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# Examining the Impact of Sustainable Business Practices on the Sustainability Performance of Jordanian Manufacturing Firms

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## Abstract

The triple bottom line, also known as the sustainability phenomenon and linked to sustainable supply chain management (SSCM), which refers to a company's environmental, social, and economic concerns. Manufacturers have been drawn to SSCM because of the massive amounts of solid waste produced by industrial processes and the rising levels of air pollution brought on by other SCM operations. SSCM practices such as sustainable manufacturing, distribution, and procurement are linked to internal environmental management practices and are critical components for manufacturers to improve sustainable supply chain performance (SSCP). As a result, the purpose of this study is to investigate the impact of three types of SSCM practices, namely procurement, manufacturing, and distribution, on the SSCP of Jordanian manufacturing firms. The study relied on a convenient sample of 42 supply chain experts from Jordan's manufacturing industry. The data of the study were analyzed using SPSS software through a regression test analysis. The results showed that only sustainable distribution practices had a significant impact on SSCP with a value less than 0.05. From a practical standpoint, these findings provide managers with a clear understanding of how to improve sustainable performance by implementing SSCM practices. Future research could examine the effects of various types of sustainable practices on various types of firm performance, such as environmental, economic, and social performance.

**Keywords:** Sustainable distribution, sustainable manufacturing, sustainable procurement, sustainable supply chain management, sustainable supply chain performance

## 1. Introduction

Currently, a company's environmental, social, and economic concerns fall under the category of the triple bottom line, often known as the sustainability phenomena and connected to sustainable supply chain management (SSCM) (Sukoharsono, 2019). For the past years, SSCM has dealt with businesses' sustainability objectives in relation to their supply chain operations (Koberg and Longoni, 2019). It should be highlighted that SSCM has become a tool for enhancing a company's sustainability performance (Sukoharsono, 2019). Given the pressure from the competition, improving a firm's sustainable performance through the adoption of sustainable practices is challenging, the goal of SSCM was to address the need for strategic and transparent integration of corporate operations and projects with sustainable elements (Saqib and Zhang, 2021).

According to Song et al. (2018), the network's disengagement and the scale of the partners contribute to environmental issues. In order to improve the long-term financial performance of the individual company and its supply chain, SSCM refers to "the strategic, transparent integration and achievement of an organization's social, environmental, and economic goals in the systemic coordination of key interorganizational business processes" (Carter and Rogers, 2008, p. 368). Enhancing supply chains' overall sustainability can have a significant impact on the welfare of workers, local communities, and the environment where suppliers are located. Understanding what drives companies to embrace SSCM techniques can therefore result in a better uptake of these practices and, therefore, greater benefits for diverse stakeholders.

However, according to a recent survey of the green industry conducted in more than 60 nations, half of consumers are willing to pay more for goods and services that are produced using environmentally friendly methods (Faisal, 2010). According to the research on current business analysis, firms are today judged not just on their adherence to the wealth maximization principle but also on how well they follow environmental laws (Seman et al., 2019). According to a review of the literature, businesses are now implementing SSCM methods throughout their manufacturing and distribution processes in an effort to reduce costs and improve performance (Khanam & Ghosh, 2022). SSCM may be a superior strategy to assure environmentally friendly manufacturing practices and economic growth because it encompasses more business process elements, from the processing of raw materials to the delivery to the end user (Choudhary et al., 2020).

The concept of sustainable practice in SSCM is viewed as multi-dimensional. Several sub-dimensions of sustainable practices for SSCM have been identified in previous publications. SSCM practices include practices related to many areas, including sustainable procurement, sustainable manufacturing, and sustainable distribution. These practices are related to internal environmental management practices and are important dimensions for manufacturers to improve their sustainability performance (Silva et al., 2019). Green information systems, eco-

design, internal environmental management, sustainable purchasing, and assisting consumers' green demands are also components of SSCM practices (Hong et al., 2018).

