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Unveiling the Sustainable Supply Chain Management Imperative: Bridging the Gap in Emerging Economies

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Abstract: *In today's global marketplace, there is a growing recognition that supply chain management must integrate environmental and social considerations with economic factors. This paradigm shift has led to a growing interest in sustainable supply chain management in recent years. However, there remains a significant gap in research attention towards sustainable supply chain management in emerging economies compared to other economic contexts. This study undertakes a thorough review of the academic literature on sustainable supply chain management in emerging economies to uncover the reasons for this disparity. The findings of this research shed light on the specific challenges and nuances that emerging economies face in addressing sustainability within their supply chains.*

1. INTRODUCTION

Throughout history, supply chains have developed to fulfill the varied requirements of individuals and societies, harness natural resources, and facilitate profitable engagement in trade (MacCarthy et al., 2016). New supply chains can emerge in different contexts such as when demand for a new product arises, but they can also disappear when demand is not sufficient to drive them (Lee et al., 2013; Wang et al., 2015).

Recently, however, the supply chain has been forced to pay more attention to environmental, ethical, and social responsibility issues, thus, different supply chain (SC) approaches have emerged and developed that respond to the interests of the new conditions. The most prominent approaches identified are green SC, responsible SC, ethical SC, and resilient SC, but the one that stands out most because of its broad scope and focus on the future is the sustainable supply chain (SSC) approach. The SSC approach provides a global vision that the authors of this research consider as integrating the rest of the approaches.

It is important to highlight that authors such as (Brandenburg et al., 2014; Brandenburg & Rebs, 2015; Seuring & Müller, 2008) state that currently, the integration of social, environmental and economic responsibilities in supply chain management (SCM) is a challenge for organizations and a very relevant area of research, and that although substantial improvement has been made towards this objective, there is still a long way to go.

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The diversity of published articles prompts questions about how to guide future research and advance the field and underscores the need to detect research gaps and direct research efforts accordingly, regardless of the methodology used (de Lima et al., 2022; Seuring et al., 2022). Authors of different studies (Khodakarami et al., 2015; Narimissa et al., 2020; Pagell & Shevchenko, 2014; Seuring et al., 2022; Zhu et al., 2022) argue that one is unlikely to become an SSC if you don't manage your sustainability, hence the growing interest of the international scientific community in sustainable supply chain management (SSCM). Reflecting the growing importance of sustainable development, research in SSCM has now become mainstream (Seuring et al., 2022). Recently, SSCM academics have been experimenting with diverse scenarios and coming up with discoveries and designs through scientific studies.

Despite advancements in SSCM research, a significant gap persists in the attention given to the context of emerging economies. There is a notable disparity in the number of case studies between established and emerging economies, which can be attributed to several underlying factors. Emerging economies often face distinct challenges, such as limited financial resources, weaker institutional capacities, and inadequate regulatory frameworks, which complicate the adoption of sustainable practices in supply chains. These barriers not only hinder the effective implementation of SSCM but also restrict the generation of empirical data and case studies necessary for advancing research in these regions. As a result, the unique dynamics and sustainability challenges of emerging economies remain underexplored, highlighting the need for more targeted research efforts to bridge this critical gap.

Given these challenges, this paper seeks to address the following research question: What are the primary barriers to the implementation of sustainable supply chain management practices in emerging economies?

To explore this question, an in-depth search was conducted using the Scopus and Web of Science databases, focusing on publications that examine sustainability management within supply chains in the context of emerging economies. The collected data were meticulously analyzed, and the key findings are presented and discussed in this article, shedding light on the current state and future directions of SSCM in these rapidly evolving markets.

2. METHODOLOGY

The systematic review was conducted using the SALSA (Search, Appraisal, Synthesis, and Analysis) framework, which provides a detailed methodological structure for organizing and evaluating the scientific literature in a rigorous manner. The individual stages of this framework are shown in Figure 1 and described below:

Search: An exhaustive search was conducted in the Scopus and Web of Science databases, selected for their prestige and recognition in the academic community. Keywords and specific criteria related to SSCM in the context of emerging economies were applied.

Appraisal: After the initial search, a critical evaluation of the articles identified was carried out to exclude those that did not meet the defined inclusion criteria. Studies that did not directly address the context of emerging economies or that did not focus on SSCM were discarded.

Synthesis: Selected studies were organized and synthesized to identify patterns, trends, and gaps in the existing literature. The results were systematically grouped to highlight methodological approaches, key findings and implications of the studies for SSCM.

