costs, enhance productivity, and improve overall competitiveness. Similarly, Rabiatal Adwiyah (2023) found significant positive correlations between SSCM practices—such as supplier selection, green procurement, eco-design, and stakeholder collaboration—and key economic performance metrics. For example, rigorous supplier selection ensures higher quality and stability of raw materials, reducing procurement costs, while green procurement practices lower environmental expenses and elevate corporate image.

Esfahbodi (2020) further reinforced these findings, emphasizing that SSCM practices not only reduce costs and enhance reputation but also strengthen market positioning, ultimately improving financial results. Practices such as waste minimization, emission reduction, and sustainable distribution directly support sustained profitability and market valuation improvements.

However, it is important to acknowledge that empirical findings on SSCM's direct economic benefits are not universally consistent. Theophilos Mastos (2022) noted that while many studies confirm positive impacts—such as cost savings and efficiency improvements—others report that certain SSCM initiatives may initially increase operational expenses without delivering immediate financial returns. For instance, empirical studies of Greek food companies highlight that contextual factors such as industry characteristics and organizational readiness significantly influence the extent to which SSCM practices improve economic performance, underscoring the complexity of these relationships.

In summary, while a substantial body of evidence supports the positive effects of SSCM on economic performance through cost optimization, operational efficiency, and reputational gains, the variability of results across contexts indicates the need for a nuanced understanding of the economic implications of sustainable supply chain strategies.

Social Performance

SSCM seeks to balance economic, environmental, and social objectives, with social performance serving as a critical pillar. In this study, social performance is treated as a

dependent variable to examine the influence of social SSCM practices—including both evaluative and collaborative measures—and social capital dimensions (relational, cognitive, and structural).

Fernando (2022) defines corporate social performance as a firm's achievement of social objectives and adherence to ethical business practices across domains such as fairness, ethics, health and welfare, human rights, charity, and safety. Similarly, Bashar Mahmood Ali (2024) applies TBL framework to assess SSCM's social impacts, focusing on labor conditions and community relations. These studies highlight that integrating SSCM practices—such as green procurement, closed-loop supply chains, and active stakeholder engagement—not only enhances environmental and economic outcomes but also strengthens firms' social reputation and societal contributions.

Expanding on specific measurement indicators, Omid Narimissa (2019) identifies key aspects of social performance within supply chains, including occupational health and safety, employment quality, employee training, non-discrimination, supplier social evaluation, and customer social satisfaction. These comprehensive indicators underscore the multifaceted nature of social performance and provide a structured basis for assessing the social impacts of SSCM initiatives.

Empirical research generally supports the positive relationship between SSCM and improved social performance. Ravindra Baliga (2019) finds that organizations adopting strong environmental and social practices are perceived as responsible corporate citizens, thereby securing critical resources, maintaining social legitimacy, and improving both market positioning and financial outcomes. Likewise, Thanh Tiep Le (2022) confirms that by promoting resource efficiency, recycling, and renewable resource utilization, SSCM initiatives not only advance environmental and economic goals but also elevate social standing through the provision of eco-friendly products and services.

Stakeholder influence emerges as another significant driver. Li (2022) emphasizes that both internal and external stakeholders exert pressure on firms to implement socially sustainable supply chain practices. In response, companies often adopt socially responsible procurement, employee welfare programs, and community engagement initiatives, motivated by competitive advantage, labor retention, and reputation enhancement.

Further evidence from specific industries reinforces these trends. John K.M. Kuwornu (2023) demonstrates that internal SSCM practices—such as environmental management, food safety, and charitable initiatives—as well as external practices—such as supplier assessments, technology integration, and long-term partnerships—positively correlate with improved social performance in food companies. Similarly, Guo (2023) notes that although research on the social dimension of SSCM remains emergent, socially oriented firms consistently achieve better market outcomes. This highlights the growing necessity of incorporating fair trade, employee welfare, and community development into SSCM strategies to ensure balanced progress across the economic, environmental, and social pillars of sustainability.

In summary, social performance within SSCM is multifaceted, encompassing employee rights, community development, workplace safety, and broader stakeholder engagement.

