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ESG, Green Innovation, and Export Competitiveness of SMEs: A Systematic Review

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Abstract

Environmental, social and governance (ESG) considerations are larelgy influecing the competitiveness of small and medium-sized enterprises (SMEs) world-wide. This secondary research review studies the relationship between ESG practices, green innovation, and export competitiveness among SMEs in India and across the globe. The paper evaluates how sustainability-oriented practices can influence international markets, operational efficiency, stakeholder trust, and compliance with growing environmental expectations. Particular attention is given to green innovation as a potential mechanism through which ESG commitments can be translated into commercially relevant capabilities. This review indicates that ESG adoption can contribute to a competitive advantage, but its effects are not uniform at the least and generally depend on factors such as financial resources, technological capabilities, managerial expertise, regulatory conditions, and international buyer's expectations. Green innovation emerges as a potentially important pathway by enabling SMEs to convert sustainability objectives into improved products, systems, resource efficiency, and market differentiation. However, existing research remains comparatively limited in its SME-specific and export-focused analysis, particularly in emerging and developing economies such as India. The paper therefore highlights the need for longitudinal, cross-country, and industry-specific extensive research measuring export outcomes.

Keywords: ESG, Green Innovation, SMEs, Export Competitiveness, Sustainability, Internationalization, Sustainable Entrepreneurship

1. Introduction

1.1 Background and Context

Sustainability, day by day, is becoming an important dimension of business strategy as firms face greater environmental regulation, stakeholder scrutiny and changing consumer expectations. Environmental, social and governance (ESG) considerations have consequently expanded beyond corporate responsibility and increasingly influence strategic decision-making, supply-chain relationships and access to markets. This development is all the more relevant for small and medium-sized enterprises (SMEs), which constitute a significant part of economic activity and frequently participate in domestic and international value chains. As international buyers increasingly evaluate suppliers on environmental and social criteria, sustainability practices can influence such SME's ability to maintain and develop international business relationships (Kraus et al., 2020).

SMEs face particular difficulties in adopting formal ESG practices. Limited financial resources, managerial capacity and technological capabilities can make investments in environmental technologies, certification and reporting rather difficult than for larger firms. However, it must also be noted that SMEs may also benefit from flexible organisational structures, closer stakeholder relationships and faster decision-making, which can facilitate the adoption of sustainability oriented practices (Johnson &

Schaltegger, 2016). ESG therefore represents both a challenge and a potential strategic opportunity for small and medium firms.

1.2 ESG, Green Innovation and Export Competitiveness

The relationship between ESG and competitiveness becomes significant when SMEs operate in the international markets. Export competitiveness depends on several factors such as product quality, pricing, innovation and knowledge of foreign markets. Sustainability is becoming an additional consideration as international customers, regulators and supply-chain partners introduce environmental and social requirements. Meeting these requirements may enable SMEs to access new markets, strengthen buyer relationships and differentiate their products. (Knight & Liesch, 2016).

Green innovation provides a potential mechanism through which ESG practices can translate into competitive benefits. It includes innovations in products, processes and organisational practices that reduce environmental impact or improve resource efficiency. Examples include energy-efficient production, waste reduction, sustainable materials, cleaner technologies and environmentally responsible packaging. Such innovations can produce environmental and also economic benefits by reducing resource consumption, improving operational efficiency and creating opportunities for product differentiation (Dangelico & Pujari, 2010).

From a resource-based perspective, sustainability-related knowledge and capabilities can become sources of advantage when they create value and are difficult for competitors to replicate (Barney, 1991). Dynamic Capabilities Theory also suggests that firms can strengthen their competitiveness by adapting resources and capabilities to changing technological, regulatory and market conditions (Teece et al., 1997). Accordingly, ESG practices establish organisational priorities that encourage green innovation, while green innovation may help convert sustainability commitments into commercially relevant capabilities. However, ESG adoption can require considerable financial and managerial resources, while green innovation may involve technological uncertainty and significant investment. Furthermore, environmental improvements do not automatically result in higher export performance. Outcomes may depend on institutional support, technological resources, managerial capabilities and the sustainability expectations of specific international markets (Revell et al., 2010; Johnson & Schaltegger, 2016). Understanding these conditions is therefore essential when evaluating whether ESG can genuinely strengthen SME export competitiveness.

