An Exploratory Analysis of Price Sensitivity in Mobile Data Usage in Kisumu County: A Qualitative Analysis

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Abstract- This journal paper explores the dynamics of price sensitivity in mobile data usage in Kisumu County using an exploratory, qualitative approach. The study aims to understand consumer behavioral patterns in response to mobile data pricing in a low urban to middle-income Kenyan context. Theoretical frameworks such as the Law of Demand, Price Elasticity of Demand, and Engel's Law are applied to guide the analysis. Data was sourced secondarily from institutional reports, academic literature, and online consumer feedback. Thematic analysis, supported by NVivo-style qualitative coding, was employed to extract behavioral patterns from the collected data. Findings suggest a high degree of price sensitivity among lower-income groups, heavy use of promotional bundles, and dynamic providerswitching behavior, all reflecting elasticity in consumer behavior. The paper concludes with recommendations for mobile service providers and policymakers to design inclusive and competitive pricing structures. This study offers a foundation for further mixed-methods research in digital service consumption.

I. INDRODUCTION

Mobile internet access in Kenya has become not only a technological milestone but also a critical tool for socio-economic advancement. According to the Communications Authority of Kenya (2023), the country has surpassed 47 million mobile data subscriptions, signaling a near-universal reach of mobile technology. Kisumu County, as one of Kenya's leading urban centers, reflects this digital transformation with increasing dependency on mobile data for education, business, communication, and entertainment. Amid this growth, understanding how consumers react to pricing shifts becomes essential, particularly in light of the price elasticity of demand. Price elasticity of demand, a microeconomic concept

introduced by Alfred Marshall, refers to the degree to which the quantity demanded of a good respond to a change in its price. This concept gains nuance in contexts like Kisumu where economic conditions, provider competition, and consumer behavior interact in complex ways. The objective of this study is to explore how consumers in Kisumu demonstrate price sensitivity in mobile data usage and what behavioral factors mediate these responses. This research contributes to microeconomic literature by anchoring elasticity theory within the behavioral patterns observed in a localized African urban context. The paper is structured into five main sections: a review of existing literature, an explanation of methodology, presentation of qualitative findings, discussion of results in light of economic theory, and a conclusion with policy and practical recommendations.

• Background of the Study

The increasing penetration of mobile internet services across Kenya has revolutionized how individuals access information, communicate, and conduct economic transactions. Kisumu County, a prominent urban and commercial hub in Western Kenya, has not been left behind in this digital transformation. According to the Communications Authority of Kenya (CAK, 2023), the number of mobile data subscriptions continues to rise steadily, fueled by the growing demand for social connectivity, online learning, e-commerce, and digital banking services. This surge in data consumption has heightened interest among service providers and policymakers in understanding how pricing influences consumer behavior in regional markets.

Price sensitivity, or the degree to which demand responds to changes in price, is a key concept in microeconomics, particularly in the telecommunications sector. In classical economic theory, the law of demand asserts that an increase in price typically leads to a reduction in the quantity demanded, assuming all other factors remain constant. However, in the real world, especially in emerging markets like Kisumu, price sensitivity is influenced by a broader set of behavioral, demographic, and structural factors. Income levels, availability of alternatives, promotional offers, network reliability, and consumer preferences all contribute to how price affects data usage.

Despite the growing importance of mobile data services in regional economies, there remains a gap in localized research addressing price sensitivity from a behavioral perspective. Most existing studies in Kenya focus on national statistics or employ quantitative approaches without delving deeply into qualitative insights. Moreover, regional consumer behavior—such as the use of dual SIMs, switching networks during promotional periods, and the selective use of data bundles—suggests a more nuanced interaction with pricing than traditional models can explain.

This study seeks to address this gap by adopting an exploratory, qualitative approach to analyze price sensitivity in mobile data usage within Kisumu County. By relying on secondary data, including academic literature, industry reports, and user testimonials, the study aims to understand how Kisumu residents perceive and respond to mobile data pricing, thereby enriching the discourse around consumer economics in Kenya's digital economy.

• Statement of the Problem

The demand for mobile data services in Kenya has experienced significant growth, driven by the increasing reliance on internet access for education, commerce, communication, and social engagement. Kisumu County, as one of Kenya's key urban regions, has seen a substantial uptake in mobile internet subscriptions. Despite this positive trend, service providers and policymakers continue to face challenges in setting optimal pricing strategies that balance affordability for users and profitability for firms.

