Assessing Unmet Needs of Small Merchants in Adopting Digital Payment Systems in Ghana

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Abstract

The study investigated the unmet needs of small merchants in rural and urban Ghana regarding adoption and utilisation of digital financial payment systems. The primary research questions were: What are the needs of small merchants in adopting digital payment platforms for businesses? How are various policy makers/regulators and service providers addressing these needs in order to boost adoption and utilisation of digital payment systems for financial transactions? A mixed method research design was adopted for the study. Findings of the study indicate that about 28% of the 200 sampled respondents were adopters of the digital payment system and 25% were currently using it. Major challenges impeding adoption and utilization include poor communication networks, illiteracy and limited knowledge of the usefulness of digital payment systems, lack of trust in the system due to insecurity of wallets, and the sheer intrinsic value of holding physical cash on the person. This study can make a significant impact if it is expanded and the sample size is more nationally representative.

Key Words: Digital Payment Platform, small and medium scale enterprises, adoption, utilization

1.0 Background of the Study

Ghana's informal economy is occupied by small and medium-scale enterprises (SMEs), whose contribution to the economy is significant in terms of use of local technology to produce a variety of goods for local consumption and export, as well as providing high rates of employment for skilled, semi-skilled and unskilled labour forces (Ofori, 2009). The SME subsector accounts for about 70% of all industrial establishments and 85% of manufacturing employment and contributes about 6% of the total gross domestic product (GDP) (Kyeremateng, 2007).

In spite of the contributions of small merchants to the socio-economic development of Ghana, it is variously reported that small businesses are characterized with limited application of technological innovation in business transactions (Kani, 2009; Hayford, 2012). The 21st century dubbed the information, communication and technology (ICT) revolution has come with new modes of financial transaction called digital financial payment revolution. Digital financial payment platforms (DPP) have revolutionised the use of cash in business transactions and money has assumed a digital or electronic format for payment and transacting all kinds of businesses locally and internationally.

Efforts are being made in Ghana to encourage the use of digital non-cash payment platforms to transact business. The current non-cash payment platforms in Ghana consist of switch and card, primarily operated by e-zwich, gh-link^{TM}; mobile or wallet money operated by Airtel, Tigo and MTN telecommunication networks; and real time gross settlement system (RTGS) payment. There are also emerging financial products such as bill paying e-invoicing on the Ghanaian market. Through the concurrent implementation of these payment systems the Central Bank of Ghana (BoG) aims to promote financial inclusion and efficient payment

mechanisms (BoG, 2014). Notwithstanding BoG's efforts, cash payment remains the dominant and preferred means of undertaking financial transactions.

A limited number of people use digital financial platforms for transactions. In cases where people have adopted mobile money transfer services recipients have continued to withdraw the money in cash (Ahiabenu, 2010). E-banking and ATM services patronage seems limited even among financial institutions compared to cash withdrawal and the use of cheque. The reasons for the lack of adoption are unclear, even though the BoG attributes this phenomenon to high illiteracy and ignorance about the relevance of non-cash payment system (BoG, 2014).

2.0 Objective of study

The broad objective of the study was to identify the needs of small merchants that have not been met by digital financial payment service providers. The study specifically sought to examine factors impeding adoption and utilisation of digital financial payment systems among small merchants in rural and urban areas.

