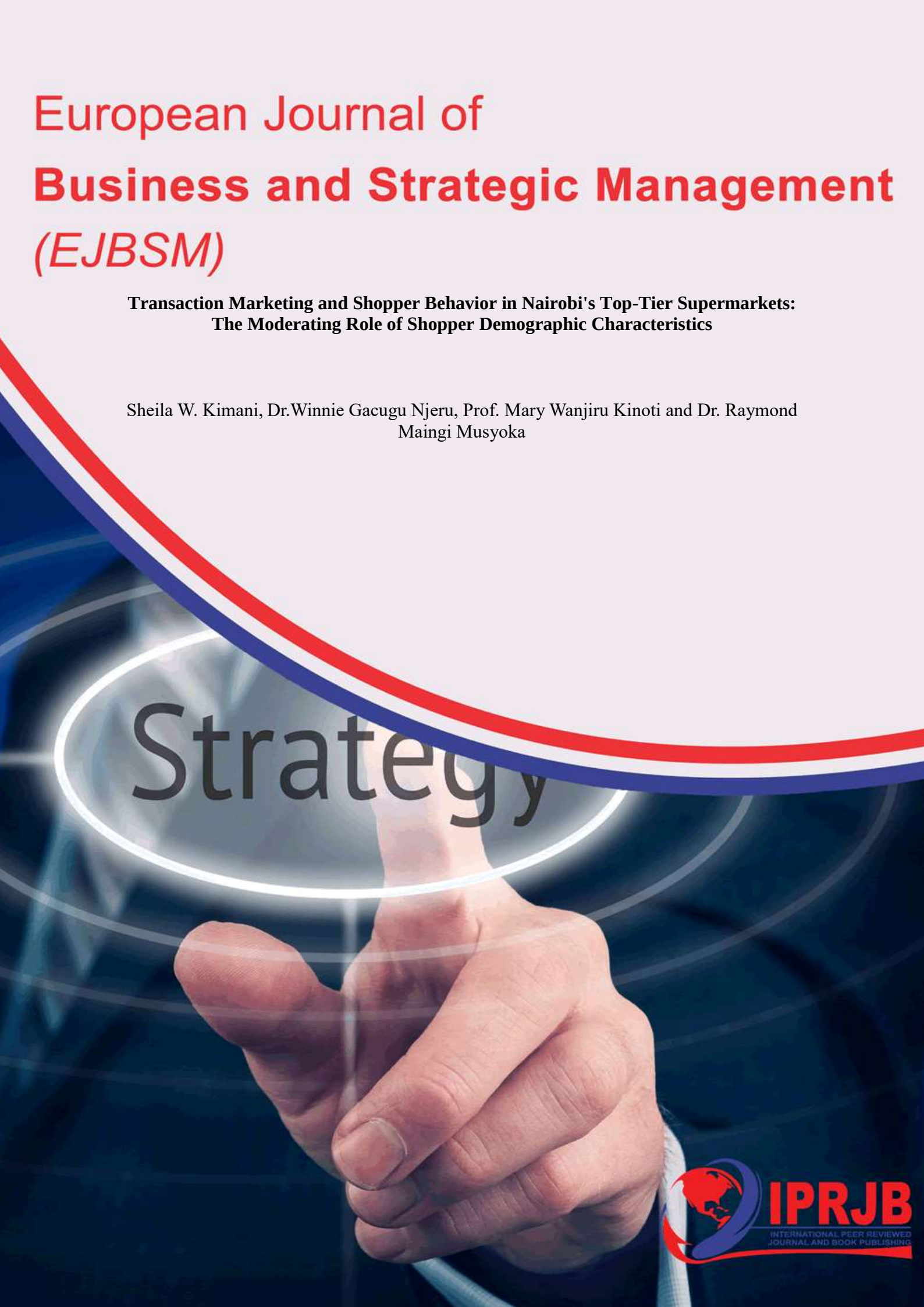


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**Transaction Marketing and Shopper Behavior in Nairobi's Top-Tier Supermarkets:
The Moderating Role of Shopper Demographic Characteristics**

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Strategy

Transaction Marketing and Shopper Behavior in Nairobi's Top-Tier Supermarkets: The Moderating Role of Shopper Demographic Characteristics



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Abstract

Purpose: Shopper demographic characteristics represent measurable population data to identify and operationalize distinct market entities. They therefore play the critical role of matching a firm's internal capabilities with the needs of the audience it seeks to serve for business success. Recent global shifts from static to fluid segmentation, generational cohorts and trend consumption, and consumer sophistication in emerging economies increasingly suggest that legacy segmentation methods are insufficient. The specific purpose of the research is to investigate the extent to which these legacy segmentation methods are relevant in the Kenyan supermarket industry. The specific purpose of the research is to investigate the extent to which shopper demographic characteristics are moderators of transaction marketing and shopper behavior in top-tier supermarkets in Nairobi.

Methodology: A supermarket intercept using descriptive cross-sectional research is employed. Data were collected using the 5-point Likert scale from a sample of 372 randomly selected respondent were examined using descriptive and inferential statistical techniques with the aid of Hayes 2022 PROCESS macro (model 1)

Findings: The findings indicate that total explained variance across all five models ranges from 26% -30%. The significant increment in variance ΔR^2 is in Model 1 = (.03) and Model 4 = (.02). The predictive power of transaction marketing on shopper behavior is not uniform and is based on age and education. Model 2 had a non-significant interaction term, whereas Models 3 and 5 indicate that shopper demographic characteristics do not explain additional changes, suggesting therefore there is no need to customize marketing strategy based on gender, income and household.

Unique Contribution to Theory, Practice and Policy:

These findings advance marketing exchange and consumer behavior theories by establishing a nuanced, conditional framework for retail interactions. Moreover, while this study primarily focused on a general orientation towards supermarkets, it acknowledges that other factors within these environments also shape shopper behavior beyond mere moderators. Future research should explore other behavioral mechanisms. Practically, a hybrid operational model that merges traditional demographic segmentation with marketing automation is recommended. By tailoring marketing channels to the specific age and educational frames of the target population, retailers can enhance predictive accuracy, optimize shopper decision processes, and streamline business operations.

