



Mobile Banking Service Use: Exploring the Drivers for Consumer Satisfaction in People's Bank of Zanzibar, Tanzania

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Abstract

This study explored the drivers for consumer satisfaction with mobile banking services in the Peoples' Bank of Zanzibar (PBZ). The study was done in Chachani ward of Chake Chake district in Pemba, Tanzania. The study employed a cross-sectional research design. Stratified sampling techniques were used to obtain 192 PBZ mobile banking customers and a purposive sampling technique was employed to pick key informants. Data were collected through interviews, key informant interviews, and documentary review. Data analysis was done through SPSS on Chi-square, path analysis, logistic regression analysis, and factor analysis. Results indicated that gender (46.9% of satisfaction for male), age (26-33 years had the highest satisfaction with 40.6%), and education (56.3% of university-educated respondents reported being satisfied) with mobile banking services at PBZ. Path analysis indicated that security ($\beta=0.353$), service speed ($\beta=0.251$), and customer perception ($\beta=0.304$) had strong positive impacts on satisfaction levels. Regression results indicated that customers' income, smartphone ownership, and service reliability were predictors of customer satisfaction. The model fit for the factor analysis regarding customer satisfaction with mobile banking services is robust, evidenced by the non-significant Chi-square ($p = 0.063$). The study concludes that demographic characteristics, income, smartphone ownership emphasized by service reliability and speed are vital for customer satisfaction. It is recommended that PBZ should improve the reliability and speed of their services by investing in strong infrastructure and minimizing downtime, strengthening security measures, and investing in customer education for appropriate mobile banking service use.

Introduction

Mobile banking services are one of the powerful tools banks integrate to improve their financial service and expand their service coverage, which has stimulated growth in various sectors, creating more jobs and enhancing better financial control for customers (Masamila, 2014). Mobile banking, made possible through mobile applications, is a recent technological advancement that holds great promise for improving the banking experience for retail customers and optimising banking operations. However, the success of mobile banking services largely hinges on customer adoption, which is shaped by factors such as motivation and ease of use (Ndunguru, 2007). The integration of information technology in the financial sector has allowed banks to provide services through various electronic channels, including internet banking, video banking, telephone banking, and Wireless Application Protocol (WAP) technology (TCRA, 2020).



In today's digital landscape, mobile banking has become crucial for banks to maintain their competitive edge (Tam et al., 2017). As technology advances, financial institutions can offer instant, self-service solutions that significantly boost customer satisfaction (Manjula et al., 2019). Mobile banking has transformed the financial sector by providing unmatched convenience, speed, accessibility, and security, all of which have contributed to economic growth. In developing countries, mobile banking is particularly vital for underserved populations, as it offers convenient and accessible financial services (Said, 2010). Key factors such as security, reliability, usability, and service quality have been recognised as essential determinants of customer satisfaction with mobile banking services (Yang et al., 2015).

In Tanzania, the adoption of mobile banking services has surged since the launch of M-Pesa in 2008. By 2017, mobile banking services had expanded significantly, with 60% of the adult population utilising these services, driven by the widespread use of smartphones and the demand for accessible financial services (Shrestha, 2013). The People's Bank of Zanzibar (PBZ) and other mobile service providers have broadened their reach to rural areas, increasing access to financial services.

The rapid growth of mobile banking services has significantly changed the financial landscape in Zanzibar, especially with the rise in mobile device usage and internet access (TCRA, 2022). Mobile banking has emerged as a favoured and convenient method for customers to handle their finances, providing advantages like accessibility, lower costs, and enhanced financial inclusion, particularly in rural areas (BOT, 2020-2023). However, despite these benefits, customer satisfaction with mobile banking services is still a pressing issue. Major concerns include security risks, reliability, challenges related to digital literacy, and occasional system failures (Jayson & Diaz, 2023). In Zanzibar, particularly in areas like Chake Chake District (Pemba), mobile banking services have improved accessibility, yet several obstacles continue to impact customer satisfaction. Security concerns, transaction delays, and limited access to features still detract from customer experiences (Claire et al., 2013).

