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Green Distribution Practices and Performance of Food and Beverage Manufacturing Firms in Kenya

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Abstract: *Green distribution practices are increasingly strategic areas of focus for firms seeking to improve Sustainability and firm performance. However, empirical evidence on their influence on Kenya's food and beverage manufacturing remains limited. This examined the effect of green distribution practices on the financial and non-financial performance of food and beverage manufacturing firms in Kenya. Using the Natural Resource Based View and Institutional Theory, the study used cross-sectional design and took a census of 192 firms registered with Kenya Association of Manufacturers. The study employed structured questionnaires, which were filled out by the heads of marketing, and 164 questionnaires were retrieved (85.4% response rate). Simple regression analysis showed that the relationship between green distribution practices and financial performance and non-financial performance was positive and significant. The study suggests boosting regulatory environment, minimizing greenwashing, and improving managers' use of clean distribution channels, e-commerce, and safe disposal of products for long-term firm performance.*

Keywords: environmental sustainability, financial performance, food and beverage manufacturing firms, green distribution practices, Kenya, non-financial performance.

INTRODUCTION

The rising tremendous global transition towards sustainability continues to revolve on the impact of manufacturing firms' activities, which immensely contribute to the adverse effects of environmental degradation and climate change (Kumar et al., 2020). Environmental pollution through manufacturing firms' distribution systems has emerged

as a significant global issue that has seen global regulatory landscape evolve in addressing environmental sustainability issues (Gupta & Gupta 2020). For instance, the Paris Agreement of 2015 is a significant driver for manufacturing firms to adopt green practices in their operations. Having been adopted by 194 states, including the European Union, the Paris Agreement remains legally binding and sets long-term goals that guide all nations to reduce greenhouse emissions as a mitigation approach in reducing the risks and impacts of climate change (United Nations, 2023). To address this, manufacturing firms, businesses, customers and governments have been compelled to acknowledge the environmental impacts of their actions (Gupta & Gupta 2020; Szabo & Webster 2021). This has led to the adoption of green distribution practices amongst the food and beverage manufacturing firms to enhance performance.

Notably, green distribution practices not only help protect the environment but also enhances the corporate image (Bahta et al. 2021), attract environmentally conscious customers (Umrani et al. 2022), and reduce costs, ultimately leading to improved profits and sales revenue (Ren & Hussain 2022). Green distribution practices such as use of clean distribution channels that are fuel efficient, direct sales like ecommerce and safe disposal channels for product after their useful life show the firm's commitment to environmental sustainability (Maziriri, 2020; Larashati et al., 2023). Businesses are now highly concerned with green distribution practices which are lucrative for financial and non-financial gains (Agan et al., 2025; Masri & Wimanda, 2025). In the United States, German and Japan, the ESG green growth policies and management policies are reported to support the incorporation of green distribution practices which further led to improvement in firm performance based on enhanced consumer trust, competitive positioning and brand recognition even though their full adoption is dependent on industry characteristics and market maturity (Chang, 2022). In Europe, green distribution practices are associated with competitive strategies that firms use to gain market leadership (Tzanidis et al. 2024). Businesses that effectively show their commitment to environmental management and sustainability experience improved financial and non-financial performance such as growth in sales, profitability and new customer acquisition (Tzanidis et al., 2024). These global trends demonstrate that while green distribution practices are recognized as a valuable resource, their consistent performance is context-dependent and affected by regulatory pressure, stakeholder expectations and firm's capability to adopt and sustain environmentally sustainable marketing strategies (Cao et al., 2022).

In Africa, green distribution practices are gradually being adopted even though inconsistent results in performance are witnessed owing to firm's resource capability, diverse consumer preferences, market norms and differing regulatory environments. In South Africa, firms that incorporate green distribution practices report better performance as well as improved environmental sustainability outcomes and stronger stakeholder engagement including better financial and non-financial performance (Epoh et al., 2024). In Nigeria, the adoption of clean distribution channels, use of ecommerce in direct sales and safe disposal channels

significantly impact on firms' reputation. Stakeholder loyalty and long-term financial outcomes (Aneto et al., 2024). In Egypt, studies indicate that industrial firms are increasingly engaging in environmentally sustainable practices, including green distribution initiatives, in alignment with national policies such as Egypt Vision 2030 and industrial sustainability programs (Kuhlert et al., 2024). Similarly, in Uganda, governmental and sector initiatives such as the Uganda Green Growth Project and sustainable manufacturing programs encourage green distribution adoption, though empirical evidence on firm-level financial and non-financial performance outcomes remains limited (African Development Bank, 2023).

In Kenya, the food and beverage manufacturing sub-sector depicts a rising awareness in adoption of green distribution practices but continues to face performance gaps. Green distribution practices including clean distribution channels, direct sales using ecommerce and safe product disposal are being embraced by some firms, yet strategic integration remains limited. According to the National Environmental Management Authority (NEMA, 2025), many manufacturing firms continue to struggle with high operational costs and limited financial access that limits improvements in profitability, market share growth and competitiveness, highlighting persistent financial performance challenges. Local authors argue that green distribution practices can enhance non-financial performance outcomes, such as brand reputation, customer loyalty, and stakeholder trust (Moraa et al., 2024; Nzomo et al., 2023). On the same note Obiso et al. (2023) and Gikonyo et al. (2022) also argued that green distribution practices contribute to operational efficiency, but translating these benefits into measurable financial outcomes, such as revenue growth or return on investment, remains a challenge. Furthermore, consumer studies indicate increasing environmental awareness in Kenya, creating a fertile environment for green distribution initiatives.

Performance of Food and Beverage Manufacturing Firms in Kenya

The food and beverage manufacturing firms make up the largest sector in the manufacturing industry accounting for 192 firms which contribute to 22.13% of the total KAM's registered membership (KAM, 2024). According to the Kenya Institute for Public Policy Research and Analysis (2024), the manufacturing sub-sector accounts for 70% of the industrial sectors contribution to the GDP of Kenya. The report indicates that the food and beverage firms create employment opportunities for about 289,319 (33.5%) people out of the 966,400 people employed by the manufacturing firms between 2019 and 2024. Despite their importance, the food and beverage manufacturing firms continue to face performance-related challenges that constrain their business growth and competitiveness. Financially, many of the firms report stagnant profitability, limited revenue growth, and low market share, particularly among small and medium enterprises (KAM, 2025; Nzomo et al., 2023). Factors contributing to these challenges include rising input costs, limited access to financing, intense local and regional competition, and inefficiencies in supply chain management (Wanjohi, 2022). Such financial constraints limit firms' ability to invest

in innovation, marketing, and sustainability practices, creating a cycle of underperformance.

