Open Access Library Journal
2025, Volume 12, e13239
ISSN Online: 2333-9721
ISSN Print: 2333-9705

Do Mobile Payments Foster Banking Access in Rural Areas in Cameroon?

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How to cite this paper: Anegue, J.D.D. (2025) Do Mobile Payments Foster Banking Access in Rural Areas in Cameroon? *Open Access Library Journal*, **12**: e13239.
https://doi.org/10.4236/oalib.1113239

Received: March 10, 2025
Accepted: April 7, 2025
Published: April 10, 2025

Abstract

This paper aims to analyze the effect of mobile payments on banking in rural areas of Cameroon. Using data from the World Bank Findex Database 2021 and a logistic regression model, the results show that the adoption of mobile payments facilitates the integration of individuals into the banking system in rural areas. This study highlights the key role of mobile payments as a catalyst for financial inclusion. It then emphasizes the need to encourage their adoption and promote access to mobile technologies in order to enhance financial inclusion in rural zone and by extension, support economic growth and poverty reduction in Cameroon.

Subject Areas

Economic Development, Financial Inclusion

Keywords

Mobile Payments, Financial Inclusion, Banking Access, Logistic Regression

1. Introduction

Financial inclusion represents a significant challenge in many regions of the world, particularly in rural areas of developing countries [1]. Traditional financial services, such as bank accounts, loans, and savings services, are often inaccessible due to the lack of banking infrastructure, the high cost of services, and the lack of trust among populations in financial institutions [2]. However, the rise of mobile payments and digital financial services has revolutionized access to banking services, particularly in rural areas, where bank penetration has traditionally been low [3].

In Cameroon, as in most Sub-Saharan African countries, financial inclusion is a major challenge for economic and social development, as access to traditional

banking services remains limited [4]. According to [5]'s 2022 report The Little Data Book on Financial Inclusion, only 23.5% of the Cameroonian population aged 15 and above had an account in a formal financial institution in 2021, compared to an average of 39.7% in Sub-Saharan Africa. This low level of banking penetration indicates a significant exclusion from formal financial services for the working population, posing persistent challenges in poverty reduction, particularly in rural areas, where the poverty incidence was estimated at 56.3% according to the [6]. However, in recent years, a phenomenon has emerged as a potential solution: the rise of mobile payments.

With the increasing mobile phone penetration rate (estimated at around 87% in 2024 by [7]) and the growing adoption of digital technologies, mobile payments have transformed the landscape of financial services in Cameroon. Thanks to platforms such as Orange Money and MTN Mobile Money, an increasing number of Cameroonians, particularly those in rural areas, now have access to essential financial services such as sending and receiving money, paying for goods and services, as well as savings and credit, all from their mobile phones [8]. This mobile payment phenomenon is a significant lever for promoting financial inclusion [9]. By enabling populations to carry out transactions without needing to visit a bank branch, mobile payments have opened up new opportunities for integration into the digital economy, overcoming barriers related to distance and the costs of traditional banking services.

The effect of mobile payments on bank penetration has been widely explored in several African countries through studies such as those by [10]. These studies have highlighted the significant links between mobile payment adoption and improved bank penetration in various African contexts. In particular, these studies revealed that mobile payments can serve as an alternative solution to traditional banking services by facilitating access to financial services in rural areas where formal banking infrastructure is often absent [11]. Other works, such as those by [2], have also shown that the use of mobile payments plays a crucial role in bank penetration, allowing unbanked populations to access financial services even in regions where banking coverage is limited.

Moreover, research such as that by [4] has highlighted that the adoption of mobile financial solutions significantly contributes to financial inclusion, providing rural populations with a means to integrate into the formal economy despite limited access to physical banks. However, when examining the specific case of Cameroon, and more specifically rural areas, there is a lack of detailed studies on this specific topic. Few studies have been conducted on the specific effect of mobile payments on bank penetration in these regions, which raises the need for in-depth investigations within the Cameroonian context. This gap in studies regarding this subject in the Cameroonian context is concerning, especially since rural populations in Cameroon, facing major economic challenges such as poverty and exclusion from traditional financial systems, could greatly benefit from digital solutions such as mobile payments.

The need to bridge this gap is all the more urgent when considering the transformative potential of mobile payments in facilitating access to financial services in rural areas. Indeed, as [9] points out, mobile payments offer a practical and accessible solution, capable of overcoming geographical, economic, and infrastructural barriers that make access to conventional banking services difficult in these areas. Therefore, understanding the role of this technology in improving the bank penetration of rural populations in Cameroon becomes a crucial issue for policymakers and development actors.

