Journal of Business and Economic Policy
UNIZIK Business School, Nnamdi Azikiwe University, Awka

UBSJBEP Volume 2 Issue 1
ISSN (Online) 0795 – 7149
https://journals.unizik.edu.ng/index.php/ubsjbep

INVESTIGATING THE ADOPTION OF GREEN LOGISTICS PRACTICES ON OPERATIONAL SUSTAINABILITY IN FAST-MOVING CUSTOMER GOODS IN LAGOS STATE, NIGERIA

Jude C. Nwaulune
Department of Business Administration and Marketing, Babcock University, Ogun State, Nigeria.
Email: judenwaulune@yahoo.com

CITATION: Nwaulune, J. C. (2024). Investigating the adoption of green logistics practices on operational sustainability in fast-moving customer goods in Lagos State, Nigeria, *UBS Journal of Business and Economic Policy*, 2(1), 70 - 81.
***Paper Type**: Original Research Paper; **Correspondence**: judenwaulune@yahoo.com*

Abstract
There is a growing debate on sustainability challenges among fast-moving consumer goods firms (FMCG). FMCG firms value efficiency and sustainability. Research shows that FMCG firms are unsustainable owing to inadequate green logistics practices. Many studies focused on non-FMCG companies and industrialised countries, not emerging ones. The green logistics and operational sustainability of chosen FMCG firms in Lagos State, Nigeria, were examined. This research was survey-based. This study included 13,782 managers from eight publicly stated FMCG businesses in Lagos State, Nigeria. The Taro Yamane formula determined the 519 sample size. Basic random sampling was utilised. The questionnaire was standardised and validated. Constructs' Cronbach's alpha reliability coefficients ranged from 0.78 to 0.94. The response rate was 96.7%. The data were examined using descriptive and inferential statistics, including multiple and hierarchical regression. The findings revealed that green logistics practices had significant effect on the operational sustainability of selected FMCG firms in Lagos State, Nigeria ($Adj.R^2 = 0.02$, $F(5, 496) = 3.31$, $p < 0.05$). The study concluded that green logistics practices promote operational sustainability of selected FMCG firms in Lagos State, Nigeria. In view of these findings, FMCG enterprises in Lagos State, Nigeria can integrate green logistics techniques into their sustainability plan to improve long-term sustainability. The research suggests that green logistics techniques may considerably enhance operational sustainability, making them essential to a firm's sustainability strategies.

Key Words: *Green Logistics Practices, Green Packaging, Green Production, Green Transportation, Operational Sustainability.*

Introduction
The need for businesses to be environmentally sustainable has gained attention from researchers worldwide (Yingfei et al., 2022; Liu & Ma., 2022). To improve company sustainability, fast-moving consumer goods (FMCG) organisations in the US are always adapting to shifting consumer needs and market trends (Zuiderveen et al., 2020). Digitalization has made it easy for consumers to make comparisons and examine products on the spot. The fast-moving consumer goods firms, therefore, must optimize their marketing potentials, logistics practices and brand awareness to be financially sustainable in the competitive market. Some of the fast-moving consumer goods firms

considered the biggest in Nigeria have experienced increase in profit during the time of the pandemic to about the middle of 2022. In the 2022 half-year revenue, Nigerian Flour Mill and Honeywell Flour Mills Plc reported a total of N591 billion, despite encountering operational difficulties. In contrast, Dangote Sugar PLC, Nascon PLC, Unilever PLC, Nestle Plc, and Cadbury Nigeria PLC achieved a revenue of N504.7196 billion during the same period, surpassing their earnings in the corresponding period of 2021. This indicates a promising economic turnaround for Africa's largest economy (Chris, 2022). Ayorinde (2021) explained that the reason most fast-moving consumer goods firms recorded the increase in earnings over the pre-pandemic level is mostly attributed to the implementation of price appreciation. The firms enforced a minimum of two to three price increases on the majority of their items, and this is part of the reason why the nation experienced a rise in inflation significantly. Nevertheless, just 10% of the fast-moving consumer items of manufacturing firms, as reported by the Manufacturers Association of Nigeria (MAN), were sustainable, meanwhile, 60% were on the verge of shutting down due to issues including monetary volatility, inadequate technological uptake, governmental difficulties, and a number of other issues that have affected the nation (Salau et al., 2018).

