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Financial Technology and Financial Inclusion in Accra, Ghana

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Abstract

This study examined the effect of financial technology on financial inclusion in Accra, Ghana. The research was quantitative and employed the correlational and survey research designs. The simple random sampling technique was used to choose a sample of 353 respondents. Questionnaire were employed as the instrument for gathering primary data from individuals in Accra. Statistical Package for Service Solution version 25 was used as the tool for analysing data. The result of the study was analysed using descriptive statistics and linear regression. The finding was that as a result of the introduction of financial application software, respondents were able to access financial products and services of banks. Additionally, the use of internet banking resulted in more of the respondents being financially included. The use of mobile money services also made more of the respondents to be included financially. It is therefore recommended that charges on mobile money services should be reduced to a minimum that allow people to partake in the services in order to encourage financial inclusion.

Keywords: *Financial inclusion, financial technology, Ghana, ICT, internet banking, mobile money*

1. Introduction

Governments all over the world are responsible for providing unhindered and unrestricted access to fiscal services for the benefits of every member of society (Ozili, 2018). Patwardhan, Singleton and Schmitz (2018) and Hemmen (2019) argue that access to financial services reduces poverty and inequality by creating opportunities for people to save to meet their basic needs of life while becoming financially included within the financial system. Financial inclusion, according to Zhang, Zhang and He (2018), entails providing low-income earners and those without bank accounts in a country with access to financial products and services. Additionally, Peruta (2018) explains that the goal of financial inclusion is to bring people who have been shut out of the formal financial system into the mainstream financial sector so they can borrow money to support their businesses and save money for the future.

To achieve fiscal inclusion, the World Bank Group (2018) note that financial technology is required because of its effectiveness in developed countries. Gabor and Brooks (2017) assert that in some developing economies, financial technology has been employed to increase the number of persons included within the financial landscape which has helped reduce poverty. Gomber, Koch and Siering (2017) explain fiscal technology as the use of financial related software and technologically driven innovative forms of providing financial services to customers on financial products delivered by financial technology companies. Uzoma, Omankhanlen, Obindah, Arewa and Okoye (2020) also describe that financial technology is the delivery of financial services to people through the use of computers, mobile phones, internet and digital payment systems. According to the authors, the terms financial technology, digital finance and internet finance imply the same meaning used to represent the offer of financial services through technological innovation encompassing mobile banking, online or internet banking, electronic wallet, mobile wallets, credit cards, debit cards, and automated teller system (ATM).

Hasan, Yajuan and Mahmud (2020) and Hasan, Yajuan and Khan (2020) note that where there is available financial technology, financial inclusion increases. The Alliance for Fiscal Inclusion (2018) argues that the use of financial technology (FinTech) is convenient, saves time, and helps individuals to save, borrow and perform many financial transactions in the formal financial system. Agwu (2021) argues that financial technology enhances people's quality of life by enabling them to access a variety of financial services like mobile banking, online banking, internet banking and other cutting-edge banking methods.

Financial technology, in this reading, is characterized by the use of mobile money and internet banking services. Fernandes, Borges and Caiado (2021) note that mobile money and internet or electronic banking influences financial inclusion. Manyika, Lund, Singer, White and Berry (2016) assert that mobile money or banking involves financial services offered by a bank or financial institution which require customers to use mobile

devices such as tablet or smartphones to perform financial transactions without the use of internet. This form of mobile banking includes paying utility bills and other expenses without any internet connectivity. On the other hand, Durai and Stella (2019) explain internet banking as performing financial transactions through an electronic means via the internet. This involves the use of mobile applications (Apps), and other approaches to financial transaction that requires internet such as web banking, home banking and online banking.