In this context, this study aims to answer the following question: Do mobile payments promote bank penetration in rural areas in Cameroon? This question is of paramount importance as it could help guide public policies to improve the effectiveness of financial inclusion programs and foster sustainable transformation in the living conditions of rural populations in Cameroon.

The objective of this study is, therefore, to analyze the effect of mobile payments on bank penetration in rural areas in Cameroon. To do so, the study is structured in three sections. In the first section, a review of the empirical literature is conducted to explore the relationship between bank penetration and mobile payments. The second section details the methodological approach, presenting the data used as well as the statistical and econometric tools employed to answer the research question. Finally, the third section is devoted to presenting the results, followed by a discussion.

2. Literature Review

Financial inclusion, defined as the access to and use of formal financial services by individuals and businesses, is recognized as a key element of economic growth and poverty reduction, particularly in developing countries [12]. In this context, mobile payments, due to their low cost, accessibility, and ability to reach populations distant from traditional banking infrastructure, have emerged as a significant lever for promoting financial inclusion, especially in rural areas. Several studies have examined the link between the use of mobile payments and bank penetration, emphasizing that this technology facilitates the integration of individuals into the financial system.

2.1. Mobile Payments as Levers for Bank Penetration

Mobile payments, due to their ability to overcome geographical, economic, and social barriers, have proven to be a powerful driver of financial inclusion, particularly in rural areas where populations face difficulties accessing traditional banking services. [1] highlight that mobile payments allow individuals in remote areas without bank branches to conduct financial transactions securely and at low cost. In African countries like Cameroon, where banking infrastructure is still limited and the density of bank branches remains low, mobile payment technologies represent a key solution to overcoming these challenges. They not only expand access to financial services but also reduce the costs associated with opening and

maintaining a bank account, making banking more accessible to rural populations.

Mobile payment platforms, such as M-Pesa in Kenya, are iconic examples of this digital transformation. [13] study shows that M-Pesa facilitated the integration of millions of Kenyans into the formal financial system, especially in rural areas where bank branches are scarce. By enabling fast payments, money transfers, and low-value transactions, M-Pesa not only simplified economic exchanges but also encouraged users to adopt more traditional financial services such as savings accounts and credit. This gradual adoption of traditional banking services, facilitated by mobile payments, contributed to a significant increase in the banking penetration rate in Kenya.

The effect of mobile payments goes beyond direct financial inclusion. A complementary study by [14] emphasizes the fundamental role of M-Pesa in reducing social exclusion, a phenomenon often observed in rural or marginalized communities. By enabling individuals to carry out transactions without needing to visit a bank, M-Pesa not only facilitated access to financial services but also strengthened social and economic ties within these communities. By making banking services more accessible and less intimidating, mobile payments have facilitated the integration of populations previously excluded from the banking system. This phenomenon suggests that the use of mobile payments is not just a preliminary step toward banking, but also plays a significant role in engaging populations in broader and more diverse financial services.

Furthermore, the rise of mobile payments has positive secondary effects on the economy by enabling individuals to access services such as microloans and savings, thus stimulating local economic activities [15]. Mobile payment platforms have thus become powerful instruments of economic development, particularly in rural areas. Therefore, mobile payments not only address the issues of access to basic financial services but also act as a catalyst for the adoption of more sophisticated banking services, paving the way for broader financial inclusion and contributing to economic growth, especially in the most isolated regions [10]

2.2. Mobile Payments and Mitigating Barriers to Bank Penetration

Mobile payments play a crucial role in eliminating several major barriers to bank penetration, including high transaction costs, the geographical distance from bank branches, and distrust of financial institutions. As [16] highlight, reducing the cost of access to banking services is a key factor in promoting financial inclusion. By enabling low-cost transactions, mobile payments make access to banking more affordable, particularly for rural and impoverished populations, who are often excluded from traditional banking services due to prohibitive costs. These technologies, therefore, help democratize access to financial services, allowing those who have historically been excluded to actively participate in the formal economy.

[12] also emphasize the importance of mobile technologies in financial inclusion,

especially in developing countries where access to traditional banking infrastructure is often limited. One of the main barriers faced by rural populations is the physical distance from bank branches. Through mobile payments, this geographical barrier is effectively overcome. Financial services, once confined to physical bank branches, are now accessible via mobile phones, a tool that is increasingly widespread in many rural regions of developing countries [17]. This structural change offers a unique opportunity to connect a large portion of the population to previously inaccessible financial services. As a result, even individuals living in remote areas where access to traditional banking services is limited can now conduct transactions, save, and access credit through mobile payments. This ability to provide financial services without the need for physical infrastructure is a major asset in the fight against financial exclusion in underserved regions [18].

