

THE DETERMINANTS OF FINANCIAL INCLUSION

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Abstract

There are hosts of dynamics contributing to financial inclusion. These sources may be both from the demand side and supply side. The government and financial institutions use several policy initiatives to encourage the supply of financial services to the excluded sector. However, the demand-side factors of financial access have attracted little focus. This study provides an overview of sources of financial inclusion and highlights the policy measures from the perspective of consumers of financial services – also known as the demand-side. The secondary series data were estimated using the ordinary least square method. The findings of the study indicate that economic growth and the number of internet users exert a positive and significant effect on financial access in East Africa. On the other hand, the result indicates that the deposit interest rate was insignificant. The study recommends the deposit interest rate be made attractive to promote continuous saving and access to loanable funds in the financial market. The policy strategies therefore should be aimed at cultivating a conducive financial system that upholds financial access-demand-driven rates to stimulate financial growth.

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INTRODUCTION

According to most financial literature, financial inclusion has been based on the larger issue of economic and social inclusion (Kisaka et al., 2015). Layshon et al. (2008), view financial inclusion as a condition where individuals can access appropriate, wanted financial services and products for taking care of their money successfully (Layshon et al., 2008). On the other hand, Sinclair (2001) describes financial exclusion as the unavailability of basic financial services in a formal way. The exclusion can be spurred by problems resulting from accessing, conditions, pricing, marketing, or even self-exclusion as a result of negative experiences.

In a study conducted in India by Karthikeyan (2011), on the main determinants of financial inclusion, Karthikeyan identified the following factors. They include financial literacy, individual income and assets, age, gender, culture, rural areas, proof of identity, and so on. In a similar study conducted in Kenya by Oruo (2013), on the relationship between financial inclusivity and economic growth, Oruo concluded that the GDP growth in the economy has an affirmative relationship with financial inclusion. This was based on the findings that as Kenya experienced positive economic growth, the automated teller machines (ATM), cell phone money users, and the branch networks were also experiencing a positive change in their numbers (Kisaka et al., 2015). Innovations within the financial sector have really brought about great change in the global financial access landscape. In particular, mobile money has really pushed the levels of financial inclusion high due to its convenience and affordability (Sinclair, 2001; World Bank, 2008). In the recently released data by Inter Media's Financial Inclusion Insights (FII), Kenya, Tanzania, and Uganda had 73, 56, and 46 percent of adults, respectively, being financially included. It was also noted that these adults have registered mobile money accounts. This has allowed bank customers to easily access their accounts and transfer money without necessarily visiting their branches (Olaniyi, 2016; Wokabi & Fatoki, 2019).

However, even with the high rates of financial inclusion being reported, challenges facing these efforts still exist. Kenya has been battling with predatory digital lending while Uganda and Tanzania have had challenges on trust in financial services due to lack of a sufficient regulatory framework for Financial Institutions (NDFI), internet-based technologies, and self-help groups, CARE International in Uganda VSLA MIS (Management Information System Data).

It is worth highlighting what the literature says about determinants of financial inclusion. Most researchers have focused on the role of developing the financial sector and the impact of supply-side financial inclusion on growth rather than the demand-side determinants of financial inclusion growth. The general concurrence that exists amongst policymakers is that demand-side financial inclusion remains vital in the financial development process. Despite this agreement, few studies that have been undertaken in East Africa have had their objectives focusing on the macroeconomic demand-side determinants of financial inclusivity. For instance, Wokabi and Fatoki (2019) in their study on microeconomics determinants of financial inclusion in East Africa mainly focused on finding out the effects of the rural population, unemployment rates, income level, and interest rates on financial inclusion (World Bank, 2008) ignoring GDP growth-macroeconomics. Other studies have been carried out on a worldwide platform with few African countries being part. Concerning this, the research will attempt to fill the existing gap on the sources of financial inclusion from the perspective of users of financial services – also known as demand-side data. To realize this target, this study is aiming at answering the proceeding research question: What are the key demand-side determinants of financial inclusion in East Africa?