Khan et al., (2017) stated that the use of renewable energy sources and the implementation of environmentally friendly practices in logistical operations. is the only remedy for mitigating atmospheric contamination and combating climate crises. Incorporating green logistics into the circular economy is necessary to attain an ideal equilibrium of economic, social, operational, and environmental effectiveness for a firm. Companies need to prioritise operations strategy in response to growing environmental concerns, including consumer demand for eco-friendly products, rising energy costs, and stricter legislation. Several organisations in industrialised nations have used operational excellence strategies to attain sustainability since these initiatives have an influence on the three fundamental aspects of sustainability (Chakraborty et al., 2020). The attainment of these operational advantages enhances the firm reputation, market expansion, and brand reinforcement to gain a competitive edge (Gandhi et al., 2018). The research conducted by Aldakhil et al., (2018) demonstrated a positive association between the implementation of sustainable methods in logistics operations and sustainable economic and environmental development. However, Aldakhil et al., (2018) observed that global operations activities have a significant role in generating harmful substances in the atmosphere. In the absence of appropriate rules for logistics operations, the main consequence will be a negative impact on environmental sustainability (Zaman & Shamsuddin, 2017).

Operational sustainability aligns with the achievement of optimal performance. Operational denotes the act of assembling and distributing products and the achievement of certain tasks (Mitchell, 2015). It refers to the ability of the business to meet its manufacturing processes such as production, distribution, minimising waste, and other employee-customer correspondence inside the firm without compromising the environment and its future potential (Chakraborty et al., 2020). Operational sustainability includes the uninterrupted improvement and strategies that firms use to gain a

competitive advantage, as well as the most effective techniques and initiatives within their respective sectors to achieve constant enhancement.

This research aimed to assess the role of green logistics practices on operational sustainability.

And due to the mixed findings, the present research posits a hypothesis that:

H_{01}: Green logistics practices do not have a significant effect on operational sustainability.

Materials and Methods

The positivist research philosophy was applied in current research. The philosophy of positivism is founded around the notion that one of the ways to truly uncover new knowledge is through scientific observation and measurement (Mohajan, 2018). This paradigm is also based on the idea that scientific laws are universal and can be used to predict and explain natural phenomena. The advantages of the positivist paradigm include its ability to provide clear and concise explanations for observed phenomena and its ability to make predictions about future events (Žukauskas et al., 2018). The survey design was employed in this research. The aforementioned concept was applied to analyse the perceptions, views, and feelings of various groups of persons. The justification for using survey research design is that it enabled the researcher In order to get more knowledge via the sample of study using a research instrument that aligned with the research objective. The study's population consisted of 13,782 employees from PZ Cussons Nigeria Plc, Cadbury Nigeria Plc, Flour Mills Nigeria Plc, Honeywell Flour Mill Plc, Bua Foods Plc, Dangote Sugar Refinery Plc, Nascon Allied Industries Plc, and Unilever Nigeria Plc. The research focused on the fast-moving consumer goods companies operating in Lagos State, which specialise in providing food and hygiene products and are listed on the Nigerian Stock Exchange. The companies were taken into consideration in current research due to their participation in reverse logistics, manufacturing, packaging, procurement, waste management, warehousing, and sustainability, as well as their involvement in green logistics operations (Okunuga et al., 2022; Ogunlela, 2018). Due to its industrial character, cosmopolitan city, and status as Nigeria's commercial hub, Lagos State was taken into consideration for the study. The justification for using these companies was that they engage in green practices which aligns with the study objectives, also, they have maintained a good business track record for years and these entities are listed on the Nigerian stock market. (Okunuga et al., 2022; Ogunlela, 2018). The study adopted the simple random sampling technique, where Each member of the population has an equitable chance of getting selected. This technique is commonly used in research studies in order to get a well-rounded and inclusive sample of the population, where the sample is selected entirely by chance, and no bias is introduced (Liu & Li, 2021).

Table 1 Proportion of samples

S/N	Organization	Population	Sample Size	Proportion
1	Bua Foods Plc	1,890	519	71
2	Cadbury Nigeria Plc.	489	519	18
3	Dangote Sugar Refinery Plc	2,850	519	107
4	Flour Mills Nig. Plc.	5,083	519	191
5	Honeywell Flour Mill Plc	832	519	31
6	Nascon Allied Industries Plc	581	519	22
7	P Z Cussons Nigeria Plc.	1,302	519	49
8	Unilever Nigeria Plc	755	519	28
	Total	13,782		

Source: Researcher's compilation (2023).

