

EFFECT OF ORDER ACCURACY ON PROFIT MARGINS OF RETAIL SUPERMARKETS IN KENYA: A CASE OF CARREFOUR IN NAIROBI COUNTY

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ABSTRACT

Purpose of the Study: The study examined the effect of order accuracy on the profit margins of Carrefour supermarkets in Nairobi County, Kenya.

Statement of the Problem: Retail supermarkets in Kenya operate under narrow profit margins and increasing operational costs. Inaccurate order fulfilment may increase returns, re-delivery expenses, customer complaints, and lost sales, thereby affecting profitability. However, limited empirical evidence exists on the specific effect of order accuracy on profit.

Methodology: The study adopted a descriptive research design and targeted 183 managers and supervisors from Carrefour supermarkets in Nairobi County. A sample of 126 respondents was selected using stratified random sampling, and 113 completed questionnaires were returned, representing a 90.0% response rate. Data were analyzed using descriptive statistics, Pearson correlation, and regression analysis.

Findings: Pearson correlation showed a strong positive and statistically significant relationship between order accuracy and profit margins ($r = .724$, $p < .01$). Regression analysis further indicated that order accuracy had a positive and statistically significant effect on profit margins ($\beta = .368$, $t = 8.463$, $p < .001$).

Conclusion: The study concluded that improved order accuracy is associated with stronger profit margins.

Recommendation: Carrefour management should strengthen order-verification procedures, logistics coordination, and monitoring of order errors to reduce returns, re-delivery costs, and operational losses.

Keywords: *Order accuracy, profit margins, Carrefour, retail supermarkets, Kenya.*

INTRODUCTION

Kenya's retail supermarket sector has undergone considerable transformation as urbanization, changing consumer preferences, product diversification, digitalization, and increasing competition have reshaped modern retail operations (Wanjohi et al., 2019; Government of Kenya, 2023). Wanjohi et al. (2019) established that product diversification, collaborative networks, and market-penetration strategies significantly influenced the performance of retail supermarkets operating in Nairobi City County. The continued development of formal retailing has consequently increased pressure on supermarkets to differentiate themselves through product availability, customer service, operational efficiency, and reliable fulfilment processes (Wanjohi et al., 2019).

The expansion of Kenya's formal retail market has attracted both domestic and multinational supermarket operators, among them Carrefour, whose Kenyan operations are managed by Majid Al Futtaim (Majid Al Futtaim, 2016). Carrefour formally entered the Kenyan market in May 2016 through the opening of its first hypermarket at The Hub Karen in Nairobi, representing Majid Al Futtaim's first retail operation in Kenya and Sub-Saharan Africa (Majid Al Futtaim, 2016). The initial Carrefour outlet occupied approximately 5,000 square metres and offered more than 30,000 food and non-food products, including fresh produce, groceries, bakery products, electronics, household appliances, and general merchandise (Majid Al Futtaim, 2016).

Carrefour subsequently expanded its Kenyan store network, demonstrating the attractiveness of the country's formal retail market and the strategic importance of Nairobi within its operations (Majid Al Futtaim, 2017). By November 2017, Carrefour had already opened three outlets in Kenya, including The Hub Karen, Two Rivers Mall, and Thika Road Mall, while continuing to pursue additional strategic locations within Kenya and the wider East African market (Majid Al Futtaim, 2017). By 2018, the retailer had expanded to five Kenyan outlets and was working with more than 600 local suppliers, illustrating the increasing scale and complexity of its supply and inventory network (Majid Al Futtaim, 2018).

The expansion of large supermarket networks increases the importance of effective inventory management, replenishment, order processing, fulfilment, and distribution coordination (Goedhart et al., 2023). Goedhart et al. (2023) explain that modern retailers must simultaneously manage inventory availability and allocate customer orders across stores while considering future demand and the possibility of stock imbalances. Ineffective allocation and replenishment decisions may result in excessive inventory at some locations and stock-outs at

others, thereby increasing costs and weakening customer-service performance (Goedhart et al., 2023).

