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The Role of Green Distribution Practices on Competitiveness of Soft Drinks Manufacturing Firms: A Kenyan Perspective

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ABSTRACT

Green Supply Chain Management has surfaced as fundamental to merge essentials of Supply Chain Management and Environmental Management, giving birth to focal practices such as green distribution. The increase in environmental awareness has made firms to consider green practices such as distribution as important not only for manufacturing firms but also service firms to obtain competitiveness in market shares. Its objective is to have the right materials at the right place and contribute to overall profitability. Conversely, the Kenya National Bureau of statistics report, 2020 indicate that production by soft drinks firms reduced 80.4 million liters in 2020, this resulting to increased costs drop in sales volume. Previous works have been documented on green distribution, even though majority concentrated on few regions and did not consider important distribution practices such as Environmentally-responsible Fleet management, Eco-Distribution Management & Eco-Network Design, probing gist of current paper model. The study sought to determine whether green distribution has a role on firm competitiveness by establishing effect of green distribution on performance of manufacturing firms in Kenyan perspective. We achieved this through a mixed methods design on a population of 460 managers and 92 CEOs, interacted through a structured questionnaire and interview schedule. Standard linear regression in SPSS version 24 and thematic analysis were adopted. Results show that green distribution has significant positive effect on performance (R^2=.558; β=.747, p<.05). Practically, the results imply unit improvement in adoption of green distribution practices leads to 0.747 units increase in firm performance. With this, we establish that indeed, green distribution can improve competitiveness of business firms. We implore stakeholders in such firms to prioritize policies geared towards adopting the construct in practice.

1.0 INTRODUCTION

1.1 Background to the study

Environmental Management (EM) essential has transferred to the supply chain level, advancing maturation of the term Green Supply Chain Management (GSCM). Thus, GSCM surfaced as a means to merge the fundamentals of SCM and EM (Pan *et al*., 2020), consequently reaping remarkable recognition by practitioners and researchers. Companies are also inclined to adopt GSCM on account of external factors affiliated to stakeholder pressure. Yassine (2022) affirms that executing GSCM practices in manufacturing firms reduces negative impact on the environment, while positively affects business performance. As a result, the importance of Green Supply Chain Management has been gradually gaining momentum in Kenya, albeit slowly, thus making it a good candidate for this research study.

Thus, GSCM is set out to incorporate environmental requirements in decisions making at each upstream logistics stage of material management till downstream logistics stage of physical distribution and closing the-loop concept of Reverse Logistics (Aslam et al., 2019). These practices have turned into a welcomed proposition to managing firms (Xie et al., 2022). Xie et al. (2022) expostulate how paramount it is to augment the scope of GSCM as well as pinpoint variance of GSCM practices across industries. The soft drink industry literally comprises two crucial manufacturing systems that, taken on the whole, bring soft drinks to the market. These two systems comprise: (1) concentrate and flavoring syrup manufacturing and (2) soft drink manufacturing.

The supply chain depends heavily on the syrup producer, considering it is the driver for the bulk of downstream operations. Most of the bottled soft drinks follow a similar product life cycle, moving from producer of syrup, to bottler, then to distributor (if used), to merchant, to final consumer. The eccentric nature of the soft drink supply chain implies that conventional GSCM practices are applicable, or are very effective (Demartini et al., 2018; Raihan et al., 2022). Precisely, with the development in environmental awareness, matters of GSCM and environmental degeneration must be consolidated via supplier evaluation based on their environmental performance (inbound logistics), developing ecologically sound products as well as packaging (outbound logistics), take the edge off carbon emissions related with product distribution (outbound logistics) and eco-Reverse Logistics management (Yassine, 2022). Backing this novel perspective of GSCM practices, four dimensions were set on to be included in this research: Green Purchasing, Green

distribution, Green Distribution and Environmentally-Oriented Reverse Logistics as supported by Nyariaro, 2017; Demartini et al., 2018; Lodorfos et al., 2018 and Bor, 2021.

Kenya's manufacturing output, which encompasses the soft drinks manufacturing industry for 2021 was USD 7.99B, a 4.33% increase from 2020 (KNBS economic survey, 2021). This report further shows that in 2021, the manufacturing sector was about 7% of the total Gross Domestic Product (GDP) and the government of Kenya plans to increase this contribution to 15% by 2025. This is likely to escalate pollution levels even further. However much the industry contribution to the Kenyan economy cannot be overlooked; the manufacturing sector is a prime source of environmental deterioration (Islaim et al, 2019). Without action, the general costs of climate change will be equal to losing at the minimum 5% of global GDP annually, now and forever, the benefits of solid, quick fix surpass the costs of not acting (Ahmed, 2021).

Green Distribution as a cardinal activity that impacts the performance of a green supply chain incorporates all pursuits to obliterate environmental injustices during shipment (Lu *et al*., 2019). Environmentally Responsible Fleet Management will be recognized as a valid Green Distribution practice in the current study alongside with Eco-Distribution Management and Eco-Network Design as supported by Ratnajeewa & Bandara (2015) in their Green Logistics Distribution practices research review. Although research has been done on Green Distribution practices and performance, none of the reviewed studies (Hutomo *et al*., 2018; Kirunga & Kihara, 2018; Anucha, 2019; Dare *et al*., 2019; Lu *et al*., 2019; Yusuf, 2020) focused on the soft drink manufacturing sector. The current study focused on Soft Drink Manufacturing Firms in Kenya.

