

Greening SMEs: breaking barriers and building futures

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Abstract: In a eventful market like Pakistan, cracking the ability of Entrepreneurial Business or SMEs towards green supply chains is both a trial and a chance. These research tangouts into the reasons or determinants that push the acceptance of eco-conscious practices amongst SMEs in Pakistan. Through a measurable and empirical lens, we discover the outcome of government protocols, purchaser demands, and environmental alertness on the integration of green supply chain administration in Entrepreneurial Business or SMEs. The results paint a rich depiction that healthy protocols and purchaser pressure act as catalysts, driving SMEs and Entrepreneurial Business towards greener actions. Yet, a lack of familiarity and environmental alertness isspotted as a weighty barrier, hindering the generalacceptance of green practices SMEs and Entrepreneurial Business.

1 Introduction

In today's active ecosphere of supply chain management, long-term persistence isn't just an option, it's a criterion for long-standing success and fruits. Yet, in spite of its religious role, some official domes find themselves surrounded in short-sighted does that not only weaken their economic prospects but also damage the planet. To move around the complications of modern business, SMEs and Entrepreneurial Business must be channeled towards forward-thinking leadership and adopt alert supply chain approaches.

In the domain of supply chain happenings, long-term persistence as highlighted is the cornerstone of accomplishment. Yet, some firms falter, engaging in short-sighted does that risk both their economic future and the environment is of course apoint to ponder (Ushakov et al., 2022). To thrive in today's ever-evolving landscape, SMEs and Entrepreneurial Business must embrace forward-thinking leadership and updated supply chain practices as mentioned and endorsed by several authors and practitioners of the current epoch.

As we move through the early 1990s to the present day, the significance of sustainable practices for SMEs and Entrepreneurial Business become increasingly apparent. While some tradestwist by lining up eco-friendly developments and procedures of works, others

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vacillate due to unmaintainable processes & practices and a shortage of knowledge within the organization. Hence, from the dawn of the 1990s to till now, the route of SMEs and Entrepreneurial Business highlights the supreme importance of long-term persistence practices. While visionary SMEs and Entrepreneurial Business rise by accepting eco-friendly processes, others suffer under the weight of unsustainable models and a lack of core knowledge-sharing.

For SMEs and Entrepreneurial Business, long-term persistence practices aren't just a slogan, it's a pathway to lifelong achievements and fruits.

By accepting green supply chain practices, the SMEs and Entrepreneurial Business can shape out a competitive edge while continuing their corporate social responsibility. It's time to free from unsustainable standards and shape up a future where businesses prosper in harmony with the environment.

2 Literature Review

The global population is projected to reach 16 billion by 2050, escalating the demand for goods and services and consequently placing immense burdens on natural resources (Elkington, 2002). Meeting this heightened demand has the potential to further strain already vulnerable ecosystems, making the decrease in environmental impact imperative for sustainable development (Kemp, 1993). Environmental compliance and sustainability have thus become serious challenges confronting manufacturing and also service industries.

This heightened awareness of environmental issues has led to increased scrutiny of the operational and supply chain practices of manufacturing organizations by various stakeholder groups [1-15].

Supply Chain Management (SCM), as defined by Hugos (2006), involves the management of production, inventory, location, and transportation among supply chain contributors to achieve optimal openness to market demands. The emergence of SCM as a distinct field in the 1990s marked a shift from traditional operations and logistics management (Porter, 1985). Porter's (1985) concept of the value chain laid the groundwork for SCM, shaping its evolution over the past three decades.

SCM encompasses five key areas, as outlined by Hugos (2006). Production involves both design and scheduling, requiring an understanding of product methods, supply, demand, and order fulfillment. Inventory management is crucial for maintaining adequate stock levels and has seen recent advancements towards lean practices [16-20].

Efficient placement of production and supplies, exemplified by the "just-in-time" model, enhances SCM performance and originated in the technology industry (Christensen, German, & Birou, 2005). Transportation plays a vital role in SCM, facilitating the movement of products between warehouses and to consumers [20-38].

Effective coordination based on supply chain needs is enabled by timely information, guiding product decisions and supporting profit margin expansion (Vollmann, Berry, & Whybark, 2005). Comprehending each aspect of the supply chain empowers leaders to adopt a green supply chain administrative tactic aligned with Porter's (1985) values, thereby enhancing long-term persistence efforts.