The growing importance of digital commerce has further increased the operational complexity confronting supermarket retailers in Kenya (Government of Kenya, 2023). Kenya's National E-Commerce Strategy identifies e-commerce as predominantly concentrated in urban centres such as Nairobi, Kiambu, Nakuru, Mombasa, and Eldoret, where major retailers increasingly complement traditional stores with digital ordering and delivery channels (Government of Kenya, 2023). The strategy further observes that contemporary e-commerce requires interconnected systems involving digital platforms, electronic payments, warehousing, transport, courier services, and logistics operations (Government of Kenya, 2023).

Kenya's digital retail environment has also benefited from expanding internet connectivity and widespread adoption of digital payment mechanisms, although operational and regulatory challenges remain (UNCTAD, 2023). UNCTAD (2023) reported that online shopping participation in Kenya increased from approximately 9% in 2017 to 16% in 2021, demonstrating the growing importance of digitally enabled purchasing channels. In response to this growth, Kenya launched the National E-Commerce Strategy in December 2023 with objectives that include reducing e-commerce costs, improving delivery speed, strengthening consumer confidence, and expanding participation in digital markets (UNCTAD, 2023).

The integration of physical and online retail channels makes order fulfilment increasingly important because inventory must be coordinated across stores while customer orders are processed and delivered accurately (Goedhart et al., 2023). Goedhart et al. (2023) demonstrate that effective coordination of replenishment and online fulfilment decisions can improve both retailer profit and service levels by achieving more balanced inventory allocation across store networks. Conversely, poorly coordinated fulfilment systems can contribute to stock imbalances, unavailable products, inefficient allocation, and unnecessary inventory costs (Goedhart et al., 2023).

Within this operational context, order accuracy represents an important dimension of retail fulfilment because customers expect the products and quantities delivered to correspond with those originally requested (Gorst & Ballantyne, 2021; Goedhart et al., 2023). Incorrect products, quantities, or substitutions can necessitate additional handling, returns, replacements, refunds, and re-delivery activities, thereby increasing the cost associated with completing an order (Gorst & Ballantyne, 2021). Accurate order fulfilment may therefore contribute to

operational efficiency by reducing avoidable corrective activities and protecting the value generated from completed retail transactions (Gorst & Ballantyne, 2021).

Returns are particularly important to profitability because reverse-logistics processes are generally more complex than normal forward-distribution activities (Gorst & Ballantyne, 2021). Gorst and Ballantyne (2021) established that returned products require additional activities such as receiving, inspection, sorting, classification, preparation, and reprocessing before their value can be recovered. These additional processes increase handling costs and create operational inefficiencies, making the prevention of avoidable returns an important consideration for retailers seeking to protect margins (Gorst & Ballantyne, 2021).

Recent empirical research further demonstrates that product returns can materially influence retailer profits and inventory-management decisions (Goedhart et al., 2023). Goedhart, Haijema, and Akkerman (2023) found that customer returns significantly affected profitability as well as replenishment and inventory-rationing decisions within an omnichannel retail environment. Their findings demonstrate that fulfilment decisions cannot be separated from profitability because returns alter both inventory availability and the economic value ultimately realized from retail transactions (Goedhart et al., 2023).

For supermarkets, order accuracy can therefore affect profitability through both cost containment and revenue preservation (Gorst & Ballantyne, 2021; Goedhart et al., 2023). When an order is fulfilled correctly on the first attempt, a retailer may avoid the additional transportation, labour, handling, inspection, repacking, refund, and replacement costs associated with correcting fulfilment errors (Gorst & Ballantyne, 2021). Where inaccuracies generate returns or replacement deliveries, the resulting reverse-logistics activities can reduce the financial value derived from the original sale and place additional pressure on already limited retail margins (Goedhart et al., 2023).

Order accuracy is also closely connected with effective inventory coordination because fulfilment depends on retailers maintaining reliable information concerning products available across individual stores and distribution points (Goedhart et al., 2023). Goedhart et al. (2023) established that integrating replenishment and fulfilment decisions produced better outcomes in terms of both profits and service levels than commonly used allocation heuristics. Their findings suggest that effective fulfilment requires retailers to coordinate demand, inventory availability, replenishment, and customer orders rather than manage these functions as isolated activities (Goedhart et al., 2023).