Euromonitor International (2021) classifies the international soft drink market into the following soft drink markets: carbonated soft drinks, juice, concentrates, sports drinks, energy drinks, ready to drink tea, ready to drink coffee, bottled water, and Asian specialty drinks. In 2020, the sales revenue of the international soft drink market was USD 772.5. From 2006 to 2020, the international soft drink market rose in size by 88% (Euromonitor International, 2021). Coca-Cola Company (20.8%) and PepsiCo (10.0%) held the largest Market Shares in 2020 in the international soft drink market by a considerable margin. Their Market Share if combined was larger than the combined Market Share of the remaining SDMFs (ranked by Market Share) (Wood *et al*., 2021). Euromonitor International (2021) noted that the soft drinks segment in Kenya amounted to USD 2.97 billion in 2022. Until 2026, the soft drinks market in Kenya was expected to grow annually by 12.83% (CAGR 2022-2026). This was a decrease, compared to the growth of about 17.44% per year, registered in 2016-2021 (KNBS, 2021). In global comparison, most revenue is generated in the United States (USD 318.50 billion in 2022). These statistics are evident of the huge impact that this industry has on both the world and the local Kenyan economy.

Data by the KNBS (2021) however shows that production of soft drinks dropped by 80.4 million litres in 2020, bucking a trend of increases since 2012. The country's leading beverage maker Coca-Cola, recorded a 13% drop in net operating revenue to post Ksh3.5 billion (USD 32.5m) in 2020, down from Ksh3.9 billion (USD 36.3m) in 2019. Variable costs (raw materials, transportation and delivery, and packaging) and fixed costs (bottling plants' rent, employees' salaries, advertisements, equipment, and insurance) of SDMFs have increased and this has affected the companies' output decisions to a great extent.The expenditures on raw materials are highly dependable on weather and climate and with the changes in climatic conditions; there is a sharp rise in price of agricultural produce like sugar and fruits (Euromonitor International, 2020). The materials used for bottling the product constitute a large part of cost allocation. Finally, transportation and delivery costs depend on the supply chain and fuel prices whose prices are so high. Hence, SDMFs need to come up with the most energy-saving and environmentally friendly solutions to bottle its drinks so as to cut on costs (Euromonitor International. (2021)).

According to Toyota (2022), the automaker is using a sustainable distribution solution from DB Cargo UK and French company Groupe CAT, Europe's leading vehicle logistics provider. They have launched a joint service for Toyota Motor Europe to transport cars from Toton in the East Midlands to Valenciennes in northern France. This was preceded by the construction of a new transshipment terminal at the Toton site by DB Cargo UK and the Purchasing of a new fleet of special wagons by STVA, Groupe CAT's British subsidiary. On the outward run, the new generations of Corolla Hybrids produced at Toyota's Burnaston plant are exported to France. On the way back, cars like the Toyota Aygo, the Yaris and the new Yaris are imported from the Czech Republic and France to the UK to ensure the route is fully utilized (Toyota, 2022). Coca-Cola Euro-pacific Partners Deutschland GmbH (CCEP Deutschland GmbH) the largest beverage producer in Germany started shifting transportation from road to rail at a very early stage. To go even further in its efforts to reduce CO2 emissions, Coca-Cola intends to replace its entire fleet of 2,300 company and commercial vehicles with electric-only vehicles as leasing agreements end, and it wants to complete this changeover by 2025 (DB, 2021).

Tanzania's GSCM practices uptake in the manufacturing sector is at a rudimentary stage and worse still it's currently promoting the development of industry and exploitation of natural resources in an attempt to improve its economic stability (Silver, 2019). Not excluding Tanzania from the rest of the world, development in the manufacturing sector has regrettably been raising concern on the environment as it entirely depends on it for raw materials and a waste sink for the industrial wastes and finished products (Simon et al., 2018). Tanzania lacks the economic base, trained manpower, a conceptual framework, stakeholder support, governmental motivation, legislation and regulatory infrastructure essential for the implementation of a regulatory and corrective strategy for effective environmental management (Tumaini, 2021).

The five "dirtiest" sectors which lead in the overall pollution in Tanzania include basic iron and steel; plastics products; basic chemicals; vegetable and animal oils and fats; not forgetting cement, lime and plaster (Silver, 2019). Remarkably, the government of Tanzania banned the production and use of plastic bags effective June 1st 2019 with the aim of conserving the environment (URT, 2019). On the other hand, Dar es Salaam is reported to be the leading producer of industrial pollution accounting for about 88% of all industrial pollution in Tanzania, reflecting the high concentration of industries that are located in the area (Amon & Hafidh, 2018). The world's giant soft drink manufacturer Coca-Cola Kwanza implemented an initiative to clean up river Mlalakua polluted by plastic waste (Kushner, 2019). This move has since been met by mixed reactions by the locals as they are of the view that Coca-Cola Kwanza has already redoubled its efforts to keep plastic in production instead of phasing out single-use plastics and distract customers with more cleanup efforts that are not sustainable (Wheeler, 2020).

1.2 Objective of the study

The main objective of the study was to establish the effect of green distribution practices on performance of soft drinks manufacturing firms in Kenya

1.3 Hypothesis of the study

H_{01} Green distribution practices have no significant effect on performance of soft drinks manufacturing firms in Kenya

1.4 Conceptual framework

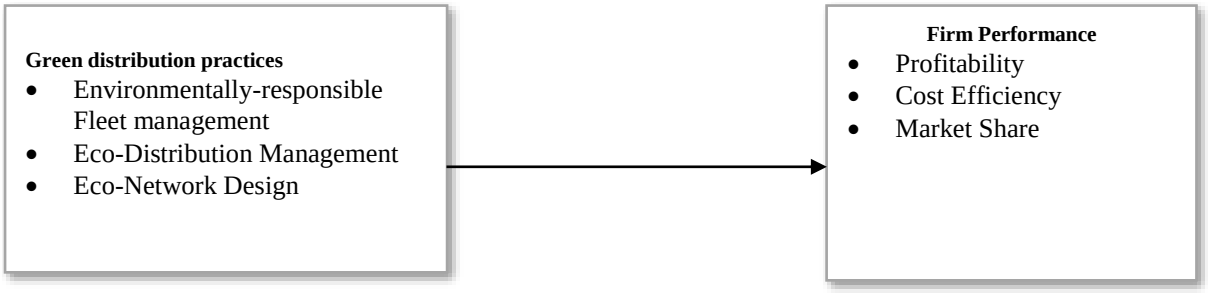

Figure 1. 1: Conceptual framework of the effect of green distribution practices on performance of soft drinks manufacturing firms in Kenya. Source: (Adapted from Hart,1995)