In Ghana, the financial technology sector has seen enormous growth over the last decade and has provided the platform for increasing financial inclusion within the country. For instance, as at the year 2017, there were 11 million mobile money account holders and by 2023, the figure is expected to increase to 14.3 million account users (Bank of Ghana, 2019). In terms of value, the Bank of Ghana further report that in 2020, the total value of mobile money transactions alone was GH¢68.3 billion from about GH¢40 billion in previous years (Bank of Ghana, 2021). An important trend of financial technology in Ghana has been the effective collaboration between financial technology companies, telecommunications and fiscal institutions in providing access to financial services and products to the poor, middle-income and high-income earners. Notwithstanding the development in fiscal technology, the government has also provided regulations such as Electronic Transaction Act 2008, Data Protection Act 2012, Payment Systems and Services Act 2019, Cyber Security Act 2020, Anti Money Laundering Act 2020 to ensure the safety of funds and efficiency in the financial service sector.

While many individuals are becoming used to or familiar with cashless systems of payments, there is also a continuous perception of security problems, high transaction cost in using digital finance, poor network coverage and low technological knowledge of users of financial technology that holds back people in using financial technology in business transactions (Andrei-Dragos, 2019). Additionally, the providers of financial technologies are profit-seekers and use their technological platforms to maximise profits at the least opportunity. In some instances, Ayllon (2020) asserts that digital finance providers discriminately persuade individuals and use a more aggressive tactics to get people to use new financial technology platform in order to charge high fees.

While extant literature in developed and developing countries have focused on fiscal technologies such as mobile money, use of ATMs, and debit cards in ascertaining relationships on financial inclusion, internet banking and mobile money studies in Ghana have barely been explored to ascertain its impact on financial inclusion (Abor, Amidu & Issahaku, 2018; Agwu, 2018; Durai and Stella, 2019; Demir, Pesqué-Cela, Altunbas, & Murinde, 2020; Gabor & Brooks, 2017; Gomber, Koch & Siering, 2017; Sahay *et. al*., 2020). In the work of Sackitey (2018), financial inclusion was explored through the use of mobile money with no focus on ease in accessibility, safety, availability and frequency of financial transactions. By focusing on fiscal inclusion based on accessibility, frequency, and safety of fiscal transactions, this study bridges the gap. The study was driven by the

importance of financial inclusion in eradicating poverty.

2. Literature Review

2.1 Conceptual Review

In this section, two concepts are explained, that is, financial technology and fiscal inclusion.

2.1.1 Financial Technology

Financial technology has been explained from the perspective of practitioners and authors as any service delivered using mobile phones, personal computers, or internet connected to a digital payment scheme (Gabor & Brooks, 2017). In the same way, Ggombe and Mutsumoto (2017) concur with the explanation of financial technology by Gabor and Brooks (2017) and further describes it as a financial service carried out using the internet or mobile devices. Ozili (2018), however, takes a different view on describing financial technology as an arrangement on digital platforms which involve the use of web advances for computerized money related benefits. This involves the use of technology to perform varying financial services by an individual. According to Hasan, Yajuan anad Mahmud (2020), financial technology is used for transactions such as electronic money, mobile money, electronic funds transfer and payments.

Gomber, Koch, and Siering (2017) describe financial technology as the use of financial related software and technological forms of offering financial services to customers delivered by financial technology companies. Gomber *et al.* (2017) note that financial technology entails financial businesses, financial related software and financial products combined together to give customers a new way of communication and service delivery undertaken by both financial service providers and financial technology institutions. Although there is no agreement to explaining the concept of financial technology, almost all publications have arrived at similar conclusions by perceiving financial technology as services, products, technology and infrastructure that enable customers to have direct access to savings, payments, investments, loans and credit facilities over the internet without visiting any bank branches or speaking with a bank or financial service provider representative directly (Hemmen, 2019). Financial technology, thus, imply the provision of financial services via technology such as internet banking, mobile wallet, Automated Teller Machines (ATMs), electronic wallets, credit cards and debit cards.

2.1.2 Financial Inclusion

Financial inclusion simply means bringing people into formal financial system, thus, according to Sarma and Pais (2011). These may be individuals who do not yet have any

bank accounts with financial institutions. Whether the people could be wealthy or not, the impoverished are frequently those who lack access to official fiscal services. In order to combat poverty and spur economic progress, Bruhn and Love (2014) describe financial inclusion as an upsurge in the proportion of the poor who use formal financial services through bank accounts. According to the United Nations (2016), financial inclusion is offering low-cost financial services to people in order to sustainably integrate them into the official financial system. To Patwardhan, Singleton, and Schmitz (2018), financial inclusion involves rural residents having access to financial services. This include a wide range of fiscal services that are available to both unbanked and low-income individuals.

