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The determinants of financial inclusion in Africa

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Abstract

The objective of this paper is to examine the determinants of financial inclusion in Africa. We use the World Bank's Global Findex database on 37 African countries to perform probit estimations. We find that being a man, richer, more educated and older favor financial inclusion with a higher influence of education and income. Mobile banking is driven by the same determinants than traditional banking. We observe that the determinants of informal finance differ from those of formal finance. Our work therefore contains findings to design policies to foster financial inclusion in African countries.

JEL classification: G21; O16

Keywords: Financial inclusion; Financial institutions; Africa

1. Introduction

At the G20 Summit in Seoul in 2010, financial inclusion, i.e. the use of formal financial services, has been recognized as one of the main pillars of the global development agenda.

In its most basic definition, financial inclusion refers to the fact that a person owns an account at a formal financial institution. Such an account allows to save and borrow money formally, to contract insurance or to use payment services. Being financially included leads therefore to economic benefits. It can favor disadvantaged and poor people allowing them to increase their income and the probability of being employed (Bruhn and Love, 2014). Indeed, in the absence of inclusive financial systems, poverty traps can emerge and hamper economic development since access to financial tools allows people to invest in their education, finance projects and become entrepreneurs (Demirgüç-Kunt and Klapper, 2012b). In addition, financial inclusion can favor women empowerment (Swamy, 2014) and contribute to financial stability (Han and Melecky, 2013).

Financial inclusion is a particular concern in Africa. Beck and Cull (2015) observe that African banking systems are less inclusive than those outside Africa. Once they drop upper middle-income countries, they observe that 21 percent of firms affirm they have a line of credit and 16.5 percent of households report having an account with a formal financial institution in the median African country, while the figures are respectively 43 percent and 21 percent in the median non-African country. Mlachila et al. (2013a) point out that financial sector development has contributed to improve the growth process but financial services are clustered around major urban areas. There are, however, current evolutions which can foster or at least transform the situation of financial inclusion in Africa with the emergence of mobile banking and the rising economic growth in many of these countries.

Therefore, to understand what influences financial inclusion is a major question to favor economic development in Africa. The objective of this paper is to contribute to the understanding of the determinants of financial inclusion in Africa. In this aim, we use data from the 2014 World Bank's Global Findex database to answer four key questions for financial inclusion in Africa. We realize probit estimations to assess the impact of individual characteristics – gender, age, income and education – on

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financial inclusion indicators. Our sample covers 37 African countries representing 37,102 individuals.

First, we examine the individual determinants of the three main financial inclusion indicators: ownership of a bank account, saving on a bank account, and use of bank credit. We are then able to identify if some individuals are particularly affected by lack of access to the formal banking industry. Second, we analyze how barriers to financial inclusion are associated with individual characteristics. It helps identifying policies to promote financial inclusion. Third, we investigate the determinants of informal saving and informal credit. It is of importance to check if these alternative forms of finance are associated with different individual characteristics. It is notably of interest to know if gender types differ in the form of finance they mainly use, following the finding from Demirgüç-Kunt et al. (2013b) of a gender gap in the use of informal financial services in some countries. Fourth, we study the motivations for saving and credit and check how they are related to individual characteristics. We can then provide a better knowledge of the financial behavior of individuals in Africa.

Our paper provides several contributions to the literature. First, it contributes to the expanding literature on the determinants of financial inclusion by focusing on Africa in addition to former works worldwide (e.g., Allen et al., 2016, Demirgüç-Kunt and Klapper, 2012b) or analyzing one country (e.g., Fungácová and Weill, 2015, for China). Demirgüç-Kunt and Klapper (2012) provide an investigation of financial inclusion in Africa, but they only provide statistics on this issue and do not aim to identify the determinants of financial inclusion. Second, our analysis contributes to the literature on key current finance issues for African countries: informal finance, and mobile phone banking. African financial markets are dualistic markets organized around the interaction between formal financial institutions and informal agents. According to Steel et al. (1997), increasing the role of informal institutions can enhance access of the broader population to financial tools but this requires a good understanding of the phenomenon. We provide new analysis of the determinants of informal finance in Africa. We also give new evidence on the determinants of mobile money banking. Such analysis is of prime interest, considering for instance the success of the Kenyan mobile phone-based payments system M-PESA and the potential of mobile banking among the continent (Mlachila et al., 2013b).

The paper is organized as follows. Section 2 is dedicated to the related literature. Section 3 provides descriptive statistics on our sample. Section 4 presents the main estimations. Section 5 provides additional estimations to dig deeper what shapes financial inclusion. Section 6 concludes.

2. Related literature

In this section we provide an overview of the literature on financial inclusion. We present the main findings for our questions related to levels of financial inclusion, determinants of financial inclusion, and informal financial inclusion.

2.1. Levels of financial inclusion

Demirgüç-Kunt et al. (2015) give global statistics about financial inclusion with 2014 data from the Global Findex database. First, 62 percent of adults globally own an account at a formal financial institution, either at a bank or with a mobile money provider. Account ownership has been substantially increasing in the developing world, reaching 54 percent of the population in 2014, notably thanks to innovations like mobile banking. However, the share of the population with a formal account is still far lower than in high-income economies (94 percent). Second, 56 percent of adults worldwide declared having saved money aside in the past 12 months in 2014. One quarter of adults reported having saved money at a formal financial institution, representing half of the savers. However, the percentage of formal saving varies greatly between high-income economies (70 percent among savers) and developing economies (40 percent among savers). Finally, 42 percent of adults worldwide declared having borrowed money in the past 12 months. Formal credit at a financial institution has only been used by 9 percent of adults in developing countries while it has been used by 18 percent in high-income economies.

Financial inclusion varies greatly on the African continent between regions and also between countries (Demirgüç-Kunt and Klapper, 2012a). For example, while 51 percent of Southern Africans owned an account in 2011, only 11 percent of Central Africans did. Concerning formal saving, only 4 percent of North Africans saved money at a formal financial institution while 18 percent of Western Africans did.

Africa is at the leading position in terms of mobile banking with all 13 countries with the highest share of the population owning a mobile money account – 10 percent or more – being African (Demirgüç-Kunt et al., 2015). In a few African countries (Côte d'Ivoire, Somalia, Tanzania, Uganda, and Zimbabwe), more people declared owning a mobile money account than a formal account at a financial institution. The phenomenon is especially important in Eastern Africa, but also in Southern Africa.

