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THE EFFECT OF GREEN ENTREPRENEURSHIP ON SMALL AND MEDIUM ENTERPRISES (SMEs) IN INDIA: AN ANALYTICAL STUDY

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ABSTRACT

Environmental degradation and climate change have compelled economies to adopt sustainable business models. Green entrepreneurship-defined as business activity that minimizes environmental harm while ensuring commercial viability-has emerged as a significant component of modern economic development. This paper evaluates the effect of green entrepreneurship on India's Small and Medium Enterprises (SMEs) by analysing trends in start-up growth, employment generation, production, sales, GDP contribution, and exports. The study utilizes secondary data from DPIIT, MSME Annual Reports, RBI, Economic Survey, and DGCIS. The findings reveal that India has experienced a substantial rise in start-ups from 504 in 2016 to 34,847 in 2023 with corresponding job creation expanding exponentially. MSMEs also demonstrated continuous growth in production and sales, although employment levels remained stable, indicating rising efficiency and technological adoption. The MSME contribution to GDP and exports affirms their role as a backbone of the Indian economy. Literature further supports that green entrepreneurship enhances SME competitiveness, reduces operational costs, strengthens brand value, and opens access to niche green markets.

Keywords: Green Entrepreneurship, SMEs, Sustainability, MSME, Economic Growth, Start-ups, Exports.

INTRODUCTION

Growing environmental concerns, rapid resource depletion, and global climate challenges have significantly increased the relevance of green entrepreneurship in the modern economic system. As countries across the world commit to sustainable development goals (SDGs), entrepreneurship is evolving beyond profit-oriented models toward more responsible, eco-conscious approaches. Green entrepreneurship refers to the initiation and management of business ventures that focus on environmentally efficient production, renewable energy adoption, waste reduction techniques, and the development of eco-friendly products and services. These practices not only contribute to environmental protection but also improve long-term business competitiveness by reducing operational costs, enhancing productivity, and strengthening brand value in a market that increasingly demands sustainability. In the Indian context, Small and Medium Enterprises (SMEs) hold a crucial position as they constitute more than 90 per cent of all enterprises, contribute nearly 30 per cent to the national GDP, and account for over 40 per cent of total exports. Their geographical spread across urban and rural areas, flexibility in operations, capacity for innovation, and ability to generate large-scale employment make them key agents for promoting green transformation. SMEs possess the

potential to incorporate green practices through energy-efficient technologies, recycling initiatives, sustainable raw material sourcing, and environmentally conscious supply chain management. However, despite their potential, SMEs encounter several barriers that hinder the widespread adoption of green entrepreneurship. These challenges include limited financial resources, inadequate technological infrastructure, insufficient knowledge about green standards, lack of trained manpower, and low awareness of environmental regulations. Given these complexities, understanding the impact of green entrepreneurship on SME growth and performance is essential for designing effective policies. This research examines how start-up expansion, job creation, MSME production and sales patterns, and export performance correlate with sustainable entrepreneurial behaviour in India. It also assesses how green practices influence business competitiveness, efficiency, and long-term viability. Additionally, the study highlights the significant role of traditional Khadi and Village Industries (KVIs), which exemplify sustainable production through the use of natural fibres, organic materials, and low-carbon manual processes. These industries not only preserve India's rich cultural heritage but also create large-scale employment opportunities in rural regions, supporting inclusive and eco-friendly development. Their contribution demonstrates how both modern green start-ups and traditional small-scale industries can together strengthen India's journey toward a sustainable and resilient economy. Thus, the introduction of green entrepreneurship-across both modern SMEs and traditional sectors-represents a transformative approach capable of addressing environmental challenges while simultaneously enhancing economic performance. This study aims to explore these interconnections in detail and provide a comprehensive understanding of the role of green entrepreneurship in shaping the future of SMEs in India.

OBJECTIVES OF THE STUDY

1. To examine the growth of start-ups and associated employment generation in India.
2. To analyse production, sales, and employment patterns in the MSME sector from a sustainability perspective.
3. To study the contribution of MSMEs to GDP and exports in relation to green entrepreneurship.

METHODOLOGY

The present study is entirely based on secondary data collected from various authoritative and government-approved sources to ensure accuracy and reliability. Data related to start-ups and employment generation was obtained from the DPIIT Start-up India portal, while information on MSME production, sales, and employment was sourced from the MSME Annual Reports for the period 2016-2024. Additional data concerning India's export performance and the contribution of the MSME sector to GDP was gathered from the Directorate General of Commercial Intelligence and Statistics (DGCIS). Macroeconomic indicators and policy-related insights were derived from the Reserve Bank of India (RBI) publications and the Economic Survey of India. A wide range of published research papers, journal articles, and academic studies were also reviewed to develop a strong conceptual understanding of green entrepreneurship and its impact on SMEs. The analysis employs descriptive statistical techniques and trend analysis to examine growth patterns, sectoral performance, and the

broader economic implications of green entrepreneurship. The interpretation of data is carried out systematically to identify emerging trends, assess the economic significance of SMEs and start-ups, and understand their alignment with sustainable and green business practices.

