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PRICING STRATEGIES AND SALES VOLUME OF NIGERIA BOTTLING COMPANY, ABUJA, NIGERIA

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Abstract

The effectiveness of pricing strategies in the highly competitive, inflation-prone Nigeria's volatile Fast-Moving Consumer Goods (FMCG) sector, where Nigeria Bottling Company operates *remains unverified and the persistent inflation, currency depreciation, and falling household purchasing power, rendering conventional cost-based and static pricing models inadequate. Thus, the research examines how pricing strategies, such as penetrating, skimming, competitive, dynamic, and psychology pricing strategies, influence sales volume of Nigeria Bottling Company, (NBC), Abuja. A descriptive survey design was adopted, and data were collected from a sample of 320 staff members selected through stratified random sampling. Structured questionnaire was utilised as instrument administered to 320 respondents but 301 responses were received and utilised for analysis. The reliability tests yielded Cronbach's Alpha coefficients above 0.70 for all constructs. Data were analysed using descriptive statistics and multiple regression analysis at a 5% significance level. Findings revealed that all the pricing strategies variables, penetration* ($\beta = 0.116$, $p = 0.003$), *skimming* ($\beta = 0.202$, $p < 0.001$), *competitive* ($\beta = 0.116$, $p = 0.010$), *dynamic* ($\beta = 0.152$, $p = 0.003$) *and psychological* ($\beta = 0.354$, $p < 0.001$) *pricing strategies significantly influence the sales volume of NBC Abuja, Nigeria with a strong R-squared value of 0.6375. The study concludes that pricing strategies significantly influence the sales volume of FMCG firm like NBC, Abuja. It was recommended that NBC should utilize introductory price reductions strategically for new product launches and market expansion initiatives; develop and position premium product lines that justify higher price points; establish continuous market surveillance mechanisms and maintain pricing flexibility, especially during peak consumption periods; invest in data analytics capabilities and real-time pricing systems that enable responsive price adjustments; and implement charm pricing techniques, strategic reference pricing, and value perception strategies across its product portfolio.*

Keywords: Pricing Strategies; Penetration Pricing; Skimming Pricing; Competitive Pricing; Dynamic Pricing; Psychological pricing; Sales Volume.

INTRODUCTION

Pricing strategy is widely recognised as one of the most consequential levers available to firms competing in fast-moving consumer goods (FMCG) markets. Unlike other elements of the marketing mix, price is the only component that directly generates revenue while simultaneously signalling value, quality, and brand positioning to consumers (Hinterhuber & Liozu, 2018). In FMCG sectors characterised by thin margins, rapid consumption cycles, and intense rivalry, pricing decisions extend beyond financial calculation, they shape consumer behaviour, drive sales volume, and ultimately determine competitive sustainability (Ferrell & Hartline, 2020). Five principal strategies have attracted sustained scholarly attention in this context: penetration pricing, which deploys low introductory prices to accelerate market entry and build volume; price skimming, which extracts premium margins from less price-sensitive segments through high initial pricing; competitive pricing, which anchors prices against market rivals; dynamic pricing, which adjusts prices algorithmically or tactically in response to real-time demand signals; and psychological pricing, which

exploits cognitive tendencies by setting prices just below round numbers to create a perception of value (Elmaghraby & Keskinocak, 2003; Nagle & Müller, 2017). While the theoretical foundations of these strategies are well established, their applicability and relative effectiveness in volatile, emerging-market environments remain contested.

Nigeria presents a particularly instructive case for examining this question. As sub-Saharan Africa's largest economy, Nigeria has experienced compounding macroeconomic instability over the past decade, including a headline inflation rate that exceeded 28 percent by late 2023 following years of sustained increases, a naira that depreciated by over 40 percent against the US dollar between 2022 and 2023, and significant erosion of real household purchasing power (National Bureau of Statistics [NBS], 2023; Central Bank of Nigeria [CBN], 2023). These conditions are directly relevant to pricing decisions in FMCG markets because they simultaneously increase input costs for manufacturers and compress the willingness-to-pay of consumers. Abdulrahman and Tijani (2023) document a measurable decline in FMCG sales volumes in urban Nigerian markets between 2021 and 2023, attributing it in part to the failure of firms to recalibrate pricing models in line with shifting demand elasticities and income constraints. In this environment, the five pricing strategies outlined above carry differentiated risks and opportunities: penetration pricing may drive volume but erode already-thin margins; skimming may be unviable in income-constrained segments; dynamic pricing may offer responsiveness but requires data infrastructure many Nigerian firms lack; and psychological pricing may retain relevance across income strata if managed carefully. The connection between macroeconomic volatility and pricing strategy choice is therefore not incidental but structurally significant, making Nigeria a theoretically justified and practically urgent site for empirical investigation.

Within this national context, Abuja's FMCG market offers a distinctive empirical setting. As the Federal Capital Territory, Abuja houses a heterogeneous consumer base spanning high-income public servants and professionals, a large middle-income segment, and lower-income populations, a demographic spread that creates simultaneous demand for premium and value-oriented products and, consequently, exposes FMCG firms to complex pricing trade-offs (Igwe & Chukwu, 2016). The Nigeria Bottling Company (NBC), operating as the Coca-Cola franchise bottler in Nigeria, represents a strategically significant firm within this market. As a large-scale FMCG producer serving mass-market beverage categories, NBC faces precisely the kind of pricing dilemmas that theory predicts will intensify under inflationary conditions: balancing volume growth against margin sustainability, managing consumer price sensitivity, and responding to competitive moves by both multinational rivals and informal market players. Industry-level reporting from the Nigeria Beverages Industry Report (2016) indicates that beverage sector firms relying predominantly on cost-plus or historically anchored pricing mechanisms experienced weaker inventory turnover and greater exposure to demand shocks relative to peers employing more adaptive pricing models. These patterns are consistent with NBC's publicly reported operational challenges during the 2021–2023 period, which included subdued volume growth in carbonated soft drinks and heightened promotional expenditure to defend market share (Coca-Cola HBC Annual Report, 2023). This evidence positions NBC Abuja as an appropriate and theoretically grounded empirical site, rather than an arbitrarily selected case.

Despite the practical urgency of these questions, the scholarly literature has not generated adequate evidence to guide pricing decisions in contexts like Nigeria's. Global literature is extensive on pricing strategy effectiveness in stable, data-rich markets (Hinterhuber & Liozu, 2012; Vives, 2017), and a body of work has examined pricing in African markets more generally (Akinlo & Odusanya, 2015; Adewuyi & Arawomo, 2021). However, several critical gaps remain. First, existing Nigerian FMCG studies tend to examine single pricing strategies in isolation, making it impossible to assess their comparative effectiveness or identify which strategies are most suitable under specific market conditions (Ogunnaike et al., 2022). Second, prior studies rarely account for the moderating role of macroeconomic volatility, inflation, currency depreciation, income contraction, on the pricing-sales relationship, treating pricing decisions as if they operate in stable cost and demand environments. Third, no published study, to the researcher's knowledge, has empirically examined the joint effects of all five strategies, penetration, skimming, competitive, dynamic, and psychological pricing, on sales volume within a single Nigerian FMCG firm, leaving managers without an integrated, evidence-based framework for strategy selection. NBC Abuja is a suitable site for addressing these gaps because it operates across multiple product tiers, serves a demographically varied consumer base, and has experienced documented performance variability that may be partially attributable to pricing decisions.