Keywords: Transaction Marketing, Shopper Characteristics, Shopper Behavior (SB)

JEL Codes: M30, M31, J10

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INTRODUCTION

Data-driven technological infrastructure has become fundamental to market analysis, displacing conventional segmentation frameworks and providing real-time data on shopper characteristics. (Solomon & Russell, 2024). Shopper demographic characteristics represent measurable population data to identify and operationalize distinct market entities and are the quantifiable population statistics that describe the features that serve to identify the object in the market. They therefore play the critical role of matching a firm's internal capabilities with the needs of the audience it seeks to serve (Kotler et al., 2022). Studies have shown that when a firm aligns its internal strengths, such as inventory stocking and marketing interventions, with external demographic shifts, it builds a competitive advantage (Ritcher & Hanf, 2023). Neglecting to understand the market can lead to inefficiencies and managerial uncertainties, leading to a firm's inability to satisfy market demand, inevitably threatening the potential success and growth of that business (Solomon & Russell, 2024). Internal strengths in this study include appropriate retail marketing practices embodying transaction and relationship marketing in relation to shopper characteristics.

The formal supermarket sector in Kenya represents about 30% of the retail market and operates through a three-tier branch network, similar to global retail models. This sector has a compound annual growth rate of 5.2% and generates annual revenues between \$2.2 billion and \$4.62 billion, contributing approximately 2.34% to 3% of the national GDP (Kenya Institute for Public Policy Research and Analysis [KIPPRA], 2023; Kenya National Bureau of Statistics [KNBS], 2026). Despite facing intense competition and operating on narrow profit margins, Kenya ranks as Africa's third most competitive retail market (Kearney Global Retailer Development Index, 2022). There is a significant shift towards e-commerce, driven by rising internet access, with around 40% of the population connected, particularly through MPESA services (UNCTAD, 2013). The primary users of these online platforms are young adults under the age of 34 (Kiepos, 2026).

The global grocery and supermarket sector is projected to be valued at approximately \$1.81 trillion by 2026, driven by factors such as rapid urbanization, a growing middle class, and increased demand for goods and services (The Business Research Company, 2026). Current research indicates that there is a significant difference in retail optimization strategies between developed and developing economies. In developed economies, the focus is on addressing market saturation through advanced automated systems that utilize real-time consumer data for behavioral segmentation. In contrast, in Sub-Saharan Africa, where 90% of retail is informal, the sector is experiencing a shift toward more structured supply chains. However, this transition still largely depends on legacy segmentation methods. These methods rely on predefined, static categories based on socio-economic data, which may not fully capture the dynamic nature of these emerging markets (Mwamba & Qutieshat, 2021). These contrasting focuses highlight the diverse challenges and opportunities within the grocery sector.

Deloitte & Planet Retail (2012) report indicates that Sub-Saharan Africa, especially its key retail centers, is increasingly important for modern retail marketing due to rapid urban growth and changing consumer habits. The effectiveness of marketing strategies in this region is closely tied to the local context. Nairobi is a major player in Kenya's retail sector and represents about 70% of the country's modern grocery market. It operates under a tech-hybrid economic system. Additionally, the city exemplifies a blend of formal corporate retail and traditional informal networks. Nairobi therefore represents a prime location for research.

Statement of the Problem

Recent empirical evidence indicates that the outcomes of transaction marketing practices such as shop layout, ambience, and promotions are highly variable and unpredictable (Nganga, 2024). As Kenyan supermarkets continue to struggle for survival in a volatile market, there is a critical operational imperative to identify the exact boundary conditions under which these retail strategies succeed. However, within the domestic context, there is a significant lack of empirical data regarding the precise segmentation methods deployed across the retail sector. It remains entirely unclear to what extent Kenyan supermarkets are leveraging shopper demographic characteristics in their marketing efforts.

Additionally, this oversight underscores a growing strategic conflict within the global retail sector, namely the friction between legacy and behavioral segmentation methods. Legacy frameworks rely heavily on static, periodic, and broad parameters, whereas behavioral methods are based on real-time hyper personalization (Mazumder, 2025). Current models in emerging markets frequently default to legacy metrics, which treat shoppers as a homogeneous cohort, effectively overlooking the complex ways individual consumer profiles respond to marketing stimuli (Mwamba et al., 2021). Although this classical paradigm remains highly acclaimed because it provides a stable descriptor of a population's characteristics (Solomon et al., 2016), it is nonetheless increasingly being viewed as an insufficient framework (Grewal et al., 2020).

Furthermore, this strategic misalignment is severely compounded by shifting generational cohorts, evolving consumption trends, and rising consumer sophistication (Dobrowolski et al., 2022; Sagaci Research, 2023). These dynamic forces mean that modern shoppers no longer respond to traditional, static categories. Despite these market shifts, a clear empirical void remains regarding how distinct shopper demographic characteristics interact within Kenya's physical retail environments. Without this data, retailers are left critically evaluating legacy and behavioral targeting methods through speculation rather than empirical evidence. Ultimately, this study addresses these systemic inefficiencies by investigating the relationship between transaction marketing practices and shopper behavior, specifically exploring how this dynamic is moderated by shopper demographic characteristics within Nairobi supermarkets.

Research Objectives

The Kenyan supermarket industry faces a significant gap in empirical data regarding market segmentation practices, which hinders a comprehensive understanding of local retail operations. Traditional segmentation models are inadequate as they do not account for the complex nature of in-store purchasing behaviors. This results in a lack of insight into how shopper demographics influence consumer behavior in Kenya's fluctuating retail environment. There is a need to reconcile conventional demographic frameworks with the evolving dynamics of the market to better understand consumer patterns. The study is organised around the following specific objectives:

1. Evaluate whether the impact of transaction marketing practices on shopper behavior is significantly moderated by shopper demographic characteristics in Nairobi supermarkets.

LITERATURE REVIEW

Empirical Review

Research in retail marketing highlights the importance of understanding shopper demographic characteristics for informed decisions about their target audiences. Demographic profiling has

long been a key approach to understanding differences in consumer behavior. Research from KPMG (2017) highlights that age is a significant factor affecting retail channel preferences, influencing whether consumers choose online or physical stores. However, research by Klepek and Bauerova (2020) differs it found that consumers preferred offline shopping due to a lack of trust in supermarkets regarding product quality, the desire to avoid delivery fees, and the enjoyment of the shopping experience.

Socioeconomic factors, particularly gender and education, significantly influence purchasing decisions. Research by Akipar et al. (2009) showed that gender and education influenced purchase of fresh groceries income and education had significant impact in purchase of organic fresh produce. However, Bharathi and Amuratham (2024) found that when retailers raised consumer awareness, gender and education did not interfere with purchase decisions. Additionally, a study by Ma et al. (2011) indicates that income levels can impact product pricing, ultimately reducing purchasing power and choice of location, whereas, Rampas et al. (2025) found that larger households were characterised by drastic coping mechanisms such as bulk purchasing to optimise limited resources. However, Aggarwal (2017) found that consumers shopped in both budget and high-end supermarkets for specific products.

