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EMPIRICAL ARTICLE

Effectiveness of green entrepreneurship practices in driving the growth of Indian small and medium-sized enterprises

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Abstract

Purpose: The present study investigates the effectiveness of green entrepreneurship practices in shaping the growth trajectory of small and medium-sized enterprise (SMEs) in India. The present study intends to evaluate the green entrepreneurship practices adopted by Indian SMEs and its impact on the performance of the organizations. **Problem:** The current research work explores the awareness and implementation of eco-friendly initiatives, the demographic profiles of participants, and the relationship between green entrepreneurship factors and organizational performance. **Methodology:** This cross-sectional survey used a survey instrument and 60 SMEs participated in the survey. Before the full-scale survey, a pilot test with a small group of SME representatives was conducted to ensure the questionnaire's clarity and relevance. **Findings:** The study findings indicate a notable level of awareness and dedication to green activities among SMEs, with a substantial percentage holding green certifications. While a positive correlation exists between green cognition, entrepreneurial culture, entrepreneurship education, and organizational performance, financial support demonstrates a weak association. **Recommendations:** Recommendations include enhancing awareness of government incentives, promoting green entrepreneurship education, and fostering collaboration among SMEs and certification bodies. These insights provide valuable guidance for policymakers, industry stakeholders, and SMEs aiming to integrate sustainable practices into their operations for long-term growth and environmental stewardship.

Key words: Green entrepreneurship, Small and medium-sized enterprises, Sustainability, Organizational performance
JEL Classification: L26, M10, O14, O30, Q00

INTRODUCTION

In the foundation of the Indian economy, small and medium-sized enterprises (SMEs) greatly boost GDP and create jobs (Endris and Kassegn, 2022). The necessity for businesses, especially SMEs, to implement ecologically sustainable practices has been increasingly apparent in recent times. A key component of modern business strategy is green entrepreneurship, which is incorporating ecologically friendly techniques into company operations (Gupta and Dharwal, 2021). In the global context, companies all over the world are investigating sustainable practices due to the pressing need to address environmental issues and the growing demand for corporate social responsibility. The adoption of green strategies by large firms has progressed significantly (Newman, 2020). However, the contribution

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of SMEs to this paradigm shift remains incomplete, especially when considering rising nations such as India. India offers a distinctive environment for investigating the efficacy of green entrepreneurship techniques because of its varied and vibrant SMEs sector. The nation is dealing with environmental issues while also seeing an increase in environmental awareness among consumers and authorities.

This study aims to investigate the possible advantages and difficulties of this paradigm shift by examining how the incorporation of green practices affects the growth trajectory of Indian SMEs. Various environmental rules and incentives have been developed by the Indian government to encourage enterprises to embrace sustainable practices. Although there is a visible lack of research that is especially focused on the Indian SME setting, there is a growing corpus of literature on sustainability and green entrepreneurship.

This study aims to bridge this gap by providing empirical insights into the current state of green entrepreneurship practices in Indian SMEs, their impact on financial performance, and the underlying factors influencing adoption or resistance. The aim of this project is to investigate and evaluate the effectiveness of green entrepreneurship practices in driving the growth of SMEs in the Indian business landscape.

- To measure the level of awareness and implementation of green entrepreneurship practices among Indian SMEs.
- To evaluate the financial performance and sustainability of SMEs that have integrated green practices compared to those that have not.
- To explore the obstacles hindering SMEs from embracing green entrepreneurship and sustainable business models.
- To assess the perceptions and attitudes of key stakeholders, including employees, customers, and investors, regarding the importance and impact of green entrepreneurship in SMEs.
- To propose actionable strategies and recommendations for promoting and enhancing the integration of green entrepreneurship practices in the context of Indian SMEs.