Most existing research on mobile banking satisfaction has been conducted in other countries, such as Bangladesh (Jayson & Diaz, 2023), highlighting the need for localised studies to grasp the specific economic and socio-cultural factors influencing customer satisfaction in Zanzibar. By tackling these challenges, mobile banking services can play a vital role in fostering a more inclusive and efficient financial system in regions like Pemba. The current literature greatly emphasises the relationship between mobile banking and customer satisfaction, as demonstrated by studies like those of Ahmed et al. (2011) and Alfishan et al. (2022). However, these studies mainly come from contexts outside of Tanzania, creating a significant gap in understanding the distinct challenges faced in the Tanzanian context, particularly in Zanzibar. While some research has been done on the mainland, it does not adequately address the specific conditions of Zanzibar, where infrastructural challenges and limited resources persist.

Literature Review

The Technology Acceptance Model (TAM) (Atcharyachanvanich et al., 2011) emphasises that users' acceptance of technology hinges on two main factors: perceived usefulness and perceived ease of use. This model suggests that individuals are more inclined to adopt a technology if they believe it will enhance their performance (usefulness) and if it is user-friendly, requiring little effort to operate. TAM is frequently applied to understand user acceptance across various technological domains, including mobile banking services, where customers are swayed by their perceptions of the service's benefits and convenience. Similarly, Rogers' Diffusion of Innovation Theory (DIT) outlines individuals' journey from first encountering an innovation to ultimately adopting it. It involves five stages: knowledge, persuasion, decision, implementation, and confirmation. The theory posits that several



factors – such as relative advantage, compatibility with existing systems, complexity, trialability, and observability – affect the speed of adoption.

Regarding mobile banking, users assess these factors before adopting or rejecting the service. For instance, if mobile banking is perceived as having a significant advantage over traditional banking, it may lead to quicker adoption, whereas complexity could act as a barrier. The Behaviour Change Theory posits that individuals alter their behaviour when they perceive that the benefits outweigh the obstacles. In mobile banking, users are likely to embrace the service if the advantages, like convenience and better financial management, are evident and if concerns such as security issues or insufficient technical knowledge are addressed. This theory also underscores that behaviour change is a gradual journey, moving through stages like pre-contemplation, contemplation, preparation, action, and maintenance. This framework can help explain the differing mobile banking adoption rates among various customer demographics.

Empirical Review

Various empirical studies have explored customer perceptions and satisfaction regarding mobile banking services. Ahmed et al. (2011) surveyed Jordanian commercial banks and found that accessibility, convenience, security, privacy, speed, and fees positively impacted customer satisfaction. These elements increase customer satisfaction and loyalty towards mobile banking services. Jahan and Shahria's (2022) study on a study focusing on young users discovered that service expense, responsiveness and relative advantage were the main factors influencing satisfaction among young users. Similarly, Smith et al. (2021) examined the influence of economic factors, such as cost, convenience, and value for money, on customer satisfaction. Their findings underscored the importance of these factors in shaping customer perceptions and determining satisfaction levels. Ahmed and Jannat (2015) further emphasised that security and trust are critical to mobile banking satisfaction. They pointed out that enhancing confidence in the service, mainly through features like fingerprint authentication, could significantly improve customer satisfaction.

Research Methodology

The study employed a non-experimental, cross-sectional research design. Hunziker and Blankenagel's (2024) cross-sectional study designs are suitable for social science and business studies because they simultaneously allow data collection from the sampled respondents. The study population involved all customers from the People's Bank of Zanzibar (PBZ) in Chake Chake district of Pemba who had used mobile banking services for at least one year. Yamane's (1967) formula for sample size calculation was used, which led to obtaining a sample size of 196 respondents. Data were collected through interviews with open- and closed-ended questionnaires and key informant interviews using the interview guide. Data were processed and analysed through cross-tabulation, path analysis, logistic regression, and factor analysis. Path analysis helped to clarify the direct and indirect relationships among various predictors and their effects on customer satisfaction. Logistic regression analysis was employed to evaluate the importance of specific economic and service-related factors on customer satisfaction, providing insights into how these variables shape user experiences in a binary outcome context. Finally, factor analysis was performed to uncover customer satisfaction's underlying dimensions and simplify the data by organising related variables into distinct factors, improving the results' clarity.