Due to competitive pressure, improving a firm's sustainable performance through the adoption of sustainable practices becomes challenging, and environmental issues occur as a result of the enormous size of partners and disengagement with the network (Saqib and Zhang, 2021). Furthermore, firms lack understanding and education about sustainable practices and benefits, making them less likely to invest in such activities (Jum'a et al., 2021). Therefore, there is a dearth of SSCM literature from the perspective of the firm's sustainable practices, and more investigation is needed to address the gaps. Thus, the objective of this study is to investigate the relationship between sustainable practices and the sustainable performance of manufacturing firms in a developing country. As a result, adopting and managing sustainable practices is extremely challenging for companies. The analysis of such challenges helps to the sustainable practice and theory of the particular firm's research domain.

## 2. Literature review

### 2.1 Sustainable Supply Chain Management (SSCM)

Early on, academic researchers did not think that industrial pollution control was a worthwhile research issue (Udara et al., 2019). At this time, developing nations' top concerns are energy conservation and pollution reduction. The startling statistic is that the top 2,500 global corporations are accountable for 20% of the world's greenhouse gas emissions, with their supply chains accounting for the lion's share of these emissions (Dubey et al., 2017). As a result, SCM is now being assessed beyond the conventional perspective of the distribution channel and has changed its focus to lowering the negative impact of environmental factors and the amount of scrap resources from the acquisition of raw materials to the ultimate usage of the goods (Jum’a et al., 2022). The entire supply chain now functions sustainably, taking into account how the environment affects the production process and the movement of goods (Jum’a et al., 2021). SCM and sustainability have been identified as two components of the SSCM framework. The structure of the company's supply chain will determine the consequences of SSCM, as the supply network for food may be different from the supply chain for electronic devices. However, the triple bottom line strategy, which focuses on economic, social, and environmental factors, has shaped supply chain procedures for businesses in all networks, independent of the network's structure (Khanam & Ghosh, 2022). The idea of a sustainable practice for SSCM is regarded as having multiple dimensions. Several sub-dimensions of sustainable practices for SSCM have been addressed in earlier work (Saqib and Zhang, 2021). According to Green et al. (2012), SSCM practices, such as sustainable manufacturing, distribution, and logistics are linked to internal environmental

management practices and are crucial components for manufacturers to improve sustainability performance (Jum'a et al., 2021).

### 2.2 SSCM Practices and Sustainable Performance

Appropriate recycling, waste reduction, and acceptance of eco-friendly raw materials can elevate a slow-growing company to a new level with improved financial and environmental performance (Jum'a et al., 2021). Waste is turned into useable resources in the supply chain according to the sustainability concept (Jum'a et al., 2022). Previous studies have used the increase in shares, the increase in return on sales, and the increase in profit as its determinants to evaluate financial success (Feng et al., 2018). Prior studies indicate that operational resource efficiency and the presentation of environmental advantages enhance financial performance (Green et al., 2012). Moreover, according to Yildiz et al. (2019), sustainable manufacturing, distribution, and procurement processes are the foundation for addressing sustainability challenges. Sustainable practices are a crucial component of the manufacturing process, the reason for this is that using sustainable practices will improve the company's sustainability performance (Jum'a et al., 2022). Based on the previously established theoretical foundations, this study is looking into three different types of sustainable activities, including sustainable production, sustainable distribution, and sustainable procurement.

Utilizing the three R's (reuse, recycle, and reduce) in orders, paperwork, and components is the foundation of sustainable procurement practices (Green et al., 2012; Yildiz et al., 2019). The production of environmentally friendly products with cooperation and coordination from supply chain participants is the main goal of sustainable procurement practices (Carter and Rogers, 2008). As a result, the present study emphasizes a supplier's sustainable position through the implementation of sustainable technology. Li et al. (2019) confirmed that the production processes with various practices, such as lowering the amount of hazardous substances, increasing energy efficiency, actively designing the capability to redesign the process, and minimizing waste, are known as sustainable manufacturing practices. Manufacturers are required to encourage, reuse, recycle, minimize, and work together in the recovery of product components with the least amount of hazardous raw material consumption during the production process (Green et al., 2012; Jum'a et al., 2022). As a result, adopting sustainable manufacturing practices is crucial to enhancing the sustainability of manufacturing companies (Yildiz et al., 2019). Moreover, sustainable distribution practices involve using sustainable transportation methods for finished goods that have no negative influence on social, ecological, and economic issues. This procedure comprises keeping things in storage and delivering them to the consumer using information about packaging, loading, and order processing (Martins et al., 2019). However, storage and warehousing, packing and labeling, actual transportation, and reverse logistics are the fundamental components of the distribution channel. According to Yildiz et al. (2019), sustainable