Analysis: Finally, a detailed analysis of the synthesized data was performed, identifying the most significant contributions to the field of study. This analysis included evaluating the approaches used, identifying areas for improvement, and proposing possible directions for future research.

The use of the SALSA framework allowed for a systematic and structured review, ensuring the quality and relevance of the selected studies and providing a solid basis for the discussion of the results in this article.

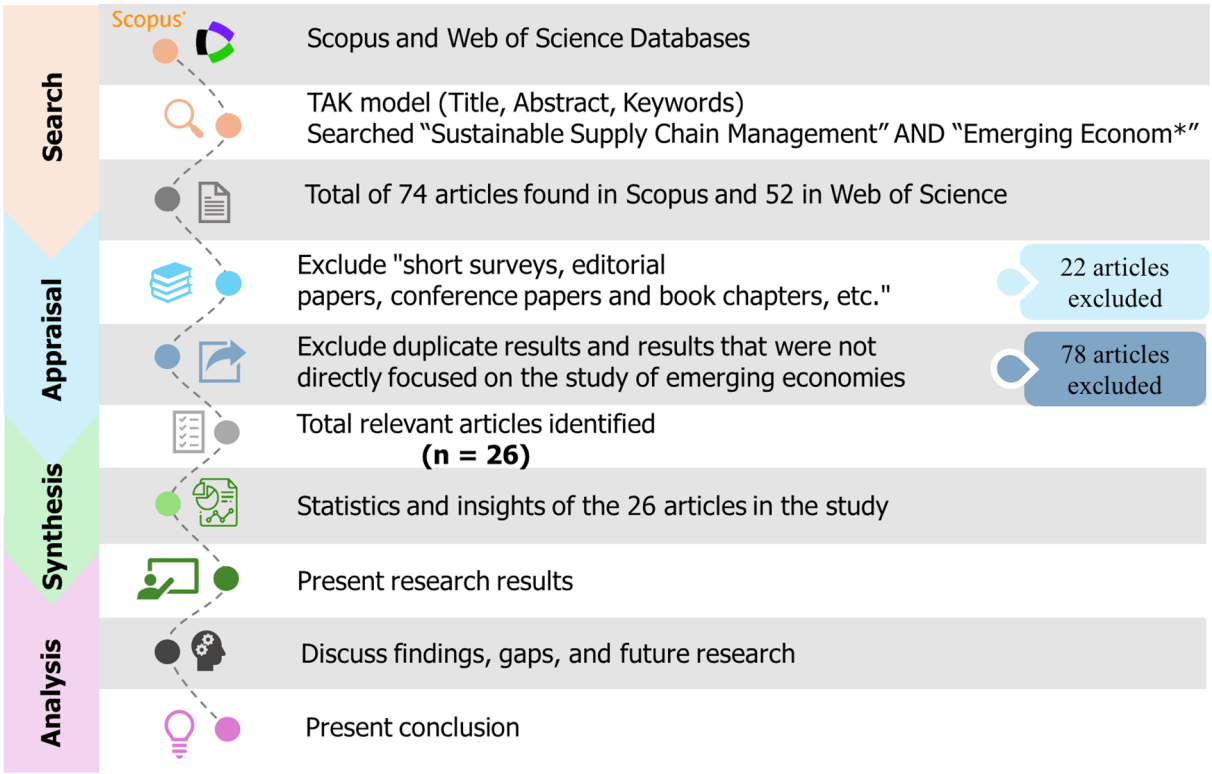

Figure 1. Research Methodology

Source: Own research

3. RESULTS

After the selection of the articles, a detailed descriptive analysis was carried out, focusing on statistics and general data obtained from each study. This analysis considered key variables such as year of publication, industry sector, country of study and research methodology employed. These dimensions provided a comprehensive overview of the current state of research on SSCM in emerging economies.

As shown in Figure 2, the chronological analysis revealed that academic production in SSCM in emerging economies has been irregular over the years, which is evidence that this area of research has not yet reached its maturity phase. The variability in the number of publications suggests that the topic, although emerging and relevant, has not managed to consolidate consistently within the academic literature. The year 2018 stood out as the most prolific, concentrating the highest number of publications, which could be related to a greater global focus on sustainability and the Sustainable Development Goals (SDGs) promoted by international organizations during that period.