2.2. The determinants of financial inclusion

A few studies have examined the individual determinants of financial inclusion.

Using the 2012 World Bank Global Findex Database, Allen et al. (2016) analyze these individual characteristics on a global scale. They find that the probability of owning an account at a formal financial institution is higher for richer, more educated, older, urban, employed, married or separated individuals. The likelihood of saving formally is higher for the same individual characteristics. Finally, the probability of borrowing formally increases for older, educated, richer and married men.

Using the 2012 Global Findex, Fungácová and Weill (2015) study financial inclusion in China and find that richer, more educated, older men are more likely to be financially included. Concerning barriers to financial inclusion, poorer people care more about their lack of money and the fact that another member

of the family has an account while more educated people are more concerned about cost and trust in the banking system. Women are less likely to be financially included because of a lack of documentation or because another member of the family has an account. Finally, older people are more concerned about lack of money, distance and religious reasons. They also find that income and education influence the choice between formal and informal credit but education does not lead to higher formal credit in China. Women seem to be discriminated as they do not substitute formal credit with informal credit.

Kostov et al. (2015) study the "Mzansi" accounts in South Africa to analyze the role of households' behavior decision process. They find that aspirations and financial literacy are important determinants of the decision process.

Gender also matters for financial inclusion. Using the 2012 Global Findex on 98 developing countries, Demirgüç-Kunt et al. (2013b) find that a significant gender gap exists in account ownership, formal saving and formal credit. Being a woman would increase the likelihood of being financially excluded. Higher difficulties to present collateral or personal guarantees, lower financial literacy and business experience, the husband' adverse credit history and constraints felt in the financial system are some of the main reasons for such gender gap in formal financial inclusion. However, the existence of such discriminations in informal finance is less certain. Indeed, in some countries, women are more likely to use informal financial services. Aterido et al. (2013) analyze this issue in nine African countries but do not find significant gender discrimination. The gender gap in Africa seems therefore to be linked with women participation outside the financial sector; women would be discriminated in other areas of the economy, like formal employment, education and within the household. Moreover, they confirm that African women are more likely to resort to informal financial services.

Allen et al. (2016) provide evidence of country characteristics influencing financial inclusion. High-quality institutions, efficient legal rules, strong contract enforcement and political stability bring about more financial inclusion. Moreover, characteristics about the banking sector also play a key role. High costs of opening and using bank accounts but also high distance and high disclosure requirements reduce formal inclusion. Trust in the banking sector can also influence. The existence of a deposit insurance scheme and of tax incentive schemes also lead to greater financial inclusion. Religion may influence financial inclusion, as shown by Demirgüç-Kunt et al. (2013a). Using a sample of 65,000 adults from 64 economies, they study this question by analyzing the impact of being a Muslim on formal account, formal saving, formal credit, and barriers to financial inclusion. They find that Muslims resort significantly less to formal account ownership and formal saving than non-Muslims. However, Muslims would not be less likely to borrow, either formally or informally, than non-Muslims. The typical categories excluded from formal financial systems (the poor, the less educated, women and rural adults) are the same for Muslims and non-Muslims. Moreover, religion would be more cited as a barrier to financial inclusion by Muslims, but this result is due to respondents in Sub-Saharan Africa.

2.3. Informal financial inclusion

The shadow economy consists of legal production of goods and services that are neither taxed nor registered on purpose (Schneider and Enste, 2000) and therefore include informal finance.

Steel et al. (1997) provide information about informal finance in four African countries (Ghana, Malawi, Nigeria and Tanzania) with data covering 1992 and 1993. They explain that African economies are composed of dualistic financial systems combining formal banks and informal financial agents. Two main reasons explain the existence of the informal financial sector. First, excessive state intervention leads to underdeveloped financial systems. Second, formal banks face costly procedures and problematic management, which contributes to low access to credit. They conclude that, in the medium term, informal financial agents have a positive impact by deepening the access to financial services for the broader population.

A major debate on informal finance deals with its substitutability with formal finance. De Koker and Jentzsch (2013) study the link between financial inclusion and financial integrity in eight African countries. They conclude that being formally included does not lead to a decline in the use of informal finance. On the contrary, owning a formal account would be positively related to the use of informal financial tools.

3. Data

We use the World Bank's 2014 Global Findex database to realize our analyses. The database is obtained thanks to surveys realized in 143 countries and covering almost 150,000 persons worldwide. The survey was carried out by Gallup, Inc., in association with its annual Gallup World Poll. Using randomly selected, nationally representative samples, roughly 1000 people in each economy have been questioned using over 140 languages. The target population is the entire civilian, noninstitutionalized population aged 15 and above.

The Global Findex database provides a large number of indicators on financial inclusion enabling to assess the amount of account penetration, the use of financial services, the purposes and motivations, the alternatives to formal finance, etc. It also provides micro-level information – gender, age, income and education – that will be used in our estimations. 37 countries on the African continent are considered for our analysis.[1]

In line with former literature, we focus on the three main measures of financial inclusion. *Formal account* refers to the fact that the individual has an account either at a financial institution or through a mobile money provider. *Formal saving* refers to

[1] The countries included in our sample are: Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Chad, Congo Democratic Republic, Congo Republic, Côte d'Ivoire, Egypt, Ethiopia, Gabon, Ghana, Guinea, Kenya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Tanzania, Togo, Tunisia, Uganda, Zambia, Zimbabwe.

the fact that the individual saved using an account at a financial institution in the past 12 months. *Formal credit* refers to the fact that the individual borrowed from a financial institution in the past 12 months. All these variables are dummies equal to one if the person responded "yes" and zero elsewise.

In order to explain barriers to financial inclusion, people answer the following question: "Please tell me whether each of the following is a reason why you, personally, do not have an account at a bank or another type of formal financial institution". Each of the answer is a dummy equal to one if the person answered "yes" and 0 elsewise. We have also information on mobile money banking: people were asked whether they use a mobile phone to realize transactions, to send or to receive money. The variable *Mobile Account* is equal to one if people answered "yes" and zero else. In order to be able to compare the use of traditional banking services and the use of mobile banking services, the variable *Account at a financial institution* gives information if respondents declare having a formal account at a financial institution and not with a mobile phone.