Non-financial performance indicators, such as brand reputation, stakeholder engagement and environmental compliance, are increasingly recognized as crucial for competitive advantage. However, many Kenyan food and beverage manufacturers have not fully leveraged these dimensions, often due to inadequate strategic alignment, limited distribution capacity, and low integration of sustainability initiatives into core operations (Nyoro, 2023; Odhiambo, 2023). This results in missed opportunities to strengthen stakeholder trust, distribution system and improve operational efficiency, all of which can indirectly enhance financial performance. Additionally, consumer awareness of environmental issues in Kenya has been rising, with most stakeholders preferring to engage with firms whose distribution initiatives assures them of the firm's commitment to environmental sustainability. Yet, research shows that many firms struggle to translate green distribution initiatives into tangible performance gains, whether financial or non-financial (Kimanthi, 2024).

Green Distribution Practices

Green distribution revolves on all logistical activities whose intention is to reduce environmental harm from product storage, order processing, packaging, and final-mile delivery with an aim of reducing waste and carbon (Jain & Hudnurkar, 2022). Green distribution, therefore, involves the selection of channels in ways that recognize and eliminate possible environmental damage as well as lowering firm's costs (Panya, et al., 2021). Green distribution strategy involves logistical activities ranging from how products are transported, warehoused, packaged while in transit and in stores as well as collaborating with value chain partners to develop product disposal arrangements that ensure customers are able to return recyclable materials (Sugandini et al., 2020). For example, Hewlett Packard having a partnership with Staples in its "authorized recycling location" program for printer ink cartridges (Rutere, 2022). Globally, leading food and beverage firms in the world like Pepsi and Nestlé, have collaborated with Tesco, one of their largest retail partners to forge a supply chain leadership collaboration advancing strategies for reducing the carbon footprint of their supply to consumer distribution activities (Leonidou, 2020). This study determined the firm's green distribution practices based on the firm's use of clean distribution channels used, nature of ecofriendly direct sales and availability of disposable channels.

Statement of the Problem

The food and beverage manufacturing firms are recognized among the polluting sectors in both developed and developing economies (Javeed et al., 2020). As a result, green distribution in marketing practice has been given more attention in developed countries (Papadas et al, 2019; Han et al., 2019, Mehraj & Qureshi, 2020). However, only few

manufacturing firms in developing economies like Kenya focus on fully implementing the green distribution practices due to limited exposure to corporate green initiatives, financing and operational inefficiencies (Hassan & Jaaron, 2021). Green distribution practices, therefore, have become a priority for investment to combat environmental carbon footprint and meet rising stakeholder concerns. Whereas previous empirical studies have focused on green distribution practices and economic performance (Haque & Bhuiyan, 2021; Lee & Wang, 2019), there remains a noticeable gap associating green distribution and financial and non- financial performance. Thus, it is crucial to differentiate between economic performance which highlights how green distribution practices contribute to improving the GDP and welfare of citizens whereas financial and non-financial performance examines their impact on improving profitability, sales revenue and new customer acquisition (Le et al., 2024). Understanding the financial and non-financial implication of green distribution practices is ideal for food and beverage manufacturing firms seeking to justify investing heavily in ecofriendly initiatives and showcase their business worth to stakeholders. Therefore, by aligning their green distribution efforts with financial and non-financial outcomes, the subsector firms can leverage environmental sustainability as a catalyst for competitive advantage and stakeholder trust (Ofori, 2021).

Additionally, most existing studies in Kenya have examined green marketing practices at a broad level, with limited focus on green distribution practices as a distinct strategic dimension within the marketing mix (Ngatia, 2025, Gikonyo, 2022). Additionally, prior studies have largely concentrated on environmental performance (Gikonyo et al., 2022), long-term sustainable performance (Ondieki et al., 2026), Competitive advantage (Osano et al., 2026; Wanjiku & Nyanja, 2026) rather than directly linking green distribution practices to firm-level financial and non-financial performance outcomes, particularly within the food and beverage manufacturing sector. There is limited empirical evidence that simultaneously examines both financial and non-financial performance dimensions, despite the growing recognition that non-financial outcomes play a critical role in long-term competitiveness and sustainability (Ngatia, 2025; Kimanthi, 2024). These gaps pose significant challenges for both practitioners and policymakers. Without clear evidence, firms cannot optimally design green distribution initiatives that enhance performance, and regulatory bodies lack guidance on supporting sustainability-driven competitiveness. This justified the need for an empirical investigation into the effect of green distribution practices on financial and non-financial performance of food and beverage manufacturing firms in Kenya, to provide actionable insights that can inform firm-level strategy and sectoral policy development.

Objective of the Study

The objective of this study was to examine the effect of green distribution practices on performance of food and beverage manufacturing firms in Kenya.

Specific Objectives

I. To establish the effect of green distribution practices on financial performance of food and beverage manufacturing firms in Kenya
II. To assess the effect of green distribution practices on non-financial performance of food and beverage manufacturing firms in Kenya

Research Hypotheses

The study hypotheses were;

H_{01}: Green distribution Practices have no significant effect on financial performance of food and beverage manufacturing firms in Kenya

H_{02}: Green distribution practices have no significant effect on non-financial performance of food and beverage manufacturing firms in Kenya

LITERATURE REVIEW

Theoretical Foundation

This study was anchored on the Natural Resource-Based View (NRBV) and complemented by Institutional Theory to explain the relationship between green distribution practices and the performance of food and beverage manufacturing firms in Kenya.

Natural Resource Based View

The Natural Resource-Based View (NRBV) was developed by Hart (1995) as an extension of the traditional Resource-Based View (RBV) of the firm by incorporating environmental considerations into the analysis of firm competitiveness. The NRBV states that business firms can achieve sustained competitive advantage by developing environmentally oriented capabilities that are valuable, rare, inimitable, and difficult to substitute (Hart, 1995). According to this theory, proactive environmental strategies enable firms to reduce costs and strengthen stakeholder relationships, thereby improving both financial and non-financial performance outcomes. Within the NRBV framework, practices such as pollution prevention, product stewardship, and sustainable development are viewed as strategic capabilities that enhance organizational performance over time (Hart & Dowell, 2011). In the context of the food and beverage manufacturing sector in Kenya, firms face challenges such as high operational costs, regulatory pressures, and increasing consumer demand for environmentally responsible distribution. Green distribution practices such clean transportation channels, ecommerce in direct sales and safe disposal channels for products after their useful life can be conceptualized as strategic resources that allow firms to effectively communicate their environmental initiatives to stakeholders, build brand equity and foster long-term stakeholder trust signaling the firm's commitment to environmental sustainability. By applying the NRBV, these green distribution initiatives are not just marketing strategies but capabilities that can translate environmental initiatives into

measurable financial gains (such as profitability and sales revenue growth) and non-financial outcomes (such as stakeholder engagement leading to new customer acquisition). Therefore, the NRBV provides a theoretical justification for examining how green distribution practices can serve as strategic capabilities that enhance financial and non-financial performance of food and beverage manufacturing firms in Kenya.