Chitokwindo, Mago and Hofisi (2014) assert that most often, traditional financial system overlooks the poor and low-income group because of their low incomes. However, these group of people need to save money to support their businesses as well as hedge against future risks. Therefore, fiscal inclusion is to make accessible financial services to the low-income group and the poor. Contrary to assertions of financial inclusion, Demirguc-Kunt, Klapper and Singer (2017), notes that financial inclusion is not all about bringing poor people into formal financial system, but also making financial services of all kinds available to people to meet their specific needs. With this view, financial inclusion goes beyond the traditional form of opening a bank account to including services that meet the needs of individuals. It means that where a person has a formal bank account but the account does not provide the specific needs of the person, he or she is deemed to be financially excluded (Sackitey, 2018). On the other hand, where an individual has formal bank account but does not have access to a mobile technology linked to his or her account, he or she may be regarded as excluded from financial technological services. In this regard, such a person may be seen to be financially excluded but only from a financial service.

3. Theoretical Review

3.1 Innovation Diffusion Theory

The theory of innovation diffusion is applied in explaining the spread of technology in ensuring financial inclusion. This theory was popularized by Everett Rogers in 1962. The principal argument of the innovation diffusion theory is that diffusion is a process that require innovation to be communicated over a period of time to individuals within a social system (Rogers, 1962). The theory states that the five steps of knowledge or awareness, persuasion, decision, implementation, and confirmation are necessary for the diffusion of innovation (Rogers, 2003). According to the innovation diffusion theory, for an individual to have knowledge or be aware of an innovation, there is the need for the person to be exposed to the innovation. This means that at the first stage of introducing financial technology, people must be made aware through different fora.

Information must be made available to people to ensure that the second stage of the innovation diffusion which is persuasion become realized.

Through persuasion, the individual become interested in the innovation or financial technology and ends up seeking more information, Muralidharan, Niehaus and Sukhtankar (2014) note. Upon having the required information, the individual makes a decision to accept the innovation by weighing the advantages and disadvantages of the financial technology. The individual after making decisions, implement the use of the innovation and at this stage the person search for more information and then finalizes his or her decision by continuing the use of innovation. Rogers (2003) notes that the confirmation stage is both intrapersonal and interpersonal which confirms that the individual or the group has made the right decisions.

Sahin (2006) asserts that the theory proposes four main components which influences the spread of new ideas or technology. These include innovation, communication channels to innovation, time and a social system. O'Connor (2007) explain that innovation is any idea that is considered new by a person whereas communication channels allow the transfer of information or the idea from one place to another. Time is an important phenomenon that allow individuals to adopt or accept innovation. Thus, when financial technology is implemented, it takes time for individuals to accept the technology. Whereas others may accept the use of the technology instantaneously, others may also take time to accept it. The social systems also encompass the internal and external influences on a person to adopt or accept an innovation (Couros, 2003).

From the main elements, one can understand that the introduction of fiscal technologies such as internet banking, mobile wallets, credit and debit cards are innovative ideas that when introduced require effective communicative channels to get the message of its importance to people who are going to use it. Travagli (2012) notes that the flow of information or communication of financial technologies to individuals require time because each person have a time period of accepting new technologies. Whereas people who are educated may understand the use of financial technology early and adopt its use, rural dwellers or the less educated may take time to accept financial technologies as a way of innovation. Just like innovations, individual users of technology have different traits and perception to the use of technology which may affect the likelihood of an innovation being accepted or adopted (Murray, 2009).

Gouws and Rheede (2011) assert that internal influence such as social relationships and external influence such as mass media and governments play important roles in getting individuals to accept using innovation through financial technology. In this regard, for financial inclusion to be achieved through financial technology, there is the need for innovation to be communicated appropriately for individuals to understand the relevance of the financial technologies. Studies from Patwardhan et. al (2018), Hemmen (2019) and Hasan et. al. (2020) explored different characteristics of innovation and assert that people who adopt innovation do so because of its relative advantages or the

perceived efficiencies. For instance, people who use financial technologies do so because of its user-friendliness, convenience, cost effectiveness and security.