Respondents give their saving motivation. Three answers are proposed: (a) to start, operate, or grow a business or farm; (b) for old age; and (c) for education or school fees. These three variables are dummies equal to one if people responded "yes". People were also asked about their saving customs. The first question is the following: "in the past 12 months, have you, personally, saved or set aside money by (a) using an account at a bank or another type of formal financial institution, (b) using an informal savings club or a person outside the family". The variable *Informal saving* is equal to one if people answered "yes" to response b. The second question is the following: "in the past 12 months, have you, personally, saved or set aside any money for any reason". The variable *Total Saving* is equal to one if people answered "yes" to this question.

Individuals also answer the following question: "in the past 12 months, have you, by yourself or together with someone else, borrowed money for any of the following reasons?" They could choose among three propositions: (a) for education or school fees, (b) for medical purposes, (c) for farm or business purposes. This first question refers to any type of credit (both formal and informal). A fourth loan-taking option was given to the respondents with the following question: "do you, by yourself or together with someone else, currently have a loan you took out from a bank or another type of formal financial institution to purchase a home, an apartment or land?" It is important to keep in mind that this last question refers only to formal credit. People were also asked whether they borrowed money from another source than the formal one. Three informal sources are mentioned: a store, family and friends and another private lender. We compute these three sources to obtain the variable *Informal Credit*. The last variable *Total Credit* refers to the question "have you, by yourself or together with someone else, borrowed money from any source for any reason in the past 12 months?"

Table 1 presents the descriptive statistics for all financial inclusion indicators we use in the estimations. We provide the mean for our sample and compare it with the global mean computed at the worldwide level in Global Findex, so that we have a benchmark to compare Africa with the world.

Each of the three main indicators is lower in Africa in comparison with the world. 35 percent of Africans reported having a formal account while 61.5 percent of people worldwide did. 15.4 percent of Africans saved money at a formal financial institution in the past 12 months in comparison to the 27.4 global percent. Finally, formal credit is less important in Africa: 6.7 percent against 10.7 percent on a global scale. We can compare these figures to the study from Demirgüç-Kunt and Klapper (2012a) using data from 2011 Global Findex database. They observed that 23 percent of Africans owned a formal account, 11.5 percent saved money using a formal financial institutions and 5 percent of Sub-Saharan Africans borrowed money from a formal financial institution in 2011. Even if all the main indicators of financial inclusion are smaller in Africa in comparison to the world, they all increased from 2011 to 2014.

The main barrier to financial inclusion is lack of money in Africa (70.8%) like worldwide (59%). The next important self-reported barriers are "too expensive" (27.7%), "too far away" (25.6%), "cannot get one" (24.4%) and "lack of documentation" (21.5%). The least important barriers are "religious reasons" (7.2%) and "family member has an account" (7.6%). This latter result is of interest because this barrier is of greater importance worldwide (28%).

We observe interesting differences in mobile money banking: African individuals resort more to mobile account than people on a global scale (13.0% versus 2.0%). The African continent is at a leading position concerning mobile money banking, especially in East Africa where for example more than 73 percent of Kenyans are mobile money customers (Demombynes and Thegeya, 2012).

Saving habits are different on the African continent in comparison to the world. The main motivations of saving in Africa are "for education" (21.3%) and "for farm or business" (19.6%). While 23.9% of individuals worldwide and 40% of individuals of high-income economies save for old age, which is their main saving motivation (Demirgüç-Kunt et al., 2015), only 10.3% of African individuals do so.

We also observe a contrast between formal and informal saving. African people resort more to informal savings club or a person outside the family (21.6%) than to financial institution (15.4%) in order to set money aside. Moreover, we can notice that saving is a custom for African individuals (56.3%) in accordance with the trend worldwide (56.5%).

The main reason to take a loan in Africa is medical; 18.0% borrowed in the past 12 months for medical purposes. Education (11.8%) and farm or business (11.3%) are the following reasons provided by respondents. These trends are in accordance with what can be observed on a global scale, with respectively 12.2% for medical purposes, 7.7% for education and 7.1% for farm or business, but the percentages are higher in Africa. Moreover, 6.2% declared having a formal loan to purchase a home or land.

The main source of credit in Africa is "family and friends" (37.5%). This figure is higher than the global percent (26.2%). The second source of credit in Africa is "a store" (7.9%), in line with the global trend (7.9%). Borrowing formally (6.7%) and borrowing from another private lender (4.7%) are less common

Table 1
Descriptive statistics for the dependent variables in the estimations.

	Obs.	Mean	Std. Dev	Global mean
Main indicators of financial inclusion				
Formal account	37,102	0.350	0.477	0.615
Formal saving	36,841	0.154	0.361	0.274
Formal credit	36,869	0.067	0.249	0.107
Barriers to financial inclusion				
Too far away	26,257	0.256	0.436	0.210
Too expensive	25,546	0.277	0.448	0.220
Lack of documentation	26,311	0.215	0.411	0.180
Lack of trust	26,110	0.131	0.338	0.120
Lack of money	26,442	0.708	0.454	0.590
Religious reasons	26,282	0.072	0.258	0.050
Family member has an account	26,172	0.076	0.265	0.280
Cannot get an account	26,211	0.244	0.429	0.160
No need for financial services	26,330	0.196	0.397	0.300
Mobile money banking				
Account at a financial institution	37,102	0.297	0.457	0.607
Mobile account	34,100	0.130	0.336	0.020
Saving motivation				
For farm or business	36,913	0.196	0.397	0.138
For old age	36,865	0.103	0.304	0.239
For education	36,906	0.213	0.410	0.223
Saving				
Informal saving	36,834	0.216	0.411	–
Saved any money in the past 12 months	37,102	0.563	0.496	0.565
Loan-taking motivation				
For education	36,942	0.118	0.323	0.077
For medical purposes	36,938	0.180	0.384	0.122
For farm or business	36,927	0.113	0.316	0.071
To purchase a home or land	36,845	0.062	0.241	–
Informal credit				
A store	35,834	0.079	0.269	0.079
Family and friends	36,876	0.375	0.484	0.262
Another private lender	36,781	0.047	0.211	0.046
Informal credit	37,014	0.410	0.492	–
All sources	37,034	0.514	0.496	0.424

This table displays the descriptive statistics for the dependent variables studied in our estimations: the main indicators of financial inclusion, barriers to financial inclusion, mobile money banking, saving motivation, informal saving, loan-taking motivation and informal credit.

in Africa. 41.0 percent of African individuals reported having borrowed from an informal source. Just like informal saving, informal credit is important on the African continent. Finally, 51.4 percent of African individuals declared having borrowed from any source in the past 12 months, a figure which is higher than the 42.4 global percent. Resorting to credit is therefore a rather common phenomenon on the continent.

