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Antecedents and Outcomes of Green Supply Chain Management – A Survey of Food Processing Companies in Ghana

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***Abstract*: Amidst a growing concern regarding global warming, there have been fingers pointed at manufacturing organizations to be in the middle of it all. Manufacturing organizations have been accused of pollution of all sorts, which degrades the environment. In an attempt to salvage the situation, a major solution emphasized is "Green Supply Chain Management." There has been strong advocacy for organizations in general to inculcate this concept in their operations. Therefore, the researchers assessed "The Antecedents and Outcomes of GSCM Practices—a survey of Food Processing Companies. As part of the specific objectives, the researchers examined the effect of institutional pressures on GSCM practices and determined the effect of GSCM practices on social, economic, and environmental performance. An online survey was conducted, which gathered 83 responses from food processing companies to conduct this study. The data collected were analyzed using IBM SPSS version 26, Andrew Hayes Process Macro 3.5, and SPSS Amos version 23. The validity and reliability of the instruments were assessed. Also, the study's findings were presented in descriptive and inferential statistics based on the hypothesis to be tested in the study. These hypotheses were developed with reference to the study's objectives. The study's findings revealed that institutional pressures had a significant positive effect on the adoption of GSCM practices. In addition, the results showed that the adoption of GSCM practices had a significant positive effect on a firm's social, economic, and environmental performance. However, GSCM practices had a weak predictive power for economic performance; therefore, it was recommended that firms should not overindulge in investing in GSCM practices as it might not translate into enhanced economic performance. Also, other recommendations were made to future researchers to increase their sample size and expand the industrial focus of this study.**

***Keywords*: green supply chain management practices, economic performance, social performance, environmental performance.**

1. Introduction

Currently, air pollution is responsible for the deaths of 4.2 million people per year. According to World Health Organization (2019), 91% of the world's population live in air quality areas below the WHO-recommended levels. Such information has caused consternation among the general public in the recent past. Companies, particularly manufacturing companies, are mostly to blame for these environmental issues (Paille et al., 2017).

According to Luthra et al. (2016), these businesses regularly engage in environmentally hazardous garbage disposal methods (water pollution and air pollution). Furthermore, these groups use packaged products with limited environmental benefits (such as rubbers that end up choking gutters). Worse, mining firms mistreat the land by contaminating it, risking people's health, and deteriorating the land in the end.

Bendul et *a*l. (2017) also found that when access to commodities and services becomes more difficult, a growing number of people will go hungry. As the world's population grows, the demand for goods will certainly surpass supply. Due to this, corporations have been forced to employ all measures available to meet this demand. This has led to the world's resources running out at an unsustainable rate with an ever-increasing global population (Aslam, Waseem, & Khurram, 2019). These concerns can only be addressed if businesses prioritize ecologically responsible operations above everything else.

In lieu of this, organizations worldwide have shifted their focus to enhancing their environmental performance, which they believe would enhance their overall performance (Beske-Janssen, Schaltegger, & Liedke, 2019). This includes inculcating green practices in both designs of products and creating markets that are environmentally safe and compatible (Petljak et al., 2018). Kamal et al. (2017) and Zhu et al. (2013) further stated that the governments require companies, the general public, and social organizations to be accountable for their environmental practices. This has led to green supply chain management becoming a more popular means to enhance environmental performance. A growing number of academicians and practitioners have as well advocated for the adoption of green supply chain to address global environmental concerns (Famiyeh et al., 2018, Bendul et al., 2017; Yang et al., 2019; Kamal et al., 2017 and Aslam, Rashid, Wahla, & Tahira, 2018).

In addition, various studies have revealed that inculcating green practices in organizational activities is not merely a favor to the public as there are benefits associated with its adoption.

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Among such benefits are improvements in organizations' social, economic, and environmental performance (Yildiz et al., 2019; Foo et al., 2019 & Beske-Janssen et al., 2019. However, Green et al. (2012) noted that the adoption of GSCM practices does not occur in a vacuum as there are often drivers to that effect. Such drivers, as stated, include increased competition, social pressure, government pressure, and market pressure to protect the environment. Sharma and Jain (2014) further noted that researchers keep discovering new drivers to green supply chain, making a list inexhaustible.

A. Statement of Problem

Companies have begun to address environmental problems due to pressure from customers, authorities, and competitors (Zhu et al., 2013; Mathiyazhagan et al., 2015; Giri et al., 2019; Zand et al., 2019). The first stage in every environmental improvement initiative has always been to select the "lowest hanging fruit" inside a company to improve its environmental performance. Thus, businesses pay attention to ecological technology, which provides dyadic financial, social, and environmental advantages. However, there is more significant potential when businesses consider environmental improvement prospects outside their corporate boundaries. Such opportunities emerge when organizations apply supply chain greening or GSCM methods (Yalabik and Fairchild, 2011; Lee and Tang, 2018).

