Analysis of The Relationship between Practices and Performance of Green Supply Chain Management in Indonesian Micro, Small, and Medium Enterprises (MSMEs)

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Abstract

Research Aims: This study discusses the practice of green supply chain management (GSCM) on environmental performance and operational costs in micro, small and medium enterprises (MSMEs) in Indonesia's food and beverage industry. Especially to examine the existence of ecocentricity and supply chain traceability that moderates GSCM practices with environmental performance and operational costs.

Design/Methodology/Approach: The judgement sampling method was used in this study, and 85 respondents contributed. Research questionnaires were distributed online, and data were analysed using Partial Least Square-Structural Equation Modelling (PLS-SEM).

Research Findings: The results of this study indicate that GSCM practices have a significant relationship to environmental performance and operational costs of MSMEs in the food and beverage industry in Indonesia. Supply chain ecocentricity moderates the relationship between GSCM practices, environmental performance, and operating costs. However, supply chain traceability does not moderate the relationship between GSCM practices, environmental performance, and operational costs.

Theoretical Contribution/Originality: The concept and practice of GSCM is gaining popularity in developing countries, but is still limited to the scope of MSMEs. Thus, research on GSCM still has to be extended to MSMEs because most research is limited to large organisations.

Managerial Implication in the South East Asian Context: This research covers the concept and practice of GSCM on MSMEs in Indonesia. For MSMEs in the food and beverage industry, this research is expected to be taken into consideration in implementing GSCM for supply chain ecocentricity to improve business performance.

Research Limitation & Implications: Respondents are limited to the Java and Bali area and the food and/or beverage industry group.

Keywords: supply chain management, green supply chain management, supply chain ecocentricity, supply chain traceability, green supply chain practices

INTRODUCTION

Environmental issues are still a difficult problem to solve. According to the results of a study by Bappenas with Waste4Change and several other institutions regarding Food Loss and Waste (FLW), it was found that Indonesia produced 23-48 million tons of waste per year in the 2000-2019 period or equivalent to 111,584 kilograms per capita per year. The study also stated that the economic losses caused by these foods reached IDR 213-551 trillion per year, equivalent to 4-5 percent of Indonesia's GDP per year. The Food Loss and Waste study in Indonesia found that food waste is dominated by grains such as rice, corn, wheat, and related products. In addition, emissions resulting from Food Loss and Waste are equivalent to 7.29% of Indonesia's average greenhouse gases (Kementerian Perencanaan Pembangunan Nasional/BAPPENAS, 2021). Some of the impacts of food waste that are harmful to the environment can produce methane gas, waste explosion disasters, the occurrence of leachate, reducing the diversity of living things, wasting oil, and wasting soil (CIMSA UI, 2020).

The condition of the Covid-19 pandemic has also contributed to environmental pollution, especially the amount of plastic waste in Indonesia. According to the Performance Report of the Directorate of Waste Management (2021), the pandemic has encouraged an increase in online businesses and has had a direct impact on the amount of plastic waste, especially from the household sector. Changes in people's patterns and habits in online shopping, increase the amount of household plastic waste such as packaging, wrapping, bubble wrap, and plastic bags in packaging and delivery of goods. This is reinforced by a survey (Katadata Insight Center, 2020), where 65.5% of respondents in the food sector said they still use plastic bags because they are practical to use.

Companies are increasingly aware of adopting practices that aim to address environmental issues in their supply chains (Cousins et al., 2019). Previous literature indicates that adopting green supply chain management practices positively impacts environmental performance (Geng et al., 2017) and operating cost performance (Schmidt et al., 2017). However, other studies suggest that managers face significant challenges in fully realising the benefits of green supply chain management (GSCM) practices (Kirchoff et al., 2016), possibly resulting from a number of possible barriers to their implementation (Kumar, 2017).