LITERATURE REVIEW

The Importance of SMEs in the Green Economy

Among other things, the definition of a SME differs depending on the nation and the industry (Ribau et al., 2018). The current output value of the SME market in India is close to Rs 816,000 crore. Roughly 40% of industrial production and exports are attributed to it. It produces around 8000 different products, spanning from low-tech goods to very advanced technology products. The SSI industry focuses on both home and international markets. The SSIs sector, which employs roughly 70% of the workforce and significantly boosts GDP growth, is acknowledged as the growth engine. SME's makeup 99.7% of all businesses worldwide, with large-scale businesses making up the remaining 0.3%. In contrast, 95% of all industrial units in India are part of the SSI sector. In addition, MSMEs account for 30.50% of services. MSMEs make about 37.54% of the GDP overall (SME Chamber of India, 2019). Therefore, through the promotion of sustainability, SMEs can also improve SME performance and generate economic value, making them potentially significant drivers of broader green practices (Broccardo and Zicari, 2020; Topleva and Prokopov, 2020). Even though SMEs are prevalent in most countries, including the United States, it is occasionally forgotten how important they are as major contributors to environmental programs.

It is commonly acknowledged by scholars, decision-makers, and a number of other stakeholders that entrepreneurship is a strong driver of economic growth and development (Klofsten et al., 2019; Urbano et al., 2019). Since their businesses are typically smaller and more adaptable than larger ones, entrepreneurs are frequently better able to implement innovative practices (Benzidia and Makaoui 2020). Eco-friendly firms are the result of entrepreneurs' recent efforts to integrate and integrate their environmental concerns. This change is crucial because, for businesses to prosper in the future, they must be able to make effective use of their resources and grow their knowledge of how to deal with environmental constraints. The increasing number of customers who are willing to pay more for environmentally friendly items also supports opportunities for smaller enterprises to take environmentally sustainable initiatives (Gregory-Smith et al., 2017; Namkung and Jang 2017).

Green Entrepreneurship Practices of SMEs

Green entrepreneurship techniques are commercial endeavors and approaches that give precedence to social responsibility, environmental sustainability, and ethical considerations (Gupta and Dharwal, 2021). Green entrepreneurs concentrate on starting and operating companies that not only make money but also have a positive impact on society and the environment.

SMEs can be classified as eco-adopters, who only consider adhering to environmental regulations, eco-entrepreneurs,

who, such as traditional entrepreneurs, pursue specific opportunities, and eco-innovators, who enter the market with radical and disruptive innovations (Koirala, 2019). Given the wealth of research on the variables influencing eco-innovation in its three forms — eco-product, eco-process, and eco-organizational SMEs that exhibit eco-innovation appear to be the most significant group of green entrepreneurs for the SDG. The factors that influence eco-innovation the most frequently in the literature are competition, demand, other market pull characteristics, and environmental regulations. Internal/supply-side factors include the company's age, size, industry, stage of the industrial life cycle, and proactive management (Cai and Li, 2018; Demirel et al., 2019).

According to Cai and Li (2018) examination of 442 Chinese enterprises, competitive pressure is the primary driver of eco-innovation adoption, and companies' eco-innovation-related behaviors drive economic performance through environmental performance. According to Lei et al., (2021), there is a local-neighborhood effect of green finance on the green economy. In addition to strengthening the local green economy, the green credit can have a spatial spillover effect that helps the green economy grow in the surrounding areas. Kesidou and Demirel (2012) conducted a study on 1566 enterprises in the UK and found that demand factors influence innovation. In addition, the study found that innovation investment levels are positively connected with factors related to costs, organizational behavior, and stringent regulations. According to data gathered from 100 managers in the Brazilian business, technological know-how and the presence of proactive leaders are the key drivers of eco-product innovation (De Medeiros et al., 2018). The primary drivers of eco-process innovation are pull factors from the market (consumer demand, competitive pressure), internal factors (proactive management), and financial incentives (Hojnik and Ruzzier, 2016). Cano et al., (2013) demonstrated that the most significant motivators for all forms of eco-innovation are partnerships with research institutes or universities and consideration of consumer demand for environmentally friendly products in a study done for SMEs in the 27 EU member states. However, a number of indicators show that, in developing nations, business owners are ill-prepared to assume the risk of funding environmentally conscious ventures, and that neither the public sector nor academic institutions can effectively promote the growth of green entrepreneurship (Silajdžić et al., 2015).

