Effect of Green Supply Chain Management on Organisational Performance of Selected Manufacturing Firms in Nigeria

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Abstract

Several industries start focusing on the green concept in supply chain management (SCM) to reduce waste, emission and to preserve the quality of natural resources. However, it is still very difficult to understand and analyze the effect of individual activities of green supply chain and their corresponding contribution. Therefore, the purpose of this study is to investigate the impact of green supply chain management on organizational performance. This study is a conceptual review based on existing literatures in the area of green supply chain management. Efforts were made to examine the impact of reverse logistic, green procurement, green distribution as a component of GSCM on organizational performance in the area of manufacturing and logistics firms in Nigeria. Based on critical literature review conducted, the existing literature on the effects of green supply chain management practices on firm performance provides support for the idea that there is a positive relationship between GSCM practices and firm performance. They also enhance the understanding of how different types of GSCM practices are related to financial, operational and environmental performance in manufacturing and logistics. The empirical results suggest that while internal GSCM practices have the strongest effect on environmental performance, environmental collaboration with customers seems to be the most effective way to improve financial performance. In terms of operational performance, most findings were more mixed, suggesting that the operational performance of firms is more likely to be affected by firm characteristics than by the choices they make regarding their environmental collaboration.

Keywords
Green supply chain management, green innovation, green procurement, reverse logistics, organizational performance.

1. Introduction
The ecological balance is deteriorated by environmental challenges such as deforestation, environmental pollution, global warming and reduced biodiversity. Thus, this has necessitated development in manufacturing technology and increasing governmental regulations for environmental protection Goyal et al., (2017). As a result, green supply chain management (GSCM) makes a cognate effort to incorporate environmental issues in the context of supply chain management (Cousins et al., 2020). GSCM cut across the whole supply chain from suppliers, manufacturing companies, consumers, and also reverse logistics in a closed-loop supply chain (Abdallah, & Al-Ghwayeen, 2019).

GSCM as environmental management model in companies has been widely adopted in manufacturing firms to reduce the adverse effect of its activities on the environment. The concept of GSCM is to incorporate supply chain management to promote a sustainable environment which includes processes for product design and development, selection and procurement of suppliers, production of clean technology, distribution for consumers of the end-of-product, product and recycling (Endalaye, 2020). Companies have shown keen interest to the practice of GSCM in their supply chains to address organizational performance issues (Khan, Anwar, & Khattak, 2021). The prevalence of existing literature suggests a positive effect on both the organizational performance (Wibowo et al. 2018; Al-Ma'aitah, 2018) and operational costs performance by the implementation of green supply chain management practices (Gandhi & Vasudevan, 2019). Other studies suggest that managers face major challenges in fully realizing the benefits of GSCM practices (Kirchoff et al. 2016). Goyal et al., (2017) also confirmed that there are many potential impediments to their implementation.

GSCM's implementation is such a pioneering idea that is quickly gaining attention and interest of researchers and operating practitioners. The concept of GSCM in previous literature ranges from GP to GSCs, ranging from provider to producer to customers, including reverse logistics, Srivastava (2007) has incorporated environmental thinking into management of supply chains, including the design of products, material procurement and selection, production processes, consumer delivery of the finished product and after-service administration of the product. GSCM disposes of or reduces waste as energy, emissions, hazardous, chemical and solid waste (Olugu et al., 2017). It has been found that the focus of previous research is only on environmental issues in GSCM (Sasikumar & Kannan, 2009; Wu, Yang, & Olson, 2019; Khan & Qianli, 2017; Gomes & Daud, 2020). This paper identified three different supply chain issues that contribute to the green concept of the GSCM practices. The effects of GSCM on overall organizational performance were investigated. The three dimensions focused mainly organizational performance. Performance sustainability model including economic performance, environmental performance and social performance were ignored. The developing countries also have a gap as studies on GSCM relations and performance are carried out primarily in developed countries (Wibowo et al., 2018).

In the light of the shortcomings noted, this study identified three GSCM dimensions (green distributions, green procurement, reverse logistics) in this paper and have examined the effect of these dimensions on the overall organizational performance of a firm. A survey of 50 manufacturing companies operating in Nigeria has been conducted to achieve this goal.

1.1 Research Objectives

The primary objective of the study is to investigate the relationship between green supply chain management has on organizational performance. However, the specific objectives are highlighted as follows:

i. To examine the impact of green procurement on organizational performance.
ii. To investigate the impact of green distribution on organizational performance.
iii. To determine the extent to which reverse logistics influence organizational performance.