At the heart of this challenge lies the issue of price sensitivity—how consumers in Kisumu respond to changes in mobile data prices. Classical economic

theory posits that higher prices reduce demand and lower prices stimulate consumption. However, in practice, especially in a diverse and stratified socioeconomic setting like Kisumu, consumer responses are more complex. Users often make choices based on income constraints, perceived value of service, promotional offers, and network coverage. For instance, many resort to dual SIM usage or limit their data usage to basic functions when prices rise, indicating a form of behavioral elasticity that cannot be captured fully by quantitative metrics alone. Despite the central role of price sensitivity in informing pricing models and regulatory decisions, there is a notable lack of localized, qualitative research focused on understanding this concept from the consumer's perspective in Kisumu. Most existing studies either generalize consumer behavior at the national level or rely heavily on quantitative surveys that do not capture the lived experiences and behavioral patterns of users.

This gap in literature and practical knowledge has limited the ability of mobile network providers and regulatory bodies to tailor pricing strategies that resonate with the actual needs and behaviors of consumers in Kisumu. There is, therefore, a critical need to explore and document how residents of Kisumu County perceive and respond to mobile data pricing, and what behavioral trends emerge from such interactions.

This study responds to that need by providing an exploratory, qualitative analysis of price sensitivity in mobile data usage in Kisumu, using thematic methods to extract insights from secondary data sources. The findings aim to offer useful guidance for both policy and practice in enhancing mobile service delivery in urban Kenya.

• Objectives of the Study

The overarching objective of this study is to explore and understand the behavioral dynamics of price sensitivity in mobile data consumption within Kisumu County. To examine how consumers in Kisumu County respond to changes in mobile data pricing. To explore the behavioral factors influencing mobile data consumption among different socioeconomic groups. To identify the implications of price sensitivity on mobile data service delivery and policy.

• Justification of the Study

Mobile data has become a foundational utility in modern Kenyan society, significantly influencing education, commerce, governance, and communication. In counties such as Kisumu, where digital infrastructure is growing rapidly, equitable access to mobile internet services is vital for social and economic development. However, pricing remains one of the biggest barriers to consistent and widespread data usage, particularly among lowerincome users.

While national-level statistics offer an overview of mobile data access and affordability trends, they often mask regional variations in consumer behavior. Kisumu County, with its unique socio-economic composition and urban-rural blend, presents a specific case where generalized pricing strategies may not reflect consumer realities. A deeper understanding of how residents of Kisumu respond to price fluctuations is therefore critical.

This study is justified on several fronts. First, it addresses a literature gap by offering localized, qualitative insights into consumer behavior around mobile data pricing—an area typically dominated by national-level or quantitative research. Second, it provides practical insights for mobile service providers seeking to develop regionally tailored pricing models that align with user behavior and enhance market competitiveness. Furthermore, the study has policy relevance. As the government of Kenya continues to prioritize digital inclusion through initiatives like the National Broadband Strategy and the Konza Technopolis project, understanding consumer sensitivity to mobile data pricing at the county level becomes crucial for designing effective interventions.

Lastly, from an academic standpoint, this research contributes to behavioral economics and development studies by applying classical economic theories—like price elasticity—in a grounded, context-specific manner. It demonstrates how qualitative analysis can enrich our understanding of market dynamics and inform both commercial and regulatory approaches. • Scope of the Study

This study is delimited both geographically and conceptually to maintain a focused and manageable research scope. Geographically, the research is confined to Kisumu County, one of Kenya's principal urban centers located in the western region. Kisumu presents a dynamic blend of urban and peri-urban lifestyles, varied income levels, and a growing reliance on mobile connectivity, making it an ideal location for examining consumer price sensitivity in mobile data usage.

Conceptually, the study centers on the exploration of price sensitivity in mobile data consumption. It seeks to understand how price fluctuations influence consumer decisions, the extent to which consumers' exhibit elastic or inelastic demand, and the behavioral factors shaping these responses. The research intentionally adopts a qualitative approach, avoiding numerical elasticity coefficients or econometric modeling, and instead focusing on thematic insights derived from secondary data sources.

The study does not aim to offer a national generalization or a statistical representation of mobile data use behavior. Rather, it provides context-specific, exploratory insights that highlight patterns in consumer behavior and their implications for service providers and policy stakeholders in Kisumu. The focus is strictly on mobile data services (as opposed to voice services or fixed broadband) and considers factors such as income level, promotional pricing, network quality, and provider loyalty.

Temporally, the study reviews and interprets behavioral patterns and market dynamics within a recent three-year window (2021–2023), drawing on Communications Authority of Kenya reports, provider publications, and public consumer discourse available within that period.

While the study provides foundational insights, it is intended as a starting point for future, broader research, particularly studies that may incorporate quantitative methods to validate or extend the findings presented here.