Although these findings underscore the importance of structural identifiers in analysing market dynamics, in contrast, Bharathi and Amuratham (2024) found that when retailers raised consumer awareness, gender and education did not interfere with purchase decisions.

In Sub-Saharan Africa, particularly in Kenya, demographic factors significantly influence shopping behaviors in supermarkets. Njoka (2010) found that the majority of supermarket shoppers in Nairobi are educated and in formal employment; the majority were female and married. Wambugu and Muysoka (2016) reveal that different income levels and household size are other critical factors that affect shopping behaviors in supermarkets, influencing both product choices and brand preferences. However, Kiburu et al. (2023) found that education moderated the relationship between household size and the use of technology; however, income, age and gender did not.

The study of Millennials, particularly the Professional Aunts No Kids (PANK) concept explored by Notkin and DeCisso (2018), reveals that similar distinct trends led to the formation of micro-cultural groups that shared similar lifestyles and values, emphasizing the importance of peer influence in their shopping habits. Similarly, research by Dobrowolski et al. (2022) on generational cohorts emphasizes that age and education are increasingly significant in defining a connected consumer culture, especially among younger generations like Gen Z. Similarly, Sagaci Research (2023) highlights that young urban Kenyan consumers are highly sensitive to prices. Their purchasing decisions are influenced by social validation from their digital peers.

However, an empirical study mapping longitudinal data between 2023 and 2025 by Ozdenizci et al. (2026) found that behavioral profiling is not a perfect science; their models showed that rapidly increasing behavioral service usage did not necessarily translate to higher observed purchase rates. Furthermore, behavioral clusters frequently overlooked critical external factors like real-time context, local pricing constraints, and geographical accessibility, which limited their effectiveness compared to legacy segmentation methods and mirrors research by Solomon et al. 2016) that legacy segmentation are pertinent because they are endorsed by experience.

A newer model, by Morioka (2023), emphasized the importance of supermarket proximity and convenience in retail choices. However, Seth (2023) shows that the rise of online shopping has led to a shift in consumer behavior, reduced time and space constraints, hence geographical

limitations. This trend indicates that consumers are more willing to explore options beyond their immediate surroundings. Similarly, this change points to a gap in understanding local markets. To address this gap, there is a growing need for localized research that can better capture the evolving dynamics of consumer choices in a more interconnected marketplace.

The literature on shopper profiling highlights both legacy and behavioral methods. Current academic studies struggle to identify the specific components of shopper demographic characteristics that change market conditions. This lack of granular clarity becomes highly problematic when applied to a tech-hybrid economy like Kenya. Consequently, it remains unclear whether these generalized academic frameworks truly represent the operational realities of formal supermarkets. To address this gap, this study utilizes shopper demographic characteristics as moderators to evaluate how transaction practices dynamically alter real-world shopper behavior in the Kenyan retail ecosystem.

Theoretical Framework and Hypothesis Development

In a previous investigation of these underlying mechanisms utilize the Marketing Theory of Exchange and Consumer Behaviour Theory to test shopper attitudes mediating influence in the relationship between retail marketing practice and shopper behaviour. While that study confirmed the explanatory pathways between these variables, the current study extends this theoretical framework by examining a moderation model. Specifically, this article investigates allows for a deeper examination of how individual consumer characteristics alter the strength and direction of the relationship between supermarket marketing initiatives and final consumer behaviors.

The Marketing Theory of Exchange provides a vital framework for analyzing transactions between consenting parties (Bagozzi, 1975). Rooted in neoclassical economics, it assumes market interactions are driven entirely by rational utility maximization (Houston & Gassenheimer, 1987). However, critics argue this strict focus overlooks complex behavioral realities, failing to acknowledge that individual choices are frequently restricted by physical and psychological constraints (Foxall, 2001). Furthermore, by reducing human interaction to transactional costs and benefits, exchange theory oversimplifies market relationships and fails to account for the deeper emotional or behavioral motivations driving real-world transactions (Sheth et al., 1991).

To address these limitations, scholars integrate Consumer Behavior Theory, which shifts focus from the transaction itself to the physical and psychological processes governing the individual (Solomon et al., 2016). While prior structural research successfully mapped the direct, mediating mechanisms of these consumer transactions within Kenya's retail sector (Kimani, 2026), a critical conceptual gap of moderation remains. Existing models often treat consumer response to marketing initiatives as static and uniform, ignoring the boundary conditions imposed by individual differences.

This study addresses this theoretical gap by introducing shopper demographic characteristics as a key moderating variable. Grounded in Consumer Behavior Theory, this paper argues that specific shopper demographic characteristics alter the strength and direction of the relationship between supermarket strategies and final transactional outcomes. By evaluating these boundary conditions, this study moves beyond the limitations of traditional exchange models to offer a more nuanced understanding of consumer dynamics in emerging retail hubs. Shopper characteristics, comprised of age, gender, income, education, and household size, are analysed, revealing how they influence or moderate the relationships between transaction marketing.

In formulating testable hypotheses, the study assumes the following hypotheses:

H₀₁: Shopper age does not have a significant moderating effect on the impact of transaction marketing practices on shopper behavior in Nairobi supermarkets.

H₀₂: Gender does not have a significant moderating effect on the impact of transaction marketing practices on shopper behavior in Nairobi supermarkets.

H₀₃: Income does not have a significant moderating effect on the impact of transaction marketing practices on shopper behavior in Nairobi supermarkets

H₀₄: Education does not have a significant moderating effect on the impact of transaction marketing practices on shopper behavior in Nairobi supermarkets.

H₀₅: Household size does not have a significant moderating effect on the impact of transaction marketing practices on shopper behavior in Nairobi supermarkets.

This study explores how shopper demographic characteristics such as age, gender, income, education, and household size serve as internal filters that influence retail behavior rather than direct drivers of it. Consumer Theory highlights that age significantly influences how individuals process retail environments (Solomon et al., 2024). Furthermore, as people grow older, their cognitive filtering and risk aversion change, leading them to value convenience, familiarity, and the organization of the store more than aggressive sales tactics. This is in contrast to younger consumers who tend to be more impulsive and responsive to high-energy promotional strategies. Specifically this age-related difference creates a clear boundary that affects how marketing practices impact shopping behavior, either facilitating or obstructing immediate purchases based on the consumer's age.