This study aims to understand why performance outcomes vary across different implementations of GSCM practices and was motivated to test moderating effects on GSCM implementation and performance outcomes (Cousins et al., 2019). Intuitively, supply chain ecocentricity and

traceability are likely to have a role that depends on the relationship between GSCM practices and firm costs, as well as environmental performance (Cousins et al., 2019). It should be considered that a large part of a company's ability to achieve sustainability standards for the company is outside the direct control of the organisation, in fact, it is often at various levels of its upstream suppliers (Grimm et al., 2016). This study focuses on two moderators for the context of environmentally friendly supply chain management namely, ecocentricity and supply chain traceability, which have been theorised as the main moderators influencing the effectiveness of GSCM practices (Pagell & Wu, 2009).

Micro, small and medium enterprises (MSMEs) in the food and/or beverage industry have unwittingly become contributors to environmental damage. MSMEs in the food and beverage industry have the potential to generate significant waste, such as packaging waste, especially in the era of the Covid-19 pandemic due to a significant increase in delivery orders. Therefore, this study was conducted to answer the question of the relationship between GSCM practices and performance with the existence of ecocentricity and supply chain traceability in food and beverage MSMEs in Indonesia. This study will use data from a survey to the owners or operating staff of MSMEs in the food and/or beverage industry in Indonesia and will be analysed using SEM-PLS. This research is expected to better understand the importance of supply chain traceability and ecocentricity as a moderator of the relationship between GSCM practices and cost and environmental performance in the food and beverage industry MSMEs.

LITERATURE REVIEW

Natural Resource-based View

According to Hart (1995), the early development of the natural resource-based view (NRBV) stems from the resource-based view (RBV) framework that is generally used by companies (Barney, 1991; Penrose & Penrose, 2009). The NRBV highlights sustainability practices as a resource that competitors cannot easily obtain or imitate due to capability or institutional constraints (Hart & Dowell, 2011). These can be considered "strategic resources" when viewed from the perspective of the RBV (Hart & Dowell, 2011). Therefore, GSCM practices are important because they can be considered the key to implementing these three natural environmental strategies (Cousins et al., 2019).

Green Supply Chain Management (GSCM) Practice

Carter and Rogers (2008) define Green Supply Chain Management (GSCM) as "a strategy, transparently integrating and achieving an organisation's social environment, as well as

economic objectives in the systematic coordination of key inter-organizational business processes to improve performance. the long-term economy of individual firms and their supply chains". Zhu and Sarkis (2007) illustrate GSCM as an environmentally friendly initiative at all stages of the product life cycle, from design, production, and distribution to product use and disposal. GSCM practices in particular include core organisational tactics, such as internal environmental management, supplier selection, green purchasing, and investment recovery (Cousins et al., 2019).

This study adopts the categories of GSCM practices by (Lamming & Hampson, 1996), namely eco-design, green purchasing, reverse logistics, as well as legislation and regulations. The environmentally friendly design was defined by Amemba et al. (2013) as a systematic consideration of design issues related to environmental safety and health throughout the product life cycle, during initial production and development processes. According to Eltayeb et al. (2011), an environmentally conscious purchasing initiative tries to ensure that purchased products or materials meet environmental goals set by suppliers, such as reducing waste, promoting recycling, reuse, resource reduction, and material replacement. Reverse logistics is the flow of products or goods that return from end users (consumers) to the early stages of the supply chain (Seroka-Stolka, 2014). Legislative and regulatory practice refers to laws, policies, and rules usually promulgated by governments and other regulatory bodies to promote environmental preservation (Björklund et al., 2012).

Supply Chain Ecocentricity

Ecocentricity is a company's tendency to engage and learn from external stakeholders in achieving sustainability goals (Cousins et al., 2019). Companies that tend to preserve the environment will review who is in their supply chain to utilise the skills and expertise of external stakeholders (Pagell & Wu, 2009). The natural resource-based view (NRBV) suggests that key resources should be available to facilitate core managerial practices and ecocentricity is included in the primary resource category because it is unique and cannot be imitated. The notion of ecocentricity involves collaborative, relational, and organisational culture characteristics, which the NRBV considers to be advantages that are difficult for other organisations to imitate (Cousins et al., 2019).