Green Supply-Chain Management

In response to the relentless pursuit of profits within competitive markets, businesses are increasingly turning their focus towards controlling supply chain costs, with the adoption of green supply chain management emerging as a strategic approach. Srivastava (2007) defines GSCM as the integration of ecological deliberations into supply chain management practices, surrounding product plan, material tracing, manufacturing procedures, and product distribution. Rooted in Porter's (1985) value-chain model, the growing demand for GSCM is propelled by consumer preferences and regulatory pressures (Wilkerson, 2005),

positioning it as a valuable tool for cost reduction within organizations (Ushakov et al., 2017; Ermilova et al., 2018; Bondarenko et al., 2017).

Importance of Green Supply-Chain Management

The significance/ importance of GSCM is underscored by its profound impact on environmental sustainability and economic viability. Early literature highlights the pivotal role of GSCM in enhancing environmental well-being, emphasizing the imperative to increase supply savings, reduce waste, and boost productivity (Porter & Van Der Linde, 1995a, 1995b).

Srivastava (2007) identifies three evolving approaches within GSCM: reactive, proactive, and value-seeking, each varying in supply investment and depth of environmental engagement.

As companies adopt GSCM practices, attention shifts towards economic advantages (Van Hoek, 1999), prompting investments in environmentally friendly production methods (Sundin & Bras, 2005; Sarkis, 1995). Recognizing the evolving landscape of supply chain requirements, Hervani, Helms, and Sarkis (2005) stress the importance of adopting a green approach to address changing environmental demands. Beamon (1999) advocates for the development of novel performance evaluation methods to assess GSCM effectiveness, including the incorporation of product recovery metrics.

The product life cycle emerges as a critical consideration, influencing material appropriation and supplier relations (Stonebraker & Liao, 2006). Seuring (2004) emphasizes the role of performance and economic indicators in waste management and regulatory compliance. Furthermore, White et al. (2003) delve into the environmental implications of reverse manufacturing, elucidating its impact on environmental outcomes.

The integration of reverse logistics (RL) within supply chains presents challenges and opportunities (Bowen et al., 2001; Chouhara et al., 2005). Nagurney and Toyasaki (2005) expand upon network equilibrium frameworks, guiding logistical operations for GSCM integration. Alternative RL methods offer guidelines for manufacturers in managing return procedures (Ravi et al., 2005; Mukhopadhyay & Setoputro, 2005), while Srivastava and Srivastava (2005) advocate for comprehensive approaches encompassing return and end-of-market lifecycle production, leveraging multiple utility theories for assessment.

3 Research Methodology

Data Collection Method

Primary data was gathered through a questionnaire survey instrument. Questionnaires were distributed among various industrial companies in Karachi, and respondents self-administered them.

Table 1: Table of Findings & Results

	Coefficient	Std. Error	z-Statistic	Prob.
Government regulations	0.229	0.088	2.595	0.009
Purchaser pressure	0.235	0.085	2.761	0.006
Environmental awareness	0.122	0.126	0.967	0.334
C	1.635	0.448	3.651	0.000

Dependent Variable: Organizational practices

Method: ML-Censored Normal (TOBIT)

Sample: 1500

Convergence achieved after 3 iterations

Covariance matrix computed using second derivatives

Mean dependent var	3.572	S.D. dependent var	0.786
S.E. of regression	0.700	Akaike info criterion	2.159
Sums squared resid	45.892	Schwarz criterion	2.289
Log likelihood	-102.949	Hannan-Quinn criter.	2.212
Avg. loglikelihood	-1.02949		
Left censored obs	0	Right censored obs	0
Uncensored obs	500	Total obs	500

Sampling Technique

The sample population comprised manufacturing organizations in Karachi actively engaged in green supply chain management. A non-probability sampling technique was employed, selecting organizations already involved in green supply chain practices.

Sample Size

Respondents of this study were the employees of manufacturing SMEs those are endorsing green supply chain practices. Given the limited number of firms implementing green supply chain practices, a total of 500 respondents were selected and provided with questionnaires along with clear instructions.

Data Collection Instrument

A questionnaire survey was utilized, drawing from existing research studies for content validation. The Likert scale was employed, ranging from 1 (strongly disagree) to 5 (strongly agree).

