



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

EVALUATING THE IMPACTS OF MOBILE MONEY REMITTANCES ON HOUSEHOLD DEVELOPMENT: A DESCRIPTIVE STUDY OF RURAL GHANA.

Authors: ¹Barbara Abena Boadua Appiah (Digital Frontier Institute)

²Mark Yama Tampuri Jnr (Jiangsu University, School of Financial and Economics, Zhenjiang, China)

³Bright Katso (Research

Assistant, Parliament of Ghana)

Abstract

Like many financial technology innovations, mobile money has been cited to expand financial inclusion for a greater section of the public. However, there is limited knowledge on the traceable impacts of mobile money on remittances received as relating to rural households. Using a descriptive survey, this research analyzes data collected from 392 rural households. The findings indicate that to a very large extent, mobile money is facilitating the frequent flow of urban-to-rural remittances. Most importantly, mobile money is improving the well-being and livelihood of rural households by providing them with the opportunity to take care of family emergencies, invest in education, save towards future family expenses, cover health-related expenses, secure modern agricultural inputs, and invest in good housing. The findings also indicate that poor network systems, lack of proximity to mobile money agents, fraudulent activities, and preference for cash systems are the major challenges rural households face in receiving mobile money remittances. The findings also highlight the need for mobile network providers to improve their network systems in rural areas in order to improve the reliability of mobile money services.

1. INTRODUCTION

Availability and ease of access to meaningful and affordable financial services among vulnerable groups such as rural folks increase their chances for wealth and capital accumulation (Demirguc -Kunt et al, 2015). Financial access does not only make day-to-day living easier but also helps individual households and firms to plan and manage all of their activities including unforeseen happenings. Arguably, the leading cause of hunger and poverty in the world today is due to the legacies of contemporary capitalism, which allows for the privileged few to have access to, and control the majority of the global wealth, leaving the rest mostly the underprivileged with little or no access and control (Asongu & Asongu, 2017). The World Bank confirms this assertion in a recent report identifying that financial inclusion is a key enabling tool for reducing extreme poverty and facilitate shared growth and prosperity. Beyond eliminating barriers such as minimum eligibility criteria by banks and proper documentation to access formal financial services, financial inclusion serves as a major stepping stone towards inclusive growth and development. Several scholars including (Munyegera & Matsumoto, 2017) seems to hold no conflicting opinion to the fact that, access to savings, loans, bank accounts, money transfer, credit card payments as forms of financial services can positively influence and improve the livelihoods of people by gradually reducing all potential risk to poverty and vulnerability.

Unfortunately, a significantly large proportion of the population in the developing world today according to (Munyegera & Matsumoto, 2016) are financially underserved, or in other words lack access to basic financial services, leaving a huge financial service access gap between the developed and developing countries. The latest Global Findex data (2017) developed by the World Bank reported that about one-third of the adult population, representing approximately 1.7 billion people are unbanked, half of which include women and poor households mostly living in rural areas of developing countries. This situation has over the years drawn the attention of scholars, policy experts, economic theorists among many to study the contributing factors pulling back rural population from accessing financial services and products. It is therefore not surprising to have found that, the concentration of financial institutions and the services they offer at the urban centers are among the key factors contributing to the low rate of financial access among the rural population in many developing countries (Clamara et al, 2014, Johnson & NinoZarazua, 2011, Grandolini, 2015).

The good news is, the rapid growth in the telecommunication industry with attendant benefits of making life easier, appears to have secured a future for the financially excluded with the promise of bridging the financial service access gap between the urban and rural areas. (Asongu & Asongu, 2017), working on their paper: “*the comparative exploration of mobile money services in inclusive development*” made a similar observation in acknowledgment to the fact that, the proliferation of information and communication technologies (ICT) such as the mobile phone along with all the positive effects and spillovers emerging from the rapid growth in the ICT industry serves as a turning point for many industries and sectors especially in developing countries. More specifically, they observed that a major positive external effect of advancement in ICT manifest in the delivery of better, more efficient, and wider service options by various sectors such as banking and healthcare. This is to say that, technology advancement such as the mobile phone has increasingly become a channel for providing access to formal financial services as well as healthcare utilization and spending.

Throughout the developing regions of Africa, Asia, and Latin America, mobile phones and their associated technologies have spread rapidly since the first decade of the 21st century. A key innovative effect of this form of technology is mobile phone-based money transfers. Introduced by Mobile Network Operators (MNOs), this breakthrough in mobile telephony is supposed to facilitate access to reliable and less-expensive financial services such as money transfers, savings, payments, and borrowings especially among the rural poor who are most underserved by traditional formal financial service providers such as banks (Kikulwe et al, 2014). With this service available to both users and non-users of mobile phones, mobile money is also able to facilitate transactions between and within corporate entities. Specifically, mobile money seen as a magnificent and transformative innovation for the financial industry, allows users to deposit money on a SIM card-based account, called an “m-wallet” (Munyegera & Matsumoto, 2017). This deposit which appears like a mere text message on your mobile phone can later be exchanged for actual physical cash at any mobile money agent located across the country or transferred from your phone to another person who can withdraw this electronic money for cash.

A more benefit of mobile money that is relevant to this study is the facilitation of remittance flow from the urbanto-rural areas. Several authors and empirical reports including (Orozco & Jewers, 2019; *IFAD research series*; Hidayati, 2020; Rempel & Lobdell, 2007; Nguyen et al 2017, Hirstev et al, 2009) suggests that remittances improve the livelihoods and general wellbeing of rural households and for that matter household development as they are usually used to meet family necessities such as food, housing, education, healthcare, and production. According to studies on the M-PESA in Kenya, empirical shreds of evidence are suggesting that remittances sent via this mobile money platform does not only reduce financial constraints on local farmers and their families but also enable them to secure modern agricultural inputs such as fertilizers, pesticides, weedicides hybrid seedlings for their farming activities. Realizing how important remittances are to the development of rural households and communities in the Eastern part of the African continent, there is always a reasonable need to investigate with empirical proofs using field data, the impact mobile of money remittances has on facilitating the development and wellbeing of rural households in other parts of the continent such as Ghana.

The Mobile Telecommunication Network (MTN) group limited was the first Mobile Network Operator (MNO) to introduce mobile money technology in Ghana. Other mobile network operators such as Airtel Ghana Limited, Tigo Ghana, and Vodafone joined later to provide the service in the country. Though still young, the sector is growing tremendously in real value terms. More recent and important growth in the sector is the interoperability innovation, which allows customers to transfer money from the platform provided by one mobile money operator to another. Arguably, Ghana is being rated currently as the fastest growing mobile money economy in Africa. Records indicate that the mobile money industry in the country experiences a 7% year-on-year increase in subscriptions, with a 15% increase in the number of account holders and subscribers in 2020, from over 11 million users in 2017 (Stanbic Bank, 2021; PK, 2021). To the best of the authors' knowledge, studies in Ghana that focused on the mobile money industry mostly explore the impacts of mobile money operations on the socio-economic status or financial behaviour of mobile money vendors/merchants, or in other words the impact of mobile money on the lives of micro-entrepreneurs who operate mobile money services as a business. Again, some studies also explore the impacts the mobile money services have on marketing exchange activities or the payment system in the country, while others also explore the inevitable complex relationship between the traditional industry players in the banking industry and TELCOs that provide mobile-based financial services.