Supply Chain Traceability

Supply chain traceability is a process to assess the level of knowledge of companies related to their location and production processes from the original source to the final customer (Dabbene et al., 2014; Skilton & Robinson, 2009; Wowak et al., 2016). Traceability is used to monitor,

track and trace (Wowak et al., 2016) and can be defined as the ability to identify and verify the components and chronology of events along the supply chain (Skilton & Robinson, 2009). Tracing is a process that determines the origin and characteristics of a particular product while tracing is the process of collecting product history regarding its movement along the supply chain (Bechini et al., 2008). In addition, tracking environmental performance throughout the supply chain, the processes involved in producing the product, as well as tracing the origin of purchased products throughout the supply chain. Traceability activities include knowing the source of raw materials, chemicals or elements in the purchased product (Dabbene et al., 2014).

Environmental Performance

Environmental performance is defined as the organisation's ability to minimise liquid, solid and air waste, reduce the consumption of toxic and hazardous materials, and reduce environmental accidents (Younis et al., 2016). Eltayeb et al. (2011) show that environmental performance results include the positive effects of GSCM practices on the natural environment carried out outside and inside the company. Recently, environmental performance has become one of the sources of competitive advantage and sustainable organisational performance (Hanim et al., 2012).

Operating Cost Performance

GSCM is perceived as creating direct operational cost savings by having environmental efficiency, thereby increasing the true economic value of a product (Klassen & Whybark, 1999; Shrivastava, 1995). In this study, the researcher defines increased operational costs as benefits obtained through GSCM as a positive economic improvement, including reduced costs for purchasing materials, energy consumption, and increased productivity. A Theory section should extend, not repeat, the background to the article already dealt with in the Introduction and lays the foundation for further work.

Research Hypothesis

The hypotheses for this research start from the theoretical foundation of the NRBV, which focuses on achieving a competitive advantage within the constraints of the natural environment. In achieving its environmental goals, the NRBV focuses its resources on developing capabilities to implement environmental practices. The NRBV also supports that GSCM practices lead to improved economic performance (e.g. Pullman et al., 2009; Zhu et al., 2005). In particular, significant cost advantages can result from GSCM practices (Carter et al., 2000). Such things as superior waste management, use of less expensive recycled raw materials, environmental accidents, number of components in products, and energy consumption and pollution

prevention, limit the costs of complying with environmental regulations (Jacobs et al., 2010; Hart, 1995). Therefore, the researcher has the first hypothesis as

H1a: GSCM practice is positively related to environmental performance improvement.

H1b: The practice of GSCM is positively related to the improvement of operational cost performance.

Then, this research sees that engaging these environmental stakeholders can add insight into the packaging of ecological materials or cleaner transportation methods that companies were previously unaware of (Johnson et al., 2018). Companies can learn from external environmental stakeholders about more accurate definitions and measurements of standards for purchasing green products as well as environmental criteria for supplier selection (Tate et al., 2011). MSMEs may learn it by also having financial literacy which has a positive and significant impact on SMEs' performance (Yakob et al., 2021). Thus, companies will proactively engage environmental stakeholders in an effort to increase the effectiveness of GSCM practices on the environment with a high level of supply chain ecocentricity (Simpson et al., 2007). Non-traditional supply chain members, such as non-profit organisations, NGOs, and local governments, can offer the most economical environmental processes and technology expertise (Tate et al., 2011). Moreover, it can lower costs by better adapting environmental supply chain practices to relevant environmental concerns (Sarkis et al., 2011). Therefore, the researcher has the second hypothesis as

H2a: Supply chain ecocentricity moderates the relationship between GSCM practices and environmental performance, where (1) MSMEs with high ecocentricity have a significant (positive) relationship between GSCM practices and environmental performance, and (2) MSMEs with low ecocentricity do not have a significant relationship between GSCM practices and environmental performance.

H2b: Supply chain ecocentricity moderates the relationship between GSCM practices and operational cost performance, where (1) MSMEs with high ecocentricity have a significant (positive) relationship between GSCM practices and operational cost performance, and (2) MSMEs with low ecocentricity do not have a significant relationship between GSCM practices and operational cost performance.