4. Estimations

This section is devoted to the presentation of our main empirical findings. We first describe the methodology. We then present the results for the determinants of the main financial inclusion indicators. Next we provide the findings for the determinants of barriers to financial inclusion. We complete this overview of the determinants of financial inclusion by examining what influences the use of mobile money banking.

4.1. Methodology

In order to evaluate the determinants of financial inclusion in Africa, we perform probit estimations and use the following equation:

$$X_i = \alpha + \beta * \text{Gender}_i + \sigma * \text{Age}_i + \varphi * \text{Income}_i + \rho * \text{Education}_i + \varepsilon_i$$

where X is the financial inclusion variable and i represents one given individual. The individual characteristics are the explanatory variables.

Gender is a dummy variable equal to one if the individual is a woman (*Female*) and zero else. Age is represented with two measures: one with the number of years (*Age*) and the second is its squared (Age^2) in order to control for a possible nonlinear relation between age and financial inclusion.

Table 2
Descriptive statistics for the individual characteristics.

	Definition	Obs.	Mean	St. Dev
Female	Dummy variable equal to one if the individual is a woman, zero elsewise.	37,102	0.493	0.500
Age	Age in number of years.	37,072	34.952	15.317
Income – poorest 20%	Dummy variable equal to one if income is in the first income quintile, zero elsewise.	37,102	0.165	0.371
Income – second 20%	Dummy variable equal to one if income is in the second income quintile, zero elsewise.	37,102	0.173	0.379
Income – third 20%	Dummy variable equal to one if income is in the third income quintile, zero elsewise.	37,102	0.186	0.389
Income – fourth 20%	Dummy variable equal to one if income is in the fourth income quintile, zero elsewise.	37,102	0.211	0.408
Income – richest 20%	Dummy variable equal to one if income is in the fifth income quintile, zero elsewise.	37,102	0.264	0.441
Primary education	Dummy variable equal to one if the individual has completed primary school or less, zero elsewise.	37,102	0.534	0.499
Secondary education	Dummy variable equal to one if the individual has completed secondary education, zero elsewise.	37,102	0.411	0.492
Tertiary education	Dummy variable equal to one if the individual has completed tertiary education or more, zero elsewise.	37,102	0.051	0.221

This table displays the definition and the descriptive statistics for the individual characteristics used in our estimations.

To take income into account, we use four dummy variables (*poorest* 20%, *second* 20%, *third* 20% and *fourth* 20%). The fifth richest quintile is the omitted dummy variable. *Poorest* 20% is a dummy variable equal to one if income is in the first income quintile, zero elsewise, and so on for the other dummies. Concerning education, we use two dummy variables: *Secondary education* and *Tertiary education*. *Secondary education* is equal to one if the individual has completed secondary education, zero elsewise. *Tertiary education* is equal to one if the individual has completed tertiary education or more, zero elsewise. The omitted dummy variable is primary school or less. Table 2 reports the descriptive statistics for the individual characteristics.

4.2. Determinants of main financial inclusion indicators

Table 3 displays the results and the marginal effects of the probit estimations for the main indicators of financial inclusion. Formal account, formal saving and formal credit are our dependent variables.

We observe that all individual characteristics have a significant relation with financial inclusion. Being a woman significantly reduces the probability of having a formal account or a formal saving, while no significant result is observed concerning formal credit. Age has a nonlinear relation with all three indicators of financial inclusion, with a positive and significant coefficient for *Age* and a significantly negative for Age^2. Hence older people are more likely to be financially included, but after a certain age, the probability of being financially included diminishes.

We find that greater income is associated with higher financial inclusion. Dummy variables for income are all significantly negative for the three indicators of financial inclusion, with larger coefficients for income quintile dummies indicating lower income. Education is positively associated with all indicators of financial inclusion. We observe significantly positive coefficients for *Secondary education* and *Tertiary education* for the three indicators of financial inclusion, with higher coefficients for the latter one. Like Allen et al. (2016) worldwide and Fungáčová and Weill (2015) in China, we find that richer and more educated adults are more likely to be financially included and that age has a non-linear relation with financial inclusion. We find that being a woman significantly decreases the likelihood of owning an account in Africa like Fungáčová and Weill (2015) do in China. However, Allen et al. (2016) do not find a significant gender gap in account ownership on the global scale.

Thanks to the calculation of the marginal effects, we can conclude that education and income are the most important individual characteristics explaining formal inclusion. For a person who has tertiary education, the probability of having a formal account increases from 44.0%, the probability of saving at a

Table 3
Determinants of the main financial inclusion indicators in Africa.

	Formal account	Formal saving	Formal credit
Female	−0.031***	−0.013***	−0.002
	(0.005)	(0.003)	(0.002)
Age	0.021***	0.013***	0.008***
	(0.001)	(0.001)	(0.000)
Age^2	−0.000***	−0.000***	−0.000***
	(0.000)	(0.000)	(0.000)
Income – poorest 20%	−0.210***	−0.106***	−0.037***
	(0.006)	(0.003)	(0.003)
Income – second 20%	−0.184***	−0.102***	−0.030***
	(0.006)	(0.003)	(0.003)
Income – third 20%	−0.132***	−0.076***	−0.020***
	(0.007)	(0.004)	(0.003)
Income – fourth 20%	−0.088***	−0.050***	−0.020***
	(0.007)	(0.004)	(0.003)
Secondary education	0.259***	0.142***	0.039***
	(0.006)	(0.004)	(0.003)
Tertiary education	0.440***	0.319***	0.101***
	(0.011)	(0.013)	(0.009)
Observations	37,072	36,811	36,840
Pseudo R^2	0.125	0.131	0.069
Log likelihood	−20,985.434	−13,755.453	−8398.006
Predicted probability (at mean values)	0.331	0.123	0.054

This table displays probit estimations of the determinants of the main indicators of financial inclusion in Africa. *Formal account, formal saving* and *formal credit* are the dependent variables. Individual characteristics are the explanatory variables: gender, age, income and education, as described in Table 2. Estimated marginal effects are presented and standard errors are in parentheses.
* Significance at the 10% level.
** Significance at the 5% level.
*** Significance at the 1% level.