The conceptual model of the study above shows an association between green distribution practices and firm performance which exhibits a cause and effect relationship. The independent variable is green distribution practices. Practices of green distribution in place (Environmentally responsible Fleet management, Eco-Distribution Management, Eco-Network Design) may affect firm performance of soft drinks manufacturing firms. With this therefore, it is expected that competitiveness of soft drinks firms in terms profitability, cost efficiency and market share may be achieved. Therefore, the study is composed of two main variables; the independent variable, green distribution practices measured as (Environmentally responsible Fleet management, Eco-Distribution Management, Eco-Network Design) and dependent variable (firm performance) as shown in the figure 1.1

2.0 LITERATURE REVIEW

2.1 Economic Approach theory

The economic approach describes firms' adoption behavior as driven by performance outcomes. It portrays firms' reception conduct as driven by execution results. A firm will more likely adopt a process or an innovation which will directly lead to improved financial performance. This theory seeks to identify the circumstances when it pays to be green and that managers exhibit rational behavior when they adopt beyond compliance environmental practices also known as environmental proactivity. To fully demonstrate that it "pays to be green", research must demonstrate that environmental improvement produces financial gain. Scholars had long assumed that investments to protect the natural environment provided few financial benefits to firms and suggested that "When does it pay to be green" may be a more important question than "does it pay to be green"

In the last 20 years, however, a growing number of researchers have challenged this assumption. Proponents of a causal link between environmental and financial performance argue that pollution reduction provides future cost savings by increasing efficiency, reducing compliance costs, and minimizing future liabilities. The opportunities for profitable pollution reduction exist because managers often lack the experience and skill to understand the full cost of pollution (Cousins *et al*., 2019). Excess returns (i.e., profits above the industry average) result from differences in the underlying fixed characteristics of firms and industries.

Managers may possess unique resources or capabilities that allow them to employ profitable strategies that are difficult to imitate. In the field of industry ecology, scholars argue that there are situations where beyond compliance behavior by firms is a win-win for both the environment and the firm. It will be expected that firms will adopt any practice that results to economic gain. As such, should it be established that adoption of GSCM practices positively affects economic outcomes of a firm; such a firm will willingly adopt such practices to maximize on such gain. Green adoption has been credited with winning firms' environmental conscious high-end clients, opens up controlled markets, lowers production costs and in the public sector, pulls green donors and grant makers. The theory grounds green distribution practices construct given that firms adopt the practice with a view to obtain competitive scales in market shares

2.2 Green Distribution and firm performance

Studies on Green Distribution have attracted attention from a number of scholars globally, with each presenting differing argument on the subject matter. In a study by Hutomo, Saudi, & Sinaga (2018) on the mediating role of organizational learning capability on the relationship between GSCM practices,

(Green Distribution, Green Packaging) and sustainability performance of Indonesia and Malaysia fishery industries, the study analyzed Green Distribution on the basis of stakeholder pressure, more so from the primary stakeholders. The writes derived hypothesis on 325 employees from Malaysia and Indonesia fisheries industries. A conceptual framework, fronted to help decision and policy makers fathom the relationship between Green Supply Chain Management practices i.e. Green Distribution, organization learning capability and performance was developed. Systematic random sampling was applied to the sampling frame segmented in intervals. The results suggest that organization learning capability and environmental dynamism are congruent as they have a noteworthy impact on sustainability performance. The research study advised managers, decision makers and policy makers to become more versatile in driving GSCM practices agenda forward, more so Green Distribution. It is important for organizations to consider adopting policies meant for improving their sustainability performance (Hutomo *et al.* 2018).

A study by Lu, Xie, Chen, Zou & Tang (2019) tried to construct an environmental logistics performance index (ELPI) for assessing the overall performance in green transportation and logistics practices of 112 countries. Logistics Performance Index (LPI) measured the index, CO2 emanations and oil usage in the transport sector of the selected countries, using a range-adjusted measure (RAM) of the Data Envelopment Analysis (DEA). These writers further employed the Range- Adjusted Measure (RAM) of the DEA as the data analysis instruments. It is recognized that negative externalities in the transport sector have long had wavering effects on performance of the transport and logistics industry. Lu et al. (2019) recognizes that globalization of trading activities, complex supply chains, dynamic technologies among others have aroused the need for global logistics and transportation infrastructure. Even though, it is reported that international logistics structures have come of age and are deriving ways of improving their sustainability performance. While this is plausible, the study further notes that transportation sector accounted for ¼ of the total emissions in 2016 and $C0_2$ emissions from logistics, transportation and freight accounted for 42% of the total-transported related emissions (Lu et al, 2019). It was found out that environmental logistics performance is strongly related to logistics performance.

Anucha (2019) carried out a study on Green Distribution practices and Environmental Sustainability Practices of Sachet and Bottle Water Producers in River State in Nigeria, the study sampled employees of the Sachet and bottle water producing companies. Data used in the study was obtained from 200 participants from a possible population of 400 Participants deduced through Yamane's 1971 mathematical approach. A 5-point likert scale structured questionnaire was issued to participants. The study conceptualized Green Distribution as green storage, green transportation, Green Packaging and Reverse Logistics. Results of the study showed that green transportation has a positive significant relationship with environmental sustainability. It was concluded that adoption of green transportation enhances environmental sustainability in the organization. More so, the results of the study showed that green storage has a positive significant relationship with environmental sustainability and thus concluded that green storage strongly improves sustainability performance in the organization. Additionally, Anucha's (2019) findings depicted that both Green Packaging and Reverse Logistics influence environmental sustainability given that they have a significant positive relationship.