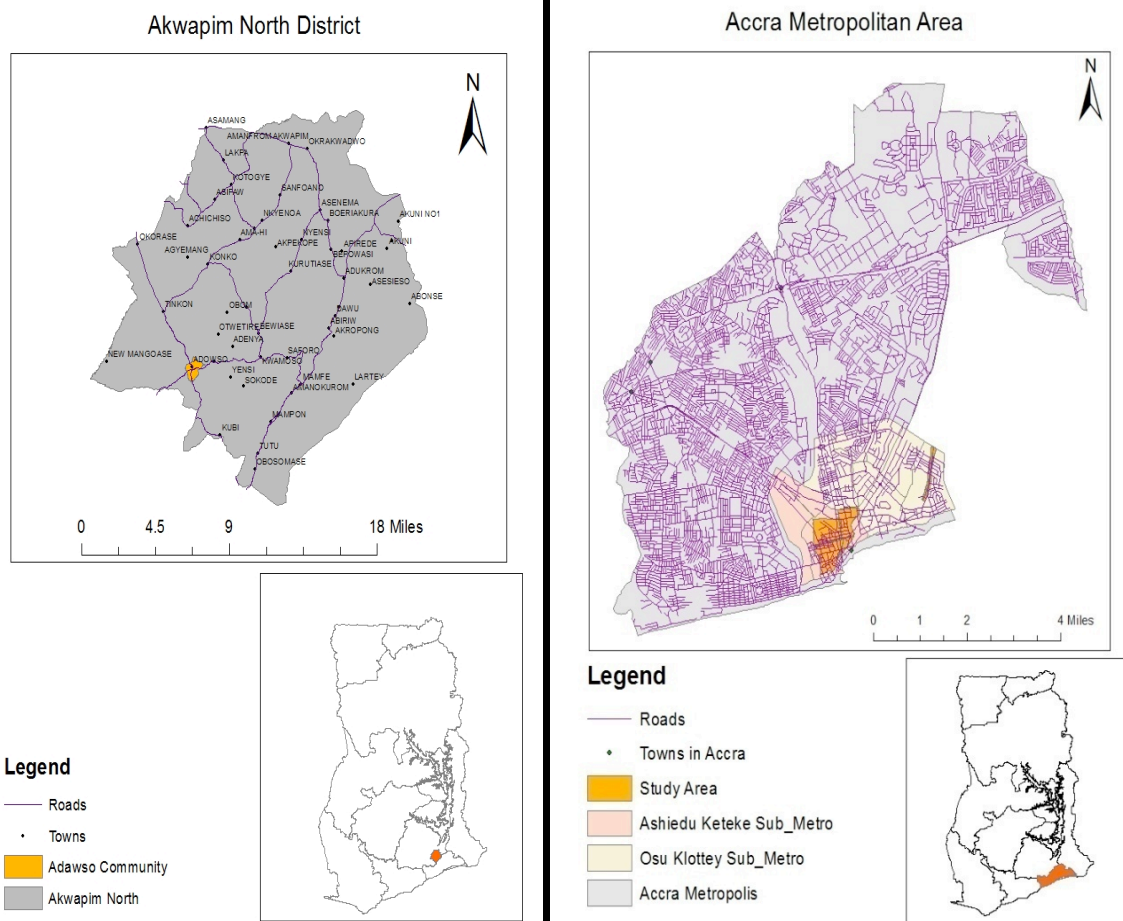## 3.0 Methodology

3.1 Theoretical Perspective

The study used mixed methods for data collection. Analysis and explanation was done based on the Technology Acceptance Model (TAM) and Diffusion of Innovation (DI) theory. TAM is based on two main assumptions: Perceived usefulness (PU) and Perceived ease of use (PEOU). TAM not only attempts to explain the use of an innovation but it also offers explanations to help researchers and practitioners identify why a particular system may be unacceptable so as to identify the appropriate steps for facilitating greater acceptance and

utilisation. TAM is consistent with the theory of DI where technology adoption is a function of a variety of factors including relative advantage and ease of use.

3.2 Study Area

The study collected cross-sectional data in two districts in southern Ghana: Greater Accra Metropolitan Area (GAMA) and Akwapim North District (AND). The study targeted three (3) urban markets in GAMA and a rural market in AND. The study areas are shown in Plate 1 below.

Plate 1: Maps of Study Areas

Source: Field Data (2016) Using Arc Map

3.3   Data collection

A sequential mixed method strategy was employed for data collection. A transect walk was taken through each study community to identify common types of small businesses. Subsequently, a market centre survey was conducted in Makola Market, a roadside survey of small merchants undertaken in Osu, and a home-based merchants' survey was conducted in Ga-Mashie. Both roadside and home-based merchants' surveys were conducted in Adawso. In all, 200 respondents were interviewed (Table 1). All merchants interviewed and digital payment platforms available in each selected study area were digitally mapped using GPS and ARCGIS software. The purpose for this mapping is to understand aspects of existing unmet needs despite proximity and accessibility. The survey instrument collected information on sociodemographic characteristics of respondents, type of businesses, forms of DPP known, adopted and used as well as its associated challenges; SMEs' beliefs, perceptions and fears concerning the use of digital payment systems.

Focus group discussions (FGDs) and in-depth interviews were held with selected SME operators who have been surveyed in order to probe into some of the results of the data. Specifically, it was essential to understand what explains perceived advantages and ease of use of the DPP and yet low adoption and utilisation of the platforms in practice. Operators' beliefs, perceptions and fears associated with adoption were discussed in detail. Participants in the FGDs included adopters and non-adopters with about 50% of each group drawn from survey participants. This strategy was adopted to allow for a comprehensive discussion of all the contending issues. Key informant interviews were held with an official of the BoG Digital Payment Department, mobile money vendors, and officials of Tigo Ghana (a nationwide mobile money service provider) to learn and to clarify some of the fears expressed by SME operators and reasons for non-adoption.