Consumer Theory highlights the role of income in shaping a consumer's budget constraints, marginal utility, and price elasticity. Schiffman and Wisenblit (2021) assert that for lower-income shoppers, financial limitations enhance the appeal of marketing strategies like discounts and promotions, leading to more intense purchasing behavior. In contrast, higher-income consumers are less influenced by price-related incentives, as their focus shifts to factors such as atmospherics and convenience. Therefore, income levels determine the financial thresholds at which different marketing stimuli become effective or ineffective.

In Consumer Theory, gender plays a crucial role in shaping how individuals process information in retail environments. Solomon et al. (2024) suggest that female consumers tend to adopt a comprehensive processing style, focusing on the overall shopping experience, including sensory elements and bundled offers. In contrast, male consumers usually engage in selective processing, concentrating on specific, prominent aspects of transactions. This difference in processing styles means that gender influences how effectively various marketing strategies, whether complex or simple, impact shopper behavior in retail settings.

Consumer Theory highlights the role of formal education in shaping consumer behavior and decision-making. Individuals with lower levels of education tend to rely on simple heuristics, such as eye-catching discounts and promotional displays, to assess value, which significantly influences their purchasing choices (Schiffman et al. 2021). In contrast, more educated consumers are better equipped to critically analyze marketing strategies, allowing them to assess unit value and disregard superficial promotions. Thus, education acts as a boundary that affects how much consumers scrutinize marketing efforts, ultimately impacting their buying behavior.

Schiffman et al. (2021) assert that household size significantly influences consumption patterns and marketing effectiveness, as outlined in Consumer Theory. They assert that larger households face higher demands and must minimize waste, making them more responsive to volume-based marketing strategies such as bulk packaging and multi-buy promotions. In contrast, smaller households, including single-person units, tend to avoid these volume incentives due to limited storage and lower consumption needs. As a result, bulk offers do not effectively change their purchasing habits. Overall, household size acts as a critical factor that shapes how marketing strategies targeting volume impact consumer behavior.

Conceptual Framework

The conceptual framework explains how the study variables are related to each other, and helps conduct the empirical analysis. To maintain conceptual parsimony and avoid visual redundancy, a single unified conceptual framework is presented in Figure 1. While multiple individual moderation analyses were executed using Hayes (2017) PROCESS Macro (Model 1), each analysis strictly adheres to this identical structural configuration. The specific operational variables tested within each node of this model are fully detailed in Figure 1.

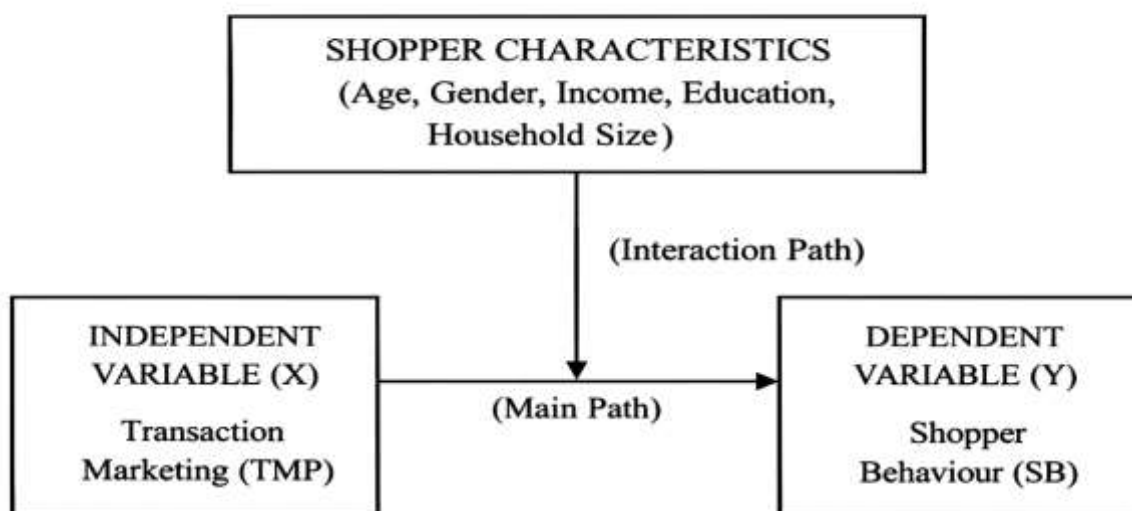


Figure 1: Conceptual Framework

METHODOLOGY

This study adopted a positivist philosophical framework. The primary objective of this study was to investigate the mediating effect of shopper demographic characteristics on the relationship between transaction marketing practices and shopper behaviour within the supermarket industry. To achieve this, a descriptive cross-sectional survey approach was deployed to test the hypothesised conceptual framework recommended by Saunders et al. (2023). The population for this study consisted of shoppers visiting tier one supermarkets in Kenya. A total of 400 respondents were recruited using a probability sampling technique.

Measurement Variables

The sample size was derived from KNBS(2019) estimates, which put the figure of adult supermarket shoppers in Nairobi at approximately 2,234,440. Therefore, because it is

impossible to measure the number of Nairobi residents and non-resident shoppers in tier-one supermarkets in Nairobi, Cochran's (1967) formula for an infinite population was used. Transaction marketing practices, the independent variable, comprise McCarthy's (1960) marketing mix: promotion, place, price, and product comprising the independent variable. Additionally, shopper behaviour refers to the actions and emotional reactions triggered by retailers' marketing strategies, comprising engagement, trust, reciprocity, commitment, and satisfaction (Wilson, 1995).

The study measured the dependent variable, shopper behavior (SB), using a 10-item scale adapted directly from the framework established by Wilson (1995). To ensure a comprehensive evaluation of shopper outcomes, the scale intentionally integrates both affective (emotional) dimensions such as trust and satisfaction and active behavioral dimensions including engagement, reciprocity, and commitment. This systematic approach captures the holistic nature of shopper response outcomes within the exchanges, allowing for a precise evaluation of how distinct marketing inputs influence unified consumer behavior.

By contrast, shopper demographic characteristics contain heterogeneous measurement scales. Age is continuous, gender is nominal, income and , education are ordinal, while household size is ratio-discrete. Since they measure different scales and do not represent a single underlying concept, combining the data into a composite variable would not be statistically appropriate and would likely conceal the individual moderating effects of each demographic characteristic, which would have been a risk to construct validity (Saunders et al., 2023) notes.