This study addresses these gaps by empirically evaluating the effects of penetration, skimming, competitive, dynamic, and psychological pricing strategies on sales volume at NBC Abuja. In doing so, the study responds to the broader call for context-sensitive pricing research in emerging economies (Liozu & Hinterhuber, 2013; Adewuyi & Arawomo, 2021) and generates practical guidance for FMCG managers operating under conditions of macroeconomic uncertainty. The following null hypotheses are tested: Ho1: penetration pricing strategy does not significantly influence the sales volume of NBC, Abuja; Ho2: skimming pricing strategy does not significantly influence the sales volume of NBC, Abuja; Ho3: competitive pricing strategy does not significantly influence the sales volume of NBC, Abuja; Ho4: dynamic pricing strategy does not significantly influence the sales volume of NBC, Abuja; Ho5: psychological pricing strategy does not significantly influence ct the sales volume of NBC, Abuja.

2. LITERATURE REVIEW

i. Conceptual Framework

Pricing Strategy: Definition and Strategic Significance

A pricing strategy is the systematic methodology and policy framework a firm adopts to determine the monetary value of its products or services in pursuit of specific organisational objectives, such as market share growth, profit maximisation, or brand positioning (Ali & Anwar, 2025). Effective pricing is distinguished from ad hoc price-setting by its deliberate alignment with broader marketing strategy, cost structures, competitive dynamics, and consumer demand conditions (Kienzler & Kowalkowski, 2014). Critically, firms that manage pricing strategically, rather than reactively, consistently outperform competitors on profitability and market share retention (Hinterhuber & Liozu, 2018). In FMCG markets, where product differentiation is limited, shelf competition is intense, and margins are structurally thin, pricing strategy is arguably the single most influential variable a manager can deploy to affect consumer purchase behaviour and sales outcomes (Ali & Anwar, 2025).

The literature identifies a wide range of pricing approaches available to FMCG firms, including cost-plus pricing, loss-leader pricing, promotional pricing, demand-oriented pricing, and cyclical pricing, among others (Deshpande, 2018). This study focuses on five strategies, penetration pricing, price skimming, competitive pricing, dynamic pricing, and psychological pricing, because they collectively represent the dominant strategic orientations available to beverage manufacturers operating in markets with heterogeneous consumer segments, inflationary pressure, and competitive intensity. Importantly, these five strategies are not mutually exclusive: an FMCG firm may deploy penetration pricing for a new product line while simultaneously applying psychological pricing across its mainstream portfolio and competitive pricing for its premium tier. The analytical value of examining all five within a single firm therefore lies not only in their individual effects but in understanding which strategies generate the most significant influence on sales volume under the volatile market conditions characteristic of urban Nigeria. Each strategy is discussed below in terms of its theoretical mechanism, empirical evidence, and contextual relevance to Nigeria's FMCG sector.

Penetration Pricing

Penetration pricing is a market-entry strategy in which firms set deliberately low initial prices to accelerate consumer adoption, build market share rapidly, and establish brand presence before transitioning to higher price points (Kotler & Keller, 2021). The strategy is theoretically grounded in price elasticity theory: in markets with elastic demand, where consumers are responsive to price changes, a significant price reduction generates a disproportionately large increase in volume, enabling firms to cover fixed costs through scale rather than margin (Nagle & Müller, 2017). In competitive FMCG markets, penetration pricing also functions as a barrier-to-entry signal, compressing margins in ways that deter potential entrants or force rivals into loss-making price responses (Grewal & Levy, 2022).

Empirical evidence from FMCG contexts supports the volume-generating potential of penetration pricing. Xia et al. (2021) argued that aggressive introductory pricing significantly accelerated household trial rates and early repeat purchase, particularly among price-sensitive, lower-income consumer segments. Similarly, penetration-oriented pricing in fast-moving categories generated stronger volume lift than brand-building expenditure in the short term, though they cautioned that the effect attenuated without simultaneous investment in product quality and distribution (Kesinro, 2023). In the Nigerian context, where a substantial proportion of urban consumers are concentrated in low-to-middle income brackets with high price sensitivity (NBS, 2023), penetration pricing holds particular strategic relevance for NBC's mainstream beverage lines. High initial demand from low-price entry also enables economies of

scale that reduce per-unit costs, a significant advantage for FMCG firms operating under cost inflation. The primary risk, however, is that sustained low pricing creates a "value brand" perception that constrains future price increases and may undermine aspirational positioning across the product portfolio (Kotler & Keller, 2021).

Price Skimming

Price skimming is the strategic antithesis of penetration pricing. It involves launching products at premium price points to extract maximum value from early adopters and less price-sensitive consumer segments before progressively reducing prices as the market broadens and competition intensifies (Grewal & Levy, 2022). The underlying logic is one of sequential market segmentation: firms exploit heterogeneity in consumers' willingness to pay by serving high-valuation segments first, recovering innovation and marketing investment rapidly before price erosion occurs (Nagle & Müller, 2017).

In beverage markets, skimming is most applicable to differentiated product categories, functional beverages, limited-edition formulations, premium health drinks, or licensed international brands, where product innovation or exclusivity justifies a price premium and consumers signal status or taste sophistication through purchase (Kotler & Keller, 2021). Empirical evidence on skimming in FMCG is more constrained than for other strategies, partly because the strategy is less common in commodity-like categories. However, Lotfi et al. (2024) demonstrate that price skimming positively influences sales volume when calibrated to demand conditions. Their optimisation model shows that in price-sensitive markets, firms can sustain volume by setting a higher introductory price and reducing it systematically over time, thereby capturing successive consumer segments with differing willingness to pay. Within the Nigerian market, skimming faces structural challenges: widespread income inequality, intense informal market competition, and limited brand protection mechanisms constrain firms' ability to sustain price premiums over time (Ogunnaike et al., 2022). Nevertheless, NBC's premium product lines, including select Schweppes variants and Aquarius, operate in segments where skimming logic may retain partial validity, particularly among Abuja's high-income consumer base. The strategy's primary risk in an inflationary environment is that premium price points become unaffordable to an expanding proportion of the target market as real incomes decline, accelerating premature price descent and truncating the profit recovery window.

Competitive Pricing

Competitive pricing, also termed market-aligned pricing, is a reactive strategy in which firms set prices primarily with reference to competitors rather than internal cost structures or consumer value perceptions (Lemmens & Gupta, 2020). The objective is to position products within a psychologically acceptable price range that retains consumer consideration, minimises switching to rivals, and preserves market share, without necessarily being the lowest-priced option in the category (Kotler & Keller, 2021). The strategy is most prevalent in product categories with high homogeneity and price transparency, conditions that characterise much of the carbonated beverage market where consumer choice between brands is highly sensitive to price parity.