These operational requirements are particularly relevant to Carrefour because of the breadth of its assortment and the extensive local supply relationships supporting its Kenyan stores (Majid Al Futtaim, 2018). Majid Al Futtaim reported that approximately 99% of the items stocked by Carrefour Kenya were sourced locally in 2018, while about two-thirds of its fresh produce came from Kenyan farmers (Majid Al Futtaim, 2018). Coordinating such a broad supplier and product network requires reliable processes for inventory receipt, order processing, picking, verification, dispatch, and customer delivery if fulfilment errors are to be minimized (Goedhart et al., 2023).

The importance of such coordination has increased as Kenyan supermarkets expand from conventional store-based retailing into digitally supported and omnichannel operations (Government of Kenya, 2023). The National E-Commerce Strategy explicitly identifies transport, logistics, warehousing, digital payments, and underlying delivery infrastructure as essential components of a functional e-commerce ecosystem (Government of Kenya, 2023). UNCTAD (2023) similarly identifies improved delivery efficiency and reduced transaction costs as important objectives for developing Kenya's e-commerce environment.

Despite the growing importance of fulfilment efficiency, previous supermarket research in Kenya has largely concentrated on broader determinants of organizational performance rather than the specific financial implications of order accuracy (Wanjohi et al., 2019). For instance, Wanjohi et al. (2019) examined product-market growth strategies and supermarket performance in Nairobi but did not isolate order accuracy as an operational determinant of profitability. International studies have similarly concentrated on omnichannel replenishment, inventory allocation, fulfilment strategies, and product returns rather than directly determining how order accuracy affects supermarket profit margins (Goedhart et al., 2023; Goedhart, Haijema, & Akkerman, 2023).

This limitation creates an empirical gap because fulfilment accuracy may affect profitability differently from fulfilment speed, inventory availability, or general logistics efficiency (Gorst & Ballantyne, 2021; Goedhart et al., 2023). Understanding the independent contribution of order accuracy is particularly important in supermarkets because a single fulfilment error may generate additional handling, returns, replacement, and re-delivery activities that increase the cost of completing the original transaction (Gorst & Ballantyne, 2021). Evidence specific to multinational supermarket operations within the Kenyan environment therefore remains

necessary to establish whether variation in order accuracy is associated with variation in profit margins.

Accordingly, this study examines the effect of order accuracy on the profit margins of Carrefour supermarkets in Nairobi County. Order accuracy is examined through the extent to which delivered quantities correspond with customer specifications, product mix-ups are minimized, logistics coordination supports correct fulfilment, and accurate orders reduce returns and re-delivery costs (Gorst & Ballantyne, 2021; Goedhart et al., 2023). The focus is consistent with contemporary retail operations research showing that fulfilment decisions, inventory coordination, and returns management have direct implications for service levels, operating costs, and profitability (Goedhart et al., 2023).

The study contributes to literature by providing context-specific evidence on order accuracy and profitability within an emerging-market supermarket environment where digital and physical retail channels are increasingly interconnected (Government of Kenya, 2023; UNCTAD, 2023). From a managerial perspective, the findings may support decisions relating to order verification, inventory coordination, picking and packing controls, error monitoring, returns management, and delivery processes within Carrefour and comparable supermarket operations (Goedhart et al., 2023; Gorst & Ballantyne, 2021).

STATEMENT OF THE PROBLEM

The supermarket industry in Kenya has been projected to expand at an average annual rate of 12%, driven by the growing middle-income population and increased consumer spending (KNBS, 2023). Despite this growth, profit margins remain relatively low, averaging 3%-6% compared with 5%-8% in developed economies (Deloitte, 2023). Such narrow margins have been associated with outlet closures and market exits. Carrefour Kenya is also exposed to these profitability pressures given its substantial presence in Nairobi.