While not trying to create the impression that these studies were misplaced, there is however no reason to doubt that, the findings of these studies were based on just one round of data. To elucidate, there are still few studies or little empirical evidence based on primary data on the impacts mobile money can generate on the flow of urban-to-rural remittances to facilitating rural access to financial services and the corresponding household development. The one exception found in this study is; *Mobile Money, Individuals' Payments, Remittances and Investments* by (Apiors & Suzuki, 2018) who used field data from some 557 respondents in the Ashanti Region to analyze the influence of mobile money on micro-business investment behavior. They showed that mobile money users are likely to save and invest in smaller start-ups, lands, buildings among others due to the likelihood of sending and receiving payments and remittances. The issue found with this study is that, it was not entirely carried in a typical rural setting in Ghana, hence findings could not have been assumed to be the same for rural dwellers. Again, their analysis of findings does not necessarily provide that, there is any significant relationship between mobile money operations and rural remittances as it relates to rural household development. Another study within the Ghanaian context that is closely related to this one is *Mobile money Contribution to Wellbeing from a Capability Perspective* by (Adaba et al, 2019). Carried out at the far north, findings suggest that empowerment to participate in the financial system is a capability benefit of mobile money, along with offering opportunities that can positively influence minimal levels of well-being. Leaning on a framework of financial inclusion, this study will contribute to existing scholarships by analyzing the impacts of mobile money on urban-to-rural remittances as it relates to rural household development. To this end, this study will proceed with the following research questions;

1. To what extent does mobile money encourage the flow of urban-to-rural remittances in Ghana?
2. What are the traceable impacts of urban-to-rural remittances received via mobile money among rural households in Ghana?
3. What challenges do rural folks face in receiving urban-to-rural remittances via mobile?

To answer these questions, the study proposes the following hypotheses;

H₀ 1: Mobile money service facilitates to a large extent, the frequent flow of urban-to-rural remittances in Ghana. **H₀ 2:** There are significant life-changing impacts on the livelihoods and wellbeing of rural households that receive urban-to-rural remittances via mobile money.

H₀ 3: Significant challenges are facing rural folks to receiving urban-to-rural mobile money remittances.

To a large extent, this study is critical in providing empirical evidence on how mobile money introduced in the country some eleven years ago has helped in bridging the financial service access gap to favour the rural poor and improving household development in rural centers. As established earlier, improving financial access for the poor and underprivileged such as rural dwellers can reduce poverty and set them on the path for development. It is indeed a blessing to humanity that's, the continuous advancement in ICT has

made it possible for MNOs whose platforms usually stretch to cover vast territories could also provide financial services, in addition to providing communication services as their main objective. Truly, financial inclusion in developing countries of Africa is at better levels in the current age of mobile money compared to a decade ago where the limitations of traditional formal financial service providers left horrifically low levels of financial access among rural folks and the uneducated living in these developing countries. So far so good, the mobile money industry is thriving in Ghana and is currently considered the fastest in Africa. Giving the fact that it is a relatively new area, not much empirical study is available in this field to inform individuals, scholars, policy-makers, entrepreneurs, foreigners among many. Thus, in addition to examining the real impacts of mobile money innovation on household development, this study is also significant by way of adding to the wealth of academic literature on the operations of a new industry that shows no sign of scaling down.

The focus of this study is to explore the relationship between mobile money and rural remittances as it relates to household development. This study does not address the rate or level of mobile money penetration and adoption among the rural sample studied, although this may be relevant in determining any subsequent impact mobile money has on the study sample. Again, this study does not address such special interest as measuring the per capita income of the rural sample. This is not to say the study is ignoring the economic aspects of household development. This study considered savings as well as minimal investment abilities among the study sample as economic indicators of the variable under study along with non-economic aspects of rural household development and wellbeing such as nutrition, health care, learning, and ability to respond to emergencies. The idea of mobile money meant by this study is financial services provided by mobile network operators or simply, a telco-led mobile money service. All other mobile money services provided by mobile money operators such as FinTech, banks, and other technology companies are considered “out of scope” in this study. Finally, the understanding of remittances meant by this study is limited to those resulting from in-border or internal migration, and excluding international remittances.

Moving forward, the authors identified the need to provide operational or specific definitions to some key terms that may appear frequently in the study. This is imperative in generating more interest and understanding for readers and other users of this work. These terms are; mobile money service, mobile money agent, urban-to-rural remittances, and household development.

Mobile Money Service (MMS): refers to all financial services including deposits, withdrawals, money transfers, and bill payments operated by the mobile phone, which is usually powered by Mobile Network Operators (MNOs), allowing a user to have a SIM card bank-like account called an M-Wallet.

Mobile Money Agent: A person or business that facilitates mobile money transactions for users. This person or business is mainly responsible for doing cash-in and cash-out transactions. They also provide support such as educating new users and customers on how to initiate mobile money transactions on their phones.

Urban-to-Rural Remittances: refers to money sent or transferred from the urban centers to rural communities within a country's political boundary, usually to relatives and friends as payments or gifts. In this study, this term is also referred to as internal or domestic remittances.

Household Development: refers to any significant life-changing impact or improvement in the livelihoods and wellbeing of rural households.

The remaining sections of this study are organized as follows; First, a review of the relevant literature is presented. Second, a theoretical framework was developed to put the study in perspective. Next, the authors described the methodology, which is basically the combination of soft tools and techniques employed by the study to gather valuable data, analyze and present findings. Following this is a general presentation of data gathered and an analysis of findings. The final section discussed the findings and their implications for the research questions and hypotheses proposed as well as a conclusion for the study with recommendations that may inform policy-makers, development practitioners or researchers for further studies.

2. LITERATURE REVIEW

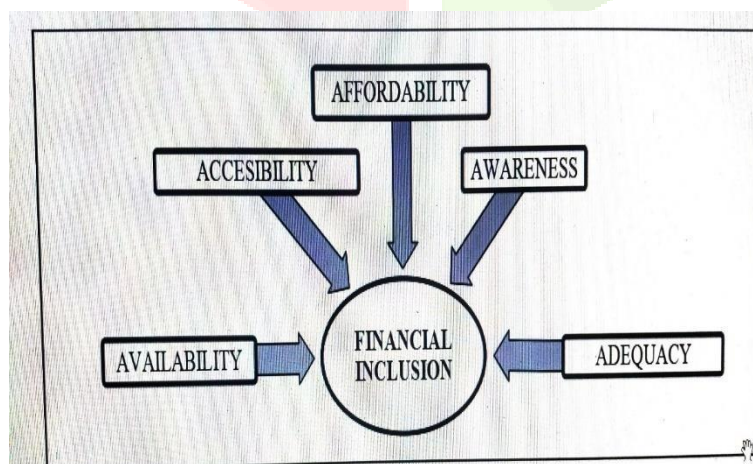
2.1 Conceptual Framework

There is a long-standing history of the important role finance plays in the growth and development of an institution or country. Development practitioners have been convinced beyond doubt that an inclusive and well-functioning financial system is a key component of social, political, and economic development. Such a financial system provides the enabling benefits of mobilizing a pool of borrowing, savings, investments, managing risks, responding to emergencies among others (Levine, 2005 as cited in Ahmad & Jiang, 2020). As already established in the introductory section of this study, a leading cause of poverty and hunger in the world today is a systemic curse, an arrangement that allows some privileged few to control the global wealth at the expense of many. As such, it was recently identified that for a more comprehensive measure of household development, national welfare, or poverty generally, the components of human development indices (HDI) and inequality-adjusted indices must play a key role (UNDP, 2016). Financial inclusion plays a major role in facilitating human development and reducing inequality. Hence, to the extent that financial access and related services become limited or unequally distributed, particularly for the rural poor, growth and poverty reduction strategies become elusive or farfetched.

