

Taxi Drivers' Experience with Mobile Money Service during Covid-19 Pandemic: A Case Study of Kumasi Metropolitan Area in Ghana.

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ABSTRACT

The study examines taxi drivers' (cab drivers') experience with mobile money services during the Covid-19 pandemic. To fulfil its aims, the study used data exclusively from primary sources. One hundred and fifty (150) drivers were to be surveyed and semi-structured interviews conducted in order to gather information. To conduct the analysis, the study used Microsoft Excel as the statistical software suite. In order to ensure presentation clarity, the results are given according to each individual goal. The study's findings indicate that, among the six variables considered, the mobile money service's perceived simplicity of use is the main motivator for cab drivers to utilise it. Secondly, the analysis' conclusions showed that, throughout the Covid-19 period, every single one of the nine characteristics used to gauge users' happiness with their personal experiences and level of service was in agreement with the assertion that the mobile money app has improved as a means of making payments. Thirdly, the findings from the mobile application and services effectively secured or not shown indicate that service providers have failed to mitigate fraudulent activities. Lastly, respondents disclosed that it is now difficult to use the mobile money service due to network challenges preventing them from accessing their money and using it efficiently.

Keywords: Covid-19; Mobile Money Service; Taxi drivers; Security; Convenience; Ghana

1. INTRODUCTION

The exigencies of the outbreak of Covid-19 has refined the new norm of living and, consequently, business strategy and philosophies (Atkinson, 2020). The new norm compels society to accept social distancing and face-covering, which has given rise to technology usage that assists humanity to function (Bauer et al., 2020). Mobile phones for financial and mobile services are among these technologies. Hence, mobile services have the ability to boost both access to financial services and economic growth (Nyame-Mensah, 2013). In light of this, throughout the past several decades, a number of technologies have been created in developing nations to help companies and individuals raise their level of living. Many individuals rely on their mobile phones for daily needs (Aker & Mbiti, 2010). Nonetheless, evidence from research has

proven both positive and negative effects of mobile phone usage. Some scholars argue that technologies in developing economies could not significantly influence individual consumers (Jack & Suri, 2010). Conversely, others also argued that technologies had improved customers' behaviours and needs (Demombynes & Thegeya, 2012). Mobile phones are shifting from telecommunication to service tools to the customer (Aker & Mbiti, 2010). It is against this background and within the context of the Covid-19 pandemic, which mandates people to have fewer person-to-person contacts. However, using mobile services has brought endless possibilities to Africa with multiple effects. This study examines the taxi drivers and mobile money services in Ghana. The first objective seeks to identify the factors influencing cab drivers' mobile money usage. The second objective examines the impact of mobile money usage among cab drivers, whilst the third objective tries to identify the multiple challenges of mobile money use by cab drivers within the southern part of Kumasi Metropolis. The last objective seeks to evaluate whether mobile money applications and services are secured for their users.

The evidence available, which demonstrated that Sub-Saharan Africa had inadequate access to basic banking services (16% of the adult population) compared to other developing areas in the globe (28% of the adult population), is the inspiration for this study (Demombynes & Thegeya, 2012). Given the pandemic trend, it makes sense to know how the economy's different constituents or sectors (e.g. taxi drivers) operate using mobile money services and its effect on their activities. We were unable to find research works that specifically explore the effects or difficulties associated with using mobile money services among Ghanaian taxi drivers (Aker & Wilson, 2012; Mwangi & Ndung'u, 2009; Nyame-Mensah, 2013; Richard & Mandari, 2018). Similarly, this study is influenced by previous studies that examined the Covid-19 pandemic that affected customers' purchasing decisions from traditional to e-purchase (Alhamad et al., 2021). In light of the above, this study examines taxi drivers' (cab drivers') experience with mobile money services during the Covid-19 pandemic.

Here is how the rest of the paper is structured: In Section 2 (two), the empirical literature is summarised. In Section 3 (three), the sample, methods, and metrics for the statistical analysis are presented. The study's conclusions, implications for the research, and limitations are presented in Section 5 (five) once the results and related discussion in Section 4 (four) have been understood.