High operating costs have partly been attributed to inefficiencies in delivery systems (Puram et al., 2022). Delivery costs are reported to account for 18%-25% of overall operating costs in Kenyan supermarkets (Retail Trade Association of Kenya, 2023). In addition, 42% of supermarkets reportedly experience frequent supply delays, while 31% experience frequent stock-outs (Kenya Institute of Supply Chain Management, 2022; University of Nairobi, 2022). These challenges are compounded by Nairobi's urban logistics constraints, including congestion and rising fuel prices, which have been reported to add 12%-20% to delivery costs (NMS, 2023; EPRA, 2023).

Consumer expectations further increase pressure on supermarkets. A 2023 survey reported that 68% of Nairobi shoppers consider delivery reliability when choosing retail outlets (Consumer Insights Kenya, 2023). Retailers that fail to meet these expectations risk losing market share and customer loyalty. However, relatively few empirical studies in Kenya have specifically examined the effect of order accuracy on profit margins among large international retailers such as Carrefour.

Although Kenya's supermarket industry includes several major retail chains, such as Naivas, Quickmart, Carrefour, and Chandarana Foodplus, Carrefour was selected because of its position in modern retailing and its investment in technology-enabled delivery services. According to the Retail Trade Association of Kenya (2024), Carrefour accounts for approximately 16% of the formal supermarket market and operates more than 20 branches nationally, with more than half located in Nairobi County. Unlike many predominantly store-based operations, Carrefour has integrated online shopping, home delivery, and third-party logistics partnerships. These delivery-intensive operations provide a relevant setting for examining how order accuracy relates to profit margins.

Furthermore, Nairobi County contributes over 40% of Kenya's formal retail sales (KNBS, 2024), while Carrefour is reported to record substantial online retail activity within the county. Operational issues involving order turnaround time, order accuracy, customer satisfaction, and complaint resolution are therefore observable within this setting (González, 2025). Carrefour thus provides an information-rich case for examining contemporary supermarket delivery operations in Kenya.

The study therefore addresses this gap by examining the relationship between order accuracy and profit margins at Carrefour supermarkets in Nairobi County.

RESEARCH OBJECTIVE

To establish the effect of order accuracy on the profit margins of Carrefour supermarkets in Nairobi County.

RESEARCH HYPOTHESIS

H₀: There is no significant relationship between order accuracy and the profit margins of Carrefour supermarkets in Nairobi County.

THEORETICAL REVIEW/Framework

Time-Based Competition (TBC) Theory

Time-Based Competition (TBC) Theory was introduced by Stalk (1988) in the Harvard Business Review article "Time—The Next Source of Competitive Advantage" and further developed by Stalk and Hout (1990) in *Competing Against Time*. The theory proposes that firms can gain competitive advantage by reducing cycle time across production, delivery, and service operations.

TBC assumes that faster processes and order fulfilment can improve customer satisfaction while reducing operating costs (Sanni, 2024). In retail supermarkets such as Carrefour, fast and accurate order fulfilment may increase sales turnover and reduce inventory-holding costs (Stalk & Hout, 2020). The theory is relevant to this study because order-fulfilment efficiency, including accuracy, can influence profitability by reducing delivery errors, delays, and the costs associated with unmet customer expectations.

TBC has been criticized for placing excessive emphasis on speed at the potential expense of other strategic considerations, including quality and cost management (Blackburn, 2021). The effect of time compression may also vary across industries, particularly where price or quality is more important to customers than delivery speed (Karmarkar, 2023). In developing economies such as Kenya, infrastructure constraints may further limit the applicability of purely time-based strategies (Kamau & Kagiri, 2020).

EMPIRICAL REVIEW

Order Accuracy and Profit Margins

Lee and Huang (2021) examined the effects of digital logistics systems on order-fulfilment efficiency and profit margins among large hypermarkets in Kuala Lumpur, Malaysia. Using a mixed-methods design, the study combined quantitative time-series data from five multinational retail chains with qualitative interviews of supply chain executives. Panel regression was used for the quantitative data, while thematic coding was applied to the qualitative responses. The researchers reported that predictive analytics and real-time delivery tracking reduced average fulfilment time by 28 hours and increased net profit margins by 10%-14%. However, the study assumed a relatively high level of technological maturity, which may limit its applicability to developing markets such as Kenya.