Rather than directly comparing a composite variable of shopper demographic characteristics, the study focused on how different moderators influenced the performance of transaction marketing practices on shopper behaviour. A master table was designed for clarity, consolidating information to highlight key patterns without presenting 5 separate repetitive tables, thus avoiding redundancy. This streamlined approach helps readers easily track the main effects of the transaction marketing practices across shopper demographic characteristics groups to quickly pinpoint statistically significant conditions.

Additionally, the data analysed in this study were drawn from a larger research study evaluating consumer behaviour dynamics. While the primary dataset establishing the moderation pathways was utilized in the initial thesis, the current study introduces a novel secondary analysis. Specifically, this article incorporates previously unexamined data on shopper demographic characteristics to evaluate a moderation model, a component not explored elsewhere.

Measures and Operationalization

To operationalise the dependent variable, shopper behaviour (SB), this study utilized a 10-item instrument derived from the conceptual framework of Wilson (1995) shown in Table 1.

Table 1: Operationalization of Variables

Variable	Indicator	Formar	Measure	Literature	Justification
Transaction Marketing	Promotion	Multiple choice	Interval	Kotler)	5 likert scale strongly
Practice	Place	Multiple choice	Interval	et al., (2023)	disagree to
Independent Variable	Price	Multiple choice	Interval		strongly agree
	Product	Multiple choice	Interval		
Shopper	Age	Multiple choice	Nominal	Solomon	Progressive groups 18-29
Characteristics	Gender	Multiple choice	Nominal	et al., (2017)	Catergorical
Moderator	Income	Multiple choice	Ordinal		Salary range lowest to highest
	Education	Multiple choice	Ordinal		Academic degrees hierarchical
	Household size	Open-ended fill	Ratio discreet		Exact number; calculate averages
Shopper Behavior	Engagement	Engagement	Interval	Wilson (1995)	5 likert scale strongly
Dependent Variable	Trust	Trust	Interval	Adapted to	disagree to strongly agree
	Reciprocity	Reciprocity	Interval	Consumer	
	Commitment	Commitment	Interval	Behaviour	
	Satisfaction	Satisfaction	Interval		

Source: Primary Data, 2023

In this empirical study, Transaction Marketing Practice (Independent Variable) and Shopper Characteristics (Moderator Variable) were operationalised using measurable survey metrics. Transaction Marketing Practice was analyzed through the 4Ps framework: Product, Price, Place, Promotion via a 5-point Likert scale survey. Shopper Characteristics were assessed using demographics: age and gender as nominal categories, income and education as hierarchical ordinal ranges, and household size as a discrete ratio variable recorded as exact counts.

Shopper behaviour utilizes Wilson's Integrated Model of Buyer-Seller Relationships, designed for B2B markets, and is adapted for consumer contexts by leveraging Social Exchange Theory. In a survey for retail consumers, key concepts were redefined to enhance understanding, such as transforming social and structural bonds into shopper engagement and incorporating reciprocity to illustrate mutual benefits. This adaptation preserves the model's theoretical essence while increasing its relevance to retail audiences.

Measurement Reliability and Validity

Before hypothesis testing, the internal consistency and reliability of the measurement instruments were evaluated using Cronbach's alpha (α) as shown in Table 2. Both principal latent constructs demonstrated excellent internal reliability, far exceeding the standard psychometric threshold of 0.70 (Nunnally & Bernstein, 1994). Specifically, Transaction

Marketing (12 items) yielded an α of .941 and the composite shopper behavior scale (10 items) exhibited an exceptionally strong α of .926. The high internal consistency of the shopper behavior scale empirically validates the aggregation of its emotional and behavioral sub-facets into a singular, highly cohesive consumer outcome construct.

Table 2: Reliability Analysis Test

Construct	Items	Cronbach Alpha α	Number of
		α Rating	items
Transaction Marketing (TM)	Promotion	.941	12
	Place		
	Price		
	Products.		
Shopper Behaviour (SB)	Engagement	.926	10
	Trust		
	Reciprocity		
	Commitment		
	Satisfaction		

Source: Primary Data, 2025

To ensure construct validity, all measurement items were adapted from established marketing literature and measured on a 5-point Likert scale ranging from scale ranging from strongly disagree 1 (strongly disagree) to 5 (strongly agree) for retail marketing practices, shopper behavior. Shopper demographic characteristics have a heterogeneous measure; hence were not tested through Cronbach's alpha. The study conducted a pilot study with 40 respondents in the adjacent county of Kiambu to evaluate questionnaire clarity and item reliability before full deployment. Data collection took place in March 2025. Cronbach's alpha and were calculated to assess internal consistency. Variance inflation factor (VIF) was used to verify convergent validity.

RESULTS

Preliminary Findings

Shopper demographic characteristics are quantitative data consists of age, gender, income, education, and household size (Solomon, 2024). Data screening was conducted to eliminate incomplete or careless responses, resulting in a final usable sample of 372 participants, with a 93% response rate.

To ensure construct validity, all measurement items were adapted from established marketing literature and measured on a 5-point Likert scale ranging from scale ranging from strongly disagree (1) to strongly (5)-Strongly Agree for retail marketing practices, shopper attitude and behaviour. A pilot test in the adjacent county of Kiambu was conducted on 40 respondents to evaluate questionnaire clarity and item reliability before full deployment. Data collection took place in March 2025. Cronbach's alpha and were calculated to assess internal consistency. Variance inflation factor (VIF) was used to verify convergent validity.

Hypothesis testing was conducted using regression analysis. To evaluate the underlying transmission mechanisms, moderation analysis was conducted following the framework established by Hayes (2017). Within this model, the overall effect captures the independent and moderator variables on shopper behaviour; main effect: path a captures the immediate,

unmoderated impact of transaction marketing practices on shopper behaviour, bypassing the specified moderator. Path b captures shopper demographic characteristics on shopper behaviour by passing the independent variable; finally, the interaction effect.