2. LITERATURE REVIEW

Adoption and satisfaction of mobile money services

Mobile money services require a handset to receive and send money (Mauree & Kohli, 2013). Peer-to-peer (P2P) transfers, insurance products, banking services, and other financial services are all included in the definition of mobile money services; an assertion provided by William & Suri (2011). Prior research has suggested that households' capacity to save and make simple payments is negatively impacted by limited access to banks and financial services (Ardic et al., 2011; Pickens, 2009). Accordingly, lengthy lines at access points, inadequate marketing, and considerable travel times to financial institutions are the main causes of the large number of individuals who lack access to banking (Demirguc-Kunt et al., 2015). Similarly, undersigned products to meet the needs of lower-end customers also create lower access to banking and financial services in developing countries (Koku, 2015). To address

the shortfalls of banking services, current studies have shown the indication of mobile money services to address the challenges formal banking services face. Some of the solutions included access and cost of services. Amongst them is the study which examined this sector. The study's outcome showed that mobile communication in the 21st century has moved from a communication tool to a device that supports the banking operations of customers (Rutten & Mwangi, 2012).

Several studies have investigated the variables affecting consumers' adoption of mobile payments and the results showed how sociability, performance expectation, perceived utility, and convenience of use all affect how quickly mobile payment systems are adopted (Reiting et al., 2020). Similar to this, a researcher looked into the satisfactions that propel the ongoing usage of mobile payment services in developing nations, such as Ghana (Uwamariya et al., 2021). With an emphasis on the perspectives of both customers and merchants, the industrial environment of mobile payment as well as the environment and prospects of mobile payment services was investigated in China (Xinyan et al., 2011).

According Alhassan et al., (2020), views regarding mobile payment services in Ghana are heavily influenced by factors such as usefulness satisfaction and convenience of use. An atmosphere that is beneficial is created by promoting the inclusivity of mobile payment technologies. Additionally, it's hypothesised that encouraging inclusivity in mobile payment technologies will increase Ghana's usage of these services (Namisango et al., 2017). By using rural households' experiences as a starting point, other researchers also looked at the potential for financial inclusion using mobile money. According to the study's findings, the platform of mobile money service guarantees simple, close, and quick connectivity (Serbeh et al., 2021).

Additionally, the crucial factors influencing Tanzanians' adoption of mobile banking services was looked at by Richard & Mandari (2018). A structured survey was used to collect information from a sample of 120 mobile phone users. The results demonstrated that mobile banking services are significantly improved by user awareness and perceived ease of use. On the other hand, perceived risk and transaction cost have a significant detrimental effect. The adoption of mobile banking services was significantly influenced by perceived ease of use and consumer understanding rather than perceived risk and transaction costs. This study examines the reasons that lead cab drivers to embrace mobile money services and their level of satisfaction with the service engagement using comparable variables to those previously indicated.

Security implication of mobile money

A survey on most branchless banking apps do not offer safeguards to financial institutions (Reaves et al., 2017). One year later, the study conducted a more thorough examination and discovered that the security of these systems had only slightly increased. Finally, via an examination of the terms of service offered by the providers, they discovered that the customer is unjustly held accountable for these problems, which undermines the legitimacy of branchless banking and hinders efforts to advance global financial inclusion (Reaves et al., 2017). Other scholars conducted a research that examined privacy, security, and usability issues in the rapidly growing sector of digital financial services for development, namely mobile money services (Perrier et al., 2016). Subsequent findings revealed that, quite a number of smaller-scale companies are launching mobile money apps built on Android, although the majority of large-scale mobile financial services depend on either SIM Toolkit or USSD-

based user interfaces (Perrier et al., 2016). Based on the aforementioned, this study considers the relevance of the security of the customer (i.e. taxi drivers) towards fraud and information theft. Therefore, this study assesses mobile money applications and services are secured for Cab drivers.

Challenges and advantages of mobile money service usage

Ghana's use of mobile money service offers an answer to a number of issues and difficulties. The transfer of funds within the country was one of these issues. Despite their widespread use, institutional transfer methods like post offices and private organisations like Western Union came at a high cost (Nyame-Mensah, 2013). For the underprivileged and unbanked, mobile money is progressively emerging as a useful payment option (Demirguc-Kunt et al., 2015). The rising use and penetration of mobile phones, especially in rural regions, is contributing to the sharp rise in mobile money usage in Ghana. Mobile Money Operators (MMOs) are the companies that provide mobile money. They maintain the electronic account on the SIM card of the mobile phone for its customers. Furthermore, barriers to the adoption of mobile payments included risk, legal issues, a lack of confidence in the telecom industry's expertise in providing financial services, and a lack of understanding on the part of some merchants regarding mobile payment applications (Boateng et al., 2019). Regardless of whether there is a more substantial financial exclusion or transaction restriction, other research also shown that mobile technology provides the quickest and least expensive money transfers (Rouse & Verhoef, 2016). Comparably, a different research looked at the expansion of Kenya's financial services and the lessons Ghanaian service providers and consumers may learn from Kenya's mobile phone banking system. According to the study, paying for services, including labour, is made simpler by mobile money transfers (Kimenyi & Ndungu, 2009). To compile their problems, the experiences with empirical evidence from clients—like taxi drivers—need to be analysed.