According to Kumar, Hong, and Haggerty (2011), GSCM encompasses practices that include green purchasing, a hygienic environment for manufacturing goods/food, and integrated supply chains that run from suppliers to manufacturers and customers. Eltayeb and Zailani (2009) added that the most common forms of green supply chain practices are eco-design, green purchasing, and customer cooperation. It is noteworthy that the intensity of competition, societal pressure, government pressure, and market pressure are frequently driving forces behind these actions to safeguard the environment and improve its reputation (Zailani et al., 2013). Thus, employing GSCM practices improves different facets of firm performance (Yildiz et al., 2019; Foo et al., 2019 and Beske-Janssen et al., 2019).

However, several studies conducted on GSCM practices have often focused on manufacturing organizations and industries in general with little focus on particular industries or organizations (Khan & Qianli, 2017; Cousins, et al., 2019; Aslam, Waseem, & Khurram, 2019; Geng, Mansouri, & Aktas, 2017 and Zhu & Sarkis, 2017). Donald & Oates (2016) highlighted that such studies often lead to erroneous generalization as examining particular industries could provide differing outcomes. Hassan, Balan, & Prakash (2016) added that studies on individual industries are necessary to assess the antecedents and outcomes of GSCM in such industries.

Pertinent to the Ghanaian context, a few studies have been conducted on individual industries such as the mining industry (Guo et al., 2020; Peprah, Opoku-Fofie, & Nduro, 2016; Yaping & Bosman, 2021 and Kusi-Sarpong, Sarkis, & Wang, 2016) and Construction Industry (Boadu, Nuertey, & Essuman, 2014). An evaluation of these studies revealed that much more focus is on the mining and construction industry, with little information regarding the other industries in Ghana. Does this mean that findings from these industries apply to other industries? Is there the likelihood that results from different industries could offer a new perspective to studies on GSCM? Answers to these questions justify the need for this study. In this research, the author aimed to assess GSCM practices in the food processing industry in Ghana. Thus, this study focused on the antecedents and outcomes of GSCM based selected food processing companies in Ghana. Specifically, the researchers sought to achieve the following objectives;

1. To examine the effect of institutional pressures (customer pressure, market pressure, and government pressure) on green supply chain practices.
2. To examine the effect of green supply chain practices on economic performance.
3. To determine the influence of green supply chain practices on social performance.
4. To examine the effect of green supply chain practices on environmental performance.

2. Institutional Theory

In addition to having manufacturing processes, organizations are also part of a social system, each with its own culture and set of values. Organizational decisions are made under the impact of the external environment in line with a predetermined pattern of cultural values, conventions, and behaviors passed down via previous generations of employees (Gualandris & Kalchschmidt, 2014 and Scott, 1987). When all businesses in a particular field use the same institutionalized processes and decision-making procedures, it indicates that they strive to establish legitimacy for themselves and their operations (Williams et al., 2009). It is possible to appreciate the multiple external influences that lead an organization to launch or embrace a new practice by employing institutional theory (Dimaggio & Powell, 1983; De Grosbois, 2016). Among such include coercive demands, normative pressures, and mimetic forces.

According to institutional theory, coercive demands are described as official or unofficial requests made by big institutions on which the target firm relies due to specific resources, legal compliance, or even societal standards (Dimaggio & Powell, 1983). Pressures might include invitations from industry organizations to join to obtain benefits, as well as the prospect of being banned or penalized for violating specific government rules or regulations (Yang, 2018 and Sarkis, Gonzalez-Torre, & Adenso-Diaz, 2010).

Normative pressures arise in the context of a certain culture due to the environment formalizing specific norms and standards based on cultural expectations in that setting (Khalifa & Davison, 2006). Normative pressures can come from various places, including educational institutions that instill cognitive behavior in students, industry professionals, non-governmental organizations (NGOs) with a stake in a particular enterprise, and the general public. Educational institutions establishing cognitive behavior and industry professionals exert normative pressures (Dimaggio & Powell, 1983). Suppliers and customers

are two of the most important components of these pressures (Zhu, Sarkis, & Lai, 2013 and Chu, Yang, Lee, & Park, 2017).

On the other hand, mimetic forces force businesses to mimic or replicate the techniques or structure of other successful enterprises to reduce uncertainty and risk (Dimaggio & Powell, 1983). Businesses seek out role models that are believed to successfully overcome the external hurdles to replicate their success in their operations (Williams, Lueg, Taylor, & Cook, 2009). Many stakeholders worldwide urge the industrial sector to adopt and implement global standards and quality management (GSCM) systems (Chu, Yang, Lee, & Park, 2017). Because of the needs of the stakeholders, manufacturers must prove their legitimacy through the implementation of GSCM procedures (Gualandris & Kalchschmidt, 2014 and Walker, Di Sisto, & McBain, 2008). Hence, with the pressures, organizations are often influenced directly or indirectly to engage in all forms of practices deemed necessary.

A. Hypothesis Development

The researchers hypothesized the following relationships between the variables in the study.