Respondents Characteristics

The dataset's baseline demographic profile is characterised by predominantly young-to-middle-aged, highly educated, higher-income individuals with a slight female majority shown in Table 3

Table 3: Respondents Characteristics

	Distribution	Frequency	Percentage%	Cumulative %
Age	18-28	112	30.11	30.01
	29-39	156	41.94	72.04
	40-50	45	12.10	84.14
	Over 50	59	15.86	100
Gender	Male	167	44.89	44.89
	Female	205	55.11	100
Income	Ksh. 0- 30,000	91	24.46	24.46
	Ksh. 30,001 - 40,000	38	10.22	34.68
	Ksh. 41,001- 50,000	48	12.90	47.58
	Over Ksh. 50,001	195	52.42	100
Education	High school	16	4.30	4.30
	College/Tertiary	45	12.10	16.40
	Bachelor's Degree	175	47.04	63.44
	Master's Degree	114	30.65	94.09.
	PhD	14	3.76	97.85
	Other	8	2.15	100
Household	Small	194	52.15	52.15
	Medium	144	38.71	90.69
	Large	34	9.14	100
Total		372	100	

Source: Primary Data, 2025

Data analysis involves the application of descriptive and inferential statistics and, finally, hypothesis testing. The standard deviation (SD) measures the extent of variation among the responses, based on how the data cluster around the mean. Collectively, the Mean (M) and the coefficient of variation (CV) provide a standardised system for comparing different datasets (Coppers et al., 2011). Multiple regression analysis was also conducted.

Descriptive Analysis

The analysis of data was based on the marketing approaches by Kotler et al. (2022) and the structured interpretation of Likert scales, outlined by Malhotra (2020). The findings show that shoppers reported average scores: Product ($M = 3.97$, $SD = 0.84$, $CV = 21\%$), Place ($M = 4.2$, $SD = 0.82$, $CV = 20\%$), Price ($M = 3.69$, $SD = 0.915$, $CV = 25\%$) Database ($M = 3.34$, $SD = 1.01$, $CV = 31\%$), indicative of predictability, whereas Promotion ($M = 3.58$, $SD = 1.07$, $CV = 30\%$) reported deeply fragmented and polarized responses, which reflects uncertainty. In the field of survey research, the analysis of transaction marketing practices, using a 5-point Likert scale, shows that the data has predictive and valid power, given that none of the SD values exceeds 1.5.

However, Malhotra (2020) asserts that data items with CV above 30% should be viewed with caution.

An initial analysis of the descriptive statistics on shopper behavior indicated a moderate to high level of consensus among respondents ($N = 372$), with an overall average score ($M = 3.55$, $SD = 0.86$, $CV = 23\%$) on a 5-point Likert scale. The highest levels of consumer agreement are associated with reciprocity. Shoppers reported a strong willingness to revisit the supermarket due to positive past experiences ($M = 4.22$, $SD = 0.63$, $CV = 15\%$) and a readiness to recommend the business to others ($M = 4.01$, $SD = 0.62$, $CV = 15\%$). The item also displayed the lowest relative variability in the dataset ($CV = 15\%$), indicating a tight consensus among respondents that high-quality service directly fosters word-of-mouth promotion and repeat visits. Similarly, elements of consumer trust and satisfaction scored highly; shoppers expressed notable confidence in the supermarket's safety and reliability ($M = 3.97$, $SD = 0.69$, $CV = 17\%$) and broad satisfaction with their overall experience ($M = 3.89$, $SD = 0.62$, $CV = 16\%$). Conversely, dimensions of active customer engagement and rigid supermarket commitment scored below the midpoint, accompanied by significantly greater dispersion. Shoppers showed minimal inclination to participate in discussions or share opinions about the brand ($M = 3.06$, $SD = 1.08$, $CV = 35\%$) and were least likely to actively seek out information to learn more about the supermarket ($M = 2.81$, $SD = 1.07$, $CV = 38\%$). Furthermore, commitment appeared conditional: while shoppers had a mild willingness to tolerate minor operational mistakes ($M = 3.11$, $SD = 1.05$, $CV = 34\%$), they expressed reluctance to maintain loyalty when competitors offered lower prices ($M = 2.92$, $SD = 1.13$, $CV = 39\%$).

Correlation Analyses

The results of the Pearson correlation analysis using the behavioral science benchmark as outlined by Dancey and Reidy (2020). There was a moderate positive correlation between transaction marketing practices and shopper behavior ($r = .51$, $p < .01$). Conversely, several weak but statistically significant negative correlations were observed with demographic factors, specifically income ($r = -.23$, $p < .01$) and education ($r = -.20$, $p < .001$). Gender displayed a weak but statistically significant positive correlation ($r = .25$, $p < .001$). Finally, no statistically significant linear relationships were detected between transaction marketing practices and either age ($r = -.07$, $p = .164$) or household Size ($r = .087$, $p = .960$). These negative correlations with income and education suggest transaction marketing practices appeal more to a lower socioeconomic group.

Hypothesis Testing

The linkages between transaction marketing practices and shopper behavior were tested using Hayes (2017) moderation. Transaction marketing practices, the independent variable, comprised promotion, place, price, and product. Shopper demographic characteristics the moderator, consisted of age, gender, income, education and household size; whereas shopper behavior, the dependent variable: engagement, trust, reciprocity, commitment and satisfaction.

Transaction Marketing and Shopper Behaviour Moderated by Shopper Characteristics

A test was conducted to determine whether shopper demographic characteristics moderate the relationship between transaction marketing practices and shopper behaviour shown in Table 4.

Table 4: Model Comparison Master Table: Transaction Practices and Shopper Behaviour Moderated by Shopper Demographic Characteristics

Independent Variables & Diagnostic Indices	Model 1 (Age)	Model 2 (Gender)	Model 3 (Income)	Model 4 (Education)	Model 5 (Household size)
Main Effects					
Constant	3.54[0.02], p<.001	3.52[0.05], p<.001	3.55[0.02], p<.001	3.54[0.02], p<.001	3.55[0.02], p<.001
Transaction Marketing Practices (TM)	0.40[0.05] p<0.001	0.49[0.14] p<0.001	0.40[0.05] P<.001	0.42[0.05] p<.001	0.40[0.04], p<.001
Moderator (W)	0.05[0.02] p<.001	0.02[0.03] p=.470	-0.01[0.02] p.710	0.03[0.02] p=0.09	0.02[0.02] p=.351
Interaction Effects					
Interaction Term (TM × W)	-0.17[0.03] p<.001	0.06[0.09] p=.472	-0.02[0.04] p=.522	-0.13[0.05] p<0.01	0.04[0.07] p=.569
Model Diagnostics					
Observations (N)	372	372	372	372	372
Model R	.55	.50	.50	.53	.50
Model R ²	.30	.26	.26	.28	.26
Interaction Δ R ²	.03 p<.001	.001[0.52] p=.472	.001[.41] p=.522	0.18 p=.001	.001[.03] p=.569
F-Statistic	41.70 <.001	27.70 <.001	26.53 <.001	32.24 <.001	26.95 <.001

Source: Primary Data, 2025

Conditional Effects

The conditional effect, according to Hayes (2017), is the actual effect of the independent variable on the dependent variable at a specific, fixed value of the moderator, shown in Table 5.