4.0   Results and Discussions

4. 1 *Description of Socio-Demographic Characteristics of Respondents*

There are more women in the study sample than men. About 77% of the respondents are women while 23% are men. This is consistent with other studies, which show that more women operate in the SME subsector of Ghana's economy (Akumbomi, 2011; Ankomah, 2012). The mean age of the respondents is 37 years and the majority were between 18 - 35 years old. In terms of education, the highest level of education for 46 percent of the study participants was Junior High/Middle School and about 33.5 percent have completed Senior Secondary education. About 20 percent have not attended school or only completed primary school. The majority of the respondents were of Christian faith (93%) and the majority were married (55%). About 34 percent were single and have never married and 10 percent were either divorced or widowed.

The average number of years a respondent had been in business was 11 years and about 25 percent of them have been in operation for 11 years or more. The majority (75%) of SME operators were self-employed without employees. Of the 17 percent of the sample that had paid employees, 36 percent have more than one paid employee and the rest of the 64 percent have only one paid employee. SME operators pay their employees from 11 GHC daily (US$3)[1], to 50 GHC weekly (US$11) and about 225 GHC monthly (US$59.20). The primary mode of payment is cash ((91%). Only 1 male respondent indicated that he pays through mobile money transfer. This respondent sells solar light in Osu, has one employee and pays the employee 600 GHC monthly (US$158).

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[1] Exchange rate at the time of survey data collection, 2015 is US$1: GH¢3.8

4.2 Adoption and utilisation of DPPs by SMEs

The survey showed that 28% of the respondents are adopters of DPP. However, only 25% are currently using DPPs for business transactions. Nearly 80 percent of the adopters are respondents who have attained Junior High School and higher level of education. For those who have ever adopted and still used one DPP or the other, the majority are females with an average of 34 years. A third of users were introduced to the DPP service through the media or by a financial institution. About 78.6 percent use the service to receive payments and the others use it mainly to make payments for supplies. Over 92 percent of the users find its usage easy and about 7% find it difficult. About 83 percent of users are satisfied with the DPP services, but the rest are not satisfied.

The different types of DPP being used are Mobile money transfer services operated by MTN mobile money transfer service (MTN mobile network), Tigo Cash (Tigo Ghana), Airtel instant money transfer (Airtel Ghana network), Vodafone cash (Vodafone-Ghana network); and Bank Visa Card services as seen in the plate below. The most subscribed DPP is the MTN mobile money service (62%) and Tigo Cash subscribers constituted about 17 percent of the sample. Most of these DPPs, except the Bank Visa Card service, are being operated through agents who have received authorisation from platform providers to render mobile money transfer services on behalf of the network or platform providers. These agents operate mostly in urban centres and towns, and few operate in peri-urban areas. It is uncommon to find these services in rural areas. Availability and access is thus a big challenge to adoption and utilisation.

4.3 Perceived Advantages of DPP: Ease of Use and Usefulness

The main purpose for adoption and use of DPP by SMEs is to receive and/or make payments.

Most study participants found using DPP easy with only about 2% complaining of some

difficulties. The majority of adopters (95%) found its use generally satisfactory for business.

Respondents however complained about charges on registration and transactions and lack of

clarity on the fees associated with some services. They complained about a lack of clarity, for

example, on the specific amounts that mobile money agents deduct for transfer and receipt of

money. They also complained about the lack of earned interest on monies saved in wallets.

A major reason for adoption and utilisation of DPP for financial transactions by many SME

operators is the fact that it reduces the risk of losing money over long distance travels. For

instance, a female trader explained how she uses the Mobile Money service and how it helps

in her transactions to avoid the risk of theft and robbery associated with carrying huge sums

of money for her businesses.

"I don't carry cash in my bag these days. At first when I travel to buy goods, we are usually attacked by armed robbers but with the mobile money technology, I usually transfer all my cash onto my mobile money wallet and then when I get to my destination, I withdraw it into physical cash to transact business. And so, even when we are attacked by robbers, they can only take my mobile phone and only a small amount of money away. Even if I lose my mobile phone, I still have my money because the code is with me" **(A 32 year old female cosmetic trader in Makola, 06/04/2016**).

Keeping money in a mobile wallet helps to avert impulse spending. According to the view of

a study participant:

The benefit of keeping my money in my mobile money wallet is that when they pay me cash, it is likely that I may do an impulse buying but if the money is in my wallet it will be very difficult for me to go withdraw it. I hardly get time and if I will have to join a queue very often to withdraw money then I will prefer that the money remains in the wallet. So it is more or less like a bank savings for me. (**A 27 year old female trader in Makola, 06/04/2016**).

