

Determinants of Inclusive Financial Development in Africa

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Abstract

The aim of this paper is to analyse the determinants of financial inclusion by both firms and households in Cameroon. Appropriate regression techniques and tests that take into consideration the possibility of endogeneity between the variables are employed on data obtained from various sources. The results show that the low level of financial inclusion and its variation across individuals of different countries in Africa is explained by the inefficiency of the financial sectors to provide appropriate services, quality of institutions and legal origins. At the level of firms, the variations are explained by socioeconomic inequalities and inflation. Policies geared at improving financial inclusion in the African continent should therefore take these specificities into consideration for them to be efficient.

Keywords: financial inclusion, socioeconomic factors, institutional constraints, Macroeconomic stability, financial sector inefficiencies

JEL Classification: G18

1. Introduction

Financial inclusion, broadly defined as the share of households and firms that use formal financial services, is increasingly recognised as crucial for development and poverty reduction. The economic development and poverty reduction benefits of financial inclusion provide both an economic and a political rationale for policies that promote financial inclusion. At the G20 Summit held in Seoul in 2010, financial inclusion was recognised as one of the main pillars of the global development agenda. Furthermore, a recent survey of bank regulators across 143 countries showed that 67% of regulators were charged with the objective of promoting financial inclusion (Rojas-Suarez and Amado, 2014). Inclusive financial development therefore intends to enhance access to financial services by various segments of society. These segments include especially the poor, youth, women, farmers, small firms, and small businesses that were traditionally excluded from formal finance. Being financially included helps people to make day-to-day transactions, safeguard savings, smooth consumption, finance small businesses or microenterprises, plan and pay for recurring expenses, mitigate shocks and manage expenses related to unexpected events such as medical emergencies. All of these improve overall welfare and lead to economic development (Allen et al. 2016).

Although the importance of financial inclusion is widely recognised in the literature³, its level remains extremely low in Africa. Beck and Cull (2014) document that enterprises and households in Sub-Saharan Africa were less likely to have access to formal finance as compared to their peers in non-African less developed economies. There are only 15 bank accounts for every 100 adults in the median African country, while there are 42 outside Africa. There are 3.1 branches per 100,000 adults in Africa, as compared to 9.6 outside Africa. Also, while in the median African country, only 21% of firms indicate that they have a line of credit or loan from a formal financial institution, this share is 43% outside Africa.

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³See Dupas and Robinson (2009); Beck, Dermiguc-Kunt and Honohan (2008); and Allen et al. (2016) for surveys

Similarly, 16.5% of adults in the median African country indicate that they have an account with a formal financial institution, while this share is 21% outside Africa. Furthermore, these financial inclusion indicators were found to vary much across African countries. While 42%, 54% and 80% of households use a formal account in Kenya, South Africa and Mauritius respectively, this share is below 5 % in the Democratic Republic of Congo, Guinea, Central African Republic and Niger. This statistics are in line with Allen et al. (2016) who find a financial development and inclusion gap in Africa and Beck and Cull (2014) who find that African financial systems are specific as under the same macroeconomic and institutional conditions, they perform less than their peers. They therefore propose the search of innovative factors that explain the low levels and the variation of inclusive financial development across Africa.

Such an endeavour begins by understanding the factors that undermine financial development in Africa. This study is in line with the studies of Zins and Weill (2016) and Allen et al. (2016) which study the factors explaining financial inclusion in Africa. Zins and Weill (2016) concentrate on the demand side by searching individual level factors that affect access or not to formal financial services. Their study concentrates only on access to finance by households neglecting enterprises. Also, country level characteristics such as institutional, regulatory, infrastructural and macroeconomic factors which govern the behaviour of economic agents in general were not taken into consideration. Allen et al. (2016) on their part studied the country level determinants of the African financial development and inclusion gap in Africa. Though they investigated the country level characteristics that explain the existence of financial development and inclusion gap, their study did not explain the level of financial inclusion in Africa. Also, they neglected factors such as legal origin, religion, culture which are predominant in African economies and can explain the observed low level of financial inclusion. This study therefore contributes to the literature by studying the country level determinants of access to finance by both households and enterprises in Africa.

