American Journal of
Accounting
(AJACC)

Impact of Financial Inclusion on Economic Growth of African Countries

Dr. Aitaa Sam Kilimvi & Amadi Solomon Ezekwesiri

AJP

American Journal of Accounting
ISSN 2789-3156 (Online)
Vol.5, Issue 1, pp 15 - 33, 2023

www.ajpojournals.org

Impact of Financial Inclusion on Economic Growth of African Countries

Dr. Aitaa Sam Kilimvi[1*], Amadi Solomon Ezekwesiri[2]
[1]Lecturer, Faculty of Management Science, Muni University, Uganda; Lecturer, Royal Docks School of Business and Law, University of East London
[2]Vice President, Processing Infrastructure, Moniepoint Inc**,** Royal Docks School of Business and Law, University of East London
*Corresponding Author's E-mail: sa'kilimvi@muni.ac.ug

Article history

Submitted 29.03.2023 Revised Version Received 15.04.2023 Accepted 21.04.2023

Abstract

Purpose: The main objective of this study was to understand the effect of financial inclusion on economic growth of Africa. Although Africa is the second-most populous continent in the world with a 3.17% growth rate, it has the biggest proportion of the world's population without access to a bank, at a startling 45% throughout the continent. However, a growing number of Fintech businesses have emerged in Africa in recent years to address the issue of financial inclusion. With this advent, it was imperative to study the phenomenon and ascertain if there is any effect on the economy.

Methodology: Descriptive and Correlational Research Design were employed to explain and examine the relationship between financial inclusion and economic growth. This study adopted the quantitative research approach. Secondary data from Financial Access Survey (FAS), World Development Indicators (WDI) and The Global Financial Index Report from 2015 – 2021 were examined. The relationships were tested using Generalized Moments Method (GMM) that was preferred over the Ordinary Least Square method (OLS) because of its efficiency and veracity to work with small samples. The data was presented in form of tables and graphs.

Findings: The results showed that financial inclusion indicators are positively correlated to the economic growth. Using the dimensions of financial inclusion such as availability, penetration, and usage, we can ascertain a positive impact on the economic growth of Africa at large.

Unique Contribution to Theory, Practice and Policy: The outcome of the study will guide policy makers to identify the most effective strategies to achieve financial inclusion that enhances economic growth. While previous studies identified ATM and CBB as one of the highest financial inclusion indicators that aid economic growth, it is recommended that BCB with a higher correlation be considered too for economic growth. Therefore, governments should focus on building structures and systems that encourage borrowing to stimulate economic growth.

Keywords: *Financial Inclusion, Economic Growth, Effect on Economy.*

1.0 INTRODUCTION

Financial inclusion is the process of ensuring that people with low incomes have access to financial services from the formal financial sector (Allen *et al*. 2016). Although Africa is the second-most populous continent in the world with a 3.17% growth rate as of 2021 (populationstat.com, 2022), Africa still had the biggest proportion of the world's population without access to a bank, at a startling 45% throughout the continent (statista.com, 2022) demonstrating that more must be done in the region to attain financial inclusion. But considering that the people are gaining access to financial services, does it affect the economy positively or negatively? The impact of financial inclusion in the African economy has been a grey area.

A growing number of Fintech businesses have emerged in Africa in recent years to address the issue of financial inclusion, which has aided the expansion of the African economy's financial inclusion statistics as well as drawn various investments to the continent. African fintech companies received nearly a billion dollars in investments in 2018 alone, and within a year of those investments, their value had doubled (Partech, 2020). These companies are addressing issues with financial inclusion. This has significantly boosted the African fintech industry, especially with the influx of capital from foreign investments that have made it possible for many African entrepreneurs to launch and maintain profitable businesses (Partech, 2021).

This research was therefore intended to understand how financial inclusion in Africa affects the economies of these African countries. A close look has been taken to understand how some of the basic financial services, like providing loans and credits to low-income earners and others who have limited access to these services, can boost a nation's economy. This paper also looked at the challenges being faced by economies in Africa and efforts that have been done towards financial inclusion.

1.1 Statement of the Problem

Sarma (2015) and Siddik *et al*. (2019) describe financial inclusion as the process of providing affordable, reliable, and transparent financial services to unbanked and underserved populations, which has significant economic benefits for society. Allen *et al*. (2016) state that financial inclusion is simply the process of providing basic financial services in the formal financial sector to low-income individuals or those with restricted access to such services.