This research adopts a modeled definition of financial inclusion in a recent study by (Nanda & Kaur, 2017) as its framework of the study. Researching cross-country evidence on financial inclusion and human development, the authors gathered evidence from 68 countries from the period 2004 – 2012, using a five-factor indicator to measure financial inclusion. Their study found a strong and significant correlation between financial inclusion and human development. Their recommendations suggest that technological advancement and financial literacy can be stepping stones or powerful tools for extending financial services to the unbanked. Their five-factor indicators (five A's of financial inclusion) are as follows; Availability, Accessibility, Affordability, Awareness, and Adequacy.

AVAILABILITY of financial inclusion implies the provision of all forms of financial services, to all sections of the society without prejudice. (Sujlana & Kilan, 2018) define availability as “making all types of financial services available to all individuals irrespective of income and size of credit”. This implies that, for inclusive growth, at least the basic form of financial services and products that allow people to save, borrow, send and receive money must be in existence to be used by all segments of the population.

Fig (1): The five A's of financial inclusion.



Source: Kaur et al (2017)

AFFORDABILITY of financial inclusion implies that financial services and products, at least the basic ones should not only be available to use but must sell at reasonable prices so that everyone else can patronize them. ACCESSIBILITY of financial inclusion implies that financial services and products must not only be available at cheaper prices but must be within the reach of people, especially those living in remote corners of the country. In other words, it must be convenient enough for all segments of the population to obtain financial services. AWARENESS of financial inclusion implies that people must be in the know of the

various forms of financial services available to them, how to use them, the benefits as well as the consequences of using or not using them as the case may be. ADEQUACY of financial inclusion implies that financial products and services must have options that adjust to all segments of society. This means that efforts or interventions for financial inclusion must be practically adaptable to all users particularly the rural poor and underprivileged such that, they do not find themselves rather excluded from being able to use the available financial services.

2.2 Discussions on the Framework

Studies that adopt this model observed that countries that understood and applied financial inclusion in this way saw significant levels of human development (Nanda & Kaur, 2017). The following section examines how mobile money service as operationalized above fits into the framework.

In the area of Availability as an indicator of financial inclusion, mobile money plays a significant role and is widely held as an important tool for bridging the financial service access gap in the developing world (Mitręga-Niestrój et al, 2018). The majority of people in developing countries today are excluded from the services provided by traditional banks due to reasons being lack of proper documentation and distance among many (Mauree & Kohli., ITU-T, 2013). Mobile money steps in as a substitute for formal banks in providing financial services such as money transfers, savings, loans, and payments to the great majority, particularly the rural and poor segments of the population that are unbanked (Mariscal et al, 2011). To continue, these services provided by mobile money are offered at affordable prices. Mobile money products such as M-PESA, MTN mobile money, Vodafone cash, M-Sente, Zap, or Orange Money offer reasonable service charges, pegged at very low rates so that all segments of society can patronize them. In addition, mobile money services are easily accessible by everyone that decides to use them. Countries that operate the telecomled model, which has been the case in most parts of the developing world usually do not face any significant challenge with access, giving the massive coverage most of the operators' infrastructure could provide. In their panel study of mobile money and remittances in Uganda, (Munyegera & Matsumoto, 2015) made the claim that; *“Mobile money provides a relatively cheap and convenient means through which family members and friends exchange financial assistance in the form of remittances especially in remote areas with limited or no access to formal financial institutions like banks”*.

In the area of awareness generation, mobile money has achieved impressive performances manifesting in their breath-taking advertisements on televisions, billboards, radios, social media, graphics (both online and paper), the internet among others. Working on the first decade of mobile money, (Rea & Nelms, 2017) noted this succinctly about the operations of M-PESA in Kenya, the most successful mobile money product in the world. Lastly in the field of providing adequacy as an important factor for financial inclusion, mobile money services and products are exceptional. Mobile money services are sufficient to meet the financial service needs of its customers. Users can transfer and receive money across the country, pay for goods and services, save money, take loans, and pay bills and utilities.

In summary, the discussion provides a clear understanding that the mobile money industry operates a system that makes financial inclusion a reality, which in turn plays a foundational role in household development and wellbeing.

2.3 Mobile Money in Ghana

Ghana has currently rated the fastest growing mobile money economy in Africa. MTN (Scancom PLC) introduced the first mobile money product called MTN Mobile Money in Ghana in July 2009. Close to a year later, Zain (now Airtel) and Tigo launched ZAP which was later called Airtel-Money and Tigo-Cash in March and October 2010 respectively. Currently, Airtel and Tigo operate a merger under the name AirtelTigo, with Tigo Cash as their mobile money product. Vodafone Ghana also launched Vodafone Cash in July 2015. Ghana operates the MNO-led or telecom-led mobile money service.

The various MNOs in Ghana venture into the mobile money industry using their assets and area coverage as leverage. MTN for instance possesses wider network coverage, wider existing distribution channels, and an infrastructure base that is mostly far-reaching than the formal networks or branches of traditional financial institutions in Ghana. They also have agent points and offices located across the length and breadth of the country ready to provide mobile money services. But this is not to say that banks in Ghana do not play a role in the mobile money industry. Every mobile network operator that operates mobile money services in Ghana has a partner

bank. The banks act as middlemen between the network operators and their agents that sell mobile money services across the country. In addition to providing professional information on handling money, the banks serve as trustees, holding deposits from mobile money customers in trust accounts and also issues/authorize the electronic value of cash to agents for transaction purposes across the country (Nyaaba et al, 2018).

The adoption and penetration of mobile money in Ghana had been slow during the initial years due to many reasons such as regulatory barriers and Ghanaians fondness of physical cash to any cashless avenue (CGAP, 2015; Dzokoto & Mensah 2011; Dzokoto & Mensah, 2104; Sosu, 2017). As such, four years into its adoption in the country, there were only 5 million active users with transactions value merely reaching GHS 2.4 billion (Saliu, 2015). The industry however took a sharp turn in 2014 and to the extent that, Ghana is currently ranked the fastest in terms of mobile money adoption and penetration in Africa is still a surprising story. The value of transactions in 2014 increased tremendously to about GHS 11.6 billion, close to five times the value recorded in 2013. In 2015, this value increased again more than triple the fold to GHS 35.4 billion (Nyaaba et al, 2018). The total number of registered accounts or subscribers in the country as of March 2019 was 29.6 million, representing some 22 million increase in six years. In September 2020, the number of registered accounts stood at 35.9 million, representing an increase of over 14%. The active account users as of March 2020 stood at 14.8 %, an increase of 2.1 million the previous year. The total number of mobile money transactions also shoot from 156 million in 2019 to 205 million in 2020. The total volume of mobile money transactions as of 2019 reached 915.8 million (BOG, 2020). As of June 2021, the total value of mobile money transactions hit some GHS 476.7 billion, an increase of GHS 259.4 from the first quarter of 2021. The total number of transactions was also estimated at 1.938 billion. In the same June of 2021, the total number of registered mobile money accounts stood at 44.3 million. Likewise, the number of active accounts also shoots to 18.3 million. The total number of registered mobile money agents stood at 512 million, with total active agents pegged at 403,000, an increase from some 263,000 in 2020. The total number of transactions rose to 338 million (BOG, 2021).