According to Hoogendoorn et al. (2015), the majority of SMEs that engage in environmental activities are more likely to be eco-entrepreneurs or eco-adopters than they are eco-innovators. The age of the company influences the factors that lead to the decision to engage in green activities. For instance, life cycle, expertise, institutions, and funding are the deciding variables in decision-making for green start-ups (Demirel et al., 2019). Start-ups are therefore anticipated to be more significant at the initial phases of a technology's life cycle, considering that innovation is the most crucial component in a competitive market. Green enterprise creation and financing are facilitated by regulations primarily implemented by local public institutions and the government. On the other hand, knowledge asymmetries and spillovers are a significant problem. According to Audretsch et al. (2014), businesses that exhibit an early propensity for innovation and collaboration in R and D projects stand a better chance of developing into Young Innovative Companies (YICs, which are defined as businesses under the age of six, employ fewer than 250 people, and allocate more than 15% of their revenue to R and D). Furthermore, since consumers are financially motivated to adopt eco-innovation, an investigation using data from green start-ups operating in the energy sectors in France, Germany, and the United Kingdom (Ball and Kittler, 2019) revealed that entrepreneurs view incentives as a critical component in lowering market volatility.

According to Zhang et al. (2019), there has been a rise in the public's preference for green products, particularly among the millennial age, who are particularly aware of environmental issues. Businesses have obviously taken notice of consumers' desire for environmentally friendly items and used it to their advantage. As a result, many businesses were incentivized to adopt a green business model, which created a win-win scenario for the goals of environmental and economic preservation. Developed nations were the first to promote green growth (ONeill and Gibbs, 2014). Green entrepreneurship is less developed in less developed nations because business owners there tend to have a more traditional focus on profit. Managers prioritize quick results over factors such as social responsibility, environmental protection, or long-term sustainable development. The availability and quality of financial resources, particularly for supporting development activities, are significant drivers for environmentally conscious enterprises and the eco-innovation process (Scarpellini et al., 2018). Policies and tools like information and communication, collaboration, legislation, monitoring, and assessment can all serve as demand-side catalysts for eco-innovation. According to Hörisch et al. (2017), institutions' and policies' support for green entrepreneurship must be continually assessed and revised. The aforementioned authors highlight the need for locally specific measures as opposed to ones that are

applied universally. Strict regulations can occasionally be a barrier to the development of eco-friendly business concepts. However, other variables outside economics also play a role in green entrepreneurship. Managers tend toward sustainable entrepreneurship in communities that exhibit a higher concern for the environment and the preservation of cultural values. Numerous research studies have examined socio-cultural aspects, and the findings indicate that these elements have a significant role in promoting sustainable business (Koe et al., 2014).

Green entrepreneurship can become a business paradigm because of the incentives behind and outcomes of this kind of activity, which include inclusive and sustainable development, which aligns with the findings of other writers (Saari and Joensuu-Salo, 2019). In addition, the competitive position and profitability of businesses may benefit from this kind of venture. To secure the long-term sustainability of the enterprises, there is an increasing need for an approach to entrepreneurship as a system of interactions, or an entrepreneurial ecosystem (Cavallo et al., 2019). Consequently, it is crucial to do thorough research on all topics pertaining to green entrepreneurship, eco-friendly behavior, and sustainable business models and to share the findings with a wide range of stakeholders.