1.3 Research Objectives and Questions

This systematic review examines the relationship between ESG practices, green innovation and export competitiveness among SMEs. The study focuses on three objectives: first, to examine how ESG practices influence SME competitiveness in international markets; second, to assess the role of green innovation in translating sustainability practices into export-related advantages; and third, to identify organisational, institutional and market factors that influence these relationships.

The review addresses three principal research questions:

1. **How does ESG adoption influence the export competitiveness of SMEs?**
2. **What role does green innovation play in the relationship between ESG and export competitiveness?**
3. **What major factors and research gaps shape the ESG–green innovation–export competitiveness relationship?**

Particular attention is given to SMEs in emerging economies, where resource constraints and evolving institutional environments may create different sustainability challenges from those experienced by large

firms in developed markets. By synthesising existing research, the paper seeks to determine whether ESG functions primarily as a compliance requirement or whether it can serve as a strategic capability through which SMEs develop green innovation and strengthen their position in international markets.

2. SMEs, ESG and International Competitiveness

2.1 SME Export Competitiveness

SMEs contribute substantially to employment, production and entrepreneurial activity, while their participation in international markets has expanded through global value chains, digitalisation and improved access to international customers. However, SME internationalisation remains constrained by limited financial resources, managerial capabilities and market knowledge (Knight & Liesch, 2016). Export competitiveness depends on a combination of product quality, pricing, innovation, productivity and the ability to understand and respond to foreign-market requirements. Innovation is particularly important because it enables SMEs to differentiate their products and adapt to changing customer preferences (Dangelico & Pujari, 2010).

Sustainability and regulatory compliance are increasingly becoming additional determinants of competitiveness. International buyers may impose environmental, labour and responsible-sourcing requirements on suppliers, making compliance relevant to market access. SMEs therefore need to balance the costs of meeting these requirements with the potential benefits of accessing new markets and strengthening international business relationships. Limited technological capabilities, finance and knowledge can make this adjustment particularly difficult for smaller firms (Johnson & Schaltegger, 2016).

2.2 ESG Adoption in SMEs

ESG adoption encompasses environmental practices such as resource efficiency and waste reduction, social practices concerning employees and communities, and governance practices involving transparency, accountability and ethical decision-making. Although these dimensions are increasingly relevant to SMEs, their implementation often differs from that of larger corporations. SMEs generally have fewer specialised personnel and less formalised systems for sustainability measurement and reporting, which can limit their ability to implement comprehensive ESG frameworks (Johnson & Schaltegger, 2016).

Resource constraints are particularly significant because ESG adoption can require investment in technology, employee training, certification and monitoring systems. SMEs may also lack sufficient knowledge about ESG standards and the expectations of international stakeholders. Nevertheless, their relatively flexible structures and shorter decision-making processes can allow sustainability initiatives to be incorporated into business operations more rapidly than in larger organisations. ESG adoption should therefore be understood within the specific resource and institutional conditions of SMEs rather than assessed using frameworks designed primarily for large corporations.

2.3 Sustainability as a Competitive Advantage

Sustainability becomes a source of competitive advantage when ESG practices generate value beyond regulatory compliance. Environmental improvements reduce resource and energy costs, while responsible social and governance practices strengthen relationships with employees, suppliers, customers and other stakeholders. These advantages can contribute to organisational reputation and trust, which are specifically important for SMEs that depend heavily on long-term business relationships (Kraus et al., 2020).

Sustainable products and processes can also support international differentiation. SMEs that develop environmentally responsible products, adopt sustainable sourcing or improve production efficiency may be better positioned to respond to sustainability-conscious buyers. Green innovation is particularly important in this context because it can transform ESG objectives into tangible products and processes that create customer value (Dangelico & Pujari, 2010). However, the competitive benefits of sustainability are not universal; they depend on factors such as market expectations, industry characteristics, firm capabilities and institutional support. This creates an important research gap concerning how ESG practices are converted into green innovation and, ultimately, measurable export competitiveness among SMEs, particularly in emerging economies.