Dare, Aubyn & Boumgard (2019) conducted a study on: Analyzing, Evaluating and improving the performance index of logistics performance index of a country's economy. The authors selected three West African Countries i.e. Nigeria, Morocco and Ghana. The data utilized in this study were sourced from secondary sources in addition to the expert opinion from administered questionnaires. Based on the fact that the study relied largely on existing data, it used and compared both the data from the Liner Shipping Connectivity Index produced by UNCTAD and World Bank Logistics Performance Index. A survey instrument on the other hand, was administered to a total of 10 practitioners and stakeholders selected non-randomly from shipping companies (such as Maersk), terminal operators, logistics and supply chain managers, freight forwarders, manufacturers/shippers and regulators. The study notes that trade between and among countries, more so in Africa, has greatly expanded. This has called for advancement and promotion in management of logistics operations in global trade, turning it into an important sponsor of a country's economy. The world is today developing into a global economy orchestrated by technology and globalization practices. As this unfolds, Africa, more so West African countries (that is Morocco, Nigeria and Ghana) are taking crucial roles as suppliers of commodities and as consumers of products from other countries. The results by Dare *et al*. (2019) notes that infrastructure as the main aspect which measures logistics performance, while tracking and tracing as the least measure of logistics performance. The country with the highest performance measure was Morocco (0.561), followed by Ghana (0.496) and lastly Nigeria (0.457).

The concept of Green Distribution and its effect on various performance metrics has not been overlooked by scholarly writers in Kenya. A study by Yusuf (2020) dwelt on effect of Green Distribution on the Performance of Manufacturing firms. An exploratory research design, embedded in a positivism philosophy was adopted to study 943 manufacturing firms from Nairobi and Kiambu counties in Kenya which were registered by KAM. Yusuf reiterates that the increasing global economy is good but also bad. Even though expanding the global economy results in market interconnectedness, it has resulted in environmental pitfalls for example climate crisis, pollution, extinction of species, ozone layer depletion. Stakeholders have thus come of age, and are pushing managers and policies to consider addressing these environmental issues. Green Distribution has been fronted as a good strategy to address these environmental concerns. Study results show that Green Distribution positively and significantly influence performance of manufacturing firms.

In another study by Kirunga & Kihara (2018) on Influence of Green Distribution practices on environmental performance of Chemical manufacturing firms in Kenya, the writers sought to achieve four objectives which were specific; to establish the influence of Green Packaging; green transportation; green storage and eco-labeling on environmental performance of chemical manufacturing firms in Kenya. Census survey sampling technique was employed to study 27 chemical manufacturing firms as quoted by Kenya Association of Manufacturers (KAM). Findings indicate that all the variables in the study (Green Packaging, green transportation, green storage and eco labelling have a significant positive effect on environmental performance of chemical manufacturing firms in Kenya. Kirunga & Kihara (2018) advised chemical manufacturing firms as well as other manufacturing firms to consider have a continual focus on adopting Green Packaging, green transportation, green storage and eco-labeling practices so as to enhance performance.

Several methodological gaps existed on reviewed studies on Green Distribution and performance. Hutomo *et al*.'s (2018) systematic random sampling used in the study did not give a sample population conversant with the study topic thus data used could have resulted in biased research findings which

have no validity. We adopted purposive sampling to sample only heads of department who are well conversant with matters supply chain. Lu *et al's*., (2019) study used Document Envelop Analysis as an analysis instrument. Document Envelop Analysis ignores statistical errors, does not say how to improve efficiency and has difficulties in performing statistical tests with the results. In this study, data was subjugated to regression analysis; assumptions were examined to confirm that they hold before subjugating the data to parametric tests. This ensured that statistical tests with results were performed thus eliminating statistical errors. Anucha's (2019) and Dare *et al*.'s (2019) studies used descriptive statistics to analyze data which can only be used to display and explain results of known data and can't be used to gather conclusions and make determination about a population. Current study overcame this gap whereby conclusions were inferred from not only descriptive statistics but also inferential statistics which helped to compare data, test hypothesis and make predictions. Yusuf's (2020) study was carried out on 943 manufacturing firms from various industry sectors in Nairobi and Kiambu counties in Kenya which were registered by KAM. This can negatively impact the comparability of data collected and generalization of findings as green distribution practices are not always broadly applied and may be inconsistent. To overcome this gap current study was industry specific (Soft Drink Manufacturing industry) thus comparability and generalization of data to a specific industry sector was made possible. Kirunga & Kihara's (2018) study considered Green Packaging; green transportation; green storage and eco-labeling as the predictor variables for Green Distribution. The use of limited predictor variables to measure the research outcome limited the extent to which a measurement is achieved. Hence, the conclusion of Kirunga & Kihara's (2018) would be difficult due to useful information/data being not available as they are hidden in issues that have been unresolved. Current study had a close evaluation of predictor variables of Green Distribution thus effective outcome.

3.0 METHODOLOGY AND DESIGN

Methodology of a research is the overall strategy for data collection and analysis that provide the best means for answering questions in any research undertaking. The study adopted pragmatists philosophy. Pragmatists enjoy a wider view approach to orientation of knowledge and highly favour the use multiple techniques and approach to a research. According to Fraenkel &Wallen (2009), pragmatists believe that the meaning of a proposition or ideology can only be verified if it works satisfactorily. We used a mixed methods survey design. It is best suited where the research uses both quantitative and qualitative data to understand a research problem. In line with Creswell & Creswell (2018) and Ary et al. (2010), the design helps to determine the influence of the moderating variable on the relationship between the independent variable and the dependent variable. Several related studies have employed the same research design (Altaf et al., 2010), and deduced meaningful conclusion, hence justification of the design for the current study.