The data-gathering instrument was a customised questionnaire. 519 questionnaires were issued to the participants, among them 502 were completed and returned for analysis. The response rate of around 96.7% of the study's employed population is regarded as outstanding. The reason for using a questionnaire is due to its ability to elicit direct responses, gather feedback, and accommodate the degree of literacy among the respondents (Zikmund et al., 2009). The research included the division of the questionnaire into three distinct portions, section A, covered information about respondents' biodata while section B contained responses on the independent variable (Green Logistics Practice) and section C responses on the dependent variable (Operational sustainability). A six-point modified Likert-type scale ranging from Very High (6) to Very Low (1) was used. The justification for choosing a six-point modified Likert-type scale is that it is easy to understand and gives room for the elimination of undecided opinions.

Construct validity was quantified statistically using Confirmatory Factor Analysis (CFA). Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity was used to assess the adequacy of the sample. while the concept validity was assessed using the Average Variance Extracted (AVE) method.

Table 2: Validity Results

Variables	No of Items	KMO	Bartlett's Test	Sig	Average Variance Extracted	Remark
Green Procurement	5	0.870	185.195	0.000	0.627	Valid
Green Production	5	0.823	120.721	0.000	0.688	Valid
Green Transportation	5	0.768	67.582	0.000	0.647	Valid
Green Packaging	5	0.793	171.539	0.000	0.746	Valid
Reverse Logistics	5	0.800	104.496	0.000	0.635	Valid
Operational Sustainability	5	0.676	88.053	0.000	0.670	Valid

The study instrument was subjected to validity testing to ensure that it was accurate. Construct validity was statistically evaluated utilizing average variance extract (AVE), while the Sampling Adequacy was evaluated making use of KMO and Barlett sphericity test. The KMO results were greater than 0.5, which implied that the questions measured the variables in the sample. Bartlett test of Sphericity result of 0.000, which is lower than 5%, suggests that there exists a highly significant link between variables in measuring the variables under analysis. The KMO test result in this analysis was higher than 5%, and the Bartlett test of Sphericity result was lower than 5%, suggesting that the statements that constituted the testing instruments of each variable calculated what was expected. Average Variance Extracted (AVE) values greater than 0.5 were applied to support the construct validity of all variables in the research instrument. The AVE values serve as evidence of convergent validity.

Table 3: Reliability Result

Variables	No of Items	Cronbach's Alpha	Composite Reliability	Remark
Green Procurement	5	0.933	0.894	Reliable
Green Production	5	0.886	0.917	Reliable
Green Transportation	5	0.787	0.856	Reliable
Green Packaging	5	0.911	0.936	Reliable
Reverse Logistics	5	0.850	0.895	Reliable
Operational Sustainability	5	0.804	0.869	Reliable

This research used Cronbach's Alpha to assess the intrinsic coherence of the questionnaire queries. Internal consistency, as defined by Saunders et al. (2009), refers to the degree of uniformity in replies across all the items in a study questionnaire. The linearity test was performed to identify the study's independent and dependent variables. Data collected through a structured questionnaire was analysed through Statistical Package for Social Science (SPSS). Descriptive statistics were used to analyse the responses from the employees.

Results and Discussion

Table 4: Descriptive Statistics on Operational Sustainability

	VH	H	MH	ML	L	VL	Missing	Total	
	%	%	%	%	%	%	%	Mean	SD
Accurate delivery time as outcome	10.96	34.06	38.65	14.74	1.59	.00	0.0	4.38	.92
Improvement in capacity utilization	18.36	26.15	35.13	16.97	2.99	.40	0.0	4.39	1.08
Promotion of quality and brand image	30.08	30.48	26.69	11.55	1.20	.00	0.0	4.77	1.04
Enhancement of public relations	9.76	20.92	36.85	26.69	5.38	.40	0.0	4.02	1.06
Brand loyalty by consumers	8.37	8.96	17.73	42.23	19.52	3.19	0.0	3.35	1.22
Grand Average								4.18	1.06

UBSJBEP Volume 2 Issue 1
ISSN (Online) 0795 – 7149
https://journals.unizik.edu.ng/index.php/ubsjbep