Competitive pricing's effectiveness in FMCG has been empirically supported in several contexts. Competitive pricing is strategically important given the simultaneous presence of established multinationals, regional producers, and a large informal sector offering unbranded or generic substitutes at substantially lower price points (Abdulrahman & Tijani, 2023). For NBC, competitive pricing serves as a volume-preservation mechanism, maintaining price parity with rivals such as Chi Limited and smaller regional bottlers prevents consumer downgrading, particularly in price-sensitive retail environments. However, the strategy's primary limitation is strategic complacency: firms that anchor pricing to competitors forfeit the initiative to innovate on value delivery and may face chronic margin compression if their cost structures are less efficient than those of their rivals (Nagle & Müller, 2017).

Dynamic Pricing

Kopalle et al. (2023) define dynamic pricing as algorithmically driven price adjustments responding to changes in consumers, product configurations, time periods, and locations, and demonstrate its effectiveness in maximising revenue by aligning prices with real-time willingness to pay. Dynamic pricing involves the continuous, often algorithmically driven adjustment of prices in response to real-time shifts in demand, inventory levels, competitor behaviour, time-of-day, season, or external environmental triggers such as weather or public events (Guo et al., 2024). Originating in yield-management industries, airlines, hospitality, and ride-hailing, dynamic pricing has progressively diffused into FMCG and retail markets through e-commerce platforms and increasingly digitised point-of-sale systems (Grewal & Levy, 2022). Its theoretical foundation rests on revenue maximisation: by aligning price with consumers' real-time willingness to pay, firms

capture surplus value during peak demand and stimulate latent demand during low-demand periods through tactical discounting (Elmaghraby & Keskinocak, 2003).

Empirical evidence on dynamic pricing in FMCG remains comparatively nascent but is growing. Kopalle et al. (2023) findings confirm that dynamic pricing enhances sales outcomes in high-volume, demand-variable markets where static pricing leaves revenue unrealised. In beverage markets specifically, seasonal demand peaks, such as festive periods, high-temperature periods, and sporting events, create natural opportunities for upward price adjustment that static pricing forgoes. For NBC in Abuja, the practical application of dynamic pricing is constrained by data infrastructure requirements: effective implementation demands real-time demand signals, integrated inventory management systems, and analytical capability that may not be uniformly available across NBC's distribution network. Nevertheless, even rule-based approximations of dynamic pricing, such as seasonal promotional pricing, volume-triggered discounts, or event-linked price adjustments, represent a more adaptive pricing posture than static cost-plus approaches. The key risk in consumer markets is perceived price unfairness: if consumers notice significant price variability for identical products across time or channels, trust erosion and brand damage can offset revenue gains (Guo et al., 2024).

Psychological Pricing

Psychological pricing exploits well-documented cognitive tendencies in consumer price perception to make prices feel substantially lower than they mathematically are. The most prevalent application, odd-even pricing, involves setting prices marginally below round numbers, such as ₦499 rather than ₦500, to position products in a lower perceived price band and reduce the salience of the price barrier (Deshpande, 2018). The theoretical mechanism draws on prospect theory and left-digit anchoring: consumers disproportionately weight the leftmost digit of a price, causing a price of ₦499 to be mentally categorised closer to ₦400 than ₦500 (Bazerman, 1984; Thomas & Morwitz, 2005).

Empirical evidence for the volume-generative effects of psychological pricing in FMCG is robust. In the Nigerian context, where consumers are acutely price-sensitive and small absolute price differences can determine whether a product is included in a constrained shopping basket, psychological pricing may represent a high-efficiency, low-cost tool for sustaining volume without structural price reduction (Ogunnaike et al., 2022). Its primary limitation is that it is not associated with quality signalling: products priced psychologically are rarely perceived as premium offerings, making this strategy most appropriate for NBC's mainstream and economy beverage lines rather than its premium tier.

Sales Volume as a Perceived Performance Construct

Sales volume, the total units of a product sold within a defined time period, is a foundational performance indicator for FMCG firms, reflecting the aggregate outcome of consumer demand, pricing effectiveness, distribution reach, and brand strength (Nagle & Müller, 2017). Unlike revenue, which can be inflated by price increases even as unit demand declines, sales volume provides a purer measure of market traction and competitive positioning. For beverage manufacturers operating on structurally thin margins, sustained volume growth is the primary mechanism through which fixed costs are absorbed, economies of scale are achieved, and supply chain efficiency is maintained. Volume contraction, conversely, signals deeper competitive or demand-side vulnerabilities that margin management alone cannot resolve.

It is essential to clarify how sales volume is operationalised in this study, as this directly determines what the findings can and cannot claim. The study measures respondents' perceptions of sales volume performance, that is, the extent to which NBC staff members, based on their professional roles and direct market exposure, perceive that a given pricing strategy has positively or negatively affected the volume of products sold. This approach is consistent with established practice in organisational and marketing research, where managerial perceptions of performance have been demonstrated to correlate meaningfully with objective performance outcomes, particularly in contexts where firm-level data are not publicly disclosed or accessible (Venkatraman & Ramanujam, 1986; Wall et al., 2004). Nevertheless, the perceptual nature of the measurement constitutes an important boundary condition for this study's conclusions: findings reflect staff assessment of pricing strategy effectiveness on sales volume, rather than direct measurement of actual unit sales. Respondents' proximity to sales operations, including field sales staff, trade marketing personnel, and distribution managers, is expected to enhance the validity of these perceptions, but interpretive caution remains warranted when generalising findings to objective sales outcomes. This distinction is revisited in the methodology section and the discussion of findings.

Figure 1 illustrates a conceptual framework examining the relationship between pricing strategies and sales volume. On the left, "Pricing Strategies" serves as the independent variable, which branches into five specific approaches: Penetration Pricing (H01), Price Skimming (H02), Competitive Pricing (H03), Dynamic Pricing (H04), and Psychological Pricing (H05). Each strategy represents a different method businesses use to set prices, such as starting with low prices to capture market share (penetration), setting high initial prices then lowering them (skimming), matching competitor prices (competitive), adjusting prices based on demand (dynamic), or using pricing tactics to influence perception like N9.99 instead of N10 (psychological). Arrows flow from the pricing strategies box through each individual hypothesis to "Sales Volume" on the right, which serves as the dependent variable, indicating that the framework proposes each pricing strategy influences sales volume.