2. Literature Review

2.1 Green supply chain Management

GSCM includes green design, green purchasing, green production, green distribution, logistics, marketing, and reverse logistics, and all these are partly or wholly engaged to reduce and eliminate the negative effect of entity activities on the environment (Srivastava, 2007). The green supply chain concept, according to Dubey, Gunasekaran and Papadopoulos (2017), includes all the phases of the product life cycle, range from raw material extraction, design, production and distribution, the use of and disposal of the product at the end of the product life cycle by consumers. GSCM is a wide range of practices. In line with the SCM concept, the GSCM limit depends on the researcher's objective (Srivastava, 2007).

2.2 Green distribution

The first dimension of GSCM that was included in this study is green distribution. Green distribution covers all activities aimed at reducing and eliminating environmental and shipping waste (Gardas et al., 2019); these include fuel consumption, frequency of transport operation, customer distance and packaging details such as weight, shape and material; all influence the performance of green distribution (Geng, Mansouri, & Aktas, 2017). Green distribution is an important activity that affects the performance of a green supply chain management practices.

Green distribution is described as any transport suggestion between dealers and consumers having the least possible impact on the environment. And it includes the entire sharing of storage, order processing, packaging, picking, includes loading of vehicles, transportation to consumers and repackaging (Geng, Mansouri, & Aktas, 2017). The delivery process must be managed by strategic and collaborative agreement with the suppliers. It is also important to assess whether the provider complies with the environmental criteria of the company in addition to the choice and management of the supplier (Paulraj, 2011).

2.3 Green procurement

Green procurement practice is another important component of GSCM. The first step in the value chain is the buying function. The success of an organisation depends on the integration of its environmental efforts, procurement activities and environmental objectives (Çankaya and Sezen, 2019). Green procurement may be defined as integrating environmental problems and concerns into the purchasing process (Zhou, Xu, & Muhammad, 2019). The choice of the right supplier is important in achieving the environmental objectives of a company. However, it is not sufficient to choose an appropriate supplier to improve its environmental performance.

Green procurement is defined as green buying resource that seeks to ensure recruitment products meet the environmental needs of firms such as waste reduction, recycling stimulus, restructuring, resource-saving and adequate substance replacement. Khan and Qianli (2017), claim that large organizations are practise more green based activities than small organizations and that these practices are the driving force behind organizational advances in combination with environmental awareness. Green procurement creates a competitive edge, protects resources and enhances firm performance (Faris and Maan, 2020: Mafini & Loury-Okoumba, 2018) found that green procurement has a positive influence on corporate performance, whether direct or indirect.

2.4 Reverse logistics

Reverse logistics was described by Mafini and Loury-Okoumba (2018), to the movement of products from the consumer to the manufacturing firms. Reverse logistics aims to recycle, reuse, repair and carefully eliminate products and materials waste (Rasit et al., 2019). Gandhi and Vasudevan (2019) opined that reverse logistics is a key contributor to ensuring customer after-sale satisfaction since its implementation leads to better optimisation of aftermarket processes such as recycling and proper waste disposal. There are many faces to reverse logistics. It can include consumer income, returns on the market, returns on assets, returns on damages, avoidance of returns, and many others. Good management of reverse logistics helps make customers happy by reducing their risk and ensuring the company remains long-term with its consumers (Younis, Sundarakani, & O'Mahony, 2019).

3. Research Framework

The research framework represent the model of the research that show the relationship between green supply chain management and organizational performance, with the moderating effect of information technology infrastructure. The author developed and test a theoretical model to predict first, how sustainable supply chain initiatives might influence organisational performance. Second, the moderating impact of information technology infrastructure on the deployment of sustainable supply chain management and organizational performance.

3.1 Green Supply Chain Management and Organizational performance

This study examined the relationship between green supply chain management practices (in terms of green procurement, green distribution and reverse logistics) and organizational performance of selected manufacturing and logistics companies in Nigeria. Green supply chain management practices are designed to improve environmental performance (Green et al., 2012; Zhu and Sarkis, 2004). These practices can reduce the ecological impact (e.g. minimizing ecological damage) through practices focused on improving environmental performance by reducing air emissions and the discharge of effluent and solid wastes, and the reduction of use of hazardous and toxic materials in production processes, without sacrificing quality, cost reliability or energy efficiency (Carvalho et al., 2011). The link between green supply chain management practices and environmental performance has been empirically established through prior research. Zhu and Sarkis (2004) found strong support for their hypothesis that “enterprises having higher levels of adoption of green supply chain management practices will have better environmental performance improvements.” Inman and Green (2018), Green et al. (2012) and Li and Nagurney (2016) also found that green supply chain management practices terms of green procurement, green distribution and reverse logistics positively impact environmental performance, leading to the following hypothesis (Figure 1):

H_1 There is a positive significant relationship between green procurement and organizational performance in the manufacturing sector of Nigeria.

