



Financial Inclusion Through Mobile Money: An Examination of the Decision to Use Mobile Money Accounts in WAEMU Countries

Sionfou Seydou Coulibaly

August 2020 / No. 688

Abstract

This study examines whether due to the influence of the penetration of financial intermediaries in West African Economic and Monetary Union (WAEMU) countries, the characteristics of individuals who hold mobile money accounts solely, are comparable to the characteristics of individuals who hold official bank accounts and also to the characteristics of individuals who use both types of accounts concurrently. In order to do so, this empirical analysis uses data from a survey undertaken in 2014 by Global Findex and aggregated data related to the penetration of Financial Institutions. The estimation of data has been undertaken through a Heckman (1979) selection model and the multinomial probit model.

The collected results are similar in regard to those who use official accounts solely those who use both types of accounts. They show that the use of mobile money is higher among men, older people, individuals with higher levels of income, those with the highest levels of education and those with easy access to mobile payment agencies. The study recommends encouraging intense sensitisation of adults aged between 25-64 on the use of mobile money, a rise in the levels of individual income which could be realised by an increase in the minimum wage, the introduction of incentives in the education system that would encourage the attainment of the highest levels of education by the largest number of people, the localisation of mobile payment services in a way that they would be accessible to a large number of people due to proximity.

Introduction

Two decades after the discovery and the condemnation of the policy of financial repression, another hindrance to financial intermediation was detected, that of blocking various segments of the population from accessing formal banking services. This inadequacy named as “financial exclusion”, was according to the European Commission (2008), borrowing from the designation given by Leyshon and Thrift (1983). This appellation first used by geographers in 1983 who were studying the denial of physical access to bank services following the closure of bank branches.¹

In 2011, the total adult population in the world was estimated at being 5 billion, and 2.5 billion of these adults were holders of bank accounts, whereas 2.5 were unbanked. The exclusion of this large number of people from financial services in the world would be explained through impediments such as the high and prohibitive costs of maintaining sufficient numbers of bank branches in unbanked rural areas and the incapacity of the poor to maintain the requisite minimum balance and pay the regular bank charges for standard bank accounts (Aron, 2017).

Nevertheless, due to the contribution to Financial Inclusion² in terms of the fight against poverty and to attain greater and more inclusive growth, the latter has since the beginning of the second decade of the 21st century become one of the pillars of the International Development agenda (Banque de France, 2014). Consequently, most world economies began integrating actions geared towards reducing Financial exclusion in their development strategies. Thus, between 2011

1 European Commission

2 Financial Inclusion refers to the process that allows individuals and firms to access basic financial services (funds deposits and transfers, payments, savings, credit, insurance) provided by formal financial institutions (Banque de France, 2014).

and 2014, 700 million adults became holders of bank accounts whereas the number of the unbanked dropped by 20% to only 2 billion. This increase in the level of Financial Inclusion in the world was possible according to Demirguc-Kunt et al., (2015) thanks to an increase in access to official accounts by 13 percentage points in developing countries and to innovations in the technology sector, particularly in mobile money, which helps to rapidly grow access to formal banking services in sub-Saharan Africa.

In sub-Saharan Africa, with the aim of allowing for a larger segment of the unbanked to access financial services, the mobile phone became more widely used as a support for spreading financial services beyond the limits of bank branches. Mobile financial services were first used in Kenya in 2007 through the M-PESA platform (M for “mobile”, PESA for “money” in Kiswahili) by the Safaricom mobile telephony company.

In order to improve the level of access of to Finance in West African Economic and Monetary Union (WAEMU) countries, the Central Bank (CBWAS³) common to member States, initiated a vast programme of Financial Inclusion from 1999, which included mobile money as from 2009. However, until 2014, the rate of adults holding a bank account in WAEMU was the lowest in sub-Saharan Africa. Indeed, in undertaking a comparison between the rate of penetration of bank accounts in WAEMU countries and those of four reference countries in East Africa that had adopted the mobile money platform earlier or at the same time as WAEMU countries, namely, Kenya in 2007, Tanzania in 2008, Uganda in 2009, and Somalia in 2009 respectively, a wide gap was observed. In 2014, whereas WAEMU countries represented an average bank account penetration rate of close to 16%, the reference countries represented an average rate of close to 50%. At the same time, the rate of adults with access to a mobile money account was still quite low in WAEMU countries as compared to the four reference countries, or almost 7% for WAEMU against close to 41% for the reference countries. Furthermore, in 2014, out of all the countries of the union, the highest percentage of adults who held a mobile money account was close to 24% in Ivory Coast; or less than a quarter of the adults aged 15 and above. Moreover, apart from Ivory Coast and Mali with rates of close to 12%, the other countries in the union represented a rate much lower than 10%. Thus, the statistics demonstrate that despite a steady increase in mobile money in WAEMU from its inception in 2009 to 2014, its adoption was only undertaken by a small segment of the adult population within Union countries.

