Financial Inclusion in East Africa: Does Economic Growth Matter?

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Authors' contributions

This work was carried out in collaboration between both authors. JT designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author NM managed the analyses of the study. Authors NM and JT managed the literature searches. Both authors read and approved the final manuscript.

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ABSTRACT

Inclusive financial systems in any economy cannot be ignored. In fact, it has become a policy strategy in many governments around the world, including East Africa region economies – Kenya, Uganda and Tanzania. Using panel data, this study presents a cross country analysis of the variables that determine financial inclusion levels with a key focus on economic growth through demand leading hypothesis. The study sought to test if economic expansion matters in financial inclusion in East Africa for the period 2006-2019. Panel ordinary least squares regression technique and fixed effect estimation method were adopted during the analysis. Following the findings of the study, economic growths depict a considerable influence on the financial access rate in East Africa. The corroboration presented by this study may help the respective countries to adopt policies that focus on improving financial inclusion levels through sustained economic growth.

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1. INTRODUCTION

The importance of an inclusive financial system in any economy cannot be ignored [1]. In fact, it has become a policy priority in many economies around the world, including East African countries. In addition, the promise to provide a solution to economic and social empowerment has resulted in financial inclusion strategies attracting great political, social, and economic interest [2,3]. The importance accorded to an inclusive financial system may be attributed to the view that it is a pre-condition for financial deepening, which plays a key role in economic growth and development. In order to realize sustained financial inclusion, policymakers and thinkers have always considered economic growth as a major phenomenon in planning [4]. From an economic theoretical perspective, several arguments have been advanced stating that an inclusive financial sector is a driver towards the growth of the economy. In an earlier perspective, Schumpeter was able to demonstrate that finance augments the growth of the economy [5].

Initially, it was simply perceived that by expanding the scope of the financial sector, financial tools would be produced to support greater economic growth and reduction of poverty through social inclusion [1]. However, the expansion has had a lesser impact on both the economy and social improvement. Over time, policy attention has been shifting from the development of the financial sector towards the development of an inclusive financial system [2]. The shift has been evidenced by most of sub-Saharan African countries; Lesotho, Nigeria, and Rwanda, setting up formal targets with the objective of achieving universal financial access by the year 2020. Conceptually, finance access is an enabler of saving and borrowing to the poor population. Through this, the building of assets, the investment will render small and medium-sized enterprises to leverage on favorable growth opportunities. This makes accessing financial services, singularly credit, of great essence in advancing growth in the local economy [4,3].

In the East Africa region, strategies towards ensuring that financial services for all are promoted are being made. Uganda rolled out her National Financial Inclusion Strategy 2017-2022, in 2017, seeking to have financial exclusion levels below 5% by 2022. Tanzania also set up National Financial Inclusion Framework, 2018-2022) aiming to champion the availability of both financial goods and services for businesses and individuals. Kenya too has a plan, the Kenya Vision 2030, a development blueprint that aims at creating a vibrant and globally competitive financial sector with increasing financial inclusion levels as one of the major objectives [6,7].

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 nature [1]. In the recently released data by InterMedia'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. However, even with the high rates of 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 sufficient regulatory framework for Financial Institutions (NDFI), internet-based technologies, and self-help groups, CARE International in Uganda VSLA MIS (Management Information System Data).

While attempts by many scholars to dig out the connection between economic growth and financial inclusion, most of the scholars may never arrive at a clear conclusion, a relatively more serious the concern of the question not considered relates to whether financial inclusion signify economic growth. Conforming with literature, inclusion tends to onboard the excluded into the formal financial system, therefore, giving them chance to obtain financial services which range from savings, credit, deposits, payments, and insurance transfers [8,2,9]. On the same breadth, development economics states that with an increase in financial services, development at all levels of the society will be realized. The supply-leading hypothesis states that the development of the financial sector has the ability to spur growth through boosting the general efficiency of the economy, liquidity, savings, increased assets, and entrepreneurship. Unlike supply – leading hypothesis, the demand–following hypothesis portrays lagged response towards the growth of the economy [10,11]. These basically imply that

growth creates demand for financial products. Therefore, meaning that with growth in the economy, there will be positive demand for financial services [10,7]. In turn, the financial sector stakeholders will respond by developing the financial sector and finally, financial inclusion would be realized.

1.1 Statement of the Problem

Respective researches have been advanced based on the linkage between financial inclusivity and economic growth. Kisaka et al. [11] and Wokabi and Fatoki [9], found an affirmative linkage uniting financial sector deepening and economic growth. These studies were conducted in East Africa. However, a large number of scholars and researchers have channeled their efforts towards the role of financial development on economic growth instead of finding out the relationship between growth in the economy and financial inclusion. To realize this target, this study is aiming at answering the proceeding research objective: The effect of economic growth on financial inclusion in East Africa.