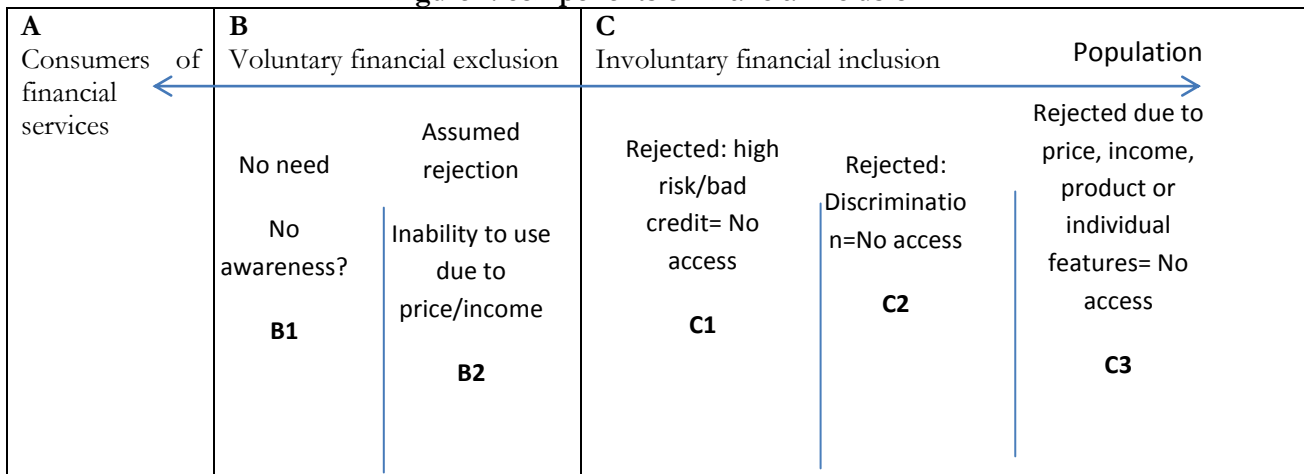
2. Literature Review

In this section, drawing from Claessens (2005), we present the theory underpinning the concept of financial inclusion. This is then followed by the discussion of the determinants of financial inclusion found in the literature:

2.1. Theory

Financial inclusion is recognised to have two components: access to and use of financial services Claessens (2005). Access refers to the availability of a supply of financial services at an affordable cost while use refers to the effective consumption of these financial services. The difference between access and use can be analysed in a standard demand–supply framework. Access refers to supply and use to the interaction of supply and demand. Figure 1 below categorises the use and access to financial services by the population. Group A has access and use of financial services. Group B has access but does not want to use financial services (voluntary exclusion). Group C has no access and thus does not use financial services (involuntary exclusion).

Figure 1: components of financial inclusion



Source: Claessens (2005)

Access is thus equal to $A + B$. Those who use financial services (A) clearly have access. Zero use or voluntary exclusion (B) does not necessarily reflect unavailability of services nor does it necessarily mean rationing. The demand and supply functions may be such that some households or firms have access to financial services but decide not to use them because they have no need, have no savings, rely on nonfinancial means of transacting (barter), or decide the prices are too high.

Whether demand and supply intersect will depend on the relative costs of providing financial services and the income of consumers. If the relative prices of financial services go down compared to the prices of other goods, some of those who voluntarily excluded themselves may start to demand financial services. Availability of services is a necessary, but not sufficient, condition for use. The supply and demand schedules may fail to intersect, in which case there will be lack of access, so that some households or firms are involuntarily excluded (C). They may lack access because, for example, barriers to access the formal financial system are too high or costs are unreasonably high or because they do not have a credit record.

That use will vary from access is a standard demand and supply result and is well accepted. However, analytical financial research, beginning with Stiglitz and Weiss (1981), has shown that, given information asymmetries, lenders will adjust not only price (interest rates) but also quantity and because of adverse selection and moral hazard concerns may not be willing to provide any financing to some individuals or firms. Depending on the distribution of borrowers' risk and return and other fundamental factors, such as income levels and net worth, the supply curve can be backward bending, leading to quantity rationing. Such rationing means involuntary exclusion on the consumer side but is a rational market response on the supply side.