Hasan *et. al* (2020) demonstrate that it is important for users of financial technologies to boost their security for keeping cash on their mobile wallets or other electronic means compared to travelling with the money or keeping it at home. Therefore, the provision of financial technologies increases financial inclusiveness and participation in the financial scheme. In effect, the more innovation is diffused, the better the financial inclusion (Tahir, 2015). However, innovation can sometimes be complex and may reduce the likelihood of it being diffused or adopted by individuals or users. When financial technologies become complex to use and are not user-friendly, many people may end up not using it. Therefore, for individuals to adopt the use of financial technology, they must be easier to work with.

4. Empirical Review

With a panel data analysis of 13 banks in Bangladesh from 2003 to 2013, Siddik (2019) found that electronic banking had favourable impact on financial inclusion, which sped up economic growth. The study also found that utilizing the internet for finances fosters strong social networks among people, which has an impact on fiscal inclusion. The South Asian Association for Regional Cooperation (SAARC) countries were the subject of a study by Lenka and Barik (2018) to examine the effects of rising internet and mobile phone usage on fiscal inclusion between 2004 to 2014. A fiscal inclusion index that served as a proxy for financial service accessibility was created using the principal component analysis. The panel correction standard errors model, the random effect and fixed effect models were all employed. The results of the empirical investigation demonstrated a favourable and significant association between the spread of mobile and internet services in SAARC countries and the increase in financial inclusion. Control factors were income level, unemployment rate, population density in rural areas, and education. The study also revealed a favorable relationship between financial inclusion, income, and educational attainment. Moreover, there was a negative relationship between financial inclusion and both unemployment and rural population size.

Ene, Abba, and Fatokun examined the impact of electronic banking on financial inclusion in Nigeria in 2019. The use of ATMs and Point of Sale devices was used to gauge electronic banking, and a proxy for financial inclusion was the proportion of Nigeria's banked adult population to the nation's total bankable adult population. Multiple regression was employed in the study to analyze the data using ex-post facto and correlational research methodologies. The initial premise of the study was that there is no connection between financial inclusion in Nigeria and the number of ATMs there. The hypothesis's finding is that Nigeria's use of ATMs has no effect on financial inclusion. The second hypothesis states that there is no statistically significant association between the use of point-of-sale devices and financial inclusion. According

to the study's conclusions, the use of point-of-sale devices had a statistically significant effect on financial inclusion.

Dura and Stella (2019) conducted an analysis of how digital finance affects financial inclusion. Financial inclusion focused on ease, security, friendliness, usefulness, flexibility, and affordability of access to financial products and services, whereas digital fiscal was measured by use of internet banking, mobile banking, mobile wallets, and credit card and debit card. The research used the quantitative approach. Questionnaire administration was employed as data collection method. The study used multiple choice and Likert scale questions to gather primary data in answering the research objective. Statistical Package for Service Solution version 20 was used for data entry. Regression and one-way Anova were also employed to analyse the data. Usability and internet banking, mobile banking, credit cards, and debit cards were not found to differ significantly. The adaptability, cost, user-friendliness, and security of digital money, including internet banking, mobile banking, mobile wallet applications, credit cards were also not significantly related to financial inclusion. A positive relationship was established in the usability, and convenience on mobile banking whereas low service charges impacted positively on the use of mobile wallets.

In a research by Mwalwiba (2020), internet banking and automated teller machines were used as a method of digital innovation in Tanzania to determine accessibility to financial services. With the use of questionnaire and interviewing techniques, the study combined quantitative and qualitative methods. Regression analysis and descriptive statistics were both used to analyze the research's findings. The study's conclusions demonstrated how digital innovations in banking, like internet banking and ATMs, have improved financial services' accessibility in Tanzania. The study also revealed a link between internet banking and the reachability of financial services. Moreover, ATMs have a good, considerable impact on financial services accessibility. The study came to the conclusion that financial inclusion in Tanzania was greatly influenced by digital technologies.

