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ABSTRACT
The objective of this article is to analyze the effect of mobile money on financial inclusion in Cameroon. To carry out this work, it was necessary for us to analyze the effect of this adoption on the facilitation of access to financial services for households in Cameroon, and to analyze its effect on the mobilization of savings. Thus, we adopted a hypothetico-deductive approach, and collected data from several sources between 2011 and 2018, including Global Findex, Finscope and COBAC. Stationarity tests followed by series cointegration tests for the analysis of cointegration relationships between variables then led us to choose and estimate our econometric model by VAR regression, in order to capture in depth the reciprocal influence of the selected variables. The results show that holding a mobile money account thanks to accessibility significantly influences the facilitation of access to financial services for Cameroonian households.

INTRODUCTION

Mobile money is a modern tool for quickly transferring money using the mobile phone. It is an electronic wallet allowing customers to carry out various types of financial transactions from their mobile phones. Available in thirteen countries in Africa and the Middle East, mobile money has more than 15 million customers today.

In Cameroon, the service has existed since September 2011, in partnership with certain commercial banks that ensure regulatory control. The phenomenon has been booming since 2014. More than 700 payment points exist today across the country (INS). This new concept offers a large area of ? ? security, confidentiality and speed, hence its easy entry into the customs and everyday life of Cameroonians.

The potential seems to materialize in Kenya, through M - PESA, a mobile banking system operated by Safaricom. Unlike M-PESA, that has access to Kenyan household bank accounts, mobile money services by BEAC regulations are limited to money transfer and savings services.

The authors estimate that M –PESA has reached nearly 40% of adults in the population, just 2 years of operation. In addition, that now, after 4 years of its launch, it is used by more than two thirds of households. Part of this success is due to a rapidly expanding network of M-PESA agents, who now number over 23,000.

The mobile money of these 10 years took off in 2014, reaching more than 16 million customers at the end of 2016, with a penetration percentage of 57.3%, a transaction volume of 128 million in 2012, 1.2 billion in 2017. Finally, a transaction value estimated at 1.6 billion US dollars in 2012, against 19.9 billion U $ in 2017 (GSM, 2017).

From all of the above, we come to the formulation of our main hypothesis, in particular: The adoption of mobile money affects financial inclusion in Cameroon both by facilitating access to financial services and by mobilizing savings.

LITERATURE REVIEW

The theoretical thoughts of Schumpeter (1911) bring to the fore the fundamental role of the financial sector in economic development and financial inclusion. According to this author, this link is expressed through financial development through financial innovation, and its impact on inclusive growth such as mobile money.

In Schumpeter's original theory (1911), the mobile money financial sector in our case, through the various services it provides, plays an indispensable role in economic growth and financial inclusion by contributing

to the improvement of productivity influenced by current financial innovation (Eschenbach, 2004).

Depending on the nature of financial development, Patrick (1966) highlights a supply leading and a demand following for financial services (Boukari M, 2014). The supply-leading hypothesis implies a cause and effect relationship ranging from financial development to financial inclusion. In other words, the creation of mobile money promotes inclusive development in Cameroon.

Djamchid Assadi and Anaïs Cudi 2011 show that faced with the number of populations unbanked worldwide and with the growing number of mobile phones in use, the Mobile money seems to be the solution to distribute financial services and to bank a new population.

With William Jack and Tavneet Suri 2011, mobile money is a tool that allows individuals to carry out financial transactions using cell phone technology, through savings in this mobile account. Thus, their work relates to the initial results of two series of a large household survey in Kenya; a country that has experienced the fastest and most widespread growth of a mobile money product, mobile savings, known locally as M PESA. They are examining its potential economic impacts, particularly on inclusion.

EMPIRICAL FRAMEWORK

The autocorrelation vector regression (VAR) model will be used in this study, as was the case with many adoption studies in mobile technology, such as mobile money and financial inclusion in Cameroon (Amemiya, 1981, GS Maddala, 1983, CIMMYT, 1993, D. N. Gujarati, 2004, S. Belaidi, 2012). Since the dependent variable in our case is an economic effect, multiple regression was used for this analysis.

Model Specification

We then specify a model to an equation. In this model, the use of the mobile money account is expressed in terms of occasional use, holding an account and transactions. However, the mobilization of savings on its side will be expressed in terms of accessibility, education, possession of a mobile device. Gender, age, and income enter the model separately.

The dependent variable

Here, the endogenous variable for our hypothesis is savings (EPGNE), through deposits and transfers. However, VAR regression assumes all variables as endogenous. Consequently, we will have interdependent relationships between the series, for capturing autocorrelation. The growth indicator here is used as an endogenous variable in several related studies between saving and facilitating access to financial services.