In particular, the ability to trace and track activities and products can reduce information asymmetry among supply chain members and the potential for suppliers to act opportunistically (Wowak et al., 2016). This capability positively moderates the effect of organisational-focused

GSCM practices on environmental performance (Plambeck et al., 2012). Traceability can provide a better level of monitoring (Cousins et al., 2019). It has been empirically proven to increase initial and ongoing investment by suppliers in environmental initiatives (Klassen & Vachon, 2009; Lee & Klassen, 2008) as well as enable increased environmental performance impacts of GSCM practices. Without traceability in the supply chain, companies' efforts to improve performance can be hampered, even leading to sending the wrong signal to them (Wowak et al., 2016). Alfaro & Rábade (2009) found that organisations realised several benefits from increased traceability, such as increased operational efficiency. They conclude that traceability strengthens the performance of existing operating procedures such as reducing defective inventory levels, shortening lead times, and reducing stockouts (Cousins et al., 2019). Thus, the researcher proposes the third hypothesis as

H3a: Supply chain traceability moderates the relationship between GSCM practices and environmental performance, where (1) MSMEs with high traceability have a significant (positive) relationship between GSCM practices and environmental performance, and (2) MSMEs with low traceability do not have a significant relationship between GSCM practices and environmental performance.

H3b: Supply chain traceability moderates the relationship between GSCM practices and operational cost performance, where (1) MSMEs that have high traceability have a significant (positive) relationship between GSCM practices and operational cost performance, and (2) MSMEs with low traceability do not have a significant relationship between GSCM practices and operational cost performance.

These hypotheses are described in the research models is as shown in Figure 1.
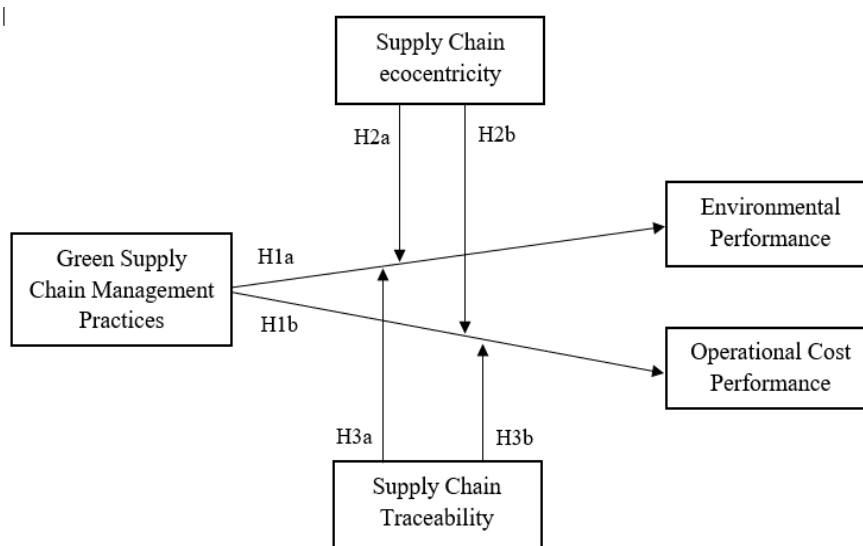
Figure 1. Research Model

RESEARCH METHOD

Research Design and Data Processing

This study uses a conclusive research design with descriptive research. This type of research design is cross-sectional where data will only be collected once in a specified time period. The research was conducted in the mid of 2022 with three stages of research, namely the wording test, pretest, and main test. A wording test was conducted on five respondents. Pretest with total survey results from 32 respondents who have been selected to be tested for validity and reliability using SPSS software. Then the main test where the data is processed using the SmartPLS software with the PLS-SEM method. The data collected in this study is primary data from a self-administered survey in the form of a Google Form which is distributed online.

