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Abstract

Togo is lagging in the adoption of mobile money in the West African Economic and Monetary Union (WAEMU). The country's share in the WAEMU is less than one percent of account opening, volume, and level of transactions. To understand this delay, it is essential to identify the socioeconomic factors that determine the adoption of the usage of mobile money services in Togo. Departing from the traditional literature which considers the adoption of mobile money as a one-shot phenomenon, this paper models the adoption of mobile money as a five-step process and identifies the likelihood of its adoption based on an Ordered Logit model applied on data from a survey conducted on a sample of 5,197 individuals. We find that *social groups*, including *religious groups* and *student associations*, are powerful vehicles for the adoption of mobile money in Togo. In addition, the ability to *read and write* and being a *customer of a bank or a Microfinance Institution (MFI)* positively impact the mobile money adoption process. In contrast, being unemployed decreases the likelihood to adopt mobile money.

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This paper stands as the first attempt to understand the adoption of mobile money in Togo. It also has the advantage to be in the class of the first empirical studies that model the adoption of an innovation, mobile money, as a process. Finally, the paper paves the way for strategies that make mobile money a tool that can contribute to raising the rate of access to financial services in Togo.

JEL classification: O31; O33; Z13

Keywords: Mobile money; Innovation; Adoption; Process.

1 Introduction

A high proportion of the population in developing countries is unbanked. In the meantime, there is an exponential rise in the usage of mobile phones in these areas. In this context, mobile money, which encompasses all financial services provided through mobile phones, stands as a solution to improve financial inclusion of such populations that remain victims of bank exclusion (Assadji and Cudi, 2011; Chaix, 2013).

As for Africa, the number of subscriptions to mobile phone increased rapidly from a 22.9 % share of the population in 2005 to 89.4 % in 2013 (Chaix and Torre, 2015). In contrast, less than 25 % of the adult population own a bank account in the same time period (Demirgüç-kunt and Klapper, 2013). Thus, mobile telephony seems to have a high potential for the access to financial services for unbanked in developing countries (Assadi and Cudi, 2011). Donovan (2012) defines mobile money as the production through mobile phone of services including mobile payment (transfer of funds), mobile bank (transactions, consultations, and information on the accounts), and mobile finance (credit, insurance, and saving). The literature distinguishes two categories of mobile money (Weber and Darbellay, 2010; AIF, 2010). The first, *the banking services via mobile telephony*, encompasses the means through which customers of a bank connect to their bank accounts via their mobile phone. The second category, the *mobile payment services*, covers a greater number of payment services that may not be offered by a bank but require its participation.

Since the spectacular success of the first M-PESA experiment¹ initiated in Kenya in

¹M-PESA is a mobile transfer service launched in Kenya in 2007 by a mobile operator, Safaricom. The

2007, there is a growing interest in the usage of mobile money in many developing countries. Mobile money raises high hopes for the dynamics of providing payment services to low-income populations in developing countries (Anderson, 2010) insofar as it has several advantages (Assadi and Cudi, 2011; Chaix and Torre, 2015). Using mobile money saves time. Its technology is simple and easy to use. It paves the way for the integration of users into the banking system. Moreover, mobile money is a lower cost alternative to the traditional management of a bank account.

Mobile money makes mobile phone a channel for the distribution of financial services. As a result, mobile money could be viewed as a “service-oriented” innovation, as it brings a change it with regards to service delivery (Djellal and Gallouj, 2012). However, although it is a flagship instrument in mobile commerce and financial services (Lin, 2011), an important means to financial inclusion (Donovan, 2012), a service whose value is created by autonomy and availability (Mallat et al., 2004), mobile money remains poorly adopted in many developing countries (Chaix, 2013). This is typically the case in the West African Economic and Monetary Union (WAEMU) (Fall et al., 2015) and particularly in Togo.

Despite the trials offered worldwide, the reasons for the success or failure, as well as the causes and reasons for mobile money adoption, are still insufficiently understood (Chaix, 2013). In the WAEMU, except for the work by Fall et al. (2015) on Senegal, studying the adoption of mobile money remains unexplored, mainly due to the unavailability of appropriate survey data. This paper breaks this rule, following Fall et al. (2015), by studying the adoption of mobile money in Togo, a WAEMU country.