Integrating socially responsible practices not only aligns firms with societal expectations but also enhances market competitiveness and contributes to the long-term sustainability of supply chains. Nevertheless, the current body of research also suggests the need for more comprehensive evaluations of social impacts across diverse industries and regions, to further validate and refine the understanding of SSCM's role in fostering social sustainability. This section has examined the impacts of SSCM on environmental, economic, and social performance. The findings consistently indicate that SSCM practices—such as green procurement, eco-design, sustainable manufacturing, and stakeholder engagement—play a vital role in promoting organizational sustainability across multiple dimensions. Environmentally, SSCM helps firms reduce emissions, optimize resource consumption, and minimize ecological risks, thereby enhancing their environmental reputation and compliance with increasingly stringent regulations. Economically, SSCM improves financial performance by optimizing operational efficiency, reducing costs, mitigating risks, and strengthening competitive advantage, although contextual factors may influence the extent and immediacy of financial returns. Socially, SSCM fosters improved labor conditions, community development, and stakeholder relations, enhancing corporate social responsibility and long-term legitimacy.

Collectively, these outcomes demonstrate that SSCM serves as a strategic mechanism for balancing the TBL dimensions—environmental protection, economic growth, and social welfare—within global supply chains. However, the degree of performance improvement may vary depending on industry characteristics, stakeholder pressures, and firm-specific capabilities, highlighting the importance of context-sensitive SSCM strategies for achieving comprehensive and sustainable value creation.

Hypothesis Development

H1: The development of SSCM positively promotes the economic performance of enterprises.

H2: The development of SSCM positively promotes firms' environmental performance.

H3: The development of SSCM positively promotes the social performance of enterprises.

Methods

Literature review

Findings

Multiple studies have examined the impact of SSCM on economic, environmental, and social triple bottom line performance. A study surveying Jordanian manufacturing enterprises found that SSCM practices positively correlate with economic and social performance, with firm size acting as a moderator. Larger enterprises demonstrated superior performance across multiple sustainability metrics when implementing SSCM. Specifically, environmental management practices and supply chain integration influenced all sustainability dimensions, while operations impacted economic sustainability. Socially inclusive employee practices significantly affected both environmental and economic sustainability.

Discussion and Conclusion

Based on relevant literature, the relationship between sustainable supply chain management (SSCM) and triple bottom line performance (economic, environmental, social) is not straightforward. Different SSCM practices yield varying impacts on triple bottom line

performance. For instance, environmental management practices and supply chain integration can influence all sustainability dimensions, whereas social inclusion community practices show no effect on triple bottom line performance. This indicates that not all SSCM activities deliver comprehensive positive outcomes during implementation. Enterprises must precisely identify and select effective SSCM practices. Enterprise scale, as a significant organizational characteristic, moderates the relationship between SSCM and triple bottom line performance. Larger enterprises demonstrate superior performance across multiple sustainability metrics when implementing SSCM. This likely stems from their greater access to resources, more robust management systems, and stronger social influence, enabling more effective execution of SSCM practices. This finding also suggests that enterprises of varying scales should develop tailored strategies aligned with their specific resources and capabilities when pursuing SSCM.

Overall, SSCM exerts a positive influence on corporate triple bottom line performance. Although the effectiveness of different SSCM practices varies, most studies confirm a positive correlation between SSCM implementation and corporate economic, environmental, and social performance. This provides robust theoretical support for companies to prioritize and advance SSCM, demonstrating that SSCM is a vital pathway for enterprises to achieve sustainable development. As external environments evolve—such as during exceptional periods—enterprises must dynamically adjust their SSCM practices. This demands flexibility and adaptability, requiring continuous optimization and refinement of SSCM strategies to ensure enhanced triple bottom line performance across diverse scenarios. Simultaneously, this presents ongoing avenues for future research and practice in SSCM.

Theoretical Implications

This study advances the theoretical understanding of Sustainable Supply Chain Management (SSCM) and its relationship with Triple Bottom Line (TBL) performance in several important ways.