MTN Ghana remains the dominant player in the mobile money industry in the country. As of 31st March 2021, the number of active MoMo accounts alone rose to 10.7 million, 183,000, and 221,000 merchant and agent networks respectively (MTN Ghana, 2021 audited results). Several factors account for the tremendous growth of mobile money use in Ghana. Among them include the unprecedented mobile phone penetration rate, favourable regulatory environment, the launch of interoperability as well as the convenience, flexibility, affordability, and the speed of mobile money transactions particularly for the financially underserved in rural areas. Generally, the adoption of mobile money services in Ghana is seen to have brought many socio-economic improvements especially among the financially underserved located in rural areas in Ghana (Addo, 2019; Bank of Ghana, 2017).

2.4 Empirical Evidence

Mobile money technology has gained much popularity across the globe and is widely hailed as a success story in many developing countries. Evidence continues to suggest its tremendous growth in various regions of the world especially in the developing economies of Sub-Saharan Africa. A couple of studies took on the challenge to demonstrate with empirical proof, the positive transformation mobile money penetration could generate in the social and economic lives of users. This section of the review will explore some of these empirical pieces of evidence.

Development economists and practitioners such as William Jack and Tavneet Suri rallied behind the wheels of research, in the wake of the unprecedented penetration of M-PESA to find empirical backings of the economic effects M-PESA has on the lives of Kenyans. Truly, the most successful mobile money product in the world is not only successful in expanding to the remote rural areas of Kenya, but most importantly, it was successful in generating economic and social value in the lives of its users. (Real & Nelms, 2017) have agreed that, the success story chant following M-PESA has less to do with it being a technological innovation, but more because of the way people have taken advantage of the services and opportunities it offers to transform their lives. (Jack & Suri, 2016) as cited in (Piper, 2020) found a significant relationship between the presence of M-PESA agents in a region and a corresponding effect of lifting

people out of poverty. Specifically, their paper found that the sudden take-off of M-PESA in Kenya had lifted some 194, 000 households out of poverty. Before M-PESA came to Kenya, only 20% of the total population had access to formal financial institutions. Nevertheless, over 80% of Kenyans today have the opportunity to safely store, send and transact money, make payments and have access to other forms of financial services, thanks to MPESA. At least some 300,000 Kenyans could currently boast of having full-time jobs, thanks to the agent networks of M-PESA, Airtel Money, and T-Kash. (Kikulwe et al, 2014) conducted empirical analysis on the impacts of mobile money on banana-growing households in rural Kenya. Their findings suggest that the income of households that uses mobile money has been positively impacted through remittances received. These remittances received via M-PESA increase incentives for saving, reduce financial constraints on local farmers and their families, and above all, enable them to secure modern agricultural inputs such as fertilizers, pesticides, weedicides hybrid seedlings for their farming activities.

In Uganda, (Munyegera & Matsumoto, 2016) found that rural households that have access to mobile money services enjoy increase per capita consumption and an enhanced level of welfare generally compared to households that do not use mobile money. Specifically, they found empirical evidence suggesting that mobile money user households experience a significant increase in *food consumption, expenditure on health, education, and semi-durable items, and contributions toward social, cultural, and religious functions, including contributions toward local savings and credit associations*. Leaning on the Capability framework, (Adaba et al, 2019) found empirical evidence from Northern Ghana that, mobile money offered a range of opportunities such as remittance flow to rural households that expand their capabilities to perform various functions such as investments, savings, paying school fees, buy food, purchase agricultural inputs among many which ultimately contribute to enhancing their development and wellbeing status. Dwelling exclusively on secondary data, (Sosu, 2017) found proof that, mobile money is improving on the financial inclusion drive in Ghana as it was found to be a significant determinant of financial inclusion in the country. Saliu (2015), who studied mobile money and attendant socio-economic impacts on the lives of agents/vendors in Kumasi-Ghana found that mobile money significantly impacts income levels of vendors through employment creation, improves their ability to save and invest, and generally enhances their living standards through improving clothing, shelter, and nutrition. (Asamoah et al, 2019) made similar observations indicating that the ability of mobile money entrepreneurs/vendors to operate mobile money as a business improves business growth and corresponding improvement in the lives of the entrepreneurs. (Bukari & Koomson, 2020) conduct a study among rural households in Ghana and found empirical evidence which suggests that mobile money usage enhances rural household's healthcare utilization and their ability to spend on healthcare.

Many more empirical pieces of evidence are similar to those above, not only in the context of Africa but in other developing regions such as East Asia and the Pacific, Central Asia, Latin America, the Caribbean, and the Middle East where mobile money is leading the financial inclusion agenda. The bottom line is mobile money has been globally hailed by development practitioners, economists, scholars, and policy-makers as a weapon for reducing poverty and economic inequality by facilitating access to financial services particularly by the rural poor and the underbanked. Many private individuals have also seized the opportunity to set up agents points to provide mobile money services thereby creating decent employment for themselves as well as others, a phenomenon commonly referred to as "the fortune at the bottom of the pyramid" (Prahalad, 2005; Elyachar, 2012; Roy, 2015 & Schwittay, 2011)

3. DATA MATERIALS AND METHODS

3.1 Data grounds

This study builds on data from the Ho-West district located in the Volta region of Ghana, between latitudes 6.33o 32" N and 6.93o 63" N and longitudes 0.17o 45" E and 0.53o 39" E. the district has a total population of 94,600, of which (45,361) representing 48% are Males while (49,239) representing 52% are females. The Urban-Rural divide is 10.9 and 89.1percent respectively. The total population of households in the district is 93,523, with a total number of 23,875 households. The largest proportion of the household structure constitutes children, accounting for 36.8 percent. The nuclear household's system (head, spouse(s), and children) constitute 24.2 percent of the total number of households in the district. Of most households in the district, 95.2% are involved in crop farming (both cash and noncash), along with livestock activities such as raising fowls, goats,

and sheep. The district has 36.7 percent of its population 12 years and above, having mobile phones. More males (42.7%) own mobile phones than females (31.4%). The mobile network operators in the country have their infrastructure installed at strategic points in the district to improve communication. Less than five percent (2.8%) of the population 12 years and older use internet facilities (GSS, 2010).

The study was conducted in three traditional areas, which together constitute eight individual rural towns in total. These are SAVIEFE, DZOLO, and ANFOETA. The SAVIEFE traditional areas consist of three rural towns namely Agorkpo, Deme, and Gbogame, and is home to one of the 27 Ghana Cocoa Board Seed Centers across the country. DZOLO consists of two rural towns namely Kpuita and Gbogame, whereby Kpuita functions as the district capital. Finally, ANFOETA traditional area is also made up of three rural towns namely, Tsebi, Zongo, and Gbogame. These locations were chosen because they represent a typical rural community in Ghana, the kind that is of interest to this study. Again, there are visible signs of mobile money agents that can facilitate mobile money transactions for customers or users. In addition, spontaneous observations made by the authors prior to the study shows strong willingness among natives in these locations to patronize mobile money services.