In practice, use will vary more from access when there are non-price barriers. Some individuals will not have access to financing because there are no distribution points of financial institutions in their area—the supply curve is vertical at zero for them. Non-price barriers can interact with the prices charged for financial services. The costs of financing rise for customers whose credit history is not well known, deterring them from seeking financing or rationing them out of the market. But their lack of a credit history may arise from such barriers as a weak institutional environment, including poorly functioning credit information bureaus. Also, lack of access because banks do not serve a particular area or charge too much may arise because of a low level of competitiveness in the banking system.

Distinguishing use and access also depends on the aspect of finance being considered: savings mobilization, allocation of loanable funds (credit), payment facilitation, and insurance (see Bodie and Merton 2005 for a review of the functions of finance). For example, some individuals may have access to payments services but not to credit. For measurement purposes it is often hard to distinguish between these functions, as say an account at a bank provides both payment and insurance services and may also be the starting point of credit. This further complicates the access analysis.

The point is that there are various dimensions to access, and consequently various dimensions in which access may be deficient. There can be deficient access geographically to branches and outlets; or deficient access socioeconomically. Or access can be deficient in an opportunity sense: the deserving do not have access. As such, in order to be able to access and effectively use financial products, individuals need to have a range of skills, information and confidence, but also need to have access to a wide range of appropriate financial products in the financial mainstream. This understanding of financial inclusion implies that responsibility in bringing financial inclusion forward is shared amongst a range of actors: individuals themselves, but also the state and financial institutions as providers of financial products and to better the circumstances of individuals through social policies.

2.2. Determinants of Financial Inclusion

According to Rojas-Suarez and Gonzales (2010), the factors affecting financial inclusion can be classified into four categories: socio-economic constraints that limit both the supply of and the demand for financial services, the macroeconomic environment that deters large segments of the population from using the services provided by the formal financial system, institutional weaknesses which affects government efficiency and operating environment of the formal financial system that impedes the adequate provision of financial services. These operations include the regulatory framework and the specific features of the financial system (such as competitive environment, business models, etc.).

Socioeconomic Constraints

Low levels of social indicators are often associated with lower demand for and supply of financial services. As stated by Claessens (2005), the financial exclusion of people from credit is normally part of a wider social exclusion, which involves education level, type of employment, training, etc. In general, countries with greater access to social services and a better quality of life are countries that have also developed a stronger financial culture in which the use of financial services through formal markets becomes indispensable. Income inequality is another social variable having an important interrelationship with the degree of financial access (Demirguc-Kunt and Levine 2008). The argument is that in highly unequal economies (in terms of income distribution) large segments of the population cannot afford the costs (monetary and otherwise) of using services in the formal financial system.

Macroeconomic Constraints

Macroeconomic instability has been associated with financial crises, negatively affecting the provision of financial services (Rojas-Suarez and Gonzales 2010). However, problems from macroeconomic instability go beyond credit supply effects. The adverse effects on the demand for financial services are usually quite severe and may last well after the end of the financial crisis. The reason is that the demand for deposits and savings products offered by the formal financial system depends largely on the people's trust in the soundness of the system (Rojas-Suarez and Amado, 2014). The economic and financial crises in developing countries in the last three decades have resulted in significant losses for depositors in terms of the real value of their wealth. Deposit freezes interest rate ceilings, forced conversion of deposits in foreign currency into local currency using undervalued exchange rates, and hyperinflation that destroys the value of savings in the financial system were among the causes. As a result, many developing countries around the world have experienced enormous interest rate fluctuations, which in some periods took on negative values.

The lesson here was very clear; stimulating demand for financial services requires a sense of trust that the real value of payment and savings instruments will be preserved. In the absence of trust, not only will financial system usage stagnate, but the meagre deposits in the banking system and other financial institutions will tend to be short-term. Short-term bank liabilities, available for quick withdrawal at the slightest sign of trouble, limit the banks' ability to extend the terms of their assets (loans), thus inhibiting long-term financing.

Financial Sector Inefficiencies and Inadequacies

Based on Rojas-Suarez (2007), in this category we include obstacles to financial access encountered by individuals and firms that can be attributed to the methods and practices used by financial institutions in conducting their operations.