Institution Theory

The institution Theory was developed by DiMaggio and Powell (1983) who defined the role of formal and informal institutions in shaping organizational behavior. The theory posits that firms operate within a broader institutional environment where rules, norms and regulations influence firms' strategic choices and business goals (Ebrahim & Koh, 2022). The Institution Theory dictates how external pressures (coercive, normative and mimetic) affect a firm's adaptation to existing practices within the industry (Tu & Wu, 2021; Chen et al., 2022). The coercive isomorphism arises from the pressure exerted by regulators in the industry therefore determines adoption of green distribution practices among the food and beverage manufacturing firms as pressure from external forces (Dendula et al., 2025; Zhang et al., 2024; Alinda et al., 2023). Government agencies such as National Environmental Management Authority (NEMA), County governments and Ministry of Environment, Climate Change and Forestry have become powerful institutions that may coercively influence the adoption of green distribution among food and beverage manufacturing firms.

Normative pressure compels the food and beverage manufacturing firms to conform to industry norms and standards on environmental sustainability on distribution for acceptability and legitimacy (Eitrem et al., 2024). Normative pressures can originate from customer's ethical values, perceptions and ecological thinking. Therefore, environmentally conscious customers will only engage with the firm when they know that its distribution channels limit environmental pollution and commit to the environmental management (Tseng et al., 2019). The mimetic pressure drives the food and beverage firms to imitate the actions of successful and established competitors in the industry. The subsector firms more often attempt to replicate their counterpart's green distribution practices whose outcomes and success path provide a competitive edge (Latif et al., 2020).

Whereas the institutional theory explains how external pressure promotes the adoption and implementation of green distribution practices, it fails to exhaustively show how both external drivers and internal firm resources drive environmental management practices (Waxin,2024). The theory demonstrates that a firm's marketing competitiveness lies within its drive incorporate green distribution systems (Chen et al., 2023). The Institution Theory is therefore relevant for this study as it links what pressures firms to adopt and incorporate green distribution practices for improved financial and non-financial performance.

Empirical Review

The debate on green distribution practices has been witnessed with authors suggesting that most adverse effects that degrade the environment occur while products are on transit. This aggravates firms' zeal to embrace ecofriendly delivery options in enhancing the firm's performance (Odesola & Aderemi, 2022). Panya et al. (2021) evaluated the effect of green distribution to firm performance. The results showed that green distribution involved production and disposal activities that guarantee customers the convenience of exchanging or returning recyclable items after purchases and use. Khan et al. (2024) evaluated the impact of green supply chain management practices on organizational performance in Pakistan manufacturing industry. The study was conducted on a sample of 118 manufacturing firms. A quantitative survey design was used and data analyzed using the PLS-SEM approach. The results showed a positive and significant effect between green distribution and organizational performance. Nguyen and Vo (2026) assessed the impact of green logistics on sustainable business performance in Vietnamese SMEs. A sample of 350 SMEs managers was drawn. Both primary and secondary data was collected. Mixed research approach was used and data analyzed using bootstrapping. the findings indicated a positive direct effect on green transportation while insignificant effects for technology, packaging and warehousing. The conflicting findings forms the basis for the current study to examine the effect of green distribution practices on firm performance.

Mangoukou (2024) examined the effect of green distribution on green economic performance in manufacturing companies in Gauteng, South Africa. A quantitative survey on 450 respondents was conducted and data analyzed using SEM. The study findings showed that green distribution positively and strongly influences green economic performance. Additionally, in Nigeria, Oluwole et al. (2021) investigated the influence of green distribution and procurement on operational performance. A survey design was carried on a sample of 455 SMEs using stratified sampling techniques. Data was analyzed using regression and correlation analysis. The findings showed that green distribution significantly and positively influences operational performance. However, the studies context was South Africa and Nigeria focusing Small and Medium Enterprises. The current study focused on the food and beverage manufacturing firms in the Kenyan context.

In Kenya, Gikonyo et al. (2022) examined the effect of green logistics systems and firm characteristics on performance of building and construction manufacturing firms in Kenya. A cross-sectional research design was used. A census was conducted on 270 respondents in all the 54 building and construction firms. Data was analyzed using both descriptive statistics and inferential statistics. The study utilized multiple regression model and moderating variable regression model. The findings indicated a positive and significant influence between green distribution systems and performance. However, the study focused on green supply chain logistics in the building and construction subsector whereas the current study focused on food and beverage manufacturing sector. Kariuki et al. (2020)

assessed the effect of green distribution practices on the competitiveness of Kenyan horticulture firms. A cross-sectional survey on a sample of 130 firms listed under KAM (2020) was drawn. Factor analysis and multivariate linear regression were undertaken for validity of results. The findings showed that ecofriendly distribution practices positively and significantly influenced the firms' competitiveness surrounded by decreased costs and increased effectiveness. However, this focus was in the horticulture sector whose findings cannot be generalized across all subsectors including the food and beverage manufacturing firms in Kenya.

The limited empirical work specifically linking green distribution practices to measurable financial and non-financial firm performance in Kenya highlights a contextual, methodological, focus and knowledge gap that this study aims to address by focusing on food and beverage manufacturing firms, where such evidence is particularly scarce. This study sought to evaluate the effect of green distribution practices on performance of food and beverage manufacturing firms in Kenyan context. The study will be conducted by the census approach with a focus on the food and beverage manufacturing firms. The conceptual framework of the study is illustrated in Figure 1.