1) The Effect of Institutional Pressures (Government, Market, and Customer Pressure) on the Adoption of GSCM Practices

Businesses take a variety of steps to mitigate their negative environmental impacts. A cohesive set of processes must be applied (Yu, 2015). Zhu et al. (2017) classified the most commonly used activities as internal and external GSCM practices. According to the institutional theory, two reasons describe how organizations adopt green practices. Dubey et al. (2017) highlighted that one is enforcing regulations such as taxes and fines. This is presumed to be the responsibility of regulatory bodies reporting to industrial bodies.

On the other hand, Seuring & Müller (2008) suggested providing incentives for organizations to adopt the best environmental and social practices (Hanim Mohamad Zailani, Eltayeb, Hsu, & Choon Tan, 2012). As a result, institutional forces influence how organizations implement internal GSCM procedures. The European Union, for example, has passed a law of environmental legislation throughout the years.

Businesses are pushed to improve their internal environment management (IEM) and eco-design (ECO) processes as a result of such regulatory (coercive) efforts, resulting in improved environmental performance (Esfahbodi, Zhang, Watson, & Zhang, 2017). According to Zailani et al. (2012), GSCM's adoption of eco-design methodologies was driven by both coercive (regulatory and incentive) and normative (consumer) pressure, resulting in the organization's improved environmental performance.

As a result of this supplier, consumer, and market pressure, China's factories developed internal IEM and ECO guidelines (Zhu, Sarkis, & Lai, 2013). On the other hand, mimetic pressures are isomorphic behaviors that push enterprises to mimic successful industry participants' practices or business strategies. Global competitiveness and supply chain partners can provide educational opportunities for firms in developing countries such as Pakistan, who can use these dynamics to improve their green capabilities (Zhu, Geng, Fujita, & Hashimoto, 2010).

However, according to Sancha Longoni and Giménez (2015), supplier selection, communication, and collaboration are the most important external practices in developing environmentally friendly processes and commodities. Coercive factors play a big role in selecting raw materials and providers due to the strict restrictions in the industrialized world (Esfahbodi, Zhang, & Watson, 2016 and Beske, Koplin, & Seuring, 2008). Customers, civil society organizations, and non-governmental organizations (NGOs) can all exert significant (normative) pressure on businesses to implement GSCM processes (Sancha et al., 2015; Chandra Shukla et al., 2009).

Emerging markets adopt environmentally friendly practices because of normative restrictions imposed by critical customers and suppliers with origins in wealthier countries. Cooperation with consumers and investment recovery were two essential practices to put in place in the Indian automobile supply chain in response to regulatory and commercial requirements (Chandra et al., 2009). Sancha, Longoni, and Giménez (2015) discovered that the only important pressure to choose sustainable suppliers comes from rivals' successful practices, either directly or indirectly. Asamoah et al. (2021) indicated that operational responsiveness by firms has a positive influence on the attraction and retaining of customers. Thus, as firms respond to the environmental demands of customers, it attracts and breeds customer loyalty. Therefore, the researchers hypothesized that,

Hypothesis 1a (H1a): Government pressure has a significant positive effect on the adoption of GSCM practices.

Hypothesis 1b (H1b): Market pressure has a significant positive effect on the adoption of GSCM practices.

Hypothesis 1c (H1c): Customer pressure has a significant positive effect on the adoption of GSCM practices.

2) The Effect of GSCM Practices on Economic Performance

The ability of an organization to reduce expenses connected to acquired materials, energy consumption, waste treatment, waste disposal, and environmental fines is determined by the company's economic performance (Zhu et al., 2008). According to Micheli, Cagno, Mustillo, and Trianni (2020), economic performance is concerned with a firm's ability to reduce expenses related to material, water treatment, energy consumption, waste discharge, and reduced environmental danger.

Mutingi et al. (2014) highlighted that green practices had been found to boost a company's economic performance. However, although some studies claim that global supply chain management systems have little effect on a company's sales and profitability in the near term, others argue that they do (Jia & Wang, 2019 and Micheli, Cagno, Mustillo, & Trianni, 2020). As a result of these considerations, various studies have revealed that green purchasing raises product prices, negatively impacting their financial success (Cousins, Lawson, Petersen, and Fugate, 2019).

According to the natural resource-based view theory (NRBV), employing environmentally friendly practices allows a company to save money by lowering energy expenses,

reducing waste, and improving its reputation and customer loyalty. There are several points of view on this topic. Some studies suggest that GSCM incurs additional costs to organizations. Bowen et al. (2001) supported this view, stating that environmental regulations were demonstrated to have no influence on short-term profitability or sales performance but rather increase the cost of operations. Min and Galle (2011) added that green purchasing increases a company's costs, which has a negative impact on the company's financial success.

In contrast, some studies suggest that GSCM has a favorable influence on a company's economic success. A typical case is in the instance of NRBV, where there is the notion that environmentally friendly activities will be immensely helpful to businesses' economic scope. Hart (2013), in this view, stated that GSCM could increase economic performance in two ways. Firstly, firms can create direct cash rewards by reducing waste and energy expenditures. In addition, green practices can assist firms in reaping economic benefits indirectly by enhancing consumer loyalty and improving their corporate brand (Meinlschmidt et al., 2017). GSCM procedures have also been shown to positively impact economic performance in some research (Zhu and Sarkis, 2017 and Tang et al., 2012). Therefore, the researchers hypothesized that;

Hypothesis 2 (H2): GSCM practices have a significant positive effect on economic performance.