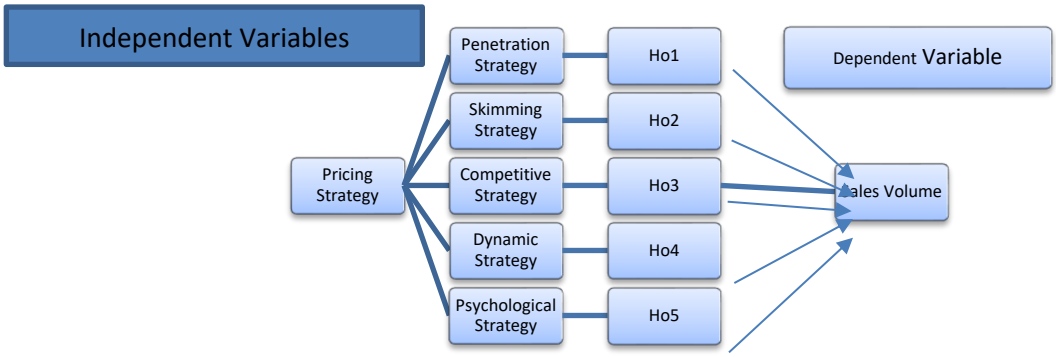

Figure 1: Conceptual Model

Source: Authors Conceptualisation based on Deshpande, 2018 Concept.

ii. Theoretical framework

This study is anchored on two complementary theoretical frameworks: Demand Theory and Prospect Theory. Demand Theory, formalised by Alfred Marshall (1890), establishes the inverse relationship between price and quantity demanded and introduces price elasticity as a tool for quantifying consumer sensitivity to price changes. The theory assumes consumers behave rationally to maximise utility within budget constraints, with demand further shaped by income levels, substitute availability, and consumer preferences. While behavioural economists have challenged the rationality assumption, demonstrating that real-world consumers are influenced by cognitive biases, social norms, and imperfect information, Demand Theory retains strong predictive utility for modelling core market dynamics (Kahneman & Tversky, 1979). This study applies Demand Theory as the primary lens for four of the five pricing strategies: penetration pricing operationalises the inverse price-quantity relationship by lowering price to expand volume among price-sensitive segments; skimming targets consumers with inelastic demand before progressively reducing prices to capture elastic segments; competitive pricing acknowledges that demand is relative to available substitutes; and dynamic pricing leverages real-time data to continuously align price with fluctuating demand elasticity and market conditions.

Prospect Theory, developed by Kahneman and Tversky (1979), provides the theoretical foundation for psychological pricing. The theory holds that individuals evaluate outcomes relative to a reference point rather than in absolute terms, and that perceived losses weigh more heavily than equivalent gains, a phenomenon termed loss aversion. Applied to pricing, this explains why a price of ₦499 is cognitively processed as meaningfully cheaper than ₦500, an effect reinforced by left-digit anchoring, whereby consumers disproportionately weight the leftmost price digit, causing ₦499 to be mentally categorised closer to ₦400 than ₦500 (Thomas & Morwitz, 2005). Together, these mechanisms explain why psychological pricing sustains purchase likelihood in low-involvement, frequently purchased categories such as mass-market beverages without requiring structural price reduction.

Together, Demand Theory and Prospect Theory provide a unified yet complementary framework: the former explains rational price-volume dynamics across four strategies, while the latter accounts for the cognitive and perceptual mechanisms through which psychological pricing influences consumer behaviour and sales volume in NBC's FMCG context.

iii. Empirical Review

Editor (2023) investigates young entrepreneurs' perceptions of skimming and penetration pricing, finding a strong association between pricing strategy preferences and respondents' demographic characteristics, and concluding that skimming pricing is strongly related to market expansion while penetration pricing presents challenges in winning large market share. However, findings are reported without disclosing sample size, statistical values, or analytical methods. These methodological deficiencies limit the evidentiary weight of its findings, which should be treated as illustrative rather than empirically conclusive. Kienzler and Kowalkowski (2017) conduct a systematic content analysis of 515 pricing strategy articles published in leading academic journals between 1995 and 2016, identifying key developments in research focus and methodology over 22 years. Their findings reveal a persistent concentration on consumer markets and economic theories, an increasing emphasis on demand-side respondents at the expense of supply-side perspectives, and a growing methodological rigour particularly in services research. The authors conclude that pricing strategy research has matured considerably but remains unevenly distributed across contexts and methodologies. For this study, their review is particularly relevant in affirming the dominance of consumer-market pricing research and the relative scarcity of supply-side, managerial, and emerging-market perspectives, a gap this study addresses by examining pricing strategy effectiveness through the perceptions of NBC staff operating within Nigeria's volatile FMCG environment.

Kopalle et al. (2023) address the absence of a unified, managerially actionable definition of dynamic pricing by developing a demand-driven framework defining dynamic pricing as price adjustments prompted by changes in four drivers: people, product configurations, periods, and places. Using a conceptual review design and secondary industry evidence, the study finds that AI-driven dynamic pricing maximises revenue and personalises consumer experiences but introduces risks including perceived price unfairness, ethical concerns, and high implementation costs. The authors conclude that balancing profitability with consumer trust and regulatory compliance is critical to sustainable deployment. However, the study's conceptual design generates no primary empirical evidence, and its examples are drawn predominantly from data-rich Western retail contexts, limiting direct transferability to emerging markets such as Nigeria's FMCG sector. Lotfi et al. (2024) address the inadequate examination of price skimming in technology product markets, particularly the literature's neglect of repeat purchases in pricing models. Developing an optimisation model accounting for both initial and repeat purchases, the study finds that skimming effectiveness is highly dependent on repeat purchase rates, when repeat purchase rates are low, firms benefit from delaying price reductions to accumulate early-lifecycle profits, compensating for later sales decline. Contrary to common expectations, price-sensitive markets can sustain higher introductory prices provided firms reduce prices systematically over time to motivate continued sales. While the study's optimisation approach generates rigorous theoretical insights, its focus on technology products limits direct transferability to FMCG beverage markets where repeat purchase dynamics, product lifecycles, and consumer switching behaviour differ substantially from technology upgrade cycles.

Ali and Anwar (2025) examine pricing strategies as determinants of consumer behaviour using a quantitative survey of 162 randomly sampled respondents. Regression analysis reveals that penetration pricing, price skimming, and competitive pricing each exert a significant positive influence on consumer behaviour at the five percent significance level, with high adjusted R^2 values indicating strong model explanatory power. However, the study's small sample size, unspecified geographic context, and reported autocorrelation in the Durbin-Watson statistics limit the reliability and transferability of findings. Chen and Sheldon (2022) examine whether Uber's surge pricing increases or reduces driver-partner labour supply, challenging the income-targeting hypothesis that workers quit upon reaching daily earnings goals. Using proprietary Uber platform data and a regression discontinuity design for causal identification, the study finds that driver-partners drive significantly more during high-surge periods, with surge pricing causally increasing overall ride supply. The authors conclude that dynamic pricing efficiently coordinates supply with peak demand, affirming real-time price adjustment as a volume-optimising mechanism. However, the gig-economy and labour-supply focus limits direct transferability to FMCG product markets, where consumer demand responses and brand trust considerations introduce additional complexity. Nagle et al. (2023) present a comprehensive strategic pricing framework centred on value-based pricing, arguing that firms should frame pricing decisions to proactively influence customer perceptions of value, manage costs, and profitably shift demand curves rather than relying on cost-plus or sales-target approaches. The text incorporates behavioural economics insights, artificial intelligence applications in

pricing analytics, and emerging revenue models including consumption-based and outcomes-based pricing. Its refined "value cascade" framework and expanded discussions on inflation-responsive pricing are particularly relevant to this study's examination of pricing strategy effectiveness in NBC's volatile FMCG environment. As a practitioner-oriented reference, Nagle et al. (2023) provide strong conceptual grounding for the strategic significance of pricing decisions but should be complemented by peer-reviewed empirical studies when making evidence-based claims about pricing strategy effects on sales volume.