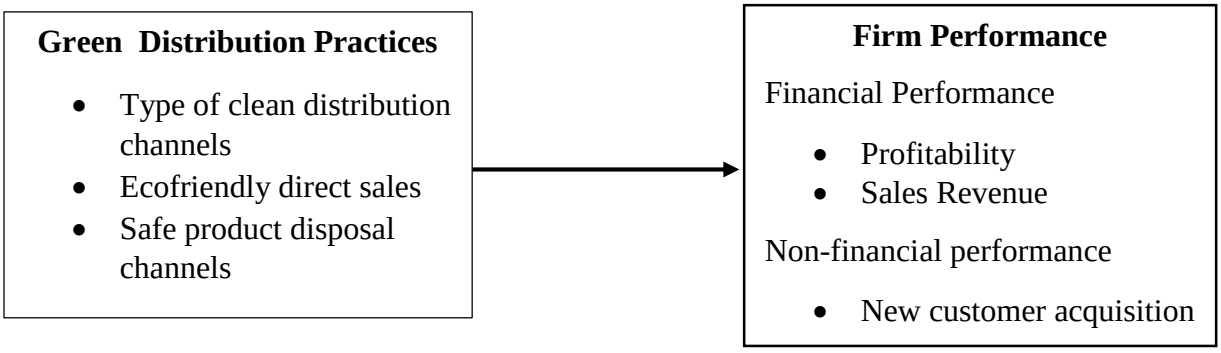

Figure 1: Conceptual Framework

Source: Authors (2026)

METHODOLOGY

The cross-sectional research design was adopted having collected data on the study variables at a single point in time. Cross-sectional studies are particularly effective for identifying generalized patterns and associations between constructs without the need for longitudinal tracking (Hunziker & Blankenagel, 2024). All the KAM's registered food and

Beverage manufacturing firms in Kenya formed the target population (KAM, 2025). Since 192 firms is a relatively small number, a census study was conducted with the unit of analysis being the food and beverage manufacturing firms in Kenya. The unit of observation was the heads of marketing departments of the same firms. The heads of marketing department are the most appropriate respondents for this study as they are directly responsible for designing, implementing, and evaluating the firm's marketing strategies and budgets, including green distribution practices. These specialists possess first-hand knowledge of the firm's green distribution initiatives, such as the use of clean or fuel-efficient distribution channels, e-commerce to prevent pollution, and the use of safe disposal channels after a product's useful lifecycle in presenting the firm's commitment to environmental management. Their roles require strategic oversight of logistical management, route planning and scheduling, budget allocation, product disposal management, and performance monitoring and evaluation, making them key informants who can provide accurate and reliable information on how green distribution practices are implemented and how they influence performance outcomes. Furthermore, marketing managers are well-positioned to assess the effect of green distribution practices on both financial and non-financial performance indicators, such as profitability, sales revenue growth, and new customer acquisition, including cost-saving options. Therefore, by targeting heads of marketing departments, the data collected is considered relevant, valid, and aligned with the objectives of the study, while also minimizing the risk of response bias due to lack of knowledge or authority over marketing decisions.

Data collection was done using a structured questionnaire administered through the drop and pick-up later method with the help of three research assistants. Green distribution practices were measured using the scale items adapted from Alshura and Awawdeh (2020) and Leonidou et al. (2020). Financial performance was measured using scale items adopted from Kilic et al. (2022), while the scale items for non-financial performance were adapted from Mittal et al. (2023). All the items were measured using a 5-point Likert scale with 1 = Not at all, 2 = To a small extent, 3 = To a moderate extent, 4 = To a great extent, and 5 = To a very great extent. Using extent-based Likert scale items is relevant for studies assessing the degree of implementation or capability, such as green distribution practices. This scale allows respondents to indicate the level to which specific activities or technologies are adopted, rather than merely expressing agreement or disagreement. The choice of a 5-point extent scale to measure both the independent variable (green distribution practices) and the dependent variable (firm performance) is grounded in the need to postulate the magnitude to which specific activities or outcomes occur, rather than just showing whether respondents agree or disagree with a statement. Extent scales are particularly suitable for assessing practical implementation levels, performance outcomes, or operational intensity in organizational contexts (Chang et al., 2022).

Using an extent scale allows respondents, such as heads of marketing departments to indicate the level of engagement in green distribution practices such as clean distribution

channels, direct sales and safe disposal channels for products after their useful life and the extent of financial and non-financial performance outcomes such as profitability, sales revenue and new customer acquisition in a quantifiable manner. This approach provides more measurement precision and reliability in studies assessing business practices and outcomes, especially in cross-sectional surveys (Lee et al., 2022; Jaiswal et al., 2022). Additionally, extent scales considered as less prone to acquiescence bias compared to agreement scales because they focus on the observable degree of activity or effect, rather than subjective agreement. This makes them particularly appropriate for measuring constructs where the actual level of implementation or performance is the key research focus (Kılıç et al., 2022). Consequently, using a 5-point extent scale ensures that the study captures variations in practice and performance, allowing for meaningful statistical analysis and interpretation.

Data was analyzed through regression analysis with the data collected being subjected to the tests of the assumptions of regression analysis. Linearity was checked using the values of significant deviation from linearity, normality was checked using Shapiro-Wilk and Kolmogorov-Smirnov tests, autocorrelation was tested using the Durbin–Watson test, while the reliability of the research instrument was established using the Cronbach's alpha reliability coefficient with a cut-off point of 0.7. Hair et al. (2020) posits that reliability of over 0.7 is acceptable. Construct validity of the research instruments items was run into the SPSS and tested using Exploratory Factor Analysis (EFA) based on the Principal Component Analysis (PCA) with varimax rotation. Prior to performing the EFA, the suitability of the data collected for factor extraction was assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity.

FINDINGS

A response rate of 85.4% was achieved for the study having 164 of the 192 food and beverage manufacturing firms respond by filling in the questionnaires. Creswell (2022) recommends a response rate of 70% and above as adequate representation of the study population. 70% and above response rate is generally regarded as excellent in minimizing non-response bias, thereby enhancing the reliability and validity of the study's findings for drawing meaningful conclusions. This high response rate was because the target population was relatively small, and the drop-and-pick-up later method that was used to administer the questionnaires allowed the respondents ample time to provide the data required. The study findings on the gender distribution of respondents and firm characteristics is shown in Table 1

