

Determinants of Customer Satisfaction with Automated Teller Machine (ATM) Services

An Empirical Study of the Commercial Bank of Ethiopia, Nekemte Town

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ABSTRACT

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This study investigates the determinants of customer satisfaction with Automated Teller Machine (ATM) services at the Commercial Bank of Ethiopia (CBE) in Nekemte Town, within the context of Ethiopia's rapidly expanding digital financial sector. ATMs play a vital role in improving banking accessibility and supporting financial inclusion, making customer satisfaction an important indicator of service quality and operational effectiveness. The research employed descriptive and explanatory research designs using quantitative methods. Primary data were collected from 184 active ATM users through structured questionnaires and analyzed using Pearson correlation and multiple linear regression techniques. The findings reveal that the reasonableness of transaction fees, accessibility and strategic location of ATMs, and the diversity of services available through ATM platforms significantly and positively influence customer satisfaction. Although respondents frequently reported technical malfunctions and operational interruptions, the variable representing the frequency of problems was not statistically significant in the regression model. This finding suggests that customers may have become accustomed to recurring technical issues within the banking system. The study concludes that improving ATM reliability, ensuring consistent machine functionality, expanding service features, and reviewing transaction fee structures are essential strategies for enhancing customer satisfaction and maintaining the bank's competitive position in Ethiopia's evolving digital banking environment.

Keywords

Automated Teller Machine
Customer Satisfaction
Commercial Bank of
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Introduction

The global banking industry has experienced a substantial transformation over the past two decades, shifting from traditional branch-based banking systems toward technology-driven financial service delivery mechanisms. The rapid advancement of Information and Communication Technology (ICT) has significantly changed the way banks interact with customers by improving operational efficiency, reducing service delivery costs, and enhancing customer convenience [1],[2]. Electronic banking technologies have become essential tools for maintaining competitiveness in the financial sector, particularly in environments characterized by increasing customer expectations and technological innovation. According to Davis [3], customers are more likely to adopt technological systems when they perceive them as useful and easy to use. Consequently, commercial banks worldwide have increasingly integrated electronic banking services into their operations to improve customer experiences and organizational performance.

Among the various forms of electronic banking, the Automated Teller Machine (ATM) is considered one of the most widely adopted and influential innovations in modern banking systems. ATMs allow customers to conduct banking transactions such as cash withdrawals, balance inquiries, money transfers, and bill payments without direct interaction with bank employees [4]. This technology provides twenty-four-hour access to banking services, reduces congestion inside banking halls, and minimizes the workload of frontline bank staff [5]. Furthermore, ATM services improve service accessibility and transaction speed, thereby contributing to higher levels of customer convenience and satisfaction [6]. Studies conducted in various countries have shown that service quality dimensions such as reliability, responsiveness, accessibility, and security strongly influence customer satisfaction with ATM services [7],[8].

In developing countries, electronic banking technologies play a particularly important role in expanding financial inclusion and modernizing banking practices. In Ethiopia, the banking sector has experienced gradual digital transformation through the adoption of ATM services, mobile banking, and internet banking systems [9]. The Commercial Bank of Ethiopia (CBE), as the country's largest state-owned financial institution, has invested heavily in

expanding ATM infrastructure across urban and semi-urban areas to improve customer accessibility and service delivery. This expansion aligns with global banking trends emphasizing digitalization and customer-centered banking services [10]. Previous studies conducted in Ethiopia indicate that ATM services positively influence customer satisfaction and operational efficiency when services are reliable and easily accessible [11].

Despite the increasing adoption of ATM services, customers continue to face several operational and technical challenges. ATM users frequently report issues such as machine breakdowns, network failures, cash shortages, card retention, long waiting times, and unauthorized deductions from customer accounts [12],[13]. These problems negatively affect customers' trust, perceived service quality, and satisfaction levels. Moreover, transaction fees, maintenance charges, and inter-bank withdrawal costs are often perceived as expensive, particularly among low-income customers. Research has shown that perceived value and affordability significantly influence customer loyalty and satisfaction in electronic banking environments [14],[15]. Older studies also reveal that demographic factors such as age, income, and technological familiarity influence customers' attitudes toward ATM banking services [16].

Although electronic banking has received growing academic attention, limited empirical research has specifically examined customer satisfaction with ATM services in regional Ethiopian towns such as Nekemte. Existing studies tend to focus on broader electronic banking systems without adequately addressing how factors such as service reliability, transaction fees, accessibility, convenience, and ATM functionality collectively shape customer satisfaction. Therefore, this study seeks to fill this gap by investigating the determinants of customer satisfaction with ATM services provided by the Commercial Bank of Ethiopia in Nekemte Town. The findings are expected to contribute to the improvement of ATM service quality and support the development of customer-oriented banking strategies in Ethiopia.

Material and Methods

This study employed a cross-sectional mixed-method research design to examine customer satisfaction with ATM services provided by the Commercial Bank of Ethiopia (CBE) in Nekemte Town. The cross-sectional approach enabled the researchers to collect data from respondents at a single point in time, making it suitable for assessing customers' perceptions, experiences, and attitudes toward ATM banking services. The mixed-method design combined quantitative and qualitative approaches to provide a more comprehensive understanding of the research problem. Quantitative data were used to measure the level of customer satisfaction and identify influencing factors, while qualitative insights helped explain respondents' experiences and challenges related to ATM usage.