The banking rate in Togo is less than 15 % (Couchoro, 2016; Ashta et al., 2016) while in 2014, about 67% of the population (4.66 million out of nearly 7 million) subscribed to mobile telephony. It is therefore reasonable to take the guess that mobile money should make a significant contribution to increasing the rate of access of people to financial services. On the ground, this is far from being the case. In fact, by the end of 2014, while the mobile money recorded 18.3 million account openings and 259.3 million transactions valued at about 3,760

success of this service in Kenya (nearly a quarter of the population adopted it in 2012) leads the operator to extend it to other countries such as Tanzania in 2008, Afganistan in 2008, and Romania in 2014, Chaix and Torre (2015).

billion FCFA in the WAEMU zone, Togo's share was lower than one percent of account opening, volume, and aggregate value of transactions (BCEAO, 2014). It is factual the Togo lags far behind in the adoption of mobile money in the WAEMU zone. To understand this relative poor performance of Togo, one needs to pinpoint the key socioeconomic factors that determine the adoption of mobile money. That is the aim of this study.

Most attempts to explain the adoption of mobile money, considered such adoption as a general state. But what if, as described by Rogers (1995), the adoption of an innovation, including mobile money, is a process instead of a state? Fall et al. (2015) followed the same questioning by modelling the adoption of mobile money in Senegal as a 3-step process. We find that approach more reasonable and we build our model based on their work.

Considering the adoption of an innovation as a process, what are the key socioeconomic players in the adoption of mobile money in Togo? To answer this research question, we refine the model by Fall et al. (2015) by modelling the adoption of mobile money in Togo as a 5-step process of which *trust* is a key stage.

We apply an Ordered Logit regression on dataset obtained from a survey conducted in 2016 on 5,197 individuals by the National Institute of Statistics and Economic and Demographic Studies of Togo, in collaboration with the South-African FinMark Trust. On the one hand, we find that belonging to a religious group and a student association, reading and writing ability, being clients of a bank or an Microfinance Institution (MFI), being self-employed, trader, or male increase the likelihood to adopt mobile money in Togo. On the other hand, the unemployed are found less likely to adopt mobile money in Togo.

The remainder of the paper is organized as follows. In Section 2, we present the analytical framework. In Section 3, we expose the methodology. The results are presented in Section 4 and finally we conclude in Section 5.

2 Framework

Mobile money is an innovation in the financial sphere. Such innovation is not meaningful, unless it is disseminated among the social actors for whom it is intended. Despite its usefulness and its economic scope (Chaix and Torre, 2015), mobile money stays in its infancy

(Xin et al., 2013), and remains weakly adopted (Chaix, 2013; Chandra et al., 2010) with a market that is far from reaching maturity (Dahlberg et al., 2008; Shuhaiber and Lehmann, 2013). Thus, it is important to examine the factors that determine its adoption, so that one can understand this contrast.

A successful adoption of a technological innovation depends fundamentally on its usefulness and usability (Tricot et al., 2003; Tarrade et al., 2009). The usefulness of a technology matches what it is likely to achieve and what the user wants to do with it. As for the usability, it refers to its ease of use, including ease of learning, performance, memory retention of the functions, error prevention, and satisfaction. Concerning mobile money, several studies have tried to highlight the determinants of its adoption. Mbiti and Weil (2011) in a study in Kenya, identified *age, level of education, standards of living*, and living in a *residential area* as determinants of the adoption of mobile money. Wessels and Drennan (2010) in a study in Australia and Sayid et al. (2012) in Somalia, showed that in addition to *compatibility, communication, testability, perception of risk, ease of use, usefulness, security*, and *social factors* significantly influence the adoption of mobile money. Social influence results from a system of social interactions whereby an individual communicates a new idea to one or more other individuals (Rogers and Kincaid, 1981). One of the main vectors of social influence is social networks. In fact, each person belonging to a social network receives a set of signals coming from its relational environment. The sum of such signals determines the decision-making process, a change of state (Steyer and Zimmermann, 2004). The nature of the relationships within this network determines the degree of influence an individual has on the perceptions, beliefs, and actions of other members. It is worth noting that sociocultural factors may not necessarily favor the adoption of mobile money (Amin and Ramayah, 2010).