Table 1: Respondent and Firm Characteristics

Description	Frequency	Percentage
Gender of the respondents	Male = 77 Female = 87 **Total = 164**	Male = 47% Female = 53% **Total = 100%**
Firm Age	Less than 5 years = 13 5 to 10 years = 34 11 to 15 years = 31 16 to 20 years = 19 Over 20 years = 67 **Total = 164**	Less than 5 years = 7.9% 5 to 10 years = 20.7% 11 to 15 years = 18.9% 16 to 20 years = 11.6% Over 20 years = 40.9% **Total = 100%**
Distribution of firms based on product category	Alcoholic beverages = 7 Packed foodstuffs = 19 Bakers and millers = 11 Non-alcoholic beverages = 19 Dairy and meat products = 11 Grains and Dried foods = 9 Others = 12 **Total = 164**	Alcoholic beverages = 2% Packed foodstuffs = 53% Bakers and millers = 14% Non-alcoholic beverages = 12% Dairy and meat products = 7% Grains and Dried foods = 5% Others = 7% **Total = 100%**
Extent to which the firms engage in green marketing practices	To a small extent = 33 To a moderate extent = 62 To a large extent = 52 To a very large extent = 17 **Total = 164**	To a small extent = 20.1% To a moderate extent = 37.85 To a large extent = 31.7% To a very large extent = 10.4% **Total = 100%**

Source: Research Data (2026)

Data from Table 1 on the demographic profile of the study respondents and firms indicates balanced representation and maturity in the sample, supporting the credibility of subsequent analyses. In gender distribution, female respondents were slightly more than the male respondents (53% vs. 47%), suggesting near gender parity among heads of marketing department in the food and beverage manufacturing sector. While some Kenyan studies show male dominance in ownership and management overall, this study provides evidence that female participation in top management is increasing in specific industries, even though disparities persist in larger firms where women remain under-represented relative to men in managerial roles across many Kenyan enterprises. Wairimu (2024) suggested that gender diversity at leadership levels positively affected firm performance and sustainability in Kenyan corporate settings, suggesting that managerial diversity can be performance-relevant. In regard to firm age, the largest proportion of firms (40.9%)

operated for more than 20 years, indicating that a significant share of the sample consists of mature and established firms. Firms with longer operational histories are more likely to possess developed marketing systems and strategic planning processes, which can influence the adoption of green distribution practices. In such, older firms may have more resources and formal structures for strategic initiatives. Demographic research in Kenya has shown that age of the firm is positively associated with performance outcomes, suggesting that older firms may have a competitive edge in integrating and sustaining strategic practices over time (Masila et al., 2024)

The distribution of firms based on product category is diverse, with packed foodstuffs being the largest group. This variation likely reflects the structure of Kenya's food and beverage manufacturing sector, where packaged foods and non-alcoholic beverages dominate production and market visibility. Sectors with high consumer visibility often engage more actively in green product practices, including those tied to environmental positioning, than sectors with lower marketing intensity. Regarding the extent of engagement in green marketing practices, results indicate that majority of the firms engage in such practices at least moderately because over two-thirds of the firms reported engagement to a moderate, large, or very large extent. However, only about one in ten firms reported that they engage in green marketing practices to a very large extent. This suggests that while green marketing awareness exists in the sector, full adoption of comprehensive green product activities may still be in the introductory or intermediate stage, potentially signaling room for improvement and strategic emphasis. This pattern aligns with wider research that shows sustainability initiatives often begin at moderate levels before becoming more fully integrated as firms mature their strategies and capabilities.

Descriptive Analysis of Green Distribution Practices and Firm Performance

Green Distribution Practices

To assess the extent to which the food and beverage manufacturing firms engaged in green distribution practices, respondents were asked to rate five statements using a 5-point Likert scale ranging from 1 (Not at all) to 5 (To a very great extent). The items focused on the firms' use of clean distribution channels, ecofriendly direct sales and safe product disposal channels which provide firms with opportunity to enhance operational efficiency, reduced carbon emission during transit and energy saving with focus to environmental sustainability. Table 2 presents the mean scores and standard deviations for each item, offering insights into how consistently and extensively these green distribution practices are implemented across the food and beverage manufacturing firms in Kenya**.**

Table 2: Descriptive Statistics on Green Distribution Practices

Statement	Mean	SD
The firm uses distribution channels that minimize environmental pollution such as e-commerce	3.07	.826
The firm encourages customer to be eco-friendly during direct sales	2.95	.769
The firm encourages customers to return products that have reached the end of useful life for safe disposal	2.94	.773
The firm selects and uses cleaner transportation systems for logistics	3.10	.918
The firm's delivery vehicles are certified as compliant with the environmental management policies	3.05	.793

Grand Mean = 3.02

Source: Research Data (2026)

Data from Table 2 shows that some statements recorded mean scores slightly above the scale midpoint while others slightly below the scale midpoint, ranging from 2.94 to 3.10. These results imply that majority of the respondents generally agreed to a moderate extent that their firms engage in green distribution practices. However, other respondents acknowledged that the firms engaged in green distribution practices to a small extent. Specifically, the statement that the firm selects and uses cleaner transportation systems for logistics recorded the highest mean score (M = 3.10, SD = 0.918). This implies that firms are relatively committed to ensuring that their distribution channels are environmentally friendly compared to the rest.

Consequently, the notion that firms use distribution channels that minimize environmental pollution such as e-commerce, yielded a mean of (M=3.07, SD=0.826). This implies that firms moderately incorporate aspects of green distribution to remain compliant to government policies on environmental management to avert compliance costs or gain incentives for being compliant. Similarly, the certification of the firms' delivery for compliance with the environmental management policies yielded a mean of (M= 3.05, SD= 0.793), indicating that firms moderately acknowledge the importance of green distribution as a commitment to abide by the regulatory requirements on environmental management which may help firms to receive tax incentives and avert penalties for non-compliance which is costly. This exposes firms to cost reduction, profitability, and market competitiveness regarding sales revenue maximization and new customer acquisition.

However, the firms' initiative of encouraging customers to be eco-friendly during direct sales generated a mean of (M= 2.95, SD= 0.769), implying that its adoption was to a small extent and therefore adopted minimally across the subsector despite being in existence. The lowest mean score of (M= 2.94, SD= 0.773) was depicted from the firm's initiative to

encourage customers to return products whose useful life had ended for safe disposal. The findings suggest that while such initiatives exist in the sector, their incorporation and presence is low across the sector. The standard deviations for all items range between 0.769 and 0.918, indicating moderate variability in respondents' perceptions. This suggests differences in the extent to which individual firms implement green distribution practices, likely reflecting variations in firm size, resource availability, and regulatory pressure and industry norms.

The grand mean of 3.02 indicates that, on average, food and beverage manufacturing firms harbor a moderate level of adoption of green distribution practices. This suggests that existing ecofriendly distribution practices such as ecommerce, use of clean transportation systems to prevent pollution, use of direct sales, product returns for safe disposal and certification of delivery vehicles for compliance to environmental management systems are not yet strongly emphasized or fully incorporated into the firm's core logistics concept. The findings imply that whereas the firms undertake the green distribution practices, there remains a substantial scope for strengthening and fully operationalizing these initiatives to enhance environmental sustainability, compliance with government policies and competitive advantage.

