Assessing the Impact of the COVID-19 Pandemic on the Usage of E-Payment Systems: An Investigation of User Perspectives

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Keywords:
E-Payment
COVID-19
Technology Acceptance Model
Online Banking
Zambia

ABSTRACT

The COVID-19 pandemic was a global challenge with a significant rate of prevalence. It exerted devastating consequences in epidemic, economic, and social terms. The crisis is changed the way people lived, worked, consumed, and payed their bills. These changes still persist. The objective of this study is to evaluate the effects of the COVID-19 outbreak as an intervening element on the acceptance of branch-less banking and e-payment systems. The study evaluated factors including perceived benefits, performance and effort expectancy, social influence, perceived security, and trust. Using a quantitative survey research design, data was collected from 302 e-payment users in Kitwe, Zambia. The findings indicate that during the COVID-19 pandemic, users' adoption intentions of e-payments are significantly facilitated by performance expectations, perceived advantages, social influence, trust, and security. The contact-less nature of E-payment systems is especially advantageous in preserving social distance and ensuring personal safety during a pandemic.

Article history: Received: 1 Nov 2025; Received in revised form: 01 Apr 2026; Published: 03 Apr 2026

1. Introduction

The proliferation of mobile devices has transformed them from mere communication tools into essential platforms for conducting online activities, including financial transactions. Online banking and mobile payment services encompass a broad range of electronic systems that enable clients to perform financial operations virtually via the internet, Automated Teller Machines (ATMs), and Point of Sale (POS) systems (Firdous and Farooqi, 2017). Over the past two decades, the development of these services in Sub-Saharan Africa has significantly improved service delivery and expanded the geographical reach of financial institutions.

While the push toward the use of electronic payment systems is not a novel phenomenon in Zambia, the advent of the COVID-19 pandemic drastically accelerated the need for financial digitization. Novel financial technologies allow banks to provide exclusive, location-independent services to their customers (Shahabi, Azar, Faezy Razi and Fallah Shams, 2021). During the pandemic, the Bank of Zambia implemented rapid regulatory measures to encourage contact-less transactions, including waiving charges for low-value person-to-person money transfers, revising transaction limits upwards, and reducing dispensation fees for Real Time Gross Settlement systems (Nan and Park, 2022).

1.1. Problem Statement and Research Gap

The banking sector plays a critical role in global economic development, particularly in emerging economies where capital markets are still maturing (Ernest, David and Irenee, 2020). However, the COVID-19 pandemic severely disrupted traditional banking operations, necessitating reduced working hours and staff rotations to maintain social distancing. To mitigate public concerns regarding viral transmission through physical cash handling (Auer, Cornelli and Frost, 2020), financial institutions pivoted heavily toward cashless, electronic transactions.

Despite this rapid operational shift, the impact of the pandemic on customer adoption and usage of mobile payment services remains under-researched. While previous literature has explored technology adoption—often utilizing frameworks rooted in behavioural intention theories (Ajzen, 1991) —most existing studies on e-payment systems have predominantly focused on general customer satisfaction (Simon, Thomas and Senaji, 2016). There is a conspicuous lack of empirical research examining how the unprecedented conditions of the COVID-19 crisis have specifically

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influenced consumer attitudes toward branch less banking in Zambia. Consequently, banks currently lack adequate, customer-centric data to determine how best to optimize service provision, improve cybersecurity, and measure the ongoing efficiency of their mobile payment platforms.

1.2. Research Objectives

To address this empirical gap, this study investigates the impact of the COVID-19 pandemic on the usage of mobile payment services by bank customers in Kitwe, Zambia. Specifically, the research aims to:

(1) Ascertain the effect of Perceived Benefits on behavioural intentions to adopt e-payment systems during the pandemic.
(2) Examine the impact of Performance Expectancy on e-payment adoption intentions.
(3) Investigate the degree to which Social Influence and Perceived Security contribute to the sustained intention to use e-payment systems.