Table 5: Conditional Effects of Marketing Frameworks across Key Shopper Characteristics

Framework / Predictor & Moderator Level	Value	Effect (β)	SE (HC0)	T	p-value	95% CI [LLCI, ULCI]
Transaction Marketing (TM)						
Age (Low)	-1.14	0.60	0.05	10.77	<.001	[0.480, 0.700]
Age (Mean)	-0.14	0.42	0.04	9.78	<.001	[0.340, 0.510]
Age (High)	1.18	0.20	0.06	3.36	<.001	[0.080, 0.320]
Education (Low)	-1.24	0.58	0.07	8.03	<.001	[0.440, 0.740]
Education (Moderate)	-.240	.450	0.05	9.82	<.001	[0.360, 0.550]
Education (High)	.76	0.33	0.06	5.630	<.001	[0.210, 0.440]

Source: Primary Data, 2025

Model 1 (Age)

Transaction marketing (TM) and age together explain 30% of the variance in shopper behavior (SB), validating the model's predictive power ($R^2 = .30$). The conditional effect of transaction marketing on shopper behavior is statistically significant and positive ($b = .40$, $p < .001$) when age is zero. The conditional effect of age on shopper behavior is also statistically significant ($b = .05$, $p < .001$) when TM is zero. Crucially, the interaction term is statistically significant ($b = -.17$, $p < .001$). Testing this highest-order interaction significantly increased the explained variance ($\Delta R^2 = .03$, $p < .001$). This significant interaction pathway confirms that Age (M) moderates the relationship between transaction marketing (X) and shopper behavior (Y). The conditional effects demonstrate that younger shoppers are more influenced by transaction marketing, and this influence weakens as shoppers get older. Accordingly, the null hypothesis (H_{01}) stating that age does not moderate the relationship between TM and SB is rejected.

The fitted model for Age moderating the relationship between transaction marketing and shopper behavior can be summarized as follows: $Y_{SB} = 3.54 + (0.40) TM + (0.05) Age + (-0.17) TM \times Age$. The equation indicates that when both TM and Age are zero, the predicted SB is 3.54. For each unit increase in TM, SB increases by 0.40 units specifically when Age is zero. For each unit increase in Age, SB increases by 0.05 units when TM is zero. However, the interaction term shows that as age increases, the positive impact of TM on SB decreases by 0.17 units for every one-unit increase in age. This suggests that older shoppers respond less positively to transaction marketing efforts, indicating an interaction effect where age dampens the effectiveness of TM on shopper behavior."

Model 2 (Gender)

Transaction marketing together with gender explains 26% of shopper behaviour, thus validating the model's predictive power. The transaction marketing to shopper behaviour pathway is statistically significant and positive ($b = .49$, $p < .001$). Gender to shopper behaviour is not statistically significant ($b = 0.02$, $p = .468$). Income on its own does not directly change shopper behaviour. The interaction term is not statistically significant ($b = -.06$, $p = .472$). Furthermore, testing the highest-order interaction did not cause any meaningful change in the explained variance ($\Delta R^2 = .001$). Therefore, this interaction pathway is non-significant and proves that gender (W) does not alter or moderate the relationship between transaction marketing (X) and shopper behaviour (Y). Accordingly, H_{02} that gender does not influence the relationship between transaction marketing and shopper behaviour failed to be rejected.

Model 3 (Income)

Transaction marketing together with income explains 26% of shopper behaviour, thus validating the model's predictive power. The transaction marketing to shopper behaviour pathway is statistically significant and positive ($b = .39$, $p < .001$). Income to shopper behaviour is not statistically significant ($b = -.01$, $p = .710$). Income on its own does not directly change shopper behaviour. The Interaction Term is not statistically significant ($b = -.02$, $p = .522$). Furthermore, testing the highest-order interaction did not cause any meaningful change in the explained variance ($\Delta R^2 = .001$). This interaction pathway is not significant; it proves that income (W) does not alter or moderate the relationship between transaction marketing (X) and shopper behaviour (Y). Accordingly, H_{03} that income does not influence the relationship between transaction marketing and shopper behaviour failed to be rejected.

Model 4 (Education)

Transaction marketing (TM) and education together explain 28% of the variance in shopper behavior (SB) ($R^2 = .28$, $p < .001$). While the main effect of education is not significant ($b = 0.03$, $p = .090$), the interaction term is statistically significant ($b = -0.13$, $p = .006$), accounting for an additional 1.8% of explained variance ($\Delta R^2 = .018$, $p = .006$). This confirms that education moderates the TM SB relationship. Conditional effects show that TM positively influences SB across all levels, but the effect grows weaker as education increases: transitioning from low ($b = 0.58$, $p < .001$) to moderate ($b = 0.45$, $p < .001$) and high education levels ($b = 0.33$, $p < .001$). Accordingly, the null hypothesis (H_{04}) stating that education does not influence the relationship is rejected.

The fitted model for education: the linear regression model is expressed as $YSB = 3.54 + (0.42 TM) + 0.03 SC + (-0.13 TM \times SC)$. The linear regression model demonstrates both main and interaction effects on shopper behavior. The negative interaction coefficient ($b = -0.13$, $p = .006$) indicates that the positive impact of transaction marketing diminishes as consumer education levels increase."

Model 5 (Household)

Transaction marketing to shopper behavior: This pathway is statistically significant and positive ($b = .40$, $p < .001$). The household size to shopper behavior pathway is not statistically significant ($b = .02$, $p = .351$). Household size on its own does not directly change shopper behavior. Furthermore, testing the highest-order interaction did not cause any meaningful change in the explained variance ($\Delta R^2 = .001$). The interaction term is not statistically significant ($b = -.04$, $p = .569$). Because this interaction term is non-significant, and therefore proves that household size (W) does not alter or moderate the primary relationship between transaction marketing (X) and shopper behavior (Y). Accordingly, H_{05} that household size does not influence the relationship between transaction marketing and shopper behavior failed to be rejected.