Research Sample

The respondent criteria needed in this study are the business owners of MSMEs which are engaged in the food and/or beverage industry in Indonesia and have been running for at least 3 months. The non-owners of MSMEs are still part of the respondents as long as they are directly involved in day-to-day operational activities. In this study, researchers used non-probability sampling by using the judgement sampling method. The researcher determines the sample to be taken using the minimum R-squared method according to the reference of Cohen (1992). Where the number of arrows in the construct is six and the significance level used is 0.05 with a minimum R^2 value of 0.25, the minimum number of respondents required in this study is 75 respondents. The number of respondents who can be processed in this study was 85 respondents.

Validity and Reliability Test

In the pre-test stage, the researcher used the IBM SPSS Statistics 25 application to measure the validity and reliability of the question items in the questionnaire based on the answers of 32 respondents who had been collected. All variables and indicators in this study have a good level of validity: the KMO value is 0.5, Bartlett's value is 0.05, and the anti-image value is 0.5 (Hair et al., 2017). The variables in this study are reliable, or when data collection is done repeatedly, the results of each question item will show consistent results having Cronbach's Alpha value of 0.6 (Malhotra & Birks, 2007).

Respondent profile

In the questionnaire that has been distributed, there are 85 respondents who can take this main test and their respondents' business locations are spread across the islands of Java and Bali. The size of the business based on the number of employees is dominated by Micro with a percentage of 82.4%. Furthermore, the majority of respondents are engaged in the food industry with a percentage of 70.6%. The majority of respondents are located in West Java with a percentage of 32.9%. Then, the majority of respondents who filled out this research questionnaire acted as business owners who were directly involved in daily operations as much as 76.5%. Next, in the second position are business owners, but not directly involved in day-to-day operations, then managers or directors, but not business owners and staff members or operational employees.

Analysis of Measurement Model

Analysis of the measurement model (outer model) is carried out to show the relationship between the construct and the variable or in other words to measure whether the indicator is right for the variable. This analysis has two measurements: internal consistency (reliability test) and validity test (convergent and divergent validity). The terms of the variable can be said to be reliable; it must have a minimum value of 0.7 on the value of Cronbach's alpha, and composite reliability (Hair et al., 2017) and all variables have a value above 0.7 so that it can be said to be reliable. Discriminant Validity and Convergent Validity tests must be met to be considered valid, including having an average extracted (AVE) value of 0.50 for convergent validity and an outer loading value of 0.70 for a reliability indicator (Hair et al., 2017). All variables have values according to the conditions, namely having a value above equal to 0.5, but not all indicators meet the outer loading requirements, so they need to be eliminated.

Structural Model Analysis

Next, the researcher tested the structural model or what can be called the inner model. In measuring the structural model, it is done by measuring collinearity, coefficient of

determination (R2), predictive of relevance (Q2), f2 Effect Sizes, and looking at the significance of the structural model by blindfolding and bootstrapping. Collinearity testing is done by looking at the value of the Inner VIF (Variance Inflation Factors) to see the structural model, and the relationship between variables is still in the range of 0.2 n 5.0 according to the conditions according to (Hair et al., 2017). Furthermore, testing the coefficient of determination where the value of R2 on the performance of operating costs or CP is 0.364. While the value of R2 on environmental performance or EP is greater, namely 0.606. Then, this predictive relevance test uses a cross-validated redundancy approach obtained from blindfolding in the SmartPLS software. The value of Q2 on all endogenous variables has a value of more than 0. In other words, there is predictive relevance to the research model and endogenous latent variables. The environmental performance variable has the highest value of 0.366, while the operational cost performance variable is 0.221. Finally, the significant path of coefficients test is carried out to determine the direction and how much influence the exogenous variables have on the endogenous variables. This test was carried out using the bootstrapping method and 5,000 subsamples, with significance levels of 0.05 and 0.1 with the one-tailed type (Hair et al., 2017). This is because to test the hypothesis with a reflective indicator model. A significant effect can be said if it meets the requirements of the T-value of the influence of the independent variable on the dependent variable having a value of 1.645 (positive hypothesis) and -1.645 (negative hypothesis). The results of this test are summarised in table 1 below. The reference hypothesis here means the hypothesis resulted from the reference literature journal of Cousins et al. (2019).