Hasan, Yajuan and Khan (2020) explored the approaches of promoting fiscal inclusion in China. The study employed the qualitative approach and followed a systematic literature review. Secondary sources such as articles, case studies and conference papers were retrieved from databases such as Scopus by Elsevier, Emerald, Springer, Taylor and Francis, Wiley, Sage and Web of Sciences Core. These sources were selected for the study in order to maintain the quality of articles. The retrieval of articles from the databases were based on financial inclusion, financial technology and rural finance studies. According to the study’s findings, financial technological systems like online payments, online lending, online money markets, online insurance have an impact on financial inclusion. The promotion of fiscal inclusion in China was furthered by widespread deployment of ATMs, financial apps, and information system software, connectivity, personal digital assistance, online banking, POS devices, smart cards, mobile phones, and mobile payment.

The extent to which financial technology can be used to overcome fiscal inclusion gaps was assessed by Agwu (2021). Secondary approaches were used in the investigation. The study's emphasis was on determining how much technology may be used to improve fiscal inclusion in rural parts of developing economies. The CBN, World Bank, European Union, and published papers were the sources of the data. The study's conclusions demonstrated how elements at the individual and institutional levels affected the overall functions of fiscal inclusion. Data at the individual level revealed that the majority of rural residents kept their money at home due to security issues with online banking and hacking. More challenging was the institutional level factors where banks insistence on paper works and collaterals discouraged rural dwellers into being financially included. The study's findings revealed that fiscal institutions can use financial technology as a platform to advance their inclusion goal, despite the fact that maintaining financial technologies is expensive. The results also showed that bank vaults did not contain more than 50 percent of the money in circulation. Nonetheless, the study found that it is possible to reduce the amount of cash in circulation by raising rural residents' understanding of banking using financial technology.

5. Methodology

5.1 Research Design

The research design is an important part of the methodological approach because it provides the general strategy where varying components of the study are integrated in a logical way in addressing the research problem (Smith, 2015). This study adopted the quantitative research approach in order to test the relationship between financial technology and financial inclusion. Neuman (2011) notes that quantitative research submit itself to testing causal relationships while also generalizing results from a sample to the population.

The correlational research design was employed in the study. According to Creswell and Plano (2011), correlational research design is a non-experimental research that helps a researcher to investigate relationships between two or more variables. Correlational research was employed due to its advantage in helping the researcher ascertain the statistical relationship between *"financial technology and financial inclusion"* without any outside variable having an influence on the dependent variable.

The survey design was also used in this study. Survey design helps researchers to collect data from respondents without any influence or biases. Surveys may be conducted via face-to-face, online or phone. This study employed the face-to-face and the design was used because of its objectivity.

5.2 Population and Sampling Procedure

Individuals in the Accra metropolis constituted the population of study. These include all people above the age of eighteen years who can legally use a mobile phone device or financial technology for financial services. The Ghana Statistical Service (2021) pegs the population at 2,514,000. As a result of the large population size, a sample was required to be drawn for the study since the researcher cannot reach out to all the individuals in the population. The table developed by Krejcie and Morgan (1970) was used in determining the sample size for the study. According to the table developed, a population of more than 2 million require a sample size of 385.

Following the selection of the sample size, respondents were chosen using a simple random sampling technique. Simple random sampling, according to Creswell (2014), is a probability sampling strategy in which a sample of the population is randomly selected. In addition, in simple random sampling, every subset of the population has the same probability of being chosen as every other subset. The sampling technique was used in this study because it is objective and gives every person an equal chance of being chosen. The objective selection of participants was crucial to the study since it ensures that, even if several samples are taken, the average sample will accurately reflect the total population.

5.3 Data and Data Sources

The research employed the primary means of gathering data. Primary data was gathered directly as first-hand information from respondents. The study used primary data because it is reliable and value free in addressing the research problem. The cross-sectional data was also employed. Neuman (2011) describes cross-sectional data as any data gathered or collected from respondents at a single point in time. In cross-sectional data, the researcher is only interested in response at a point in time and not responses over time or across time.