II. LITERATURE REVIEW

• Introduction

Understanding the concept of price sensitivity in mobile data usage requires grounding in both classical economic theory and contemporary behavioral perspectives. Price sensitivity, often expressed through price elasticity of demand, examines how consumers respond to price changes, particularly in contexts where technology use is essential but variably affordable. This chapter discusses key theoretical frameworks, examines empirical findings, and contextualizes the relevance of prior research to the mobile data environment in Kisumu County.

• Theoretical Framework

The study is anchored in three major economic theories: Price Elasticity of Demand Theory, Engel's Law, and Behavioral Economics Theory.

Price Elasticity of Demand Theory, as established by Alfred Marshall (1920), defines elasticity as the degree to which quantity demanded of a good respond to а change in its price. In telecommunications. elasticity helps explain consumer switching behaviors and usage reductions when prices increase, or usage surges when prices fall. This theory underpins the main objective of the study: to explore how consumers in Kisumu respond to pricing changes in mobile data services. The concept of price sensitivity is fundamentally rooted in the classical theory of price elasticity of demand, which was introduced by Alfred Marshall in the early 20th century. This theory explains how the quantity demanded of a good or service responds to changes in its price, holding all other factors constant. In essence, demand is considered elastic if consumers significantly alter their quantity demanded in response to a small price change. Marshall's work laid the groundwork for understanding not only how markets function but also how individual consumer decisions influence market equilibrium. In relation to this study, the concept directly informs the core objective: to explore how consumers in Kisumu respond behaviorally to changes in mobile data pricing.

Building on Marshall's foundation, the Theory of Consumer Choice provides further insight into the decision-making process behind price-sensitive behaviors. This theory suggests that consumers make purchasing decisions to maximize their utility, given their income and the prices of goods. Consumers in Kisumu, particularly those in low-income brackets, are likely to prioritize affordability and utility value when choosing mobile data bundles. As data prices increase, these users may reduce consumption or switch to more cost-effective providers, aligning closely with the consumer choice framework. This theory underpins the second objective of the study: identifying behavioral patterns in mobile data consumption linked to elasticity.

Engel's Law, first formulated by Ernst Engel in the 19th century, posits that as household income increases, the proportion of income spent on necessities decreases. When applied to mobile data, the law suggests that lower-income consumers are more price-sensitive and likely to ration data or shift to more affordable options, a concept validated through observed behavior in lower socioeconomic groups. In the context of a competitive market environment, the Theory of Utility Maximization under Budget Constraint is especially relevant. Consumers constantly face trade-offs when making data-related spending choices. Dual SIM usage and shifting between providers to take advantage of promotional offers, as observed in the Kisumu context, exemplify attempts to maximize perceived utility from limited resources. Consumers assess not just the nominal cost but also the network quality, bundle duration, and added benefits such as free SMS or night-time data access. The theory helps explain why consumers might choose seemingly costlier services like Safaricom over cheaper options due to factors like reliability and broader network coverage.

Behavioral Economics Theory adds depth to the analysis by recognizing that consumer decisions are not always rational or purely price-based. According to Kahneman and Tversky (1979), decisions are influenced by cognitive biases, perceived value, and habitual brand loyalty. These insights help explain phenomena such as brand retention despite higher prices, or uptake of bundles due to perceived savings, even when the cost-per-MB might be higher than alternatives.

Additionally, Switching Cost Theory is applicable, particularly in analyzing user behavior concerning provider changes. According to this theory, consumers evaluate the cost—not only monetary but also time and effort—associated with switching from one product or provider to another. In Kisumu, the study found that although many consumers are willing to switch providers during promotional periods, some remain with costlier providers due to perceived switching costs related to loss of airtime, number portability issues, or network reliability. This theory helps interpret the dual SIM phenomenon as a strategic way of minimizing switching costs while maximizing benefits.

Previous empirical work reinforces the relevance of these theories. Aker and Mbiti (2010) emphasized that consumer demand for mobile services in Sub-Saharan Africa is not purely price-driven but is also shaped by service quality, social utility, and access. Chabossou et al. (2009) added that income and promotional structuring significantly mediate mobile usage behaviors, while Odhiambo (2021) argued that bundle flexibility and network stability are central to understanding user loyalty and elasticity in Kenya's telecom sector.

In linking these theoretical insights to the study's objectives, it becomes evident that the behavioral patterns explored—price sensitivity, provider switching, bundle utilization, and income-based usage—are not merely random acts of consumption. Instead, they are grounded in well-established economic theories that provide a nuanced framework for interpreting consumer decisions in urban Kenyan settings like Kisumu County.