For individuals, poor quality of customer service, extremely long waiting time to make financial transactions, and inadequate information about the financial services offered affect all income segments. Certain obstacles are more significant for low-income individuals and families. These include: insufficient bank branches, ATMs and points of service, especially in small rural communities; high documentation requirements to open a bank account (or account from another type of financial institution); and high costs of maintaining a bank account (or account from another type of financial institution), including minimum balances requirements (Beck *et al.* (2005, 2006). The first two problems stem from both the operating method of financial institutions and the institutional framework in which they function. For example, private banks cannot profitably operate branches in areas with low population density, like rural areas, because low demand may not cover the fixed costs of a branch. Lack of branches may also be influenced by security problems (protection against crime), which constrains bank expansion to remote areas in many countries. Also, inefficiencies in the collection and processing of information by banks and other financial institutions may cause prohibitively high documentation requirements. Institutional and socioeconomic problems that make the financial evaluation of a bank customer difficult may also contribute to this problem. For example, most often there are no title deeds for assets, and the proliferation of informal employment mean there are no contracts specifying the salary of workers. Finally, the high costs of maintaining an account (including minimum balance requirements) are directly related to features of the financial system itself. Therefore, operational inefficiencies, lack of competition, or simply the high financial cost of providing services on a small scale are all obstacles to financial inclusion. With respect to firms, the first hurdle small and medium-sized enterprises (SMEs) face is that they are generally riskier borrowers than larger enterprises for the following reasons: they are insufficiently diversified with respect to sources of income; they are highly sensitive to changes in the operations of large enterprises.

Which generally exert a monopolistic power over the SMEs that supply them with inputs; they lack sufficient collateral; their tax liabilities are uncertain or unpredictable; and their balance sheets lack transparency (i.e., inadequate accounting practices, no distinction between the financial activities of a company and its owner, etc.). Beyond these risk factors, lenders to this sector also face high monitoring costs, because banks and other financial institutions face fixed costs per project that do not necessarily depend on the amount of the loan. The smaller the amount of a loan, the higher the cost of monitoring relative to the income earned from the loan. The high costs of monitoring and the sector's greater risk induce financial institutions to require more security and collateral and to charge higher interest rates to SMEs than to larger-sized enterprises. Also, the credits tend to be short-term and geared toward financing working capital.

High administrative costs, which tend to increase the fixed costs of each loan, and high levels of banking concentration might also inhibit lending to SMEs. With respect to banking concentration, recent studies have found that highly concentrated banking systems obstruct SMEs' access to credit in those countries with weak institutions and strong restrictions on the range of permissible banking activities (Claessens, 2005). Where severe difficulties exist for the enforcement of contracts, the monopolistic power arising from a high banking concentration leads to greater discrimination against riskier borrowers (like SMEs) than there would be in a more competitive banking system.

Finally, fragilities in the financial system are clear obstacles to sustainable financial inclusion. Weak banks and other financial institutions are in no position to expand their operations and services to large segments of the population. They usually encounter severe financial difficulties when they do expand because they take on excessive risk. Unfortunately, when financial crises erupt as a result of excessive risk-taking behaviour financial access declines significantly, especially for low and middle-income individuals and firms. Thus, indicators of financial solvency are necessary to ensure that improvements in financial access take place on a sustainable basis.

Institutional Factors

The institutional environment in which financial entities operate plays a central role in the provision of financial services. Previous studies have demonstrated that the financial system will develop more fully in countries with observance of the law, political stability, fair and efficient enforcement of the rule of law and respect for creditors' and debtors' rights (Beck et al., 2005). When contracts between creditors and debtors are observed depositors have incentives to entrust their savings to banks and other financial institutions. Also, financial firms have incentives to lend at better rates and longer terms to enterprises, since they can seize collateral when debts are in default and are compensated according to pre-established rules in a bankruptcy.

Regulatory Obstacles

The global financial crisis has highlighted the importance of adequate financial system regulation. Even with good intentions, some regulations can result in significant distortions that threaten the stability of the financial system. Moreover, inadequate regulation can discourage financial markets development, hinder the adoption of safe financial products and can even promote inefficiencies. Regulatory distortions are multiple, vary from country to country, and it is very difficult to generalise. However, some of the most important regulatory hurdles facing developing countries are: risk assessment distortions stemming from the adoption of capital adequacy regulation, distortionary taxes, like taxes on financial transactions and interest rate ceilings and other rules (Allen et al., 2016).