2. LITERATURE REVIEW

2.1 Theoretical Literature

There is no doubt that the concept of growth in the economy and financial inclusivity has been of great interest to many scholars and researchers. This is evidenced by the great contribution that these individuals have done through their empirical work about this concept. At the center of their contribution, are the theories and hypotheses that help in explaining the role of economic growth on financial inclusion.

The work of Mac Kinnon (1973) and Shaw [12], well known as the financial liberalization theory, advocated for financial liberalization to increase money demand through two main channels; firstly, through supply induced demand and secondly creation of a conducive environment in the economy. They perceived that financial liberalization would be achievable when backed by economic growth. With economic growth, both financial inclusion and financial deepening will be achieved since monetization of the economy will be attained [1]. The McKinnon-Shaw theory of financial liberalization depicts a harmonious connection between money balances and physical capital accumulation which translates to output growth [12] (Mac Kinnon, 1973).

2.2 Empirical Literature Review Gaps

It is clear that most of the studies, though on the subject matter, have been conducted outside East Africa. It is also clear that financial inclusion stands out as a top priority in the contribution to macroeconomic stability, employment, and business creation which can be stated as economic growth. In addition to that, the previous researches have had their objectives anchored on the financial market alone and therefore filling this existing research gap by determining the role of growth in the economy on financial inclusion [11,9]. This is informed by the fact that financial inclusion encompasses a larger size of the economic players as compared to the financial market [2]. The central theme of inclusive finance theory holds that broad access and affordable financial products and services would enable economic agents to better manage their day-to-day economic endeavors and the lots of the entire economy. Several empirical studies have been carried out in this regard. However, few studies have been conducted in East Africa concerning the influence of economic growth on financial access. This study will aim to fill this gap.

3. METHODOLOGY

3.1 Research Design

The study adopted a quantitative research design during the analysis. The quantitative research design was preferred because it captures the impact 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 panel ordinary least squares (OLS) estimation method, resulting in 42 country-year observations. Panel technique permitted control for unobserved county heterogeneity [13].

3.2 Data Type and Sources

The study used secondary data set from for the period 2006 to 2019. Secondary panel data is preferred in this research because it is readily available, cheaper, and easily accessible [13]. 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 the impact of economic growth on financial access in East Africa.

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

3.3 Empirical Estimation Model

The demand following hypothesis as developed by Patrick, 1966, was adopted in coming up with the research 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 [10,12] (Mac Kinnon, 1973). It simply implies that unidirectional causation from growth in the economy to financial development exists. In order with previous research works of literature, specifically by Sarma and Pais [14] and Segal and Kim [15], the structured function model for the study is expressed as,

$$FINC = f(G, LIT, INT, INF, DIR) \qquad (1)$$

From equation (1) above, the econometric function model for the study was expressed as;

$$FINC_{i,t} = \beta_0 + \beta_1 G_{i,t} + \beta_2 LIT_{i,t} + \beta_3 INT_{i,t} + \beta_4 INF_{i,t} + \beta_5 DIR_{i,t} + \varepsilon_{i,t} \qquad (2)$$

Where;

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

G_{it} - economic growth at time t for country i,
LIT_{it} - adult literacy rate at time t for country i,
INT_{it} - the number of internet users at time t for country i,
INF_{it} - inflation at time t for country,
DIR_{it} - the deposit interest at time t for country,
t   - the period 2006 - 2019
$\mu_{it} = \nu_i + \mu_{it}$ - the error term where ν_i is the unobserved heterogeneity across the countries and μ_{it} the idiosyncratic error
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ - the regression coefficients

3.4 Definition and Measurement of Variables

The study 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. The definition and measurement of study variables are presented in the Table 1.

3.5 Panel Estimation 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 [16] 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 [17]. Post-estimation panel diagnostic tests were carried out during the study. Heteroskedasticity, model specification, and serial correlation were tested for the above models before estimation and corrected accordingly.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Summary of variables adopted in the study are presented in Table 2 over the period, 2006 to 2019. This was done to ascertain the statistical characteristics of the data before making estimations. Descriptive Statistical tools, including mean, standard deviation, minimum and maximum were used.

The descriptive data result presented in Table 2 indicates that on average from 2006 to 2019, financial inclusion was 3.18 from each country per year, with a range of between 1.18 and 5.59. The descriptive summary also reveals that the share of economic growth ranges from 348 to 1817 with a mean of 920.5 per year. This observation implies that on average the proportion of economic growth recorded by the member countries was higher compared to the financial inclusion. In addition, this observation implies that during the study period, 2006-2019, economic growth was positive although varied between the three countries. This volatility may potentially be attributed to domestic shocks such as political instability and the drought effect on agriculture [11,6]. Economic growth has a large standard deviation among all the target variables, which suggests that economic growth is highly volatile as compared to other target variables. The main source of volatility was fluctuating export commodity prices and general election cycle shocks [6,9]. The standard deviation for all the target variables which is the standard summary statistics for disparities over time indicates sufficient variable variant over time and across the panel backing regression analysis.