1.3. Significance of the Study

By focusing on e-payment users' perceived attitudes, technological familiarity, and safety assurances, this study provides actionable insights for banking executives and policymakers. Understanding these dynamics is crucial for banks to optimize service delivery, modernize their information technology infrastructure, and tailor security-sensitive products that meet evolving customer needs. Ultimately, these insights can foster a sustained cashless culture in the post-pandemic era and contribute valuable empirical data to the broader academic discourse on financial technology adoption in developing economies.

1.4. Article overview

The remainder of this paper is structured as follows: Section 2 reviews the literature and theoretical framework, Section 3 details the methodology, Section 4 presents the findings, and Section 5 offers concluding remarks.

2. Literature Review

2.1. Introduction

This section synthesizes extant literature on the relationship between the COVID-19 pandemic and the adoption of online banking, with particular emphasis on emerging and African economies. The review is structured into two analytically distinct but complementary components: a theoretical review, which establishes the conceptual foundations of technology adoption behavior, and an empirical review, which evaluates existing evidence across different economic contexts. The objective is to position the study within the broader scholarly discourse and to identify unresolved gaps, particularly in the Zambian context.

2.2. Theoretical Review

The adoption of online banking, especially during systemic shocks such as the COVID-19 pandemic, is best understood through behavioral and technology adoption frameworks. This study integrates three dominant theoretical perspectives: the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), and the Technology Acceptance Model (TAM). These frameworks collectively explain how cognitive evaluations, social pressures, and technological attributes shape behavioral intentions toward digital financial services.

2.2.1. Theory of Reasoned Action (TRA)

The Theory of Reasoned Action posits that individual behavior is determined by behavioral intention, which is jointly influenced by attitudes toward the behavior and subjective norms (Ajzen, 1980). Within the context of online banking, individuals are assumed to make rational evaluations of the benefits—such as convenience, efficiency, and reduced physical interaction—before forming intentions to adopt digital platforms. During the COVID-19 pandemic, the relevance of TRA is heightened as individuals reassess traditional banking methods in light of health risks associated with physical contact. Positive attitudes toward contact-less transactions, coupled with social influence, reinforce the intention to adopt online banking. However, TRA is constrained by its assumption of full volitional control. It does not explicitly account for structural barriers or situational factors, which are particularly salient in predicting situations in which individuals have low levels of deliberate intention.

2.2.2. Theory of Planned Behaviour (TPB)

The Theory of Planned Behavior extends TRA by incorporating perceived behavioral control, defined as an individual's perception of their capacity to perform a given behavior (Ajzen, 1985, 1991). This construct is critical in technology adoption contexts where access to enabling resources is uneven. In the case of online banking, perceived behavioral control encompasses access to technology and other resources available to the user. During the pandemic, individuals with higher perceived control are more likely to transition to online banking as a substitute for traditional banking channels. Despite its broader explanatory scope, TPB has been critiqued for missing essential aspects that may influence intention-behavior correlations. For instance, (Yousafzai, Foxall and Pallister, 2010; Sniehotta, Presseau and Araújo-Soares, 2014) argued that it is difficult to research consumer adoption and a consistent belief structure among respondents when it comes to executing a behaviour since it requires individuals to be motivated to do so. Nonetheless, it remains a robust framework for predicting online banking behaviour.

2.2.3. Technology Acceptance Model (TAM)

The Technology Acceptance Model, created by (Davis, 1989), provides a more technology-specific explanation of user adoption behaviour. It posits that perceived usefulness and perceived ease of use are the primary determinants of a person's intention to utilize a technology and their actual use. In the context of online banking, perceived usefulness relates to the extent to which digital banking enhances transaction efficiency, while perceived ease of use reflects the simplicity of the platform. The TAM model addresses some limitations of TRA and TPB by explicitly incorporating technological attributes and external factors. However, it has been criticized for over-reliance on respondents' self-reporting and assuming that self-reported usage reflects actual usage.