In all the literature above, the adoption of mobile money is modelled as a global state. However, a deep analysis of the adoption of mobile money reveals that it goes through a process instead. Indeed, Rogers (1995) viewed the adoption of an innovation as a process by which an individual moves from the first stage of innovation to the final stage of adoption. This process matches perfectly the adoption of mobile money. In this logic, Fall et al. (2015) in the case of Senegal, departed from the traditional approach by considering the adoption

of mobile money as a 3-step process. At the first step, 'Knowledge', the individual must know the product and its uses. Then he moves to the second step, 'Possession', where the individual possesses an account. At the final step, 'Adoption' the individual must use the product, therefore test it, then adopt it. Given this assumption, they showed that *age* was the only factor determining the transition to the first stage of adoption, that the transition to the second stage was influenced by *literacy*, *level of education*, and *belonging to a rotative saving and credit system*, and that for the transition to the final stage of the adoption process, *education level*, *wages* and *ownership of a business* are the key determinants.

We give a lot of credit to Fall et al. (2015) to take the first step in the direction of modelling the adoption of mobile money as a process instead of a general state. However, their contribution suffers from not considering a crucial step in the process which is the *confidence in the service*. In addition, they do not consider *having a mobile phone* as a step in the process.

To address the first limitation, it is worth noting that, as a financial activity, mobile money is not immune to risk. Thus, *trust* and *confidence* are fundamental. Indeed, in a situation of risk, necessarily emerges the need for confidence (Mayer et al., 1995). In addition, trust is an invisible institution that does not pass through the price system but has considerable economic impact (Arrow, 1974). Regarding trust relationship, one needs to distinguish between technological and interpersonal relationships (Lankton and McKnight, 2008). Trust in mobile money can therefore be perceived from two angles: institutional and calculating trust (Rudy, 2007). Institutional trust is the sense of security that is placed in formal institutions such as laws, including regulating the usage of mobile money. In contrast, calculating trust is a rational approach in which each party within a relationship assesses the benefits and costs that accrue from maintaining that relationship. In the literature, Lu et al. (2011) recognized confidence as an important determinant in the adoption of mobile money. Also, Hasnaoui and Lentz (2011) concluded that, for confidence to be established, the electronic payment system must make it possible to make a payment with characteristics and guarantees that are at least equivalent to another means of payment. Thus, if the mobile money is accessible and has observable advantages relative to the costs incurred, the individual could adopt it. If all the factors are combined, trust is the ultimate step in the

adoption of mobile money.

With regards to the second limitation, it is not clear how one who does not have a mobile phone can be an effective user of mobile money services. Indeed, although mobile money requires the participation of financial institutions, such services may not be linked to these institutions (Diniz et al. 2011; Chaix and Torre, 2015). However, it is imperative that mobile phones allow financial transactions to take place in many situations, regardless of location or time. For this reason, an effective user of such services should have a mobile phone.

This paper leverages the work by Fall et al. (2015) to model the adoption of mobile money in Togo. We refine their model by bridging gaps that we identified.

3 Methodology

3.1 The adoption process

We model the adoption of mobile money as a 5-step process ranging from having a mobile phone to having confidence in mobile money services. Of this process, the ultimate step is the confidence in this product, insofar, as it paves the way directly, all things being equal, to its frequent use. More precisely, an individual who adopts the usage of mobile money needs to:

Step 1 : Have a mobile phone.

Step 2 : Have heard of the product.

Step 3 : Use the product once.

Step 4 : Have an account.

Step 5 : Have confidence in the product.

Consider an hypothetical user of mobile money services. First and foremost, the individual must have a mobile phone because in Togo, mobile money services are linked to telephone numbers. Second, he should hear about mobile money and know its use. This second step corresponds to the 'Knowledge', first step considered by Fall et al. (2015). We

are aware that there is the possibility that the individual knows the product before acquiring a mobile phone. However, knowing how to use the product requires having a mobile phone. This is the main reason why we chose to retain possession of the phone as the first step in the process and knowledge of the product and its use as the next step. Third, if the product is accessible, the individual could use it for the first time in order to make a first test because in Togo, the occasional use does not require to have an account. However, a frequent use requires opening an account, which is our fourth step. Thus, at the first use or test, if the benefits are significant, the individual chooses to have an account in his or her own name for future operations, which corresponds to the 'Possession' step in Fall et al. (2015). However, the adoption of mobile money means its recurrent use, and requires the confidence of the user. This step in the adoption process is reached only if the first uses were satisfactory. As adopting mobile money means its frequent use, confidence in the product stands as the ultimate step in the adoption process.