Badenhorst and van Heerden (2019) examined supply chain responsiveness and profitability among large grocery stores in South Africa. The study adopted a quantitative correlational design using survey and financial data from 20 retail stores, which were analyzed using multiple linear regression. The findings indicated that longer order-fulfilment cycles were associated with product unavailability and lower sales revenue. However, the study focused on responsiveness without examining how technology or process integration could improve fulfilment efficiency.

Agyeman and Boateng (2020) analyzed order-fulfilment time and profitability among five multinational supermarket chains in Accra, Ghana. The researchers adopted a cross-sectional survey design and collected quantitative ordinal data from logistics managers. Descriptive statistics and logistic regression were used in the analysis. The study reported that supermarkets fulfilling orders within 48 hours had customer-retention rates above 80% and profit margins 7%-10% higher than those with slower turnaround times. However, the study did not identify the specific logistics processes associated with faster fulfilment or account for differences across product lines.

Kamau and Kihara (2022) examined order-fulfilment efficiency and profitability in Kenyan supermarkets, with reference to Nakumatt and Uchumi. They collected primary data from supply chain managers using a descriptive-correlational design and analyzed the data using multiple regression. The findings indicated that poor coordination between suppliers and retailers contributed to stock-outs, delayed deliveries, and lost sales opportunities, which negatively affected profit margins. However, the study focused on local supermarket models and did not examine the technology-enabled fulfilment systems increasingly used by international retailers.

Oke and Gbadamosi (2021) evaluated the effect of order-fulfilment delays on profitability in Nigerian retail outlets using a quantitative explanatory design. Data were collected from 70 supermarket managers and analyzed using ordinary least squares (OLS) regression. The findings indicated that a one-day delay in fulfilment reduced profit by approximately 1.5%. However, the study focused on delay duration and did not examine other fulfilment dimensions, such as order accuracy and technological integration.

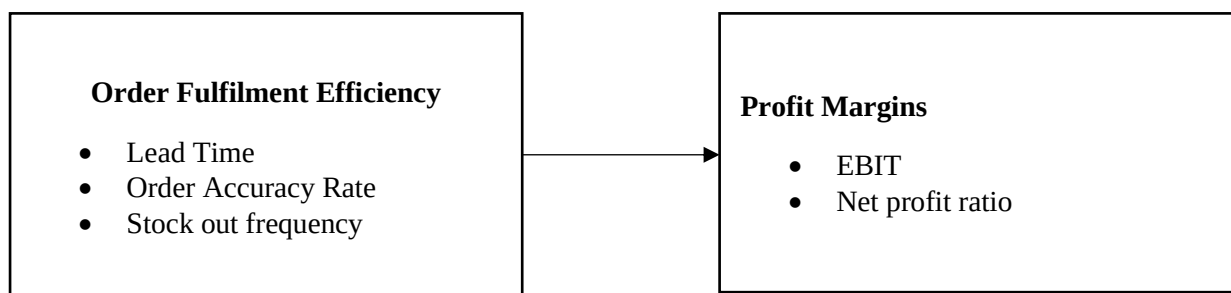
Collectively, these studies suggest that effective order fulfilment can support profitability by reducing lead times and stock-outs and improving customer satisfaction. However, much of the previous research focused on fulfilment speed or responsiveness rather than order accuracy

specifically, and the evidence is drawn from differing retail and technological contexts. This study addresses that gap by examining the effect of order accuracy on profit margins at Carrefour supermarkets in Nairobi County.

CONCEPTUAL FRAMEWORK

Independent Variable

Dependent variable



RESEARCH METHODOLOGY

A descriptive research design was used in the study. Shinija (2024) notes that descriptive designs are commonly used to describe participants' perceptions, attitudes, knowledge, behaviours, and practices. The design enabled the researcher to examine the study variables and their associations without manipulating the study subjects.