The data gathering method used in the study was questionnaire administration. Questionnaire administration is a data collection method where a set of answerable questions with possible choices of answers are put together for respondents to answer (Ofori & Dampson, 2011). In questionnaire administration, the questions are focused directly in answering the research questions. Creswell (2014) note that questionnaire administration provides an avenue where the researcher's values and biases in data collection do not affect the responses. Questionnaire are the appropriate data gathering tool for survey administration. A questionnaire is a tool used to gather information or data about a subject from respondents. In the study, questionnaire were created to help address the research problem.

5.4 Data Analysis

After the collection of data from respondents, questionnaire were cleaned, and inputted into Statistical Package for Service Solution (SPSS) version 25 which is the quantitative software used in analysing data. The data's output was produced as frequencies, tables, and percentages. To check whether the regression model was properly described, diagnostic tests were run. Cronbach alpha was provided to determine the reliability of the data. Additionally, to confirm the data's normality, the skewness of the data was presented and Tabachnik and Fidell (2001) note that a skewness of +/-1.96 is considered to be regularly distributed. The level of implication was assessed at a 5 percent or 95 percent confidence level. In order to ascertain the connection between financial technology and financial inclusion, linear regression analysis was put to the test.

6. Results and Discussions

6.1 Preliminary Analysis of Data

In the initial analysis of the data, the descriptive statistics for the variables were displayed. The background characteristics of the respondents are listed in Table 1 and include gender, age, marital status, degree of education, and monthly income. Descriptive statistics on financial inclusion and features of financial technology, such as internet banking and mobile money services, were included in the results that were presented.

Table 1: Background Characteristics of Respondents

Background Characteristics	Frequency	Percent
Gender		
Male	192	54.3
Female	161	45.7
Total	**353**	**100.0**
Age		
20-29yrs	85	24.1
30-39yrs	152	43.1
40-49yrs	95	26.9
50-59yrs	21	5.9
Total	**353**	**100.0**
Marital Status		
Single	175	49.7
Married	178	50.3
Total	**353**	**100.0**
Educational Level		
Senior High	42	11.8
Diploma	35	9.9
Polytechnic	32	9.1
Bachelor	161	45.7
Postgraduate	83	23.5
Total	**353**	**100.0**
Monthly Income		

Background Characteristics	Frequency	Percent
Below 1,000	30	8.5
1,001-2,000	92	26.1
2,001-3,000	62	17.6
3,001-4,000	113	32.0
Above 4,000	56	15.8
Total	**353**	**100.0**

Source: Field survey (2022)

From the study, more of the respondents were males (54.3%) compared to females. Additionally, the married (50.3%) were more than those who are single. Averagely, most of the participants were between the age of 30 and 39 years and that more of the respondents also have higher level of education as individuals with bachelor's degree were 45.7 percent. The result also depicts that more of the respondents earned average monthly income between GH¢3,001 and GH¢4,000. The higher level of education and income among respondents indicates that respondents are expected to show a better use of financial technology and become financially included as demonstrated by the innovative diffusion theory and Lenka and Barik (2018).

6.2 Internet Banking

This section present findings relating to the use of internet banking services and Table 2 displays the result.

Table 2: Internet Banking Services

Internet Banking Services	Min	Max	Mean	S. D
My banking application helps me to receive money conveniently from other bank account into my bank account	1	5	4.6405	1.1039
I pay money directly from my bank account to other bank accounts	1	5	3.8431	1.1128
I make all my treasury bill investments directly by myself without going to the banking hall	1	5	3.3333	1.0195
I am able to buy call credits directly from my bank account	1	5	3.9150	1.0757
I am able to directly pay for online products purchased	1	5	3.9542	1.1082
I am able to apply for loans directly from using my internet banking	1	5	3.5556	1.1803
Overall mean			3.4331	1.1094
n=353				

Source: Field survey (2022)

In determining the services of internet banking, the findings showed that overall, more of the sampled respondents (Mean= 3.4331; S. D= 1.1094) considered internet banking to be useful. This is because internet banking application help them to receive money conveniently from other bank accounts into their own account, are able to pay money directly from their bank account to other accounts and are able to make treasury bill investments directly without going to the banking hall. It implies that a degree of

convenience is created which helps to ensure that people become financially included in the financial system as espoused by the work of Mwalwiba (2020) who found that expansion of internet banking services increased access to financial services leading to many people being financially included. It is also in consonance with the studies by Hasan, Yajuan and Khan (2020) and Agwu (2021) who showed that financial application software such as internet banking services applications encourage people to transact businesses that promote financial inclusion.