3.2 Sample and Sampling Technique

The simple random sampling technique was employed to sample a total of 392 individual households. With this technique, each household within the study area was chosen entirely by chance as they were all given an equal chance of being included in the sample. The various heads of the participant households were the only ones engaged.

3.2.1 Biographic Data of the Sample.

Table 1 below presents the distribution of gender among the participating households

Table 1: Gender Distribution of Teachers

	Frequency	Percentage
Male	290	74
Female	102	26
Total	392	100

The data in Table 1 shows that the majority (74%) of the participating households are males. This implies that, in a typical Ghanaian rural community, the ratio of male-to-female in terms of household heads is higher for males.

Table 2 below presents the summary of the ages of the study sample

Table 2: Age in Years

	Frequency	Percentage
18-34	25	6.4
35-49	75	19.1
50-64	161	41.1
65 and above	131	33.4
Total	392	100

The data in Table 2 shows that majority of the participants can be found in the 50-64 age group (41.1%) and 65 and above age group (33.4%). With a combined percentage of 74.5, the argument is made that, the heads of households in typical rural Ghanaian communities can be described as relatively old.

Given that, each household was taken as a unit of study with the number of households in the district totaling 23,875, the sample size of 392 was determined by the formula below;

$n =$	$N \div 1 + N(e)^2$
-------	---------------------

Where;

"n" = Sample Size

"N" = Target Population

"e" = Margin of error

The margin of error for this study is taken to be five percent (5% or 0.05)

$$n = \frac{23,875}{(0.05)^2} = \frac{23,875}{0.0025} = 9,550,000$$

Each participating household has an average size of four (4) persons per household. To gain access to these households, an initial visit was made to some 15 clan heads in these three traditional areas. The purpose was to engage them in an informal conversation in order to create a rapport with the people through them. Knowing that, prior knowledge of the instruments could compromise the validity and reliability of responses, it was deemed fit to just discuss the data collection time with them to be conveyed to the people and not the questionnaire proper. By observation, the three traditional areas are almost similar in size hence data instruments were distributed equally and data collection was carried in the same manner across. The communities were engaged between the hours of four (4) to six (6) in the evening, giving that most of the families would have returned or returned from their various farms hence the ideal time to gather data.

3.3 The Design

The approach deemed suitable for this study is a descriptive survey. A survey is an attempt to collect data from members of a population concerning one or more variables (Gay & Airasian, 2003). According to Keengwe, (2007) the main goal of a survey is to gain specific information about a representative sample of a particular group. Surveys are helpful for collecting data about people's perceptions, opinions, and ideas. This study sought to investigate the various ways mobile money impacts domestic remittance and the corresponding development of households in rural Ghana, as well as challenges they face in receiving urban-to-rural remittances via mobile money. Much emphasis is placed on field data, thus justifying the decision to proceed with a descriptive survey. Since descriptive surveys are based on gathering, analyzing, and presenting data gathered to help others understand the need for particular research, this design is a perfect fit for investigating the problem of this research.

3.4 Research Instrument

This study adopts the instrumentality of questionnaires to gather data. Both open-ended and close-ended questions were employed. The questionnaires were used to collect demographic information as well as subjective viewpoints of respondents relating to the research questions. In cases where respondents could not fill questionnaires themselves, interviews were used to aid the respondents

to fill the questionnaires to gather the same information from them. In order to check the validity and reliability of the instrument, an initial draft was made available to a former head of department at the Kwame Nkrumah University of Science and Technology. Based on his specific comments and informed feedback as well as full examination by the researcher herself, the survey format was restructured, and several items in the survey were revised for improved clarity. After this process, the instrument was tested using a pilot study with a convenience sample of 20 households. The objective of the pilot testing was to determine the clarity of the questionnaire; the redundancy that may be present in any of the items; any omissions, the appropriateness of the sequence of the items; the adequacy of space for the items that required writing; and finally, how much time was required by the respondents to complete the items. The pilot exercise turned to be very beneficial since it highlighted some weaknesses in the initial draft of the survey. In effect, it was to help check the validity and reliability of the instrument. The feedback obtained from the pilot study shows that two of the items were repetitions of others, or did not capture my original intention succinctly hence the instrument was revised to that effect.

The survey instrument consists of four sections (A – D). Section A was designed with four (4) items to gather demographic information. Section B was designed with six (6) items to examine the extent to which mobile money facilitates domestic remittances in rural Ghana. Section C was designed with eight (8) items to assess the various ways remittances received via mobile money impact the development of rural households. Lastly, section D was designed with five (5) items sought to determine challenges facing rural households to using mobile money to receive domestic remittances.

3.5 Data Analysis

Data were analyzed using the Statistical Package for Service Solutions (SPSS). The analysis employed both the qualitative and quantitative approaches. The data gathered from the close-ended questions were pre-coded and the codes entered into the SPSS software. The SPSS software analyzed the data and gave it a quantitative meaning. Where necessary, graphs and charts were generated to provide further meaning to the information provided by the software. Frequency tables and percentages were mainly used to determine the pattern of responses for the research questions. The analysis of the open-ended question was mainly done under qualitative terms, by simply employing sensitive, logical, and rational reasoning in concluding statements and answers provided by respondents during the conduct of the survey. Secondary data was obtained from available literature, bank reports, publications, other industry reports, and newspapers such as are relevant to support the evidence and findings made by this study.

3.6 Ethics

In carrying out this research, the authors were careful to ensure that, participation was voluntary. To the best of their knowledge, all those who participated were not given any impression that there will be a negative consequence if they do not engage in providing responses. This follows that the consent of all the respondents was properly sought before the questionnaires were administered. All respondents were assured that their identity will remain anonymous and responses treated with confidentiality. In analyzing and putting results together, the researcher took note of issues such as plagiarism and misrepresentation of data. All sources engaged were properly referenced and data presented as just as gathered, without any manipulation whatsoever to suit the interest of the researcher.

4. RESULTS AND DISCUSSION

Results of the study are presented in three (3) parts, in line with the study hypotheses. As noted earlier, this is a descriptive study. The results, therefore, are descriptions of what pertains to the study area and arguably similar locations across the country. The various interpretations and implications of the findings are discussed. The findings are also compared with those made by earlier researchers on the variables of interest. To the best of the authors' knowledge, the variables such as active mobile money account, seek medical care and lack of proximity significantly produced an adequate evaluation or test results for the study hypotheses.