LITERATURE REVIEW

THEORETICAL LITERATURE

The finance-growth nexus theory is coined with the presumptions of complete information, an economy with no friction, and mobility of resources. This theory brings out the connection between two spheres, the real economy, and financial spheres. Championed by Bagehot (Kurian, 2014), this theory brings out how occurrences in the money market affect capital spillovers in an economy as individuals seek to attain maximum returns from the funds (Kurian, 2014). Under normal circumstances, financial funds will stir economic activities due to the multiplier effect of credit (Kaboro & Mose, 2019). The theory plays a key role in identifying factors that influence the inclusion of the players in the informal sector. In addition, it spots the need for funds to be channeled where there is a critical need. This theory thus set the mood for the case for financial inclusion and the requirement for proper guidelines that uphold financial inclusion to be put in place.

Concerning financial inclusion, neoclassical economic theory and new-Keynesian theories are capable

of examining this phenomenon. The neoclassical theory puts its focus on economic agents. It goes further to state that these agents are well – informed and competitive due to their rationality and self-interest (Kaboro & Mose, 2019). These assumptions lead to the conclusion that financial inclusion is the outcome of consumer choice or government policy. On the other hand, new – Keynesian analyses focus on market distortion in the micro-economy.

EMPIRICAL LITERATURE REVIEW GAPS

There exists extensive empirical evidence that puts forward for consideration the determinants of financial inclusion. Despite the universal consensus of key determinants of financial inclusion, it is obvious that there will be different signs and magnitude of outcomes when this relationship is tested in East Africa. Several empirical studies have been carried out in this regard. However, few studies have been conducted in East Africa concerning the influence of demand-side sources of financial access. This study will aim to fill this gap.

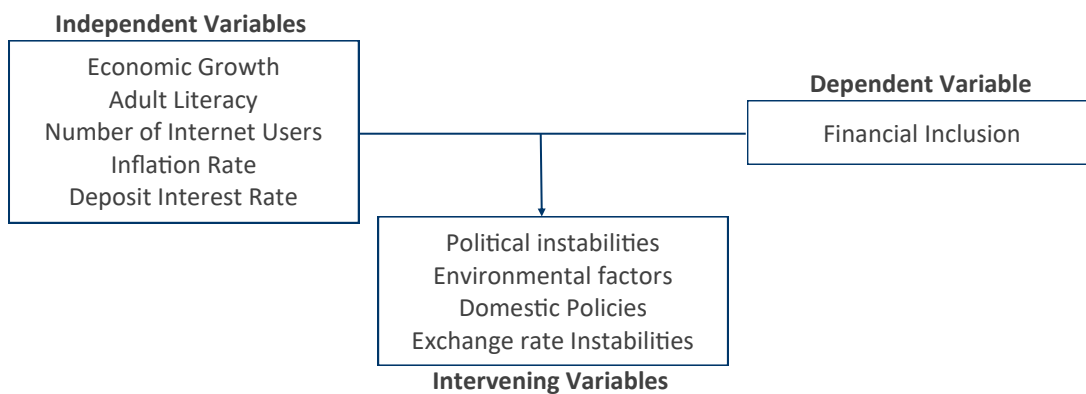
CONCEPTUAL FRAMEWORK

Mugenda and Mugenda (2008) define a conceptual framework as a brief description of the phenomenon under study followed by a graphic depiction of the major variables of the study. It simply brings out the relationship between the endogenous variables and exogenous variables of this study. Economic growth can be attained through value formation in smaller businesses that have a positive spillover effect on the indicators of human development that include schooling and health (Nanda & Kaur, 2016) which will definitely increase financial inclusion. This is because with high levels of literacy individuals will understand the need to lever-

age formal financial system services. Emphasis on economic growth driving financial development was also put forward by Robinson (1952) "where enterprise leads, finance follows". Robinson's argument which agrees with the demand following hypothesis was that finance does not promote economic growth, but rather, finance responds to demands for financial services as the economy grows. This, therefore, projects that with changes in economic growth, financial inclusion levels will be affected (Robinson, 1952).