Table 1. Results of Research Hypothesis Testing

Hypothesis	Hypothesis Statement	T- value	P-value	Research Hypothesis	Reference Hypothesis
H1a	GSCM practices are positively related to environmental performance improvements.	6,946	0.000*	Hypothesis Accepted	Hypothesis Accepted
H1b	GSCM practice is positively related to the improvement of operational cost performance.	5.099	0.000*	Hypothesis Accepted	Hypothesis Accepted
H2a	The relationship between GSCM practices and improved environmental performance is stronger when firms have a low level of supply chain *ecocentricity, rather than a high one.*	2.082	0.038*	Hypothesis Accepted	Hypothesis Not Accepted

Table 1. Results of Research Hypothesis Testing (Continued)

Hypothesis	Hypothesis Statement	T- value	P-value	Research Hypothesis	Reference Hypothesis
H2b	The relationship between GSCM practices and improved operating cost performance is stronger when firms have a low level of supply chain *ecocentricity, rather than a high one.*	1,735	0.083**	Hypothesis Accepted	Hypothesis Accepted
H3a	The relationship between GSCM practices and improved environmental performance is stronger when firms have high levels of supply chain *traceability, rather than low ones.*	0.942	0.346	Hypothesis Not Accepted	Hypothesis Not Accepted
H3b	The relationship between GSCM practices and increased operating costs is stronger when firms have high levels of supply chain *traceability, rather than low ones.*	1,157	0.248	Hypothesis Not Accepted	Hypothesis Accepted

* Sig 0.05; ** Sig 0.1

RESULTS AND DISCUSSIONS

Based on table 1, it can be summarised that four of the six hypotheses can be accepted and three of them are aligned from the research results according to the reference journal Cousins et al. (2019). Meanwhile, another two hypotheses were not accepted, and only one was in accordance with the research results according to the reference journal Cousins et al. (2019). Supporting the research of Cousins et al. (2019), the H1a test is also supported by research conducted by Abdallah and Al-Ghwayeen (2019) and Agyabeng-Mensah et al. (2021) shows that GSCM has a positive and significant effect on environmental performance. The results of the H1b test are also supported by research by Abdallah & Al-Ghwayeen (2019), which shows an increase in efficiency and effectiveness in improving business performance such as reducing costs. MSMEs in Indonesia's food and beverage industry feel the direct impact of green supply chain management practices on the company's environmental performance. These practices are mainly the use of a recycling system (also applies to the rental system), having a preference in buying environmentally friendly products, having environmental criteria in supplier selection, and consolidating the delivery of goods for several recipients, with this practice the MSMEs in the food and beverage industry in Indonesia can reduce the impact environment resulting from the process of design, production, to distribution. Likewise, operational cost performance can be improved or can reduce production costs and increase labour productivity.

The supply chain ecocentricity relationship moderates the green supply chain management practice with environmental performance and operational costs even though the level of

ecocentricity is low. The results of the H2a test are different from the results of research in reference journals (Cousins et al., 2019), but are the same as the findings of Epoh and Mafini (2018) and Laosirihongthong et al. (2013) who concluded that the involvement of external parties could improve the environmental performance of small and medium enterprises (SMEs). The results of the H2b test are the same as the results of the research in the reference journal Cousins et al. (2019). It can be said that the involvement of external parties can help improve the environmental performance of MSMEs in the food and beverage industry in Indonesia. MSMEs in the food and beverage industry in Indonesia are aware of regulations such as local regulations that apply to their business locations, such as reducing the use of plastic bags, but such as the Bogor Abu Amad Coffee business, they have not implemented this. Unlike Wikiki, which has implemented recommendations from the local government.

The relationship between supply chain traceability that does not moderate between green supply chain management practices and environmental performance and operating costs at high or low levels does not strengthen this relationship. The results of the H3a test of this study are the same as the results of the research in the reference journal Cousins et al. (2019) but differed in the H3b test results which were different from the reference journal Cousins et al. (2019). It can be said that the knowledge of MSMEs in the food and beverage industry in Indonesia is still not broad and deep regarding the entire supply chain process. Finally, there is no significant impact on improving environmental performance and business operating costs. Like the Kopi Abu Amad business and also Wikuki who don't really understand and know about all processes in the supply chain, especially information about suppliers of raw materials. This limited information causes the supply chain traceability relationship between green supply chain management practices and environmental performance and operational costs to be insignificant.