3) The Effect of GSCM Practices on Environmental Performance

Pollution, waste, the use of hazardous substances, and environmental blunders can all be quantified in terms of an organization's ability to mitigate them. Every effort to reduce the negative environmental repercussions of a company's products or services is covered under GSCM (Aslam, Waseem, & Khurram, 2019). These programs benefit the environment by, among other things, reducing the consumption of solid/liquid waste and hazardous chemicals, preventing environmental mishaps, and enhancing community health (Eltayeb et al., 2011).

According to Lee's (2009) case study on environmentally friendly practices in small and medium-sized firms, these tactics resulted in the least amount of material and water used, as well as the least amount of trash produced. According to Azevedo et al. (2011), green practices assist firms to improve their environmental performance by reducing the amount of garbage they generate. Green approaches have improved corporate success and societal wellness while decreasing environmental blunders (such as material waste generation and liquid waste) (Das, 2018).

An organization's environmental performance (or environmental score) reflects its ability to eliminate hazardous substances, pollution, environmental accidents, and solid waste (Esfahbodi, Zhang, & Watson, 2016). Finally, studies show that ecologically friendly activities such as waste reduction, energy-saving, and material conservation improve environmental performance (e.g., Zhu and Sarkis, 2013; Zhu and Sarkis, 2017; Kung et al., 2012; Famiyeh et al., 2018). Based on this, the researchers hypothesizes that,

Hypothesis 3 (H3): GSCM practices significantly positively affect environmental perform*ance.*

4) The Effect of GSCM Practices on Social Performance

The phrase "social performance" refers to GSCM concepts and policies that attempt to improve an organization's image ensure worker safety and health, customer satisfaction, and loyalty. Eltayeb et al. (2011) and Rajeev et al. (2017) contend that this is an underappreciated and underestimated component of GSCM. According to Cousins et al. (2019), increasing awareness of the importance of social responsibility in supply chain operations management is crucial. As a result of the factors mentioned above, a green supply chain is required as part of a company's overall operations.

Businesses will have a better image in the eyes of stakeholders, society, consumers, and employees when environmental damage is decreased. This benefits both the firm and the government. This positive image significantly impacts customer satisfaction and employee loyalty (Abdul-Rashid, Sakundarini, Raja-Ghazilla, & Thurasamy, 2017). According to Laari et al. (2016), GSCM enables businesses to improve their brand image and develop strong relationships with their stakeholders (especially external stakeholders) by focusing on them.

Furthermore, GSCM adoption led to increased brand image, stakeholder involvement, and employee motivation (Testa and Iraldo, 2014 and Xie and Breen, 2012). In summary, sound environmental practices can help a company strengthen its connections with its stakeholders and customers. Based on this, the researchers hypothesizes that,

Hypothesis 4 (H4): GSCM practices have a significant positive relationship with social performance.

5) The Mediating Effect of GSCM Practices in the Relationship between Institutional Pressures and Firm Performance

According to Petljak et al. (2018), it is critical to employ green supply chain management (GSCM) strategies such as sustainable manufacturing practices, sustainable supplier selection practices, sustainable purchasing practices, sustainable design practices, sustainable reverse logistics practices, and sustainable distribution practices. GSCM also contributes to environmental management efforts such as ecological design, green purchasing, consumer interaction, and investment recovery (Yildiz Ankaya & Sezen, 2019; Zhu & Sarkis, 2017). According to Dubey et al. (2017), discretionary activities or practices within a firm are relatively infrequent.

Instead, organizations tend to engage in such practices due to pressures from institutions. Such pressures might include invitations from industry stakeholders to join to obtain benefits, as well as the prospect of being banned or penalized for violating specific government rules or regulations (Yang, 2018 and Sarkis, Gonzalez-Torre, & Adenso-Diaz, 2010). Among other notable pressures, organizations face include; customer, market, and government pressures (Chu et al., 2017; Aslam et al., 2018).

However, these pressures are good in disguise as organizations obtain associated benefits through their engagement in GSCM practices. Notably, Mutingi et al. (2014) indicated that a firm is likely to boost its economic performance

due to its engagement in GSCM practices. In addition, Aslam, Waseem, & Khurram (2019) noted that engagement in GSCM practices improves the environmental performance of organizations. Studies from Abdul-Rashid, Sakundarini, Raja-Ghazilla, & Thurasamy (2017) and Laari et al. (2016) further revealed that GSCM engagement helps boost firms' social performance. Based on this, there is a possible deduction that institutional pressures influence the adoption of GSCM practices, which further leads to enhanced firm performance. Therefore, the researchers hypothesize that,

Hypothesis 5 (H5): GSCM practices mediate the relationship between institutional pressures and firm performance.