Another important factor that supports the decision to adopt and utilise DPP is the instant receipt of money transferred from customers or clients. Transacting business with DPPs saves time and energy one would otherwise need to invest in travelling around to collect money from customers or debtors. For SME operators who sometimes sell goods on credit, the use of DPP reduces the cost of doing business and the risks associated with handling physical cash for business transactions.

4.3 Factors Impeding Adoption and Utilisation of DPP among SMEs

The main factors affecting adoption and utilisation of DPPs include illiteracy, challenges in keeping and memorising the pin code, network failures, trust, transfer and registration charges, availability and accessibility of DPP, and the intrinsic value people place on holding physical cash.

Illiteracy and lack of adequate knowledge about the platforms and services provided seem to be the main reasons for the poor adoption and utilisation of DPPs. The majority of Ghanaians lack sufficient knowledge about the usefulness of the DPP suite of services for businesses. Most study participants were not conversant with the range of services that they could use for their business transactions. Other participants also complained of difficulty in memorising pin codes all the time for transactions. As a result they tended to rely on the assistance of mobile money vendors, bank workers, family and friends who could read and write to manage their digital wallets. This undermines the confidentiality of one's pin code in accessing the contents of one's wallet for use. The personal difficulties encountered by some illiterate SME operators in handling or managing their own mobile money wallets is illustrated in the 2 narrations shared here:

"I always call my children to assist me to dial a number when I want to make a phone call and now, they are introducing this machine mode of receiving money. I don't understand.

Does it mean when people buy from me, the money can be transferred to my phone without me seeing the cash?" (**A 58 year old porridge seller in Gamashie, 26/03/2016)**

Another person narrated: *"The ATM machines are good, but the language and the instructions attached does not attract me to use it. In addition, the machine is very sensitive. The least little mistake you make would result in the seizure of your card. It happened to me on a Saturday when I decided to withdraw money and my bank was not operating. I forgot and mixed up the code, and then on the third trial, the machine withheld my card. I had to wait until Monday; from that day on, I don't go close to ATM machines again."* (**A 35 year old male mobile phone accessories trader in Osu, 24/03/2016**).

The poor communication network infrastructure is a long-standing issue. The nature of a digital payment system requires that communication networks not function erratically. Therefore, the poor communication network in cities, towns and villages across Ghana is a great source of worry and reason for limited adoption and use of DPP for SME business transaction. One study participant expresses this frustration below, further justifying why a large number of potential adopters and users of DPPs prefer dealing with cash rather than digital money:

"Anytime I visit mobile money agents in this area to withdraw money, they always say there is a network problem. Sometimes, I will have to sit for about 2-3 hours and on some occasions, it could even last a day. Meanwhile, my customers may be waiting for me. And so when I encountered this problem for about 3-4 occasions, I decided that cash will be the best form to transact business with my customers. So I always insist on cash even if they propose the idea of mobile money, I always refuse." (**A 45 year old male tailor in Gamashie, 22/03/2016).**

Some participants also talked about the value of holding cash for their image and their business. Even though the study did not observe much gendered difference in this context, in our observations males were more inclined to want to adopt and use DPP for business as compared with females. The reasons for such a differentiation seems to call for further examination. The SME operators generally hold the view that counting cash at the end of a day's business is an indication of a good day and enhances one's self-image. In the expression of one study participant, the power associated with the holding of cash supersedes

digital money. The feeling of having cash in hand arouses a greater sense of liquidity, power and feeling than digital money.