Table 4
Determinants of barriers to financial inclusion.

	Too far away	Too expensive	Lack of documentation	Lack of trust	Lack of money	Religious reasons	Family member has an account	Cannot get an account	No need for financial services
Female	−0.054***	−0.024***	−0.005	−0.015***	0.012*	−0.009**	0.023***	−0.011*	−0.001
	(0.005)	(0.006)	(0.005)	(0.004)	(0.006)	(0.003)	(0.003)	(0.005)	(−0.005)
Age	0.002**	0.005***	−0.010***	0.003***	−0.002*	0.001**	−0.002***	−0.005***	−0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(−0.001)
Age^2	−0.000**	−0.000***	0.000***	−0.000***	0.000	−0.000*	0.000***	0.000***	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Income – poorest 20%	0.039***	0.024**	0.040***	0.001	0.061***	−0.014**	−0.018***	0.056***	0.001
	(0.009)	(0.009)	(0.009)	(0.007)	(0.008)	(0.005)	(0.005)	(0.009)	(0.008)
Income – second 20%	0.040***	0.016	0.035***	−0.001	0.091***	−0.010*	−0.022***	0.051***	0.000
	(0.009)	(0.009)	(0.009)	(−0.007)	(0.008)	(0.005)	(0.004)	(0.009)	(0.008)
Income – third 20%	0.030***	0.016	0.039***	−0.002	0.073***	−0.015**	−0.018***	0.043***	−0.004
	(0.009)	(0.009)	(0.009)	(−0.007)	(0.008)	(0.004)	(0.004)	(0.009)	(−0.008)
Income – fourth 20%	0.022*	0.021*	0.029***	−0.013*	0.052***	−0.008	−0.008	0.028***	0.007
	(0.009)	(0.009)	(0.008)	(0.006)	(0.008)	(0.005)	(0.005)	(0.009)	(0.008)
Secondary education	−0.078***	−0.024***	−0.056***	−0.007	−0.052***	−0.017***	0.026***	−0.054***	−0.006
	(0.006)	(0.006)	(0.005)	(0.005)	(0.006)	(0.003)	(0.004)	(0.006)	(0.005)
Tertiary education	−0.132***	−0.083***	−0.134***	0.008	−0.036	−0.012	0.052***	−0.075***	−0.039*
	(0.013)	(0.017)	(0.011)	(0.014)	(0.020)	(0.009)	(0.014)	(0.016)	(0.015)
Observations	26,235	25,524	26,289	26,088	26,421	26,260	26,150	26,190	26,308
Pseudo R^2	0.012	0.003	0.017	0.002	0.008	0.004	0.012	0.007	0.002
Log likelihood	−14,737.956	−15,013.828	−13,464.160	−10,126.074	−15,823.238	−6746.667	−6971.212	−14,436.999	−12,962.180
Predicted probability (at mean values)	0.253	0.276	0.211	0.131	0.710	0.071	0.074	0.242	0.195

This table displays probit estimations of the determinants of barriers to financial inclusion in Africa. Each barrier, presented at the top of each column, is the dependent variable. Individual characteristics are the explanatory variables: gender, age, income and education, as described in Table 2. Estimated marginal effects are presented and standard errors are in parentheses.

* Significance at the 10% level.
** Significance at the 5% level.
*** Significance at the 1% level.

formal financial institution increases from 31.9% and the probability of borrowing money from a formal financial institution increases from 10.1%. However, we can notice that being a woman decreases the probability of having a formal account from 3.1% and the probability of saving at a formal institution from 1.3%. This result highlights the fact that gender is not the main explanation of formal exclusion in Africa.

To sum it up, we observe that being a man, richer, more educated and older to a certain extent favor access to formal financial services in Africa with a particular influence of education and income.

4.3. Determinants of barriers to financial inclusion

We examine how individual characteristics exert an impact on the reasons for not having a formal account. We perform estimations in which we explain each of the seven barriers to financial inclusion reported in the survey. Table 4 reports the estimations. Before analyzing our results, it is important to point out the difference between voluntary and involuntary exclusion as explained by Allen et al. (2016). People choose not to own an account because of a lack of money or for cultural reasons. Thus, "Lack of Money", "Religious Reasons" and "Family Member has an account" are categorized as voluntary self-excluded barriers. Involuntary exclusion, however, is driven by market failures. Distance, high cost, documentation requirements and lack of trust are involuntary self-excluded barriers. Such differentiation between voluntary and involuntary barriers helps building policy recommendations.

Gender is associated with several barriers to financial inclusion but in opposite directions: "Lack of Money" and "Family Member has an account" play a stronger role for women. However, the fact that the bank is far away or too expensive, the lack of documentation, the lack of trust and religious reasons are less important barriers for women. We are then able to conclude that exclusion for women is more voluntary. Cultural reasons are behind the exclusion of women from financial inclusion in Africa, while market failures are overall not responsible for gender discrimination. This result is in line with the findings of Aterido et al. (2013) who show that the existing gender gap in the financial sector is due to female participation in the economy and not within the financial sector itself. Legal and social norms (Demirgüç-Kunt et al., 2013b) and female participation in the economy thanks to education and formal employment (Aterido et al., 2013) are responsible for the gender gap in formal financial services access, highlighting the role of country characteristics influencing financial exclusion.

With age, lack of money seems to be a decreasing problem, while new issues emerge for older people: distance, cost, trust and religion become more problematic. Income is associated

with distance, cost, documentation requirements, lack of money and affordability. All these criteria represent barriers for poorer persons. Instead, religious reasons, the fact that a family member has an account and lack of trust are less important barriers for poor people.

The results with education are of particular interest. Education is negatively associated with all barriers with the only exception being the fact that family member has an account. Barriers to financial inclusion would decrease with education, no matter what the barrier is. The only reason why more educated people would not be financially included would be the fact that a family member already has as account, which is a voluntary self-excluded barrier. Education and income, which are the main drivers of financial inclusion in Africa as we saw it earlier, are associated with different barriers, a trend also found by Fungácová and Weill (2015) in China.

4.4. Determinants of mobile money banking

We complete the analysis of the determinants of financial inclusion by examining what shapes the use of mobile money banking. This form of banking has become more common in Africa and raises questions about the characteristics of individuals using it.