Access to the internet is of great importance to financial inclusion, for example in Kenya, M-Pesa a phone-based money transfer has resulted in unprecedented birth and growth of several financial services. An affirmative positive relationship between deposit interest rates and financial inclusion exists (Sarma & Pais, 2008; Olaniyi, 2016). This implies that interest rate is a key player when it comes to accessing finances and therefore directly has a role in impacting financial inclusion levels. According to Sarma and Pais (2008) and Allen et al. (2014), the growing number of those having access to the internet is an indicator that internet access is crucial in a rapidly expanding financial system. The level of literacy has had great importance in the financial market when it comes to decision-making. This is basically the cause of the complexity that the uneducated may face in the financial market when making an informed decision is expected. This is because with high levels of literacy individuals will understand the need to leverage formal financial system services (Nanda & Kaur, 2016; Sarma & Pais, 2011). According to Li, et al. (2000), inflation distorts the distribution of income. In their view, inflation, in turn, increases the earnings share of the rich, while at the same time reduces the earnings shares of the middle class and the poor. Figure 1 below illustrates the relationship between financial inclusivity and the demand-side sources of financial inclusion growth in East Africa.

Figure 1: Conceptual Framework



Source: Karthikeyan (2011); Oruo (2013).

RESEARCH METHODOLOGY

RESEARCH DESIGN

This study adopted a historical research design during the analysis. The historical research design was preferred because it captures the effect and trend of key study variables. This was carried out in the period 2006 - 2019 applying annual series secondary data for three countries - Kenya, Uganda, and Tanzania and ordinary least square (OLS) estimation method, resulting in 42 country-year observations. This study adopted a cross-country panel design to get aggregated observations across the countries formulating the jurisdiction of the study. This necessitated a panel data analysis for this topic. Panel data methodology carries with it the advantage of controlling for individual heterogeneity hence the level of biasness of model estimators was less. This methodology also offered more degrees of freedom (Gisore, 2021), making it capable of capturing more complex behavior, and uncovering dynamic relationships that control the impact of omitted variables. The selection of either the fixed effect or random effect model was guided by the Hausman test. This test identified the most efficient model and ensured that the model gave consistent results (Baltagi et al., 2020).

DATA TYPE AND SOURCES

The study used secondary data set from the period 2006 to 2019. Secondary panel data is preferred in this research because it is readily available, cheaper, and easily accessible (Mugenda & Mugenda, 2008; Gisore, 2017). These data were acquired from individual country Statistical abstracts, World Development Indicators database of the World Bank and the Human Development Data of United Nations Development Programme to investigate and model the sources of financial inclusion in East Africa.

EMPIRICAL ESTIMATION MODEL

The demand-side following hypothesis as developed by Patrick, 1966, was adopted in coming up with the econometric estimation model for this study. This hypothesis posits that demand for financial services relies on a positive increase in real output, commercialization, and modernization of subsistence sectors (Patrick, 1966; Mac Kinnon, 1973; Shaw, 1973). It simply implies that unidirectional causation from growth in

the economy to financial development exists. In line with previous research works of literature, specifically by Sarma and Pais (2008) and Segal and Kim (2015), the structured function model for the study is expressed as,

$$FINC = f(G, LIT, INT, INF, DIR)$$

where Economic Growth measured in GDP per capita is the proxy for development in the economy (Gisore, 2017). Adult literacy rate, Number of Internet Users, Inflation, and Deposit Interest Rates are incorporated as control variables (Karthikeyan, 2011; Oruo, 2013). These are key variables that affect financial inclusion (Sarma & Pais, 2008). From equation (1) above, the econometric function model for the study was expressed as;

$$FINC_{i,t} = \beta_0 + \beta_1 G_{i,t} + \beta_2 LIT_{i,t} + \beta_3 INT_{i,t} + \beta_4 INF_{i,t} + \beta_5 DIR_{i,t} + \epsilon_{i,t}$$

Where;

$FINC_{i,t}$ is the number of deposit accounts with commercial banks per 1,000 adults of country i at time t

$G_{i,t}$ - economic growth at time t for country i ,

$LIT_{i,t}$ - adult literacy rate at time t for country i ,

$INT_{i,t}$ - the number of internet users at time t for country i ,

$INF_{i,t}$ - inflation at time t for country i ,

$DIR_{i,t}$ - the deposit interest at time t for country i ,

t - the period 2006 - 2019

$\mu_{i,t} = v_i + \epsilon_{i,t}$ - the error term where v_i is the unobserved heterogeneity across the countries and $\epsilon_{i,t}$ the idiosyncratic error

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ - the regression coefficients

DEFINITION AND MEASUREMENT OF VARIABLES

The model adopted here has a combination of several variables. Some of the variables are from previous studies and have been modified to fit this study (Karthikeyan, 2011; Oruo, 2013; Wokabi & Fatoki, 2019). Table 1 below illustrates the definition and measurement of study variables.