3. METHODS

3.1. Sample and procedures

To examine the study's objectives, approximately 200 questionnaires from the five sub-metros (Asokwa, Oforikrom, Subin, Nhiaeso, and Kwadaso) of Kumasi Metropolis were sent out to respondents. After the disbursement of the questionnaires, 150 were retrieved in all, representing 75% of the total questionnaires administered. Due to the lack of sample frames in our population, data was gathered using a convenience sampling technique. A survey such as this conducted on taxi drivers is sometimes tricky because of the dispersed nature of the respondents. As a result, we decided on this strategy after carefully considering the goals of our investigation (Dougherty, 2017). Most participants have an essential education qualification, with most having tertiary education (46.67%). Most of them are male (90.67%). The respondents are primarily single in marital status (single-56.00%, married-36.67% and divorced- 7.34%). The study ignored age demographics since the basic age requirement for obtaining drivers licence in Ghana is Eighteen (18) years and above. Also, the time period for the data collection was December 2022 and the Covid-19 period is April 2020- June 2020.

3.2. Measures

To assess the four sections, a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) was used and Microsoft Excel was utilised for the analysis in this study as the statistical software.

- i. Factors that drive cab drivers' interest in adopting the use of mobile money
- ii. Respondent's personal experience and satisfaction with mobile money service during Covid-19
- iii. Mobile Money (i.e. MOMO) application and service security level
- iv. The challenges associated with mobile money service

4. FINDINGS AND DISCUSSIONS

4.1 Does personal characteristics influence the factors that cause taxi drivers to adopt the use of mobile money service.

Table 1, of the survey results, revealed that 66 (44%) respondents were owners of the car they were driving, whereas 84 of them, representing 56%, were working as employees of their various car owners. The study seeks to determine how long the respondents have used the car. Findings revealed that 38 (25.33%) respondents have worked below one year. 73 (48.67%) of the respondents have worked between 1-5 years, and 39 (26%) have also worked for five years and above. Concerning whether the respondent uses mobile money service, the findings revealed that 148 respondents constituting the highest percentage of 98.67%, were mobile money service subscribers. Only 1.33% of the respondents were non-mobile money users. The study seeks to determine how long the respondents had used mobile money services. It was found that only 13 respondents have used the service for one year, 70 respondents constituting 46.67%, have been using the service between 1-5 years, and 67 (44.67%) have used the service for more than five years. The implication of the study suggests that most taxi drivers are users of mobile banking services. This is in line with other research that suggested encouraging the inclusivity of mobile payment technology by fostering a conducive atmosphere will increase the adoption of mobile payment services in Ghana (Namisango et al., 2017).

Table 1: Personal characteristics of Respondents

Personal characteristics	Frequency	Percentages
Are you a car owner		
Yes	66	44.00
No	84	56.00
	150	100.00
How long have you used a car		
Below one year	38	25.33
1-5 years	73	48.67
Five years and above	39	26.00
	150	100.00
Are you a mobile money user		
Yes	148	98.67

No	2	1.33
	150	100.00
How long have you used mobile money		
Below one year	13	8.67
1-5 years	70	46.67
5 years and above	67	44.67
	150	100.00

(Author's own, 2022)

4.2 Assessing the factors that drive Cab drivers to adopt mobile money service during the Covid-19 period.

Perceived simplicity of use and perceived confidence in the mobile money service are the primary criteria in the study that are likely to affect mobile money uptake and usage by cab drivers. Other factors are performance expectancy, the need for financial inclusion, and the risk associated with the financial institution and social influence.