We provide a comparative analysis of the determinants of financial inclusion for the use of mobile banking services and for the use of traditional banking services in Table 5. The main conclusion is that mobile banking is driven by the same determinants than traditional banking in Africa. All individual characteristics have the same link with both forms of banking services.

Being a woman decreases the probability of having a mobile account and of owning a formal account (−1.9% and −1.7%). Mobile money does not help women to be financially included. Age has a non-linear relation. Income is negatively related to mobile account and formal account at a financial institution. Being poorer decreases the likelihood of resorting to formal account and mobile account (−7.6% and −18.7% for the poorest quintile). Instead, both secondary and tertiary education are positively associated with all the indicators. More educated people are more likely to have a mobile account and a formal account. The coefficients are especially high regarding tertiary education (15.2% and 48.4%).

5. Understanding what shapes financial inclusion in Africa

This section provides evidence to provide a broad overview of the determinants of financial inclusion in Africa. We now focus on questions of particular relevance for developing countries like African ones related to informal finance, and motives for use of financial services. First, we examine saving behavior by considering two questions: the motives for formal saving, and informal saving. Second, we study credit behavior by studying the motives for formal credit, and those for informal credit.

Table 5
Determinants of mobile money banking in Africa.

	Mobile account	At a financial institution
Female	−0.019***	−0.017***
	(0.003)	(0.005)
Age	0.008***	0.020***
	(0.001)	(0.001)
Age^2	−0.000***	−0.000***
	(0.000)	(0.000)
Income – poorest 20%	−0.076***	−0.187***
	(0.004)	(0.005)
Income – second 20%	−0.067***	−0.166***
	(0.004)	(0.006)
Income – third 20%	−0.047***	−0.122***
	(0.004)	(0.006)
Income – fourth 20%	−0.036***	−0.081***
	(0.004)	(0.006)
Secondary education	0.060***	0.270***
	(0.004)	(0.005)
Tertiary education	0.152***	0.484***
	(0.012)	(0.011)
Observations	34,073	37,072
Pseudo R^2	0.057	0.147
Log likelihood	−12,393.534	−19,234.658
Predicted probability (at mean values)	0.115	0.268

This table displays probit estimations of the determinants of mobile money banking in Africa. The dependent variables are presented at the top of each column. Individual characteristics are the explanatory variables: gender, age, income and education, as described in Table 2. Estimated marginal effects are presented and standard errors are in parentheses.
* Significance at the 10% level.
** Significance at the 5% level.
*** Significance at the 1% level.

5.1. Understanding saving behavior

We dig deeper our analysis of the determinants of the saving behavior by considering now the three different motivations for saving: “for farm or business”, “for old age”, and “for education”. We question whether these motivations would not be influenced by the individual characteristics.

Table 6 reports these estimations. The main conclusion is that the three motivations are related the same way by all individual characteristics. In other words, saving behavior is not affected differently by gender, age, income, or education, according to the motivation for saving.

Being a woman decreases the probability of the three saving motivations, particularly for farm and business (−5.2%). It seems to be an illustration of gender discrimination in saving. Concerning age, we can observe that the likelihood of each saving motivation increases, in particular for education. Income is negatively associated with each motivation, illustrating the fact that being poorer decreases the probability of saving for any motivation. However, we can observe that the coefficients are more negative for old age, meaning that this is the least important motivation for saving. Education is positively related to each saving motivation, illustrating the fact that education increases the probability of saving for any motivation. We can observe that the coefficients are particularly high for old age and for education, with 6.2 percent and 14.1 percent probabilities for

Table 6
Determinants of saving motivation.

	For farm or business	For old age	For education
Female	−0.052***	−0.016***	−0.010*
	(0.004)	(0.003)	(0.004)
Age	0.016***	0.008***	0.017***
	(0.001)	(0.000)	(0.001)
Age^2	−0.000***	−0.000***	−0.000***
	(0.000)	(0.000)	(0.000)
Income – poorest 20%	−0.102***	−0.067***	−0.076***
	(0.005)	(0.003)	(0.006)
Income – second 20%	−0.079***	−0.057***	−0.043***
	(0.005)	(0.003)	(0.006)
Income – third 20%	−0.061***	−0.050***	−0.030***
	(0.005)	(0.003)	(0.006)
Income – fourth 20%	−0.029***	−0.036***	−0.018**
	(0.005)	(0.003)	(0.006)
Secondary education	0.012**	0.062***	0.114***
	(0.004)	(0.003)	(0.005)
Tertiary education	0.030**	0.141***	0.181***
	(0.010)	(0.010)	(0.012)
Observations	36,883	36,835	36,876
Pseudo R^2	0.037	0.095	0.047
Log likelihood	−17,599.994	−11,074.668	−18,217.877
Predicted probability (at mean values)	0.186	0.083	0.202

This table displays probit estimations of the determinants of saving motivation in Africa. Each saving motivation is a dependent variable and is presented at the top of each column. Individual characteristics are the explanatory variables: gender, age, income and education, as described in Table 2. Estimated marginal effects are presented and standard errors are in parentheses.
* Significance at the 10% level.
** Significance at the 5% level.
*** Significance at the 1% level.

Table 7
Determinants of informal saving.

	Informal saving	Formal saving	Saved in the past 12 months
Female	0.054***	−0.013***	−0.021***
	(0.004)	(0.003)	(0.005)
Age	0.014***	0.013***	0.023***
	(0.001)	(0.001)	(0.001)
Age^2	−0.000***	−0.000***	−0.000***
	(0.000)	(0.000)	(0.000)
Income – poorest 20%	−0.073***	−0.106***	−0.199***
	(0.006)	(0.003)	(0.008)
Income – second 20%	−0.034***	−0.102***	−0.142***
	(0.006)	(0.003)	(0.008)
Income – third 20%	−0.014*	−0.076***	−0.107***
	(0.006)	(0.004)	(0.008)
Income – fourth 20%	−0.002	−0.050***	−0.063***
	(0.006)	(0.004)	(0.008)
Secondary education	0.007	0.142***	0.098***
	(0.005)	(0.004)	(0.006)
Tertiary education	0.010	0.319***	0.169***
	(0.010)	(0.013)	(0.011)
Observations	36,806	36,811	37,072
Pseudo R^2	0.019	0.131	0.047
Log likelihood	−18,816.737	−13,755.453	−24,203.260
Predicted probability (at mean values)	0.210	0.123	0.567

This table displays probit estimations of the determinants of informal saving in Africa. The dependent variables are presented at the top of each column. Individual characteristics are the explanatory variables: gender, age, income and education, as described in Table 2. Estimated marginal effects are presented and standard errors are in parentheses.
* Significance at the 10% level.
** Significance at the 5% level.
*** Significance at the 1% level.

old age and 11.4 percent and 18.1 percent probabilities for education.