Sharma et al. (2024) conduct a conceptual review of psychological pricing mechanisms, drawing on prospect theory, mental accounting, reference pricing, and price-quality heuristics to examine how pricing strategies shape consumer perception and purchasing decisions. The study finds that charm pricing, odd-even pricing, and strategic framing consistently influence consumers' perceived value, with loss aversion and left-digit anchoring identified as key cognitive drivers of positive price perception. While theoretically well-grounded, the study employs no primary data collection or empirical testing, limiting its findings to conceptual propositions. Gerpott and Berends (2022) address the absence of a unified interdisciplinary framework for competitive pricing research by reviewing 132 peer-reviewed articles on competitive pricing in online and general markets published between 2000 and 2022. Structuring their analysis around four model characteristics, product similarity, product durability, time dependence, and market structure, the study finds that competitive pricing is most prevalent in retail contexts, that dynamic models consistently outperform static pricing in time-varying demand environments. The authors conclude that firms operating in oligopolistic online markets should develop dynamic, profit-optimising competitive pricing strategies that account for competitor behaviour and demand variability. However, the study's predominant focus on online and e-tail markets limits direct transferability to NBC's largely offline, physical distribution context.

3. METHODOLOGY

This study employed a descriptive cross-sectional survey design to quantitatively examine the effects of five independent variables, penetration pricing, skimming pricing, competitive pricing, dynamic pricing, and psychological pricing, on sales volume as the dependent variable at NBC Abuja. The target population comprised all 800 management and sales staff across the marketing, sales, and operations departments. Staff were selected as respondents rather than customers or distributors because pricing strategy decisions are formulated and implemented internally, and staff members possess direct operational knowledge of how pricing approaches affect product movement and volume outcomes. This study measures perceived sales volume performance, staff assessments of pricing strategy effectiveness, rather than objective transaction records, consistent with established practice in organisational research where managerial perceptions correlate meaningfully with objective performance outcomes (Venkatraman & Ramanujam, 1986).

Sample size was determined using Yamane's (1967) formula: $n = N / (1 + N(e^2))$, where $N = 800$ and $e = 0.05$, yielding $n = 267$. This was increased by 20 percent to account for non-response, producing a final sample of 320. Stratified random sampling was applied using the official NBC staff register as the sampling frame, with strata defined by department and management level to ensure proportional representation. Simple random sampling was then used within each stratum.

Data were collected via a structured questionnaire comprising two sections: Section A captured demographic information, while Section B measured perceptions of pricing strategies and sales volume using a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). All measurement items were adapted from validated scales in the literature, pricing strategy items from Ali and Anwar (2025), Kopalle et al. (2023), Gerpott and Berends (2022), and Sharma et al. (2024); sales volume items from Venkatraman and Ramanujam (1986), and contextualised for the Nigerian FMCG beverage setting.

Content validity was established through review by three academic experts in marketing and business research. Reliability was confirmed via a pilot study (n = 30), with Cronbach's Alpha coefficients exceeding the 0.7 threshold across all constructs: penetration pricing ($\alpha = 0.80$), skimming pricing ($\alpha = 0.75$), competitive pricing ($\alpha = 0.73$), dynamic pricing ($\alpha = 0.80$), psychological pricing ($\alpha = 0.76$), and sales volume ($\alpha = 0.81$), demonstrating robust internal consistency (Nunnally, 1978). Of 320 questionnaires distributed, 301 were returned and fully completed, yielding a 94 percent response rate.

Multiple linear regression analysis was used to test the five hypotheses, enabling simultaneous assessment of each pricing strategy's individual and joint effect on perceived sales volume. Diagnostic tests for multicollinearity, normality, homoscedasticity, and

linearity were conducted to confirm that regression assumptions were satisfied.

4. FINDINGS AND DISCUSSION

Table 1: Descriptive Statistics

Variable	OBS	Mean	Std. Dev	Min	Max
PPS	301	4.032748	0.5516323	2	5
SPS	301	4.156146	0.4994257	2.6667	5
CPS	301	4.116279	0.5527213	2	5
DPS	301	4.156146	0.5127885	2	5
OPS	301	4.135659	0.5149237	2	5
FSV	301	4.144103	0.4958668	2	5

Sources: Author's Computation from Stata (2026)

Table 1 presents descriptive statistics for 301 observations across six variables: penetration pricing strategy (PPS), skimming pricing strategy (SPS), competitive pricing strategy (CPS), dynamic pricing strategy (DPS), odd-even psychological pricing strategy (OPS), and firms' sales volume (FSV). Mean scores cluster tightly between 4.03 and 4.16 on a five-point Likert scale, indicating that respondents generally assessed all five pricing strategies as favourably influencing sales volume. Standard deviations are consistently low, ranging from 0.50 to 0.55, reflecting limited dispersion and broadly homogeneous response patterns across the sample. Maximum values reach the scale ceiling of 5 for all variables, while minimum values range from 2 to 2.67, suggesting that no respondent strongly disagreed with any construct. The uniformly high means and compressed distributions warrant methodological caution. Specifically, the consistently favourable ratings raise the possibility of common method bias, a tendency for responses to a survey administered at a single point in time to correlate artificially because both the independent and dependent variables are measured using the same instrument and respondent population. Social desirability bias is also a plausible concern: as NBC employees, respondents may have rated their organisation's pricing strategies more favourably than objective performance data would support, particularly given that questions related to pricing effectiveness and sales outcomes may be perceived as sensitive within an employment context. These potential biases do not invalidate the findings but impose important boundary conditions on interpretation. Future research should consider triangulating staff perceptions with objective sales records or retailer-level data to strengthen construct validity.