3.2 The model

The dependent variable, is the process of adopting mobile money. This variable is ordinal because there is an ordering in the steps and the distances between two consecutive steps are not necessarily the same (Cahuzac and Bontemps, 2008). As a result, we opt for an Ordered Logit regression. We suppose there exists a latent continuous exact variable y^* which determines the step y in the adoption process. We cannot observe y^* , but we suppose that the underlying process is characterized by:

$$y^* = x'\beta + \varepsilon, \text{ where}$$

x is the vector of independent variables,

ε is the error term, and

β is the vector of regression coefficients which we wish to estimate.

While we cannot observe y^* , we instead can only observe the categories of response corresponding to precise steps in the adoption process:

$$y = \begin{cases} 0 & \text{if } y^* < \alpha_1 \\ 1 & \text{if } \alpha_1 \leq y^* < \alpha_2 \\ 2 & \text{if } \alpha_2 \leq y^* < \alpha_3 \\ 3 & \text{if } \alpha_3 \leq y^* < \alpha_4 \\ 4 & \text{if } \alpha_4 \leq y^* < \alpha_5 \\ 5 & \text{if } y^* \geq \alpha_5 \end{cases}$$

where 0 corresponds to the ex-ante step, *do not have a mobile phone*, and the parameters $\alpha_m, 1 \leq m \leq 5$, correspond to the endpoints of the categories of the adoption process.

Thus, for $1 \leq m \leq 6$, and given the set of independent variables x , the probability to be at a given step in the process is:

$$P(y = m - 1|x) = P(\alpha_{m-1} \leq y^* < \alpha_m|x) = F(\alpha_m - x'\beta) - F(\alpha_{m-1} - x'\beta)$$

where $\alpha_0 = -\infty$, $\alpha_6 = +\infty$, and F is the cumulative distribution function of the logistic distribution.

We use the Ordered Logit technic with the following independent variables to fit the parameter vector β for the adoption of mobile money in Togo: *being a member of a social group* (including *religious group, neighborhood association, national association, agricultural cooperative*), *reading and writing ability, being a client of a MFI or a bank, self-employment, unemployment, gender, and age* (see Appendix 1 for descriptive statistics).

3.3 Data

The data used in this study come from a survey carried out in 2016 by the National Institute of Statistics and Economic and Demographic Studies in collaboration with the South African firm FinMark Trust, who has the experience of having carried out this type of surveys in several other countries.

Indeed, within the framework of the promotion of inclusion and financial integration in Togo, the Togolese Government has requested the support of the United Nations Capital Development Fund (UNCDF) to a "FinScope Consumer" study of national scope. This study was also carried out in collaboration with the National Fund for Inclusive Finance in Togo (FNFI) and the Department for the Promotion of Inclusive Finance (DPFI).

The sample size of the FinScope survey is set at 5,200 households spread over the entire national territory. These households come from 520 enumeration areas (ZDs) due to 10 households per ZD. In the end, 5,197 households were retained after data was cleared. Therefore, the sample of our study comprised 5,197 individuals, as per one individual per household (member aged 15 years or older, randomly selected from the Kish grid).

The sample is made up of 44.08 % men and 55.92 % women. On average, individuals are aged 35.57 years; the youngest at 15 years and the oldest at 99 years. Analysis of the sample distribution by age reveals a cohort concentration of individuals aged 20 to 45 years (Appendix 2). An analysis of this distribution by age and for individuals with a telephone shows that telephony is widely adopted among younger individuals as opposed to older individuals (Appendix 3). According to the survey, 25.65 % of those surveyed never attended school (Appendix 4). Of the 97.07 % of individuals who answered the question of whether or not they have a mobile phone (5,045 individuals), 81.98 % said they had it. The gender analysis shows that the proportion of women (54.67 %) with a mobile phone is higher than that of men (45.33 %). It appears that 70.16 % of individuals who have a mobile phone have once heard of mobile money. Among these, 38.28 % testified they have already used it. For those who have already used it, 46.20 % have revealed themselves to be in their own mobile money account and 21.85 % have confidence in this type of service and use it frequently.