The target population comprised 460 departmental managers from Supply Chain, Safety and Environment, Production, Finance and Marketing departments in each of the soft drinks manufacturing firms as well as 92 Chief Executive Officers (CEOS) of 92 soft drinks manufacturing firms. As at September 2022, there were 92 SDMFs registered under Kenya Association of Manufacturers, from which 5 senior managers in the departments were selected for filling the questionnaire and 1 CEO for interviewing from each firm were drawn, making a population of 460 managers and 92 CEOs. A structured questionnaire was used to collection primary quantitative data from departmental managers whereas an interview schedule obtained qualitative data from CEOs. Within the population of 92 CEO's, interviews were conducted until saturation of discursive patterns was achieved and additional data could not lead to any new emergent themes. 20 participants formed the sample size as determined by saturation and as supported by Guest *et al*., 2020 and Saunders *et al*., 2018 who maintained that the experience of most qualitative researchers conducting an interview-based study with a fairly specific research question is that little new information is generated after interviewing 20 people or so belonging to one analytically relevant participant 'category'

The study focused on Soft Drink Manufacturing Firms because different trends are currently affecting the industry. For instance, the growing consumption of premium quality products, challenges due to legislation and compliance to standards, the high complexities due to the huge packaging variety; meager recycled content of plastic bottles and failure to move away from single-use packaging; the large price increases in raw materials in recent years (Lodorfos et al., 2018), and high GHG emission as a result of transporting and refrigerating billions of soft drinks daily. This study primarily used individual firms in the soft drink manufacturing sub-sector as a unit of analysis. Similar past studies have also considered Soft Drink Manufacturing firms (Bor, 2021; Nyariaro, 2017; Lodorfos et al., 2018; Demartini et al 2018; Muhammad et al.) and drawn meaning concussions.

To determine the effect of Green distribution practices on performance of SDMFs, the study adopted standard linear regression analysis. This was modelled in the form as follows;

$Y_i = \beta_0 + \beta_2 X_{2_i} + \varepsilon_i$.....(3.10)

Y_i Performance of SDMFs

β_0 The constant due to scale differences in measuring Firm Performance, it is the value of Y when the X_2 is 0.

X_2 Is the mean subscales of the independent variable, Green distribution practices

The linear regression model established the effect of Green distribution practices on performance bearing mean subscales of Green Packaging (Environmentally responsible Fleet management, Eco-Distribution Management, Eco-Network Design) and the mean subscales of firm performance in the soft drinks manufacturing firms.

4.0 RESULTS AND DISCUSSIONS

4.1 Response Return rate for quantitative results

The researcher distributed a total of 415 questionnaires to senior managers from five departments (Supply Chain, Safety and Environment, Production, Finance and Marketing), per firm, from each of the 83 SDMFs. The findings on the response rate are presented in Table 4.1.

Table 4. 1: Response Rate of Senior Managers

Particulars	Respondents' responses		None-Responses	Questionnaire Distributed
	Responsive Responses	None-Responsive Responses		
Frequencies	344	30	41	415
Percentages	82.9%	8.2%	9.9%	100%

Source: (Field Survey Data, 2023)

Table 4.1 illustrates the response rate in this study. Out of the total number of 415 questionnaires that were distributed to the senior managers, 374 (91.1%) questionnaires were returned. However, 30 (8.2%) were partly filled thus giving partial information while 41(9.9%) were not returned at all. This represented 82.9% responsive response rate for the study. Saunders, Lewis & Thornhill (2007) suggest that a 30-40% responsive response rate is considered adequate. Sekaran (2003) and Mugenda (2003) indicates that a response rate of 30% and greater than 50% respectively is adequate while Hager *et al*. (2003) also recommend 50% response rate as adequate. Therefore, the 82.9% response rate was considered adequate for further analysis.

4.2 Green distribution practices in soft drinks manufacturing firms

Participants in soft drinks manufacturing firms were asked to indicate the extent to which their firm's practiced the elements of Green Packaging practices based on a five point Likert scale, where [1] Not at all at a scale of 1.0 [2] Small extent at a scale of 2.0 [3] Moderate extent at a scale of 3.0 [4] Great extent at a scale of 4.0 [5] Greater extent at a scale of 5.0. Findings are presented in Table 4.2 .

Table 4.2: Descriptive statistics results on Green Distribution

Environmentally Responsible Fleet Management	**Frequency and percentage distribution of Responses**					**∑fi**
	1	2	3	4	5	
Uses more fuel-efficient vehicles or alternative energy sources/hybrid fuel technology sources resulting in low GHG emission and more environmentally friendly vehicles	14(4.1)	34(9.9)	152(44.2)	137(39.8)	7(2)	344
Uses good information system and innovative management to ensure more efficient loading, scheduling and routing.	8(2.3)	34(9.9)	166(48.3)	126(36.6)	10(2.9)	344
Uses logistics firms that abide to environmentally friendly principles or have EMS certification (e.g. ISO 14001, BS7750, EMAS), in case transport is outsourced.	6(1.7)	33(9.6)	5(1.5)	288(83.7)	12(3.5)	344
Proper maintenance programs of vehicles to keep them in safe and efficient working condition	11(3.2)	35(10.2)	5(1.5)	260(75.6)	33(9.6)	344
Sale of vehicles that have reached their end of useful life rather than leave them to fill the parking yard.	7(2)	9(2.6)	3(0.9)	5(1.5)	320(93)	344
Eco-Distribution Management						
Optimization of transport capacity through consolidation and scheduling (distribute products together rather than in smaller batches to ensure full vehicle loads for efficiency).	5(1.5)	11(3.2)	7(2)	316(91.9)	5(1.5)	344
Delivers products directly to the user site.	15(4.4)	199(57.8)	95(27.6)	24(7)	11(3.2)	344