Table 3: Descriptive Statistics on Firm Performance

Statement	Mean	SD
This firm's overall profitability has increased over the past three years	3.10	.904
This firm has consistently achieved increased net profit margins in the past three years.	3.38	1.230
This firm's profitability has met or exceeded its business targets in the past three years.	3.07	.969
This firm's profitability has shown stable and sustainable growth in the past three years.	3.07	.967
This firm's total sales revenue has increased over the last three years.	3.35	1.271
This firm has consistently achieved its sales revenue targets.	3.48	1.255
This firm has experienced growth in sales revenue across its product portfolio.	3.04	.899
This firm's sales revenue performance has been strong relative to expectations.	3.01	.988
This firm has seen a steady increase in the number of new customers in the last three years	3.05	.899
This firm's customer acquisition rate has improved in the last three years.	3.06	.938
This firm's overall brand reputation helps to attract new customer segments.	3.11	.953
New customer acquisition has met or exceeded the firm's target in the last three years	3.10	.992

Grand Mean = 3.15

Source: Research Data (2026)

The descriptive statistics on firm performance in Table 4 indicate that food and beverage manufacturing firms have experienced moderate improvements in both financial and non-financial performance over the past three years. The mean scores for profitability-related

indicators range from 3.07 to 3.38, suggesting that most firms have achieved moderate growth in profitability, with stronger performance evident in net profit margins. In particular, the relatively higher mean for consistent increases in net profit margins (M = 3.38) implies that cost management and operational efficiency may be improving among several firms, although the comparatively large standard deviation indicates variation in profitability performance across firms. Similarly, sales revenue performance recorded mean values slightly above the scale midpoint, with firms reporting moderate success in achieving revenue targets and overall revenue growth. The highest mean under this category relates to the consistent achievement of sales revenue targets (M = 3.48), suggesting that many firms are able to meet planned revenue objectives even if overall revenue growth remains incremental. However, the wider dispersion observed in the standard deviations for revenue-related items points to uneven sales performance, possibly reflecting differences in market positioning, product mix, and competitive intensity within the sector.

Regarding non-financial performance, the results show that new customer acquisition and brand reputation have improved to a moderate extent. Mean scores slightly above 3 indicate that firms have experienced gradual growth in customer numbers and an indication supportive to attracting new customer segments. However, the modest magnitude of these means suggests that while firms are making progress in building customer loyalty and expanding their customer base, these outcomes are not yet strongly pronounced. The relatively consistent standard deviations across non-financial indicators further suggest that firms are at different stages of strengthening intangible performance outcomes, such as customer relationships. Overall, the findings demonstrate that firm performance in the Kenyan food and beverage manufacturing sector is generally stable but moderate, with incremental improvements rather than strong performance gains. This pattern implies that while firms are achieving reasonable financial stability and customer growth, there remains a huge potential for strategic interventions such as enhanced green product practices, to further strengthen both financial and non-financial performance outcomes.

Reliability and Validity of the Research Instrument

To assess the internal consistency of the measurement scales used in this study, Cronbach's alpha coefficients were computed for each construct. A coefficient of 0.70 or above is generally considered acceptable whereas values for green distribution practices was 0.812 suggesting good reliability (Hair et al., 2020). Validity of the research instrument was established by checking content and construct validity. To determine content validity, head of marketing departments who participated in the pretest were not considered in the general study. However, the feedback received form the pretest was used to fine tune the questionnaire before undertaking the actual data collection. Construct validity of the research instruments items were run into the SPSS and tested using Exploratory Factor Analysis (EFA) based on the Principal Component Analysis (PCA) with varimax rotation. Prior to performing the EFA, the suitability of the data collected for factor extraction was

assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. The results for these tests are presented in Table 4

Table 4: KMO and Bartlett's Test

Variable	KMO Test	Approx. X^2	df	Sig
Green distribution practices	0.883	457.088	10	.000
Firm Performance	0.942	1302.723	66	.000

Source: Research Data (2026)

Results from Table 4 indicate that KMO measures of sampling adequacy were 0.883 for green distribution practices and 0.942 for firm performance. This exceeded the threshold of 0.5 and above that was proposed by Kaiser (1974), and this confirmed that the data were suitable for factor analysis. The P-values from Bartlett's test of sphericity were found to be less than the alpha value of 0.05 which implies that the variables are fit for inclusion for further tests as proposed by Bartlett (1954). The component matrix for green distribution practices is shown in Table 5.

Table 5: Component Matrix for Green Distribution Practices and Firm Performance

	Component
	1
The firm uses clean distribution channels that minimize environmental pollution such as e-commerce	.836
The firm encourages customer to be eco-friendly during direct sales	.857
The firm encourages customers to return products that have reached the end of useful life for safe disposal	.837
The firm selects and uses cleaner transportation systems for logistics	.830
The firm's delivery vehicles are certified as compliant with the environmental management policies	.855

Extraction Method: Principal Component Analysis.

Source: Research data (2026)

The component matrix in Table 5 for green distribution practices shows strong loadings for all items ranging from 0.830 to 0.857 which are way above the 0.4 threshold recommended by Hair et al. (2020). Rotation was not possible since only one factor was extracted. Table 6 presents factor analysis results on firm performance as shown

Table 6: Rotated Component Matrix on Firm Performance

	Component	
	1	2
The firm's overall profitability has increased over the past three years	.850	
The firm has consistently achieved increased net profit margins in the past three years.	.859	
The firm's profitability has met or exceeded its business targets in the past three years.	.886	
The firm's profitability shows stable and sustainable growth in the past three years.	.854	
The firm's total sales revenue has increased over the last three years.	.873	
This firm has consistently achieved its sales revenue targets.	.882	
The firm has experienced growth in sales revenue across its product portfolio.	.689	
The firm's sales revenue performance has been strong relative to expectations.	.859	
The firm has steady increase in the number of new customers in the last three years	.856	
The firm's customer acquisition rate has improved in the last three years.		.587
The firm's overall brand reputation helps to attract new customer segments.		.785
New customer acquisition has met or exceeded the firm's target in the last three years		.691

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Source: Research data (2026)

Factor analysis results on firm performance extracted 2 factors, and this indicates that firm performance is bidimensional. Factor one had 9 items relating to firm profitability and sales revenue and this was categorized as financial performance while factor 2 had 3 items relating to new customer acquisition and this was categorized as non-financial performance. All the 12 factors under firm performance had factor loadings above the 0.4 threshold proposed by Hair et al. (2019) and this supported the retention of all items and confirmed the validity of the scale items.