The target population is the complete group of individuals or elements possessing characteristics relevant to a study and from which conclusions are drawn (Sekaran & Bougie, 2019). The target population comprised 183 managerial employees—12 general managers, 84-line managers, and 87 supervisors—drawn from Carrefour supermarket branches operating in Nairobi County.

These respondents were selected because they were directly involved in planning, coordinating, implementing, and monitoring delivery and logistics operations within the organization. General managers were responsible for strategic decision-making and overall branch performance, including profitability. Line managers oversaw functional areas such as logistics, inventory management, customer service, and operations, while supervisors were involved in the day-to-day execution and monitoring of order processing, delivery activities, customer complaint handling, and inventory control. These employee categories therefore possessed relevant knowledge and experience regarding delivery-efficiency practices and supermarket financial performance.

Managers and supervisors also had access to operational performance information and organizational records relevant to the study variables, including order accuracy and profit margins. Their involvement in planning, monitoring, and evaluating operational performance made them appropriate respondents for the study.

The study therefore targeted all 183 managers and supervisors distributed across the selected Carrefour branches in Nairobi County, as presented in Table 1.

Table 1: Target Population Distribution

Role	Number
General Managers	12
Line managers	84
Supervisors	87
Total	183

Source: Carrefour Kenya Human Resource Department (2025).

Sampling Technique

A sampling technique is the method used to select participants for inclusion in a study (Smith et al., 2019). This study used stratified random sampling because the target population could be divided into groups with shared characteristics (Sekaran & Bougie, 2019). The three strata were general managers, line managers, and supervisors.

Sample Size

The sample size refers to the number of participants or units included in a statistical sample for drawing conclusions about the target population (Sharma, 2020). After identifying the target population, a sampling frame was developed to facilitate respondent selection. A sampling frame is a complete list of eligible members of the target population from which a sample is drawn (Kothari, 2004). For this study, the sampling frame comprised 183 managers and supervisors employed in 12 Carrefour supermarket branches in Nairobi County, as provided by the Carrefour Kenya Human Resource Department (2025). It included 12 general managers, 84 line managers, and 87 supervisors assigned to their respective branches and functional departments.

The sampling frame included managerial and supervisory employees involved in logistics management, inventory control, customer service, order fulfilment, and branch performance management. These employees possessed the operational knowledge required to provide information relevant to order accuracy and profit margins. The sampling frame was reported as complete, current, and free from duplication, thereby allowing eligible respondents to be selected within the defined sampling procedure.

To ensure adequate representation across management levels, the study adopted stratified random sampling. The sampling frame was divided into three strata: general managers, line managers, and supervisors. Respondents were then selected proportionately from each stratum based on its share of the target population. This approach was intended to reduce sampling bias and improve the representativeness of the sample. The overall sample size was calculated using Yamane's (1973) formula, after which the sample was allocated proportionately across the three strata.

$$n = \frac{N}{1 + 0.05^2 (N)}$$

Where: n = sample size

N = total target population

Substitution of the values in the formula is shown below:

$$n = \frac{183}{1 + 0.05^2 (183)} = 125.55$$

Using Yamane's (1973) formula at a 5% level of precision, the calculated sample size was 125.55. The value was rounded up to 126 respondents.

Table 2: Sample Size Distribution

Stratum	Percentage	Number
General Managers	6.6%	8
Line managers	45.9%	58
Supervisors	47.5%	60

Total	126
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Source: Researcher (2026).

RESULTS AND DISCUSSION

Descriptive Statistics

Order accuracy was assessed using five statements covering whether delivered orders matched customer specifications, the frequency of product mix-ups, improvements in accuracy arising from logistics coordination, the effect of accurate fulfilment on returns and re-delivery costs, and the contribution of order accuracy to sales performance. Means and standard deviations were used to summarize respondents' views. Higher mean scores indicated stronger agreement with each statement, while the standard deviation indicated the dispersion of responses around the mean. The results are presented in Table 3.