Backhaul management to ensure high vehicle utilization (consolidate freight in case where used material and packaging is to be shipped back to the firm).	9(2.6)	26(7.6)	181(52.6)	66(19.2)	62(18)	344
Located near customers to reduce resources consumed in getting the product to them.	2(0.6)	26(7.6)	280(81.4)	31(9)	5(1.5)	344
Implements technologies to reduce dependence on fossil fuels e.g. cruise control, reductions in left hand turns, GPS units, and automatic engine shut down devices	3(0.9)	2(0.6)	276(80.2)	56(16.3)	7(2)	344
Eco-Network Design						
Configuration of suppliers and distribution networks	2(0.6)	331(96.2)	6(1.7)	2(0.6)	3(0.9)	344
Routing systems to minimize travel distances	2(0.6)	331(96.2)	6(1.7)	2(0.6)	3(0.9)	344
Use of more direct shipping routes	2(0.6)	331(96.2)	6(1.7)	2(0.6)	3(0.9)	344
Load freight using 'carpooling transportation' (cooperative dispatching mode)	11(3.2)	278(80.8)	50(14.5)	1(0.3)	4(1.2)	344
Reverse Logistics network design to reduce transportation	23(6.7)	290(84.3)	9(2.6)	11(3.2)	11(3.2)	344

Source: (Field Survey Data, 2023)

The descriptive statistics for Environmentally-Responsible Fleet Management show that firms practiced the use of more fuel-efficient vehicles or alternative energy sources/hybrid fuel technology sources resulting in low GHG emission and more environmentally friendly vehicles to a Moderate Extent as evident by the majority of the respondents 152(44.2%). The findings further indicate that firms practiced use of a good information system and innovative management to ensure more efficient loading, scheduling and routing to a Moderate Extent as indicated by the majority of the respondent 166(48.3%). Using logistics firms that abide to environmentally friendly principles or have EMS certification (e.g. ISO 14001, BS7750, EMAS), in case transport is outsourced was practiced to a Great Extent reflected by majority of the respondents 288(83.7%). This implies that firms required confirmation if the logistics firms did abide to environment friendly principles or have EMS certification (e.g. ISO 14001, BS7750 and EMAS). Further findings revealed that firms practiced proper maintenance programs of vehicles to keep them in safe and efficient working condition to a Great Extent, 260(75.6%). Sale of vehicles that have reached their end of useful life rather than leave them to fill the parking yard was practiced by firms to a Very Great Extent as revealed by 320(93.0%) of the respondents.

Considering Eco-Distribution Management for Green Distribution, it is evident that optimization of transport capacity through consolidation and scheduling (distribute products together rather than in smaller batches to ensure full vehicle loads for efficiency) was practiced to a Great Extent as indicated by majority, 316(91.9) of the respondents. Majority, 199(57.8%) of the respondents indicated that firms directly deliver products to the user and this is practiced to a Small Extent. This implies that firms relied on distributors most of the time prefer to deliver products to their users. From the findings it is clear that backhauling management to ensure high vehicle utilization (consolidate freight in case where used material and packaging is to be shipped back to the firm) is practiced to a Moderate Extent as indicated by majority 181(52.6%) of the respondents. Locating near customers to reduce resources consumed in getting the product to them is practiced by firms to a Moderate Extent as revealed by majority, 280(81.4%) of the respondents. This implies that firms occasionally located near customers to reduce resources consumed in getting the product to them. The findings also clearly show that firms practiced implementing technologies to reduce dependence on fossil fuels e.g. cruise control, reductions in left hand turns, GPS units, and automatic engine shut devices to a Moderate Extent as indicated by 276(80.2%) of the respondents.

Findings from the descriptive statistics on Eco-Network Design indicates that firms practiced configuration of suppliers and distribution networks to a Small Extent as sighted by 331(96.2%). This implies that firms rarely consider configuration of suppliers and distribution networks. From the findings, to a Small Extent firms practiced routing systems to minimize travel distances by a majority 331(96.2%) of the respondents. Furthermore, from the findings, firms practiced the use of more direct shipping routes to a Small Extent as indicated by majority 331(96.2%) and loaded freight using 'carpooling transportation' (cooperative dispatching mode) was practiced to a Small Extent as revealed by majority 278(80.8%) of the respondent. Reverse Logistics network design to reduce transportation was also practiced to a Small Extent as reported by 290(84.3%) of the respondents.

4.3 Effect of Green Packaging on performance in soft drinks manufacturing firms in Kenya

In order to establish effect of green distribution practices on performance of soft drinks manufacturing firms, the study first established correlation between green packaging and firm performance in order to ascertain whether the predictor construct is associated with the outcome construct. To achieve this, Pearson' Product moment correlation (r) model was adopted. The correlation coefficient measures correlation between variables by the r - value, where an r - value = 0 signifies lack of correlation with a value further away from 0 (towards -1 or +1) signifies stronger correlation. LeeRodgers &

Nicewander (1988) show that a coefficient correlation above 0.9 indicated presence of high correlation among variables. The adapted model is represented below;

$$\mathbf{r} = \frac{\mathbf{n}(\sum \mathbf{xy}) - (\sum \mathbf{x})(\sum \mathbf{y})}{\sqrt{[\mathbf{n}\sum \mathbf{x^2} - (\sum \mathbf{x})^2][\mathbf{n}\sum \mathbf{y^2} - (\sum \mathbf{y})^2]}}$$

Source: (Adopted from Chen *et al*., 2003; Chen & Popovich, 2002)

Where;

r = the Pearson Coefficient of correlation

n= number of pairs of the stock

∑xy = sum of products of the paired stocks

∑x = sum of the x scores

∑y= sum of the y scores

$\sum x^2$ = sum of the squared x scores

$\sum y^2$ = sum of the squared y scores

The findings on the correlation between each of the elements of Green Packaging and performance are presented as shown in Table 4.3

Table 4.3: Correlation between Green Distribution and Performance of Soft Drink Manufacturing Firms