The work of [19] corroborates this observation and highlights the positive impact of mobile payments on reducing the cost of access to financial services. The study shows that the introduction of mobile payments in many sub-Saharan African countries has improved rural households' access to a range of financial services. This has led to a significant increase in bank penetration, particularly in rural areas previously excluded from these services due to geographical and financial barriers. By facilitating access to basic banking services such as savings and money transfers, mobile payments have not only helped integrate rural populations into the financial system but have also stimulated local economic growth by enabling a greater flow of funds.

Mobile payments also play an essential role in reducing reliance on informality [20]. By allowing populations to perform financial transactions without visiting formal banking institutions, these services provide a less costly and more accessible alternative to traditional channels, especially in rural areas where informality is commonly observed. Furthermore, the increasing integration of mobile payments into rural economies helps strengthen people's trust in formal financial institutions, which can play an important role in long-term economic stabilization and development [21].

In conclusion, the introduction of mobile payments represents a major turning point in promoting bank penetration in rural areas. Not only does it overcome geographical and economic barriers, but it also acts as a catalyst for financial inclusion, enabling millions of individuals to access formal financial services for the first time. Research from scholars such as [12] [16], and [20] clearly demonstrates that the adoption of mobile payments is an effective solution for promoting financial inclusion, stimulating bank penetration, and ultimately supporting economic development in rural and developing regions.

2.3. Mobile Payments and Bank Penetration in the African Context

Africa represents an exceptional testing ground for mobile payments due to its unique socio-economic characteristics and challenges in financial infrastructure. Many African countries have viewed mobile payment innovations as a way to

overcome the barriers to bank penetration, including high costs, limited access to bank branches, and geographical barriers that make financial inclusion difficult for rural populations. Studies conducted in countries like Kenya, Ghana, and Côte d'Ivoire highlight the significant effect of these technologies on bank penetration, demonstrating their potential to transform the African financial landscape.

In Kenya, a study by [13] shows that the introduction of mobile financial services, particularly via M-Pesa, had a significant effect on bank penetration rates. This research demonstrated that the use of mobile payment services substantially increased the likelihood of individuals opening a bank account. The study by [22] supports this by noting that M-Pesa users were not only more likely to have a bank account but were also more likely to access other formal financial products, such as loans or savings services. This phenomenon is due to mobile payments' ability to simplify financial transactions, thereby allowing rural populations, far from banking infrastructure, to actively participate in the financial system. These studies highlight that mobile payments not only facilitate access to basic financial services but also play a crucial role in integrating rural populations into a more formal financial system.

In Côte d'Ivoire, the study by [23] reinforces these findings by showing that the adoption of mobile payments improves access to financial services. The author shows that individuals using mobile payments are not only more likely to open a bank account, but they also engage in more proactive management of their personal finances. This adoption enables users to conduct secure transactions, save in a formal way, and better manage their budgets, contributing to stronger financial inclusion. The results of this study go beyond the purely banking aspect by highlighting a reduction in economic inequalities through the ability for all individuals to have equitable access to financial services.

The effect of mobile payments on bank penetration goes beyond the mere accessibility to banking services [24]. They also influence how populations manage their money and make economic decisions. This phenomenon can play a significant role in reducing economic inequalities by allowing traditionally excluded populations to benefit from greater access to financial services [25]. Moreover, by facilitating financial inclusion, mobile payments help stimulate economic activity, enabling better circulation of money and greater economic stability at the local level.

In conclusion, mobile payments are not just about providing access to financial services; they have a broader effect on the empowerment of populations, improving personal financial management, reducing economic inequalities, and promoting local economic growth. This dynamic offers a crucial lever for enhancing financial inclusion in Africa and, consequently, for stimulating more inclusive and sustainable economic development.

3. Data and Methodological Approach

In this section, we present the data on which the study is based, as well as the

methodology used.

3.1. Data

The data used for this study comes from the 2021 edition of [26]. This is an important source for analyzing financial behaviors and financial inclusion on a global scale. To measure banking inclusion, we used the variable "ownership of a bank account." This measure is commonly used to assess individuals' ability to access formal financial services, which is an essential condition for modern economic participation [12]. Regarding mobile payments, we used the variable "digital transaction."

Based on the literature, we included additional variables that might explain banking inclusion. These variables include age, gender, mobile phone ownership, education level, employment status, and income level. Table 1 presents each of the aforementioned variables, their identifiers in the WBFD, their descriptions, and their references in the literature.