The analysis highlights a pronounced use of mobile money by young people, in particular individuals aged 20 to 30 years. Also, it is noted that the mobile money service is more used by individuals with secondary education level (Appendix 5).

4 Results

The relevance test of the various endpoints α_m , $1 \leq \alpha_m \leq 5$ of the underlying model confirmed that a model in which the modalities would be aggregated would be irrelevant since the jumps from 0 to 1 ($H_0 : \alpha_1 = 0$), from 1 to 2 ($H_0 : \alpha_2 = \alpha_1$), from 2 to 3 ($H_0 : \alpha_3 = \alpha_2$), from 3 to 4 ($H_0 : \alpha_4 = \alpha_3$), and from 4 to 5 ($H_0 : \alpha_5 = \alpha_4$) are significant because the null hypothesis is rejected each time (Appendix 6). This statistical

result confirms that our 5-step process is indeed a refinement of the 3-step process proposed by Fall et al. (2015). Moreover, the Chi Square test rejects at the level of 1 % the null hypothesis that the estimated coefficients are all zero. The quality of the predictions is 82.2 %. This is, in 82.2 % of the cases, the predictions of our model are correct (Table 1). Thus the model is globally significant and validated statistically.

The results (Table 1) show that belonging to a *religious group* or a *student association* increases the probability of reaching the last stage with respectively a marginal effect of 0.0315 and 0.057. The positive effect of belonging to a *social group*, especially a *religious group* or a *student association*, highlights the pertinence of viewing the adoption process as part of interactions economies instead of a pure methodological individualism. More precisely, it is more pertinent to consider the adoption of mobile money as an interdependent decision than a process in which each agent, in isolation, is confronted with the problem of the adoption decision solely on the basis of maximizing some criteria (Zimmermann et al., 2001). This result is in line with the work by Rogers (1995) which states that individuals are exposed to innovation through their network of peers, and this exposure has an influence on cumulative adoption. Thus, it is the cumulated influence exerted by the members of the entourage that leads an individual to make a positive decision with regards to the adoption of this innovation (Zimmermann et al., 2001). According to Granovetter (2006), social structures, especially social networks, are channels of information transmission. Because most of the information coming from social networks is difficult to verify, it leads actors to not believe in the impersonal sources of information and to trust people they know. At this end, social structures influence the flows and quality of information within social groups. Religious groups and student associations can therefore be viewed as social structures, and stand as powerful channels through which mobile money can easily be disseminated among the population in Togo.

Table 1: Results of the Ordered Logit model estimates

	Coef	Std. Err.	Prob	Marginal effects
Religious group	0.4382*** (8.16)	0.05	0.000	0.0315
Neighborhood association	-0.1138 (-1.22)	0.09	0.223	-0.0081
Student association	0.80*** (3.54)	0.22	0.000	0.0579
Association of nationals	0.0847 (0.91)	0.09	0.364	0.0609
Agricultural cooperative	0.093 (0.07)	0.12	0.942	0.0006
Self employment	0.1769** (2.22)	0.07	0.026	0.00127
Unemployed	-0.2607*** (62.61)	0.09	0.009	-0.0187
Trader	0.3138*** (3.98)	0.07	0.000	0.0226
Age	0.0338*** (4.04)	0.00	0.000	0.0224
Age²	-0.004*** (-4.72)	0.00	0.000	-0.0000
Male	0.2276** (3.99)	0.05	0.000	0.0163
Read-Write	0.9835*** (15.52)	0.06	0.000	0.0708
Bank	0.9802*** (10.93)	0.08	0.000	0.0705
Microfinance	0.7100*** (5.90)	0.07	0.000	0.0511
C₁	-0.9513	0.17	0.000	
C₂	0.8078	0.17	0.000	
C₃	2.8949	0.17	0.000	
C₄	3.9907	0.18	0.000	
C₅	4.8761	0.18	0.000	

Prediction 82.2

Number of observation: 5,044 Pseudo-R² = .0668 LR Chi2 = 1030.52 Prob > Chi2 = 0.000
 *, **, *** denote the significance of the coefficients at the respective thresholds of 1%, 5% and 10%. T-statistics are reported in parenthesis.