"When I make my sales, at the end of the day, I want to sit down and count the money. Then, my self-esteem is enhanced. And then I also feel that I am working. But if the money is on a machine like the mobile thing we are talking about, it doesn't make sense to me. There is [more] power and some good feeling in holding cash than there is with numbers on your phone or on a card." (**A 28 year old female make-up kit trader in Makola, 24/3/2016**)
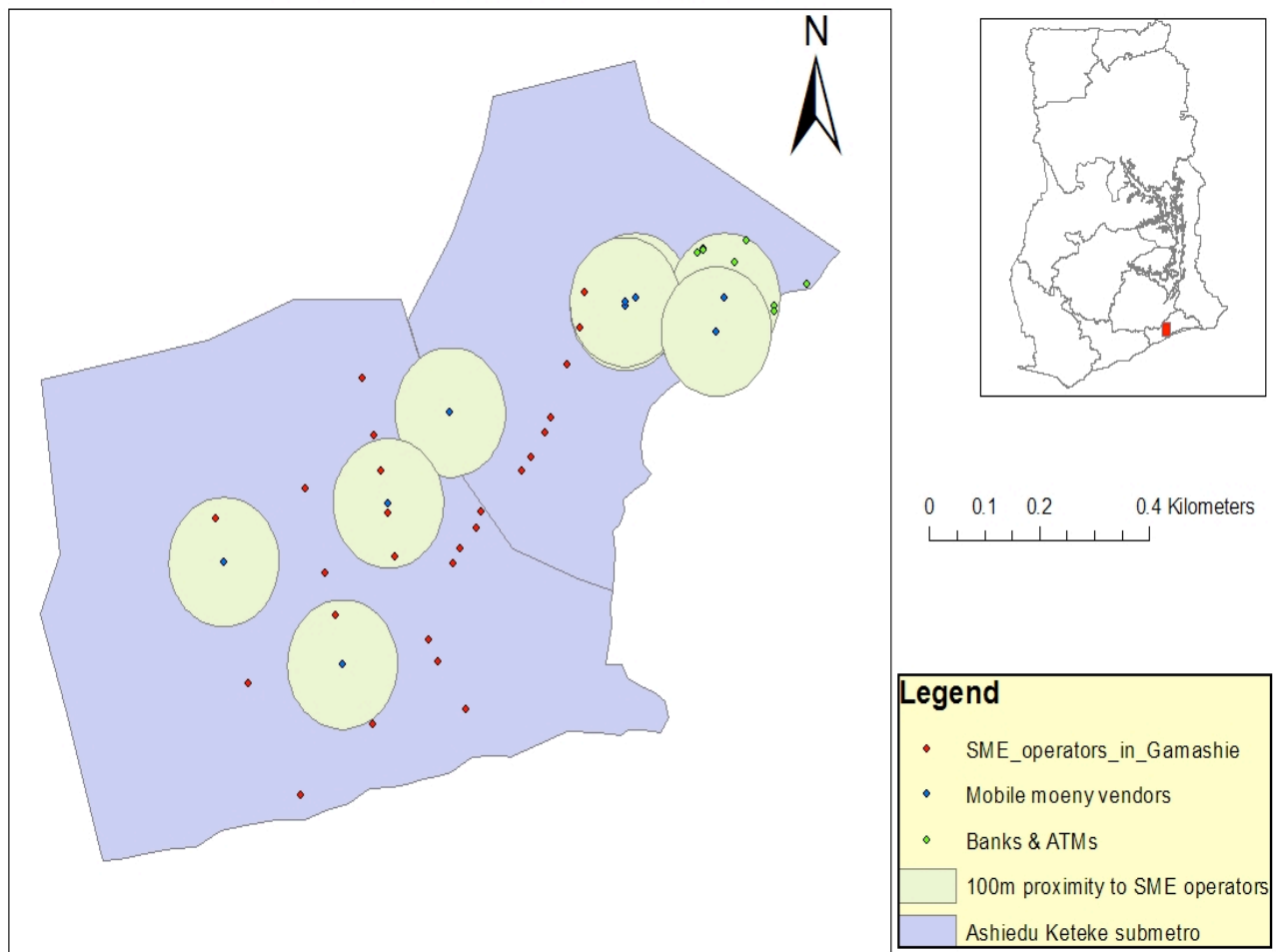
We did not find this feeling among male participants.

Availability and accessibility of DPP for SME operators was another important barrier to adoption and utilisation of DPP. To verify the availability and accessibility of DPPs within the vicinity of SMEs, the study mapped the location of respondents in the survey and conducted a proximity analysis using an ArcGis buffer operation tool. Using the case of Ga-Mashie for home based markets in plate 3, it can be seen that there were DPP agents. However, only nine mobile money agents, which is the most widely used DPP as indicated by respondents, were available in Gamashie. In addition, mobile money agents were located far from the location of the respondents based on a 100-meter distance proximity analysis. Thus, some SME operators travelled more than 100 meters, leaving their point of trading to access a DPP. This seemed more of a discouragement to adoption and hence usage.

In the case of the proximity between banks and SME operators in Ga-Mashie, the analysis showed that most SME operators also travel more than 100 meters to access ATMs operated by banks (plate 4). The situation for Ga-Mashie seemed not much different from Makola. As study participants in this community pointed out, their most preferred DPP based on ease of use and perceived advantage for the traders is mobile money. Yet for Makola Market, there were only 2 mobile money vendors within a 100-meter distance for some of the traders operating here. Notwithstanding the relatively short distance, SME operators seemed less

encouraged to adopt the DPP because their businesses demand their presence all the time to take care of their customers.