Table 1: Measurement of Variables

Variable	Notation	Measurement
Financial Inclusion	FINC	Number of deposit accounts with commercial banks per 1,000 adults
Economic Growth	G	GDP per capita, ratio of total countries output to its citizens
Adult Literacy	LIT	Adult literacy rate; ratio of literate citizens from 15years of age and above by the number citizens from 15years of age and above
Number of Internet Users	INT	Number of internet users per 100 inhabitants
Inflation	INF	Inflation Rate, percentage change in price levels over time
Deposit Interest Rates	DIR	Commercial bank rate

Source: Sarma and Pais (2008); Karthikeyan (2011); Oruo (2013); Wokabi and Fatoki (2019).

ECONOMETRICS TECHNIQUE

The study will adopt an ordinary least squares (OLS) technique to estimate the equations system shown above. OLS estimators can minimize the sum of the squared errors (a difference between observed values and predicted values). In addition, the Hausman (1978) test was applied to underpin the application of the panel fixed or random-effects model in this analysis. Fixed-effects (FE) are used whenever one is only interested in analyzing the effect of variables that vary over time. Panel data technique permitted control for unobserved growth heterogeneity (Greene, 2012). Post-estimation panel diagnostic tests were carried out dur-

ing the study. Heteroskedasticity, model specification, and serial correlation were tested for the above models before estimation and corrected accordingly.

EMPIRICAL RESULTS AND DISCUSSION

HAUSMAN TEST

The Hausman Test was carried out to choose either fixed effect or random effect models. This test has the ability to check against two main options, an efficient model against an inefficient model (Hausman, 1978). The outcome is presented in Table 2.

Table 2: Hausman Test Results

Variable	(b) fixed	(B) random	(b - B) Difference
G	0.0013217	0.0029195	-0.0015978
LIT	1.743068	2.501775	-0.7587069
INT	0.0196522	0.0457354	-0.0260831
INF	0.015616	0.0678771	-0.0522611
DIR	-0.0262394	-0.0588067	0.0325673
$\chi^2 (10) = 13.94$		Prob> $\chi^2 = 0.02$	

Source: Own calculation.

To perform this test, both fixed effects and the random-effects models were regressed. Should the p-value be significant (for instance <0.05), a fixed-effects method would be adopted, should it be insignificant then the random-effects method would be used. The null hypothesis is that the preferred model is random effects; the alternate hypothesis is that the

random effects; the alternate hypothesis is that the model has fixed effects. From the result, the p-value 0.02, hence the null hypothesis is rejected and the alternate hypothesis selected (fixed-effect model). Panel fixed effect explores the relationship between predictor and outcome variables within an entity (country, person, company).

REGRESSION RESULTS

The study sought to determine the major determinants of financial inclusion in East Africa. OLS-Fixed

effect estimation technique was adopted during the analysis. The OLS-fixed effect findings are given in Table 3.

Table 3: Fixed Effects Regression Results

Variable	Coefficient	Std. Error	t – Statistic	p - value
Cons	2.5391790	0.4094230	6.20	0.0000
G	0.0022334	0.0004315	5.18	0.0000
INF	-0.0380160	0.0136110	-2.80	0.0130
INT	0.0222102	0.0164581	1.35	0.0459
LIT	0.8536438	0.3600233	2.37	0.0250
DIR	0.0196680	0.0211870	0.93	0.3670

Source: Own calculation.

Economic growth, whose proxy is GDP per capita, is significant at a five percent significance level. As GDP per capita grows it is expected that financial access increases. By this regression result, the unit change in per capita GDP growth rate leads to a change of 0.002 in financial inclusion. This means that GDP per capita has the capacity to deepen the financial inclusion agenda of East Africa if the productive capacity of the economy is adequately propagated. This implies that as the economic wellbeing of the people of East Africa improves so does their capacity to access and use financial products and services. This is in line with the outcome found by Sarma and Pais (2008), Zins and Weill (2016), and Thomi and Mose (2021). The result is in agreement with the demand leading hypothesis, which portrays lagged response towards the growth of the economy (Patrick, 1966; Thomi & Mose, 2021). These basically imply that economic growth creates demand for financial products. Therefore, meaning that with growth in the economy, there will be positive demand for financial services. In turn, the financial sector stakeholders will respond by developing the financial sector and market, and finally, financial inclusion would be realized (Sarma & Pais, 2008).