According to the respondents, some of the risks that deter some cab drivers from saving with financial institutions include the presence of Covid. Another threat consists of a possible robbery attack on a client who has just withdrawn some cash from a bank. The response gathered from respondents using Likert-type questions shows that cab drivers adopt mobile money services due to the risk associated with financial institutions. Certain cab drivers have reported that the mobile money services facilitate their ability to travel with large amounts of cash loaded into their wallets, hence, reducing the likelihood of robberies. The finding of this study is consistent with other studies that argued that mobile money users' lives had been favourably impacted by the presence of mobile money agents in remote areas. Simple access to funds via mobile money encourages user spending (Morawczynski, 2009). This implies that any intervention that promotes citizens' saving and spending behaviour should focus on the mobile money service.

The survey also revealed that cab drivers adopt mobile money services due to their perceived trust in the service. Respondents believed that as long as they keep their PIN a secret to themselves, their funds will be kept safe on their mobile phones rather than keeping it in a financial institution. The survey also revealed that cab drivers adopt the mobile money service because they want to be part of the financial world. From the result, 98.67% (148) of the respondents have a mobile money account. The majority of participants confirm that the primary motivation for creating and keeping a mobile money account was the ability to send and receive money easily and to always have access to their funds (Perceived ease of usage).

Regarding performance expectancy, the majority of cab drivers concurred that they created and kept up a mobile money account since it suited their requirements, responsibilities, and way of life. Currently, mobile money may be used in Ghana to pay for a wide range of expenses, including bills, groceries, and transportation. People's usage of mobile money is encouraged by its widespread acceptability. Customer or other word-of-mouth recommendations successfully impact or support consumer behaviour, attitudes, and purchase decisions for certain goods or services. Additionally, while evaluating consumers' behavioural intents to save with banks as a result of using mobile money, the problem of customers pushing other

people to use mobile money must be considered. One of the main causes of this is that new mobile users encourage their friends to sign up for mobile money services when they realise the many benefits of utilising mobile money, hence, they thought it would be too expensive to transfer money from distant banks to accounts and send it home every day, subscribers turned to the mobile money system. The cost-effectiveness and speed of doing business with mobile money are consistent with previous studies (Osei-Assibey, 2009). According to the report, cab drivers joined for Covid-19 and maintained their accounts because friends and relatives who are already subscribers recommended it (social influence). In some situations, people's propensity to accept new technology might be influenced by social factors. It may manifest as perceived social pressure from loved ones and friends to use technology wisely or not, or to perform or not perform.

It is suggested from the implications that, out of the six factors, perceived ease of use was ranked the highest. This indicates that Cab drivers' use of mobile money is highly influenced by perceived ease of use. The risk associated with the financial institution was ranked lowest, which shows that cab drivers' use of mobile money is not primarily influenced by the fact that there are risks associated with financial institutions. This finding is confirmed by other studies (Richard & Mandari, 2018), which state that the adoption of mobile banking services is significantly positively impacted by customer awareness of and perceptions of ease of use. Also, perceived utility, trust, subjective norms, and contentment have greatly influenced mobile money users' continued intention (Ahmed & Ali, 2017). Once again, this study supports earlier research that revealed attitudes towards mobile payment services were highly impacted by usefulness gratifications and convenience of use (Uwamariya et al., 2021).

Table 2: Assessing the factors that drive Cab drivers to adopt mobile money service in the Covid-19 period

Selected factors	Mean	Median	Minimum	Maximum
1. Risk associated with financial institutions	3.30	3.00	1	5
2. A sense of trust in mobile money service	3.38	4.00	1	5
3. The need for financial inclusion	3.42	3.00	1	5
4. Drivers adopt the service based on perceived ease of use	3.73	4.00	1	5
5. The need for performance expectancy	3.53	4.00	1	5
6. The impact of social influence	3.31	3.00	1	5

(Author's own, 2022)

4.3 Assessing user personal experience and satisfaction of service in the Covid-19 period

The study further assessed cab drivers' personal experience and satisfaction with the mobile money service during the Covid-19 era. Table 3 below displays survey results obtained from the questionnaires and semi-structured interviews conducted by the researcher. Nine (9) major factors were used to evaluate users' personal experience and satisfaction with the mobile money service.

Based on their level of satisfaction, it was discovered that respondents keep their mobile money accounts open because they enjoy the high quality of the service and the system.