H₀ 1: Mobile money service facilitates to a large extent, the frequent flow of urban-to-rural remittances in Ghana. This hypothesis focused on how mobile money influences the regularity of the flow of urban-to-rural remittances. Data was collected to provide evidence to that effect. Results are presented in table three (3) below;

Table 3: Respondent's report on the extent to which mobile money facilitates urban-to-rural remittance flow

Variables	Yes	No				Total
	%	%				%
Active mobile money account	100	0				100
Receive mobile money remittances	100	0				100

Variables	1	2	3	4	5	Total
	%	%	%	%	%	%
How often do you receive remittance before you enrolled on mobile money?	0	1	55.9	37	6.1	100
How often do you receive remittance after you enrolled on mobile money?	2.3	89.8	6.9	1	0	100

Note: Score 1= Weekly, 2= Monthly, 3= Quarterly, 4= Every six months, 5= Annually

Variables	1	2	3	4	5	6	Total
	%	%	%	%	%	%	%
When was the last time you receive remittances through Mobile money?	16.3	6.1	30.2	41.3	5.1	1	100

Note: Score 1= this week, 2= last week, 3= last three weeks, 4= last month, 5= last quarter, 6= last six months

From table 3, it is obvious that the participants have a significant history and experience with mobile money usage, as indicated by all 392 of them (100%) having active mobile money accounts that receive remittances from relatives and friends. Before respondents were introduced to mobile money, 55.9%, 37%, and 6% received remittances from their relatives and friends once every quarter, every six months, and annually respectively. Only 1% claim to have received remittance on monthly basis, with no record of respondents receiving it on weekly basis before enrolling on mobile money. However, after registering on mobile money, an overwhelming 89.8% indicated that they do receive remittances once every month. Exactly 6.9% claim to receive once every quarter, 2.3% reported having received once every week, and only 1% receiving once every six months. There was no record of respondents receiving remittance on annual basis after enrolling on mobile money. Again, a combined percentage of 93.9 of the total respondents indicated that the latest period during which they receive remittances through mobile money before this study was conducted was not more than a month, which could be last week, last two weeks, or last three weeks. Clearly, there is a significantly huge difference between the respondent's record of the frequency or regularity to which they receive remittances prior to enrolling on mobile money and the frequency to which they receive remittances after enrolling on mobile money. Thus, this study finds that, to a very large extent, mobile money has facilitated the frequent flow of urban-to-rural remittances among the study sample. I, therefore, fail to reject the H_0 .

The findings lend credence to (Munyegera & Matsumoto, 2016) who found out that, mobile money user households receive remittances more frequently than non-user households. Again, (Adaba et al, 2019) reported a similar finding that among the capability enhancing the benefit of mobile money is offering users the opportunity to receive regular monthly remittances. The reader's attention also drawn by (Kikulwe et al, 2014) to how other studies showed rural households' likelihood to receive remittances on regular basis from relatives and friends through mobile money, corresponding to other findings which indicated that, urban households who has relatives in rural areas were found to be more frequent users of mobile money services. Throughout the beginning sections of this study, I have been very clear on how the extant literature provides evidence to the fact that access to financial resources and services serves as a cornerstone stone for inclusive growth and development, particularly for rural folks. Without a doubt, no meaningful capital accumulation can be expected to take place for rural households without mobile money services in place as a substitute to traditional banks and related financial services that are often inaccessible in these areas. It thus makes no developmental sense to stonewall efforts or decision that aims at extending mobile money services to rural dwellers who are in most cases, underserved financially.

H₀ 2: There are significant life-changing impacts on the livelihood and wellbeing of rural households that receive urban-to-rural remittances via mobile money. This hypothesis focused on testing for traceable impacts that mobile money remittance could generate on the lives of rural households. Findings are presented in table four (4) below;

Table 4: Study sample self-report about the impacts of mobile money remittances on their households

Variables	1	2	3	4	5	Total (%)
Feed household	5.9	13	59.4	21.7	0	100
Pay children's school fees	2.8	17.1	39.8	40.3	0	100
Seek medical care	55.9	0	1	43.1	0	100
Take care of family emergencies	96.2	0	0	3.8	0	100
Secure modern agricultural inputs	37.2	0	3.8	58.9	0	100
Save towards future expenses	37.2	0	19.9	42.9	0	100
Contribute to social and cultural functions	2	1.8	39	57.1	0	100

Note: Score 1= strongly agree, 2= disagree, 3= neither agree nor disagree, 4= agree, 5= strongly disagree

From table 4, while the participants (59.4%) holds a neutral position on the possibility of not being able to feed their households without mobile money remittances, a majority representing 43.1%, 99%, 100%, 96.1%, 80.1%, and 59.1% were strongly affirmative or agrees to the fact that, without mobile money remittances, they would not be able to pay the fees of their wards, seek medical care, take care of family emergencies, secure modern agricultural inputs, save for the future and contribute to social and cultural functions respectively. Clearly, mobile money remittances are significantly instrumental to improving the ability of rural households to secure their livelihoods and wellbeing. In fact, a final item on the questionnaire required the respondents to list other ways mobile money remittances contribute to their livelihood. Three major themes run through the responses given; that mobile money remittances helped respondents to pay farm labourers, start a small trading business alongside farming and keep a good shelter/roof on their head. These findings revealed that mobile money remittances offer a range of opportunities and avenues for rural households to be able to secure the necessities of life.

The evidence found to the earlier hypothesis which reveals how mobile money has drastically facilitated the frequent flow of urban-to-rural remittances among the study households, far more than the levels they receive before enrolling on mobile money holds two major implications. First, it implies that the ability or rate of money accumulation and financial access by the study households before their enrollment on mobile money was poor or relatively low as compared to now. Second, it implies that, prior to their enrollment on mobile money, the study households had lower levels of development and wellbeing with fewer opportunities to secure necessities of life compared to now. Mobile money remittances have therefore generated significant and life-changing impacts on the livelihoods and wellbeing of the study households manifesting in increasing their opportunities to save, invest in their children's education, provide the opportunity to utilize and spend on healthcare, secure modern agricultural inputs for their farms to improve productivity, invest in small start-ups and afford good housing. Based on these findings, I failed to reject the H_0 .

Several studies across the Sub-Saharan African region that analyzed the impacts of mobile money on rural households such as this study found similar results presented above. Leaning on the instrumentality of a panel survey conducted in a small banana-growing region in rural Kenya, (Kikulwe et al, 2014) examined the impacts of mobile money use on rural households through the mechanism of remittances. The authors found that mobile money remittances increase incentives for saving and encouraged commercially oriented farming by facilitating the procurement of modern agricultural inputs. (Munyegera & Matsumoto, 2016) found evidence of a positive effect on the welfare of mobile money user households in rural Uganda that receives remittances. This manifests in a significant increase in food consumption, being able to spend on health and education, being able to contribute to social functions, and also being able to save, more than non-user households. From the perspective of financial inclusion, mobile money is increasingly creating a healthy space for reducing poverty, especially among rural households through the facilitation of remittances and other financial services offered at cheap and affordable prices. Thus, the many opportunities offered by mobile money remittances have undoubtedly contributed to impact significantly the wellbeing and development of rural households.

H₀ 3: Significant challenges are facing rural folks to receiving urban-to-rural mobile money remittances. Table 5 is a summary of the responses given by the participating households on the possible challenges /barriers they face to effectively using mobile money services to receive domestic remittances.