METHODOLOGY

The study used a cross-sectional survey approach to examine how well green entrepreneurship strategies support the expansion of small and medium-sized enterprises (SMEs) in India. The study's target population had a total of 60 SMEs from diverse sectors in India. To ensure representation from a range of industries and geographies, a stratified random selection approach was employed. The survey instrument was developed to evaluate factors like awareness, adoption of green practices, regulatory compliance, cultural factors, financial performance, sustainability, and stakeholder perceptions. It included closed-ended, multiple-choice, and Likert scale questions. Before the full-scale survey, a pilot test with a small group of SME representatives was conducted to ensure the clarity and relevance of the questionnaire. The survey questionnaire was distributed electronically or in print, targeting SME owners, managers, or individuals responsible for environmental initiatives within the organization. During the data collection period, participants were informed about the study's purpose, and their consent was obtained, ensuring data confidentiality and anonymity. Descriptive statistics for the Likert scale and multiple-choice answers were used in the data analysis, along with inferential statistics like regression analysis and correlation to look into links between variables. Thematic content analysis of open-ended responses was performed to derive qualitative insights. The anticipated results include an understanding of the recognition, application, and influence of green entrepreneurship techniques in Indian small and medium-sized enterprises (SMEs), the recognition of obstacles and prospects, and suggestions for augmenting the incorporation of environmentally conscious practices, predicated on survey results. Transparency and respect for participant rights were prioritized throughout the research process, with a strong emphasis on ethical issues.

RESULTS

Demographics

Table 1 shows the demographic details of the respondents. The survey data provide information about the professional and demographic traits of participants in the Small and Medium Enterprise (SME) industry. In terms of gender distribution, male respondents make up 76.7% of the sample, while female respondents make up 23.3%. In terms of age, the study records a wide variety, with the 25–44 age groups having a substantial representation. Master's degree holders make up the majority of respondents' educational backgrounds (65.0%), followed by Ph.D. holders or those with comparable credentials (18.3%).

The majority of respondents (45.0%) and (18.3%) had 1–5 years and 6–10 years of professional experience in the SME sector, respectively. A wide range of industries is represented in the survey; 35.0% of respondents were from the financial and sales and marketing sectors, respectively.

When looking at the size of SMEs, the majority fall into the category of less than 10 workers (35.0%), while the distribution of yearly income shows that SMEs with sales less than INR 1 crore (75.0%) are prevalent. Geographically, urban regions (41.7%) and suburban areas (55.0%) account for the majority of survey responses; rural areas (3.3%) are represented less significantly.

Table 2 shows the green entrepreneurship practices adopted by SMEs. The information provided describes the attitudes and methods of green entrepreneurship among the small and medium-sized businesses (SMEs) that were polled. A significant percentage of SMEs (63.3%) have obtained green certifications or recognitions, demonstrating a notable level of awareness and dedication to eco-friendly activities among the majority of participants. The percentage of SMEs polled who are aware of government incentives or subsidies

Table 1: Demographic details of respondents

Respondents	Frequency	Percent
Gender		
Female	14	23.3
Male	46	76.7
Age		
Under 25	1	1.7
25–34	21	35.0
35–44	29	48.3
45–54	6	10.0
55 and above	3	5.0
Educational qualification		
High School	2	3.3
Bachelor's Degree	8	13.3
Master's Degree	39	65.0
Ph.D. or equivalent	11	18.3
Years of experience in the SME sector		
<1 year	6	10.0
1–5 years	27	45.0
6–10 years	11	18.3
11–15 years	10	16.7
More than 15 years	6	10.0
Type of industry		
Financial	21	35.0
HR	4	6.7
Sales and marketing	21	35.0
Others	14	23.3
Number of Employees in the SME		
<10	21	35.0
10–50	21	35.0
51–100	11	18.3
101–500	7	11.7
Annual Revenue of the SME		
Less than INR 1 crore	45	75.0
INR 1 crore – INR 5 crores	6	10.0
INR 5 crores – INR 10 crores	8	13.3
INR 10 crores – INR 50 crores	1	1.7
Geographical location of the SME		
Rural	2	3.3
Suburban	33	55.0