Table 1. Variables, descriptions and references.

Variable	Identification in the WBFD	Description	References
		Banking access measurement	
Banking account ownership	*account_fin*	Binary variable that takes the value of 1 if the individual owns an account in a formal financial institution (bank, microfinance institution) and 0 otherwise.	[12]
		Mobile payments measurement	
Mobile payments	*anydigpayment*	Binary variable that takes the value of 1 if the individual has made a financial transaction via a mobile phone and 0 otherwise.	[23]
		Control variables.	
Age	*age*	Continuous variable	[27]
Sex	*female*	Binary variable that takes the value 0 if the individual is a woman and 1 if the individual is a man	[28]
Ownership of a mobile phone.	*mobileowner*	Binary variable that takes the value 1 if the individual owns a mobile phone and 0 otherwise	[29]
Level of education	*educ*	Ordinal variable that takes the value of 1 for primary education, 2 for secondary education, and 3 for higher education.	[30]
Labor status	*emp_in*	Binary variable that takes the value 1 if the individual is active and 0 otherwise	[31]
Income level	*inc_q*	Ordinal variable that takes the value of 1 if the individual belongs to the first income quintile, 2 for the second quintile, and so on up to 5 for the fifth quintile.	[12]

Source: The author, World Bank Findex Database 2021.

3.2. Model Specification and Estimation Method

As we saw earlier, the response variable, which is banking access, is captured here

by a binary variable indicating whether the respondent has an account with a formal financial institution (bank and/or microfinance institution) or not. In the literature, econometric models with a limited dependent variable are typically used when the response variable is categorical. For the present case, where the response variable is binary, we can use a Logit model (assuming the error follows a logistic distribution) or a Probit model (assuming the error follows a normal distribution). However, in financial studies, there can be asymmetric distributions of both explanatory and dependent variables. The Logit model, due to the shape of its logistic function, can better handle cases where extreme probabilities (very close to 0 or 1) are observed [32]. It therefore appears to be the most appropriate model in this study on mobile payments usage, where part of the population may not use these financial services at all, while another part uses them intensively.

Let Y be our binary variable, which takes the value of 1 if the individual has a bank account and 0 otherwise. Suppose we want to model the probability that an individual has a bank account as a function of a vector $X=\left(X_1, X_2, X_3, \cdots, X_p\right)$ of p continuous or categorical predictors. This probability, written as $P\left(Y=1\middle|X\right)$, can be defined as a linear combination of the predictors X through the equation:

$$P\left(Y=1\middle|X\right)=\beta_0+\sum_{k=1}^{p}\beta_k X_k+\epsilon \tag{1}$$

Estimating the parameters β_k in Equation (1) using the ordinary least squares estimator, for example, could lead to negative values or values greater than 1 for $P\left(Y=1\middle|X\right)$, which is impossible for a probability. The Logit model solves this issue by introducing a logistic function to model the conditional probability $P\left(Y=1\middle|X\right)$ in order to ensure that it stays within the interval [0, 1]. The transformed model is thus written as:

$$\ln\left(\frac{P\left(Y=1\middle|X\right)}{1-P\left(Y=1\middle|X\right)}\right)=\beta_0+\sum_{k=1}^{p}\beta_k X_k+\epsilon \tag{2}$$

The conditional probability $P\left(Y=1\middle|X\right)$ derived from Equation (2) is given by the following expression:

$$P\left(Y=1\middle|X\right)=\frac{1}{1+e^{-\left(\beta_0+\sum_{k=1}^{p}\beta_k X_k\right)}} \tag{3}$$

The parameters β_k of Equation (2) are estimated using the method of maximum likelihood, which involves maximizing the likelihood of the observed data under the proposed model. This method is based on the idea of maximizing the probability of observing the real data given the parameters of the model. The likelihood function $L(\beta)$ for a sample of n observations is the product of the probabilities of observing the different values of Y for each observation. This function is defined by the following expression:

$$L(\beta)=\prod_{i=1}^{n}\left[P\left(Y_i=1\middle|X_i\right)^{Y_i}\right]\cdot\left[\left(1-P\left(Y_i=1\middle|X_i\right)\right)^{1-Y_i}\right] \tag{4}$$

To simplify the calculations related to the estimation of the parameters, the

likelihood function is often transformed into the log-likelihood function, which is simply the natural logarithm applied to Equation (4). Using the properties of the natural logarithm, the log-likelihood is given by the following expression:

$$\log\left(L\left(\beta\right)\right)=\sum_{i=1}^{n}\left(\left[Y_i*\log P\left(Y_i=1\middle|X_i\right)\right]+\left[\left(1-Y_i\right)*\log\left(1-P\left(Y_i=1\middle|X_i\right)\right)\right]\right) \quad (5)$$

The model parameters are estimated by maximizing the log-likelihood function. This process is typically carried out using numerical algorithms such as the Newton-Raphson algorithm.