Table 3: Descriptive Statistics for Order Accuracy

Statement	Mean	Std. Deviation
Delivered orders match customer specifications in terms of quantity.	4.24	0.67
Product mix-ups during delivery are rare in our branch.	4.11	0.74
Order accuracy has improved due to better logistics coordination.	4.19	0.70
Accurate order fulfillment reduces returns and re-delivery costs.	4.32	0.63
High order accuracy contributes to improved sales performance.	4.28	0.66
Overall Mean	4.23	0.68

Source: Research Data (2026).

Table 3 shows that respondents generally agreed with the statements measuring order accuracy at Carrefour supermarkets in Nairobi County. The overall mean was 4.23, indicating a high

level of agreement across the five items. This suggests that respondents perceived order accuracy as an important component of delivery efficiency with potential operational and financial implications.

The highest mean was recorded for the statement, “Accurate order fulfillment reduces returns and re-delivery costs” ($M = 4.32$, $SD = 0.63$). This suggests strong agreement that delivering the correct products and quantities can reduce returns, replacement orders, and unnecessary re-deliveries, which may otherwise generate additional transportation, labour, and handling costs. The relatively low standard deviation indicates that respondents’ views were closely clustered around the mean.

The statement “High order accuracy contributes to improved sales performance” recorded the second-highest mean ($M = 4.28$, $SD = 0.66$). Respondents therefore generally perceived accurate fulfilment as commercially important, potentially by strengthening customer confidence, reducing dissatisfaction, and supporting repeat purchases. The relatively low standard deviation indicates limited variation in these responses.

The statement “Delivered orders match customer specifications in terms of quantity” recorded a mean of 4.24 ($SD = 0.67$), indicating general agreement that customers received the quantities ordered. Accurate quantities can help reduce complaints, refunds, and additional deliveries. The relatively low standard deviation indicates that respondents’ assessments were fairly consistent.

The statement “Order accuracy has improved due to better logistics coordination” recorded a mean of 4.19 ($SD = 0.70$). This indicates that respondents perceived coordination among order-taking, inventory management, picking, packing, and delivery activities as contributing to improved order accuracy. The standard deviation suggests moderate but still relatively limited variation in responses.

The lowest mean was recorded for the statement “Product mix-ups during delivery are rare in our branch” ($M = 4.11$, $SD = 0.74$). Although this was the lowest-rated item, the mean remained above 4.00, indicating general agreement that product mix-ups were uncommon. Its comparatively higher standard deviation suggests somewhat greater variation in respondents’ experiences across branches or delivery situations.

Across the five indicators, standard deviations ranged from 0.63 to 0.74, indicating relatively low dispersion in responses. Overall, respondents' views were concentrated around the

respective mean scores, supporting the descriptive finding that order accuracy was rated positively across the assessed dimensions.

These findings are consistent with the empirical literature reviewed in this study, which identifies accurate order fulfilment as an important aspect of delivery performance because errors may generate returns, re-delivery expenses, complaints, and lost sales. In particular, the high mean for the item on reducing returns and re-delivery costs suggests that respondents associated order accuracy with improved cost control and, potentially, stronger profitability.

Overall, respondents rated order accuracy positively ($M = 4.23$). The findings particularly emphasize the perceived contribution of accurate fulfilment to reducing unnecessary returns and re-delivery costs and supporting sales performance. These descriptive results provide the basis for examining the statistical relationship between order accuracy and profit margins.

Inferential Statistics

Inferential statistics were used to assess the relationship between order accuracy and profit margins and to draw conclusions from the sample data (Devore et al., 2021).

Pearson Correlation between Order Accuracy and Profit Margins

Variables	Order Accuracy	Profit Margins
Order Accuracy	1	.724**
Profit Margins	.724**	1

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

Source: Research Data (2026)

The findings indicate that Order Accuracy had a strong positive and statistically significant relationship with Profit Margins ($r = .724$, $p < 0.01$). This suggests that higher levels of order accuracy were associated with higher profit margins among Carrefour supermarkets in Nairobi County. Accurate order fulfilment may contribute to improved profitability by reducing costs associated with incorrect orders, product returns, replacements and re-deliveries. It may also enhance operational efficiency and customer experiences, which can support more effective use of resources and reduce avoidable operational losses. The statistically significant relationship indicates that order accuracy was an important factor associated with variations in profit margins. However, the Pearson correlation result indicates association rather than

causation and therefore does not by itself establish that improvements in order accuracy cause higher profit margins.