In addition, *reading and writing* ability positively influence the likelihood of adopting mobile money in Togo, with a marginal effect of 0.07. Mobile money requires possession of the mobile phone and knowledge of its use for financial transactions. Usability being fundamental in the adoption of an innovation (Tarrade et al., 2009), the ability to read and write contributes positively and significantly to the adoption of mobile money through facilitating the use of mobile phones and reducing the complexity of its manipulation. Similarly, being *self employed* and being a *trader* have positive effect on the likelihood of adopting the mobile money with respective marginal effects of 0.001 and 0.022. This result shows that in the context of high mobility where time is of an important value, mobile money offers security in financial transactions and is an asset to reduce the costs of the activities

of traders and self-employed.

Moreover, being a *client of a bank or a MFI* increases the probability to adopt mobile money with the respective marginal effects of 0.070 and 0.051, as this service facilitates the access to remote products offered by these institutions. In addition, the possession of a mobile phone is fundamental for the clients of these institutions. Indeed, developing countries and mainly Togo are characterized by the absence of formal address for individuals. Consequently, mobile phone constitutes the privileged link allowing the communication between financial institutions and their customers, and therefore contributes to the adoption of mobile money in the country.

In contrast, being *unemployed* decreases the probability of reaching the final stage of the adoption process which is having confidence in the use and adoption of mobile money. This result may reflect a form of social exclusion faced by the unemployed in Togo. Indeed, as much the unemployed, people in economic and social precariousness, are victims of the financial exclusion of the traditional institutions and sometimes the MFI, as mobile money does not manage to reintegrate them in the Togolese financial sphere. The financial exclusion of all kinds from the unemployed can reinforce each other by giving the unemployed the feeling of not having a social value. They may also restrict their access to social and economic resources which enable them to participate actively in the social and economic life of their environment.

We also found that *age* has a positive impact on the probability of reaching the last stage of the adoption process with an age threshold beyond which this probability decreases. These results are in line with those of Mbiti and Weil (2011) on Kenya, which identify *age* as a determinant of mobile money adoption. In addition, *men* are more likely to adopt this product than *women*. This finding highlights the existence of severe disadvantages towards women, such as low incomes, inadequate or even insufficient savings and guarantees due to very limited access to property, low literacy (Ouadréago, 1998), that require an adaptation of financial products. The results do not show any significant link between the adoption of mobile money in Togo and membership of *national associations* and *agricultural cooperatives*.

As one of the first works to model the adoption of mobile money as a multi-step process

and the first to make trust a step in this process, this study has the advantage of paving the way for strategies that make mobile money a tool that can contribute to raising the rate of access to financial services in Togo.

5 conclusion

Togo, a country in the WAEMU zone, is lagging in the adoption of mobile money compared to other WAEMU countries. In order to examine this relatively poor performance, this work is the first to examine the adoption of mobile money in Togo. We highlight the factors that determine the adoption of mobile money in Togo. To this end, we depart from the traditional approach in this literature by modelling the adoption of mobile money as a process instead of a one time phenomenon. We consider a five-step process, the ultimate of which is trust in the product and its frequent use.

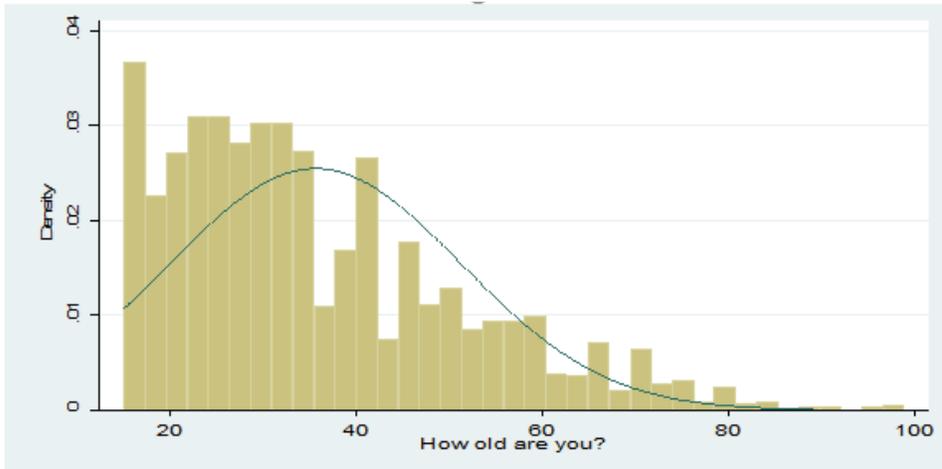
We obtain our results from an Ordered Logit regression applied on dataset obtained from a survey conducted on 5,197 individuals in Togo and carried out in 2016 by the National Institute of Statistics and Economic and Demographic Studies of Togo, in collaboration with the South African firm FinMark Trust.