According to Rojas-Suarez and Gonzales (2010), the treatment of government debt in the calculation of capital requirements pursuant to Basel I have created a very important risk assessment distortion. Basel I recommends that banks assign zero risk weighting to OECD government debt and a 100 per cent weighting to non-OECD government debt (unless the debt is issued and underwritten in local currency). The idea, of course, is that government assets in developed countries can be considered non-risky assets. The Basel recommendations were designed for the financial systems of developed countries. However, most regulators in developing countries implemented the recommendations and assigned a zero risk weighting to their government debts (whether issued in local currency or not). In other words, banks in developing countries calculate their capital requirements as if the debt of their governments were safe, whereas safe government debt has been an unsafe assumption historically given the financial crises many of these countries have experienced. To that end, the peak of the 2008-09 global financial crisis witnessed a flight from emerging country government debt to US Treasury bonds, the asset considered the safest financial instrument in the world (along with gold).

By way of comparison, Basel I recommended assigning a 100 per cent risk weight to all private sector loans (with the exception of residential mortgage loans, which carry a risk weight of 50 per cent). Most emerging/developing countries implemented this recommendation. Banks were thus incentivised to keep a significant share of their assets in their governments' debt rather than lending to the private sector. This effect intensifies during economic contraction, since banks find it more difficult to maintain capital adequacy. In other words; banks have incentives to reduce financing to the private sector during a recession, which then deepens the recession. Capital requirements are, of course, not the only reason that government securities crowd out lending to the private sector. However, crowding out effects of bank capital requirements matters a lot especially to SMEs and a large number of households which, in contrast to large enterprises and wealthy individuals, do not have alternate sources of formal financing. The tax on financial transactions (TFT) is another example of a regulation that significantly distorts the provision of financial services. This tax applies to bank liabilities, including withdrawals from checking and savings accounts through checks, automatic teller machines, debit cards, etc. There is no disagreement on the adverse effects of the tax, because it is not intended to correct a problem in the banking system, but rather for government revenue collection purposes. Such taxes are typically introduced when governments face fiscal problems because they allow governments to collect revenue quickly and administering them is simple.

The TFT has two salient negative consequences. First, the TFT encourages financial disintermediation since depositors (individuals and enterprises) try to avoid paying the tax by making fewer transactions through banks and increasing the number of cash transactions. By increasing the cost of bank usage, the TFT diminishes access to financial services. Second, the weight of the tax is heavier on enterprises with fewer resources. Larger companies can avoid the TFT through offshore transactions and derivative operations, but SMEs cannot.

Also, it is important to mention other controversial regulations. One is the so-called *usury law*, which establishes maximum interest rates for bank credits to prevent banks from imposing excessive rates on debtors. Despite the good intentions underlying this regulation, many analysts argue the regulation is counterproductive. It has hindered access to credit for certain SMEs, which, because they are riskier than large firms, merit interest rates loans higher than the maximum rates allowed by law. Similarly, it has been argued that the excessive money laundering regulations have hindered access to finance for SMEs and individuals in many developing countries.

2.3. Empirical studies

There are not many studies in the literature on cross country determinants of financial inclusion. However, among the existing ones, those who consider country level characteristics (Allen et al. 2014; Rojas- Suarez and Gonzales 2010; Rojas-Suarez and Amado, 2014) and those who concentrate on individual characteristics (Zins and weill, 2016; Allen et al. 2016) can be distinguished. Also, all these studies concentrate on access and use of finance by households and therefore neglect access by firms and especially small and medium sized enterprises. Furthermore, in their analyses, they use different econometric techniques ranging from probit models to weighted least squares but only Rojas-Suarez and Amado (2014) recognises and test for the potential existence of endogeneity which might make the results bias. Zins and weill (2016) examine the individual determinants of financial inclusion in Africa. They use the World Bank's Global Findex database on 37 African countries to perform probit estimations. They find that being a man, richer, more educated and older favour financial inclusion with a higher influence of education and income.

Rojas-Suarez and Gonzales (2010) apply weighted least squares techniques on data from various sources to analyse the obstacles to financial access in emerging economies. They justify the use of weighted least squares by the possible existence of heteroscedasticity due to the heterogeneity of the countries. They find that in emerging countries, the main obstacles to financial inclusion are macroeconomic instability, institutional weaknesses and social factors (education and health).

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. Allen et al. (2014) investigate the African financial development and financial inclusion gaps relative to other peer developing countries. They use a set of variables related to financial development and inclusion. They first estimate the gaps between African countries and other developing countries with similar degrees of economic development before exploring the determinants of financial development and inclusion.