Whether or not they are satisfied with the mobile money service, will determine how long they utilise it. When mobile money services first came onto the market, they were a tool for increasing financial inclusion—they gave those who had previously been shut out of the official financial system access to tools and more mainstream services. Subsequent advancements in the mobile money sector have permanently transformed the way individuals in Ghana engage, financially. In just a few years, mobile money has risen to the top of Ghanaians' list of preferred payment options. Ghana's mobile money sector is now expanding at the quickest rate in Africa (Alhassan et al., 2020). Table 3 makes it clear that the respondents agreed that using mobile money for payments has become useful. This result is in line with other research (Morawczynski, 2009). There is a claim that the existence of mobile money agents in rural areas has improved the lives of those who use mobile money. Easy access to money through mobile money encourages spending among users, at least in part.

Table 3: Assessing user personal experience and satisfaction of service in the Covid-19 period

Personal experience and satisfaction of service	Mean	Median	Minimum	Maximum
1. The service bridges the gap between rural and urban area Cab drivers	3.62	4.00	1	5
2. Mobile money services are risk-free service	2.90	3.00	1	5
3. Mobile money is an illiteracy-free application	3.43	4.00	1	5
4. Mobile money has become helpful for payment in the Covid-19 period	4.15	4.50	1	5
5. Mobile money service creates convenience	3.95	4.00	1	5
6. Mobile money provides efficiency in terms of time	3.91	4.00	1	5
7. Mobile money service serves as a reliable financial tool for payment	3.94	4.00	1	5
8. The mobile money service is economical	3.71	4.00	1	5
9. The service creates financial inclusion	3.67	4.00	1	5

(Author's own, 2022)

4.4 Evaluating whether mobile money applications and services are secured for Cab drivers

Security is critical to the delivery of the mobile money service. The technological and procedural safeguards put in place to guarantee security on the mobile money platform were the main topic of this study segment. This part of the survey solicited responses from the Cab drivers concerning their experience with the mobile money security system and whether their e-wallets are secured towards their information abuse and fraudulent activities with mobile money services. Although most mobile payment services and platforms are safe, cybercrooks have constantly outsmarted the system and users.

Table 4 asks if users' wallets and service apps are safe. A few participants concurred that possessing a safe mobile phone guarantees the protection of their mobile funds. With an

average mean score of 3.49 on a scale of 1 to 5, respondents generally affirmed that their wallets were safe. Additionally, users of mobile money services may easily withdraw their money whenever they need to. The other respondents, meanwhile, think that these savings often did not result in a large interest in making deposits using the mobile money services. The study also showed that most respondents agreed that their information is protected. However, the telecom service providers can improve their security systems to offer more protection to consumers of mobile money services. One of the service providers, MTN Ghana, has warned users not to share their MoMo PIN with third parties or for them to conduct transactions on their behalf in order to ensure their safety. The researcher conducted interviews with certain drivers who maintained those certain employees of the telecommunications firms had ties to the MoMo scam. As a result, they contended that internal measures should be taken to combat fraudsters. If so, the requirement for an identity card could not effectively aid in the battle against criminality. From the table, respondents agreed that users' information is highly protected, but the service providers still have much to do to mitigate the fraudulent activities. This assertion is supported by other authors (Reaves et al., 2017).

Table 4: Evaluating whether mobile money applications and services are secured for their users

mobile money applications and services are secured for their users	Mean	Median	Minimum	Maximum
1. The service application and users' wallets are secured	3.49	3.00	1	5
2. Users' information is highly protected	3.55	4.00	1	5
3. The service providers have flourished in mitigating the fraudulent activities	3.14	3.00	1	5

(Author's own, 2022)

4.5 Assessing the challenges associated with mobile money services

We see early estimates of the indirect effects of the Covid-19 pandemic on maternal and child mortality. While Covid-19 affected everyone, it did not do so equally. The pandemic exacerbated the financial struggles and disparities of vulnerable populations, ranging from those affected by the crisis to those living off-grid in poor and remote communities. To put it another way, Covid-19 created and exacerbated various socio-economic challenges, ranging from women without a mobile phone or bank account to smallholder farmers without savings or collateral to get a loan. Accordingly, the worldwide Covid-19 pandemic has the potential to create poverty for half a billion people in low-income countries and is expected to be the primary cause of the first increase in global poverty since 1990 (Robertson et al., 2020). The results of the study take into account both low-income and middle-income nations. This section assesses cab drivers' challenges with using mobile money services. Table 5 below gives respondents' views on the challenges associated with mobile money services.