THE INDEPENDENT VARIABLES

They are of two types, socio-economic variables and environmental variables.

Socio Socio-Economic Variables

Education (EDC): the level of education here refers to the highest diploma obtained by the respondent. Picolli et al (2001) in their work concluded that the level of education is a factor influencing the understanding of a new technology and its adoption. Mbiti & Weil (2011) and Yaya et al. (2012) agree that, the level of education positively affects the permanent use of Mobile Money.

Income (REV): this refers to all of the expenses incurred by the user to be able to carry out a transaction. Shy & Tarkka (2002) argue that use would influence the adoption of electronic financial services. Van Hove (2004) points out that the more expensive it is, the less users will adopt the financial product.

Age (AGE): it is necessary to take into account the age level of the individuals observed, if this effectively affects the inclusion of households in Cameroon, as the case in Kenya demonstrated by Ouma SA (2017).

Gender (MEN), (WOMEN): All countries striving to accelerate financial inclusion face similar obstacles that hinder their progress. Ensure that hard-to-reach populations, such as women and the rural poor, have good access to financial services. Women are therefore included in the study for the analysis of their level of financial inclusion.

The Telephone (TLPHNE): Having a telephone encourages accessibility to financial services for Cameroonian households (Jack & Suri, 2016). Since mobile money is a tool that can be used thanks to its Orange money or MTN mobile money application, the mobile device is therefore the focal point for facilitating access to financial services for households in Cameroon.

The Environmental Variable

Accessibility (ACCESS): Access to financial products and services makes everyday life easier and helps households and businesses to anticipate the financing of long-term objectives or to face unforeseen events. An individual with a current account will be more inclined to use other financial services, such as credit or savings, to invest in education or health, to manage risks and to overcome financial shocks (Mbiti & Weil, op cit). These are all factors that will improve his standard of living overall.

The model is therefore presented as follows:

$$EPGNE_t = \beta_0 + \beta_1 ACCES_t + \beta_2 EDC_t + \beta_3 AGE_t + \beta_4 TLPHNE_t + \beta_5 HOMME_t + \beta_6 FEMME_t + \beta_7 REV_t + \varepsilon_t$$

RESULTS OF THE MODEL ESTIMATE

Econometric validation of the model.

It is a question of verifying the models econometrically, before the interpretation of the results. To do this, it will first be a question of verifying whether the hypotheses that underlie a linear regression are verified. To this end, we will check the hypothesis of error normalities, residual normality (or Cholesky Lutkepohl), followed by cointegration between the variables, Wald tests and VAR heteroskedasticity.

Normality test

The test shows that the value of the Jarque and Bera statistic is 0.83. This value is less than the chi-square at two degrees of freedom (5.99). The hypothesis of normality of the residuals is therefore verified. Our residues follow a normal law.

Cholesky test (Lutkepohl)

It therefore appears from the tables that the probabilities of the error normality tests are below the 5% threshold. Consequently, the autocorrelation vector model is globally significant.

VAR Heteroskedasticity Test for Residues

It also emerges from the test that the probability is below the 5% threshold. This further confirms the overall validity of our estimated model.

Interpretation of the equation results

Table: Results of the estimation of the model equation

	EPGNE	TLPHNE	EDC	REV	ACCES	FEMME	HOMME	AGE
EPGNE(-1)	0.011	0.075	-0.043	1.150**	1.021	1.101**	0.965**	1.912
TLPHNE(-1)	0.095	1.669**	0.85***	-10.4**	9.740**	10.43**	9.135**	-18.04**
EDC(-1)	0.2	-3.945	-2.01**	20.44*	19.21	20.615	18.058	35.6***
REV(-1)	-0.043	1.484	0.750	-1.55	-1.737	-1.916	1.692	-3.278
ACCES(-1)	0.011	0.364**	0.144**	4.09**	3.59**	3.794**	3.308**	6.593**
FEMME(-1)	1.075	23.3**	-12.491	105.2**	99.85**	107.1***	93.86**	185.1**
HOMME(-1)	-1.165	25.23	1.58**	114.0**	-108.15	-116.04	-101.6***	200.53
AGE(-1)	7.560	- 0.0002	- 0.001	-0.0083	-0.07**	0.0078	- 0.006	-0.013
C	33.8	96.62	56.83	3.63	3.25	3.45	3.028	5.96

Source: Author

Notes: The values in parentheses are the Student t's. * represents significance at the 1% level, ** represents significance at the 5% level, *** represents significance at the 10% level.