Many authors have conducted extensive studies on the impact of financial inclusion on economic growth. Sethi and Acharya (2018) conducted a study on over 31 developing and developed countries from 2004 to 2010 and found a positive correlation between financial inclusion and economic growth. Chatterjee (2020) used a fixed-effect model to examine the role of financial inclusion and ICT in economic growth using data from 41countries collected between 2014 and 2015. Siddik et al (2019) evaluated the impact of financial inclusion in Asian countries and found a significant positive impact on their economic growth.

Despite these extensive studies, the variables under the broad dimensions for measuring financial inclusion were not precisely defined. Secondly, the impact of financial inclusion in the African economy has been a grey area. In an earlier study, Sarma (2008) grouped the measures of financial inclusion into three dimensions namely: availability, penetration, and usage. This study

was therefore intended to identify the variables under these dimensions that can spur economic growth in Africa.

1.2 Aims and Objectives

The main aim of this study is to understand how financial inclusion affects the economic growth of African nations and why it has become a key trend among more recent fintech businesses on the continent.

The specific objectives of the study were:

1. To determine the extent to which the African economy is currently financially inclusive
2. To assess the African economy's current progress considering the introduction of financial inclusion
3. To determine how bringing underbanked and underserved people into formal finance aids in lowering the degree of poverty in Africa
4. To determine what factors, influence financial inclusion of people and enterprises in Africa
5. To determine areas where financial inclusion may be strengthened in contrast to other continents

1.3 Research Questions

To get a better understanding of the contextual matter, the study was attempted to answer the following research questions:

1. How might financial inclusion help Africa achieve sustainable growth? Financial inclusion has been a key strategy for the United Nations in reaching its sustainable development objectives (Sahay *et al*., 2015), therefore Africa will want to take advantage of it to further strengthen its economy.
2. How might financial inclusion be used to decrease poverty in Africa to a much-needed minimum? According to studies, financial inclusion has been highlighted as one strategy for lowering the poverty index in a country (Chibba, 2009), hence it is important to understand how African tech businesses are pursuing this goal. This raises the following query:
3. What have African governments and regulatory bodies done to support the groups promoting financial inclusion in their fast expansion? When it comes to a country's economy and achieving financial inclusion, the government and regulators also have a part to play.

1.4 Justification of the Study

Over time, various pieces of literature have discussed financial inclusion and fintech startups. However, up until now, none of these works have satisfactorily addressed these issues, particularly as they pertain to the African economy and its distinct characteristics. This study aims to fill this gap by conducting a thorough analysis of the state of financial inclusion in various African nations, the fintech companies operating in these economies, and the role of regulators

and government in promoting financial inclusion. The outcome of the study will provide clarification on whether financial inclusion directly affects the economic growth of

African countries or not; Provide recommendations on whether countries should prioritize financial inclusion to facilitate sustainable development and growth in their economies; Identify the most effective strategies that organizations can use to achieve financial inclusion across Africa and explore policies implemented in various African countries that have contributed to the development of financial inclusion.

2.0 LITERATURE REVIEW

This review provides a comprehensive conceptual and theoretical analysis of various researches and literature on the financial inclusion and economic growth. It examines the definitions of financial inclusion and economic growth as depicted in different sources, and delves into the methods used to measure financial inclusion and its potential impact on economic growth in different regions. Moreover, it explores literature on credit institutions in Africa and their contributions to the financial inclusion sphere. This aspect of the review is essential in providing a basis for measurement of the impact of financial inclusion on the economy.

2.1 Understanding Financial Inclusion

According to Lenka (2021), the financial sector can be viewed in two ways: financial development and financial inclusion. Financial development aims to promote innovation and competition, making transactions in the financial sector more affordable (Hartmann et al., 2007). Sarma (2015) and Siddik *et al*. (2019) describe financial inclusion as the process of providing affordable, reliable, and transparent financial services to unbanked and underserved populations, which has significant economic benefits for society.

Conversely, Chuka *et al*. (2022) define financial inclusion as ensuring accessibility, availability, and affordability of financial services to all individuals, particularly low-income, underserved, and small enterprises. Allen *et al.* (2016) state that financial inclusion is simply the process of providing basic financial services in the formal financial sector to low-income individuals or those with restricted access to such services. However, Akileng *et al*., (2018), deviates by stating that authors have offered varying definitions of financial inclusion without a clear consensus.

Financial services are referred to in numerous studies as loans, payments, insurance, and savings (Clamara & Tuesta, 2014; Ghosh & Ghosh, 2014). Financial services, however, should be defined much more broadly to encompass the dependability of the service offered, accessibility to the facilities offering these services, and the digital technology behind those services. Financial exclusion, on the other hand, is the antithesis of financial inclusion, and various authors noted several elements that could contribute to it, including literacy, awareness, geographic circumstances, internet access, bank concentration, inflation, monthly income, and a host of others (Thathsareni *et al*., 2021; Evans & Adeoye, 2016, Karlan *et al*, 2016). Nonetheless, social exclusion and poverty are the primary contributors to financial exclusion, as noted by Barboni *et al.* (2017).