As seen from Table 5, the respondents assert the difficulty in using the mobile money service. Some users reported that, occasionally, they experience network issues that keep them from accessing their money and utilising the mobile money service, particularly when they want to take money out of their account. The rise in mobile money fraud cases in recent times was another urgent concern. Over 300 incidents were registered in 2019, according to statistics

from the Ghana Police Service's cybercrime section (Telecom Chambers, 2021). It would be difficult, according to respondents, to carry ID cards everywhere.

Table 5: Assessing the challenges associated with mobile money services

challenges associated with mobile money services	Mean	Median	Minimum	Maximum
1. It is difficult to use the MOMO application	2.71	3.00	1	5
2. There is a lack of quality network system at all times	2.97	3.00	1	5
3. There is a lack of proper and quality service provision by MOMO operators	3.23	3.00	1	5
4. There is a high operating cost	2.81	3.00	1	5

(Authors own, 2022)

5. CONCLUSIONS

Among the cutting-edge offerings for mobile phone customers is the mobile money service. It includes mobile phone-accessible electronic money accounts for individuals. Mobile phones are convenient for Cab drivers in developing nations since they may be used to retrieve information. The availability of money through mobile money technology trends affects people's saving, consumption, and overall well-being. In light of this, the study's focus was on the advantages and disadvantages of mobile money use among cab drivers in Ghana's Kumasi Metropolis. The study focused on four specific objectives: determining the factors that affect taxi drivers' use of mobile money; analysing the impact of this usage; identifying the challenges that these drivers face when using mobile money in the southern region of Kumasi; and assessing the security of the mobile money application and service. To accomplish these four goals, the study only used primary sources for its data collection. One hundred and fifty (150) drivers were asked to complete questionnaires and semi-structured interviews in order to gather data. The study was conducted using Microsoft Excel statistical software application. For the sake of presenting clarity, the results are given according to each distinct goal. First off, the study's findings indicate that, of the six variables looked at, Cab drivers' usage of mobile money services is primarily influenced by their perception of the service's ease of use. Secondly, the findings from the analysis revealed that the nine variables used to assess user personal experience and service satisfaction during the Covid-19 period confirmed that the mobile money application has become helpful in terms of payment during the Covid-19 period. Thirdly, the analysis of whether the mobile application and services are effectively secured or not showed that factors such as users' wallets are connected. However, service providers have failed to mitigate fraudulent activities. This is because most branchless banking apps fail to provide financial services protection. Lastly, respondents disclosed that it is now difficult to use the mobile money service due to network challenges preventing them from accessing their money and using it efficiently.

IMPLICATIONS FROM THE STUDY

Following the study's findings, a few policy recommendations are made. There are many advantages to technology for people all around the world, thus, its advancements shouldn't be disregarded. Thus, considering the impact of technology on people's lives, the study suggests that taxi drivers exercise caution in how often they use technology in order to maximise its benefits (increased productivity) and minimise its drawbacks (excessive spending).

Instead of concentrating on expanding access to mobile money technology, the report advises network service providers to increase the awareness of their public education campaigns on how mobile money technology functions and its benefits. The report also notes that mobile network providers are investing more to enhance the services they provide to users. A few users reported that occasionally they are unable to use the mobile money service and access their money due to network issues. They are greatly inconvenienced by this. A system upgrade would guarantee that customers can rely on their mobile money system and that the process is easy to follow.

Mobile money fraud cannot be resolved by requiring an identity card, such as a National ID, prior to withdrawals. Because all national databases are not fully integrated, fraudsters can simply use fictitious IDs for transactions. It would also be difficult to track down the offenders even in cases when mobile money fraud is discovered since IDs in Ghana are not sufficiently connected to home locations. Two-factor authentication is a comparable option. This makes it possible for users to verify transactions before they are allowed by sending texts or using authentication apps. In order to combat fraud, it provides users with an additional layer of protection on top of personal identification numbers. Using the technology may cause economic shocks, so policymakers need to plan ahead on how to handle them.