The findings of descriptive statistics on operational sustainability are shown in Table 4.1. The investigation revealed that 10.96% of the participants conveyed a significantly elevated degree of contentment. with the accuracy of delivery time. Additionally, 34.06% indicated a high level of satisfaction, 38.65% indicated a moderately high level, 14.74% indicated a moderately low level, and 1.59% indicated a low level. The respondents, on average, reported a high degree of contentment with the exact delivery time, as demonstrated by an average score of 4.38 and a standard deviation of 0.92, suggesting that there is little variation around the mean. The data from the table above indicates that in terms of improvement in capacity utilisation, 18.36% of the respondents rated it as very high, 26.15% rated it as high, and 35.13% rated it as moderately high. On the other hand, 16.97% rated it as moderately low, 2.99% rated it as low, and 0.40% rated it as very low. The respondents reported a high response rate for improvement in capacity utilisation, by a mean of 4.39 and a standard deviation of 1.08. In terms of promoting quality and brand image, 30.08% of the participants expressed a very high level of importance, 30.48% expressed a high level, and 26.69% expressed a moderately high level. On the other hand, 11.55% indicated a moderately low level of importance, and just 1.20% indicated a low level. The respondents, on average, expressed a high level of emphasis on promoting quality and brand image. The standard deviation indicates that there is a convergence of opinions around the mean. The mean is 4.77 and the standard deviation is 1.04.

The descriptive analysis reveals that 9.76% among the participants expressed a significant increase in public relations, 20.92% expressed a high increase, 36.85% expressed a moderately high increase, 26.69% expressed a moderately low increase, 5.38% expressed a low increase, 0.40% expressed a very low increase. The respondents, on average, assessed the strengthening of public relations at a relatively high level. The standard deviation indicates that the ratings were clustered closely around the mean (mean = 4.02, STD = 1.06). Regarding customer brand loyalty, 8.37% expressed a very high level, 8.96% expressed a high level, 17.73% expressed a moderately high level, 42.23% expressed a moderately low level, 19.52% expressed a low level, and 3.19% of respondents expressed a very low level. The respondents said that customer brand loyalty is generally moderate, with a standard deviation indicating a tendency to cluster around the mean (mean = 3.35, STD = 1.22).

The operational sustainability of the chosen group of fast-moving consumer goods companies in Lagos State, Nigeria exhibits a mean value of 4.18 and a standard deviation of 1.06. This indicates that, on average, the respondents' responses regarding operational sustainability tend to be high.
Therefore, It may be deduced that the elements of green logistics practices have an influence on the operational sustainability of chosen fast-moving consumer goods companies in Lagos State, Nigeria.

Journal of Business and Economic Policy
UNIZIK Business School, Nnamdi Azikiwe University, Awka

UBSJBEP Volume 2 Issue 1
ISSN (Online) 0795 – 7149
https://journals.unizik.edu.ng/index.php/ubsjbep

Table 5 Multiple Regression: Green Logistics Practises and Operational Sustainability

N	Model	B	Sig.	T	ANOVA (Sig.)	R	Adjusted R^2	F (5,496)
502	(Constant)	2.997	.000	7.549	0.006[b]	0.180[a]	0.023	3.310
	Green production	-0.006	.909	.114				
	Green procurement	0.012	.823	.224				
	Green transportation	0.174	.018	2.364				
	Green packaging	0.116	.022	2.292				
	Reverse logistics	-0.018	.0467	-728				
	Predictors: (Constant), Green Production, Green Procurement, Green Transportation, Green Packaging, Reverse Logistics.							
	Dependent Variable: Operational Sustainability							

Table 5 displays the results of the multiple regression analysis conducted with the components of green logistics practices and their impact on the operational sustainability of chosen fast-moving consumer goods companies in Lagos State, Nigeria. The findings indicate that green transportation (β= 0.174, t = 2.364, p<0.05) and green packaging (β= 0.116, t = 2.292, p<0.05) have a good and statistically significant impact on the operational sustainability of selected fast-moving consumer goods companies in Lagos State, Nigeria. However, green procurement (β = 0.012, t = 0.224, p>0.05) has a positive but statistically negligible impact on operational sustainability. The study found that green production (β = -0.006, t = 0.114, p>0.05) and reverse logistics (β = -0.018, t = -0.728, p>0.05) do not have a substantial impact on the operational sustainability of selected fast moving consumer goods enterprises in Lagos State, Nigeria. This means that green transportation and green packaging are crucial elements for fast-moving consumer goods industries to achieve operational sustainability.