Table 2: Green entrepreneurship practices adopted by SMEs

SMEs	Frequency	Percent
Received green certifications or recognitions for the SME		
No	22	36.7
Yes	38	63.3
Awareness regarding government incentives or subsidies for implementing green practices in SMEs		
No	28	46.7
Yes	32	53.3
Assessing the current state of customer demand for environmentally friendly goods and services in your sector		
Very low	2	3.3
Low	8	13.3
Moderate	33	55.0
High	15	25.0
Very high	2	3.3
Evaluating local community support for green initiatives		
Slightly supportive	12	20.0
Neutral	19	31.7
Supportive	20	33.3

for implementing green practices is 53.3%, which indicates that there is opportunity for further knowledge and possible use of this support. In their industry, the majority of SMEs believe that consumer demand for environmentally friendly products and services is moderate, with a significant percentage recognizing that demand is strong. Support for green efforts among SMEs in the local community varies; a considerable proportion of respondents expressed neutral or supportive views, while a noteworthy fraction expressed slight support.

Table 3 provides the relationships between various aspects of green entrepreneurship practices and organizational performance. The relationship between organizational performance and green cognition is strongly favorable (r = 0.574**). This shows that better organizational performance is positively correlated with a higher degree of knowledge and comprehension of green practices inside the organization. The relationship between organizational performance and entrepreneurial culture is moderately good (r = 0.287*). This suggests that better organizational performance is linked to cultivating an entrepreneurial culture within the company. The relationship between organizational performance and entrepreneurship education

is moderately good ($r = 0.261$*). This suggests that there is a moderate correlation between improved organizational performance and educating and training employees on green entrepreneurship methods. Financial support and organizational performance have a weak positive correlation ($r = 0.055$). The connection points to a weak relationship between overall organizational performance and financial support for green projects.

Table 4 presents the association between green entrepreneurship practices (represented by green cognition, entrepreneurship culture, entrepreneurship education, and financial support) and organizational performance. The regression analysis suggests that green cognition (B = 0.550), entrepreneurship culture (B = 0.122), and entrepreneurship education (B = 0.138) are positively associated with organizational performance. On the other hand, financial support (B = −0.149) shows a negative association. The model, as a whole, is statistically significant ($P < 0.05$), indicating that at least one of the predictor variables is related to organizational performance. Approximately 42.8% of the variance in organizational performance is explained by the combination of green cognition, entrepreneurship culture, entrepreneurship education, and financial support.

DISCUSSION

The present study investigates the effect of green entrepreneurship practices in driving the growth of Indian SMEs with the overall respondents of 60 respondents. Results found that the majority of respondents in the SME sector are males (76.7%), with a significant representation from the 25–44 age groups. Tambe (2023) highlighted that the most responsible person for handling SMEs business in India is male. In addition, the study noted that the educational background of respondents is dominated by Master's degree holders (65.0%). These demographic traits are crucial as they provide a snapshot of the profile of individuals involved in SMEs, laying the foundation for understanding their perspectives on green entrepreneurship practices. For example, in the study by (Chatterjee et al., 2022), it is noted that the age, gender, and education level of the entrepreneurs could influence the entrepreneurial success of SMEs. This was agreed by some earlier study by (Kahle et al., 2020). However, there are not many studies highlighted the importance of master education for success of SMEs. Our finding further states that the substantial portion of respondents has 1–10 years of professional experience, and a diverse range of industries, with 35.0% each from the financial and sales and marketing sectors.

Table 3: Correlation analysis between green entrepreneurship practices and organizational performance

Correlation	Green Cognition	Entrepreneurship Culture	Entrepreneurship education	Financial Support	Organizational performance
Green cognition	1	0.384**	0.334**	0.214	0.574**
Entrepreneurship culture	0.384**	1	0.269*	0.367**	0.287*
Entrepreneurship education	0.334**	0.269*	1	0.365**	0.261*
Financial support	0.214	0.367**	0.365**	1	0.055
Organizational performance	0.574**	0.287*	0.261*	0.055	1

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed)

Table 4: Association between green entrepreneurship practices and organizational performance

Model	Unstandardized Coefficients		R square	F value	p value
	B	Standard error			
(Constant)	0.825	0.428	0.353	7.503	0.000
Green cognition	0.550	0.127			
Entrepreneurship culture	0.122	0.143			
Entrepreneurship education	0.138	0.157			
Financial support	−0.149	0.134			

[a]Dependent variable: Organizational performance

This diverse representation is essential for assessing the varied perspectives and challenges faced by SMEs in different sectors when adopting green practices.