The results show that the likelihood of adopting mobile money increases with belonging to a social group, in particular the religious groups and student associations, self-employment, merchants, males, and the ability to read and write. Moreover, being a client of a bank or a MFI increases this probability. In contrast, the likelihood to use mobile money decreases with the unemployed.

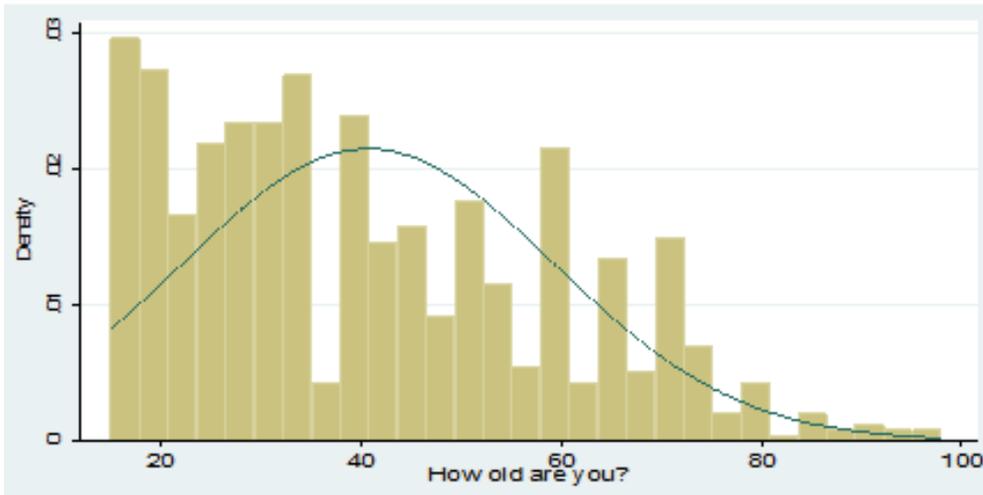
Undoubtedly, these factors constitute a decisive lever in the adoption or the diffusion of mobile money in Togo. They can therefore constitute a channel of transmission) for the adoption of mobile money in Togo.

Appendix

Appendix 1: Distribution of the sample by age of individuals



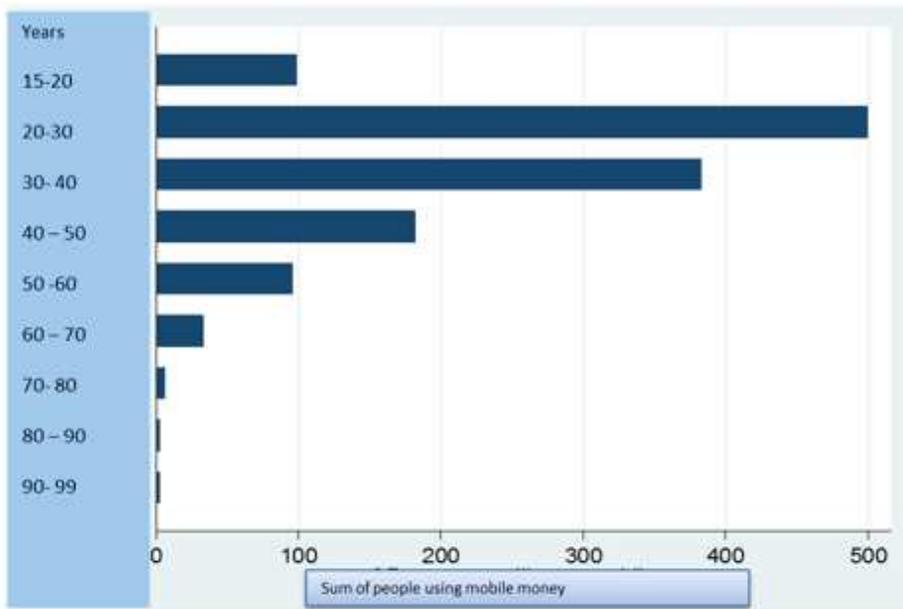
Appendix 2: Distribution of the sample by age for individuals with a mobile phone