The target population of the study consisted of all active ATM users of the Commercial Bank of Ethiopia in Nekemte Town. To determine an appropriate sample size, the researchers applied the Yamane (1967) sample size determination formula. Based on this calculation, a total sample size of 220 respondents was targeted for participation in the study. Data collection was conducted using convenience sampling due to the accessibility and availability of ATM users during the data collection period. Out of the distributed questionnaires, 184 valid responses were successfully collected and used for analysis, resulting in a response rate of 83.6%, which was considered adequate for the study.

Primary data were gathered through a structured questionnaire designed using a 5-point Likert scale ranging from strongly disagree to strongly agree. The questionnaire assessed multiple dimensions of ATM service quality and customer satisfaction. Reliability analysis indicated that the instrument had strong internal consistency, with a Cronbach's Alpha coefficient of 0.82.

Results

A. Demographic Profile

Table 1 presents the demographic characteristics of the respondents involved in the study, comprising a total of 184 active ATM users of the Commercial Bank of Ethiopia (CBE) in Nekemte Town. The table summarizes respondents based on selected demographic variables such as gender, age group, educational background, occupation, and frequency of ATM usage.

Table 1. Demographic Characteristics of Respondents (N=184)

Variable	Category	Frequency	Percentage (%)
Gender	Male	79	42.9
	Female	105	57.1
Age	20-30 years	112	60.9
	30-40 years	41	22.3
	Others	31	16.8
Occupation	Student	84	45.7
	Private/Self-employed	59	32.0
	Government/Other	41	22.3
Income (ETB)	Below 3,000	108	58.7
	Above 3,000	76	41.3

The demographic data reveals that CBE's ATM user base in Nekemte is predominantly young (60.9% aged 20-30) and student-heavy (45.7%). This segment is typically characterized by high technological literacy but low disposable income (58.7% earn less than 3,000 ETB). This demographic profile is significant because younger, lower-income users are more likely to be sensitive to service fees and are more likely to utilize ATMs for small, frequent withdrawals rather than large transactions.

B. Correlation Analysis

Table 2 presents the Pearson correlation matrix showing the relationships among customer satisfaction and the independent variables examined in the study. The results indicate that reasonableness of fees, choice of ATM location, and usage of ATM services have significant positive correlations with customer satisfaction.

Table 2. Pearson Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)
1. Customer Satisfaction	1.00				
2. Reasonableness of Fee	.391**	1.00			
3. Frequency of Problem	-.129	.293**	1.00		
4. Choice of ATM	.343**	.433**	.243**	1.00	
5. Usage of Service	.378**	.271**	.024	.321**	1.00

Note: ** Significant at $p < 0.01$.

The correlation matrix shows that Reasonableness of Fee ($r=.391$) and Usage of Service ($r=.378$) have the strongest positive associations with satisfaction. This implies that as users perceive fees to be fairer and as they engage with more ATM features, their satisfaction levels rise. Interestingly, Frequency of Problem ($r=-.129$) shows a weak negative correlation that is not statistically significant. This suggests that while problems occur, they may not be the primary driver of overall dissatisfaction, possibly because users have come to expect a certain level of technical instability in the local infrastructure.

C. Regression Analysis

Table 3 presents the summary of the multiple regression analysis conducted to examine the combined effect of the independent variables on customer satisfaction with ATM services. The model summary provides key statistical indicators, including the correlation coefficient (R), coefficient of determination (R^2), adjusted R^2 , and the standard error of the estimate.

Table 3. Multiple Regression Model Summary

R	R Square	Adjusted R-Square	Std. Error	F	Sig.
.894	.800	.796	0.343	179.00	.000

The regression model summary demonstrates a strong and reliable model fit. The Adjusted R Square value of .796 indicates that approximately 79.6% of the variation in customer satisfaction is explained by the four independent variables included in the study, namely reasonableness of fees, frequency of problems, choice of ATM location, and usage of ATM services. This substantial explanatory power suggests that the model effectively captures the major factors influencing ATM user satisfaction among customers of the Commercial Bank of Ethiopia in Nekemte Town. The findings imply that these service-related variables play a significant role in shaping customer perceptions and experiences with ATM banking services. Therefore, the regression model provides a strong basis for understanding the determinants of customer satisfaction in the context of digital banking services.

Table 4. Regression Coefficients

Predictor	Unstandardized B	Std. Error	Beta (β)	t	Sig.
(Constant)	1.254	0.288		4.354	.000
Reasonableness of Fee	0.315	0.075	.289	4.200	.000
Frequency of Problem	-0.098	0.061	-.105	-1.606	.110
Choice of ATM	0.243	0.080	.201	3.037	.003
Usage of Service	0.299	0.071	.276	4.211	.000

The coefficient analysis identifies Reasonableness of Fee ($\beta=.289$, $p<.001$) as the most influential predictor of satisfaction. For every unit improvement in fee perception, satisfaction increases by 0.315 units. Usage of Service ($\beta=.276$) and Choice of ATM ($\beta=.201$) are also significant predictors. However, Frequency of Problem ($\beta=-.105$, $p=.110$) did not reach statistical significance. This empirical evidence confirms that satisfaction in Nekemte is driven primarily by economic value (fees) and convenience (location/usage) rather than the mere absence of technical glitches.