2.2.4. Synthesis of Theoretical Perspectives

Collectively, TRA, TPB, and TAM provide a comprehensive framework for analyzing online banking adoption. TRA and TPB emphasize behavioural intention formation through attitudes and social influence, while TAM introduces technology-specific determinants. In the context of COVID-19, these theories jointly suggest that adoption is driven by a combination of perceived benefits, social pressures, resource availability, and system usability.

2.3. Empirical Review

2.3.1. Evidence from Developed Economies

Empirical studies from developed economies indicate that the COVID-19 pandemic accelerated the shift toward digital payments and online banking. Buchel (2020) discovered that banks and merchants globally responded to COVID-19 concerns by increasing contactless payment limits to eliminate the need for PIN entry on point-of-sale systems. The adoption of QR code payments also increased significantly among retailers, reflecting consumer demand for safer, zero-touch payment methods. However, structural challenges persist, as Buchel (2020) also noted that 90 percent of shops in the informal sector continue to operate exclusively on cash due to problems with card acceptance in small businesses and rural locations. Furthermore, Lin, Wang and Hung (2020) utilized the decision-making trial and evaluation laboratory (DEMATEL), analytic network process (ANP), and structural equation modelling (SEM) to investigate the determinants of online banking adoption. They identified trust as the most central determinant for both businesses and consumers, suggesting that institutions enhancing information security and regulatory compliance are more likely to foster user confidence.

2.3.2. Evidence from Developing Economies

In developing economies, the relationship between COVID-19 and digital financial adoption is nuanced by institutional constraints. Haq and Awan (2020) demonstrated that e-banking service quality—particularly reliability and website design—significantly furthered customer loyalty during the COVID-19 pandemic in Pakistan. Importantly, their findings showed that e-banking satisfaction fully mediated the relationship between privacy/security and customer loyalty. Similarly, (Al Nawayseh, 2020) found that perceived benefits and social norms substantially impact the inclination to utilize FinTech applications in Jordan. Al Nawayseh (2020) also noted that trust moderates the relationship between perceived risks and adoption propensity, underscoring the importance of building secure platforms. Sathish, Sermakani and Sudha (2020) corroborated this by highlighting trust as the most important aspect determining users' contentment and intentions to use mobile wallets. Additionally, the pandemic acted as a catalyst for digital transformation; Shahabi et al. (2021) found that the COVID-19 outbreak promoted clients' acceptance of new technologies and accelerated the development of branch-less banking in Iran.

2.3.3. Evidence from African Economies

Empirical evidence from African countries highlights both opportunities and constraints in the adoption of online banking. Prior to the pandemic, Simon et al. (2016) investigated top banks in Nairobi and discovered that mobile banking had the greatest impact on customer satisfaction, followed by automated teller machines, point of sale systems, and internet banking. Key determinants of this satisfaction included the convenience, ease of use, and flexibility of the banking systems. During the COVID-19 pandemic, Ketema and Selassie (2020) found that e-service quality dimensions—including security, reliability, efficiency, responsiveness, and ease of use—were significant predictors of mobile banking customer satisfaction in Ethiopia. However, the pandemic also exposed sector vulnerabilities. Tut (2023) noted that while favourable short-term regulatory adjustments helped reverse some negative impacts on FinTech uptake, overall interbank contagion and liquidity concerns increased, leading to a dramatic decrease in domestic and international electronic financial transfers.

2.3.4. Synthesis and Research Gap

The empirical literature consistently identifies trust, perceived usefulness, service quality, and social influence as key drivers of online banking adoption. The COVID-19 pandemic emerges as both a shock and a catalyst, accelerating digital transformation while exposing structural weaknesses in financial systems. However, critical gaps remain. Much of the existing evidence is drawn from developed or non-African developing economies, limiting its direct applicability to Zambia. Furthermore, prior studies often focus on general digital financial services or customer satisfaction, rather than explicitly isolating online banking adoption from the specific viewpoint of the COVID-19 pandemic. Accordingly, this study contributes to the literature by examining how COVID-19-related dynamics interact with behavioral and technological factors to influence online banking and e-payment adoption in Zambia, effectively sealing this contextual research gap.