Their analyses find that population density is considerably more important for financial development and inclusion in Africa than elsewhere. Finally, they show evidence that a recent innovation in financial services, mobile banking, has helped to overcome infrastructural problems and improve financial access.

Rojas-Suarez and Amado (2014) analyse Latin America's financial inclusion gap, the difference between the average financial inclusion for Latin America and the corresponding average for a set of comparator countries. At the country level, they assess four types of obstacles to financial inclusion: macroeconomic weaknesses, income inequality, institutional deficiencies and financial sector inefficiencies. Their results show that although the four types of obstacles explain the absolute level of financial inclusion, institutional deficiencies and income inequality are the most important obstacles behind the Latin America's financial inclusion gap. At the individual level, they find that there is a Latin America-specific effect of education and income. These results suggest that the effect of attaining secondary education on the probability of being financially included is significantly higher in Latin America than in its comparators. Furthermore, the difference in the probability of being financially included between the richest and the poorest individuals is significantly higher in Latin America than in comparator countries

3. Methodology

The methodology consists of specifying the models that would be analysed, defining the variables and giving the data sources and finally outlining the regression procedure.

3.1. Model Specification

The factors affecting financial inclusion at the country-level are taken from the theoretical and empirical literature and can be classified into four categories (following Rojas-Suarez, 2007). Based on that literature, we follow a similar methodology as in Rojas-Suarez and Amado (2014) and estimate the following equation:

$$Fininc_i = \alpha_0 + \beta LegalOrigin_i + \gamma Religion_i + \sum_{k=1}^n \alpha_k Y_{ki} + \varepsilon_i \quad (1)$$

Where i the country index, $Fininc_i$ is the percentage of the adult population that holds an account at a formal financial institution or the percentage of firms reporting finance as an obstacle to growth; Y_i is a vector representing the different determinants of financial inclusion. *Legal Origins* a dummy indicating a legal origin of the country, *Religion* is a dummy indicating a country's religious status (that is, either Muslim or Christianity); and ε_i is assumed to be a disturbance with the usual properties of zero mean and constant variance. Since the dependent variable, *Fininc*, exist only for two periods. 2011 and 2014, we are restricted to using a cross-section data set in the estimation of equation (1). Data for the dependent variable corresponding to 2014 and for the explanatory variables, we use the latest available data.

3.2. Variables definition and Data Sources

The literature review guides us on the possible country level determinants of the financial inclusion of both firms and households and classifies them into four categories: socioeconomic constraints, macroeconomic constraints, institutional factors and financial sector inefficiencies. Based on data availability and the cross-sectional nature of our analysis, the following variables were chosen for the regression analysis as in Rojas-Suarez and Amado (2014). In addition to these variables, we include dummies for religion and legal origin. These variables have been found to affect financial outcomes in Africa (Asongu, 2014).

Inequality: *this* is captured by the Gini coefficient and is taken from the World Income Inequality Database and represents the category of *socioeconomic factors*. It is expected that high inequality be associated with low financial inclusion.

Inflation: *this* is measure using annual inflation rate (consumer price index). This variable is obtained from World Development Indicators of the World Bank and represents the category *macroeconomic constraints*. High inflation is expected to constraint financial inclusion.

Law: *this* variable represents the lack of enforcement of the Rule of Law, an indicator taken from the Worldwide Governance Indicators for the year 2014. The rule of law reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

The original variable, rule of law, was rescaled to range from 0 to 100, and the variable *Law* is calculated by multiplying the rescaled variable by minus 1. This variable belongs to the category *institutional factors* and it is expected that good law enforcement would improve on financial inclusion.

Overhead Costs: An indicator of banking operational inefficiencies, measured as the ratio of overhead costs to total assets. This variable was taken from the dataset on Financial Development and Structure created by Beck et al. (2014). This variable is within the category of *financial sector inefficiencies and is expected to negatively affect financial inclusion*.

Concentration: measured as the share of the three largest banks' assets to all commercial banks' assets. This variable was taken from the dataset on Financial Development and Structure created by Beck et al. (2014). The variable used in the regression is from 2014 and is within the category of *financial sector inefficiencies*.