Geographically, most research is concentrated in India (Jain et al., 2024; Moktadir et al., 2021; Roy et al., 2020; Sharma et al., 2021; Singh & Srivastava, 2022) and Brazil (de Vargas Mores et al.,

2018; Emberson et al., 2022; Morais & Silvestre, 2018; Pereira et al., 2023; Silvestre et al., 2018) (Figure 3), two of the world's largest and most dynamic emerging economies. This can be attributed to the relevance of their industrial sectors, their challenges in terms of sustainability, and a growing academic interest in exploring how these countries address the integration of sustainable practices into their supply chains. However, the concentration of studies in these countries also highlights the need to expand research to other underrepresented emerging economies, such as those in Africa and Southeast Asia, to obtain a more global and balanced view.

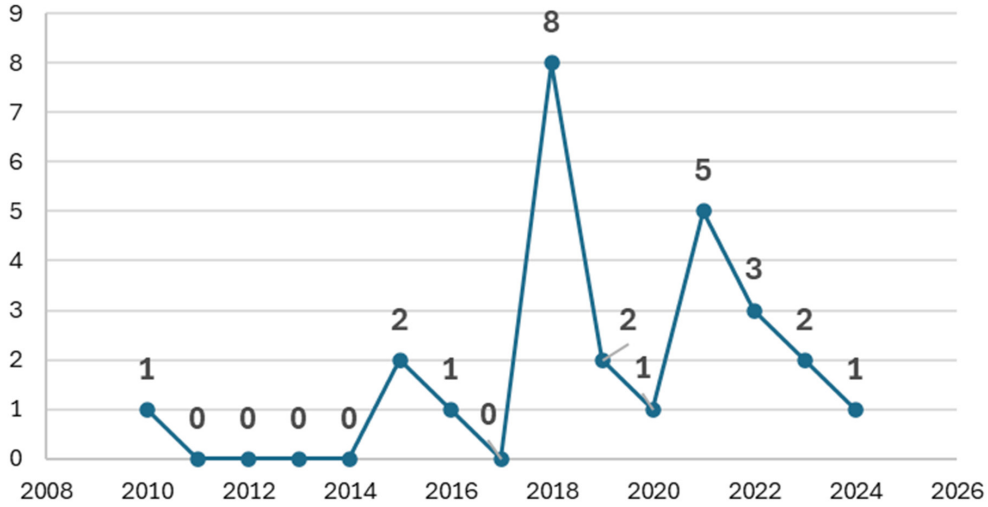

Figure 2. Distribution of publications by year

Source: Own processing

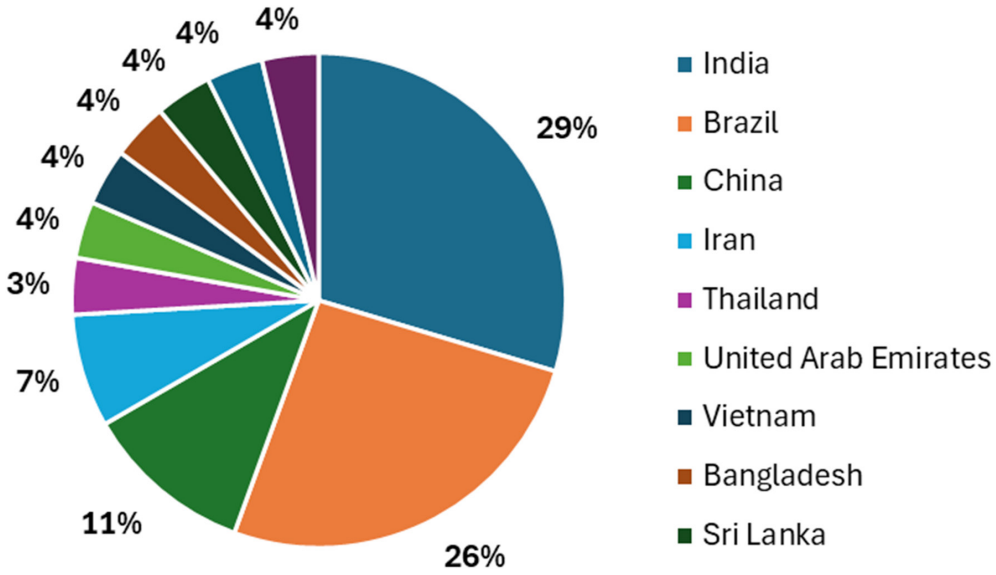

Figure 3. Distribution of publications by countries

Source: Own processing

Figure 4 shows that the manufacturing sector, with a particular focus on the apparel industry, predominates among the most studied industrial sectors (Ahmadi et al., 2023; Badri Ahmadi et al., 2022; Jain et al., 2024; Sharma et al., 2021). This sector is particularly relevant due to its high dependence on labor in emerging markets, its significant environmental impacts, and its exposure to ethical and social issues such as precarious working conditions. This pattern reflects the need to address sustainability issues in industries with complex supply chains exposed to globalization.