3. Methodology

3.1. Research Design

This study adopted a quantitative survey research design to empirically assess the impact of the COVID-19 pandemic on the usage of e-payment systems. A survey design was selected as it efficiently facilitates the collection of quantitative, numerical data from a large sample, allowing for the statistical testing of hypotheses and the identification of behavioral trends within a specific population.

3.2. Target Population and Sampling

The target population for this study comprised users of online banking and e-payment services residing in Kitwe, located in the Copperbelt province of Zambia. Given the undefined exact size of this specific user population, a sample size calculation was guided by statistical recommendations for large or unknown populations. Using a non-selective simple random sampling procedure, the study successfully surveyed 302 respondents. This sample size is robust and aligns with methodological recommendations for similar technology adoption studies, exceeding minimum thresholds.

3.3. Demographic Profile

Of the 302 respondents, 60.9% were female and 39.1% were male. The sample was predominantly composed of young adults, with 62.3% aged between 21 and 30 years, and 26.5% aged between 31 and 40 years. The respondents were highly educated, with 57.9% holding a bachelor's degree. Crucially for the context of the study, 99.3% of the sample held active bank accounts with access to online banking and e-payment services, and a majority (60.3%) had maintained their banking relationships for four years or more.

Table 1
Demographic Profile of Respondents

Variable	Category	Frequency (N)	Percentage (%)
Gender	Male	118	39.1
	Female	184	60.9
Age Group (Years)	20 and below	11	3.6
	21–30	188	62.3
	31–40	80	26.5
	41–50	16	5.3
	Above 50	7	2.3
Education	Secondary School Certificate	43	14.2
	Tertiary Certificate	21	7.0
	Diploma	37	12.3
	Degree	175	57.9
	Master's Degree	24	7.9
	PhD	2	0.7
Account Holder	Yes	300	99.3
	No	2	0.7
Online Banking Access	Yes	300	99.3
	No	2	0.7
Duration with Bank	1 Year	27	8.9
	2 Years	28	9.3
	3 Years	65	21.5
	4 Years and above	182	60.3

Note. $N = 302$.

3.4. Data Collection and Ethical Considerations

Primary data was collected using a structured online questionnaire. The digital distribution of the survey was intentionally chosen to overcome the logistical and safety challenges presented by the COVID-19 pandemic, ensuring adherence to social distancing protocols. Stringent ethical standards were maintained throughout the data collection process. Participants were fully informed of the study's purpose and granted the liberty to voluntarily participate or decline. Furthermore, respondents' identities and personal data were kept strictly confidential.

3.5. Measures and Instrument Reliability

The survey instrument was adapted from validated scales used in prior technology adoption literature, primarily drawing on the work of Zhao and Bacao (2021). The questionnaire measured seven key constructs on a 5-point Likert scale (ranging from 1 = totally disagree to 5 = totally agree). Instrument reliability was assessed using Cronbach's Alpha (α). All constructs demonstrated high internal consistency, with values exceeding the recommended 0.70 threshold for acceptable reliability.

Table 2
Measurement Model and Construct Reliability

Variable	Number of Items	Source	Cronbach's α
Perceived Benefit	3	(Zhao and Bacao, 2021)	0.698
Performance Expectancy	4	(Zhao and Bacao, 2021)	0.894
Effort Expectancy	4	(Zhao and Bacao, 2021)	0.839
Social Influence	4	(Zhao and Bacao, 2021)	0.902
Trust	5	(Zhao and Bacao, 2021)	0.852
Perceived Security	3	(Zhao and Bacao, 2021)	0.836
Behavioural Intention	4	(Zhao and Bacao, 2021)	0.916

Note. While Perceived Benefit ($\alpha = 0.698$) is marginally below 0.70, it is considered acceptable given the high sensitivity of Cronbach's Alpha to constructs with fewer items.