Plate 3: Mapping of Available Digital Payment Platforms and Some Sampled Respondents at Ga-Mashie, Accra, Ghana
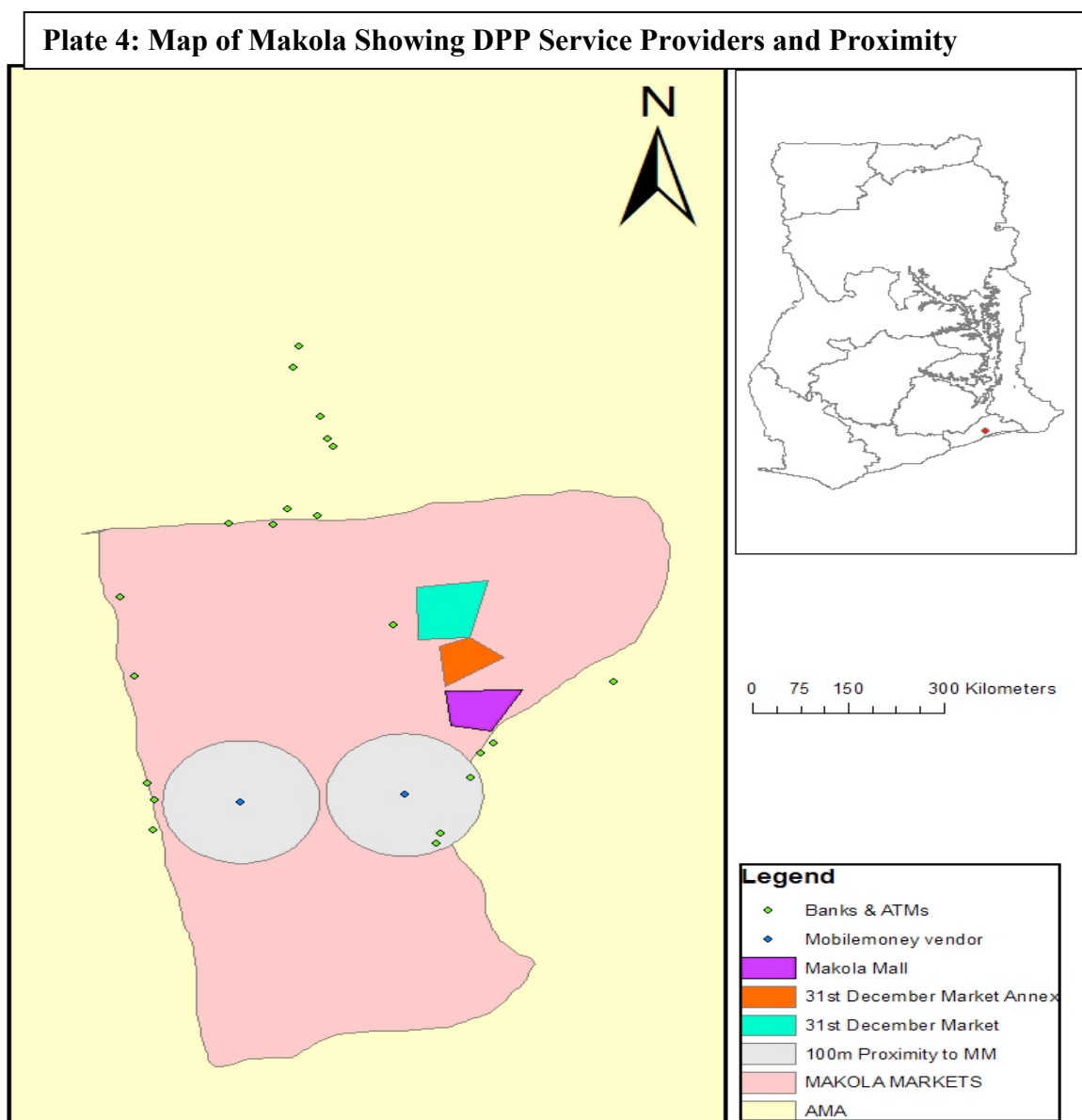

Source: Field Data (2016) Using Arc Map

At Adawso, there are only two mobile money operators—one in the market and one by the roadside. Although Akwapem Rural Bank is located in the town its contribution to digital money service provision seems very limited. Based on deeper proximity analysis with the ArcGis buffer operation tool we learned that most home-based and roadside businesses must travel distances of more than 100 meters in order to access the nearest digital services

offered. On average, therefore, most SME operators in Makola, Ga-Mashie and Adawso travel a distance of about 100 meters or beyond to withdraw or deposit cash. This situation was of great concern to the SME operators as one participant expressed laments:

"*In this market, there are no mobile money agents situated here. So if my customer pays me with mobile money, it means that I will have to walk about 200 meters to "Rawlings Park" or to "Okaishie market" to withdraw the money. Meanwhile, I am the only person in charge of this shop and I need to be around to attend to customers. So as for me even when some customers come and they even propose the idea, I quickly reject. Either they buy with cash or they leave.*" **(A 42 year old male Jewel trader in Makola, 20/03/2016**).