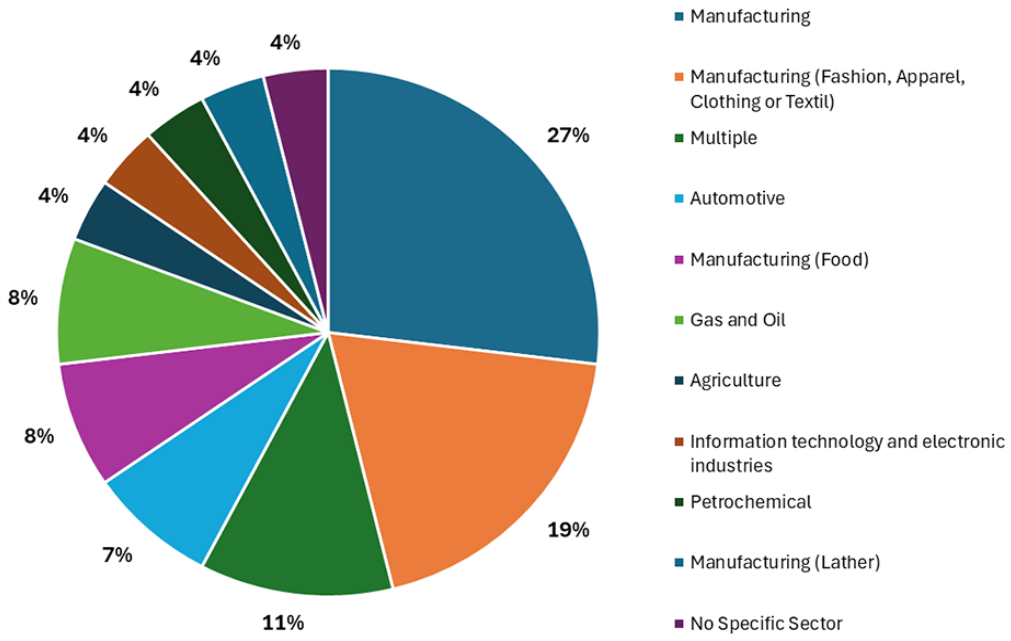

Figure 4. Distribution of research by sector
Source: Own processing

In terms of methodological approaches, most studies employ analytical and mathematical methodologies (54%), including optimization models, simulations and quantitative analysis to address specific SSCM problems. These approaches allow an accurate assessment of the efficiency and effectiveness of sustainable practices. They are followed by case studies (35%), which provide in-depth understanding of specific contexts, highlighting the practical complexities of implementing SSCM in different industrial settings. Finally, systematic literature reviews account for 11%, serving as a basis for synthesizing prior knowledge and establishing the theoretical foundations of the field.

Taken together, these findings highlight both the progress and current limitations of SSCM research in emerging markets. While there is growing interest, the uneven distribution of publications, the concentration on certain sectors and countries, and the predominance of quantitative methodologies point to areas where the field could benefit from further diversification and deepening.

4. DISCUSSION AND FUTURE RESEARCH DIRECTIONS

A key finding of this research is the identification of several barriers to the development of SSCM in emerging economies. Key barriers include limited financial resources and low institutional capacity, reflecting a complex and less developed business and regulatory environment compared to advanced economies. This hinders the implementation of sustainable practices due to the lack of financial support and robust policies that promote sustainability.

Another critical factor is the lack of awareness and understanding of the importance of sustainability within supply chains. In many cases, both companies and consumers in emerging economies are not fully informed about the long-term benefits of integrating sustainable practices, resulting in limited adoption of these measures. In addition, cultural, social and economic differences in these economies significantly influence the perception and adoption of sustainability, leading to practices that may be inconsistent or not aligned with international standards.

Restricted access to advanced technologies also represents a considerable barrier, as these technologies are critical for efficient SSCM. Emerging economies often face difficulties in accessing these tools due to high investment costs, inadequate infrastructure, and lack of technical training, which limits their ability to optimize processes and reduce environmental impact.

Finally, companies in emerging economies tend to prioritize short-term economic benefits over long-term sustainability objectives. This tendency is often driven by immediate financial pressures and market volatility, which force companies to focus on quick profitability to ensure their survival, leaving behind investments in sustainable practices that, although beneficial in the long term, require greater upfront resources.