3. Methodology

The study was exploratory and adopted a survey method as its research design. A quantitative approach was adopted to conduct this study. It is noteworthy that the food processing industry was targeted for this study. Approximately there are 142 food processing companies in Ghana (Opoku, Abboah, & Owusu, 2021. In this industry, a purposive and snowball sampling method was adopted to select a sample of 83 respondents who were managers or senior staff. To conduct this study, the researchers resorted to google directory to contact these companies. The researchers successfully reached 112 companies then proceeded to forward the electronic questionnaire.

During the contact phase, the purpose of the study was laid out. Also, emphasis was placed on the questionnaire being responded to by management or senior staff member. Thus, every organization was expected to represent a respondent to avoid duplicating responses. In addition, the researchers encouraged the managers and senior staff that were successfully contacted to forward the electronic questionnaire to their counterparts in the industry. The whole phase of gathering responses lasted for six weeks, after which the researchers had successfully gathered 83 responses indicating a response rate of 74.1%.

Information for the study was primary and relied on closed-ended questionnaires (based on a Likert scale). It is noteworthy that the researchers used an online survey to collect data from respondents. This was due to the current pandemic and the proximity of the researchers to the organizations. Data were analyzed using SPSS version 26 based on descriptive and inferential statistics. The descriptive statistics used in this study were mean, standard deviation, minimum and maximum. On the other hand, the inferential statistics used were correlation and linear regression analysis.

4. Results and Discussion

The analyses conducted in this study were based on descriptive statistics and inferential statistics. Also, the analytical tools adopted in analyzing the data collected were Microsoft Excel 2019, SPSS version 26, Andrew Hayes Process Macro version 3.5, and Amos software version 23. Here, Excel was instrumental in transcribing data from the online survey using Google forms into an acceptable format for SPSS to analyze the data. The SPSS was then used to analyze the data using descriptive statistics, inferential statistics, and checking the data instrument's reliability. The Amos software version 23 was also adopted to run a confirmatory factor analysis and test the instrument's reliability and validity.

A. Demographic Data

In this section, the researchers presented the demographic information of the respondents. This was analyzed using SPSS version 26. The analyzed results indicated that the study was male-dominated, the age bracket for most of the respondents were 30-40 years, and most of the respondents had a master's degree. In addition, most of the respondents had been in their organization for 6-10 years, and most were occupying a management position.

Table 2
Demographic characteristic of respondents

	Responses	Frequency	Percent
Gender			
	Male	71	85.5
	Female	12	14.5
Age			
	30-40 years	34	41.0
	41-50 years	21	25.3
	Above 50 years	28	33.7
Educational Level			
	O/A level	-	-
	SSCE	-	-
	Diploma/HND	-	-
	Degree	34	41.0
	Masters	49	59.0
Organizational Tenure			
	1-5 years	24	28.9
	6-10 years	27	32.5
	11-15 years	21	25.3
	Above 15 years	11	13.3
Organizational Status			
	Management level	46	55.4
	Senior staff	37	44.6
	Total	83	100

B. Assessment of Constructs

The constructs presented in this study included GSCM practices, drivers of green supply chain management practices, and firm performance. A summary of the results can be seen in

Table 1
Measurement constructs

Construct	Sub-Construct	No. of Items	Source
	Eco-design	5	Agarwal et al. (2018)
GSCM Practices	Green Purchasing	5	Zhu et al. (2013)
	Customer Cooperation	5	Chan et al. (2012)
	Government Pressure	4	Chu et al. (2017)
Institutional Pressure	Customer Pressure	4	Aslam et al., 2018
	Market Pressure	4	Zhu, Sarkis, & Lai, 2014
	Social Performance	4	Younis et al., 2016
Firm Performance	Economic Performance	4	Aslam et al., 2018
	Environmental Performance	4	Chu et al., 2017

Table 3. The study results indicated that green purchasing was a predominant GSCM practice among most firms in the food processing industry, recording a high mean of 4.06 and a standard deviation of 0.622. On the other hand, customer cooperation and eco-design also showed considerably high mean and low standard deviations, indicating that most food processing firms practice GSCM.

Regarding the drivers of GSCM practices, customer pressure was highlighted as the most influential driver for GSCM practices. This was inferred from a mean of 4.15 and a standard deviation of 0.727. The study further revealed that the influence of government and market pressure as a driver for GSCM practices was closely tied. This was inferred from a mean of 3.66 and 3.60, respectively, associated with a standard deviation of 0.946 and 0.930.

Finally, the researcher assessed the level of firm performance in relation to GSCM practices based on facets such as economic, social, and environmental performance. Findings from the study revealed that GSCM practices greatly enhanced social performance. This was inferred from a mean of 4.14 and a standard deviation of 0.638. Social performance was closely followed by environmental performance, indicating a mean of 4.01 and a standard deviation of 0.750. It is noteworthy that economic performance did not show much regarding the influence of GSCM practices by recording a comparatively low mean of 3.36 and a standard deviation of 0.880.