Tests of the Assumptions of Regression Analysis

In relation to the tests of the assumptions of regression analysis, the Shapiro-Wilk and Kolmogorov-Smirnov tests had p-values greater than 0.05, and this indicated that the data

collected on the study variable was normally distributed. Linearity was confirmed with the values of significant deviation from linearity being greater than 0.05. The Durbin-Watson test for autocorrelation had values close to 2, which was confirmation that autocorrelation was not present in the data collected on the study variable. These results confirm that the data met the assumptions of regression analysis.

Testing the Effect of Green Distribution Practices on Financial Performance

The effect of green distribution practices on financial performance of food and beverage manufacturing firms was tested using simple linear regression analysis. Table 7 provides the results of the model summary, ANOVA[a] and Coefficients

Table 7: Linear Regression Results on the Effect of Green Distribution Practices on Financial Performance

Model Summary

Model	R	R Square	Adjusted RSquare	Std. Error of the Estimate
1	.550[a]	.302	.298	.57405

a. Predictors: (Constant), Green Distribution Practices

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.092	1	23.092	70.076	.000[b]
	Residual	53.384	162	.330		
	Total	76.476	163			

a. Dependent Variable: Financial Performance

b. Predictors: (Constant), Green Distribution Practices

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta(β)		
1	(Constant)	1.849	.189		9.775	.000
	Green Distribution Practices	.469	.056	.550	8.371	.000

a. Dependent Variable: Financial Performance

b. Predictors: (Constant), Green Distribution Practices

Source: Research Data (2026)

Results in Table 7 on the model summary show a positive relationship between green distribution practices and financial performance, with a correlation coefficient of R =0 .550. Additionally, R^2 =0.302 shows that 30.2% of the variation in the financial performance of food and beverage manufacturing firms in Kenya is explained by green distribution practices. However, 69.8% of the variation in financial performance is explained by other factors not included in the model. The ANOVA results indicate an F-statistic of 70.076, suggesting that the model is statistically significant at p =0.000, an indication that the model provides a significantly better fit to the data than a model with no predictors. This confirms that green distribution practices significantly predict financial performance.

The coefficients of green distribution practices results show a positive and statistically significant effect on financial performance (β= 0.550, t = 8.371, p = 0.000). The unstandardized coefficient of B = 0.469 implies that a one-unit increase in green distribution practices leads to an increase of 0.469 units in financial performance, holding all other factors constant. This shows that firms that intensify environmentally friendly distribution channels, waste disposal, and direct sales experience improved financial outcomes. These results lead to the rejection of the null sub-hypothesis, **H_{01}**, which states that green distribution practices have no significant effect on financial performance of food and beverage manufacturing firms in Kenya. The finding of this study is similar to Rutere (2020), who indicated the positive and significant influence of green distribution on the performance of manufacturing firms in Kenya. Obiso et al. (2023) also found that green distribution positively and significantly influenced performance in private oil and gas Firms in Kenya. Gikonyo (2023) showed that green distribution initiatives positively and significantly influenced financial performance of the building and construction firms in Kenya. However, the current study findings differed from those of Braik et al. (2023), who found that green distribution initiatives insignificantly influence financial performance of firms

Testing the Effect of Green Distribution Practices on Non-financial Performance

The effect of green distribution practices on non-financial performance of food and beverage manufacturing firms was tested using simple linear regression analysis. Table 8 provides the results of the model summary, ANOVA, and Coefficients.

Table 8: Linear Regression Results on the Effect of Green Distribution Practices on Firms' Non-financial Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.446[a]	.199	.194	.74302

a. Predictors: (Constant), Green Distribution Practices

ANOVA[a]

Model		Sum Squares	ofdf	Mean Square	F	Sig.
1	Regression	22.191	1	22.191	40.195	.000[b]
	Residual	89.437	162	.552		
	Total	111.628	163			

a. Dependent Variable: Non-financial Performance
b. Predictors: (Constant), Green Distribution Practices

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta(β)		
1	(Constant)	1.834	.245		7.489	.000
	Green Distribution Practices	.460	.073	.446	6.340	.000

a. Dependent Variable: Non-financial Performance
b. Predictors: (Constant), Green Distribution Practices

Source: Research Data (2026)

The results in Table 8 show a positive relationship between green distribution practices and non-financial performance with a correlation coefficient of R =0 .446. Additionally, R^2 is 0.199, implying that 19.9% of the variation in the non-financial performance of food and beverage manufacturing firms in Kenya is explained by green distribution practices, whereas 80.1% of the variation in non-financial performance is explained by other factors not included in the model. The ANOVA results show that the regression model has an F-statistic of 40.195, implying that the model is statistically significant at p =0.000. This

indicates that the model provides a significantly better fit to the data than a model with no predictors. This confirms that green distribution practices significantly predict non-financial performance.

The coefficients of green distribution practices results indicate a positive and statistically significant effect on non-financial performance (β= 0.446, t= 6.340, p= 0.000). The unstandardized coefficient of B = 0.460 implies that a one-unit increase in green distribution practices leads to a 0.460-unit increase in non-financial performance, holding all other factors constant. This shows that firms that intensify environmentally friendly distribution channels, waste disposal, and direct sales experience improved non-financial outcomes. These results lead to the rejection of the null sub-hypothesis **H_{02}**, which states that green distribution practices have no significant effect on non-financial performance of food and beverage manufacturing firms in Kenya. The findings of this study are similar to findings in previous studies, such as Obiso et al. (2023), who found that green distribution had a positive relationship with customer satisfaction, Moraa et al. (2024) found that green distribution practices positively and significantly influenced non-financial performance (market share) of the soft drink manufacturing firms in Kenya. However, Harini et al. (2020) found that green distribution had an insignificant relationship with non-financial performance of SMEs in Indonesia. The summary of the outcome of the hypothesis's tests are presented in Table 9

Table 9: Summary of outcomes of Hypotheses Tests

Hypotheses and Sub Hypotheses	Test Criteria	Test Results	Interpretation
H_{01}: Green distribution practices have no significant effect on financial performance of food and beverage manufacturing firms in Kenya	Hypothesis rejected if the p-value of the t-test was less than 0.05	p-value=0.000	**H_{01}** was rejected
H_{02}: Green distribution practices have no significant effect on non-financial performance of food and beverage manufacturing firms in Kenya	Hypothesis rejected if the p-value of the t-test was less than 0.05	p-value=0.000	**H_{02}**was rejected

Source: Researcher (2026)

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DISCUSSION

The strategic role of environmentally responsible distribution system for better performance is enshrined in the study findings. The findings show a positive and significant effect of green distribution practices on both financial and non-financial performance of food and beverage manufacturing firms in Kenya. Green distribution practices involve the use of eco- friendly distribution channels such as e-commerce, the use of direct sales to create environmental management awareness among stakeholders, and the use of effective and efficient product disposal channels. These green initiatives in distribution assist manufacturing firms in improving operational efficiency and stakeholder involvement. Research shows that eco-friendly distribution and logistical activities are linked to operational efficiency and improved performance (Agyabeng-Mensah et al., 2025; Liu et al., 2022).