LIMITATIONS

The study's findings were reliable and sound. Like any other research, there are some restrictions on it. This study has two primary limitations that were noted. Although Ghana was designated as the geographical scope, the majority of responses were concentrated in Accra, the country's capital, as well as other major cities and provincial capitals; the cab drivers outside of Kumasi South Metropolis were not contacted. This resulted from the researcher's lack of resources and time to go to other regions of the nation for data collection. This might, in part, skew the results and cause them to not accurately reflect the situation across the nation. Thus, it is imperative that data be collected in future studies from as many regions of the nation as feasible. Additionally, the researchers were unable to conduct the initial plan of interviewing all stakeholders. Most notably, no Cab driver from the northern parts of Kumasi city was questioned to learn more about their opinions on mobile money payments and the state of mobile money services at the moment. This was caused in part by the potential interviewees' incapacity to provide the interviews and in part by the lack of time in the field to follow up with them. While further interviews may have improved the validity of the findings, other pertinent sources were contacted in order to obtain the data required to finish the study, hence the validity of this investigation is regarded as adequate. For a more reliable validation, however, more qualitative data should be included in future studies.

REFERENCES

- Ahmed, I. S. Y., & Ali, A. Y. S. (2017). Determinants of continuance intention to use mobile money transfer: an integrated model.
- Aker, J. C., & Mbiti, I. M. (2010). Mobile phones and economic development in Africa. *Journal of Economic Perspectives*, 24(3), 207–232.
- Aker, J. C., & Wilson, K. (2012). Can Mobile Money be used to Promote Savings? Evidence from Preliminary Research Northern Ghana” Tufts University, Swift Institute Working Paper No. 2012-003.
- Alhamad, B. M., Twaissi, N. M., & Alabaddi, Z. A. (2021). Customer’s Decision to Shift to e-Purchase Through Social Media in COVID-19 Pandemic. *Studies in Systems, Decision and Control*, 334, 115–170. https://doi.org/10.1007/978-3-030-67151-8_9.
- Alhassan, M. D., Kolog, E. A., & Boateng, R. (2020). Effect of gratification on user attitude and continuance use of mobile payment services: a developing country context. *Journal of Systems and Information Technology*, 22(4), 353–380. <https://doi.org/10.1108/JSIT-01-2020-0010>
- Ardic, O. P., Heimann, M., & Mylenko, N. (2011). Access to financial services and the financial inclusion agenda worldwide: a cross-country analysis with a new data set. The World Bank.
- Atkinson, C. (2020). G20 leaders must answer to COVID-19. *Science*, 368(6487), 111. <https://doi.org/10.1126/science.abc1025>
- Bauer, N. M., Kim, J. H., & Kweon, Y. (2020). Women Leaders and Policy Compliance during a Public Health Crisis. *Politics and Gender*, 16(4), 975–982. <https://doi.org/10.1017/S1743923X20000604>
- Boateng, R., Afeti, E. Y., & Afful-Dadzie, E. (2019). Adoption of Mobile Payments in Ghana: A Merchant Perspective. *AMCIS 2019 Proceedings*. 9, 2019. Retrieved from https://aisel.aisnet.org/amcis2019/global_dev/global_dev/9
- Demirguc-Kunt, A., Klapper, L., Singer, D., & Oudheusden, P. van. (2015). World Bank Policy Research Working Paper 7255. The Global Findex Database 2014: Measuring Financial Inclusion around the World, 7255(April), 1–97. Retrieved from http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2015/04/15/090224b082dca3aa/1_0/Rendered/PDF/The0Global0Fin0ion0around0the0world.pdf#page=3%5Cnhttp://elibrary.worldbank.org/doi/book/10.1596/1813-9450-7255
- Demombynes, G., & Thegeya, A. (2012). Kenya’s Mobile Money and the Promise of Mobile Savings. World Bank, Africa Region, Poverty Reduction and Economic Management Unit, Policy Research Working Paper 5988.
- Dougherty, C. (2017). *Introduction to Econometrics (5th Editio)*. Great Clarendon Street. The United Kingdom.: Oxford University Press.
- Jack, William., & Suri, T. (2010). *Mobile Money: The Economics of M-Pesa*. NBER Working Paper Series National Bureau of Economic Research 1050 Massachusetts Avenue Cambridge, MA 02138.
- Jack, William, & Suri, T. (2011). *Mobile Money: The Economics of M-Pesa*. NBER Working Paper Series, 1–30. <https://doi.org/10.3386/w16721>