In regard to the low statistics in terms of the penetration of mobile money accounts in WAEMU countries, an exploration of the determinants of the choice of accounts seems necessary so as to help increase the level of usage of mobile money. However, given that each financial service goes together with the existence of financial

3 Central Bank of West African States

intermediaries, and given that individual choices of financial services could be influenced by the existence of financial intermediaries, examining individual characteristics independently of the penetration of financial intermediaries could carry a bias. Equally, given that mobile money exists in tandem with formal financial services, an examination that isolates the profile of users would not be exhaustive due to ignoring the characteristics of users of formal financial services. Thus, the following questions are raised in this study: Is the study of mobile money accounts determined by characteristics that are specific to individuals and by the penetration of financial intermediaries in WAEMU countries? Are these characteristics different from those of the users of formal financial institutions?

The overall objective of this study was to identify, under the influence of the penetration of financial intermediaries, the individual characteristics which determine the use of mobile money accounts in WAEMU as compared to the use of official accounts so as to formulate recommendations for wider Financial Inclusion. More specifically, it is to 1) Identify the social categories that use mobile money accounts as compared to those who only use official bank accounts and to those who would use both types of accounts at the same time, 2) To understand the effect of the penetration of Financial Intermediaries on the use of mobile money accounts only, compared to the sole use of official bank accounts and that of both types of accounts at the same time, 3) To suggest recommendations that are favourable to increasing the level of usage of mobile money.

In order to attain the objectives of this study, four hypotheses are empirically tested. The first suggests that a wider use of mobile money services solely is associated with the most vulnerable segments of the population. The second suggests that a wider use of formal services is solely associated with the least vulnerable segments of the population. The third suggests that a wider use of mobile money while still retaining the two types of accounts is associated with the profile of segments of population that are less vulnerable. The fourth suggests that the use of mobile money services as well as formal financial services is higher with a higher availability of Financial Intermediaries.

The empirical verification of the hypotheses of this study is derived from a simultaneous estimation of data at the individual level, and of data aggregated with the help of a multi-level approach and through the Heckman (1979) two-step procedure. The results obtained highlight the fact that the manner that is similar for those who use official accounts solely, and those who use both types of accounts simultaneously, that the use of mobile money solely is higher for men, older people, people within the percentile of the high-income earners, the most highly educated people, and those that have the easiest access to mobile payment agencies.

It is important to note that an examination of the determinants of Financial Inclusion has inspired several studies in economic literature over the past few years. These studies generally focus upon identification either of individual characteristics or the characteristics of countries linked to the use of formal financial services. However, there are some studies that attempt to undertake an evaluation of these characteristics combined with the influence of the characteristics of a country. The current study therefore brings an empirical contribution to economic research by using a multi-level analysis that allows for the determination of individual characteristics of users of mobile financial services by taking into account the simultaneous influence of the penetration of financial intermediaries. The empirical method used distinguishes this study from those already carried out, in the sense that previous studies only examine individual characteristics (see Klapper and Singer, 2015, and Soumaré et al., 2016) or in a manner that separates individual characteristics from aggregated characteristics (see Allen et al., 2016).

Stylised facts on the adoption of mobile money in WAEMU

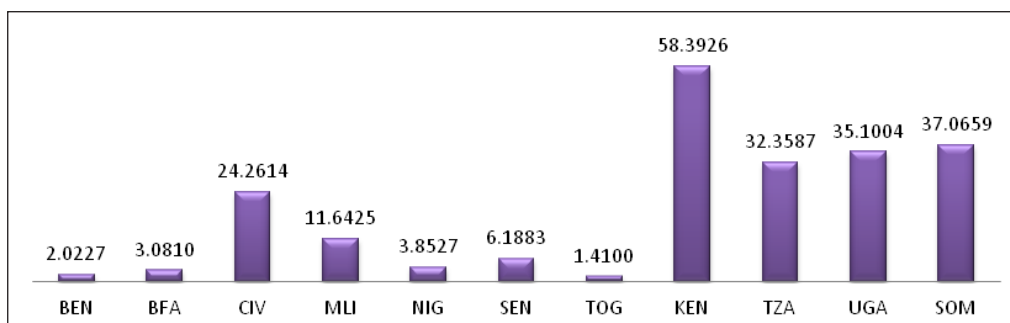
The operationalisation of mobile money services within WAEMU as from 2009 followed a project of the promotion of electronic currency formulated a few years earlier under a CBWAS regulatory framework promulgated in 2006. However, until 2014, or five years after the introduction of mobile money, as is shown in Chart 1 below, a large disparity remained between WAEMU member countries in terms of penetration of mobile money accounts. This disparity is highlighted through a variation ranging from 1% in Togo to almost 24% in Ivory Coast. Indeed, in the course of the year 2014, in all the WAEMU countries, the highest percentage of adults with access to a mobile account was almost 24% in Ivory Coast; In other words, less than a quarter of the adults (aged 15 and above). Furthermore, apart from Ivory Coast and Mali which have rates that are higher than 10%, other countries in the Union display rates that are below 10%. These statistics show that inasmuch as mobile money has integrated into the financial practices of WAEMU since its launch in 2009 until 2014, its adoption was only the preserve of a small segment of adults in most member countries of the Union.