Appendix 3: Distribution of individuals by level of education

Highest level of education	Observations	Percentage
Never attended school	1,333	25.65
Nursery school	2	0.04
Primary school	1,333	25.66
Junior secondary school	1,544	29.71
Senior secondary school	726	13.96
Higher Education	261	5.02
Total	5,197	100

Appendix 4: Distribution of individuals using the mobile money service by age group



Appendix 5: Testing the estimation of the Ordered Logit model

```
. lincom _b[cut1:_cons]
```

```
( 1) [cut1]_cons - 0
```

Mobil_money	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
(1)	-.9513944	.1740861	-5.47	0.000	-1.292597	-.6101919

```
. lincom _b[cut1:_cons]-_b[cut2:_cons]
```

```
( 1) [cut1]_cons - [cut2]_cons - 0
```

Mobil_money	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
(1)	-1.759195	.0495935	-35.47	0.000	-1.856396	-1.661994

```
. lincom _b[cut2:_cons]-_b[cut3:_cons]
```

```
( 1) [cut2]_cons - [cut3]_cons - 0
```

Mobil_money	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
(1)	-2.087189	.0404075	-51.65	0.000	-2.166386	-2.007992

```
. lincom _b[cut3:_cons]-_b[cut4:_cons]
```

```
( 1) [cut3]_cons - [cut4]_cons - 0
```

Mobil_money	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
(1)	-1.095793	.0384269	-28.52	0.000	-1.171108	-1.020478

```
. lincom _b[cut4:_cons]-_b[cut5:_cons]
```

```
( 1) [cut4]_cons - [cut5]_cons - 0
```

Mobil_money	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
(1)	-.8854149	.0478387	-18.51	0.000	-.979177	-.7916528

Appendix 6: Presentation of statistics on variables

Variables	Modality	Gender					
		Female		Male		Total	
		Obs.	Percentage	Obs.	Percentage	Obs.	Percentage
Religious group	No	1,257	44.9%	1,169	52.0%	2,426	48.1%
	Yes	1,540	55.1%	1,079	48.0%	2,619	51.9%
Neighborhood association	No	2,558	91.5%	2,028	90.2%	4,586	90.9%
	Yes	239	8.5%	220	9.8%	459	9.1%
Informal credit group	No	2,346	83.9%	2,025	90.1%	4,371	86.6%
	Yes	451	16.1%	223	9.9%	674	13.4%
Association of nationals	No	2,619	93.6%	1,963	87.3%	4,582	90.8%
	Yes	178	6.4%	285	12.7%	463	9.2%
Agricultural cooperative	No	2,705	96.7%	2,118	94.2%	4,823	95.6%
	Yes	92	3.3%	130	5.8%	222	4.4%
Read-Write	No	1,335	47.7%	529	23.5%	1,864	36.9%
	Yes	1,462	52.3%	1,719	76.5%	3,181	63.1%
Microfinance	No	2,253	80.6%	1,820	81.0%	4,073	80.7%
	Yes	544	19.4%	428	19.0%	972	19.3%
Bank	No	2,594	92.7%	1,905	84.8%	4,499	89.2%
	Yes	203	7.3%	342	15.2%	545	10.8%
Self employment	No	2,390	85.4%	1,969	87.6%	4,359	86.4%
	Yes	407	14.6%	279	12.4%	686	13.6%
Unemployed	No	2,584	92.4%	2,032	90.4%	4,616	91.5%
	Yes	213	7.6%	216	9.6%	429	8.5%
Trader	No	2,136	76.4%	2,135	95.0%	4,271	84.7%
	Yes	661	23.6%	113	5.0%	774	15.3%
Mobil_money	Have not phone	263	9.4%	149	6.6%	412	8.2%
	Have a phone	692	24.4%	475	21.1%	1,157	22.9%
	Have heard of the product	1,238	44.3%	889	39.5%	2,127	42.2%
	Use the product once	365	13.0%	362	16.1%	727	14.4%
	Have an account	128	4.6%	199	8.9%	327	6.5%
	Confidence	121	4.3%	174	7.7%	295	5.8%

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