We used Eviews10. Here, the variables are only shifted by one period after estimates. The Lags criterion shows us the significance on order 1.

The restoring force at equilibrium of our model is given by the coefficient of determination R_2 = (0.9, 0.91, 0.91, 0.90, 0.9, 0.90, 0.9 and 0.90) and R_{2A} = (0.85, 0.84, 0.84, 0.85, 0.85, 0.85, 0.75 and 0.75), respectively for (savings, holding a telephone, education, income, accessibility, being female, being male and age) in the model.

This coefficient is positive and significant. This would mean that the rate of use of a mobile account adjusts at a speed of 0.85% per year, in the event of a shock from the exogenous variables. The entire absorption of such a shock will be effective after 11 months 24 days (1 / 0.85 = 0.52 years).

This would therefore mean that 85.72% of the fluctuations in the rate of mobilization of household savings in Cameroon are explained by the explanatory variables taken from the model. Fischer's statistics (F-statistic) all have a probability of less than 5%, i.e. (0.01, 0.01, 0.01, 0.008, 0.009, 0.017, 0.017 and 0.023 respectively for (savings, telephone, education, income, access, be a woman, be a man, and age). We can therefore say that the quality of our model is good. The model is globally significant. We can therefore interpret the explanatory variables of our equation of model.

Education is a measure, of investment in human capital and from knowledge production processes. It is positively correlated for variables lagged by one period in particular (for savings, telephone ownership, income, access, and being a woman) significantly at 10% with the use of the service and mobilization of savings. However, education lagged by one period, being male and the age of households negatively influence the level of education respectively (-2.01, -13.52 and -0.0001). These results have been obtained in several recent studies (Tuesta et al. 2015, Fungàcovà and Weill, 2015, and Olaniyi, 2016, Jack and Suri, 2016, Chaix L., 2017, Kabakova O., 2018). Thus, when the level of education decreases by 1%, the exclusion from savings increases by (-2.01%, -13.52% and -0.0001%) respectively, all other things being equal. In the same way as when the level of education increases by 1%, the level of inclusion in savings lagged by a period increases by 0.04%, 0.85%, 0.75%, 0.14% and 12.49% respectively for the savings, telephone ownership, income, access, and being a woman, ceteris paribus.

Accessibility is positively and significantly correlated with the 5% threshold, notably by (savings, holding a telephone; education, being female, age and accessibility shifted by one period). This parameter bears the economically expected sign. Thus, a 1% increase in the rate of access to mobile money stimulates mobilization at a rate of 1.02%, 9.74%, 19.21%, 3.59% and 99.85%, respectively. In other words, on this slice of study, Cameroon gives more importance to the number of users than to savings. This goes hand in hand with the results of Khan, (2011), in particular the more the availability increases, the more the propensity to save evolves positively.

Income lagged by one period is negative and significant at the 10% level, especially for the explanatory variables (telephone, income, and being male lagged by a period, respectively -10.44, -1.55 and -114.03). This sign is economically expected. We can therefore say that income does not contribute positively and significantly to the mobilization of household savings in Cameroon over the 2018 period. This result has been obtained in several recent studies (Jack and Suri, 2016, Ouma SA, 2017). According to this econometric estimate, a 1% decrease in this variable offset by one period leads to a reduction of -10.44%, -1.55% and -114.03% respectively, in the rate to be saved by households in Cameroon, ceteris paribus.

In addition, we made a regression where we took into account the usual use of a mobile money account, and the result shows that these uses contribute positively to the mobilization of savings, and facilitate access to financial services. According to the econometric estimate, a 1% increase in this variable leads to an increase of 1.15%, 20.44%, 4.09%, and 105.27% (respectively for education, access to woman and age lagged d 'a period) of the level of household savings in Cameroon, ceteris paribus. This result has been obtained in several recent studies (Sarma and Pais, 2011, Allen et al. 2014, Chaix L., 2017).

Indeed, the coefficients of having a mobile phone compared to account users, which is the main variable of the model, have a positive and significant sign at the 5% threshold. Here, the upward variation of 1% in the level of ownership of a mobile device leads, all other things being equal, to an increase of 0.07%, 1.6%, 1.4%, 0.3%, 23.3% and 25.2% of the power to mobilize savings (respectively for savings, possession of a mobile device, income, access, being a woman or a man, offset by a period). This result has been obtained in several recent studies (Boukary Ouedraogo, 2008).