Regression Model Specification

The regression models were specified as follows:

Logistic Regression Model: Since the customer satisfaction outcome is likely binary (satisfied or not satisfied), a logistic regression model was used to predict the likelihood of customer satisfaction based on the independent variables.

Y represents customer satisfaction (1 = satisfied, 0 = unsatisfied). The regression model can be expressed as:

$$\text{logit}(Y) = \ln(P(Y=1)/1-P(Y=1)) = \beta_0 + \beta_1(\text{Security}) + \beta_2(\text{Income}) + \beta_3(\text{Service Speed}) + \beta_4(\text{Customer Perception}) + \beta_5(\text{Smartphone Ownership}) + \beta_6(\text{Reliability}) + \dots + \beta_n X_n + \epsilon$$

Where:

- Logit (Y) is the log odds of customer satisfaction (i.e., the logarithm of the odds that a customer is satisfied).
- P(Y=1) is the probability of customer satisfaction (satisfied = 1).
- β_0 is the intercept (constant).
- $\beta_1, \beta_2, \dots,$ and β_n are the independent variables' regression coefficients (which quantify each factor's effect on customer satisfaction).
- The independent variables include Security, Income, Service Speed, Customer Perception, Smartphone Ownership, and Reliability.

Path Analysis Model: The study employed path analysis (to examine direct and indirect relationships), and the model was expanded to include indirect effects. For example:

$$\text{Customer Satisfaction} = \alpha_1(\text{Security}) + \alpha_2(\text{Income}) + \alpha_3(\text{Service Speed}) + \alpha_4(\text{Customer Perception}) + \alpha_5(\text{Smartphone Ownership}) + \alpha_6(\text{Reliability})$$

In path analysis, arrows were drawn from each predictor variable (e.g., Security) to Customer Satisfaction, and coefficients (like α_1) estimated the strength of each path.

Factor Analysis Model: To streamline the regression model, factor analysis was conducted to limit the number of independent variables by categorising them into underlying factors. For instance, factors such as Service Quality, Economic Factors, and User Experience may be derived from individual variables like security, income, service speed, and so on. You could then model customer satisfaction in the following way:

$$Y = \beta_0 + \beta_1(\text{Service Quality Factor}) + \beta_2(\text{Economic Factor}) + \beta_3(\text{User Experience Factor}) + \epsilon$$

Where:

- Service quality, economic, and user experience factors are latent variables derived from the factor analysis.
- ϵ represents the error term.

This allowed us to group related variables and model the impact of broader factors on customer satisfaction.



Results and Discussion

Demographic characteristics of respondents

The demographic characteristics results in Table 1 show a significant connection between demographic characteristics and customer satisfaction with mobile banking services at PBZ. Gender, age, and education level of respondents were revealed to be key factors.

Table 1: Cross Tabulation of Demographic Characteristics of Respondents and Customer Satisfaction

Demographic Characteristics	Satisfied	Neutral	Dissatisfied	Chi-Square (p-value)
Gender				
Male	90 (46.9%)	32 (16.7%)	14 (7.3%)	5.45 (0.066)
Female	42 (21.9%)	12 (6.3%)	6 (3.1%)	
Age Group				
18-25	35 (18.2%)	15 (7.8%)	3 (1.6%)	7.21 (0.027)
26-33	78 (40.6%)	25 (13.0%)	11 (5.7%)	
34-40	19 (9.9%)	4 (2.1%)	6 (3.1%)	
Education Level				
Primary	4 (2.1%)	0 (0.0%)	0 (0.0%)	3.89 (0.143)
Secondary	20 (10.4%)	10 (5.2%)	4 (2.1%)	
University	108 (56.3%)	34 (17.7%)	16 (8.3%)	