Plate 4: Map of Makola Showing DPP Service Providers and Proximity

Source: Field Data (2016) Using Arc Map

Another concern expressed by the research participants is the requirement to pay a registration fee, and charges for transfer and withdrawal of money from mobile money vendors. Potential SME subscribers are concerned about the need to pay charges for some of the most basic service. Mobile money service provider agents and some platform service providers that were interviewed however clarified that what subscribers call registration fee is actually an initial deposit for the wallet, just as is the case in starting a savings account with a bank.

Lack of trust of the digital system is also an important factor that affects adoption of digital financial services. This was apparent from the interviews as many narrated personal experiences and also based on hearsay. The words of one FGD participant below illustrates this frustration:

"When I went to a vendor one time to withdraw a customer's payment for goods that she transferred into my mobile money account. I was asked to bring my code. And I was afraid that once I tell the agent about my code, they may steal my money. Meanwhile I don't know how to operate my phone. So as soon as I gave my code out, I withdrew everything from my account. This is because my cousin said she left GHC 200 in her account but when she went to withdraw her money, she was told that she did not have anything in it. It means that either her agent or someone took note of her code and then withdrew her money. So I prefer to have my money in cash. I know where to hide the money and not even a rat could notice it in my room. [This is better] than this code and secret number things they are talking about as a form of security for my money" (**A 40 year old fishmonger in Adawso market, 18/03/2016**)

5.0 Response from providers and regulators of the Digital Financial Ecology of Ghana

As indicated above, the most preferred DPP is the mobile money service platforms. We engaged with Tigo-Ghana, one of the mobile money service providers and the Bank of Ghana as the regulator of the financial sector. Tigo-Ghana has embarked on initiatives that encourage and promote adoption and utilisation of mobile money for SME financial transactions, particularly among cooperatives. The campaign for individual adoption and use

is usually propagated through door-to-door outreach programs, street or market campaigns, television and radio podcasts, etc. Samples of television advertisements are presented in Plate 5 below. The first picture shows the services one can get by subscribing to the Airtel money wallet and the second and third images show how to transfer money from one mobile phone to a recipient's mobile phone. The fourth shows an excited family that have just received a money transaction alert on their phone. SME respondents confirmed awareness of these advertisements but also mentioned other sources of information such as educational outreach events/programs, and recommendations from customers, family and/or friends.

Plate 5: Type of Mobile Money Advertisement on Plaques in Ghana

Source: Field Data (2016)

Providers noted that one of the concerns of big business subscribers they are currently working to address is the request to increase the maximum amount that one can keep in a wallet. Subscribers have asked for an increase in the ceiling amount to allow them to be able to deposit and withdraw for business purposes or payment of salaries. Again, the providers acknowledge a very limited number of SME companies using their services in the payment of their employees. Here, it must be said that one (1) female respondent used MTN mobile money in paying her employees.

The BoG has also been performing its oversight and public policy responsibility to monitor and review ATM and EFTPOS services to ensure that the legal and regulatory environment is appropriate and keeps pace with domestic and international developments. It also ensures that market structure remains satisfactory and the markets are functioning adequately with healthy competition among service providers and that international standards are complied with in respect to infrastructure and cards to reduce risk and increase safety and efficiency. It also oversees the provision of services by the central bank to ensure these are fair and based on objective criteria.

The Bank of Ghana recently issued new guidelines to guide e-money issuers and their agents (BoG, 2015). These guidelines form part of a broader strategy to create an enabling regulatory environment for convenient, efficient and safe non-cash retail payment and funds transfer mechanisms. The guidelines are intended, among other things, to promote the availability and acceptance of electronic money as a retail payment medium with the potential to increase financial inclusion; specify necessary safeguards and controls to mitigate the risks associated with e-money business and ensure consumer protection safeguards; and

provide for non-bank entities to be licensed and supervised by Bank of Ghana as dedicated e-money issuers.