The inflation rate, which distorts the distribution of income showed negative and significant consequences on financial access (Li, Xu, & Zou, 2000). This negative relationship implies that financial inclusion levels decrease as the levels of inflation increase. It is generally agreed that a high inflation rate would reduce the level of financial inclusion due to its effect on money circulation (World Bank, 2008).

Deposit interest rate, which represents the cost of attracting and maintaining deposits on saving accounts,

was positive but insignificant in East Africa. The positive coefficient is indicative of the fact an increased deposit interest rate will stimulate savings and increase account ownership. Thus, to attract savings and deposits, it is imperative to offer deposit rates and products that are enticing to retain and create new accounts in economies. The findings on deposit interest rates are partially consistent with Sarma and Pais (2008) and Olaniyi (2016) who found a positive relationship between interest rates and financial inclusion.

The literacy level has a positive significant effect on financial inclusion levels. The level of literacy has had great importance in the financial market when it comes to decision-making. This is basically the cause of the complexity that the uneducated may face in the financial market when making an informed decision is expected. According to Sarma and Pais (2011) and Nanda and Kaur (2016) in accounting for the levels of financial inclusivity, adult literacy level is a key factor. In addition, low levels of literacy limit the adoption of digital financial services. Therefore, it is very clear that literacy affects the financial decision-making process. With high levels of literacy, individuals will understand the need to leverage formal financial system services (Nanda & Kaur, 2016).

The number of internet users has a positive and significant relationship with financial inclusion. According to Sarma and Pais (2008) and Allen et al. (2014), the growing number of those having access to the internet is an indicator that internet access is crucial in a rapidly expanding financial market and sector in the economy. Concerning this, it cannot be ignored that access to the internet is of great importance to financial inclusion for example in Kenya, M-Pesa a phone-based money trans-

fer has resulted in unprecedented birth and growth of several financial services. This clearly depicts that the internet's impact on financial inclusion cannot be overlooked.

The coefficient of determination (adjusted R^2) shows that 86% of the dependent variable is explained within the model. The F test result indicates that all the independent variables have explanatory power at a 1% level of significance. Which means the model fits the data well. Different post estimation panel diagnostic tests were carried out. A modified Wald test was carried out to test for heteroskedasticity and from the result, heteroskedasticity is not a problem. The value for Durbin-Watson is equal to 2.0, implying autocorrelation is not a problem.

CONCLUSION AND RECOMMENDATIONS

Following the findings of the study, economic growth, and the number of internet users, deposit interest rate, and inflation rate are key determinants of financial inclusion in East Africa. Specifically, GDP per capita, a proxy for economic growth, and deposit interest rate have a positive and significant effect on financial inclusion. Consistent with this outcome, it is supposed that with an increase in economic growth, number of internet users, and deposit interest rates then there will be an increase in financial access. On the other hand, from regression coefficients, the inflation rate has a negative but significant effect on the financial inclusion rates.

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Following the results of the study, the EAC countries should focus on accelerating economic growth as it positively affects the levels of financial inclusion. The deposit interest rates should also be maintained at friendly levels to encourage individuals to own accounts and deposits with the banks. Through this, savings will be increased and some commercial account deposit holders will also be increased. Thus, to attract savings and deposits, it is imperative to offer deposit rates and products that are enticing to retain and create new accounts in economies. Further, alternative approaches to availing banking infrastructure can be considered, such as agency banking and internet banking. This will probably help in increasing access to the commercial bank. Based on the conclusion of the study, the EAC countries should focus on strategies and policies that will stimulate levels and demand-side sources of financial inclusion.

LIMITATION AND AREAS FOR FURTHER RESEARCH

Given the small size of the sample, it is also important to extend the analysis to cover a wide region such as Sub-Saharan African economies to test the robustness of the results. In particular, introducing a comparison group including good performers in terms of real GDP growth which would allow the study to explore further the extent to which economic performance contributes to financial inclusion growth, and whether there are clear differences between fast and slow-growing economies.

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