C. Reliability and Validity Test

Reliability and validity testing are essential to evaluate the quality of a study and the instruments adopted. The reliability of the constructs adopted in this research was tested using Cronbach alpha coefficients. On the other hand, the convergent and discriminant validity of the constructs adopted in this study were tested based on the average variance extracted and the inter-construct correlation. These analyses were performed using SPSS Amos 23 and IBM SPSS 26. The results of the analyses were recorded in Table 4 and 5.

Griethuijsen et al. (2015) and Taber (2018) suggested that the acceptable value of Cronbach's alpha is 0.7 and above though values above 0.6 are also accepted. From the results, it can be inferred that all the variables had acceptable levels of Cronbach

Table 3
Descriptive statistics on constructs

Construct	Minimum	Maximum	Mean	Standard Deviation
GSCM Practices				
Eco-Design	1	5	3.74	0.701
Green Purchasing	1	5	4.06	0.622
Customer Cooperation	1	5	3.83	0.751
Drivers of GSCM Practices				
Government Pressure	1	5	3.66	0.946
Market Pressure	1	5	3.60	0.930
Customer Pressure	1	5	4.15	0.727
Firm Performance				
Economic Performance	1	5	3.36	0.880
Social Performance	1	5	4.14	0.638
Environmental Performance	1	5	4.01	0.750

Table 4
Result of validity and reliability testing

Latent Variable	Indicator Variables	Sum of Squared Standardized loadings	Number of Indicators	AVE	Square root of AVE	Cronbach Alpha
GSCM Practices	Eco-Design	3.4566	5	0.6913	0.8314	0.744
	Green Purchasing	3.8245	5	0.7649	0.8745	0.723
	Customer Cooperation	4.1093	5	0.8218	0.9065	0.748
Institutional Pressure	Government Pressure	2.2647	4	0.5661	0.7523	0.7523
	Market Pressure	3.2014	4	0.8003	0.8945	0.8945
	Customer Pressure	2.4453	4	0.6113	0.7818	0.7818
Firm Performance	Economic Performance	2.9301	4	0.7325	0.8558	0.8558
	Environ. Performance	2.7605	4	0.6901	0.8307	0.8307
	Social Performance	2.8605	4	0.7151	0.8456	0.8456

Table 5
Inter-correlation of constructs

	EDI	GPC	CCP	GPR	MPR	CPR	EPC	EVC	SPC
Eco-design	1								
Green Purchasing	.525**	1							
Customer Cooperation	.341**	.527**	1						
Government Pressure	0.037	.216*	.266*	1					
Market Pressure	.282**	.251*	0.118	0.188	1				
Customer Pressure	0.073	.474**	.550**	.282**	.331**	1			
Economic Performance	.464**	.250*	.411**	0.163	.454**	0.196	1		
Environmental Performance	.396**	.491**	.264*	-0.032	.400**	.381**	.347**	1	
Social Performance	.472**	.368**	.279*	0.088	.315**	.262*	.537**	.613**	1

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

Table 6
Results of hypothesis testing

Hypothesis	Paths	β	T-statistic	P-value	Decision
H1a	Government pressure ⟶ GSCM practices	.049	.806	0.422	Not accepted
H1b	Customer pressure ⟶ GSCM practices	.300	3.662	0.000	Accepted
H1c	Market pressure ⟶ GSCM practices	.072	1.146	.255	Not accepted
H2	GSCM practices ⟶ economic performance	0.476	4.870	0.000	Accepted
H3	GSCM practices ⟶ environmental performance	0.471	4.806	0.000	Accepted
H4	GSCM practices ⟶ social performance	0.464	4.709	0.000	Accepted

Significance level, α=0.000

Alpha coefficients. This implies a high internal consistency among items measuring the construct.

In testing for convergent and discriminant validity, the researchers resorted to Fornell & Larcker's (1981) criterion. This criterion stated that, for convergent validity, the average variance extracted has to be greater than 0.5, while for discriminant validity, the square root of the average variance extracted has to be more than the correlation coefficient.

With the benchmark of > 0.5, it can be inferred that all the indicator variables showed evidence of convergent validity. On the other hand, Tables 4 and 5 revealed that the indicator variables adopted in the study showed evidence of discriminant validity. This can be inferred from the square root of AVE displaying coefficients higher than the inter-correlation among the various indicator variables.

D. Correlation of Constructs

In this study, the researchers performed the Pearson correlation analysis using SPSS version 26. The main variables assessed in the matrix were the sub-constructs of green supply chain management practices, institutional pressures, and firm performance. The results revealed that the highest bivariate correlation coefficient was 0.613**, highlighting the significant relationship between environmental and social performance. It is noteworthy that the relationship among some other variables showed acceptable coefficients and was significant, emphasizing the relationship among them (Hair *et al.,* 2014).

E. Hypothesis Testing and Finding

The analysis method adopted to test the hypothesis stated was simple linear regression. The researchers used SPSS version 26 to run the linear regression in testing the various hypotheses stated. Key attention was paid to values such as beta, t-static, and p-value to accept or reject the null hypothesis.