The R-value of 0.180 confirms this finding and suggests that there is a little positive relationship between green logistics methods and operational sustainability of selected fast-moving consumer goods enterprises in Lagos State, Nigeria. The coefficient of multiple determination, Adj R2 = 0.023, suggests that approximately 2.3% of the variability in operational sustainability among chosen fast-moving consumer firms can be attributed to green logistics practices. The other 97.7% of the changes were affected by some other variables which were not included in the model. Below is how the predictive and prescriptive multiple regression models are stated:

$OS = 2.997 + -0.006GP + 0.012GProc + 0.174GT + 0.116GPkg + -0.018RL + U_i$---Eqn(i) (Predictive Model)……..Eqn 1.

$OS = 2.997 + 0.174GT + 0.116GPkg + U_i$ ----Eqn(ii) (Prescriptive Model)

Where:

OS= Operational Sustainability

GP = Green Production

GProc = Green Procurement

GT = Green Transportation

GPkg = Green Packaging
RL = Reverse Logistics

The regression model demonstrated that when green logistics practices are held constant at zero, the value of operational sustainability is 2.997, indicating a positive relationship. The predictive model reveals that only the variables of reverse logistics, green procurement, and green production, are found to be statistically unimportant. Consequently, the management of the firm may de-emphasize these factors, hence not adding to the prescriptive model. The results of the multiple regression analysis, as observed in the prescriptive model, indicate that after all other variables of green logistic practices were enhanced by one unit, operational sustainability was also elevated by 0.174 and 0.116 respectively, and vice versa. Therefore, implementing green transportation and green packaging practices will result in improved operational sustainability for selected fast moving consumer products companies in Lagos State, Nigeria.

F-statistics (df = 5, 496) = 290.640, with a p-value of 0.000 ($p < 0.05$), suggests, in general, the model is statistically significant in forecasting the impact of green logistics practices on operational sustainability. This indicates that green logistics practices, excluding reverse logistics, green procurement, and green production, are important factors in determining the operational sustainability rate of selected fast-moving consumer goods firms in Lagos State, Nigeria. Findings indicate that fast-moving consumer goods companies should emphasize the development of green transportation and green packaging as key components of their green logistics strategies to enhance operational sustainability. Consequently, the null hypothesis (H_0) asserting that green logistics methods had no substantial impact on the operational sustainability of chosen fast-moving consumer goods companies in Lagos State, Nigeria was rejected.

Discussion of Results

The multiple regression analysis results indicates that the use of environmentally friendly logistical strategies has an advantageous and significant effect on the operational sustainability of fast-moving consumer goods firms in Lagos State, Nigeria. The adjusted R-squared value is 0.023, the variables were not strongly correlated. The F-statistic is 290.640 with 3 and 310 degrees of freedom, and the p-value is less than 0.05, showing statistical significance. Therefore, the merging of the autonomous sub-variables had significant effects on the operational sustainability of chosen fast-moving consumer goods companies in Lagos State, Nigeria.

Based on empirical evidence, the inference of this study corresponds with, Song et al., in their 2017 study where they examined how various aspects of Green Supply Chain Management (GSCM) affect the operational efficacy of production companies at Shanxi, Shandong, Beijing, Guangdong, and Jiangsu. They uncovered a significant link between GSCM practices and organisational output. Laari (2016) found that several aspects of a business might influence its operational performance. However, the implementation of GSCM practices have a considerable effect on the operational output of an organisation. In their 2019 study, Li and Seo examined 187 manufacturing enterprises in Wuhan. They

categorised GSCM into two components: upstream and downstream cooperation and internal environmental management. The study revealed that effective internal link management had a good influence on enterprise operational performance and financial performance. Additionally, upstream and downstream cooperation had a positive influence on the enterprise atmosphere but had an adverse effect on the enterprise's financial performance and operational performance. Green logistics has a substantial influence on economic growth by reducing costs, enhancing product quality, raising product prices, increasing sales and profit margins, expanding market share and efficiency, creating new market prospects, boosting employee motivation and satisfaction, improving corporate image, and providing access to financial opportunities. In their study, Saada et al., (2020) explored the correlation between operational performance and ten supply chain management practices. These practices encompassed supplier relationships, inventory management, product development, agility, quality implementation, logistics integration, transportation, and purchasing activities in the manufacturing process.