These barriers highlight the need for a comprehensive approach that addresses not only sustainability awareness and education but also institutional capacity building and access to finance and technology to foster real and sustainable change in the supply chains of emerging economies.

During the study, several gaps were identified that limit the progress of research on sustainable supply chain management in emerging economies. One of the main ones is the lack of studies that specifically address local contexts, which generates insufficient knowledge on how the economic, social and cultural particularities of these regions affect the implementation of sustainable practices. This lack is compounded by the scarcity of empirical data and case studies that provide detailed evidence of the specific challenges and opportunities faced by supply chains in these markets.

In addition, there is limited attention to local challenges, such as labor market informality, poor infrastructure and economic instability, which require tailored approaches and innovative solutions. Cultural and social differences also play a crucial role, in influencing the perception and adoption of sustainability in such a way that models applied in developed economies are not always directly transferable or effective.

Another significant obstacle is resource constraints, both financial and technological, which limit the ability of local businesses to adopt sustainable practices. This situation is exacerbated by often inadequate or inconsistent regulatory and policy frameworks, which not only lack clear incentives for sustainability but can also create additional barriers through bureaucracy or lack of effective enforcement.

The influence of multinational companies also represents a duality: while they may drive better sustainable practices through their global supply chains, they may also impose standards that do not fit the local context or prioritize their economic interests over commitments to sustainability. Finally, the scarcity of interdisciplinary approaches limits the ability to approach SSCM from multiple perspectives, integrating knowledge from diverse areas such as economics, sociology, technology and environmental management, which are essential to developing more comprehensive and effective solutions.

These gaps highlight the need for more contextualized, diversified and collaborative research that considers the complexities and particularities of emerging economies to meaningfully advance sustainable supply chain management in these environments.

The study has three essential limitations that could have influenced the findings. First, the restriction in the selection of databases, as only a limited set was used, which may have excluded relevant studies

from other less traditional but equally valuable academic sources. Second, the use of specific keywords, although careful, may not have been comprehensive enough to capture the full breadth of the literature on SSCM in emerging economies, which may have led to a partial representation of the topic. Finally, the review was based on an analysis of only 26 articles, which, while providing relevant initial insight, limits the generalizability of the results and may not capture all the complexities of the field.

Despite these limitations, several lines of future research were identified that could significantly enrich the understanding of SSCM in emerging economies. These include the need to develop specific frameworks that are adapted to local contexts, as well as longitudinal studies to observe the evolution of sustainable practices over time. Comparative analyses between different emerging economies could provide valuable insights into contextual variations.

In addition, exploring the role of stakeholders, including governments, non-governmental organizations and local communities, is essential to understand how they influence the implementation of SSCM. It is also suggested to investigate the impact of policy and regulation on sustainability, as regulatory frameworks can be both drivers and barriers. Consumer behavior and its influence on the demand for sustainable products is another crucial aspect that deserves attention.

Likewise, training and education emerge as key factors in fostering a culture of sustainability within organizations and at the community level. Finally, technological innovations represent a promising field for transforming supply chains, improving efficiency and reducing environmental impacts. These lines of research offer a way to deepen knowledge and overcome current barriers to sustainable supply chain management in emerging economies.

5. CONCLUSION

The conclusions of this study highlight that the implementation of SSCM practices in emerging economies remains in its early stages and faces multiple obstacles. The main barriers identified include economic constraints, weak regulatory frameworks, inadequate infrastructure, and a lack of awareness and specialized knowledge in sustainability. Additionally, cultural and social factors, technological gaps, the inherent complexity of supply chains, limited stakeholder engagement, a predominant short-term business focus, and pressures from globalization further complicate the adoption of sustainable practices.

Despite these challenges, there is a noticeable trend towards the adoption of SSCM practices in these regions, reflecting a growing awareness of the importance of sustainability. Addressing these barriers requires a multifaceted approach that includes strengthening regulatory frameworks, improving infrastructure, enhancing access to financing and advanced technologies, and promoting education and capacity-building initiatives. Encouraging collaboration among stakeholders and fostering a long-term sustainability perspective are also essential elements for driving meaningful change.

This study underscores the urgent need for continued research to develop tailored strategies that consider the unique contexts of emerging economies. This involves designing frameworks that not only respond to local needs but also address the complexities and specificities of these markets. Future research should focus on closing the identified gaps and creating innovative solutions that enhance the sustainability of supply chains in emerging economies, ultimately contributing to more resilient and sustainable global supply chains and benefiting the global community.

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