H_2 There is a positive significant relationship between green distribution and organizational performance in the manufacturing sector of Nigeria.

H_3 There is a positive significant relationship between reverse logistics and organizational performance in the manufacturing sector of Nigeria.

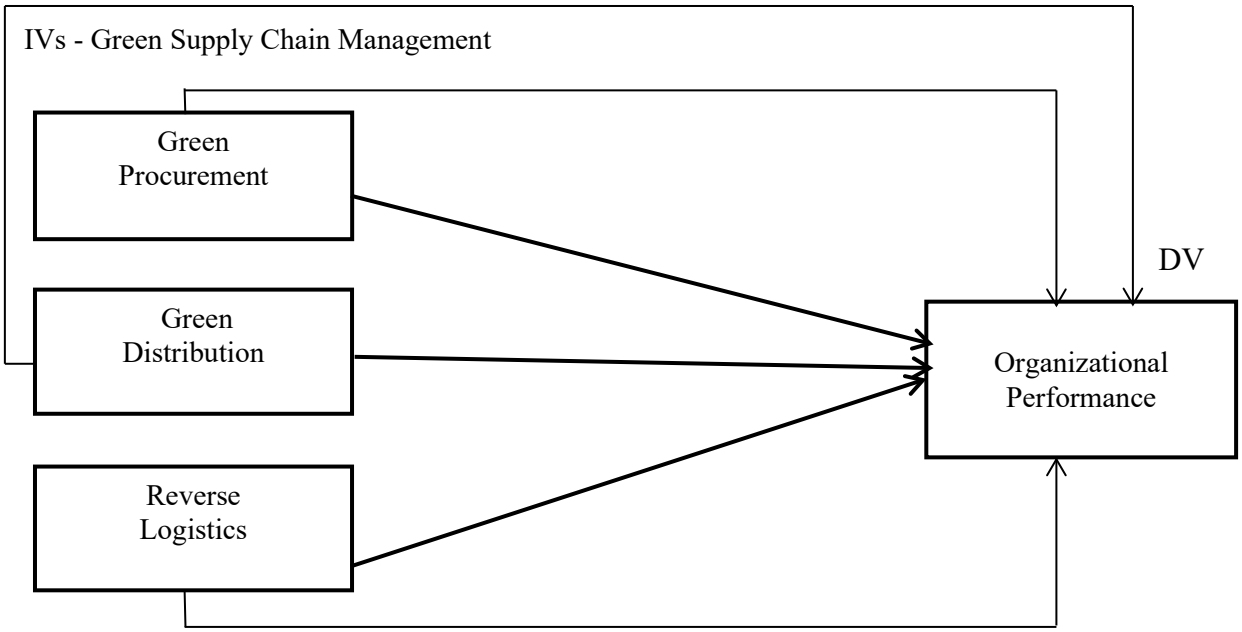

Figure 1. Theoretical Framework

4. Conclusion and Contributions

From the review of the empirical studies, the study presents a theoretical framework for the reverse logistics outcomes of sustainable supply chain initiatives and organizational performance. The research hypotheses reflect input from a wide array of literature and the discussion of findings. Though the study identifies three components of sustainable supply chain, other components could exist, and ongoing research should investigate them. Therefore, the findings of this study will have important implications for managers in emerging markets seeking to initiate ecologically friendly business practices. The study will offer strong evidence of the benefits obtained from reverse logistics in sustainable supply chain initiatives. Policy makers and firms attempting to nurture sustainable supply chain initiatives should not overlook the important role of eco-reputation and eco-innovation strategic orientations, which the results identify as important enablers. Therefore, this study will offer evidence of the critical role of eco-reputation and eco-innovation strategic orientations in deploying sustainable supply chain initiative programs, as well as of their mutual effects. This study will also offer empirical evidence that implementing sustainable supply chain initiatives leads to reverse logistics, creating value, and a new source of competitive advantages.

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Biography

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