Table 5: Barriers to the flow of mobile money remittances as reported by the rural sample

Variables	1	2	3	4	5	Total
	%	%	%	%	%	%
Poor network	68.8	0	0	31.1	0	100
MM system more difficult than cash system	1	31.1	32.1	35.7	0	100
Activities of fraudsters	6.4	7.1	45.4	41.1	0	100
Lack of proximity	100	0	0	0	0	100
Service charges	0	32.1	37	30.9	0	100

Note: Score 1= strongly agree, 2= disagree, 3= neither agree nor disagree, 4= agree, 5= strongly disagree

From table 5, all participants (100%) strongly hold an affirmative position on poor networks and lack of proximity to mobile money agents as major challenges facing their effective use of mobile money services to facilitate remittance flow. Activities of fraudsters and the difficulty of mobile money systems compared to cash systems also rose on the response list indicated by 47.5% and 36.6% respectively, as challenges to using mobile money services to facilitate remittance flow, although participants were not as strongly

affirmative on these challenges as those two mentioned earlier. However, the participating households appear not so much bordered about service charges as a challenge to their continuous usage of mobile money to receive remittances, with 32.1% and 37% disagreeing and neither agreeing nor disagreeing respectively. The evidence provided by these results has prompted four significant challenges/barriers currently facing the participating households in using mobile money to facilitate remittance flow between their relatives and friends living in the city. The greatest of these challenges considered by the participants is lack of proximity to mobile money agents, followed by poor network systems, fraudulent activities, and preference for cash systems. **I, therefore, fail to reject the H_0 .**

Similar findings were made by (Sogbodjor, 2015) who discovered that a cumulative percentage of 71.3 of his respondents ranked stability of the network as the highest challenge to patronizing mobile money services including the facilitation of remittances. However, compared to this study, the authors did not find the availability of agents as a high challenge. The plausible explanation I found for this inconsistency in the findings of agent availability as a challenge is that, (Sogbodjor, 2015) conducted his studies in the urban setting, unlike this study. Hence, one can conclude that the challenge of a poor network in using mobile money services applies to both rural and urban folks. Nevertheless, the same cannot be said of the availability of mobile money agents. (Adaba et al, 2019) also found somewhere in the far northern Ghana that, poor networks signal in rural communities form major barriers to the capability effect of mobile money, that is, the human development or wellbeing opportunities and potentials offered by mobile money. It is interesting to have discovered that, the participating households do not find the service charges of mobile money implemented by the Mobile Money Operators (MMOs), which are mostly the MNOs as much of a challenge. This is an impressive performance on the side of the MMOs.

5. SUMMARY AND IMPLICATIONS OF KEY FINDINGS

5.1 Summary

This study analyzed the impacts of mobile money remittances on the development and wellbeing of rural households. Using a descriptive survey, the study explored three questions out of which three separate hypotheses were developed and tested. The research questions include: To what extent does mobile money encourage the flow of urban-to-rural remittances in Ghana?; What are the traceable impacts of urban-to-rural remittances received via mobile money among rural households in Ghana?; What challenges do rural folks face in receiving urban-to-rural remittances via mobile? The hypotheses tested are **$H_0 1$** : Mobile money service facilitates to a large extent, the frequent flow of urban-to-rural remittances in Ghana; **$H_0 2$** : There are significant life-changing impacts on the livelihood and wellbeing of rural households that receive urban-to-rural remittances via mobile money; **$H_0 3$** : Significant challenges are facing rural folks to receiving urban-to-rural mobile money remittances. The data collection instrument provides data leading to some interesting findings. The findings provide evidence to questioning some form of thinking and observation. It also holds implications for several players such as local and national governments, various policy stakeholders, intervention programmes, MNOs, rural folks, and researchers among many. Before I delve into those thoughts and implications, the key findings are presented below:

1. Mobile money service has facilitated to a very large extent, the frequent flow of urban-to-rural remittances among the participant households, compared to the time when the technology was not introduced to them.
2. Remittances received via mobile money has generated significant and life-changing impacts on the livelihoods and development of the study households manifesting in such things as, increasing the opportunities they have to save for the future and spend on healthcare, invest in their children's education, take care of unforeseen happenings in their families, secure modern agricultural inputs for their farms to improve productivity, invest in small start-ups and afford good housing.
3. Significant challenges facing rural households receiving urban-to-rural mobile money remittances are lack of proximity to mobile money agents, poor network systems, the activities of fraudsters, and preference for cash systems.

5.2 Implications

Evidence from this study provides data set that questions the thinking or notion that, service charges implemented by mobile money operators have the potential to discourage people particularly rural folks from patronizing mobile money services to facilitate remittance flow. The findings of this research, therefore, support the global chant of mobile money as a weapon for reducing poverty and economic inequality particularly among poor rural households, through the facilitation of financial services such as the frequent exchange of remittances between relatives and friends (Jack & Suri, 2016; Rea & Nelms, 2017; Piper, 2020). It provides that, owning a mobile money account increases tremendously one's chances of receiving remittances with an added advantage of enhancing one's capacity and expand the means of securing the necessities of life. This holds policy implications. Various governments and policymakers can initiate programs and agreements with necessary stakeholders to further improve upon the current state of convenience and availability or otherwise access to mobile money services within the rural areas. The mobile money systems have already been tested to have great implications for financial inclusion.

Hence, to ensure the continuous development and improvement in the livelihoods of rural households through financial inclusion, governments can also revive and strengthen already existing state infrastructure as (Adaba et al, 2019) already suggested to deliver financial services through mobile money, allowing the government to chip in some form of regulation to ensure more stability, with a probable partnership with MNOs. The MNOs who have a sense of corporate social responsibility could take necessary steps to update their systems to include separate options for transactions involving urban-to-rural remittance transfers where users would be charged zero service fees. The 100% of the participating households who were sampled randomly use mobile money, suggesting an increase in the use of mobile money service in the rural areas and therefore holds the implication that, various MNOs need to restructure and enhance/update their networks systems that serve the rural areas. Findings from this study also demonstrate business opportunities for micro investors in rural areas. The increase in mobile money use among rural folks suggests the need for more agents and vendors to facilitate mobile money services.

6. CONCLUDING REMARKS

A common challenge facing rural livelihood in the developing nations of Sub-Sahara Africa is exclusion from formal and traditional financial systems. In addition, to be limited in the opportunity to accumulate capital by either borrowing, saving, or investing, the high costs, delays and risk often involves in transferring funds to areas underserved financially sometimes discourage the frequent and effective sharing of remittances between relatives and friends. The introduction of the mobile money technology, however, holds good news for the financially excluded, giving its capability effect of allowing users to do person-to-person transfers and payments or in other words facilitate remittance flow among families with no need for a formal bank account. Leaning on a modeled definition of financial inclusion, this study examines the impact of mobile money remittances on the development and attainment of high well-being of rural households. The study provides evidence showing a tremendous increase in the frequency to which households in rural areas that use mobile money receive remittances.

This phenomenon results in providing many opportunities for the households to improve their wellbeing and development such as being able to save for the future and spend on healthcare, being able to invest in their children's education and take care of unforeseen happenings in their families, being able to secure modern agricultural inputs for their farms to improve productivity, being able to invest in small start-ups and afford good housing. The study however acknowledged some limitations. First, the findings were based on one round of data. The study is also limited to domestic remittances and did not capture trends such as special interest like per-capita income as longitudinal studies would address. As such, though this study contributes extensively to the academic scholarship on mobile money, it also opens up potential areas that further research could explore. Additional studies could explore the same topic but, in this case, including the international remittance facilitation capability of the mobile money model applied in this study to validate the findings of this study.

CONFLICT OF INTEREST

The authors declared no conflict of interest.