Financially, green distribution practices enhance firm efficiency resulting from reduced fuel costs, optimized delivery routes, shorter product disposal channels, and reduced material waste. In the manufacturing business sector, distribution has become the major contributor to rising operational costs if not well managed. Empirical studies suggest that efficiencies created from green distribution practices reduces firms' operation costs, improves profit margins, sales revenue and supply chain reliability (Sarkis et al., 2020; Agyabeng-Mesh et al., 2020). Additionally, ecofriendly distribution in food and beverage manufacturing firms supports consistent quality and product availability as well as limits product spoilage thus guaranteeing better financial outcomes. In non-financial performance, green distribution practices positively influence customer satisfaction, stakeholder trust and corporate image. Customers' perception of product quality and firm credibility is inclined in eco packages, reduced carbon prints and efficient delivery channels. Studies by Liu et al. (2020); Zhu et al. (2023) indicate that green distribution practices positively influence customer loyalty, corporate image and brand reputation. The outcome is significant especially in food and beverage sub sector where product quality, safety and traceability are determined by customers and regulators.

Based on the Natural Resource-Based View (NRBV), green distribution practices offer ecofriendly operational capabilities that supports the firm's competitive advantage. NRBV demonstrates that firms provide valuable, rare and difficult to imitate as strategic capabilities such as operational efficiency, pollution prevention and supply chain maximization. Optimized delivery channels and ecofriendly delivery systems assist manufacturing firms in the food and beverage sub sector in Kenya lower their costs, improve responsiveness and differentiate themselves in the market for financial and non-financial gains. The Institutional Theory (IT) demonstrates the positive relationship as an outcome of the influence of coercive, normative and mimetic pressure for firms to adopt

and implement green distribution practices. The rising concerns from environmental regulators, industry standards and norms, stakeholders and societal expectations force the manufacturing firms to adopt and effectively implement distribution systems for legitimacy and competitiveness.

Empirical research show that ecofriendly distribution firms highly avert costs related to regulatory non-compliance, reputational risks and market repulsion which supports legitimacy and improved performance (Zhu et al., 2023; Elmanaseer & Gerged, 2025). The food and beverage manufacturing firms can therefore enhance both financial and non-financial performance by leveraging on their green oriented capabilities, stakeholder engagements and complying with institutional requirements. In conclusion, the positive and significant effect of green distribution practices on firm performance findings reflects its dual role as a promoter of operational efficiency and legitimacy building sustainability mechanisms

IMPLICATION TO RESEARCH AND PRACTICE

Managerial Recommendations

Based on the findings and conclusion hereof, the study recommends managers and industry associates in the food and beverage manufacturing firms in Kenya to step up and fully implement the green distribution practices as another key strategic capability in green marketing practice. Distribution is very crucial in the sales and marketing concept and accounts for the largest sales and marketing budget especially in commercial food and beverage manufacturing subsector. Embracing green distribution systems through use of clean transportation system that are fuel efficient. Ecommerce in direct sales and safe disposal channels therefore supports efficiency and effectiveness which contributes to firm's improved financial and non-financial performance.

Policy Recommendations

Green distribution practices among the food and beverage manufacturing firms in Kenya remain a blueprint for policymakers in combating carbon emissions as one of the Sustainable Development Goals. Therefore, government plays an important role as a regulator to ensure that the food and beverage manufacturing firms are supported to enhance their performance. This, therefore, can be done through formulation of environmental policies that promote and support the adoption and implementation of green distribution practices among the manufacturing firms. Additionally, government agencies such as NEMA, County governments, and the Ministry of Environment, Climate Change, and Forestry should spearhead more policies and environmental frameworks that shall guide manufacturing firms on how to incorporate green distribution in their operations as one of the sustainability practices. Moreover, the agencies should develop policies that highlight conspicuous distribution practices that firms ought to adopt. This will ensure

firms have a clear and unified direction towards implementing green distribution aspects such as fuel-efficient delivery vehicles, safe product disposal, and e-commerce to enhance performance.

CONCLUSION

Based on the findings, the study concludes that green distribution practices have a positive and significant effect on the financial and non-financial performance of food and beverage manufacturing firms in Kenya. Further, findings showed that the firm's adoption of green distribution initiatives was to a moderate extent. The findings demonstrate that firms that actively integrate cleaner transportation systems, e-commerce to minimize pollution and safe disposal channels for operational efficiency and stakeholder legitimacy, which enhances the firm's profitability and sales revenue. The positive effect of non-financial performance demonstrates the impact of green distribution practices in enhancing intangible assets such as customer loyalty, referrals that enhance long-term stakeholder relationships, and firm's ability to acquire new customers whilst remaining competitive in the market. Moreover, financial performance improvements indicate that green distribution practices are not only a compliance or ethical requirement but rather a strategic marketing innovation capable of ensuring specific, measurable, and achievable financial outcomes. Overall, the study concludes that green distribution practices are a crucial viable opportunity for food and beverage manufacturing firms in Kenya to achieve environmental sustainability gains in an environment with rising concerns on environmental management.

FUTURE RESEARCH

This study uses a cross-sectional design, future research can be developed using longitudinal research design to determine the effect of green distribution and its effect of green distribution on firm performance in the long term. Further research could also be conducted in other manufacturing subsectors and services sectors in Kenya and other developing countries for the broader applicability of the results. Furthermore, organizational performance moderating and/or mediating the relationship between green distribution practices and organizational performance should be explored by researchers, especially in the areas of organizational characteristics, environmental uncertainty, technological innovation, firm size, and government policy. Moreover, in light of the widespread use of digital technologies, future research should also investigate the role of digital logistics, e-commerce platforms, artificial intelligence, blockchain, and smart supply chain technologies in supporting green distribution strategies for enhancing the financial and non-financial performance.

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