We now investigate if informal saving behavior has different determinants. We provide estimations explaining informal saving and compare them with total saving in Table 7. The most striking observation deals with the observation that two individual characteristics play a different role for informal saving than for formal saving. First, being a woman increases the probability of informal saving while it decreases the likelihood of saving at a formal financial institution (5.4% versus −1.3%). This result illustrates the fact that African women resort more to informal finance than to formal finance. However, informal finance does not seem to offset the gender gap in formal finance. The probability of setting money aside in the past 12 months for a woman is −2.1%. Second, education does not have any influence on informal saving while it increases the likelihood of saving formally. *Secondary education* and *Tertiary education* are not significant when explaining informal saving.

For the rest, age and income have the same relation with informal saving and formal saving. Age has a non-linear relation with both forms of saving. Getting older increases the likelihood of being financially included, either formally or informally, until a certain age after which the likelihood decreases. Income is negatively related to informal saving and formal saving. Being poorer decreases the probability of being included by any way. The probability of saving in the past 12 months is −19.9 percent for the poorest individuals.

5.2. Understanding credit behavior

We investigate the determinants of credit behavior by focusing on the motivations for asking for a loan. Four potential motivations can be provided ("for education", "for medical purposes", "for farm or business" for both formal and informal credit; "to purchase a home, an apartment or land" for formal credit only) and we examine how they are related to individual characteristics. Table 8 displays these estimations.

First, concerning the three loan-taking motivations for both formal and informal credit, overall we observe that loan-taking motivations strongly differ with the individual characteristics. Only age has the same relation with all three loan-taking motivations: the relation is non-linear. The likelihood of borrowing for any purpose increases and then decreases after a certain age. For the rest, the loan-taking motives differ with gender, income, and education.

Being a woman decreases the likelihood of borrowing for farm and business (−2.1%) but has no significant impact on the two other loan-taking motivations. Hence business-driven loans are more requested by men, but no gender difference is observed when it comes to loans for education or for medical purposes.

Table 8
Determinants of loan-taking motivation.

	For education	For medical purposes	For farm or business	To purchase a home or land
Female	0.003	−0.000	−0.021***	−0.006*
	(0.003)	(0.004)	(0.003)	(0.002)
Age	0.007***	0.009***	0.010***	0.006***
	(0.001)	(0.001)	(0.001)	(0.000)
Age^2	−0.000***	−0.000***	−0.000***	−0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Income – poorest 20%	0.009	0.061***	−0.041***	−0.036***
	(0.006)	(0.007)	(0.004)	(0.002)
Income – second 20%	0.020***	0.041***	−0.025***	−0.028***
	(0.006)	(0.007)	(0.004)	(0.003)
Income – third 20%	0.020***	0.041***	−0.022***	−0.022***
	(0.005)	(0.007)	(0.004)	(0.003)
Income – fourth 20%	0.016**	0.028***	−0.016***	−0.019***
	(0.005)	(0.006)	(0.004)	(0.003)
Secondary education	0.042***	−0.023***	−0.018***	0.034***
	(0.004)	(0.004)	(0.003)	(0.003)
Tertiary education	0.041***	−0.040***	−0.017*	0.097***
	(0.009)	(0.008)	(0.007)	(0.009)
Observations	36,912	36,908	36,897	36,816
Pseudo R^2	0.012	0.013	0.018	0.062
Log likelihood	−13,251.846	−17,183.067	−12,773.017	−8005.959
Predicted probability (at mean values)	0.115	0.177	0.108	0.052

This table displays probit estimations of the determinants of loan-taking motivation in Africa. Each loan-taking motivation is a dependent variable and is presented at the top of each column. Individual characteristics are the explanatory variables: gender, age, income and education, as described in Table 2. Estimated marginal effects are presented and standard errors are in parentheses.
* Significance at the 10% level.
** Significance at the 5% level.
*** Significance at the 1% level.

Income is positively related to loans asked for medical purposes for all income quintiles with higher coefficients for lower income quintiles. It therefore means that being poorer increases the likelihood of borrowing for medical purposes. Income is also positively related to loans requested for education but it is only significant for the second, third and fourth income quintiles. In other words, people in these quintiles are more likely to borrow money for education purposes. However, income is negatively related to loans motivated by farm and business, with coefficients decreasing when income increases. Hence being poorer decreases the likelihood of relying on credit for farm or business purposes. Overall these results suggest that poorer people ask more for loans related to medical purposes and to education but less for loans related to business.

Secondary education and *Tertiary education* are both positively associated with education motive, while they are negatively related to medical purposes and farm or business. Thus, being more educated decreases the probability of resorting to credit for medical purposes and for farm or business purposes but increases the probability of borrowing money for education purposes.

Concerning the taking out of a formal loan to purchase a home, an apartment or land, results are quite different. First, being a woman decreases the likelihood of taking out such loan by 0.6 percent. Thus, women are discriminated concerning credit for business and home purchasing. Older people are more likely to take out a loan to purchase a home until a certain age. Being poorer decreases the probability of taking out such loan. Finally, more educated people are more likely to take out such loan; having validated *Secondary education* increases the likelihood by 3.4 percent and *Tertiary education* by 9.7 percent.

We can then wonder if informal credit is different from formal credit when it comes to individual determinants. We have information on different alternatives sources of borrowing than formal credit: “a store”, “family and friends”, “another private lender”. We then provide estimations by considering each of these alternative sources of credit as the dependent variable in Table 9. We also consider them all together with the variable Informal Credit and gather all possibilities of informal and formal credit with the occurrence “Borrowed in the past 12 months”.