Christianity: this is a dummy representing a country in which Christianity is the dominant religious faith. The data is obtained from Asongu (2014) and is expected to positively enhance financial inclusion.

Islam: is a dummy representing Islamic states and is expected to negatively affect financial inclusion. It is also obtained from Asongu (2014)

English common law: this dummy captures countries whose legal system is inspired by English common law. It is obtained from Asongu (2014) and is expected to positively influence financial inclusion.

French Civil law: this represents countries whose legal systems are of French origin. The variable is obtained from Asongu (2014) and is expected to negatively affect financial inclusion.

After presenting the variables that would be used in our analysis, we now present the estimation procedure.

3.3. Estimation Procedure

Rojas-Suarez and Amado (2014) highlighted the possible existence of endogeneity issues in analysing the determinants of the financial inclusion of individuals with inequality as one of the variables. According to theory, there is a possibility of reverse causation (Rojas-Suarez, 2007). We therefore begin our analysis by testing for the potential endogeneity of inequality in the account ownership equation and evaluating the convenience of using instrumental variables estimation (IV) to deal with the problem. The Durbin-Wu-Hausman test is used to test the endogeneity of Inequality. The process begins by searching for instruments or variables which would be used for the test. After that if endogeneity is found, an appropriate instrumental variable technique (GMM or 2-stage least squares) is used for the estimations.

Following the insights in Calderon and Chong (2001) and Rojas-Suarez and Amado (2014) we use trade variables as instruments for Income Inequality. Specifically, we use Trade Openness, which is the ratio of exports and imports to GDP and the interaction term between trade openness and Trade Concentration (captured by the concentration index of merchandise exports and imports)⁴. The hypothesis is that although higher levels of trade openness decrease income inequality, this effect is reduced at high levels of trade concentration.

The validity of these instruments is tested using the weak instrument test based on the Cragg- Donald Statistics and the associated Stock and Yogo critical values⁵. This test is important as weak instruments can lead to biased inferences based on Instrumental Variables (IV) estimates (Stock, Wright and Yogo, 2002). After this step, the Durbin-Wu-Hausman test is used to test for the endogeneity of inequality in the account ownership model. The results of this test are reported in table 1 below:

Table 1: Durbin-Wu-Hausman Endogeneity test on Inequality

Instruments	Durbin-Wu-Hausman statistics	p-value
Trade	0.033585	0.8546
Trade-tradcon		

⁴ This indicator is the Herfindahl-Hirschmann index, normalized to obtain values ranging from 0 to 1 (maximum concentration). Data is obtained from the United Nations Conference on Trade and Development (UNCTAD) database-

⁵ The Cragg-Donald statistics is 14.2 which is greater than the Stock and Yogo 5% critical value of 13.9 and as such validates the instruments.

The results fail to reject the null hypothesis of exogeneity of Inequality in the regression, suggesting that Ordinary Least Squares (OLS) is a more consistent and efficient estimator than the Instrumental Variables (IV) estimator. We therefore proceed by using OLS regression techniques for our analysis.

4. Results and Discussions

Two sets of results are presented: in Table 2, the results of estimations with adult ownership of account in a formal financial institution as dependent variable are presented and in Table 3, the results of estimations with firms reporting finance as a major obstacle as dependent variable is presented. Table 1 has five different estimation results of equation 1 with the percentage of adults that hold an account in a formal financial institution as dependent variable. Column 1a is the benchmark model without controlling for religion and legal origin. In columns 1b and 1c, we control for English and French legal origins respectively. Likewise, in columns 1d and 1e, we control for Christianity and Islam. However, the preferred specification is reported in column 1b.

Table 2: OLS estimation results for ownership of account in a formal financial institution