Similarly, the coefficient on the age of access to financial services suggests a greater influence. Indeed, the economically expected signs go hand in hand, and have been obtained in several recent studies (Tuesta et al. 2015, Fungàcovà and Weill, 2015, and Olaniyi, 2016,). In this model, the 1% increase in the age level of households leads to an increase of 1.91%, 35.64%, 6.59% and 185.12% of access to financial services (notably for savings, education, accessibility and being a woman, shifted by a period) and thereby opt to mobilize savings from these households in Cameroon. Thus, the age level has no effect on the decision to save, but contributes significantly to the 10% threshold for the mobilization of savings in the sense that the household projects a better future.

In the same way, the coefficients on the sex of the individual will depend on his gender. The coefficient for men is negative, shifted by one period, while not being significant at the 5% level, but significant at the 1% level. The male gender is negatively and significantly correlated for 1% to opt for the transfer service and mobilization. However, other explanatory variables linked to the male gender provide us with positive signs in particular (0.96, 9.13, 18.05, 1.69, 3.30 and 93.86) and respectively for savings lagged by a period, possession of a mobile phone, education income, ease of access and being a woman shifted by a period). All things being equal.

As for the female gender, it maintains its positive and significant sign at 5%. This sign has been obtained in several recent studies (Tuesta et al. 2015, Fungàcovà and Weill, 2015, and Olaniyi, 2016,). This coefficient shows that women are much more opting for mobile money to mobilize savings. And this, for more reassuring reasons, in particular the guarantee, security and reliability of the service accessible on every

corner, and for family reasons (savings for children's illness health) and conjugal (as in rural areas, women are left to their own devices, without husband's support) (Jack and Suri (2016)), and Ouma SA, (2017).

Thus, the results of the regression show that the coefficient devoted to the variable Woman contributes positively to the mobilization of savings. A 1% increase in this variable leads to an increase of 1.1%, 10.4%, 20.6%, 1.9%, 3.7%, 107.1%, and 0.007%, respectively for the variables lagged by one period in particular (savings, possession mobile phone, education, income, service availability, gender and age). Alternatively, 11.01%, 10.4%, 20.6%, 19.1%, 37.9%, 107.1%, 0.7% respectively of the savings rate of households in Cameroon, ceteris paribus. So what about the fates of our assumptions?

The econometric results that we obtained allowed us to verify the statistical and economic validity of our hypotheses. The first relates to the contribution of mobile money to facilitate access to financial services and the second consists in seeing among these factors, which has the most affect the mobilization of savings in Cameroon. These results show that the adoption of mobile money facilitates access to financial services for households in Cameroon more than the mobilization of savings, positively.

IMPLICATIONS OF ECONOMIC POLICIES

At the end of this article, this paper highlighted the interest of managing mobile money in the face of their effects on macroeconomic variables. The resulting economic policy implications will allow predictable management of shocks and thus mitigate their direct and indirect effects. However, to achieve this, the Cameroonian authorities are therefore invited to take vigorous action in various fields:

Promote education and the development of financial literacy. As the results of the FINSCOPE survey also confirm, the increased use of an expensive informal financial sector is linked to the lack of information on the possibilities offered by the formal sector.

Improved financial infrastructure could help overcome some barriers to accessing financial services. In this regard, it would be important to accelerate reforms aimed at: extending access to the customer database to all financial institutions; improve collateral management by computerizing the movable security register and the cadaster; and train judges in the resolution of banking disputes, while working for the creation of mobile commerce courts. These recommendations go hand in hand with the conclusions of Jack and Suri (2016), and Ouma SA, (2017).

Improve the regulatory environment for mobile money. In the mobile money sector, the acceleration of the implementation of the 2017 regional regulations, which is expected for first-class EMFs to come together under the aegis of regulatory bodies to facilitate control and supervision, should also apply for mobile money operators.

Professional management and effective governance are among the basic requirements for an operator who can mobilize the savings of its customers. The authorities should encourage the mobile money operator to first secure its liquidity in financial resources (this is already the case) and to master its knowledge, in order to process a larger volume of less predictable transactions.

Customers will be able to better monitor the operator and their confidence will be increased if the ownership of funds is clearly defined and if mobile money is managed transparently.

INTERNAL AND EXTERNAL CONTROLS

Financial institutions that mobilize the savings of their customers are normally subject to the regulations and supervision of the public authorities in charge of the banking sector. However, these authorities are sometimes reluctant to control mobile money that captures savings because they have neither the resources (human and financial) nor the sufficient knowledge to supervise the mobile finance sector. Consequently,

when external supervision is ineffective or not compulsory, the mobile money group should develop effective internal control mechanisms, led by a special supervision and control unit, channeling the mobilizing aspect of savings for households. Caruana, (2016) goes in the same direction as our proposal.