The majority of SMEs fall into the category of <10 workers, and most have yearly sales < INR 1 crore. Moreover, a significant proportion of responses come from urban and suburban areas. This information is crucial for understanding the context in which green entrepreneurship practices are implemented, considering the resource constraints faced by smaller enterprises. A notable percentage of SMEs (63.3%) have obtained green certifications, indicating a commendable level of awareness and dedication to eco-friendly activities. However, the survey also highlights a potential gap, as only 53.3% are aware of government incentives or subsidies for green practices. This suggests an opportunity for further education and utilization of available support mechanisms. Some previous studies also showed the performance of SMEs toward eco-friendly activities (Alraja et al., 2022; Fahad et al., 2022).

This study suggests that SMEs perceive a moderate to strong consumer demand for environmentally friendly products and services. However, there is variability in local community support for green efforts. This emphasizes the importance of understanding the external factors influencing SMEs' adoption of green practices, including market demand and community attitudes (Purwandani and Michaud, 2021).

The findings of correlation analysis demonstrated a strong positive relationship between green cognition and organizational performance, indicating that a higher degree of knowledge and comprehension of green practices is associated with better performance. In addition, a moderate positive relationship is observed between entrepreneurial culture and organizational performance, as well as between entrepreneurship education and organizational performance. These findings highlight the potential benefits of incorporating green practices into the organizational culture and providing education on green entrepreneurship methods (Fok et al., 2022). The weak positive correlation between financial support and organizational performance suggests that while financial support is relevant, it does not strongly determine overall organizational performance. The regression analysis further emphasizes the positive associations of green cognition, entrepreneurship culture, and entrepreneurship education with organizational performance. On the contrary, financial support shows a negative association. This call for a nuanced approach, indicating that financial support alone may not guarantee improved organizational performance in the context of green entrepreneurship.

CONCLUSION

The study provides a comprehensive understanding of the awareness and implementation of green entrepreneurship practices among Indian SMEs. The findings underscore the importance of not only individual factors like green cognition but also broader aspects such as organizational culture and education in driving organizational performance in the context of sustainability. Moreover, the identified gaps in awareness of government incentives and varying levels of community support suggest potential areas for intervention and improvement in promoting green entrepreneurship practices among SMEs in India. The study's insights into consumer demand for green products and varying levels of local community support provide a nuanced understanding of external factors influencing SMEs' adoption of green practices. This knowledge is crucial for businesses aiming to align their strategies with market expectations and community values.

Since only 53.3% of SMEs are aware of government incentives or subsidies for green practices, there is a need for targeted awareness campaigns. Government agencies and industry associations should collaborate to disseminate information on available support mechanisms, encouraging SMEs to take advantage of these incentives. Second, the positive correlation between entrepreneurship education and organizational performance, there should be a focus on providing training and education on green practices. Industry associations, academic institutions, and government bodies can collaborate to develop and implement programs that enhance the understanding of sustainable business practices among SME owners and employees. While the study indicates a weak positive correlation between financial support and organizational performance, it is essential to refine and expand financial assistance programs for green projects. Financial institutions, government agencies, and private investors should collaborate to create tailored financial support packages that align with the specific needs of SMEs engaged in sustainable practices.

AUTHOR CONTRIBUTIONS

The research presented in this paper is the result of a collaborative effort. Each author contributed significantly to the conceptualization, data collection, analysis, and interpretation of findings. Their combined expertise and dedication enriched the study, offering valuable insights into the effectiveness of green entrepreneurship practices in fostering the growth of Indian Small and Medium-sized Enterprises (SMEs).

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CONFLICTS OF INTEREST

The author(s) declare that they have no conflict of interest. The manuscript was written with the knowledge and approval of the author(s) concerned and all have contributed equally.

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