3. Green Innovation and Sustainable Export Performance

3.1 Green Innovation in SMEs

Green innovation refers to the development or adoption of products, processes and organisational practices that reduce environmental impact while creating economic value. In SMEs, it can take the form of green product innovation, such as sustainable materials, recyclable packaging and environmentally preferable products, as well as green process innovation, including energy-efficient production, waste reduction and cleaner technologies (Dangelico & Pujari, 2010). These innovations allow SMEs to incorporate environmental considerations into their core business activities rather than treating sustainability as a separate function.

Green innovation can also extend beyond production to sourcing, logistics and supply-chain management. Sustainable procurement, responsible supplier selection, resource-efficient transportation and improved traceability can reduce environmental impacts across the value chain. For SMEs participating in international supply chains, such practices may be particularly relevant because sustainability requirements can originate from international buyers rather than directly from domestic regulation. However, limited financial and technological resources can restrict the ability of smaller firms to adopt advanced green technologies (Johnson & Schaltegger, 2016).

3.2 ESG as a Driver of Green Innovation

ESG practices can create organisational conditions that encourage green innovation. Environmental objectives can direct firms towards resource efficiency and pollution reduction, while social and governance practices can strengthen employee involvement, stakeholder engagement, transparency and long-term decision-making. Effective governance is particularly relevant because innovation requires firms to allocate resources towards projects whose benefits may emerge over an extended period. Responsible governance can therefore support the integration of sustainability objectives into investment and innovation decisions.

The relationship can also be understood through the resource-based view. ESG practices can contribute to the development of organisational capabilities and knowledge that support innovation and may become valuable competitive resources (Barney, 1991). Similarly, dynamic capabilities theory suggests that firms need to continuously adapt their resources in response to changing environmental and market conditions (Teece et al., 1997). ESG can consequently provide strategic direction, while green innovation represents one mechanism through which that direction is translated into operational change. Nevertheless, ESG adoption alone does not guarantee innovation; access to finance, technological capabilities, managerial commitment and institutional support can influence whether sustainability objectives result in actual innovation.

3.3 Green Innovation and Export Competitiveness

Green innovation can strengthen export competitiveness through three principal mechanisms: differentiation, efficiency and compliance. Environmentally sustainable products can differentiate SMEs from competitors and appeal to international customers with sustainability preferences. At the operational level, energy efficiency, reduced material consumption and waste minimisation can lower production costs and improve resource productivity. Green innovation can also help firms satisfy environmental standards and sustainability requirements imposed by foreign governments, customers and supply-chain partners (Dangelico & Pujari, 2010). However, the relationship between green innovation and export performance is context-dependent. Green products may require higher initial investment, specialised technologies or certification, while demand for sustainable products differs across countries and industries. Therefore, green innovation should not be assumed to automatically generate export growth. Instead, its value may depend on the SME's ability to align innovation with the requirements of its target markets and communicate the resulting sustainability benefits effectively.

This suggests that green innovation may function as a connecting mechanism between ESG and export competitiveness. ESG can establish sustainability objectives and organisational capabilities; these can encourage green product and process innovation; and successful innovation can subsequently contribute to differentiation, efficiency and international market access. Examining this potential pathway is therefore important for understanding whether ESG creates measurable competitive value for SMEs rather than merely increasing their compliance obligations.

4. Systematic Review of Existing Literature

4.1 Key Findings

The literature broadly indicates a positive relationship between sustainability-oriented practices and SME performance, although the strength of this relationship varies across contexts. ESG-related practices can improve stakeholder relationships, organisational reputation and operational efficiency, while environmental initiatives can encourage firms to develop capabilities that support longer-term competitiveness (Johnson & Schaltegger, 2016; Kraus et al., 2020). For SMEs involved in internationalisation, sustainability can also become relevant to relationships with foreign buyers and participation in global value chains, where environmental and social standards increasingly influence supplier selection.

Research on green innovation provides further support for the competitiveness argument. Green product and process innovations can enable firms to reduce resource consumption, improve production efficiency and differentiate their offerings (Dangelico & Pujari, 2010). These benefits can be particularly valuable in export markets where consumers and business customers place greater emphasis on environmental performance. However, the literature suggests that green innovation is most likely to generate commercial benefits when it is aligned with market demand and supported by appropriate organisational capabilities.