REVIEW OF LITERATURE

A considerable body of literature highlights the growing importance of green entrepreneurship in promoting sustainable development. (Lotfi et al., 2018) emphasized that the emergence of green markets, supported by green technologies, has significantly influenced sustainable production processes and strengthened environmentally responsible entrepreneurship. Their study argues that green design, eco-friendly products, and green supply chain practices collectively create a favourable environment for sustainable business growth. Sharma and (Kushwaha,2021) further reinforced this perspective by establishing a strong linkage between environmental concern, green market expansion, and entrepreneurial growth within the Indian economy. Their findings indicate that increased environmental awareness and consumer preference for green products are pushing businesses to adopt environmentally friendly innovations. (Gupta & Prakash, 2017) examined the structural challenges faced by the Khadi sector, highlighting competition from machine-made fabrics, outdated production technologies, and inconsistent product quality. These issues underline the need for modernization while maintaining sustainability principles.

Similarly (Kaur & Nehra, 2017) stressed the role of Khadi and village industries in preserving traditional craftsmanship, promoting rural employment, and ensuring ecological balance through low-carbon production methods. Their findings position Khadi as a sustainable industry model. On a broader scale, (Subrahmanya, 2011) analysed the effects of globalization on small-scale industries and observed that liberalization improved export potential but exposed SMEs to competitive pressures. The study suggested that technological upgrading, financial accessibility, and marketing support are essential for enhancing SME competitiveness in a globalized market. Although existing literature provides significant insights into green markets, sustainability practices, and challenges faced by SMEs and traditional industries, a clear gap remains in understanding how green entrepreneurship directly influences SME growth patterns in terms of start-up expansion, job creation, production efficiency, and export performance in India. Most studies focus separately on either environmental sustainability or SME development, but very few examine their interconnected impact using recent post-liberalization and post-pandemic data. Moreover, research on the integration of green practices within emerging start-ups and their comparative role vis-à-vis traditional industries like Khadi is still limited. The current study attempts to bridge this gap by analysing how green entrepreneurial behaviour aligns with actual MSME performance indicators such as employment trends, GDP contribution, production growth, and export competitiveness over the last decade.

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Table 1: Growth of Start-ups and Reported Jobs (2016-2023)

Year	Number of Start-ups	Jobs Reported
2016	504	10
2017	5425	43,322
2018	8947	88,147
2019	11,722	1,32,804
2020	14,817	1,61,796
2021	20,313	1,98,762
2022	26,592	2,74,685
2023	34,847	3,91,943

Source: DPIIT, Government of India

The data presented in Table 1 illustrates a remarkable expansion of the start-up ecosystem in India between 2016 and 2023. The number of registered start-ups increased from only 504 in 2016 to 34,847 in 2023, marking an extraordinary 69-fold growth over the eight-year period. Correspondingly, employment generation also witnessed substantial improvement, rising from just 10 reported jobs in 2016 to 3,91,943 jobs in 2023. This upward trend indicates that start-ups have emerged as a significant source of employment creation in the country. Notably, the period of the COVID-19 pandemic (2020–21) did not hinder start-up formation; rather, it accelerated entrepreneurial activity due to the growing reliance on digital platforms, e-commerce, logistics, healthcare innovation, and green technologies. The consistent increase in both start-ups and job creation reflects a structural shift toward innovation-driven and environmentally conscious entrepreneurship. This trend also highlights the rising emphasis on sustainability-oriented start-ups, which are contributing meaningfully to economic diversification, technological advancement, and green business practices in India.

Table 2: MSME Production, Sales, and Employment (2016-17 to 2023-24)

Year	Production	Sales (Crore)	Employment (Lakh)
2016–17	1520.83	2146.6	4.56
2017–18	1626.66	2510.21	4.65
2018–19	1963.3	3215.13	4.96
2019–20	2324.24	4211.26	4.97
2020–21	1904.49	3527.71	4.97
021–22	558.31	051.72	4.97
022–23	915.83	942.93	4.98
3–24	06	96	4.98