REFERENCES

- Adaba, G.B., Ayoung, D.A. & Abbott, P.Y. (2019). Exploring the contribution of mobile money to well-being from a capability perspective. *The Electronic Journal of Information Systems in Developing Countries*. (<https://doi.org/10.1002/isd2.12079>)
- Addo., G.A.N (2019). Assessing the Impact and Challenges of Mobile Money: A Case Study of the University of Ghana. (MBA Theses, University of Ghana – Legon)
- Ahmad, A.H. & Green, C. & Jiang, F (2020). Mobile Money, Financial Inclusion and Development: A Review with Reference to African Experience. *Journal of Economic Surveys* 34 (4), 753–792.
- Apiors, E.K., & Suzuki, A. (2018). Mobile Money, Individuals' Payments, Remittances, and Investments: Evidence from the Ashanti Region, Ghana. *Sustainability*, 10, 1409; (Doi:10.3390/su10051409.)
- Asamoah, D., Takeddine, S., & Amedofu, M. (2019). Examining the effect of mobile money transfer (MMT) capabilities on business growth and development impact. *Information Technology for Development*. (Doi: 10.1080/02681102.2019.1599798)
- Asongu, S.A., & Asongu, N. (2017). The comparative exploration of mobile money services in inclusive development. AGDI Working Paper, No. WP/17/011, African Governance and Development Institute (AGDI), Yaoundé
- Mehta, A & Bhattacharya, J (2018). Financial sector development and the poor in developing countries: Revisiting the access to finance channel. *Theoretical and Applied Economics* 25, (3)
- Bank of Ghana (2017). Impact of Mobile Money on The Payment System in Ghana: An Econometric Analysis. (www.bog.gov.gh)
- Bank of Ghana (2021). Summary of Economic and Financial Data. (www.bog.gov.gh)
- Caputo, S. (2019). The pivotal role of mobile money agents in driving financial inclusion.
- Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S. & Hess, J. (2017). Measuring Financial inclusion and The Fintech Revolution. World Bank Group; The Global Findex Database.
- Flores, E & Mariscal, R.J (2011). The Development of Mobile Money Systems
- Fang, J. (2014). The Impacts of Mobile Money Services on Subsistence Marketplaces in Rural Cambodia. (Ph.D. Thesis, RMIT University, Melbourne-Australia).
- Fang, J, Russell, R and Singh, S (2014). Exploring the impact of mobile money services on marketing interactions in relation to consumer well-being in subsistence marketplace - Lessons from rural Cambodia. *Journal of Marketing Management*, 30 (56), 5-475.
- Gilbert, P (2020). M-Pesa has 99% market share in Kenya. *Connecting Africa*. (www.connectingafrica.com)
- GFRID (2020). Digitalization and mobile money in Senegal: Interview with Mamadou Lamine Gueye, Director General of CAURIE Microfinance Senegal.
- Ghana Statistical Service (2014). Population and Housing Census 2010.
- Hidayati, I. (2020). Migration and rural development: The impact of remittance. *IOP Conference Series, Earth and Environmental Science* 561.
- Jooste, R (2020). Mobile Money-Making Profits for Mobile Operators. (www.dailymaverick.co.za)
- Kafeero, S (2020). Uganda's Banks have been plunged into chaos by mobile money fraud hack.

- Kaur, M. & Nanda, K. (2016). Financial Inclusion and Human Development: A cross country evidence. *Management and labour studies* 41 (12). (DOI:10.1177/0258042X16658734)
- Kikulwe, E.M., Fischer, E., & Qaim, M. (2014). Mobile Money, Smallholder Farmers, and Household Welfare in Kenya. *PLoS ONE* 9(10): e109804. (Doi: 10.1371/journal.pone.0109804)
- Mazzucato, V & Boom, B.V.D. (2008). Remittances in Ghana: Origin, Destination and Issues of Measurement. *International Migration* 46 (1). (DOI:10.1111/J.1468-2435.2008.00438.x)
- Mensah, A.N (2013). The Value of Mobile Banking: The Case of MTN Mobile Money in Accra, Ghana. (MA Thesis, University of Delaware, Newark, Delaware-United States)
- Mauree, V – ITU-T (2013). The mobile money revolution. Part 2: Financial inclusion enabler
- Munshi, N (2020). Nigeria mobile money revolution delayed by scarcity of licences. (www.ft.com)
- Munyegera, G.K., & Matsumoto, T. (2016). Mobile Money, Remittances, And Household Welfare: Panel Evidence from Rural Uganda. (<http://dx.doi.org/10.1016/j.worlddev.2015.11.006>)
- Munyegera, G.K., & Matsumoto, T. (2017). ICT for financial access: Mobile money and the financial behavior of rural households in Uganda. (Doi: 10.1111/rode.12327)
- NCA-Ghana Industry reports (2019, 2021).
- Nimpagaritse, F., & Culver, D. (2010). A Broader Perspective of Measuring the Well-Being of Rural Farm and Non Farm Households. Agriculture and Agri-Food Canada.
- Nyaaba, A.Y., Kuusaana, M.M., & Owusu-Ansah, D. (2018). The political economy of mobile money interoperability and transactions in Ghana. *Journal of African Political Economy and Development Vol 3*.
- Orozco, M., & Jewer, M. (2019). The impact of migrants' remittances and investment on rural youth. 56 International Fund for Agricultural Development (IFAD) Research Series.
- Parekh, N. & Hare, A. (2020). The rise of mobile money in Sub-Saharan Africa: Has this digital technology lived up to its promise?
- Piper, K (2020). What Kenya can teach its Neighbours-and the US about improving the lives of the "unbanked". (www.vox.com)
- Rea, S.C & Nelms, N.C (2017). Mobile Money: The First Decade
- Rempel, H. & Lobdell, R (1978). The role of Urban-to-Rural Remittances in Rural Development. *The journal of development studies*. (<https://doi.org/10.1089/00220387808421678>)
- Saliu, I (2015). Assessing the Impact of Mobile Money Transfer Service on the Socioeconomic Status of the Mobile Money Vendors: Case of Kumasi Metropolis. (MBA Thesis, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi-Ghana)
- Scancom PLC (MTN-Ghana) unaudited results (2019, 2021)
- Senyo, P.K., & Osabutey, E.L.C. (2020). Unearthing antecedents to financial inclusion through FinTech innovations. *Technovation* (98). (<https://doi.org/10.1016/j.technovation.2020.102155>)
- Sogbodjor, P.O (2015). Assessing MTN Mobile Money in Ghana. (MBA Thesis, KNUST)
- Sosu, B. (2017). Mobile Money in Ghana: A Financial Inclusion Enabler. (Research Dissertation, Ashesi University College – Berekuaso)
- Stark, O. (1980). On the Role of Urban-to-Rural Remittances in Rural Development. *The Journal of Development Studies*, Routledge-London,16(3) 369-374. (<http://dx.doi.org/10.1080/00220388008421764>)
- Stanbic Bank (2021). Mobile money is the Preferred Digital Payment Method in Ghana. (www.stanbicbank.com.gh)

Sujlana, P & Kiran, C (2018). A Study on Status of Financial Inclusion in India. *International Journal of Management Studies*. ([http://dx.doi.org/10.18843/ijms/v5i2\(3\)/12](http://dx.doi.org/10.18843/ijms/v5i2(3)/12))

UNECE, FAO, OECD, Eurostat, & the World-Bank (2007). Rural Households' Livelihood and Well-Being: Statistics on Rural Development and Agriculture Household Income. *United Nations Publication*

Vargas-Lundius, R., Villarrea, M., Lanly, G & Osorio, M (2008). International migration, remittances, and rural development. International Fund for Agricultural Development (IFAD) Research Series.

World Bank (2018). Financial inclusion as a key enabler to reducing poverty and boosting prosperity. (www.worldbank.org)