The weakness in the adoption of mobile money in WAEMU is reflected clearly when these statistics from member countries are compared with those from the four reference countries of East Africa that adopted mobile money earlier or at the same time with those belonging to WAEMU. The reference countries are Kenya, the pioneer of mobile money in 2007, Tanzania, which adopted in 2008, Uganda and Somalia, which adopted in 2009. According to the statistics in Graph 1, there is a huge difference between the WAEMU countries and the reference countries that recorded a rapid growth in the use of mobile money. Indeed, whereas no WAEMU member country has

reached the level of a quarter of adults with mobile money accounts, the holders of mobile money accounts in Kenya is higher than 50% of the adult population. And in Somalia, Tanzania and Uganda, more than a quarter of adults are holders of mobile money accounts. To be precise, the rate of adults with a mobile money account in WAEMU is on average close to 7% against almost 41% for the reference countries in 2014.

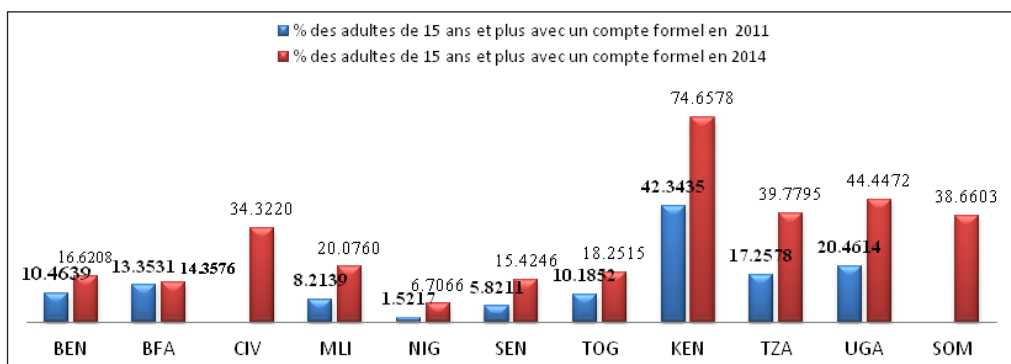
After the implementation of mobile money in 2009 in WAEMU, chart 2 below shows that Financial Inclusion in terms of penetration of official bank accounts recorded a more or less significant growth in each country of the Union over the period 2011-2014. Indeed, whereas Benin, Niger and Togo recorded increments of between 5 and 8 percentage points, Burkina Faso only registered growth by 1 percentage point, while Mali and Senegal recorded increments by 12 and 10 points respectively. Also, in chart 1, a large disparity is observed between WAEMU countries and reference countries in terms of comparisons between the rate of penetration of official bank accounts. However, in 2014, whereas each of the reference countries recorded a penetration rate higher than that of a third of adults (aged 15 and above), in all the WAEMU member countries, only Ivory Coast had a rate that is equivalent to a third of adults, or close to 34%. Furthermore, one can observe that in Kenya between 2011 and 2014, the penetration of official accounts increased from a rate of 42% to a rate of 75%, which is by almost double. Equally, in Tanzania and Uganda over the same period, the penetration of official accounts increased from a rate of 17% to a rate of close to 40% for the former, and to a rate of almost 20% to a rate of close to 44% for the latter; or by almost double in each of the two countries. Thus, the use of formal financial services in WAEMU countries, compared to those used as our reference, remains slow and weak.

Chart 1: Penetration rate of mobile monet accounts in WAEMU countries and in some East African countries



Note: Representation by the author using data derived from survey data by Global Findex (Global Financial Inclusion Database, 2014).

Chart 1: Penetration rate of formal bank accounts in WAEMU countries and in some East African countries



Note: Representation by the author using data derived from survey data by Global Findex (Global Financial Inclusion Database, 2014).

Conclusion

In order to contribute to the growth in the use of mobile money in WAEMU, this study verifies whether, under the effects of the impacts of the penetration of Financial Institutions, the individual characteristics of users of mobile accounts solely, are similar to the characteristics of those who use official bank accounts solely, and to those that use both types of bank accounts concurrently. In order to do so, data from a survey undertaken in 2014 by Global Findex on 7 WAEMU countries is used simultaneously with a set of aggregated data related to the penetration of Financial Institutions. The empirical analysis adopted builds on a multi-level approach of the Heckman (1979) selection method. Multinomial probit regressions are also used so as to verify the robustness of the regressions undertaken through the Heckman selection model.