The parameters β_k obtained after maximizing the log-likelihood function are not directly interpretable in terms of the marginal effects of the explanatory variables on the conditional probability $P\left(Y=1\middle|X\right)$; only their signs are interpretable. To obtain these marginal effects, they need to be estimated. Thus, the marginal effect of the variable X_k on $P\left(Y=1\middle|X\right)$ is given by:

$$\frac{\partial P\left(Y=1\middle|X\right)}{\partial X_k}=P\left(Y=1\middle|X\right)*\left(1-P\left(Y=1\middle|X\right)\right)*\beta_k$$

4. Results and Discussion

As previously mentioned, the data used in this study comes from the WBFD. From this database, we extracted data related to rural areas in Cameroon. The sample thus consisted of 539 observations. For analytical purposes, some variables were recoded, and missing values were imputed using the mode of the relevant variables, as they were categorical (the continuous variable age had no missing observations).

4.1. Sample Descriptive Analysis

The univariate descriptive analysis of the sample highlights a low level of banking in the rural population in Cameroon, with only 34.7% of respondents having a bank account. However, interesting trends regarding mobile payment adoption are observed. Indeed, 352 individuals reported having made mobile payments in the 12 months prior to the survey, representing 65.3% of the sample. This proportion suggests a relatively high adoption of mobile payments, which could reflect a growing penetration of financial technologies in these areas. The sample is predominantly female, with 58.4% of respondents being women, which could indicate gender-specific dynamics in the use of mobile payments.

The average age of individuals is 30.4 years, with a standard deviation of 12.3 years. This could suggest a relatively young population, a characteristic that may favor the adoption of new technologies such as mobile payments. However, access to technology remains a key factor. Indeed, while 84.6% of respondents own a mobile phone, only 62.1% have internet access, highlighting a significant gap in the ability to fully utilize mobile payments, especially in areas where internet coverage is still limited.

Regarding education, over 75% of respondents have reached the secondary level, suggesting a relatively educated population, potentially more capable of

understanding and adopting financial technologies. However, the challenge of poverty remains, with 35.2% of respondents belonging to the first income quintile. This could limit these populations' ability to regularly access and use mobile payment services. Additionally, 72% of respondents are employed, showing some work dynamics within the sample. However, this professional activity may also be marked by moderate or fluctuating incomes, thereby increasing the economic barriers to mobile payment adoption.

The combined analysis of variables regarding bank account ownership and the use of mobile payments reveals a positive relationship between these two elements. Looking at Figure 1, it can be observed that more than 93% of individuals who have not used mobile payments do not have a bank account, compared to less than 50% of those who have made mobile transactions. This suggests that the adoption of mobile payments could promote banking, highlighting a complementarity between traditional banking services and access to new financial technologies. This correlation between banking and mobile payments may also illustrate a threshold effect, where having a bank account becomes essential for using digital financial tools, thus contributing to better financial inclusion.

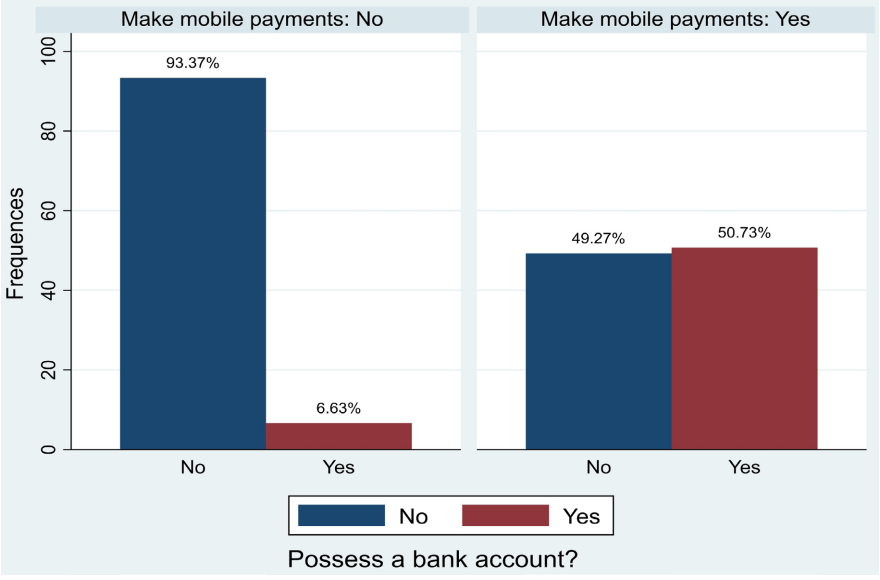

Figure 1. Bank account ownership according to the use of mobile payments. Source: The author.