Discussion

The empirical findings of this study across all five moderation configurations revealed a stable and robust explanatory capacity, with the coefficient of determination R^2 consistently ranging between 0.26 and 0.30. This indicates that transaction marketing practices and shopper demographic characteristics account for 26% to 30% of the total variance observed in shopper behavior (SB). Ozili (2023) contends that in the context of consumer psychology and behavioral science, human decision-making processes are inherently multi-faceted; therefore, a threshold of $0.10 > R^2 < .10$ is good and represents a highly substantial and satisfactory model fit. This tight range of 4% demonstrates that the models are structurally resilient and applicable.

Conversely, the remaining 70% to 74% is attributed to alternative channels. Ultimately, these diagnostics validate the conceptual framework of this study, proving that transaction marketing operates as a primary and dependable driver of shopper responses, though its ultimate velocity is conditionalized by localized exogenous environmental variables. Specifically, rivalry from an expansive informal industry offering micro packaging and interaction marketing; price-elastic wholesalers, and forward-integrating manufacturers mirrors the KNBS (2025) retail sector report.

An examination of main effects across the five completed structural models reveals that the direct pathway running from transaction marketing practices to shopper behaviour is structurally stable, with coefficients tightly bound between ($b = .40$) and ($b = .49$). Statistically,

this suggests an immediate behavioural surge of between 0.40 and 0.49 units. The fact that this baseline has a tight margin of only 9% to 10% across all five models empirically proves that transaction marketing is a dependable primary driver of shopper actions within the Kenyan retail sector, aligning with studies by Njeru (2016) and Ndegwa et al. (2021). Further, the main effects of shopper demographic characteristics and shopper behaviour show that, except for age, all the other models fail to drive consumer behaviour on their own when transaction marketing is held completely constant at its average value.

The absence of statistical significance in the socio-demographic effects on consumer behaviour within the formal supermarket segment that represents 30% suggests important behavioural trends. Since formal retail represents a small portion of the overall Kenyan market, the consumers in this segment show similar behaviour patterns regardless of gender, income, or household size. This consistency is likely due to the nature of formal retail shopping, which is largely influenced by habitual purchasing and familiarity from past experiences and mirrors assertions by Kotler et al. (2022) that low involvement renders shopper demographic characteristics least effective, and supports Dobrowolski et al. (2022), Sagaci (2023) and Notkin and DeCisso (2018) on psychographics, and Grewal et al. (2004) and Seth (2023) on behavioural segmentation using AI.

The evaluation of the interaction effects ($X \times W \rightarrow Y$) identifies conditions affecting consumer responses to transaction marketing practices in Kenya. The analysis on age and education reveals that younger consumers, who make up a significant portion of the sample, are more responsive to transaction marketing practices, strongly aligning with the generational paradigm shift mapped out by Dobrowolski et al. (2022), who argue that modern younger demographics operate under an entirely reconstructed consumer value system; they naturally possess high scepticism toward corporate promises, and detachment is their shield against manipulation. They prefer transaction marketing because it is low-risk: a quick exchange with zero attachment. In contrast, older consumers exhibit a dampened response due to ingrained shopping habits developed over time. Education also plays a crucial role, with less-educated consumers showing a stronger reaction to transaction marketing practices compared to their more educated counterparts; however, as education levels increase, transaction marketing gets weaker.

The evaluation of the interaction term reveals that factors such as gender, income, and household size do not significantly impact shopper behaviour. This suggests that while these shopper demographic characteristics were once effective in traditional retail settings, they are losing their predictive power in modern environments. The fragmentation of household units and the influence of age and education on income absorption indicate that legacy marketing practices are struggling to overcome these shopper characteristics challenges. This aligns with Kotler et al. (2022) assertion that modern target marketing should move beyond simple descriptive segment definitions, as overlapping demographic profiles become less actionable. Additionally, younger consumers exhibit a preference for transactional interactions, reflecting Solomon et al. (2024) view of the postmodern consumer. This demographic seeks individualised and fragmented consumption experiences, favouring discrete transactions over the institutional brand relationships valued by older generations. In this context, indicating that transaction marketing practices' effectiveness transcends these shopper characteristic elements.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The study examined supermarket shoppers in Nairobi, Kenya, who make up 30% of the shopping population. The study highlights the effectiveness of transaction marketing practices (TM) as a strong behavioural trigger for consumer purchases, with significant impacts observed across various shopper characteristics. However, factors like gender, income, and household size do not significantly mediate shopping behaviour, as these traits remain dormant. This is attributed to the habitual nature of shopping in supermarkets, as it tends to be routine, focusing on the familiarity and predictability of the experience rather than their personal characteristics. A shopper does not walk into a supermarket because they are male or female, or rich or poor; they walk in because it is their weekly routine, and they know exactly what kind of experience they will get.

Recommendations

The findings show that because shopping is highly habitual, repetitive, and experience-based, it renders certain shopper characteristics, namely gender to a lesser extent, income and household size, dormant and hence unimportant on their own. The study recommends that retail automation be the foundational engine of modern consumer routines. Since age and education remain relevant, a hybrid model merging traditional segmentation with automation, defining structural boundaries while improving real-time execution. These findings suggest that supermarket managers in Kenya should tailor their marketing strategies to target younger shoppers, who prefer transactional detachment, leverage education and replace legacy stereotyping. Additionally, understanding the rigid habits of older consumers can help in designing marketing approaches that appeal to their penchant for seeking relational interaction. These recommendations are likely to result in a more dynamic segmentation process.

Limitations

The study on transaction marketing practices in tier 1 supermarkets in Kenya has several limitations. Firstly, the findings may not apply to other industries due to the specific focus on supermarkets. Secondly, while supermarkets may adopt similar strategies, their operational differences can lead to diverse opinions among respondents. Additionally, the study primarily addresses transaction marketing, overlooking the impact of emerging digital platforms on Business-to-Consumer interactions. Lastly, since the results are based on shopper feedback, there is a risk of response bias and potential inaccuracies regarding sample representation.

Declaration

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Data Availability and Transparency: The empirical dataset utilized in this study was derived from the broader research project titled: *Retail Marketing Practices, Shopper Characteristics, Attitude, and the Behaviour of Supermarket Shoppers in Nairobi*. This dataset has been previously leveraged to examine descriptive relationships and mediation pathways in: *The Extent To Which Shopper Attitudes Mediates The Relationship Between Retail Marketing Practices And Shopper Behavior In Top-Tier Supermarkets*, and *Retail Marketing Practices and the Behavior of Supermarket Shoppers in Nairobi City County, Kenya*. However, the specific moderation models, hypotheses, and corresponding findings presented in this manuscript are entirely novel and have not been previously published elsewhere.

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