Internal controls should be combined with the services of a competent external auditor. In addition, an efficient and adapted IMS (Information Management System) can help quickly detect problems.

TECHNICALS FOR THE INDIRECT OF SAVINGS MOBILIZATION

Since mobile money is not legally authorized to collect deposits from their customers in the banking context, the government can encourage, among other things, mobile money, to use different intermediation techniques between their customers and a licensed financial institution (generally a commercial bank or a savings and credit cooperative). This will provide a means for poor households who do not like banks to have access to a safe place for their savings.

REFERENCE

Belaidi, S. (2012). Les déterminants de choix de l'irrigation localisée par les exploitants de la Mitidja. Alger,: université d'Alger.

Caruana, J. (2016). Financial inclusion and the fintech revolution: implications for supervision and oversight. Conference Remarks at the Third GPFI-FSI Conference on Standard-Setting Bodies and Innovative Financial Inclusion. Basel.

CIMMYT. (1993). The adoption of agricultural technology: a guide for survey design. Economics Program, International Maize….

D Assadi, A Cudi (2011) Le potentiel d'inclusion financière du "Mobile Banking". Une étude exploratoire - Management Avenir, 2011 - cairn.info

D. Tuesta, NC Izquierdo, Aestimatio (2015), Factors that matter for financial inclusion: Evidence from Peru. The IEB International - dialnet.unirioja.es

Eschenbach, F. (2004). Finance and growth: A survey of the theoretical and empirical literature - papers.ssrn.com

Fungáčová, Z. (2015). Understanding financial inclusion in China. China Economic Review.

G.S, M. (1983). A perspective on the use of limited-dependent and qualitative variables models in accounting research. (JSTOR, Éd.) The Accounting Review.

GSMA. (2014). State of the Industry Report on Mobile Financial Services for the Unbanked.

Gujarati, D. N. (2004). Multiple Regression Analysis: the Problem with Estimation DN Gujarati. Dans Basic Econometrics.

Jarque et Bera (2007) Jarque–Bera test and its competitors for testing normality–a power comparison - Journal of Applied Statistics, Taylor & Francis

Kabakova, O. (2018). Journal of Business Research. doi:https://doi.org/10.1016/j.jbusres.2018.01.066

L Van Hove (2004) Cost-based pricing of payment instruments: the state of the debate - De Economist, 2004 - Springer

Mamane Boukari, (. (s.d.). La théorie de la libéralisation financière face aux enjeux du financement du développement en Afrique subsaharienne . École Doctorale Entreprise, Économie, Société (E. D. 42) Spécialité Sciences Économiques.

O Shy, J Tarkka (2002) The market for electronic cash cards - Journal of Money, Credit and Banking, 2002 - JSTOR

Olaniyi, E. A. (2016). Determinants of financial inclusion in Africa : Approche sur le panel dynamique. Mauritius, University of Mauritius Research Journal, Vol. 22.

Ouedraogo, B. (2008). « Les Déterminants De L'Intensification Du Volume De L'Épargne Dans Le Système Financier Décentralisé Au Burkina Faso: Cas Des Caisses Populaires De … ». Revue

Tiers Monde.
Picolli et al (2001) Digestibilidade in vitro de alimentos com inóculos de líquido de rúmen ou de fezes de bovinos
SA Ouma, TM Odongo, M Were (2017) Mobile financial services and financial inclusion: Is it a boon for savings mobilization? - Review of development finance, 2017 - Elsevier
Schumpeter J. (1911) The theory of economic development. Harvard Economic Studies. Vol. XLVI - Cambridge, MA: Harvard University
T. Amemiya, 1981), Qualitative response models: A survey - Journal of economic literature, 1981 - JSTOR
T. Suri, W. J. (2016). The long-run poverty and gender impacts of mobile money. Science.
T., P. H. (1966). Financial development and economic growth in underdeveloped countries. Economic development and Cultural change, vol. 14(n°2,), p.174–189.
W Jack, T Suri (2011) Mobile money: The economics of M-PESA - nber.org
Weil et Mbiti. (2016). Mobile Banking: the Impact of M-Pesa in Kenya. African Successes . Vol. III.
Weil., et Mbiti. (2011). Etude économétrique sur l'utilisation de MPesa au niveau de 190 localités au Kenya .
Yaya KY, F. S. (2014). Adoption et impact de l'utilisation du mobile banking sur le bien être des ménages : le cas de la banlieue de Dakar au Sénégal . Rapport provisoire, Nanyang Technological University, Consortium pour.
Yaya L. Honore Petnji et A Simon,. (2012). Improving innovation and Customer satisfaction through systems integration. Industrial Management & Data.