3.6. Data Analysis and Preliminary Checks

Data preparation and statistical analyses were executed to screen for missing data, outliers, and common method bias. Because the questionnaire was administered online with all fields set as required, the dataset contained no missing values. Distributions were evaluated for normality using skewness, kurtosis, and the Kolmogorov-Smirnov test. The Kolmogorov-Smirnov test confirmed that all variables followed a normal distribution ($p < 0.05$). Based on the outcomes of these preliminary checks, the data was deemed suitable for subsequent multivariate parametric and non-parametric regression analyses to test the conceptual model's hypotheses.

4. Results

4.1. Preliminary Statistical Analysis and Correlations

Data analysis was conducted using SPSS version 23.0 to evaluate the conceptual model. Prior to hypothesis testing, preliminary statistical checks were performed to ensure data integrity and to assess the relationships between the dependent, independent, and control variables. To test for multicollinearity among the predictor variables, Variance Inflation Factors (VIF) and Pearson correlation coefficients were examined. All inter-variable correlations were below the 0.80 threshold, and VIF values for all predictors in the final regression model were well below the stringent cut-off of 3.0 (ranging from 1.540 to 2.500). This indicates that multi collinearity was not a significant concern, allowing for robust multiple hierarchical regression analysis without inflated coefficient estimates.

As detailed in Table 3, Pearson correlation analysis was utilized to identify the direction and strength of associations between the variables. Behavioural Intention demonstrated significant, positive correlations with all primary independent variables. The strongest correlations were observed between Behavioural Intention and Trust ($r = .626$, $p < .01$), Perceived Security ($r = .595$, $p < .01$), and Performance Expectancy ($r = .549$, $p < .01$). Among the control variables, Gender had no significant correlation with Behavioural Intention, while Age showed a weak but significant positive correlation ($r = .119$, $p < .05$).

Table 3
Means, Standard Deviations, and Intercorrelations for Study Variables

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. Behavioural Intention	4.09	0.64	–							
2. Gender	0.61	0.49	.054	–						
3. Age	2.40	0.75	.119*	-.021	–					
4. Perceived Benefits	4.13	0.64	.478**	.072	.210**	–				
5. Performance Expectancy	4.18	0.65	.549**	.130*	.128*	.725**	–			
6. Effort Expectancy	3.88	0.54	.502**	-.018	-.009	.377**	.403**	–		
7. Social Influence	3.92	0.59	.512**	.119*	.134*	.409**	.489**	.439**	–	
8. Trust	3.91	0.57	.626**	.121*	.059	.340**	.490**	.548**	.627**	–
9. Perceived Security	3.55	0.71	.595**	-.057	.084	.174**	.294**	.406**	.423**	.573**

Note. $N = 302$. $^{*}p < .05$. $^{**}p < .01$ (2-tailed).

4.2. Hierarchical Regression Analysis

To ascertain the unique predictive power of each independent variable on the behavioural intention to adopt e-payment systems during the COVID-19 pandemic, a six-step multiple hierarchical regression was conducted. The results, including standardized coefficients (β), R^2 changes, and significance levels, are summarized in Table 4.

In Model 1, Perceived Benefits significantly predicted Behavioural Intention ($\beta = .478$, $p < .001$), explaining 22.8% of the variance. The addition of Performance Expectancy in Model 2 significantly improved the model's explanatory power ($\Delta R^2 = .086$, $p < .001$), though it reduced the effect size of Perceived Benefits ($\beta = .169$, $p < .05$). As additional variables were sequentially introduced (Models 3 and 4), Effort Expectancy ($\beta = .259$, $p < .001$) and Social Influence ($\beta = .231$, $p < .001$) both demonstrated significant positive effects on the dependent variable. However, the inclusion of Trust in Model 5 ($\beta = .368$, $p < .001$) rendered Social Influence statistically non-significant ($\beta = .076$, $p > .05$), suggesting that the effect of social networks on adoption intention may be mediated or overridden by the user's trust in the platform.