		Profitability performance	**Environmentally-Responsible Management**	**Eco Fleet**	**Distribution Management**	**Eco Network Design**
Performance	Pearson Correlation	1	.551**	.521**		.436**
	Sig. (2-tailed)		.000	.000		.000
	N	344	344	344		344
Environmentally-Responsible Fleet management	Pearson Correlation	.551**	1	.327**		.733**
	Sig. (2-tailed)	.000		.000		.000
	N	344	344	344		344
Eco Distribution Management	Pearson Correlation	.521**	.327**	1		.388**
	Sig. (2-tailed)	.000	.000			.000
	N	344	344	344		344
Eco Network Design	Pearson Correlation	.436**	.733**	.388**		1
	Sig. (2-tailed)	.000	.000	.000		
	N	344	344	344		344

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

Source: (Field Survey Data, 2023)

The findings show that that there is significant positive correlation between performance and Environmentally-Responsible Fleet Management (r=.551, p<.05), performance and Eco-Distribution Management (r=.521, p<.05) and finally between performance and Eco-Network Design (r=.436, p<.05). All the elements of green distribution have a significant positive correlation with performance, denoting that the higher the adoption of green distribution the higher the performance would be achieved.

A standard multiple regression analysis was carried out involving mean subscales of Green distribution practices and the mean subscales of firm performance. This was done in order to test the formulated hypothesis: *H_{02}: Green distribution has no significant effect on performance of Soft Drink Manufacturing Firms in Kenya*. This was modelled as follows;

$Y_i = \beta_0 + \beta_2 X_{2_i} + \varepsilon_i$.....(4.1)

Model Summaryb

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change
1	.747a	.558	.557	.35458	.558	321.169	1	342	.000

a. Predictors: (Constant), Green Distribution

b. Dependent Variable: mean performance

Coefficientsa						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.104	.197		-.530	.597
	Green Distribution	.999	.056	.747	17.921	.000
a. Dependent Variable: mean performance						

Source: (Field Survey Data, 2023)

The model summary results indicate that Green Distribution accounts for 55.8% variance in performance (R^2=.558), which was significant and not by chance, F (1,342) =321.169, p<.05. The findings also show that Green Distribution has a significant positive effect on performance (β=.747, p<.05). The coefficient of standardize beta (.747) practically denotes that a magnitude of change in performance by 0.747 units as a result of a unit improvement in Green Distribution is achieved. These results are further illustrated as shown in equation 4.2 using the third model equation.

$$Y=-0.104+0.999X_{green\_distribution} \quad \text{.....(4.2)}$$

The coefficient of constant term implies that even without including Green Distribution in the model, there would be increasing drop in performance by 0.104 units, indicating that green distribution is an important predictor of firm performance in the soft drinks manufacturing firms.

Findings of the study on Green Distribution practices (R^2=.558; β=.747, p<.05) showing that Green Distribution has a significant positive effect and explains 55.8% variance in performance provides sufficient evidence that green distribution has an important role in firm performance of soft drinks manufacturing firms. The results agree with results of previous other studies. Firstly, findings attune to the findings by Hutomo *et al*. (2018) who in a survey of fisheries firms in Malaysia and Indonesia carried out a study on mediating role of organizational learning on Green Distribution and sustainability performance. This study sampled 325 respondents by using a simple random sample technique to show that. Their results pin pointed that GSCM practices, specifically Green Distribution had significant positive effect on performance.

Secondly, Kirunga & Kihara (2018) on Influence of Green Distribution practices on environmental performance of Chemical manufacturing firms in Kenya opined that all elements of Green Distribution (Green Packaging, green transportation, green storage, eco-labeling) had significant positive effect on performance. A study by Yusuf (2020) revealed also that Green Distribution has a positive and significant influence on performance of manufacturing firms thus confirming the current study findings. This means that the hypothesis testing revealed sufficient evidence to reject the null hypothesis. Therefore, we embrace an alternative hypothesis and conclude that Green Distribution has a positive and significant effect on performance.

4.4 Response rate for qualitative results

To increase the response rate, all the 92 CEOs were invited to take part in the interview through an invitation letter. Only 48(52%) CEOs responded to the invitation letter and confirmed their availability to take part in the interview. Participants' interview began immediately after completion of quantitative data collection and concluded when data saturation occurred. A total of 20 CEOs had been interviewed at that point in time. The interview sessions varied in length, but on average, each interview session lasted 45 minutes. Ethical requirement to preserve the anonymity of the Participants was followed hence, each respondent was assigned pseudonyms and for the remainder of this study will be referred to as participant 1 to 20 (P1-P20).

4.5 Green distribution and Performance

The third objective of the study was to establish the effect of Green Distribution on performance of SDMFs. To do this, Green Distribution practices generated from the data structure in figure 4 was used to explain the roles of these Green Distribution Practices on performance of SDMFs as explained below. From the participants' responses, it was discovered that the model adopted by the SDMFs for distribution of products was twofold: handling the outbound logistics of the soft drink bottles was totally carried out by the SDMF or outsourced to distributing agents or distributors to cover all areas of the country. However, this was not an issue since the SDMFs that outsourced distribution had a database on their suppliers' Green Distribution practices and confirmed that they could provide full information on the same on behalf of the outsourced suppliers. This analysis suggests that SDMFs implemented Environmentally Responsible Fleet Management, Eco-Distribution Management and Eco-Network Design as the Green Distribution practices.