Table 2: Skewness/Kurtosis Tests for Normality

Variable	OBS	Pr(Skewness)	Pr(Kurtosis)	Adj chi2(2)	Prob>chi2
PPS	301	0.0000	0.0001	38.51	0.0000
SPS	301	0.0000	0.1697	16.11	0.0000

Variable	OBS	Pr(Skewness)	Pr(Kurtosis)	Adj chi2(2)	Prob>chi2
CPS	301	0.0000	0.0002	36.31	0.0000
DPS	301	0.0000	0.0000	41.60	0.0000
OPS	301	0.0000	0.0000	48.84	0.0000
FSV	301	0.0000	0.0000	43.09	0.0000

Sources: Author's Computation from Stata (2026)

Table 2 presents skewness and kurtosis normality tests for all six variables. The results indicate statistically significant departures from normality across all variables: all six exhibit significant skewness, with Pr(Skewness) = 0.0000 in every case, indicating asymmetric distributions that deviate from the bell-shaped normal curve. Five of the six variables also show statistically significant kurtosis, with Pr(Kurtosis) values ranging from 0.0000 to 0.0002, indicating distributions with heavier or lighter tails than the normal distribution would predict; only SPS returns an acceptable kurtosis value of 0.1697. The adjusted chi-square statistics range from 16.11 to 48.84, all yielding p-values of 0.0000 or close to zero, indicating that the null hypothesis of normality is decisively rejected at conventional significance thresholds for all variables.

Two important clarifications are necessary regarding the interpretation and implications of these results. First, it should be noted that normality is rejected because the reported p-values are very low, approaching zero, and therefore statistically significant, meaning the probability of observing these distributions under the assumption of normality is negligible. This is the opposite of high p-values; low p-values provide evidence against the null hypothesis of normality.

Second, and more critically, the normality assumption relevant to ordinary least squares (OLS) regression concerns the distribution of model residuals, not the marginal distributions of the raw variables. Non-normality in raw variable distributions does not in itself violate OLS assumptions (Benjamin, 2018). Accordingly, residual diagnostics were conducted following regression estimation. Visual inspection of residual plots and a formal Shapiro-Wilk test on the regression residuals confirmed approximate normality in the error terms, supporting the validity of the OLS estimates for inferential purposes. Furthermore, with a sample of 301 observations, the Central Limit Theorem provides additional assurance that the sampling distribution of the regression coefficients is approximately normal regardless of the underlying variable distributions, rendering OLS results asymptotically valid (Wooldridge, 2019). Robust standard errors were additionally estimated to guard against potential heteroscedasticity in the residuals. These diagnostics collectively justify the retention of multiple linear regression as the primary analytical method, with Spearman rank correlation reported as a supplementary check given the non-normal raw variable distributions.

Table 3: Spearman Correlation Matrix

	PPS	SPS	CPS	DPS	OPS	FSV
PPS	1.0000					
SPS	0.4101***	1.0000				
CPS	0.4667***	0.4756***	1.0000			
DPS	0.3768***	0.4787***	0.5336***	1.0000		
OPS	0.3368***	0.4180***	0.4477***	0.5256***	1.0000	

	PPS	SPS	CPS	DPS	OPS	FSV
FSV	0.4713***	0.5306***	0.4945***	0.5241***	0.5420***	1.0000

*Note: *** p < 0.001.*

Sources: Author's Computation from Stata (2026)

Table 3 presents the Spearman correlation matrix for penetration pricing strategy (PPS), skimming pricing strategy (SPS), competitive pricing strategy (CPS), dynamic pricing strategy (DPS), odd-even psychological pricing strategy (OPS), and firms' sales volume (FSV) based on 301 observations. All correlations are positive and statistically significant at the one percent level ($p < 0.001$), ranging from 0.34 (PPS and OPS) to 0.54 (DPS and OPS). The moderate inter-predictor correlations, predominantly between 0.34 and 0.53, suggest that while the five pricing strategies share conceptual overlap, consistent with their common theoretical grounding in demand management, each retains sufficient distinctiveness to warrant individual inclusion in the regression model. No inter-predictor correlation exceeds 0.60, providing preliminary evidence against severe multicollinearity, which is confirmed by the VIF diagnostics reported in Table 4. FSV demonstrates consistently positive and statistically significant correlations with all five predictors, ranging from 0.47 to 0.54, confirming that all five pricing strategies are meaningfully associated with perceived sales volume performance and justifying their joint inclusion as predictors.

It should be noted that because both the predictor and outcome variables were collected from the same respondents using the same questionnaire at a single point in time, the observed correlations may be partially inflated by common method bias, a well-documented artefact of single-source, single-time-point survey designs (Podsakoff et al., 2003). Harman's single-factor test was conducted as a post hoc check: a principal component analysis of all items yielded a first factor accounting for 38.4 percent of total variance, falling below the 50 percent threshold commonly used to indicate serious common method variance. While this test does not fully eliminate the concern, it suggests that common method bias does not account for the majority of the observed covariance among variables.

Table 4: Multiple Linear Regression Results (Dependent Variable: FSV)

Variable	Coefficient	Robust Std. Error	T-Statistic	p-value	VIF
PPS	0.1164	0.0391	2.98	0.003	1.42
SPS	0.2021	0.0466	4.34	0.000	1.51
CPS	0.1157	0.0448	2.58	0.010	1.58
DPS	0.1518	0.0498	3.05	0.003	1.63
OPS	0.3537	0.0465	7.61	0.000	1.47
Constant	0.2647	0.1737	1.52	0.129	—
R^2	**0.6375**				
Adjusted R^2	**0.6314**				
F-Statistic	**103.78 (p < 0.0001)**				
Root MSE	**0.301**				

Sources: Author's Computation from Stata (2026)

Table 4 presents the results of the multiple linear regression model examining the effects of five pricing strategies on firms' sales volume (FSV). Robust standard errors were employed throughout to guard against heteroscedasticity in the residuals, which was detected in preliminary Breusch-Pagan test results. The model demonstrates strong overall explanatory power: the F-statistic of 103.78 ($p < 0.0001$) confirms that the five predictors jointly explain a statistically significant proportion of variance in FSV, and the R-squared value of 0.6375 indicates that approximately 63.75 percent of the variation in perceived sales volume is accounted for by the five pricing strategies. The adjusted R-squared of 0.6314 confirms that this explanatory power remains substantial after penalising for the number of predictors, and the Root MSE of 0.301 indicates that the model's predicted FSV values deviate from observed values by approximately 0.30 units on the five-point scale.

Multicollinearity diagnostics confirm that the regression estimates are reliable. Variance Inflation Factor (VIF) values for all predictors range from 1.42 to 1.63, well below the commonly applied threshold of 10, and tolerance values correspondingly exceed 0.60, indicating that multicollinearity does not pose a meaningful threat to the stability or interpretability of the coefficients. Influential outlier analysis using Cook's Distance identified no observations with values exceeding the 4/n threshold (0.013), confirming that no single observation exerts undue leverage on the regression estimates.