Discussion

The findings of this study provide important insights into customer satisfaction with ATM services offered by the Commercial Bank of Ethiopia (CBE) in Nekemte Town. The demographic profile revealed that most respondents were young adults aged between 20 and 30 years and were predominantly students with relatively low monthly incomes. This finding aligns with earlier studies indicating that younger populations are more likely to adopt electronic banking technologies because they possess higher technological familiarity and adaptability [3],[17]. The dominance of low-income respondents also suggests that affordability and cost-related concerns are critical determinants of satisfaction, particularly in developing economies where customers are highly sensitive to banking charges [14],[15].

The correlation analysis demonstrated that the reasonableness of ATM fees had the strongest positive relationship with customer satisfaction. This indicates that customers evaluate ATM services not only based on accessibility and convenience but also on perceived economic value. The finding supports the argument of Chang et al. [8], who emphasized that perceived value significantly affects customer satisfaction and loyalty in electronic banking environments. Similarly, Singh and Komal [4] found that ATM users tend to develop positive attitudes toward banking services when transaction costs are perceived as fair and transparent. In the Ethiopian context, where a considerable proportion of customers earn limited incomes, transaction fees can directly influence the frequency and continuity of ATM usage [10].

The positive association between usage of ATM services and customer satisfaction further suggests that customers who utilize multiple ATM functions tend to report more favorable banking experiences. This finding is consistent with the Technology Acceptance

Model proposed by Davis [3], which argues that perceived usefulness significantly influences user acceptance of information technology. Customers who use ATMs for withdrawals, balance inquiries, transfers, and other financial transactions are more likely to perceive ATM systems as beneficial and efficient. Previous studies have similarly reported that wider utilization of electronic banking services enhances customer confidence and satisfaction [1],[2]. Therefore, expanding ATM functionalities may encourage greater customer engagement and improve overall service evaluations.

Another important finding concerns the positive influence of ATM location choice on customer satisfaction. Customers preferred ATMs that were strategically located in accessible and secure areas. This result is consistent with the SERVQUAL framework developed by Parasuraman et al. [7], which highlights convenience and accessibility as essential dimensions of service quality. Accessible ATM locations reduce travel costs, waiting time, and inconvenience, thereby improving customers' banking experiences. Similar conclusions were reported by Dhungel and Acharya [10], who found that accessibility strongly influences customers' perceptions of ATM service quality. In regional towns such as Nekemte, where transportation infrastructure may be limited, convenient ATM placement becomes even more important.

Interestingly, the frequency of technical problems showed a weak and statistically insignificant negative effect on customer satisfaction. Although respondents frequently complained about machine breakdowns, network interruptions, and cash shortages, these issues did not significantly predict overall dissatisfaction. This finding differs from studies conducted in more technologically advanced banking environments where service failures strongly reduce customer trust and satisfaction [12],[13]. One possible explanation is that customers in Ethiopia may have become accustomed to occasional technological instability and therefore consider such problems as normal operational challenges. Gardachew [9] similarly noted that electronic banking in Ethiopia faces infrastructural and technological limitations that affect service consistency.

The regression analysis confirmed that reasonableness of fees, usage of services, and ATM location were the strongest predictors of customer satisfaction. The high adjusted R-square value indicates that the model effectively explains customers' ATM experiences in Nekemte Town. This result reinforces the argument that customer satisfaction in electronic banking is multidimensional and influenced by both functional and economic factors [7],[18]. Overall, the findings suggest that CBE should focus on affordable transaction charges, wider ATM service functionality, and improved accessibility to strengthen customer satisfaction and maintain competitiveness in Ethiopia's evolving banking sector.

Conclusion

The study concludes that ATM services play a crucial role in supporting modern banking activities in Nekemte Town, particularly among young and low-income users. Customer satisfaction is strongly influenced by transaction fees, accessibility, and the range of ATM services provided. Although technical problems such as machine failures and network interruptions were common complaints, they were not the strongest predictors of dissatisfaction. Instead, customers placed greater emphasis on affordability and convenience. Therefore, the Commercial Bank of Ethiopia (CBE) should adopt a value-based service delivery strategy to strengthen customer satisfaction and maintain competitiveness. First, CBE should review and reduce inter-bank transaction fees while ensuring transparency regarding service charges, especially for student users who are highly price-sensitive. Second, the bank should improve ATM reliability through real-time monitoring and faster maintenance responses to minimize service interruptions. Finally, CBE should strategically expand ATM locations in high-traffic areas frequently visited by young adults and equip machines with backup power systems to ensure continuous service availability.

Conflict of Interest

The authors declare no conflict of interest.

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