The final model (Model 6) integrated all predictors, accounting for 57.7% of the total variance in Behavioural Intention ($R^2 = .577$, F(6, 295) = 67.09, p < .001). In this comprehensive model, Perceived Security emerged as a strong and highly significant predictor ($\beta = .337$, p < .001). Trust ($\beta = .217$, p < .001), Perceived Benefits ($\beta = .181$, p < .01), Performance Expectancy ($\beta = .151$, p < .05), and Effort Expectancy ($\beta = .099$, p < .05) remained significant positive drivers of adoption intention. Social Influence remained the only non-significant variable in the final aggregate model.

Table 4
Hierarchical Regression Analysis Predicting Behavioural Intention

Predictor	Model 1 (β)	Model 2 (β)	Model 3 (β)	Model 4 (β)	Model 5 (β)	Model 6 (β)	VIF
Perceived Benefits	.478***	.169*	.111	.096	.147*	.181**	2.21
Performance Expectancy		.426***	.337***	.261***	.166*	.151*	2.50
Effort Expectancy			.325***	.259***	.145**	.099*	1.56
Social Influence				.231***	.076	.042	1.83
Trust					.368***	.217***	2.37
Perceived Security						.337***	1.54
Model Fit Statistics							
R	.478	.561	.633	.662	.710	.760	
R^2	.228	.314	.401	.438	.504	.577	
Adjusted R^2	.226	.310	.395	.430	.495	.568	
ΔR^2	.228	.086	.087	.037	.066	.074	
F Change	88.82***	37.52***	43.12***	19.41***	39.15***	51.31***	
Overall F	88.82***	68.58***	66.53***	57.83***	60.04***	67.09***	

Note. Standardized beta coefficients are reported. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

5. Discussion of Findings

The empirical results provide substantial explanatory value regarding how customer payment patterns have altered due to the COVID-19 pandemic. The correlation and hierarchical regression analyses jointly confirm that behavioral intentions to adopt e-payment systems are multifaceted, driven significantly by cognitive, functional, and security-based evaluations.

Initially, Perceived Benefits and Performance Expectancy demonstrated strong predictive utility. This indicates that when potential users recognize the functional advantages of e-payment services—particularly the ability to maintain social distancing and complete transactions efficiently during a health crisis—they are significantly more likely to adopt these systems. Furthermore, Effort Expectancy retained a significant positive effect throughout the modeling process, underscoring that user-friendly, low-effort interfaces remain critical for widespread technology acceptance.

Interestingly, while Social Influence initially appeared to be a significant driver of behavioral intention, its predictive power dissolved when Trust and Perceived Security were introduced into the model. This suggests that while peer networks may introduce users to e-payment platforms, the ultimate decision to sustain usage during a crisis is deeply rooted in institutional trust and the security of the financial platform itself. E-payment systems directly handle sensitive personal funds; therefore, the assurances provided by Trust ($\beta = .217$) and Perceived Security ($\beta = .337$) serve as the most critical final determinants of behavioral intention. These findings align with the premise that in periods of heightened vulnerability—such as the COVID-19 pandemic—users prioritize risk mitigation and platform reliability over social trends when making financial technology decisions.

The verdicts of this research indicate that the variables of the study are significantly correlated, demonstrating that they can be used to determine the dependent variable, Behavioural Intention. Behavioural Intention exhibits medium to large correlations with perceived benefits, performance expectancy, effort expectancy, social influence, trust, and perceived security.

The hierarchical regression analysis clearly demonstrates that the independent variables have substantial effects on Behavioural Intention. Table 5 summarizes the results of the hypothesis testing, indicating that all six variables suggested by Zhao and Bacao (2021) have a significant positive effect on the intention to adopt e-payment systems.