Statistical Technique

The econometric or statistical tool/technique deployed to evaluate the proposition of this study was Censored regression or Normal TOBIT- Quadratic hill- climbing method. This method specifically used to analyze the impact of independent divers or variables which were government regulations, purchaser pressure, and environmental awareness/knowledge on organizational does.

Furthermore, this research emphasizes the significance of organizational culture in promoting green supply chain management. Understanding the alignment of organizational ideology with green practices is crucial in determining whether organizations in this region hinder or promote green supply chain administrative practices in line with their organizational ethos.

4 Findings and Results

Censored regression or Normal TOBIT- Quadratic hill- climbing method, was deployed in this research study. Three variables or drivers were designated as independent variables, while one variable served as the dependent variable as mentioned in table in appendix.

The results of the Censored Normal (TOBIT) analysis yielded significant findings for government rules and regulations, with a Z-statistic of 2.595 and a significance value of 0.009, indicating a significant impact of government protocols as the influencing variable for instigating green supply chain practices in SMEs and Entrepreneurial Business. The coefficient for government rules and regulations also demonstrated significance, with a value of 0.229, further emphasizing its role as a primary driver for green supply chain implementation.

Similarly, when purchaser pressure was considered as an independent variable, the analysis revealed significant results. The Z-statistic for purchaser pressure was 2.761, with a significance value of 0.006. The coefficient for purchaser pressure was 0.235, highlighting its significant and positive influence on organizational green supply chain does.

In contrast, the analysis of environmental awareness as an independent variable showed insignificant results, with a Z-statistic of 0.967 and a significance value of 0.334, indicating that environmental awareness does not significantly impact the promotion of green supply chain performs within SMEs and Entrepreneurial Business.

In summary, while environmental awareness does not directly influence the adoption or acceptance of green supply chain performs, the significant impact of government rules and regulations, as well as purchaser pressure, underscores their pivotal roles in driving SMEs and Entrepreneurial Business towards green supply chain and sustainability.

5 Conclusion and Discussion

This quantitative and empirical research aimed to uncover the factors impacting the adoption of a green supply-chain approach in SMEs and Entrepreneurial Business in Pakistan. The study engaged 500 respondents, including CEOs, GMs, SC Managers, processes managers, and supply chain experts. The findings revealed and confirmed that stringent government regulations and market/purchaser pressure play pivotal roles in promoting the adoption of green supply chains in SMEs and Entrepreneurial Business.

On the other hand, a lack of knowledge regarding green supply and its benefits was identified as a hindrance to implementation in SMEs in Pakistan. These results contribute to the mounting body of information on green supply chain does in SMEs and entrepreneurial businesses in Pakistan, while contributing valuable understandings for organizations looking for to improve their long-term persistence practices.

Previous studies have also underlined the disinclination of SMEs and Entrepreneurial Business to adopt green practices due to a lack of knowledge and a perfect awareness on the matter. On the other hand, SMEs and Entrepreneurial Business that line up environmental apprehensions establish and display greater readiness to hold green schemes. However, this study found and revealed that many folks and organizations lacked awareness of the potential paybacks of green operation, with a dominant belief that the costs overshadow the benefits and fruits.

Further, this study identified governmental protocols, purchaser pressure, and supplier pressure are the primary drivers for companies, SMEs and Entrepreneurial Business to adopt green practices. Consistent with prior studies and research, the findings of this paper indicate and confirm that agreement with protocols and market/purchaser demands positively impacts environmental performance.

Sauring and Muller (2008) suggested a model highlighting external drivers such as government protocols, purchaser demands, and stakeholder gravities, exert pressure on companies and suppliers alike, shaping their long-term persistence movements and initiatives. Many studies categorized and classified these pressures into various groups, including legal protocols, purchaser requirements, stakeholder expectations, competitive advantages, ecological and social pressures, and as well as a reputed management.

In conclusion, this research sheds sun light and provoking thoughts on the multifaceted interplay of drivers directing the adoption of green supply chain does in SMEs in Pakistan. By considering and accepting these dynamics, SMEs and Entrepreneurial Business can be better off and navigate the transition towards their long-term persistence practices, while, enhancing their ecological performance and competitive placement for building better futures.

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