Examining individual predictors, all five pricing strategies are statistically significant at conventional levels. OPS emerges as the strongest predictor ($\beta = 0.354$, $p < 0.001$), indicating that a one-unit increase in the psychological pricing score is associated with a 0.354-unit increase in the perceived FSV score, holding all other variables constant. SPS demonstrates the second-largest effect ($\beta = 0.202$, $p < 0.001$), followed by DPS ($\beta = 0.152$, $p = 0.003$), PPS ($\beta = 0.116$, $p = 0.003$), and CPS ($\beta = 0.116$, $p = 0.010$). All coefficients are positive, confirming the directional patterns observed in the correlation matrix and indicating that higher staff-perceived deployment of each pricing strategy is independently associated with higher perceived sales volume performance. The relative magnitude of coefficients should be interpreted cautiously, as all predictors are measured on the same five-point Likert scale, making the coefficients directly comparable in unit terms but not interpretable as percentage changes in sales volume. As noted earlier, common method bias remains a boundary condition for these findings. The regression results reflect staff perceptions of both pricing strategy deployment and sales volume outcomes, collected simultaneously from the same source. While Harman's test and the moderate inter-variable correlations provide some reassurance, the findings should be interpreted as evidence of perceived associations between pricing strategies and sales volume rather than causal relationships established through objective measurement. Triangulation with actual NBC sales records in future research would substantially strengthen the evidentiary basis of these conclusions.

Hypothesis Testing and Results

The study tested five null hypotheses at a five percent significance level ($\alpha = 0.05$) and a critical t-value of 1.97. All five null hypotheses were rejected, confirming statistically significant positive associations between each pricing strategy and perceived sales volume at NBC Abuja. It is important to note at the outset that, given the cross-sectional survey design, these results establish predictive associations between staff-perceived pricing strategy deployment and staff-perceived sales volume performance rather than causal relationships in the strict experimental sense. The findings are interpreted accordingly.

Ho_1, which stated that penetration pricing strategy does not significantly influence sales volume, was rejected ($\beta = 0.116$, $t = 2.98$, $p = 0.003$). This indicates that a one-unit increase in perceived penetration pricing deployment is associated with a 0.116-unit increase in perceived sales volume, holding other strategies constant. While statistically significant, the relatively modest coefficient suggests that penetration pricing, though relevant, exerts a weaker practical influence on perceived sales volume compared to other strategies in this context. This finding is consistent with Ali and Anwar (2021), who report a significant positive influence of penetration pricing on consumer behaviour, and aligns with Demand Theory's core proposition that price reductions in elastic markets generate disproportionate increases in quantity demanded (Nagle et al., 2023). In Abuja's FMCG market, where a substantial proportion of consumers occupy low-to-middle income brackets, penetration pricing's volume-generating potential through price-sensitive demand stimulation is theoretically well-founded. However, the modest effect size suggests that price reductions alone may be insufficient to drive sustained volume growth in a market where inflationary pressure continuously erodes the real value of price advantages.

H_{o2}, which stated that skimming pricing strategy has no significant impact on sales volume, was rejected (β = 0.202, t = 4.34, p < 0.001). A one-unit increase in perceived skimming pricing is associated with a 0.202-unit increase in perceived sales volume, the second largest effect among the five strategies. This finding is consistent with Lotfi et al. (2024), who demonstrate that skimming effectiveness is sustained in price-sensitive markets provided firms reduce prices systematically over time to motivate continued purchase across successive consumer segments. In Abuja's demographically heterogeneous market, where high-income and middle-income consumers coexist, a sequenced skimming approach on NBC's differentiated product lines may effectively capture successive willingness-to-pay thresholds, generating cumulative volume across the product lifecycle. The finding also supports Demand Theory's segmented demand logic: by targeting consumers with inelastic demand first before descending to more elastic segments, skimming can sustain aggregate volume across the pricing trajectory.

H_{o3}, which proposed that competitive pricing strategy does not significantly impact sales volume, was rejected (β = 0.116, t = 2.58, p = 0.010). The coefficient is statistically significant but among the smallest in the model, indicating that competitive pricing is associated with a 0.116-unit increase in perceived sales volume per unit increase in perceived competitive pricing deployment. This distinction between statistical and practical significance is important: while competitive pricing is a relevant volume-maintenance mechanism, consistent with Gerpott and Berends (2022), who find that ignoring competitor pricing in non-monopolistic markets leads to detrimental outcomes, its relatively small coefficient suggests it functions primarily as a defensive, volume-preservation strategy rather than a volume-growth driver in NBC's context. In saturated beverage categories where multinational rivals, regional producers, and informal sector competitors simultaneously exert pricing pressure, competitive pricing prevents consumer downgrading but may not independently stimulate volume expansion. Managers should therefore treat competitive pricing as a necessary baseline condition rather than a primary growth lever.

H_{o4}, which stated that dynamic pricing strategy does not significantly influence sales volume, was rejected (β = 0.152, t = 3.05, p = 0.003). A one-unit increase in perceived dynamic pricing deployment is associated with a 0.152-unit increase in perceived sales volume. This finding aligns with Kopalle et al. (2023), who demonstrate that algorithmically driven price adjustments responding to demand-side shifts in people, periods, and locations consistently optimise revenue outcomes, and with Chen and Sheldon (2016), whose causal evidence from surge pricing confirms that dynamic price adjustment increases transactional volume by coordinating supply with peak demand. From a Demand Theory perspective, dynamic pricing operationalises real-time alignment of price with fluctuating demand elasticity, capturing surplus value during peak demand periods such as festive seasons while stimulating latent demand through tactical discounting during low-demand periods. The moderate coefficient relative to OPS and SPS suggests that while dynamic pricing is effective, its full potential may be constrained by the data infrastructure limitations characteristic of NBC's largely offline distribution network.

H_{o5}, which stated that psychological pricing strategy has no significant effect on sales volume, was rejected with the strongest result in the model (β = 0.354, t = 7.61, p < 0.001). A one-unit increase in perceived psychological pricing deployment is associated with a 0.354-unit increase in perceived sales volume, more than three times the effect size of competitive pricing and substantially larger than any other strategy tested. This finding is theoretically grounded in Prospect Theory: as Kahneman and Tversky (1979) demonstrate, consumers evaluate prices relative to reference points rather than in absolute terms, with loss aversion causing prices just below round numbers to be perceived as meaningfully cheaper than they arithmetically are. The left-digit anchoring effect further amplifies this perception (Thomas & Morwitz, 2005). Sharma et al. (2024) confirm that charm pricing and odd-even pricing consistently generate positive price perception through these cognitive mechanisms, particularly for low-involvement, frequently purchased products.

The particular strength of psychological pricing in Abuja's FMCG context warrants specific explanation. Several market-specific factors plausibly amplify its effectiveness relative to other strategies. First, NBC's mainstream beverage products are quintessential low-involvement, habitual purchase items, precisely the product profile for which left-digit anchoring and loss aversion have the strongest documented effects on purchase likelihood. Second, in an inflationary environment where nominal prices are rising continuously, small absolute price differences carry heightened psychological salience for income-constrained consumers managing tight household budgets, a dynamic consistent with Prospect Theory's

prediction that perceived losses loom larger under conditions of financial pressure. Third, psychological pricing requires no data infrastructure, no competitive intelligence, and no cost restructuring, making it the most accessible and immediately implementable strategy available to NBC managers, which may contribute to its stronger perceived deployment and consequently stronger perceived impact relative to strategies like dynamic pricing that demand greater operational investment. Together, these factors suggest that psychological pricing is not merely statistically significant but practically the most efficient volume-enhancement tool available to NBC in its current operating context.