Table 5
Summary of Hypothesis Testing Results

Hypothesis	Statement	Statistic (β)	Support
H1	Perceived benefits have a positive effect on the behavioural intentions to adopt E-payment systems during the COVID-19 pandemic.	0.478***	Yes
H2	Performance expectancy has a positive effect on the behavioural intention to adopt E-payment systems during the COVID-19 pandemic.	0.426***	Yes
H3	Effort expectancy has a positive effect on the behavioural intention to adopt E-payment systems during the COVID-19 pandemic.	0.325***	Yes
H4	Social influence has a positive effect on the behavioural intention to adopt E-payment systems during the COVID-19 pandemic.	0.231***	Yes
H5	Perceived security has a positive effect on the behavioural intention to adopt E-payment systems during the COVID-19 pandemic.	0.368***	Yes
H6	Trust has a positive effect on the behavioural intention to adopt E-payment systems during the COVID-19 pandemic.	0.337***	Yes

Note. $^{***}p < .001$. All tests were conducted using multiple hierarchical regression analysis.

6. Implications and Recommendations

6.1. Theoretical Contributions

The current study focuses solely on e-payment services, whereas the majority of prior research has broadly focused on online and mobile banking. This approach provides centralized findings based explicitly on e-payment adoption during a crisis. The findings assist scholars in understanding how the COVID-19 pandemic has affected e-payment use and how the different factors influencing usage are impacted by such global disruptions. By isolating these variables, scholars can formulate more appropriate theories and mechanisms for understanding user characteristics regarding e-payments in emergency situations.

6.2. Practical Implications

This research adds to the current understanding of e-payment adoption intentions in emergency situations, highlighting how a pandemic alters user payment habits. The findings suggest that a pandemic can stimulate the creation and adoption of new technologies that help individuals and businesses survive, emphasizing the importance for stakeholders to consider crisis scenarios when developing business strategies. Start-up firms, policymakers, and commercial service providers can utilize these insights to enhance quick transaction processing capabilities. In the event of a pandemic, electronic payments help people feel safer and keep businesses operational. Key stakeholders must understand the relevance of e-payments in forming users' perceived advantages and build system features accordingly, alongside offering easy-to-use applications. Consistent with Shahabi et al. (2021), the pandemic acts as an intervening element that accelerates the acceptance of branch-less banking. Consequently, banks should allocate more resources toward e-payment infrastructure and formulate strategies to optimize access, ensuring customers maintain appropriate payment mechanisms even during social distress.

7. Limitations and Future Research Directions

Because this research was conducted during the COVID-19 pandemic, the collection of primary data presented logistical challenges. The scope of the study is relatively narrow, focusing on a specific setting in Kitwe, Zambia, which may be restricted by specific environmental moderators. Because the sample consists mainly of Zambian individuals, the results are partly dependent on local cultural and economic conditions and may not be universally applicable. Future research should replicate these results with larger samples and across different cultural contexts to validate these findings.

Future studies should also focus on integrating additional variables, such as cultural moderators or satisfaction levels, to obtain a deeper knowledge of the mental and technological aspects influencing adoption intentions. Future studies should also consider doing a comparative (developed and developing nations) longitudinal analysis to assess time varying effects in economically varying contexts as was done by Kaulu and Kaulu (2023) in their tax revenue mobilization study. Finally, this study did not distinguish between various e-payment patterns, platforms, and electronic

transaction types. Future research could concentrate on identifying and comparing specific e-payment systems in line with targeted research objectives.

8. Conclusion

This study provides significant explanatory value regarding how customer payment patterns altered as a result of the COVID-19 pandemic. Technology perceptions and mental expectations both play crucial roles in determining e-payment adoption intentions. During the pandemic, users' intentions to adopt e-payments were facilitated by performance expectations, perceived advantages, social influence, trust, and perceived security. The contactless nature of e-payment systems proved particularly advantageous for preserving social distancing and ensuring personal safety. This research makes major theoretical and practical contributions by examining innovative technology adoption within a specific crisis context. It explains why user payment habits evolved and how adoption intentions are influenced by technology perceptions. Academics and financial stakeholders should concentrate on the specific features of e-payments that correlate to crisis scenarios to positively impact users' perceptions of benefits. Ultimately, understanding user behaviour is an essential approach for navigating new technology adoption and developing effective plans to improve overall user experiences.