It is of importance to note that all the definitions and literature on financial inclusion share a

common thread, namely that it relies on several key concepts such as poor and underserved individuals, accessible services, affordable and trustworthy services, and the formal financial sector. Therefore, financial inclusion can be defined as the process of providing assistance to individuals who are poor, uneducated, and underserved so that they can easily obtain affordable and reliable financial services from the formal financial sector.

2.2 Measuring Financial Inclusion

The measurement of financial inclusion is a crucial aspect, and various attempts have been made to develop appropriate measures (Gupte *et al*., 2012). Honohan (2008) proposed using the number of households with formal bank accounts as a measure, while other studies have used factors like savings, credit, and payments (Demigruc-Kunt *et al*., 2018), based on surveys conducted with over 150,000 individuals aged 15 and above in over 140 countries. However, Clamara and Tuesta (2014) concurred with Nguyen (2020) that individual indicators alone cannot accurately capture the multidimensional nature of financial inclusion, as they only provide partial evidence of the level of financial services coverage and inclusiveness in a society (Nguyen, 2020).

Three main components of banking and financial services, according to Sarma (2008), collaborate to perform a crucial function in determining the financial inclusion index in an economy, and these factors include: Availability, Usage Dimensions and Penetration; while Gupte et al. (2012) suggested four dimensions namely: Usage, Outreach, Ease of Transaction, and Transaction processing cost.

However, research has demonstrated that the above methodology assumes that all the components or perspectives have the same impact on financial inclusion and assigns weight based on the author's academic understanding or experience (Chuka et al., 2022). Consequently, Amidzic et al. (2014) and Clamara and Tuesta (2014) proposed a more dependable approach that assigns weights to different components using a principal component analysis (PCA) and factor analysis method to construct the financial index.

This approach normalized the variables and identified each dimension with weighted geometric mean (Amidzic, 2014). Nonetheless, the factor analysis approach does not entirely utilize all the provided data (Chuka et al., 2022). Measuring the financial inclusion index using a two-stage PCA approach was also adopted, where the first stage estimates the three different sub- indicators such as access, usage, and penetration while the second stage evaluates and estimates the weights of the dimensions and general index (Clamara & Tuesta, 2014). Although most studies have employed either the principal component analysis (PCA) approach or the Sarma (2008) components to determine a country's financial index, each of these methods has its pros and cons and relies on the researchers' choice of indicators (Nguyen, 2020).

2.3 Financial Inclusion and Economic Growth

To comprehend the relationship between the financial sector and economic growth, a key source of information can be found in the works of Schumpeter (1912), Shaw (1973), and Mckinnon (1973). According to the main theory, the financial sector plays a significant role in explaining economic growth patterns. Literature describes two major models of economic growth, which are exogenous and endogenous growth models. The exogenous model emphasizes the role of human

labor and productivity (Domar, 1946), while the endogenous model focuses on innovative intellectual and human capital (Inoue & Hamori, 2019). In the endogenous growth model, many studies have highlighted the importance of financial services in savings, payments, and mobile money functions (Ibrahim & Alagided, 2018). The relationship between financial inclusion and economic growth is supported by two critical concepts (Adedokun & Aga, 2021):

1. Providing affordable financial services to individuals who are economically disadvantaged or lack access to financial services.
2. Establishing opportunities for people without bank accounts to deposit money and obtain insurance, in order to stimulate savings and facilitate the movement of funds in financial markets.

Many authors have conducted extensive studies on the impact of financial inclusion on economic growth. Sethi and Acharya (2018) conducted a study on over 31 developing and developed countries from 2004 to 2010 and found a positive correlation between financial inclusion and economic growth. They suggested that policies aimed at driving financial inclusion would lead to economic growth. Chatterjee (2020) used a fixed-effect model to examine the role of financial inclusion and ICT in economic growth using data from 41 countries collected between 2014 and 2015. The study showed that financial inclusion and ICT can improve economic growth per capita, but the effect was less significant in developing countries. Siddik *et al* (2019) evaluated the impact of financial inclusion in Asian countries and found a significant positive impact on their economic growth. Furthermore, a bidirectional relationship between financial inclusion and economic growth was found in Asian countries based on Granger causality test.

In essence, there has been extensive research on the impact of financial inclusion on economies, including how to measure financial inclusion and the determinants at both micro and macro levels (Chuka et al., 2022). Additionally, studies have recognized the influence of mobile money transactions as a result of the widespread use of mobile phones and the internet (Chuka et al., 2022). However, previous research has not examined the impact of financial inclusion on economic growth with the introduction of a functional loan/credit system, which has become popular in developing countries recently. Therefore, loan and credit systems will be included when analyzing the financial index in African countries.