4.2 Patterns and Contradictions

Despite the generally positive relationship reported in the literature, findings are not consistently uniform. Some studies identify clear benefits from sustainability and green innovation, whereas others report weaker or insignificant effects. One explanation is that ESG practices can generate substantial short-term costs while their financial benefits emerge only over a longer period. SMEs with limited resources may therefore experience difficulty converting sustainability investments into immediate improvements in performance.

Differences across countries, industries and firm characteristics also contribute to contradictory findings. Environmental regulations and consumer expectations vary considerably between markets, meaning that an investment in green innovation may provide substantial competitive value in one export market but limited benefits in another. Similarly, firms with greater technological capabilities, managerial expertise or international experience may be better positioned to commercialise sustainability-related innovations (Teece et al., 1997). The literature therefore suggests that ESG and green innovation should not be treated as universally applicable sources of competitive advantage; their outcomes are strongly influenced by context.

4.3 Factors Influencing the ESG–Innovation–Export Relationship

Financial and technological resources are among the most important factors influencing the ability of SMEs to implement ESG practices and green innovation. Investment in cleaner technologies, sustainable materials, certification and monitoring can be difficult for resource-constrained firms. Access to external finance and technological knowledge can therefore determine whether sustainability objectives are translated into operational innovations (Johnson & Schaltegger, 2016).

Regulatory pressure and institutional support can also influence adoption. Environmental regulations may encourage SMEs to improve production processes, while government incentives, technical assistance and sustainability programmes can reduce the costs associated with green innovation. Institutional environments therefore shape both the motivation and capacity of SMEs to adopt sustainable practices.

Buyer and consumer expectations represent another important mechanism. International buyers can encourage suppliers to improve environmental performance through sustainability standards, auditing and responsible sourcing requirements. Similarly, consumer demand for sustainable products can create market incentives for green innovation. However, the strength of these incentives depends on the characteristics of the target market and the willingness of customers to reward sustainable offerings (Dangelico & Pujari, 2010).

Finally, management capabilities and export experience influence how effectively SMEs respond to these pressures. Managers with greater sustainability knowledge and international market experience may be better able to identify relevant standards, anticipate buyer expectations and integrate ESG objectives into innovation strategies. This indicates that the relationship between ESG, green innovation and export competitiveness is not simply a direct sequence but a context-dependent process shaped by the firm's resources, capabilities and external environment.

5. Research Gaps and Future Directions

The existing literature establishes important connections between sustainability practices, green innovation and firm competitiveness, but several gaps remain. These gaps are particularly relevant for understanding SMEs because much of the established ESG literature has historically focused on larger corporations with greater financial, technological and reporting capabilities. SME-specific research remains comparatively fragmented, making it difficult to determine whether conclusions drawn from large firms can be directly applied to smaller businesses (Johnson & Schaltegger, 2016).

A second gap concerns emerging economies, particularly India. Institutional conditions, regulatory frameworks, access to finance and the structure of international supply chains can differ substantially between developed and emerging markets. Consequently, findings from European or North American firms may not fully explain how Indian SMEs experience ESG adoption and green innovation. More

research is required to examine how resource constraints and institutional support influence the sustainability strategies of export-oriented SMEs in emerging economies.

A further limitation is the relatively limited integration of the three concepts examined in this review. Existing studies frequently investigate ESG, green innovation or export performance as separate relationships. Comparatively less attention has been given to green innovation as a potential mediating mechanism between ESG adoption and export competitiveness. This distinction is important because ESG practices may not directly generate export advantages; instead, their value may emerge when they stimulate innovations that improve efficiency, product differentiation or compliance with international requirements.

Future research should also place greater emphasis on actual export outcomes rather than relying primarily on broad measures of firm performance or sustainability performance. Measures such as export growth, entry into new international markets, export intensity, repeat international orders and international market share could provide stronger evidence of whether sustainability generates measurable competitive benefits.