4.2 Correlation Analysis

Correlation analysis helps in bringing out the relationship between the target variables. Multicollinearity, which is a condition that occurs when independent variables in a multiple regression is highly correlated with each other, can falsify standard error of estimates, therefore, resulting in challenges when carrying out t-tests for statistical significance of parameters.

The correlation matrix in Table 3, represents the correlation relationship of the variables in the study. The matrix is based on coefficients ranging from -1, being a perfect negative linear relationship, to +1 being a perfect positive linear relationship, while zero depicts the nonexistence of linear relationship amongst the variables. Other than the number of internet users, inflation rates, and deposit interest rates, financial inclusion is highly positively correlated with economic growth and adult literacy rates. This implies economic growth promotes financial inclusion growth in the sense that economic expansion contributes to financial market growth through the demand hypothesis [10].

4.3 Hausman Test

Hausman test was carried out with the aim of choosing 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 [16]. The outcome is presented in Table 4.

To perform this test, both fixed effects and the random-effects models were regressed. Should p-value be significant (for instance <0.05), fixed effects method would be adopted, should it be the 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 model is fixed effects. From the result, p-value 0.016, 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).

Table 2. Descriptive statistics

	FINC	G	LIT	INT	INF	DIR
Mean	3.180915	920.4684	0.5108205	10.4418	8.149163	8.433492
Std. Dev	1.355928	318.4512	0.0334883	6.795336	4.678668	2.698929
Min	1.178142	347.9904	6.795336	1.3	2.623975	4.557367
Max	5.585676	1816.547	4.678668	23.70653	26.23982	16.79831
Obs.	38	42	39	37	41	41

Table 3. Pair-wise pearson coefficient of correlation

	FINC	G	LIT	INT	INF	DIR
FINC	1					
G	0.8328	1				
LIT	0.923	0.9222	1			
INT	0.484	0.5673	0.6214	1		
INF	-0.0345	-0.1676	-0.2027	-0.3946	1	
DIR	-0.1411	-0.1074	-0.0906	0.4298	-0.1892	1

Table 4. 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
χ^2 (10) = 13.94		Prob> χ^2 = 0.0160	

Table 5. Fixed effects regression results dependent variable: FINC

Variable	Coefficient	Std. Error	t – Statistic	p - value
CONSTANT	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
DIR	0.0196680	0.0211870	0.93	0.3670

Adjusted R^2 = 0.862 F (2, 27) = 54.35 Prob > F = 0.0000 D.W = 2.008 Wald Test P> $\chi2$ = 0.624

4.4 Empirical Results and Discussion

The study sought to test if economic growth matters in financial inclusion in East Africa. OLS-Fixed effect estimation technique was adopted during the analysis. The OLS-fixed effect findings are given in Table 5.

Economic growth, whose proxy is GDP per capita, is a significant variable at five percent. 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 is in line with the outcome found by Sarma and Pais [14] and Zins and Weill [18]. These past empirical works showed that there existed a positive relationship between income growth and financial inclusivity in an economy through growth in the financial market and sources [1,2]. The result is in agreement with the demand leading hypothesis, which portrays lagged response towards the growth of the economy [10]. 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 [14]. Further, in the context of this finding, it makes sense since as income increases the majority of the population will prefer to be paid through a bank account or mobile phones. Economic growth, through increased rates of employment and access to productive capital, is one such aspect that has a huge tendency in influencing outcomes in global financial inclusion strategies across the globe [1]. The control variables exhibited the same result as empirical literature and theory.

The coefficient of determination (adjusted R^2) shows that 86% of the dependant variable is explained within the model. The F test result indicates that all the independent variables have explanatory power at 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.

5. CONCLUSION AND RECOMMENDA-TIONS

Following the findings of the study, economic growth has a significant influence on the financial inclusion rate. Specifically, GDP per capita, a proxy for economic growth depicts a positive and significant effect on financial inclusivity. Consistent with past empirical literature, it is supposed that with an increase in economic growth then there will be an increase in financial access in the economy [10]. Countries having higher GDP per capita or are rich tend to pose better inclusive financial systems and markets which corresponds to high levels of financial access which corresponds to earlier researchers. This finding implies that improvement of GDP output is crucial in enhancing financial access among economies in East Africa. It, therefore,

sheds light on the critical role that economic growth plays in improving the level of financial inclusion, more specifically among EAC countries. These basically imply that GDP per capita growth creates demand for financial products in the economy.

Based on the conclusion of the study, the EAC countries should focus on strategies and policies that will stimulate economic growth as it positively affects the levels of financial inclusion through the demand hypothesis. 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.

6. 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 Africa economies in order to test the robustness of the results. In particular, introducing a comparison group including good performers in terms of real GDP growth who 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.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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