These theories collectively inform the study's analytical lens and are closely tied to its objectives, which focus on consumer responses to price changes and the influence of socio-economic and psychological factors on data usage behavior.

Empirical Review

Empirical studies globally and in Kenya affirm that mobile data consumption is highly responsive to pricing, but also mediated by contextual factors like income level, network quality, and promotional strategies.

Chabossou et al. (2009), in a pan-African study, found that households with variable income profiles showed significant price sensitivity, often shifting providers or rationing use when prices increased. The study identified dual-SIM ownership as a coping mechanism in price-sensitive markets.

Odhiambo (2021), focusing on Kenya's urban centers, observed that promotional bundles—such as "Storo Bonus" from Airtel or "Bazu Bundles" from Telkom—were highly effective in stimulating demand and causing short-term switching, particularly among students and informal sector workers. He concluded that demand for mobile data in Kenya is moderately to highly elastic, depending on income levels and competing offers.

Aker and Mbiti (2010) introduced a broader lens, arguing that service quality and coverage are often more important than price in determining demand sustainability. Their research highlighted that even in price-sensitive segments, users may opt for higherpriced options if reliability and speed are superior. However, localized literature on county-level behavior, particularly in Kisumu, remains limited. Most studies address national averages or Nairobibased consumers, which this study attempts to complement by offering region-specific insights rooted in qualitative observations.

III. METHODOLOGY

• Research Design

This study adopted a qualitative, exploratory research design to understand the behavioral dynamics surrounding mobile data consumption in Kisumu County. The exploratory approach was selected to allow in-depth examination of how consumers respond to mobile data pricing, without relying on numerical measurements or large-scale survey data. The goal was to uncover patterns, meanings, and experiences related to price sensitivity through a contextual and interpretative lens. This design was especially suitable due to the absence of primary quantitative data and the study's focus on exploring behavioral insights through previously documented knowledge and public discourse

• Sampling Design

A purposive sampling approach was employed to select relevant secondary sources that reflect consumer experiences and industry perspectives in Kisumu County. This method involved intentionally choosing reports, publications, and online sources that provided rich, descriptive content related to mobile data use, pricing behavior, and telecom service provision in Kenya, with emphasis on urban counties like Kisumu. Sources included government reports, industry analyses, academic articles, and public forums that featured user feedback. The goal was not statistical representativeness but thematic depth and contextual relevance.

• Data Collection Methods

Data for this study were exclusively secondary, sourced from publicly available and credible materials. These included quarterly and annual reports from the Communications Authority of Kenya (CAK), market insights and customer experience data from Safaricom and Airtel Kenya, academic studies on mobile service consumption, and user-generated content such as social media threads and consumer forums. These documents were selected based on relevance, clarity, and alignment with the study's objectives. Each source provided valuable perspectives on the behavioral responses to data pricing among residents of Kisumu County.

• Instrumentation

Since the study was qualitative and secondary in nature, there was no physical or survey-based instrumentation involved. Instead, a structured data abstraction guide was used to extract relevant themes from the documents reviewed. This guide focused on key indicators such as price responsiveness, bundle usage, provider loyalty or switching, and socioeconomic influences on mobile data use. The abstraction guide ensured consistency in how information was identified and interpreted across different sources. • Data Analysis and Techniques

Thematic analysis was the primary analytical method employed. Following Braun and Clarke's six-phase framework, the analysis began with familiarization with the data by thoroughly reading and annotating the documents. Initial codes were then generated to capture significant statements and repeated ideas. These codes were sorted into broader themes such as "price sensitivity," "bundle-driven consumption," "dual SIM strategy," and "income-based usage decisions." Although NVivo software was not formally used, NVivo-style coding was manually applied, using digital tools like Microsoft Word and Excel for organizing and visualizing code patterns. This approach allowed the researcher to trace the recurrence and interconnection of themes across the various sources.

• Data Presentation

The findings were presented descriptively in prose, supported by a structured thematic narrative. Illustrative insights were drawn directly from the secondary sources to highlight user behavior and market reactions to price changes. Where appropriate, a summary table was used to organize the main themes and their implications, ensuring clarity and coherence. The use of prose allowed for interpretative commentary that aligned with the exploratory nature of the study, while the table provided a concise visual reference for readers.