distribution practices are a crucial practice that may affect how the firm performs with regard to sustainability issues. This is due to the fact that the effectiveness of sustainable distribution is influenced by the frequency of transportation, vehicle fuel consumption, distance to the customer, and package features According to Martins et al. (2019) and Green et al. (2012), the firm's sustainable performance indicators are highly impacted by SSCM procedures.

According to a specific body of SCM literature, the likelihood of cost reduction and improved corporate performance increases with the intensity of SCM activities (Jawaad & Zafar, 2020). Environmentally friendly technology that are challenging for rival companies to replicate can guarantee a sustainable competitive edge. In the end, this improves the company's financial performance (Jum'a et al., 2021). Thus, it has been proved by numerous articles that adding sustainability to the supply chain can give businesses a competitive and financial edge. To improve a company's sustainable supply chain performance (SSCP), as well as to reduce its negative environmental impact, the SSCM practices are crucial (Jum'a et al., 2022). This therefore results in the best possible response to market demands and stakeholder expectations, improving efficiency and eventually resulting in SSCP (Ramezankhani et al., 2018).

On the basis of the debate above, the following hypotheses are put according to Figure 1:

H1: Sustainable procurement practices positively impact SSCP

H2: Sustainable manufacturing practices positively impact SSCP

H3: Sustainable distribution practices positively impact SSCP.

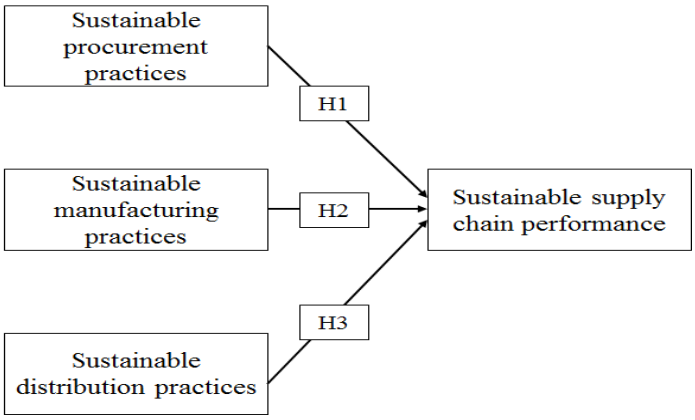


*Figure 1: The Study Model*

*Source: Developed by Author*

## 3. Results and discussion

The current study focused on Jordanian supply chain and logistics experts who are familiar with sustainability practices. The study used convenience sampling, and it resulted in 42 usable and valid questionnaires, with the data being entered into SPSS for analysis. The study covered three types of SSCM practices namely procurement, manufacturing, and distribution based on the study of Saqib nad Zhang, 2021 and the sustainable performance was based on the study of Iranmanesh et al., 2019.

The study focused on three SSCM practices and examined their impact on SSCP of the manufacturing companies in Jordan. Moreover, linear regression analysis is used to explore the predictive influence of SSCM practices on the SSCP of manufacturing firms. Moreover, there are many types of regression analysis, each of which can be used for a certain situation (Pallant, 2013). The regression test has been conducted using the "Enter method", where all independent variables of value-added activities are entered in the equation simultaneously; notably, this is the most commonly used regression analysis (Pallant, 2013). Table 1 represents the model summary, which provides the scores of R, R Square, adjusted R Square, and the standard error of the estimate, which then can be used to determine the overall fit of a regression model with the data.