Table 1 In the study area, 46.9% of male respondents reported being satisfied compared to only 21.9% of females felt the same, suggesting that men might be more inclined to use mobile banking services effectively due to a greater willingness to take risks during financial transactions. The age of respondents shows that the highest satisfaction rate (40.6%) is among the 26-33 age group, indicating that younger adults, who are likely more comfortable with technology, find mobile banking services more satisfying. The findings align with a recent study by Alsharif et al. (2023), which indicated that younger customers have higher engagement and satisfaction levels with digital financial services. Additionally, educational background significantly impacts satisfaction, as 56.3% of university-educated respondents reported being satisfied, reinforcing that higher education boosts individuals' confidence and skills in using technology-driven banking solutions. Similar to the findings by Mkpojiogu et al. (2019), highly educated mobile banking customers are highly satisfied with mobile banking services compared to their counterparts' customers with a low level of education. These insights highlight the importance of financial institutions customising their services and outreach strategies to meet the preferences and behaviours of various demographic segments, ultimately enhancing overall customer satisfaction and loyalty.

Analysing Customer Satisfaction: Insights from Path Analysis of Mobile Banking Service

Conducting path analysis in this study is crucial for understanding the complex relationships among various factors influencing customer satisfaction with mobile banking services at the People Bank of Zanzibar (PBZ). This analytical method helps to identify both direct and indirect effects of variables such as security, service speed, user perception, and mobile device ownership on customer satisfaction. By examining these relationships, the analysis provides insights into user experiences and emphasises how specific factors contribute to overall satisfaction, as shown in Table 2.



Table 2: Path Analysis Results for Factors Influencing Customer Satisfaction in Mobile Banking Services

Variable	Direct Effect (β)	p-value	Indirect Effect (β)	Mediating Variable
Security	0.353	< 0.01	-	-
Speed of Services Perception	0.251	< 0.01	-	-
Income	0.304	< 0.01	-	-
Ownership of Mobile	-	-	0.205	Ownership of Mobile
Income	-	-	0.153	Income
Model Fit Indices				Value
Chi-Square (χ ²)				185.62
Degrees of Freedom (df)				120
p-value				0.001
Root Mean Square Error of Approximation (RMSEA)				0.045
Comparative Fit Index (CFI)				0.94
Tucker-Lewis Index (TLI)				0.92

Path analysis results (Table 2) show essential connections between factors affecting customer satisfaction with mobile banking services. Key variables like security, service speed, and customer perception strongly impacted satisfaction levels, indicating that customers value these features when using mobile banking. For example, the path coefficient for security was notably high, suggesting that improving security measures could greatly enhance customer trust and satisfaction. These findings are consistent with recent research by Khokhar et al. (2023), which also emphasised the vital importance of security and service speed in boosting customer satisfaction in the digital banking sector. These findings highlight the necessity for banks, such as People Bank of Zanzibar, to enhance these aspects to improve overall customer experience and loyalty, highlight the need to prioritise security measures and optimise service delivery to increase customer loyalty and retention.

Factors Affecting Customer's Satisfaction with Mobile Banking Services

Using logistic regression analysis, the study sought to establish the factors responsible for PBZ customer satisfaction with mobile banking services in Pemba. The variables involved are income, Bank charges, Smartphone ownership, Quality of service, Service reliability, Speed of service and education level. The study results are indicated in Table 3.