1. Integrating Fragmented SSCM Research into a Unified TBL Framework. Previous SSCM research has often examined environmental, economic, or social performance independently, resulting in conceptual fragmentation. By systematically reviewing 71 studies and employing a TBL-integrated framework, this study contributes to theory by: demonstrating how SSCM practices simultaneously influence all three TBL dimensions, highlighting variations in impact across specific practices, offering a consolidated framework that connects SSCM actions to multidimensional sustainability outcomes. This integrated perspective deepens the theoretical grounding of SSCM by positioning it as a holistic mechanism for achieving balanced sustainability.
2. Revealing Differential Effects of SSCM Practices on TBL Performance. The review identifies that SSCM does not uniformly affect sustainability outcomes. Environmental management and supply chain integration have strong and consistent effects across TBL dimensions, whereas socially inclusive practices show inconsistent or limited effects. This insight contributes theoretically by: challenging the assumption that all SSCM practices generate comprehensive sustainability improvements, identifying which SSCM practices are theoretically potent and which require further refinement, offering a basis for future theory development on the performance heterogeneity of SSCM activities.

3. Strengthening the Conceptual Foundation of SSCM Through Framework Synthesis. By incorporating the Carter & Rogers (2008) SSCM framework and synthesizing SSCM practice categories, this study:

reinforces SSCM as a multidimensional construct anchored in the TBL approach, supports the view that SSCM operates through environmental, economic, and social mechanisms simultaneously, contributes to theoretical clarity by identifying consistent constructs across the literature. This clarifies conceptual boundaries and supports the development of more robust theoretical models in SSCM research.

4. Identifying Research Gaps and Theoretical Blind Spots. The review uncovers several persistent gaps in SSCM theory: limited attention to the social dimension of SSCM; insufficient theoretical exploration of long-term or dynamic effects; geographical and industrial concentration of existing research; lack of theory explaining why some SSCM practices have inconsistent outcomes. These gaps identify new theoretical questions and support the development of more comprehensive SSCM models in future research.

Practical and Social Implications

Based on relevant literature, the relationship between sustainable supply chain management (SSCM) and triple bottom line performance (economic, environmental, social) is not straightforward. Different SSCM practices yield varying impacts on triple bottom line performance. For instance, environmental management practices and supply chain integration can influence all sustainability dimensions, whereas social inclusion community practices show no effect on triple bottom line performance. This indicates that not all SSCM activities deliver comprehensive positive outcomes during implementation. Enterprises must precisely identify and select effective SSCM practices. Enterprise scale, as a significant organizational characteristic, moderates the relationship between SSCM and triple bottom line performance. Larger enterprises demonstrate superior performance across multiple sustainability metrics when implementing SSCM. This likely stems from their greater access to resources, more robust management systems, and stronger social influence, enabling more effective execution of SSCM practices. This finding also suggests that enterprises of varying scales should develop tailored strategies aligned with their specific resources and capabilities when pursuing SSCM.

Overall, SSCM exerts a positive influence on corporate triple bottom line performance. Although the effectiveness of different SSCM practices varies, most studies confirm a positive correlation between SSCM implementation and corporate economic, environmental, and social performance. This provides robust theoretical support for companies to prioritize and advance SSCM, demonstrating that SSCM is a vital pathway for enterprises to achieve sustainable development. As external environments evolve—such as during exceptional periods—enterprises must dynamically adjust their SSCM practices. This demands flexibility and adaptability, requiring continuous optimization and refinement of SSCM strategies to ensure enhanced triple bottom line performance across diverse scenarios. Simultaneously, this presents ongoing avenues for future research and practice in SSCM.

Theoretical Implications

Limitations and Suggestions for Future Research

Geographical Limitations: Existing studies predominantly focus on samples from specific regions, such as Jordanian manufacturing enterprises, Pakistani textile industry firms, or

Ghanaian companies across various sectors. This geographical concentration may result in findings that do not fully represent the realities of enterprises across different global regions. Differences in culture, economic development levels, and policy regulations across regions can influence sustainable supply chain management (SSCM) practices and triple bottom line performance. For instance, variations in resource access, technological capabilities, and societal expectations between enterprises in developed and developing countries may result in differing outcomes and implementation approaches for SSCM practices.