Finally, the literature would benefit from more longitudinal, cross-country and industry-specific research. Longitudinal studies could examine whether ESG investments produce competitive benefits over time, while cross-country research could identify the influence of different regulatory and institutional environments. Industry-specific studies could further establish whether the value of green innovation differs between manufacturing, consumer goods, technology and other sectors. Such research would provide a more precise understanding of when and how ESG and green innovation contribute to SME export competitiveness.

6. Managerial and Policy Implications

6.1 Implications for SMEs

The literature suggests that SMEs should increasingly treat ESG as part of their broader business and export strategy rather than as a standalone compliance activity. Integrating environmental and social considerations into operational and investment decisions can help firms anticipate buyer expectations and identify opportunities for efficiency and innovation. This is particularly important for export-oriented SMEs, where sustainability requirements may influence relationships with international customers and participation in global value chains (Johnson & Schaltegger, 2016).

Green innovation can provide a practical mechanism for converting ESG objectives into competitive value. SMEs can focus on innovations that simultaneously reduce environmental impact and improve operational efficiency, such as energy-efficient production, waste reduction, sustainable materials and improved resource management. Such measures can support product differentiation while potentially reducing long-term operating costs (Dangelico & Pujari, 2010). SMEs should also strengthen sustainable supply-chain practices through responsible sourcing, supplier evaluation and traceability. Where relevant, recognised environmental and sustainability certifications can provide evidence of compliance and increase credibility with international buyers.

6.2 Implications for Policymakers and Institutions

The resource constraints faced by SMEs indicate a need for institutional mechanisms that reduce the cost and complexity of sustainability adoption. Governments and financial institutions can support SME green innovation through targeted financing, tax incentives, technology-upgradation programmes and grants for

environmental improvements. Such measures can be particularly important for smaller firms that lack sufficient internal resources to invest in new technologies independently.

Policymakers can also improve SME participation in sustainable international markets by simplifying ESG standards and reporting requirements. Complex reporting frameworks designed primarily for large corporations may impose disproportionate administrative costs on SMEs. Proportionate and accessible standards could enable smaller firms to demonstrate sustainability performance without creating excessive compliance burdens. Institutional agencies can further provide training, technical assistance and market information to help SMEs understand foreign sustainability regulations and buyer expectations.

Finally, export-promotion institutions can incorporate sustainability support into internationalisation programmes. Assistance with certifications, sustainable supply-chain development, foreign-market research and connections with international buyers could help SMEs convert sustainability investments into market opportunities. Such interventions would be particularly valuable in emerging economies, where institutional support can help bridge the financial, technological and knowledge gaps that otherwise limit SME adoption of ESG and green innovation (Leonidou et al., 2015).

References

1. Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120. https://doi.org/10.1177/014920639101700108
2. Dangelico, R. M., & Pujari, D. (2010). Mainstreaming green product innovation: Why and how companies integrate environmental sustainability. *Journal of Business Ethics, 95*(3), 471–486. https://doi.org/10.1007/s10551-010-0434-0
3. Johnson, M. P., & Schaltegger, S. (2016). Two decades of sustainability management tools for SMEs: How far have we come? *Journal of Small Business Management, 54*(2), 481–505. https://doi.org/10.1111/jsbm.12154
4. Knight, G. A., & Liesch, P. W. (2016). Internationalization: From incremental to born global. *Journal of World Business, 51*(1), 93–102. https://doi.org/10.1016/j.jwb.2015.08.011
5. Kraus, S., Rehman, S. U., & Sendra García, F. J. (2020). Corporate social responsibility and environmental performance: The mediating role of environmental strategy and green innovation. *Technological Forecasting and Social Change, 160*, 120262. https://doi.org/10.1016/j.techfore.2020.120262
6. Leonidou, L. C., Fotiadis, T. A., Christodoulides, P., Spyropoulou, S., & Katsikeas, C. S. (2015). Environmentally friendly export business strategy: Its determinants and effects on competitive advantage and performance. *International Business Review, 24*(5), 798–811. https://doi.org/10.1016/j.ibusrev.2015.02.001
7. Revell, A., Stokes, D., & Chen, H. (2010). Small businesses and the environment: Turning over a new leaf? *Business Strategy and the Environment, 19*(5), 273–288. https://doi.org/10.1002/bse.628
8. Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7%3C509::AID-SMJ882%3E3.0.CO;2-Z