The results from the table indicated in H1a that the study recorded a beta of 0.049, a t-statistic of 0.806, and a p-value of 0.422. Based on these findings, the researchers did not accept the hypothesis that government pressure has a significant positive effect on adopting GSCM practices. H1b hypothesized that customer pressure had a significant positive effect on GSCM practices. Upon analysis, the study showed a beta of 0.300, a t-statistic of 3.662, and a p-value of 0.000. Therefore, the decision is to accept the hypothesis. With H1c, the researchers hypothesized that market pressure had a significant positive effect on GSCM practices. However, the finding of the study indicated a beta of 0.072, a t-statistic of 1.146, and a p-value of 0.255. The decision rule based on these coefficients was not to accept the stated hypothesis.

F. Test of Mediation

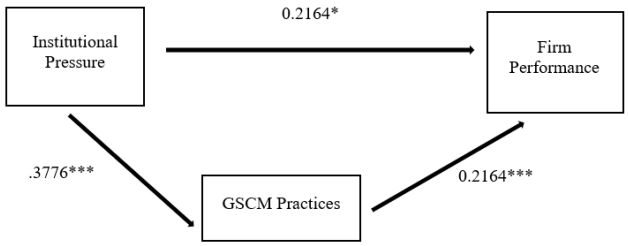
The researchers assessed the mediating effect of green supply chain management practices in the relationship between institutional pressure and firm performance. In evaluating this effect, the Andrew Hayes Process Macro 3.5 was used.

Upon analysis, the results revealed that institutional pressures had a significant relationship with GSCM practices (.3776***). Also, green supply chain management practices had a significant relationship with firm performance (0.2164***). In assessing the mediating effect, it was revealed that institutional pressure had a significant relationship with firm performance with the mediator present. These results were further buttressed in Table 7, indicating that GSCM practices had a mediating effect in the relationship between institutional pressure and firm performance. Thus, the lower limit confidence interval of 0.0576 and an upper limit confidence interval of 0.3572 incorporate no zero, indicating a mediating effect of green supply chain management practices. Given the null and alternative hypothesis;

$H5_{A:}$ GSCM practices have a mediating effect on the relationship between institutional pressures and firm performance.

$H5_{o:}$ GSCM practices have no mediating effect on the relationship between institutional pressures and firm performance.

The decision is to reject the null hypothesis and accept the alternate hypothesis seen below as follows;



Significance (p<0.0000: ***, p<0.0100: **, p<0.0500: *)
Fig. 1. Pictorial representation of mediation results

Table 7
The indirect effects of X on Y

	Effect	BootSE	BootLLCI	BootULCI
GSCM Practices	.2042	.0765	.0576	.3572

G. Discussion of Results

This study examined the antecedents and outcomes of GSCM practices - a survey of food processing companies in Ghana. In conducting this study, the researchers focused on examining the effect of institutional pressure on the adoption of GSCM practices. Here, institutional pressure was conceptualized to

encompass government, customer, and market pressure. On the other hand, GSCM practices were conceptualized to encompass green purchasing, eco-design, and customer cooperation. More so, the study assessed the effect of green supply chain management practices on the firm performance with respect to social, economic, and environmental performance. Based on these objectives, five hypotheses were developed and tested. The results of the analysis are presented in accordance with the set objectives of the study as follows;

The first objective assessed the effect of institutional pressure on the adoption of GSCM practices. Upon examining the level of adoption of GSCM practices, it was revealed that green purchasing was a considerable part of the practice of GSCM. In relation to this, Lacroix & Stamatiou (2007) highlighted that many businesses worldwide are attempting to acquire products and services less harmful to local and global environments. On the other hand, assessing the level of various institutional pressures revealed that customer pressure was the most predominant pressure. Kumar, Luthra, & Haleem (2013) asserted that consumer demand has long been recognized as a major driver of change in companies that sell goods or services to consumers in specific geographic markets.

Juxtaposing the two, the findings from the study suggested that institutional pressures had a positive correlation with the adoption of GSCM practices among firms. This was confirmed in studies such as Dubey et al. (2017), Seuring & Müller (2008) and Hanim et al., (2012). However, assessing the individual effects of institutional pressures on green supply chain management adoption revealed that only customer pressure had a significant positive effect. Niemann, Kotze, and Adamo (2016) highlighted that customers had been enlightened about the negative impact on the environment due to firms' actions, thereby pressurizing them to engage in environmentally friendly operations. In addition, Zailani et al. (2012) buttressed that GSCM's adoption of eco-design methodologies is driven by both coercive (regulatory and incentive) and normative (consumer) pressure, resulting in the organization's improved environmental performance.

The second objective assessed the effect of GSCM practices economic performance. The study's findings revealed that GSCM practices helped organizations save money by decreasing waste treatment and discharge fees. This was consistent with Hassan, Balan, & Prakash (2016), which revealed that GSCM adoption leads to lower energy consumption and waste disposal costs. Assessing its effect, the findings from the study showed that the implementation of GSCM practices had a significant positive effect on economic performance. Micheli, Cagno, Mustillo, and Trianni (2020) confirmed that adopting GSCM practices helped firms reduce expenses related to material, water treatment, energy usage, sewage disposal, and reduced environmental danger, enhancing firms' economic performance.