The moderating effect of supply chain ecocentricity that strengthens or moderates traceability does not moderate the relationship between GSCM practices and environmental performance and operational costs, this could be due to the size of the company which is mostly micro-sized. In contrast to the reference journal where the smallest company numbered 50-99 workers. In addition, this research only focuses on the food and beverage industry, while the reference journal covers almost all processing industries. Besides that, this study also has various roles of respondents who answered research questionnaires. As much as 23.6% of respondents are non-owners involved in daily operational activities. Thus, it may affect the answers to this research questionnaire or bias may occur due to ignorance or lack of understanding of the respondents. The majority of respondents' comments on the questionnaire argue that the high cost of implementing GSCM is due to the lack of knowledge and facilities to be more environmentally friendly, making it more

difficult when economies of scale have not been achieved. Therefore, setting a cheaper price is challenging if MSMEs want to apply GSCM to their business. Finally, there are differences in research results and the literature since the research location is in Indonesia, which is a developing country, while the reference journal is located in England, which is a developed country.

MANAGERIAL IMPLICATIONS IN THE SOUTH EAST ASIAN CONTEXT

The results of this study can contribute to MSMEs in the food and beverage industry in developing countries, especially in Indonesia, as a reference for decision-making in forming and implementing an environmentally friendly strategy for companies. For them, this research is expected to be taken into consideration in implementing GSCM for supply chain ecocentricity to improve business performance. MSMEs in Indonesia's food and beverage industry feel the direct impact of GSCM practices on the company's environmental performance. These practices are mainly the use of a recycling system (also applies to the rental system), having a preference in buying environmentally friendly products, having environmental criteria in supplier selection, consolidating the delivery of goods for several recipients, MSMEs in the food and beverage industry in Indonesia can reduce the environmental impact of design, production and distribution processes. Likewise, with operational cost performance that can be improved or can reduce production costs and increase labour productivity.

THEORETICAL IMPLICATIONS

GSCM has a positive and significant relationship to environmental performance and operational costs. Efforts to implement environmentally friendly supply chain management practices have begun to be carried out by MSMEs in the food and beverage sector in Indonesia, so they need to be maintained and encouraged to be better, such as the use of a recycling system. Meanwhile, ecocentricity which moderates the relationship between GSCM and environmental performance has a positive and significant relationship. This indicates the need for a proactive role to increase stakeholder engagement in an effort to increase the effectiveness of GSCM practices. As suggestions to further research, further research can be expanded to cover more areas, not only centered on the islands of Java and Bali, but other islands in Indonesia. Then, the targeted respondents are specific to the food and beverage industry and other industries, especially the processing industry, to broaden and deepen the practice of green supply chain management in Indonesia. Also, a qualitative analysis approach can be carried out so that it can enrich the results of the analysis. Finally, increase the number and type of statements and/or replace them for each

variable taken from several reference journals, thereby strengthening the explanation of each variable.

CONCLUSION

This study attempts to analyse the relationship of green supply chain management (GSCM) practices to environmental performance and operational costs moderated by ecocentricity and supply chain traceability in the food and/or beverage industry MSMEs in Indonesia. Referring to the formulation of the problem and the purpose of this study, the researcher can answer with the following conclusions. GSCM practices with increasing environmental performance and operational costs have a positive and significant relationship for MSMEs in Indonesia's food and beverage industry. The supply chain ecocentricity relationship moderates the GSCM practice and environmental performance and operational costs for MSMEs in Indonesia's food and beverage industry, which has a positive and significant relationship, although with a low level of ecocentricity. The supply chain traceability relationship does not moderate the relationship between GSCM practices and environmental performance and operational costs for MSMEs in the food and beverage industry in Indonesia and does not have a positive and significant relationship, although with a high level of traceability.

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