6.3 Mobile Money Services

Table 3 displays the descriptive statistics of mobile money services.

Table 3: Mobile Money Services

Mobile Money Services	Min	Max	Mean	S. D
I can transfer money from my mobile wallet to another wallet at the comfort of my home	1	5	4.2549	0.8153
I am able to pay for products I order online	1	5	4.3529	0.6120
I am able to save money on my mobile wallet	1	5	4.3856	0.8201
Using mobile money is secure for me	1	5	4.7451	1.1501
I regularly deposit money in my mobile account compared to my bank account	1	5	4.7386	1.1685
I am satisfied using mobile money services	1	5	4.6209	0.8660
I prefer to use mobile money services than bank account	1	5	4.0131	1.1296
I am able to make direct financial contributions from mobile account	1	5	4.3595	0.7661
Overall mean			4.1114	1.0221
n=353				

Source: Field survey (2022)

The study's result shows that, with theoretical mean of more than three for all the items, mobile money services are widely used by many people. The overall mean reveals that more of the sampled respondents (Mean= 4.1114; S. D= 1.0221) considered the use of mobile money services due to their ability to transfer money from one mobile wallet to another, pay for goods ordered, regularly deposit money in their mobile account and save money on their wallet. The evidence provided shows that mobile money services can be used to undertake or perform several financial transactions that allow individuals to become financially included and this is in accordance with the work of Lenka and Barik (2018) who found that the penetration of mobile phones impacts fiscal inclusion positively. In addition, the result agrees with the innovative diffusion theory which espouses that many people especially the disadvantaged in society use mobile banking as an innovative financial technology due to its safety, accessibility and security.

6.4 Financial Inclusion

Evidence on financial inclusion is presented in Table 4.

Table 4: Financial Inclusion

Financial Inclusion	Min	Max	Mean	S. D
It has made financial services easily accessible	1	5	4.4641	0.7524
I perform financial transactions frequently and regularly	1	5	4.6340	0.8641
I am able to save always	1	5	4.0523	1.0117
There are so many financial services available to me	1	5	4.8301	0.9304
There is an increased quality of financial services	1	5	4.7320	0.8811
Overall mean			4.3771	1.0442
n=353				

Source: Field survey (2022)

The result showed that overall, more of the respondents (Mean= 4.3771; S. D= 1.0442) are financially included as they are able to easily access financial services, perform financial transactions frequently and regularly save always. It is also relevant to point out that more of the participants (Mean= 4.7320; S. D= .8811) considered that there is an increased quality of financial services. It is an indication that there is fiscal inclusion among respondents since they have access to different platforms of banking services including mobile money and internet banking. The nation is therefore likely to be better off as it brings every member of the society into the financial system as shown by Agwu (2021). The result also agrees with the innovation diffusion theory where technology has been diffused into making people aware of the financial innovations that has created easiness and accessibility in the performance of financial transactions.

6.5 Diagnostics Tests

The diagnostic tests are presented to ensure the normality of the data set. The output is presented on Table 5.

Table 5: Diagnostic test for internet banking, mobile money and financial inclusion

	Skewness	Std Err	Kurtosis	Std Err	Cronbach	No. of items
Internet Banking	0.621	0.337	1.211	0.662	0.867	6
Mobile Money	0.582	0.337	1.114	0.662	0.863	8
Financial Inclusion	0.590	0.337	1.011	0.662	0.876	5

Source: Authors' Computation (2022)

The results show that the data is internally consistent with Cronbach alpha values of 0.867, 0.863 and 0.876 for internet banking, mobile money and financial inclusion

respectively. According to Ofori and Dampson (2011), a Cronbach alpha of 0.7 and above is considered to be good. The data is also regularly distributed, as evidenced by the skewness and kurtosis, which are all within +/-1.96 at the 5% level of significance. After the diagnostic tests were completed, Table 6 displayed the results of the linear regression.