6.0 Conclusion and Recommendations

This study has shown that about a quarter of respondents are currently utilising one form of DPP or the other. The most important need of SME operators for adoption and utilisation of DPP is education. Education on the DPPs will provide information on the variety of services and reduce fears of insecurity over the safety of wallets. Specifically, education and outreach should show how SME operators can access money in their wallet, as well as operate and utilize all the packages available on DPPs such as using DPPs to buy airtime and pay bills and step-by-step lessons on procedures for transferring money from personal wallets without involving agents. Respondents suggested that DPPs should conduct film shows in various localities using the local language as a means of educating customers. They also suggested that radio and television adverts on the use of mobile money should not only create awareness about new packages but should also include information about systematic ways of operating the systems. There should also be a variety of applications that could allow for the selection of biometric and/or codes so that use of DPP can be user friendlier than it is currently.

In conclusion, we note that, even though the main argument about the lack of adoption of DPPs has attributed this to high illiteracy and ignorance about the relevance of non-cash payment systems, one other significant finding of our study is people's perception of the intrinsic value of holding physical cash on them. This is more ingrained in the cultural system regarding the value of wealth and the symbols of worthiness in society. In the traditional society we have in Ghana, being seen as a business woman or business man is tied to

counting money in your hands at the end of the day. As a result, "hiding" money in a digital form is not attractive. To persuade such people of the value in adopting digital forms of money and payment, educational outreach will need to place emphasis on the risk of keeping cash.

References

Agyeiwaah, E., Anane, G. A. S., Appiah, K. O., & Opoku-Ware, J. (2014). Challenges of E-Zwich at Ghana Commercial Bank: Do the Views of Users Differ to those of Non-users? *African Journal of Hospitality, Tourism and Leisure*.*3* (2)

Ahiabenu, K. (2010). Beyond the Bank: The Rise of Mobile Money in Ghana. Retrieved 10th March, 2015. http://business.myjoyonline.com/pages/news/201010/54642.php

Aker, J.C & Wilson, K. (2012). Can Mobile Money be used to promote savings? Evidence from Preliminary Research Northern Ghana. *Swift Institute working paper*; 003

Akumbomi, B. E. (2011). Assessing the effects of small scale industries on the livelihoods of Women: Case study on Savelugu community in the Northern Region of Ghana. Master's thesis, Kwame Nkrumah University of Science and Technology

Ankomah, K. M. (2012). Promoting micro and small scale industries in Ghana for local development: A case study of the rural enterprises project in Asante Akim South District. Master's thesis, Kwame Nkrumah University of Science and Technology.

Bank of Ghana (BoG), (2014a). *Payments Systems in Ghana.* Retrieved from: http://www.bog.gov.gh/index.php?option=com_content&view=article&id=1720&Itemid=14

Bank of Ghana (BoG), (2014). *Strategic Payments Roadmap for Ghana.* Retrieved from: http://www.bog.gov.gh/privatecontent/Banking/National%20Payments%20Strategy%20Final%20version.pdf

Bank of Ghana (2015). Notice to E-Money Issuers and the General Public; Notice No. BG/GOV/SEC/2015/09. Bank of Ghana, Accra.

Breckenridge, K. (2010). The World's First Biometric Money: Ghana's E-zwich and the Contemporary Influence of South African Biometrics. *Africa 80* (4).

Dzokoto V.A &Appiah, E. [N.D].Making Sense of Mobile Money in Urban Ghana: Personal, Business, Social and Financial Inclusion Prospects. IMFTI Research Report

Hayford, S. (2012).The Development of Small Medium Enterprises and their Impact to the Ghanaian Economy.Masters Thesis, Kwame Nkrumah University of Science and Technology.

International Labour Organisation. (2002). Women and Men in the informal economy: A statistical picture. Retrieved from: http://www.ilo.org/dyn/infoecon/docs/441/F596332090/women%20and%20men%20stat%20picture.pdf

Issahaku, H. (2012). Challenges of Electronic Payment Systems in Ghana: The Case of E-Zwich. *American Journal of Business and Management1*, 87-95

Kani, R.K. (2009). The Challenges of Micro and Small Scale Enterprises Financing in the Ho Municipality. Master thesis, Kwame Nkrumah University of Science and Technology, Kumasi.

Kyeremanteng, C. (2007), Succession planning in SMEs, International Small Business Journal, Vol. 24 No. 5, Pp. 47-97

Mensah, J. (2012). Succession Planning in Small and Medium Enterprises in the Takoradi Metropolis of Ghana. Master's Thesis, Kwame Nkrumah University of Science and Technology

Ofori, E. G. (2009). Taxation of the Informal Sector in Ghana: A Critical Examination. Masters' thesis, Kwame Nkrumah University of Science and Technology, Kumasi.