Collectively, the findings affirm that all five pricing strategies positively and significantly influence perceived sales volume, consistent with the study's theoretical framework grounded in Demand Theory and Prospect Theory. The ranked order of effect sizes — OPS > SPS > DPS > PPS = CPS, suggests a hierarchy of strategic influence that has direct managerial implications: NBC should prioritise psychological and skimming pricing for volume generation, leverage dynamic pricing for demand-responsive optimisation, and maintain penetration and competitive pricing as volume-protection mechanisms rather than primary growth drivers.

5. CONCLUSION AND IMPLICATIONS

This study empirically examined the effects of pricing strategies (penetration pricing, skimming pricing, competitive pricing, dynamic pricing, and psychological pricing) on the sales volume of the Nigeria Bottling Company (NBC) in Abuja. Analysis confirm statistical significant positive associations between each pricing strategy and perceived sales volume.

The central empirical contribution of this study is the demonstration that pricing strategy effectiveness in an emerging-market FMCG context is not uniform: different strategies exert meaningfully different magnitudes of influence on perceived sales volume, and this hierarchy has direct implications for resource allocation and strategic prioritisation. The dominance of psychological pricing is particularly significant, as it suggests that cognitive and perceptual mechanisms, theoretically grounded in Prospect Theory and left-digit anchoring, may generate stronger volume responses in Nigeria's inflationary, income-constrained consumer environment than structural price adjustments requiring greater operational investment.

Theoretically, the findings validate the joint application of Demand Theory and Prospect Theory as complementary frameworks for understanding pricing behaviour in emerging FMCG markets. Demand Theory explains the volume-generating mechanisms of penetration, skimming, competitive, and dynamic pricing through price elasticity and demand segmentation logic, while Prospect Theory accounts for the disproportionate consumer response to psychological pricing through reference-point evaluation and loss aversion. The study also contributes to the limited empirical literature on multi-strategy pricing research in Nigerian FMCG markets, responding to the gap identified by Kienzler and Kowalkowski (2017) regarding the scarcity of supply-side and emerging-market pricing studies.

From a policy perspective, the findings suggest that regulatory attention to pricing fairness and transparency in Nigeria's beverage sector is warranted, particularly as firms adopt more sophisticated dynamic and psychological pricing mechanisms. The National Consumer Protection Council and related regulatory bodies should consider developing pricing disclosure frameworks that protect consumers, particularly low-income urban households, from exploitative price manipulation while permitting legitimate revenue optimisation strategies.

Based on the empirical findings, the following recommendations are made specifically for NBC Abuja, with explicit acknowledgement of operational constraints and contextual risks. First, NBC should deploy penetration pricing selectively for new product launches and market expansion into underserved Abuja neighbourhoods, using low introductory prices to lower trial barriers among price-sensitive consumers. This approach should be time-bound with clearly defined transition timelines to standard pricing, supported by simultaneous investment in brand equity to prevent permanent low-value brand associations. NBC should be cautious that sustained penetration pricing in an inflationary environment risks margin erosion that may not be recoverable without consumer resistance to subsequent price increases.

Second, NBC should develop and position premium product lines, particularly in functional beverage, premium water, and limited-edition categories, that justify higher price points through demonstrable quality, packaging differentiation, and brand prestige. Given Abuja's income-heterogeneous consumer base, skimming should be applied selectively to higher-

income retail channels and premium outlets rather than across the entire distribution network, with planned price reductions over the product lifecycle consistent with the sequential segmentation logic supported by Lotfi et al. (2024). Third, NBC should establish structured competitor price monitoring systems covering both formal multinational rivals and informal sector substitutes, and maintain documented pricing response protocols for competitive contingencies. Given that competitive pricing produced the smallest practical effect size in this study, NBC management should treat price parity as a defensive threshold rather than a primary growth strategy, concentrating differentiation investment on product quality, distribution reliability, and retailer relationship management.

Fourth, NBC should invest progressively in data analytics capabilities and demand-sensing infrastructure to enable more responsive pricing adjustments during peak consumption periods, particularly festive seasons, high-temperature periods, and major public events in Abuja. Given current data infrastructure limitations, a phased implementation beginning with rule-based seasonal pricing adjustments is recommended before transitioning to algorithmic dynamic pricing, consistent with the evolutionary framework outlined by Kopalle et al. (2023). NBC should also be mindful of consumer fairness perceptions: transparent communication regarding the rationale for price variations will be critical to maintaining brand trust in a market where price unpredictability may be perceived negatively by consumers already managing inflationary pressures.

Fifth, and most urgently given its demonstrated effect size, NBC should systematically implement psychological pricing techniques, including charm pricing (e.g., ₦199 instead of ₦200, ₦499 instead of ₦500) and strategic reference pricing, across its mainstream and economy product portfolio. This represents the highest-impact, lowest-cost pricing intervention available to NBC, requiring no additional capital investment or data infrastructure. Implementation should prioritise high-volume, price-sensitive retail channels and should be regularly audited to ensure consistency across distribution points, as inconsistent application may undermine the cognitive anchoring effect on which the strategy's effectiveness depends.

This study is subject to several important limitations that qualify the interpretation and generalisability of its findings. First, the cross-sectional design captures perceptions at a single point in time and cannot establish causal direction between pricing strategy deployment and sales volume outcomes. The positive associations reported are predictive rather than causal, and reverse causality, whereby high sales volume encourages greater pricing strategy investment, cannot be ruled out. Second, the study relies entirely on staff perceptions of both pricing strategy effectiveness and sales volume performance, rather than objective transaction-level sales data. While perceptual measures are theoretically justified and methodologically established, they are subject to common method bias and social desirability effects that may inflate observed relationships. Third, the study is geographically restricted to NBC Abuja and organisationally restricted to a single firm, limiting the generalisability of findings to other Nigerian cities, other FMCG firms, or other emerging-market contexts. Fourth, the exclusion of customers, retailers, and distributors as respondents means that the consumer-side demand response to NBC's pricing strategies is not directly captured, representing a significant boundary on the study's external validity.

Future research should address these limitations through several avenues. Longitudinal studies tracking actual NBC sales records alongside pricing strategy changes over time would provide stronger causal evidence and overcome the cross-sectional limitation. Multi-firm comparative studies across Nigeria's FMCG sector would test the generalisability of the pricing strategy hierarchy identified here and determine whether psychological pricing's dominance is NBC-specific or sector-wide. Future research should also incorporate consumer-side survey data or retail scanner data to triangulate staff perceptions with actual demand responses, substantially strengthening construct validity. Studies examining the moderating role of macroeconomic conditions, particularly inflation rates and exchange rate volatility, on pricing strategy effectiveness would extend the theoretical contribution of this study and generate more context-sensitive pricing frameworks for emerging markets. Finally, experimental or quasi-experimental designs that manipulate specific pricing treatments across matched retail outlets would provide the causal identification that cross-sectional survey designs cannot.

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