*Table 1: Regression Model Summary*

| Model Summary | | | | |
|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .576a | .332 | .280 | .631 |
| a. Predictors: (Constant), M.AV, D.AV, P.AV | | | | |

*Source: Developed by Author*

The multiple correlation coefficient R-value was 0.576. This indicates a moderate level of prediction for the SSCM practices on the SSCP of manufacturing firms. Table 2 gives the coefficients, which show how well each of the SSCM practices is related to the SSCP of the firms.

*Table 2: Regression coefficients*

| Coefficientsa | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 2.285 | .470 | | 4.859 | .000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | P.AV | .050 | .125 | .066 | .400 | .691 |
| | D.AV | .443 | .114 | .597 | 3.870 | .000 |
| | M.AV | -.076 | .127 | -.106 | -.601 | .552 |
| a. Dependent Variable: AVERAGE OF E+S+EC | | | | | | |

*Source: Developed by Author*

The significance values, column marked 'Sig.' indicate whether the SSCM practices is making a statistically significant unique contribution; values < 0.05 are considered statistically significant. Only sustainable distribution practices had a significance value of less than 0.05.

According to the study findings, sustainable procurement practices are insignificant. Sustainable procurement practice, on the other hand, is a comprehensive set of supply-side approaches used for the effective selection of a supplier based on sustainable capabilities and competences, such as the ability to develop environmentally friendly parts of products and the ability to support the focal firm for sustainable objectives. Sustainable procurement is based on purchasing practices that contain reuse, recycle, and decrease reasons in orders, paperwork, and parts, and manufacturing companies should be aware of these difficulties.

The same applies for sustainable manufacturing practice, which is a verification that production procedures with various practices, such as reducing hazardous substances, increasing energy efficiency, actively designing the ability to redesign the process, and minimizing waste, are considered sustainable manufacturing practices. This practice encourages producers to facilitate, reuse, recycle, decrease, and participate in the recovery of product components with the least amount of hazardous raw material consumption during the manufacturing process.

However, for a variety of reasons, these findings are indicative. First and foremost, due to time and resource constraints, the sample size is insufficient. Second, the sample technique used in the study was convenience sampling, which indicates that the results cannot be generalized. Finally, a bigger sample size could be used to reach statistical significance. Although procurement and manufacturing practices may appear insignificant in the study, they are critical if a company wants to achieve sustainable performance.

Sustainable distribution refers to the use of sustainable modes of transportation for final products that have low social, ecological, and economic implications. According to the study, this practice is significant and has an impact on Jordanian manufacturing businesses' sustainable performance. Firms should concentrate on linking storage to product distribution to customers through packaging, loading, and order-processing information. The fundamental components of the distribution channel, however, are storage and warehousing, packing and labeling, physical transportation, and reverse logistics. Firms should be aware that sustainable distribution is an important practice that may influence the firm's performance in terms of

sustainability challenges. This is due to the fact that the efficacy of sustainable distribution is dependent on the frequency of transportation, vehicle fuel consumption, distance to the customer, and package characteristics.

## 4. Conclusion

In this study, empirical research on SSCM was done, and it was demonstrated that using sustainable distribution practices in the supply chain platform might improve the company's reputation and have a positive impact on SSCP. The three factors—sustainable distribution practices, sustainable manufacturing practices, and sustainable procurement practices—were identified from several academic studies. Sustainable distribution practices were among the factors that, according to the regression analysis, significantly impacted SSCP. The Jordanian domestic manufacturing industry is concerned about sustainable policies that require an immediate mindset to implement all those relevant policies. In order to advance economic development with environmental and social development, the manufacturing sector is essential. To raise and comprehend the environmental protection measures for society, the government needs to be conscious of SSCM procedures.

This study looked at how supply chain managers generally thought about SSCP's sustainable practices. From a practical point of view, these findings give managers a clear grasp of how to improve sustainable performance by putting SSCM practices into reality. Future studies might aim to assess the effects of each type of sustainable practices on the different types of firm’s performances, such as environmental, economic, and social type. Finally, to make conclusions more generalizable, future study may use a larger sample size and probability sampling techniques.

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