Despite the significant positive effect, green supply chain management practices had a weak correlation with economic performance. This finding was congruent with the results of Jia & Wang (2019) and Micheli, Cagno, Mustillo, & Trianni (2020). It is noteworthy that other studies such as Cousins, Lawson, Petersen, and Fugate (2019) and Min and Galle (2011) indicated outright contrasting views that adopting GSCM practices negatively affects the economic performance of an organization.

The third objective assessed the effect of green supply chain management practices on social performance. Examining the level of social performance resulting from GSCM practices among organizations represented in this study revealed that the organizations experienced an enhanced corporate image. Newman et al. (2016) consented to this finding, stating that green practices among corporate institutions positively influence their image. Upon testing the related hypothesis, the findings from the study indicated that the practice of green supply chain management practices had a significant positive effect on the social performance of firms. This finding is consistent with Rajeev et al. (2017) and Eltayeb et al. (2011).

Also, Cousins et al. (2019) buttressed that GSCM practices exemplify social responsibility towards stakeholders, thereby enhancing the organization's social performance. Abdul-Rashid, Sakundarini, Raja-Ghazilla, & Thurasamy (2017) added that the practice of GSCM helps businesses have a better reputation in the view of interest groups, which is a key component in social performance.

The fourth objective examined the effect of green supply chain management practices on environmental performance. Upon assessing the level of environmental performance among firms in the study, the results revealed that the practice of GSCM helped them fulfill their CSR for environmental protection. This is consistent with the findings from Yang et al. (2011). In addition, the study results indicated that GSCM practices helped the firms in the study reduce environmental pollution. Hassan, Balan, and Prakash (2016) buttressed that the firm's ability to reduce air pollution, effluent waste, and environmental disasters are at the core of environmental performance.

More so, a test of the hypothesis (H3) revealed that GSCM practices positively affected environmental performance. The testing results indicated that the adoption of GSCM practices among firms had a significant positive effect on their environmental performance. This was supported with a strong correlation coefficient and a good predictive power. These findings were consistent with Azevedo et al. (2011), which showed that green practices among firms help them to improve upon their environmental performance by attenuating the level of waste generated. Das (2018) added that green approaches had improved corporate success and societal wellness while decreasing environmental blunders. It is noteworthy that these findings are as well consistent with results from other studies such as Zhu and Sarkis (2013), Zhu and Sarkis (2017), Kung et al. (2012), and Famiyeh et al. (2018).

H. Summary of Findings

This research aimed to assess the drivers of GSCM practices and their effect on firm performance in food processing companies in Ghana. This study's primary driver was institutional pressures conceptualized based on customer, government, and market pressure. On the other hand, GSCM

practices were conceptualized based on customer cooperation, eco-design, and green purchasing. The study results highlighted customer pressure as a significant component of institutional pressures to influence firms to inculcate GSCM practices as part of their activities. More so, an assessment of the relationship between the two variables indicated that institutional pressures positively correlated with the adoption of green supply chain management practices among firms. This implied that firms are likely to adopt GSCM practices if pressures from customers, government, and the market mount up. Specifically, an assessment of the individual effects of sub-constructs on adopting green supply chain management practices revealed that only customer pressure had a significant positive effect.

Moreover, the survey results indicated that GSCM practices had a significant positive effect on economic performance though GSCM practices were shown not to be a strong predictor of economic performance. It was deduced from this that, in as much as the practice of GSCM may lead to positive results in terms of economic performance, it is not sufficient to enhance the economic performance. A typical scenario was highlighted from the finding that GSCM helped organizations save some money by decreasing waste treatment and discharge fees. Thus, GSCM practices contribute but barely to economic performance though positively affect it.

Upon assessing the effect of GSCM practices on social performance, the results revealed that GSCM practices had a significant positive effect on a firm's social performance. A firm's social performance was measured based on its corporate image, relationship with stakeholders, environmental preservation, and purported employee job satisfaction. In addition, GSCM practices showed it had good predictive power for social performance. This indicated that as a firm practices GSCM, its social performance is likely to improve.

Finally, the study examined the effect of green supply chain management practices on environmental performance. The analysis results highlighted that GSCM practices had a significant positive effect on environmental performance. In addition, green supply chain management practices were highlighted to have considerable predictive power on a firm's environmental performance. This implied that adopting green supply chain management practices is a vital facet to achieving a sustainable level of environmental performance.

5. Conclusion

This research aimed to assess the antecedents and outcomes of GSCM practices among Ghanaian food processing companies. According to the study's findings, institutional pressures play a critical part in eliciting green supply chain management practices. Customers, in particular, exert enormous pressure on companies to adopt environmentally friendly procedures and practices as part of their operations.

It can also be claimed that implementing GSCM techniques positively affects a company's economic, social, and environmental performance. Upon examining the degree of the effect, it can be concluded that GSCM practices have a more significant impact on an organization's social and environmental performance. Thus, for economic performance, the implementation of green supply chain management practices has an effect but cannot effectively enhance it based on the findings from the study.

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