Table 3: Economic and Service-Related Factors Affecting Customer Satisfaction with Mobile Banking Services Provided by PBZ

Variables	Marginal Effects (B)	S.E.	Sig.	95% C.I for B
Constant	-0.946	4.169	0.002	-7.392, -0.944
Bank Charges	0.200	0.876	0.819	-0.220, 6.793
Income	0.949	1.120	0.003	0.288, 23.196
Smartphone Ownership	0.248	0.953	0.040	0.198, 8.303
Quality of Services	-0.498	1.043	0.633	-4.697, 0.608
Reliability	1.916	0.753	0.011	1.552, 29.711
Speed of Services	19.233	92.962	0.064	0.388, 0.000
Education Level	0.971	0.525	0.070	0.000, 2.641
Model Summary				
-2 Log Likelihood	143.756			
Chi-Square	34.487		0.000	
Cox & Snell R Square	0.482			
Nagelkerke R Square	0.642			



Table 3 model results are valid as indicated through key predictors such as income, smartphone ownership, and service reliability, all supported by p-values below the 0.05 threshold, indicating their significant influence on customer satisfaction. Ensuring the findings are reliable, the model's goodness-of-fit is demonstrated through the -2 Log Likelihood and Chi-Square statistics, confirming its overall adequacy. The Cox & Snell R Square and Nagelkerke R Square values suggest that the model accounts for a substantial portion of the variance in customer satisfaction. Nagelkerke's R Square indicates a more significant explanatory power at 0.541, highlighting the model's considerable predictive ability.

The results show that economic factors like income and smartphone ownership significantly influence customer satisfaction with mobile banking services at PBZ. Customers with higher incomes ($p = 0.003$) tend to be more satisfied, likely because they can access advanced banking features and personalised services. The findings align with Ong (2020), who found that income levels affect satisfaction. The higher income satisfaction might be influenced by the need to spend a little time on banking services. Bhatt and Bhatt (2016) noted that people with higher incomes believe that savings in time benefits can be a critical factor, influencing them to use mobile banking services frequently. Results also show that smartphone ownership ($p = 0.04$) positively influences satisfaction, as users enjoy faster services and more intuitive interfaces. Gupta and Tiwari (2021) highlight the importance of technology adaptation, like the use of smartphones, to boost customer satisfaction.

On the other hand, bank charges ($p = 0.819$) did not significantly impact satisfaction, indicating that while high fees may cause some frustration, they don't significantly affect overall satisfaction. Regarding service-related factors, reliability ($p = 0.011$) and speed of service ($p < 0.001$) were crucial for customer satisfaction, with clients appreciating consistent and quick transactions. This is consistent with Akinci et al. (2019), who found that prompt service delivery improves user experience. These insights suggest that PBZ should prioritise enhancing service reliability and speed and address the needs of higher-income and tech-savvy customers to boost satisfaction. Interestingly, while the quality of mobile banking services did not significantly affect satisfaction ($p = 0.633$), educational level ($p = 0.064$) emerged as an important factor, with more educated customers reporting higher satisfaction due to their ease in navigating mobile platforms, echoing findings by Liu et al. (2020).

Factor Analysis Results on Customer Satisfaction with Mobile Banking Services

Factor analysis was applied to show the key dimensions that affect customer satisfaction with mobile banking services. The analysis identified and clustered related variables, helping to understand how user experience, service quality, cost considerations, and customer support influence overall mobile service satisfaction. The results are shown in Table 4.



Table: 4 Factor Analysis Results on Customer Satisfaction with Mobile Banking Services

Factors	Items	Factor Loading	Communalities
User Experience	Ease of navigation	0.835	0.76
	User-friendly interface	0.821	0.71
	Visual appeal	0.764	0.58
Service Quality	Speed of transaction processing	0.912	0.85
	Reliability of service	0.885	0.78
	Accuracy of transactions	0.858	0.71
Cost Factors	Perceived value of banking fees	0.773	0.67
	Competitiveness of fees	0.811	0.74
Customer Support	Availability of customer support	0.845	0.73
	Responsiveness to inquiries	0.827	0.69
	Quality of support provided	0.812	0.70
Chi-Square Test: χ^2		34.56, p = 0.063	
RMSEA (Root Mean Square Error of Approximation)		0.048 (90% CI: 0.023 to 0.070)	
CFI (Comparative Fit Index)		0.955	
TLI (Tucker-Lewis Index)		0.949	

The summary for the above model indicates that the model fit for the factor analysis regarding customer satisfaction with mobile banking services is robust, as evidenced by the non-significant Chi-square ($p = 0.063$), indicating that the observed data closely matches the expected model. The RMSEA value of 0.048 suggests a good fit, with a confidence interval that remains below the acceptable limit. Furthermore, the CFI of 0.955 indicates a very good fit, while the TLI of 0.949 demonstrates a reasonable level of model adequacy. Together, these findings confirm that the identified factors – User Experience, Service Quality, Cost Factors, and Customer Support – are crucial in explaining customer satisfaction within the mobile banking landscape.