Shen et al., (2017) examined the variables that affect green procurement. The research revealed that the primary variables influencing the implementation of green practices by developers include Marketing advantages, market demand, internal organisational pressure, policy influence, and commercial benefits. Among these elements, policy influence, marketing advantages, and commercial benefits were shown to be the most prevalent causes for developers to take up green practices. Afum et al., (2020), showed that green manufacturing practices (GMPs) had a notable and beneficial impact on sustainable performance. Once again, the implementation of environmentally friendly manufacturing techniques has a substantial and beneficial effect on the green supply chain initiative. Agyabeng-Mensah et al. (2020) did research which revealed that the implementation of green warehousing and logistics optimising practices is associated with a detrimental effect on financial performance, but they enhance economic performance by promoting supply chain sustainability. Research has shown that social values and ethics have a beneficial role in promoting supply chain sustainability and enhancing economic performance.

In their study, Jinru et al., (2022) found that the implementation of Sustainable financing and environmentally-friendly logistics has a notable and favourable This study examines the effects on environmentally sound manufacturing and the regenerative economy. Furthermore, sustainable manufacturing has a substantial and beneficial impact on the circular economy. Evidently, sustainable production was shown to have a significant mediation function among these factors. Similarly, Kamarulzaman et al., (2018) found that Malaysian food-based businesses have a relatively low degree of adoption of green initiatives in warehousing, which indicates that these firms implemented environmental measures in their storage operations. They also found that implementing environmentally friendly practices in warehousing has a substantial influence on manufacturers' commercial success. These findings corroborate the results of Khor et al., (2016), indicating that when faced with institutional pressure, using disposal choices might lead to enhanced performance levels in some scenarios.

Conclusion and Recommendations

This research demonstrates that the utilisation of green logistics methods has a substantial effect on the operational sustainability of FMCG Firms in Lagos State, Nigeria. The administration of these firms may want to explore opportunities to optimise their supply chain processes to minimise the amount of waste produced and enhance the effectiveness of energy use. This can include initiatives such as implementing a closed-loop supply chain system, optimising routing and scheduling, and investing in green technologies such as electric vehicles and renewable energy sources. This research has limitations due to its reliance on self-reported data provided by respondents, which might be influenced by prejudice and mistakes. For example, respondents may have over or under-reported their firm's adoption of green logistics practices or sustainability performance. Also, this study was a survey and captured data collected at a certain moment in time.. Future studies could adopt a longitudinal design to track the connection between green logistics practices and operational sustainability over time.

References

Afum, E., Osei-Ahenkan, V. Y., Agyabeng-Mensah, Y., Owusu, J. A., Kusi, L. Y., & Ankomah, J. (2020). Green manufacturing practices and sustainable performance among Ghanaian manufacturing SMEs: the explanatory link of green supply chain integration. *Management of Environmental Quality: An International Journal*, 29(3), 588-607. doi: org/10.1108/MEQ-07-2019-0201

Agyabeng-Mensah, Y., Annan, J., & Asamoah, E. (2020). The influence of green logistics on firm performance: The moderating role of environmental regulations. Sustainability, *12*(3), 897. doi : 10.3390/su12030897

Aldakhil, A. M., Banwet, D. K., & Waseem, M. (2018). Exploring the impact of green supply chain management practices on environmental performance and competitive advantage. *Journal of Cleaner Production*, *1*(7), 251-266. doi: 10.1016/j.jclepro.2018.02.12

Aldakhil, A. M., Zailani, S., Govindan, K., & Iranmanesh, M. (2018). The impact of organizational factors on green supply chain management and firm sustainability: A case study of manufacturing firms in Saudi Arabia. *Sustainability*, *10(*8), 28-41. doi: org/10.3390/su10082841

Ayorinde, B. (2021). Environmental sustainability in logistics operations: A systematic review of current practices and challenges. *Journal of Cleaner Production*, 3(6), 124-143. doi: 10.1504/LAJMSD.2020.10027399.

Chakraborty, S., Sharma, S., & Vaidya, O. S. (2020). Sustainable logistics: A comprehensive review of current literature and directions for future research. *Journal of Cleaner Production, 2*(8), 122-136.

Chris, U. (2022). Nigeria Flour Millers report N591 billion in 2022 half year revenue despite operational challenges. *Nairametrics*. Retrieved February 4, 2024, from https://nairametrics.com/2022/08/23/flour-millers-report-n591-billion-in-2022-half-year-revenue-despite-operational-challenges/

Gandhi, S., Thanki, R., & Thakkar, J. (2018). Green logistics and firm performance: An empirical investigation. *Journal of Cleaner Production*, *19*(8), 1294-1304.