Industry Limitations: Some studies primarily focus on specific sectors, such as manufacturing or textiles, while others, like services or agriculture, receive less attention. Supply chain structures, operational models, and environmental/social impacts vary significantly across industries. Findings from specific sectors are difficult to directly generalize to others. For instance, service industry supply chains emphasize the flow of personnel and information, differing substantially from manufacturing supply chains centered on physical production and logistics. Consequently, SSCM practices and performance metrics also diverge.

Incomplete Variable Consideration

Mediating and Moderating Variables: While existing research identifies mediating factors like supply chain duality, firm capabilities, and supply chain integration, along with moderating factors such as firm size, in the relationship between SSCM and triple bottom line performance, other crucial mediating and moderating variables may remain unaccounted for. Factors like corporate culture, market competitiveness, and technological innovation capabilities could also influence SSCM implementation outcomes and performance. Omitting these variables may lead to incomplete or inaccurate interpretations of the SSCM-performance relationship.

Time Factor: Most studies analyze data from a single point in time or short time periods, lacking examination of the long-term dynamic changes in SSCM practices and performance. The effects of SSCM practices may not manifest immediately, requiring accumulated time to significantly impact triple bottom line performance. Furthermore, changes in external environments and internal corporate conditions over time can also influence the relationship between SSCM and performance.

Data Collection Methods: Current research predominantly relies on questionnaire surveys for data collection. This approach depends on respondents' subjective judgments and recollections, potentially introducing data bias. For instance, respondents may exaggerate the effectiveness of SSCM practices or performance metrics to portray the company in a more favorable light. Furthermore, questionnaires may fail to capture certain difficult-to-quantify information, such as actual internal implementation practices and employees' genuine perceptions.

Analysis Methods: Existing research primarily employs quantitative analytical methods like structural equation modeling (e.g., PLS-SEM). While these can validate relationships between variables, they lack in-depth qualitative analysis of the complex mechanisms and processes underlying SSCM practices. For instance, quantitative analysis may fail to provide detailed explanations for why certain SSCM practices yield differing impacts on triple bottom line

performance. This requires integrating qualitative methods such as case studies and field interviews for deeper exploration.

Suggestions for Future Research

Expand Geographic Scope: Future studies should encompass enterprises from more diverse regions, including developed nations, developing countries, and underdeveloped areas, to comprehensively understand variations in SSCM practices and performance across different geographical contexts. Cross-national and cross-regional comparative research can analyze how cultural, policy, and economic factors influence SSCM, providing more targeted recommendations for implementing SSCM in diverse regions.

Increase Industry Diversity: Extend the research scope to more sectors, such as services, agriculture, and energy, to deeply explore how industry-specific characteristics affect SSCM practices and performance. Develop specialized SSCM strategies and performance metrics tailored to different industries to enhance the practicality and applicability of research findings.

Explore New Mediating and Moderating Variables: Investigate additional variables potentially influencing the relationship between SSCM and triple bottom line performance, such as corporate culture, market competitiveness, and technological innovation capabilities. Through theoretical analysis and empirical research, clarify the operational mechanisms of these variables in SSCM implementation to enrich understanding of its influencing factors.

Consider Time Dimensions: Conduct longitudinal studies tracking changes in corporate SSCM practices and performance over extended periods. Analyze the effects of SSCM practices at different stages and the dynamic changes in influencing factors, providing a basis for enterprises to formulate long-term SSCM strategies.

Diversify data collection methods: Combine multiple data collection approaches. In addition to questionnaires, utilize internal corporate data collection, field observations, employee interviews, and other methods. Enhance data accuracy and comprehensiveness through multi-channel collection, reducing biases inherent in single-method approaches.

Integrate qualitative and quantitative approaches: Combine quantitative analysis methods with qualitative analysis methods. Building upon quantitative methods like structural equation modeling to validate variable relationships, utilize qualitative methods such as case studies and field interviews to deeply explore the underlying causes and mechanisms of SSCM practices, providing more profound insights for theoretical development and practical application.

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