The data also reveal significant gender disparities in access to traditional financial services. Indeed, a higher proportion of women (over 74%) in the sample do not have a bank account, compared to about 52% of men. This suggests that women in rural areas of Cameroon are more excluded from traditional banking services, which may be linked to socio-economic or cultural factors affecting their financial inclusion.

Furthermore, a positive relationship is observed between education level and banking access. In fact, 77.3% of individuals with higher education have a bank

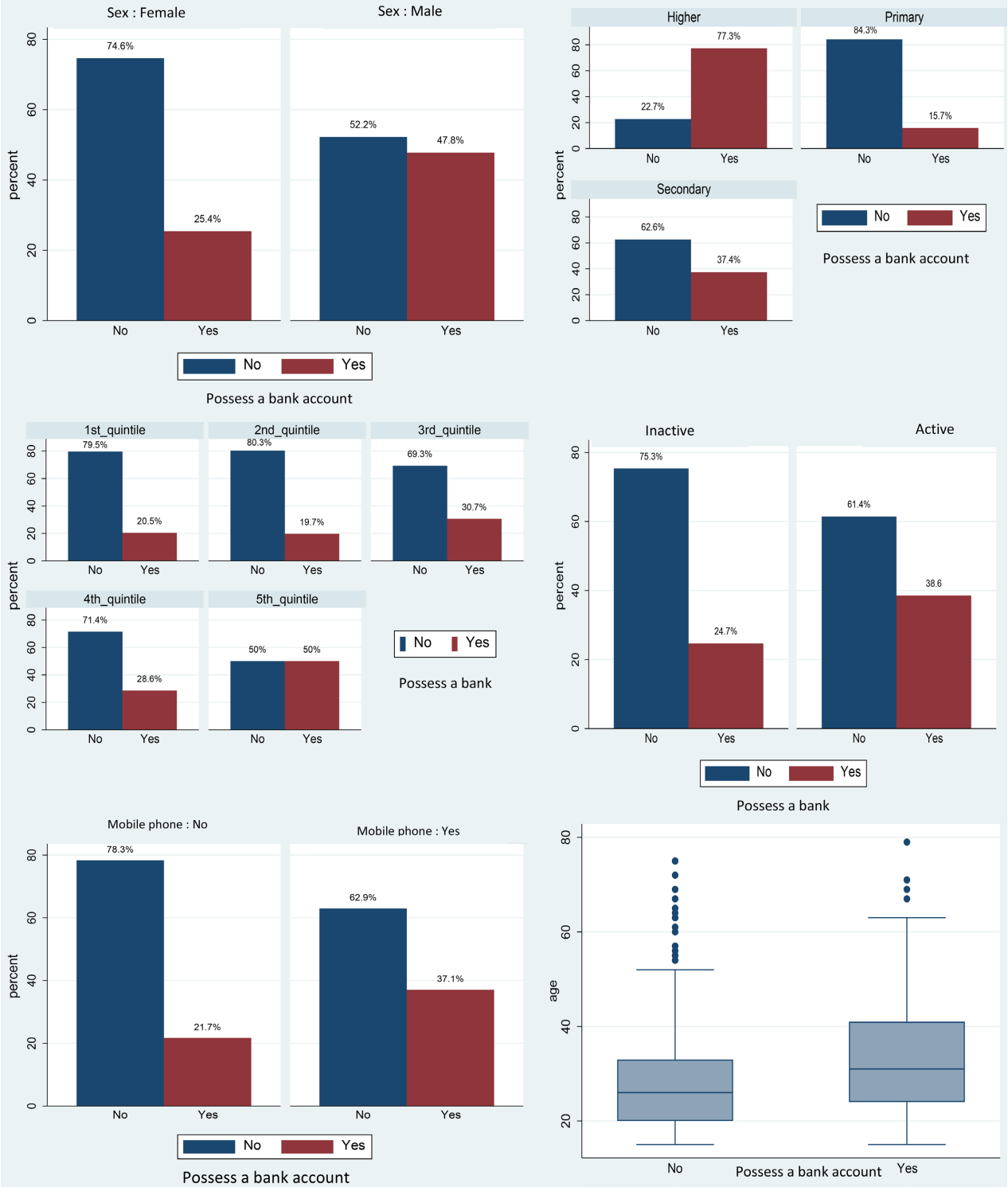

Figure 2. Bank account ownership according to the control variables. Source: The author.