Source: Ministry of MSME

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Table 2 presents the performance of the MSME sector in terms of production, sales, and employment over an eight-year period. Both production and sales show a steady and continuous increase, with production rising from 1520.83 units in 2016-17 to 3206 units in 2023-24, and sales increasing from rs.2, 146.6 crore to rs. 6,496 crore during the same period. This sustained growth indicates robust demand, expansion of manufacturing activities, and the strengthening of domestic value chains within the MSME ecosystem. Despite this substantial increase in production and sales, employment figures reveal a different trajectory. Employment grew marginally from 4.56 lakh in 2016-17 to 4.98 lakh in 2023-24, showing almost no significant rise after 2019-20. This divergence suggests a gradual shift toward automation, mechanization, and capital-intensive technologies, enabling MSMEs to increase output without a proportional rise in labour absorption. The stable employment pattern also reflects improved labour productivity and the adoption of more efficient, environmentally sustainable production techniques. Thus, the MSME sector appears to be moving toward a more technology-driven, resource-efficient, and productivity-oriented structure, which aligns with the principles of green entrepreneurship.

Table 3: MSME Share in GDP & Exports (2016-17 to 2023-24)

Year	MSME GDP Share (%)	MSME Export Share (%)
2016–17	29.69	49.00
2017–18	29.70	48.56
2018–19	30.50	48.10
2019–20	30.50	49.77
2020–21	27.30	49.35
2021–22	29.60	45.03
2022–23	30.10	43.59
2023–24	45.73	45.73

Source: DGCIS

Table 3 highlights the contribution of the MSME sector to India's GDP and exports. The MSME share in GDP remained relatively stable, hovering around 29-30 per cent from 2016-17 to 2019-20 before experiencing a decline to 27.30 per cent in 2020-21, attributable to economic disruptions caused by the COVID-19 pandemic. However, the sector displayed strong recovery post-pandemic, with GDP contribution rising to 29.60 per cent in 2021–22, 30.10 per cent in 2022-23, and reaching an exceptional 45.73 per cent in 2023–24. This sharp increase may be attributed to policy interventions promoting local manufacturing, technological upgradation, credit support, and sustainability-oriented practices. Similarly, MSMEs have consistently played a vital role in India's export performance, contributing between 43 to 49 per cent of total exports throughout the period. Although there was a slight decline in export share during 2021-22 and 2022-23 the sector regained momentum in 2023-24, reaching 45.73 per cent, indicating renewed competitiveness in global markets. The consistently high export contribution underscores the importance of MSMEs as a cornerstone of India's external trade. Furthermore, the integration of green technologies, eco-friendly production systems, and sustainable supply

chain practices has enhanced global acceptance of MSME products, particularly in environmentally conscious markets. Overall, the trends highlighted in Table 3 demonstrate the resilience, adaptability, and growing contribution of MSMEs to India's economic and export growth. The rise in GDP share, coupled with stable export performance, reflects the increasing adoption of sustainable production techniques that support long-term economic development.

FINDING

The analysis reveals that green entrepreneurship has emerged as a significant driver of SME performance in India, supported by strong growth in start-ups, rising production, and steady export contributions. Start-ups increased from 504 in 2016 to 34,847 in 2023, generating nearly four lakh jobs and demonstrating high resilience even during the pandemic. MSMEs also recorded consistent increases in production and sales, although employment levels remained almost stagnant after 2019-20, indicating greater adoption of automation, efficiency improvements, and resource-saving technologies. The sector's contribution to GDP rebounded sharply to 45.73 percent in 2023-24, and its export share remained consistently high, highlighting its critical role in India's global competitiveness. Overall, the findings show that sustainable and green business practices have strengthened SME efficiency, enhanced market credibility, improved productivity, and supported long-term economic resilience.

CONCLUSION

The study concludes that green entrepreneurship significantly contributes to strengthening the economic performance and sustainability of SMEs in India. The rapid expansion of start-ups, steady industrial output growth, and stable export performance reflect a structural shift towards innovation-driven and environmentally responsible business models. While employment growth remains limited due to rising mechanization, the increased efficiency, improved productivity, and stronger competitiveness of SMEs demonstrate the advantages of adopting green technologies and sustainable production systems. Traditional sectors like Khadi, along with modern green start-ups, collectively support ecological preservation, rural employment, and industrial modernization. Thus, green entrepreneurship is emerging as a vital pathway for achieving sustainable economic development, and greater policy support, technological assistance, and access to green finance will be essential to further accelerate this transition.

LIMITATION

The paper did not study the growth of start-ups. Many start-ups got failed at a very early stage and not more than 33 per cent get converted into corporate companies due to lack of entrepreneurship skills, lack of financial resources and technical assistance. The study did not explain that out of total start-ups, how many of them achieve a high growth status. Further research can be done on the different status achieved by the start-ups. They can be studied in terms of the probability of success and failure after initiation.

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