We overall find that the use of the alternative sources of borrowing varies with gender and income, while no different pattern is observed for age and education. Being a woman only decreases the likelihood of resorting to another private lender for credit. However, the probability for a woman to borrow money at an informal source is −1.1%, meaning that women are less likely to borrow informally. Fungácová and Weill (2015) find a different result in China, showing that gender does not impact the selection between informal and formal credit. Moreover, as we found no significant link between gender and formal credit, it means that women are not more likely to borrow formally to offset their disadvantage in informal credit. While women are more likely to save informally, they are not more inclined to borrow informally. Age is positively associated with each of the four alternative sources of borrowing.

Table 9
Determinants of alternative sources of borrowing.

	A store	Family and friends	Another private lender	Informal credit	Formal credit	Borrowed in the past 12 months
Female	0.004	−0.008	−0.005*	−0.011*	−0.002	−0.018***
	(0.003)	(0.005)	(0.002)	(0.005)	(0.002)	(0.005)
Age	0.005***	0.012***	0.003***	0.014***	0.008***	0.018***
	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
Age^2	−0.000***	−0.000***	−0.000***	−0.000***	−0.000***	−0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Income – poorest 20%	−0.018***	0.009	0.007	0.000	−0.037***	−0.017*
	(0.004)	(0.008)	(0.004)	(0.008)	(0.003)	(0.008)
Income – second 20%	−0.002	0.030***	0.003	0.028***	−0.030***	0.008
	(0.004)	(0.008)	(0.004)	(0.008)	(0.003)	(0.008)
Income – third 20%	−0.004	0.028***	0.006	0.026**	−0.020***	0.007
	(0.004)	(0.008)	(0.003)	(0.008)	(0.003)	(0.008)
Income – fourth 20%	0.000	0.033***	0.003	0.028***	−0.020***	0.007
	(0.004)	(0.007)	(0.003)	(0.008)	(0.003)	(0.008)
Secondary education	0.011***	0.019***	0.010***	0.026***	0.039***	0.030***
	(0.003)	(0.005)	(0.002)	(0.006)	(0.003)	(0.006)
Tertiary education	0.063***	0.009	0.013*	0.027*	0.101***	0.047***
	(0.009)	(0.012)	(0.006)	(0.012)	(0.009)	(0.012)
Observations	35,807	36,846	36,751	36,984	36,840	37,072
Pseudo R^2	0.015	0.007	0.008	0.008	0.069	0.013
Log likelihood	−9711.116	−24,196.755	−6881.669	−24,825.810	−8398.006	−25,045.367
Predicted probability (at mean values)	0.076	0.374	0.045	0.409	0.054	0.514

This table displays probit estimations of the determinants of alternative sources of borrowing in Africa. Each alternative source of borrowing is a dependent variable and is presented at the top of each column. Individual characteristics are the explanatory variables: gender, age, income and education, as described in Table 2. Estimated marginal effects are presented and standard errors are in parentheses.

* Significance at the 10% level.
** Significance at the 5% level.
*** Significance at the 1% level.

Income influences the choice between informal credit and formal credit. We observe that dummies for the second, third and fourth quintile are significant and positive, meaning that individuals from these income quintiles use more informal credit than individuals with the highest income. These findings have to be related to the result that higher income was positively related to use of formal credit.

When considering the sources for informal credit, we do not see any link between income and borrowing from another private lender. Regarding loans from a store, only the poorest income quintile has a significant coefficient which is negative, supporting the view that poorest people have lower probability to have a credit from a store. However, we see most coefficients for income quintiles which are significant when it comes to borrowing from family and friends: we then observe positive and significant coefficients for dummies for the second, third, and fourth quintile. All together these results mean that poorer people (with the exception of the poorest ones) use more informal credit and this credit comes mainly from family and friends.

The relation with education presents a similar pattern with all forms of borrowing. *Secondary education* is positively associated with all forms of borrowing, while *Tertiary education* has a positive coefficient in all cases which is always significant with the exception of borrowing money from family and friends. Having validated secondary education increases the probability of borrowing from an informal source by 2.6% and of borrowing from a formal financial institution by 3.9%. Having validated tertiary education increases the likelihood of borrowing from an informal source by 2.7% and of borrowing from a formal financial institution by 10.1%. People who completed at least the secondary school are more likely to borrow money from a formal financial institution even if they are also more inclined to borrow informally. Once again, this result is of prime interest because we find no significant relation between education and informal saving but do so for informal credit.

6. Conclusion

African countries have low financial inclusion in comparison with the rest of the world. As financial inclusion can contribute to alleviate poverty and boost economic growth, understanding the determinants of financial inclusion in Africa is a major issue. In this paper, we investigate this question for a large sample of individuals from 37 African countries. Our main findings can be summarized as follows.

First, we find that being a man, richer, more educated and older to a certain extent favor financial inclusion with a higher influence of education and income. This finding supports the view that policies favoring financial inclusion should target certain groups of population like women and young people. We also show that mobile banking is driven by the same determinants than traditional banking in Africa. There is consequently no different pattern to explain the use of this alternative form of banking.

Second, we show that barriers to financial inclusion differ with individual characteristics. We notably observe that education is negatively associated with most barriers, while gender is associated with several barriers in opposite directions.

Third, the determinants of informal finance can differ from the ones of formal finance as shown by the different role for gender and education. Being a woman increases informal saving while it decreases formal saving, in line with the view that African women resort more to informal finance than to formal finance. However, this conclusion is not true when it comes to credit: being a woman reduces informal credit while it has no impact on formal credit. Education is positively associated with formal and informal credit, but when it comes to saving we only observe a positive relation with formal saving.

Fourth, the analysis of the motivations leads to opposite conclusions for saving and for borrowing. On the one hand, the three motivations for saving have the same determinants. We do not observe any differences when it comes to save for business, for age, or for education. On the other hand, the loan-taking motivations strongly differ with individual characteristics. Poorer people ask more for loans related to medical purposes and to education, while richer people ask more for loans motivated by business and to buy a home, an apartment or land. Educated people ask more for loans to finance education but less to finance medical purposes or business. They also resort more to formal credit in order to purchase a home or land. Women borrow less for business or land purchasing.

To sum it up, our work contains findings of particular interest to design policies to foster financial inclusion in Africa. It stresses the role of policies targeting groups of population particularly affected by financial exclusion and identifies the main obstacles they face. It puts into evidence that mobile banking is driven by the same determinants and as such can be a substitute for financial inclusion for these groups of population. It stresses that informal finance is not a substitute for formal finance in all aspects of financial inclusion in Africa.

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