variables	1a	1b	1c	1d	1e
inequality	0.424813* (0.230408)	0.268786* (0.233293)	0.268786* (0.233293)	0.367823* (0.271126)	0.367823* (0.271126)
law	19.61706*** (5.008364)	13.39992** (5.672190)	13.39992** (5.672190)	19.04966*** (5.252587)	19.04966*** (5.252587)
concentration	-0.140901 (0.119544)	-0.149386 (0.114496)	-0.149386 (0.114496)	-0.135491 (0.121698)	-0.135491 (0.121698)
overhead	-1.682104** (1.004683)	-2.184816** (0.992392)	-2.184816** (0.992392)	-1.807938* (1.061691)	-1.807938* (1.061691)
inflation	0.064754 (0.101043)	-0.058129 (0.113777)	-0.058129 (0.113777)	0.060028 (0.102905)	0.060028 (0.102905)
Legal origin (English)		11.26725** (5.495095)			
Legal origin (French)			-11.26725** (5.495095)		
Religion (Christianity)				2.277163 (5.526818)	
Religion (Islam)					-2.277163 (5.526818)
Constant	35.62942** (13.85310)	40.52267*** (13.47250)	51.78992*** (15.42504)	36.45735** (14.16366)	38.73452** (15.91750)
Adjusted R ²	0.456290	0.501892	0.501892	0.443080	0.443080
F-Statistics	7.713738***	7.717307***	7.717307***	6.303926***	6.303926***

Note:*, **, *** indicate significance at 10%, 5%, and 1% respectively. Values in brackets are standard errors

The results indicate that the decision of adults to own accounts in formal financial institutions in Africa is driven by country level factors such as the quality of institutions, financial sector inefficiencies and inadequacies and legal origin. Socioeconomic factors affects ownership of accounts only marginally as it is significant only at 10% level of significance. From these results, the factors that explain the low level of financial inclusion and its variation across countries in Africa is explained by the differences in the quality of their institutions, their legal origins and the efficiency of their financial sectors. As concerns legal origin, English legal origins tend to increase favours the ownership of accounts in formal financial institutions unlike French legal origins that discourages financial inclusion.

In table 3 below, the estimation results of equation 1 with firms reporting finance as a major obstacle are presented. In column 2a, we present the benchmark model. Subsequently, in columns 2b and 2c we control for English legal origin and French legal origin respectively. Column 2d controls for Christianity and column 2e for Islam.

Table 3: OLS estimation results for firms reporting finance as major obstacle

variables	2a	2b	2c	2d	2e
inequality	-0.614760** (0.228128)	-0.531245** (0.240880)	-0.531245** (0.240880)	-0.673190** (0.268395)	-0.673190** (0.268395)
law	-6.930825 (4.958806)	-3.603030 (5.856653)	-3.603030 (5.856653)	-7.512569 (5.199674)	-7.512569 (5.199674)
concentration	-0.032429 (0.118361)	-0.027887 (0.118220)	-0.027887 (0.118220)	-0.026882 (0.120472)	-0.026882 (0.120472)
overhead	0.344915 (0.994742)	0.613998 (1.024665)	0.613998 (1.024665)	0.215901 (1.050996)	0.215901 (1.050996)
inflation	-0.313054*** (0.100044)	-0.247280** (0.117477)	-0.247280** (0.117477)	-0.317900** (0.101868)	-0.317900** (0.101868)
Legal origin (English)		-6.030924 (5.673799)			
Legal origin (French)			6.030924 (5.673799)		
Religion (Christianity)				2.334701 (5.471143)	
Religion (Islam)					-2.334701 (5.471143)
Constant	71.97071*** (13.71603)	69.35154*** (13.91063)	63.32062*** (15.92667)	72.81957*** (14.02098)	75.15427*** (15.75715)
Adjusted R²	0.245680	0.248468	0.248468	0.227631	0.227631
F-Statistics	3.605578***	3.204103**	3.204103**	2.964783**	2.964783**

Note:*, **, *** indicate significance at 10%, 5%, and 1% respectively. Values in brackets are standard errors

The results show that the major factors that explain the financial inclusion of firms in Africa are socioeconomic factors and macroeconomic factors. However, unlike in studies out of Africa where macroeconomic instability and socioeconomic inequalities are found to negatively affect financial inclusion (see Rojas-Suarez and Amado, 2014);the situation in Africa is different as the two factors instead reduce the number of firms reporting finance as an obstacle. This is surely explained by the existence of a different political economy of finance in Africa.

5. Conclusion

The low level of financial inclusion and its variation across individuals of different countries in Africa is explained by the inefficiency of the financial sectors to provide appropriate services, quality of institutions and legal origins. At the level of firms, the variations are explained by socioeconomic inequalities and inflation. However, the direction of the relationship in the case of firms is different from that in other spheres suggesting the existence of a different political economy of finance in Africa.

Policies geared at improving financial inclusion in the African continent should therefore take these specificities into consideration for them to be efficient.

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