Jinru, L., Changbiao, Z., Ahmad, B., Irfan, M., & Nazir, R. (2022). How do green financing and green logistics affect the circular economy in the pandemic

situation: key mediating role of sustainable production. *Economic Research-Ekonomska Istraživanja*, *35*(1), 3836-3856.

Kamarulzaman, N. H., Hussin, H., Abdullah, A. M., & AbdRahman, A. (2018). Green warehousing initiatives towards environmental sustainability: Adoption and performance in the malaysian food-based industry. *UNEJ e-Proceeding*, 400-408.

Khan, S. A. R., & Qianli, D. (2017). Impact of green supply chain management practices on firms' performance: an empirical study from the perspective of Pakistan. *Environmental Science and Pollution Research*, 24(20), 16829-16844.

Khor, K. S., Udin, Z. M., Ramayah, T., & Hazen, B. T. (2016). Reverse logistics in Malaysia: The contingent role of institutional pressure. *International Journal of Supply Chain Management*, 6(2), 12-30.

Laari, S., Töyli, J., & Ojala, L. (2017). Supply chain perspective on competitive strategies and green supply chain management strategies. *Journal of cleaner production, 14(1)*, 1303-1315.

Li, J., & Seo, Y. S. (2019). A study on the performance impact of garment manufacturing firms based on green supply chains. *Journal of International Trade & Commerce, 15*(1), 57-74.

Liu, C., & Ma, T. (2022). Green logistics management and supply chain system construction based on internet of things technology. *Sustainable Computing: Informatics and Systems*, 3(5), 107-121.

Liu, P., & Li, Y. (2021). An improved failure mode and effect analysis method for multi-criteria group decision-making in green logistics risk assessment. *Reliability Engineering & System Safety*, 21(5), 107826.

Mohajan, H. K. (2018). Qualitative research methodology in social sciences and related subjects. *Journal of economic development, environment and people*, *7*(1), 23-48. doi: 10.26458/1831

Ogunlela, G. O. (2018). Green supply chain management as a competitive tool in the fast-moving consumer goods manufacturing industry. *Journal of Business and Retail Management Research*, 12(4), 101-113.

Okunuga, A. M., Amos-Fidelis, N. B., & Dogo, E. B. (2022). Green manufacturing and operational cost of selected fast-moving consumer goods companies in Lagos State, Nigeria. *European Journal of Business and Innovation Research*, 10(5), 7-24.

Saada, R. (2020). Green transportation in green supply chain management. In green supply chain- competitiveness and sustainability. *Journal of Environmental Policy & Planning*, *19*(4), 423-437.

Salau, O., Oludayo, O., Falola, H., Olokundun, M., Ibidunni, S., & Atolagbe, T. (2018). Integrated datasets on transformational leadership attributes and employee engagement: The moderating role of job satisfaction in the Fast-Moving Consumer Goods (FMCG) industry. *Data in brief*, 1(9), 2329-2335. doi: org/10.1016/j.jclepro.2018.06.188

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. Pearson education.

Shen, L., Zhang, Z., & Long, Z. (2017). Significant barriers to green procurement in real estate development. *Resources, Conservation and Recycling, 11(6)*, 160-168.

Song, H., Yu, K., & Zhang, S. (2017). Green procurement, stakeholder satisfaction and operational performance. *The International Journal of Logistics Management*, *12*(5), 210-224.

Zaman, K., & Shamsuddin, S. (2017). Green logistics and national scale economic indicators: Evidence from a panel of selected European countries. *Journal of Cleaner Production*, *14(3)*, 51-63.

Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2009). Business research methods (8th ed.). New Castle: South-Western College Pub.

Zuiderveen, E. A., Slootweg, J. C., & de Boer, J. (2020). Novel brominated flame retardants-A review of their occurrence in indoor air, dust, consumer goods and food. *Chemosphere*, *25(5)*, 126-138. doi: 10.1016/j.jclepro.2020.121029

Žukauskas, P., Vveinhardt, J., & Andriukaitienė, R. (2018). Philosophy and paradigm of scientific research. *Management culture and corporate social responsibility*, *12(1)*, 447-455. doi: 10.3846/jbem.2018.6681