- Kimenyi, M. S., & Ndungu, N. S. (2009). M-PESA Mobile Banking Statistics. Central Bank of Kenya.
- Kimenyi, Mwangi S., & Ndung'u, N. S. (2009). Expanding the Financial Services Frontier: Lessons From Mobile Phone Banking in Kenya. The Brookings Institution, (July), 1–7. Retrieved from http://www.brookings.edu/articles/2009/1016_mobile_phone_kimenyi.aspx
- Koku, P. S. (2015). Financial exclusion of the poor: A literature review. *International Journal of Bank Marketing*, 33(5), 654–668.
- Mauree, V., & Kohli, G. (2013). The Mobile Money Revolution. Part 2: Financial Inclusion Enabler. ITU-T Technology Watch Report.
- Morawczynski, O. (2009). Exploring the usage and impact of “transformational” mobile financial services: the case of M-PESA in Kenya. *Journal of Eastern African Studies*, 3(3), 509–525.
- Namisango, F., Kafuko, M. M., & Byomire, G. (2017). Understanding user experience of mobile money services in emerging markets. 2017 IST-Africa Week Conference, IST-Africa 2017, (August 2018). <https://doi.org/10.23919/ISTAFRICA.2017.8102305>
- Nyame-Mensah, A. (2013). The value of mobile banking: the case of MTN mobile money in Accra, Ghana. *Journal of Development Studies*, 2013.
- Osei-Assibey, E. (2009). FINANCIAL EXCLUSION : WHAT DRIVES SUPPLY AND DEMAND FOR BASIC FINANCIAL SERVICES IN GHANA ? *Savings and Development*, 33(3), 207–238. Retrieved from <https://www.jstor.org/stable/41406495%0AJSTOR>
- Perrier, T., Yu, S., & Anderson, R. (2016). UW-pesa: A mobile money user experience experimentation platform. *Proceedings of the 7th Annual Symposium on Computing for Development*, 2016. Retrieved from ACM DEV-7 2016. 10.1145/3001913.3006650.
- Pickens, M. (2009). Window on the unbanked: Mobile money in the Philippines. *Journal of Development Studies*.
- Reaves, B., Bowers, J., Scaife, N., Bates, A., Bhartiya, A., Traynor, P., & Butler, K. R. B. (2017). Mo(bile) money, mo(bile) problems: Analysis of branchless banking applications. *ACM Transactions on Privacy and Security*, 11. <https://doi.org/10.1145/3092368>
- Reiting, P., Mladenow, A., Strauss, C., & Kotsis, G. (2020). Mobile payment: Classic approaches to promote consumer adoption. *ACM International Conference Proceeding Series*, 84–93. <https://doi.org/10.1145/3428690.3429182>.
- Richard, E., & Mandari, E. (2018). Factors influencing usage of mobile banking services: the case of Ilala district in Tanzania. *Orsea Journal*, 7(1).
- Roberton, T., Carter, E. D., Chou, V. B., Stegmuller, A. R., Jackson, B. D., Tam, Y., ... Walker, N. (2020). Early estimates of the indirect effects of the COVID-19 pandemic on maternal and child mortality in low-income and middle-income countries: a modelling study. *The Lancet Global Health*, 8(7), e901–e908. [https://doi.org/10.1016/S2214-109X\(20\)30229-1](https://doi.org/10.1016/S2214-109X(20)30229-1)
- Rouse, M., & Verhoef, G. (2016). Mobile banking in Africa: The current state of play. https://doi.org/10.1057/978-1-137-60231-2_21
- Rutten, M., & Mwangi, M. (2012). Mobile cash for nomadic livestock keepers: The impact

- of the mobile phone money innovation (M-Pesa) on Maasai pastoralists in Kenya. *African Dynamics*, 11, 79–101. https://doi.org/10.1163/9789004245440_006
- Serbeh, R., Adjei, P. O. W., & Forkuor, D. (2021). Financial inclusion of rural households in the mobile money era: insights from Ghana. *Development in Practice*. <https://doi.org/10.1080/09614524.2021.1911940>
- Telecom Chambers. (2021, July 15). Mobile Money Fraudsters Now Target Bank Accounts Linked To MoMo Accounts. pp. 1–4. Retrieved from <https://telecomschamber.com/news-media/industry>
- Uwamariya, M., Loebbecke, C., & Cremer, S. (2021). Mobile money adoption in rural Rwanda: A domestication perspective. *Africa Journal of Management*, 7, 353–380. <https://doi.org/10.1108/JSIT-01-2020-0010.P>
- Xinyan, Z., Wei, G., & Tingjie, L. (2011). Investigation-based study on the environment and opportunities of mobile payment services in China. 2011 International Conference on E-Business and E-Government, 8872–8877. <https://doi.org/10.1109/ICEBEG.2011.5881337>