6.6 Relationship between Financial Technology and Financial Inclusion

Table 6: Regression Model

	Coeff. (B)	Std Err.	t	Sig
Constant	1.296	0.153	8.491	0.000
Internet Banking	0.219	0.069	3.155	0.002
Mobile Money	0.870	0.058	14.910	0.000
F-Statistic	222.302			
D.F	352			
Sig	.000[b]			
R	.772			
Adjusted R^2	.593			
Std Err of Est	.46700			
DW	2.564			

Dependent Variable: Financial Inclusion
Source: Authors' Computation (2022)

The model from the study indicate that internet banking and mobile money are the predictor variables. The value of adjusted R-squared (0.772) representing about 77.2% implies that the use of internet banking and mobile money services explains about 77.2 percent of fiscal inclusion while other factors accounting for about 22.8 percent explains fiscal inclusion. The data showed a positive relationship (r = 0.219) between internet banking and financial inclusion. This means that as people use internet banking services, they become more financially included. The relationship between internet banking and financial inclusion is also statistically significant (p= 0.000; p<0.05) implying that internet banking services makes significant contribution towards financial inclusion. Therefore, as more and more people begin to use internet banking services, they become financially included and this finding is in consonance with the work of Siddik (2019) who found a positive and significant relationship between internet banking and financial inclusion. Additionally, it concurs with the innovative diffusion theory which demonstrate that as internet banking services diffuses to the population, many people accept it and become included in the financial system.

The coefficient of mobile money (r =.870; p-value= 0.000) also revealed a positive and statistically significant association between using mobile money and financial inclusion. This means that as people use mobile money services, they are more likely to become financially included. The result concurs with the innovative diffusion theory and

it is also in consonance with the works of Ghosh (2016) who showed that the infiltration of mobile technology had positive and significant impact on financial inclusion. Again, the finding agrees with that of Mwalwiba (2020) who also found a positive and noteworthy impact between mobile money and financial inclusion in Tanzania. Therefore, one can say that in answering the research hypothesis, mobile money services significantly influence fiscal inclusion among people in the Accra metropolis.

7. Conclusions

It is concluded that the use of fiscal technology is relevant to ensuring the fiscal inclusion agenda in the Accra metropolis. An improvement in mobile money technology will result in many individuals being financially included. By implication, if there is a failure on the use of mobile money, then, many people will be financially excluded. Most importantly, mobile money services continue to permeate society as more individuals prefer its use for financial transactions. In addition, when internet banking technology is improved, many people will opt for its usage and then financial inclusion will improve. But a reduction in improving the internet banking technology will force many people to be financially excluded. Conclusively, it is inferred from the summary of findings that the use of financial technology is a powerful tool in ensuring that more individuals within the Accra metropolis become financially included in the financial system and that where financial technology is low, people will be excluded which will hinder the growth of the country.

8. Recommendations and Policy Implications

It is recommended that:

1. Mobile money service providers should enhance the features of financial technologies such as internet banking and mobile money so that it becomes easy for all individuals
2. Mobile money services providers should ensure that there is mobile phone network efficiency in order to promote use of the mobile services.
3. It is also recommended that charges on mobile money services are reduced to allow more people use the services in order to encourage financial inclusion.
4. It is recommended that banks improve upon their internet banking services in order to increase financial inclusion. Internet banking service features should be made easier, convenient, cost effective and accessible to every individual to carry out financial transactions.

9. Suggestions for Further Research

According to recommendations for additional research based on the study's

inadequacies, a connection between other financial technology techniques, such as Automated Teller Machines and Point of Sale (POS) devices, and financial inclusion must be established. Further research is required to determine the impact of transaction costs for online banking and mobile money services on financial inclusion. Also, to obtain in-depth understanding about respondents' use of financial technology, future study should include the use of qualitative data.

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