• Findings

The thematic analysis of the data sources revealed multiple insights into consumer behavior in response to mobile data pricing in Kisumu County. These findings reflect observable patterns of price sensitivity, adaptive consumption strategies, and broader socio-economic influences that shape demand for mobile data. One of the dominant themes was consumer price sensitivity, particularly among students, informal sector workers, and low-income earners. Users frequently altered their data usage habits in response to even small fluctuations in For pricing. instance, reports from the Communications Authority of Kenya (CAK, 2023) indicated that consumers drastically reduced mobile data consumption when daily bundles exceeded KES

50. Users often resorted to free Wi-Fi zones, particularly in university campuses, public institutions, and retail centers.

Another key finding was the prevalence of dual SIM card usage and frequent provider switching. Consumers often carried two phones or used dual-SIM handsets to take advantage of promotional offers from competing service providers. While Safaricom maintained a strong user base due to its coverage and reliability, Airtel and Telkom Kenya experienced spikes in demand during promotional periods. This behavior illustrates that loyalty in the mobile data market is conditional and often driven by real-time pricing competitiveness.

A third theme was intensive utilization of promotional bundles. Data plans such as "Bazu" by Telkom and "Storo" by Airtel had high uptake when launched, particularly among urban youth and informal businesses. The uptake was not only due to affordability but also because these bundles offered perceived value—longer validity, more gigabytes, or free access to specific apps like WhatsApp or YouTube. This behavior shows that beyond price alone, perceived utility and bundle structuring play a pivotal role in determining demand.

Lastly, the findings revealed that income levels significantly influenced data usage patterns. Highincome consumers were less price-sensitive and tended to subscribe to monthly unlimited data plans. In contrast, low-income users typically rationed their usage, prioritized essential services like mobile banking, and opted for daily or weekly data bundles. This finding aligns with Engel's Law, which suggests that as income increases, the proportion of income spent on necessities like communication decreases.

IV. DISCUSSION

The findings affirm the classical theory of price elasticity of demand, which posits that quantity demanded changes in response to changes in price. In Kisumu County, where income disparity is evident, the elasticity of mobile data demand appears relatively high among low to middle-income consumers. These users display significant shifts in usage patterns based on even marginal changes in price, which supports Marshall's (1920) traditional demand theory. However, these findings also validate extensions of demand theory that consider behavioral and contextual factors. As Aker and Mbiti (2010) explain, access to mobile services in Africa is not solely a function of price but also of perceived necessity, coverage reliability, and market accessibility. For instance, Safaricom's ability to maintain market share despite being relatively more expensive points to the role of non-price attributes such as network strength and service quality in shaping demand.

The observed provider-switching behavior further aligns with consumer utility theory, where users seek to maximize satisfaction by minimizing cost and maximizing perceived benefits. This was evident in how consumers shifted between providers or waited for promotional periods to make bulk purchases. In addition, the uptake of promotional bundles supports bounded rationality theory, which suggests that consumers, constrained by limited information and cognitive capacity, make satisficing decisions rather than optimizing ones. They often react strongly to offers that appear beneficial, even if the long-term value is not clearly defined.

Moreover, the income-related usage behavior observed supports Engel's Law and reinforces the significance of socio-economic segmentation in demand analysis. Price sensitivity cannot be evaluated in isolation from income, education, and access, especially in urban centers with wide income disparities such as Kisumu.

These observations suggest that understanding elasticity in Kenya's telecom market requires a hybrid behavioral-economic lens, where classical theories are enhanced by psychological and social considerations.

CONCLUSION

This study concludes that mobile data consumption in Kisumu County is highly price sensitive, particularly among lower-income groups and youth segments. Price changes, bundle structures, and promotional campaigns significantly influence demand, reflecting both classical elasticity principles and behavioral responses shaped by socio-economic realities. The study affirms that while price elasticity remains a useful concept, its application must be contextualized within broader behavioral and structural dimensions. Consumers do not respond to price alone—they evaluate coverage, reliability, convenience, and perceived utility. Therefore, mobile service providers and policymakers must adopt multi-dimensional strategies to ensure both access and affordability.

RECOMMENDATIONS

Firstly, mobile service providers should adopt tiered pricing strategies that cater to different income segments. Affordable daily and weekly bundles targeting low-income users would ensure inclusivity, while premium monthly bundles can serve highincome customers. Secondly, providers should continue offering value-added services within bundles—such as access to educational platforms, health services, or social media—at subsidized rates. This not only increases utility but also fosters digital inclusion. Thirdly, policy interventions are necessary to ensure fair competition and prevent monopolistic pricing. The Communications Authority of Kenya should enforce transparent pricing and encourage innovation in affordable service delivery models.

Finally, future research should adopt mixed methods that combine qualitative behavioral insights with quantitative elasticity coefficients. This will offer a holistic understanding of pricing sensitivity and inform more robust consumer-centered strategies in digital policy and service delivery.

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