account, compared to only 16.7% of individuals with a primary education who benefit from such services. This finding highlights the effect of education on access to financial services and suggests that financial education initiatives could foster greater inclusion. Additionally, banking seems to be higher among active

individuals (38.6%) compared to inactive individuals (24.7%), which may reflect a link between economic activity and access to financial services.

Finally, it appears that mobile phone ownership is positively correlated with banking, emphasizing the growing role of technology in financial inclusion. This relationship could indicate the rise of mobile banking services, which facilitate access to finance for populations traditionally excluded. Moreover, banking tends to increase with age, as illustrated by the boxplot in Figure 2 below, suggesting that experience and financial stability are also factors promoting access to banking services.

4.2. Results

We now proceed with the estimation of the econometric model. Since the data are survey data, we incorporate individual weights in the estimation. Additionally, to better understand the effect of mobile payments on banking, we progressively add control variables to the base model (in which the variable measuring mobile payments is the only explanatory variable). This helps isolate the actual effect of mobile payments while identifying how each socio-demographic variable influences the relationship between digital payments and banking. The results are recorded in Table 2.

Table 2. Estimation results.

Variables	Baseline model	Equation (2)	Equation (3)	Equation (4)	Equation (5)	Equation (6)
anydigpayment	2.81*** (0.3494)	2.76*** (0.3513)	2.99*** (0.3720)	2.86*** (0.3733)	2.74*** (0.36)	2.82*** (0.3764)
female		0.588*** (0.2499)	0.533** (0.2571)	0.4967* (0.2676)	0.46* (0.2690)	0.43 (0.2687)
age			0.037*** (0.0104)	0.048***(0.01095)	0.049***(0.11)	0.053***(0.1136)
educ				1.06*** (0.3203)	1.11***(0.3131)	1.05*** (0.3043)
emp_in					0.6127** (0.3061)	0.63** (0.3087)
inc_q						0.17 (0.1121)
mobileowner						0.63* (0.3769)
const	−2.99*** (0.3234)	−3.25*** (0.3388)	−4.69*** (0.5140)	−6.69*** (0.7613)	−6.56*** (0.7507)	−6.72*** (0.8576)
n	539	539	539	539	539	539
Wald statistic	65.03	69.21	74.19	104.15	116.55	118.7
Pseudo R2	19.2%	20.4%	23.5%	26.7%	27.4%	28.6%
Prob. > Chi2	0.000	0.000	0.000	0.000	0.000	0.000

robust_standard errors are in brackets ***p < 0.01 **p < 0.05 *p < 0.1. Source: The author.

The results in Table 2 reveal a positive and significant effect of mobile payments on banking in rural areas of Cameroon, with a significance level of 1%. The coefficient associated with the use of mobile payments is both positive and significant, regardless of the model specifications (from the base model to Equation (6)). This finding demonstrates a robust and independent relationship between the use of

mobile payments and increased banking. When additional explanatory variables such as age, gender, education level, income level, and mobile phone ownership are included, the results show that the use of mobile payments has a direct and positive effect on the likelihood of owning a bank account. This indicates that the adoption of mobile payments facilitates the integration of individuals into the banking system in rural Cameroon.

Moreover, the results indicate a statistically significant gender difference concerning bank account ownership. The positive and significant coefficient of the female variable suggests that women are less likely to be banked compared to men. Additionally, age and education level are positively and significantly correlated with banking, with a significance threshold of 5%. These results show that banking tends to increase with age and education level.

A significant difference is also observed between active and non-active individuals, with active individuals being more likely to own a bank account than non-active individuals. Similarly, mobile phone ownership is positively associated with banking, with a significant level of 10% between individuals who own a phone and those who do not. However, no significant relationship was found between income class and banking in this model. It is worth noting that all the estimated models are overall significant, as they have likelihood ratio test p-values less than 1%.

Since only the signs of the coefficients in Table 2 are interpretable, we proceed to estimate the marginal effects to capture the marginal effect of each variable on the probability of owning a bank account. We do not include the income class in this estimation since this variable proved to be non-significant. The results are presented in Table 3.

Table 3. Marginal effects estimation.