SDMFs made significant investments in their fleet to minimize environmental impact. They implemented fuel efficiency programs, including invested in a modern fleet of fuel-efficient vehicles through green transport procurement, driver training on eco-driving techniques and regular maintenance to optimize vehicle performance. They went a step further and implemented advanced route planning by having more direct shipping routes and optimization systems to minimize mileage (shorter transport distance) and reduce fuel consumption. SDMFs also invested in modern fleet equipped with advanced technologies that minimized emissions and improved fuel efficiency. Participants confirmed that they conducted regular fleet maintenance to ensure optimal performance and reduced the risk of pollutants. Additionally, SDMFs implemented route optimization and load consolidation techniques to minimize mileage, handling and movement as well as maximize vehicle utilization. Furthermore, they actively monitored and analyzed their fleet data to identify opportunities for further improvement. Their commitment to environmentally responsible fleet management not only reduced their carbon footprint but also led to cost savings through improved fuel efficiency and enhanced their brand reputation as an environmentally conscious company. P20 and P5 discussed how Green Procurement and Green Packaging of their firms enabled them to practice Environmentally Responsible Fleet Management.

"*Through Green Transport Procurement, our firm purchased fuel efficient vehicles that improved our fuel economy by 30%, reduced GHGs emissions by 20% and cut particulate pollution by 70%. We also track the cost of fuel using fuel cards to save on expenditures and consumption and in turn lessen carbon impact*." (P20)

"*Our Green Packages have facilitated consolidation of freight and by this, we have cut costs tremendously*." (P5)

The analysis suggests that SDMFs embraced Eco-Distribution Management on several fronts. They opted for automating route optimization to increase vehicle efficiency, batching goods together for higher drop density and performing hyper social deliveries for nearby stores. They optimized their delivery routes using advanced logistics software, thus reducing mileage and emissions. SDMFs collaborated with their retail partners to implement shared distribution centers. Through these collaborations, SDMFs implemented load consolidation (for higher drop density and minimized the number of trucks on the road), backhauling, and efficient routing practices to maximize truck utilization and minimize empty miles. They also adopted packaging optimization techniques to reduce the volume and weight of their products, leading to lower transportation costs and reduced carbon emissions. This study's findings show that Eco-Distribution Management is increasingly important as businesses scale up their last mile logistics operations to cope with growing demand. This interpretation is confirmed by two participants:

"*It's a quick win for our firm as grouping together goods going out to the same area in the same time window enables our firm to cut costs by reducing the number of vehicles and drivers dispatched and maximize their energy efficiency*". (P5)

"*Hyper social fulfillment has made us to cut costs eliminating large shipping fees and distribution center costs*". (P13)

Participants established that they have been directly involved in determining the eco-configuration of networks since these decisions are taken at the strategic level as huge investments are usually requisite to make these decisions and they have long term effects on performance of their firms. Specifically, SDMFs determined the eco-configuration of networks by optimizing the number of facilities, vehicle utilization and selecting the best distribution network as well as transportation modes. By adopting advanced logistics technologies, such as route optimization and real-time tracking systems, they have been able to streamline transportation and reduce fuel consumption. SDMFs implemented consolidation centers to minimize the number of delivery trucks on the road and maximize their utilization. Additionally, SDMFs collaborated with distributors and retailers, to establish a more interconnected and sustainable distribution network. This allowed SDMFs to achieve significant reductions in costs and greenhouse gas emissions, improve delivery reliability, and enhance overall supply chain efficiency:

"*With more careful route planning and collaboration with distributors and retailers, our firm has established a more interconnected and sustainable network thus stuck at a very tight and dependable schedule, hence we have developed great credibility with our customers while at the same time increased our Market Share and achieved the lowest possible cost to serve our network*". (P12)

"*We have laid out routing systems that reduce the travel distance, idle travels, circuitous travels and repetitive travels. This has resulted in reduced GHG emissions, reduced fuel consumption and increased Cost Efficiency*." (P17)

The discussions of this finding indicate that Green Distribution has a positive effect on performance of SDMFs. Participants noted that Green Distribution resulted in Cost Efficiency due to efficient fuel consumption arising from interconnected and sustainable networks, delivery vehicle utilization, route scheduling, as well as congestion abatement, and the reduction of air and noise pollution when the vehicle is efficiently loaded. This finding echoes the works of Lu et al., (2019) and Yusuf (2020) that Green Distribution can result in efficient fuel consumption arising from delivery vehicle usage, loading, and route scheduling, as well as congestion abatement, and the reduction of air and noise pollution when the vehicle is efficiently loaded. In addition, it can eliminate less-than-truck-load (LTL) incidences and improve vehicle usage in terms of optimizing available space utilization. According to Kirunga & Kihara (2019), Green Distribution has a strong and positive correlation with performance (profitability, Cost Efficiency and Market Share) as it improves market penetration, customer service and on time delivery for each drop-off point. It also expands delivery zones, generates additional delivery routes and reduces travel time. Green Distribution further improves vehicle utilization, provides more cost-efficient full load deliveries, reduces fuel consumption and improves delivery flexibility. Thus, this study contributes to Green Distribution research and indicates that Green Distribution leads to improved performance of SDMFs in Kenya.

5.0 CONLUSSION

The study determined effect of green distribution practices on performance of soft drinks manufacturing firms in a bid to establish whether firms may achieve competitiveness. We first ascertained whether green distribution is associated with firm performance through Pearson's Product moment correlation, results proving positive. In a standard linear regression, both qualitative and quantitative findings have shown that green distribution practices have a significant positive effect on firm performance, clearly indicating that soft drinks manufacturing firms may achieve competitiveness in terms of improvement in profitability, market share and competitiveness. Therefore, adopting green distribution practices has an important role in competitiveness of organizations. We provide discussions that may inform policies among business firms that adopting green distribution practices goes a long way to reward such firms.

6.0 RECOMMENDATION

The paper has established that green distribution, as an antecedent of green supply chain management practices, has an important role on competitiveness of soft drinks manufacturing firms. From this, we recommend that: firstly, managers and stakeholders of manufacturing to devise policies geared towards adopting green distribution practices such as Environmentally-Responsible Fleet Management, Eco-Distribution and Eco-Network Design as this will raise performance levels

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