References

Ajzen, I., 1980. Understanding attitudes and predictiing social behavior. Englewood cliffs .

Ajzen, I., 1985. From intentions to actions: A theory of planned behavior, in: Action control: From cognition to behavior. Springer, pp. 11–39.

Ajzen, I., 1991. The theory of planned behavior. Organizational behavior and human decision processes 50, 179–211.

Al Nawayseh, M.K., 2020. Fintech in COVID-19 and beyond: What factors are affecting customers' choice of fintech applications? Journal of Open Innovation: Technology, Market, and Complexity 6, 153. doi:10.3390/joitmc6040153.

Auer, R., Cornelli, G., Frost, J., 2020. Covid-19, cash, and the future of payments. bis bulletin, 3, 1-7.

Buchel, P., 2020. Cashless and contactless payments in the time of covid-19 and beyond. https://www.deloitte.com/za/en/about/press-room/Cashless-and-contactless-payments-in-the-time-of-COVID-19-and-beyond.html. Accessed: 2026-04-01.

Davis, F.D., 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS quarterly 13, 319–340.

Ernest, W.C., David, S.J., Irenee, D., 2020. Financial sector readiness to support economic activities under covid-19: The case of african continent. Journal of Economics and International Finance 12, 164–173.

Firdous, S., Farooqi, R., 2017. Impact of internet banking service quality on customer satisfaction. Journal of Internet Banking and Commerce 22.

Haq, I.U., Awan, T.M., 2020. Impact of e-banking service quality on e-loyalty in pandemic times through interplay of e-satisfaction. Vilakshan-XIMB Journal of Management 17, 39–55. doi:10.1108/XJM-07-2020-0039.

Kaulu, B., Kaulu, G., 2023. Determinants of tax revenue mobilization in g7 countries and emerging economies in the sadc region using panel data analysis. Available at SSRN 4452757 .

Ketema, E., Selassie, Y.W., 2020. The impact of m-banking quality service on customer's satisfaction during covid-19 lock down: The case of bank of abyssinia, ethiopia. African Journal of Marketing Management 12, 21–37. doi:10.5897/AJMM2020.0653.

Lin, W.R., Wang, Y.H., Hung, Y.M., 2020. Analyzing the factors influencing adoption intention of internet banking: Applying dematel-anp-sem approach. PLOS ONE 15, e0227852. doi:10.1371/journal.pone.0227852.

Nan, W., Park, M., 2022. Improving the resilience of smes in times of crisis: The impact of mobile money amid covid-19 in zambia. Journal of International Development 34, 697–714.

Sathish, M.T., Sermakani, R., Sudha, G., 2020. A study on the customer's attitude toward the e-wallet payment system. International Journal of Innovative Research in Technology 6, 642–644. URL: https://ijirt.org/Article?manuscript=149503.

Shahabi, V., Azar, A., Faezy Razi, F., Fallah Shams, M.F., 2021. Simulation of the effect of covid-19 outbreak on the development of branchless banking in iran: Case study of resalat qard–al-hasan bank. Review of Behavioral Finance 13, 85–108.

Simon, V.T., Thomas, A., Senaji, R., 2016. Effect of electronic banking on customer satisfaction in selected commercial banks, kenya. International Academic Journal of Human Resource and Business Administration 2, 41–63.

Sniehotta, F.F., Presseau, J., Araújo-Soares, V., 2014. Time to retire the theory of planned behaviour.

Tut, D., 2023. Fintech and the COVID-19 pandemic: Evidence from electronic payment systems. Emerging Markets Review 54, 100999. doi:10.1016/j.ememar.2023.100999.

Yousafzai, S.Y., Foxall, G.R., Pallister, J.G., 2010. Explaining internet banking behavior: theory of reasoned action, theory of planned behavior, or technology acceptance model? Journal of applied social psychology 40, 1172–1202.

Zhao, Y., Bacao, F., 2021. How does the pandemic facilitate mobile payment? an investigation on users' perspective under the covid-19 pandemic. International journal of environmental research and public health 18, 1016.