Table 4: Regression Model Summary

R	R Square	Adjusted R Square	Std. Error
0.901	0.812	0.809	0.324

Predictor: Order Accuracy

Analysis of Variance (ANOVA)

Analysis of variance (ANOVA) was used to assess the overall significance of the regression model relating order accuracy to profit margins among Carrefour supermarkets in Nairobi County. A p-value below .05 was used as the criterion for statistical significance. The results are presented in Table 5.

Table 5: ANOVA Results

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	172.483	1	57.494	547.691	.000
Residual	41.162	112	0.105		
Total	213.645	113			

Dependent variable: Profit Margins

Predictor: Order Accuracy

Table 5 indicates that the regression model was statistically significant ($F = 547.691$, $p < .001$). Based on the reported significance level, the model provides evidence of a statistically significant relationship between the predictor(s) included in the analysis and profit margins.

The reported ANOVA result suggests that the regression model explains a statistically significant proportion of variation in profit margins. Interpretation of the magnitude and individual effect of order accuracy should be based on the corresponding model-summary and regression-coefficient statistics.

The significant F-statistic indicates that the regression model, as reported, explains a statistically significant proportion of variation in profit margins. This finding is consistent with the study's focus on assessing whether order accuracy is associated with profitability.

The inferential findings should be interpreted together with the correlation and regression-coefficient results to determine the direction, strength, and individual contribution of order accuracy to profit margins.

Regression Coefficients for Order Accuracy and Profit Margins

Variable	B	Std. Error	Beta (β)	t	Sig.
Order Accuracy	0.347	0.041	0.368	8.463	.000
Dependent Variable:	Profit		Margins		

Source: Research Data (2026)

The regression results indicate that Order Accuracy had a positive and statistically significant effect on Profit Margins ($\beta = 0.368$, $t = 8.463$, $p < 0.001$). The positive beta coefficient indicates that improvements in order accuracy were associated with higher profit margins among Carrefour supermarkets in Nairobi County, holding other variables in the model constant. The statistically significant result provides evidence that Order Accuracy was an important predictor of Profit Margins.

The finding may be explained by the ability of accurate order fulfilment to reduce costs associated with incorrect orders, product returns, replacements and re-deliveries. Ensuring that customers receive the correct products and quantities can also improve operational efficiency and customer experiences, potentially supporting repeat purchases and sales. The finding is consistent with the descriptive results, where improved order accuracy positively affecting profitability recorded a high mean score of 4.27 (SD = 0.65). Based on the significance level, the null hypothesis that Order Accuracy has no significant effect on Profit Margins was rejected.

H₀₂: Order Accuracy has no significant effect on Profit Margins among Carrefour supermarkets in Nairobi County, Kenya.

The null hypothesis (H₀₂) was rejected because Order Accuracy had a positive and statistically significant effect on Profit Margins ($\beta = 0.368$, $t = 8.463$, $p < 0.001$)

CONCLUSIONS

The objective of the study was to establish the effect of order accuracy on the profit margins of Carrefour supermarkets in Nairobi County. The descriptive findings indicated that respondents rated order accuracy highly, particularly in relation to reducing returns and re-delivery costs and supporting sales performance. The inferential results reported a positive and statistically significant relationship between order accuracy and profit margins. The study therefore concludes that improving the accuracy and reliability of order fulfilment can support operational efficiency and profitability.

RECOMMENDATIONS

Carrefour management should strengthen controls that support accurate order processing and fulfilment. This may include routine verification of order quantities and items before dispatch, improved coordination between inventory, picking, packing, and delivery functions, and regular monitoring of order-error and return rates. These measures can help reduce avoidable returns, re-deliveries, and associated operating costs.

Management should also use order-accuracy performance data to identify recurring sources of fulfilment errors and implement targeted corrective action. Continuous improvement in order accuracy may enhance customer experience, support repeat purchases, and contribute to stronger profit margins.

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