Variables	dy/dx	Z stat	Prob.
anydigpayment	0.4108	8.46	0.000
female	0.0667	1.75	0.080
age	0.0075	5.10	0.000
educ	0.1651	4.06	0.000
emp_in	0.0873	2.07	0.038
mobileowner	0.0986	1.81	0.070

***p < 0.01 **p < 0.05 *p < 0.1. Source: The author.

The results in Table 3 corroborate the previous estimates, highlighting positive and statistically significant marginal effects for each explanatory variable on the probability of owning a bank account, with a maximum threshold of 10%. These findings provide additional insights into the stimulating effect of mobile payments on banking in rural areas of Cameroon. Indeed, it is observed that the use of mobile payments is associated with an approximately 41% increase in the likelihood

that an individual owns a bank account, thus highlighting the key role of adopting this financial technology in facilitating banking inclusion in rural areas of Cameroon.

4.3. Discussion

The results of this study show a positive and significant effect of mobile payments on banking in rural areas of Cameroon. This finding aligns with numerous previous studies that have shown that mobile payments can play a crucial role in financial inclusion, particularly in rural areas where banking infrastructure is limited. Indeed, [18] demonstrated that mobile payments contributed to financial inclusion in East Africa by facilitating access to financial services in hard-to-reach regions. Similarly, [16] emphasized that mobile payments, with their ease of use and low cost, help overcome barriers to accessing traditional banking services, encouraging individuals to engage in the banking system.

Moreover, the positive effect of mobile payments on banking remains significant, even after controlling for other variables such as age, gender, education level, income level, and mobile phone ownership. These results are corroborated by [18], who observed that mobile payment technologies are particularly effective at increasing banking inclusion in developing countries because they provide access to financial services without requiring complex physical infrastructure. Therefore, these technologies appear to act as a lever for banking inclusion in rural areas, reducing access barriers and fostering greater participation of rural populations in the financial system.

The study also shows that women are less likely to be banked than men, a finding that is widely documented in the literature. According to [33], gender inequality in access to banking services is a well-established phenomenon, particularly in rural areas of developing countries, where women often face obstacles related to social norms, economic constraints, and limited access to financial infrastructure. However, as suggested by [13] in their work on M-Pesa in Kenya, mobile payments can reduce this financial exclusion by offering a more accessible and less restrictive solution, enabling women to more easily access financial services.

The results regarding age and education level are also closely aligned with previous studies that suggest these factors are important determinants of banking inclusion. [34] showed that individuals with higher education levels and older age are more likely to have a bank account. This is explained by a better understanding of financial products and greater trust in the banking system, which facilitates adoption. These findings are supported by [12], who observed that older and more educated people are also more likely to use digital financial services, such as mobile payments, due to their familiarity with technology.

The effect of employment status on banking inclusion, with a higher probability of being banked for the employed, echoes similar results found by [12], who showed that individuals active in the labor market are more likely to have a bank account, as they often have greater financial needs, such as managing regular payments or

receiving salary transfers. Furthermore, the positive effect of mobile phone ownership on banking inclusion is well documented by studies such as that of [28], who observed that individuals with a mobile phone, particularly in rural areas, are more likely to adopt mobile financial services, which facilitates access to banking.

However, the lack of a significant link between income level and banking inclusion in this model may be surprising. This result suggests that, in the context of mobile payments, income-related constraints may be partially mitigated. Indeed, [13] found that mobile financial services, due to their low cost and ease of access, can make banking services more accessible even for low-income individuals. This could explain why, in this study, income level does not seem to significantly affect the probability of owning a bank account, contrary to what one might expect in a traditional banking inclusion model.

5. Conclusions

The main objective of this study was to analyze the factors influencing banking inclusion in rural areas of Cameroon, with a particular focus on the effect of mobile payments. The results revealed a positive and significant effect of using mobile payments on the probability of holding a bank account. Specifically, the findings indicated that, in addition to traditional socio-economic factors such as age, gender, and education level, mobile payments represent a powerful catalyst for financial inclusion in rural Cameroon.

Based on these results, we suggest, on the one hand, promoting the adoption of mobile payments in rural areas. This could be achieved by implementing policies aimed at reducing the cost of accessing mobile financial services, improving mobile network coverage in rural areas, and offering tax or financial incentives to businesses that invest in accessible and affordable mobile payment solutions for rural populations. On the other hand, we propose promoting access to mobile technologies. This could include subsidies or public-private partnerships to make mobile phones and connectivity services more accessible and affordable, as well as incentives for mobile operators to extend their networks to the most remote areas.

Conflicts of Interest

The author declares no conflicts of interest.

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