Study results indicate that user experience is a factor that includes ease of navigation, user-friendly interface, and visual appeal of the mobile banking app. High factor loadings (0.835 to 0.764) indicate that these aspects significantly affect customer satisfaction, suggesting users value a smooth and attractive experience. Service Quality encompasses the speed of transaction processing, reliability, and accuracy of services. With factor loadings between 0.912 and 0.858, these findings highlight the essential role of service quality in enhancing customer satisfaction. Customers tend to remain satisfied when services are efficient and trustworthy.

Additionally, Cost Factors: Banking fees' perceived value and competitiveness were essential contributors to customer satisfaction, with loadings of 0.773 and 0.811, respectively. These findings align with earlier research showing that high fees can negatively impact customer satisfaction, stressing banks' importance in maintaining their customers (Wulandari et al., 2022). Moreover, Customer Support covers availability, responsiveness, and overall quality. High factor loadings (0.845 to 0.812) suggest that adequate customer support is vital for ensuring satisfaction with mobile banking services.

Conclusion

In conclusion, the analysis shows that economic and service-related factors are crucial in shaping customer satisfaction with mobile banking services at People Bank of Zanzibar (PBZ). Specifically, income levels and smartphone ownership significantly influence satisfaction, as customers with



higher incomes and access to smartphones generally have a more positive experience due to their ability to use advanced banking features and enjoy faster, more user-friendly services. The study emphasises that service reliability and speed are vital for customer satisfaction, highlighting the importance of PBZ delivering consistent, efficient, and timely services. These elements are essential for enhancing the overall user experience and ensuring customer satisfaction with the services provided. Interestingly, while bank charges and mobile banking quality did not significantly affect satisfaction, security and customer perception were essential factors. Given Zanzibar's unique infrastructure and cultural context, improving security measures—such as strong encryption and multi-factor authentication—is crucial to building trust and protecting customer data.

Additionally, managing customers' perceptions of service quality, influenced by speed and reliability, is necessary to meet their expectations. Based on these insights, PBZ should improve service reliability, speed, and security to boost customer satisfaction and loyalty. By addressing these key areas, PBZ can enhance its competitive edge in the expanding mobile banking market, ensuring long-term customer retention and satisfaction.

To enhance customer satisfaction with mobile banking services, People Bank of Zanzibar (PBZ) should focus on improving the reliability and speed of their services by investing in strong infrastructure and minimising downtime. Doing so will enable quick and efficient transactions that align with customer expectations. Additionally, since security plays a crucial role in building customer trust, policymakers should work on developing supportive regulations and enhancing internet infrastructure to create a secure and user-friendly mobile banking environment; PBZ should strengthen their security measures by implementing multi-factor authentication and enhanced encryption to safeguard user data and create a safe banking environment. It is also important to cater to the needs of higher-income and tech-savvy customers by offering advanced features and personalised services that resonate with this demographic, including innovative tools and customised financial products. Moreover, investing in customer education programs will assist users from various educational backgrounds navigate the platform more effectively, enhancing user experience and satisfaction. Regularly collecting customer feedback and proactively addressing concerns will help PBZ improve how its services are perceived, while competitive pricing and transparent fee structures can further boost customer loyalty. By concentrating on these key areas—service reliability, security, tailored offerings, customer education, and feedback management—PBZ can significantly enhance satisfaction, strengthen customer relationships, and maintain a competitive advantage in the ever-evolving mobile banking landscape.

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