The results reveal that in a manner that is similar to the use of a formal bank account solely, or the two types of accounts concurrently, a higher use of mobile money solely, is associated with men, older individuals, individuals with the highest levels of education, individuals with the highest income levels and to easy access to mobile money agencies.

The increase of the use of mobile money with age could be explained through the fact that active individuals are generally those who engage in practices that require the possession of an account to receive salaries and various payments. Besides, the increased use of mobile money in the presence of a higher availability of mobile money agencies could be explained through the fact that most holders of mobile money accounts use these agencies to credit their accounts. Thus, the proximity of mobile money accounts motivates a higher use and more regular use of mobile money. The

higher use of mobile money by individuals with higher levels of education could be explained through the fact that operations of sending and receiving money through mobile money require the capacity to read about transfers and balances that are available in the account. A higher use of mobile money by those with higher levels of income could be explained by the fact that an active mobile money account requires regularity in terms of movement of funds through sending, receipt, and payment. Thus, mobile money accounts are generally more active when held by individuals with higher income.

From the various results, in order to encourage an increase in the level of financial inclusion through mobile money in WAEMU countries, policy makers should;

- Focus on the sensitisation of people aged between 25-64 in terms of the use of mobile financial services. Such an action could be done through financial literacy programmes;
- Work on a rise in the levels of individual income. This could be done by an increase in minimum wage.
- Encourage the increase in education levels through an introduction of incentives in education systems that promote the attainment of the highest levels of education by the largest number of people. In this regard, sensitisation programmes on the benefits of a good education and the provision of education bursaries could be explored.
- Give particular attention to the geographic penetration of mobile payment agencies and encourage their localisation at a certain proximity so that they may be easily accessible to the largest number of people.

A major limiting factor of this study is that it does not include various key variables such as matrimonial status, employment status, etc. Indeed, these variables do not feature in our study for the simple reason that they are not available to the public in the Global Findex database.

References

- Allen, F., Demirguc-Kunt, A., Klapper, L. et M.S. Martinez-Peria. 2016. “The Foundations of Financial Inclusion: Understanding Ownership and Use of Formal Accounts”, *Journal of Financial Intermediation*, 27(2016), 1–30.
- Aron, J. 2017. ““Leapfrogging”: A Survey of the Nature and Economic Implications of Mobile Money”, *CSAE Working Paper*, WPS/2017–02.

- Banque de France. 2014. « La politique et les agrégats monétaires dans les zones d'émission africaines : Les enjeux de l'inclusion financière en Zone franc », *Rapport annuel de la Zone franc 2014*, pp. 107–111.
- Demirguc-Kunt et L. Klapper. 2013. "Measuring Financial Inclusion: The Global Findex Database." *Brookings Papers on Economic Activity*. www.worldbank.org/globalfindex.
- Demirguc-Kunt, A., L. Klapper, D. Singer et P. V. Oudheusden. 2015. "The Global Findex Database 2014 Measuring Financial Inclusion around the World", *Policy Research Working Paper*, No. 7255, World Bank, Washington, DC.
- EC (European Commission). 2008. *Financial services provision and prevention of financial exclusion*, http://Ec.europa.eu/employment_social/spsi.
- Heckman, J. 1979. Sample Selection Bias as a Specification Error, *Econometrica*, 47, pp. 153–162.
- Klapper, L. et D. Singer. 2015. "The Role of Informal Financial Services in Africa", *Journal of African Economies*, 24(1), pp. i12–i31.
- Leyshon, A. et N. Thrift. 1993. "The restructuring of the UK financial services industry in the 1990s: a reversal of fortune?", *Journal of Rural Studies*, 9(3), pp. 223–241.
- Soumaré, I., F.T. Tchana et T.M. Kengne. 2016. "Analysis of the determinants of financial inclusion in Central and West Africa", *Transnational Corporations Review*, 8(4), pp. 231–249.



Mission

To strengthen local capacity for conducting independent, rigorous inquiry into the problems facing the management of economies in sub-Saharan Africa.

The mission rests on two basic premises: that development is more likely to occur where there is sustained sound management of the economy, and that such management is more likely to happen where there is an active, well-informed group of locally based professional economists to conduct policy-relevant research.

www.aercafrica.org

Learn More



www.facebook.com/aercafrica



www.instagram.com/aercafrica_official/



twitter.com/aercafrica



www.linkedin.com/school/aercafrica/

Contact Us

African Economic Research Consortium
Consortium pour la Recherche Economique en Afrique
Middle East Bank Towers,
3rd Floor, Jakaya Kikwete Road
Nairobi 00200, Kenya
Tel: +254 (0) 20 273 4150
communications@ercafrica.org