3.0 METHODOLOGY

The methodology outlines the approach for conducting the research and includes the choice of suitable research approach and design, the appropriate source of data and data collection methods and procedures, data analysis and ethical considerations.

3.1 Research Approach and Design

To conduct any research, the cardinal strategy is the research approach and design. (Saunders, Lewis & Thornhill, 2015; Science Direct, 2021). This study adopted the quantitative research approach, which involves using various data collection techniques and numerical analytics methods to draw conclusions (Adams, Khan & Raeside, 2014). A combination of these techniques was used to review the impact of financial inclusion, allowing for the collection and analysis of data from diverse perspectives. Descriptive and Correlational Research Design were employed

for analysis to reveal patterns and trends that were used to estimate the relationship between financial inclusion and economic growth. This analytical approach helped to determine whether there was a correlation between these two concepts.

3.2 Sources of Data and Data Analysis

Gathering evidence is a vital aspect of conducting effective research, as it involves the process of collecting necessary data that can help provide answers to the research questions posed earlier. For this study, secondary data from reliable sources were utilized (O'Gorman & MacIntosh, 2015). The Generalized Moments Method (GMM) developed by Arellano and Bond (1991) and expanded to a system of equations with restriction instruments in by Arellano and Bond in 1995 and Blundell and Bond in 1998 was used in this research.

The GMM method is used over the Ordinary Least Square method (OLS) because it works well with a small sample and its more efficient than the OLS method.

The regression model from the GMM method can be expressed in the equation below:

$$Y_{i,t} = \propto Y_{i,t-1} + \beta_1 X_{i,t} + \mu_i + \varepsilon_{i,t}$$

Where: Y is the measure of economic growth (GDP), X is a measure of the indicators in the financial sector for financial inclusion.

The data collected was gotten from the Financial Access Survey (FAS) of the International Monetary Fund (IMF), World Development Indicators (WDI) of World Bank and The Global Financial Index Report 2021, filtered, analyzed, summarized and presented in form of graphs and tables for clarity. The time range selected is from 2015 – 2021 for a more recent data and statistics as this period captures the peak of financial inclusion drive in African countries. The major dependent variable used to estimate the economic growth is the GDP per capita (GDPPC) expressed in US dollars and is also gotten from WDI report (Inoue & Hamori, 2016).

4.0 FINDINGS AND DISCUSSIONS

This section presents the analysis of results of data collected from 34 African countries namely Algeria, Angola, Burkina Faso, Cameroon, Central African Republic, Chad, Democratic Republic of the Congo, Republic of Congo, Côte d'Ivoire, Egypt, Equatorial Guinea, The Gambia, Ghana, Guinea, Guinea-Bissau, Jamaica, Kenya, Lebanon, Liberia, Mali, Morocco, Mozambique, Namibia, Niger, Nigeria, Senegal, South Africa, Tanzania, Togo, Tunisia, Uganda, Zambia, Zimbabwe. A combination of data from FAS and WDI is presented below alongside data from the Global Financial index report and several other research papers.

The measures of financial inclusion according to Sarma (2008) can be grouped into three dimensions namely: availability, penetration, and usage. The variable used by this paper to measure these dimensions are listed below:

Table 1: Variable Dimensions and Sources of Data

Variable Name	Abbreviation	Dimension	Source
Number of ATMs per 100,000 adults	ATM	Availability	FAS
Number of registered mobile money agent outlets per 100,000 adults	MMA	Availability	FAS
Number of commercial bank branches per 100,000 adults	CBB	Availability	FAS
Number of deposit accounts with commercial banks per 1,000 adults	DACB	Penetration	FAS
Number of active mobile money accounts per 1,000 adults	AMMC	Penetration	FAS
Number of debit cards per 1,000 adults	DCA	Penetration	FAS
Number of mobile money transactions (during the reference year) per 1,000 adults	MMT	Usage	WDI
Borrowers from commercial banks (per 1,000 adults)	BCB	Usage	WDI

Source: FAS - Financial Access Survey of the International Monetary Fund (IMF), WDI - World Development Indicators

Table 2 outlines the results gotten from WDI and FAS on the different dimensions below. The GDP Per Capita. On availability dimension, the statistic was analyzed using the number of ATMs per 100,000 adults (ATM), number of registered mobile money outlets per 100,000 adults (MMA) and number of commercial bank branches per 100,000 adults (CBB). The results as gotten from the Financial Access Survey shows that average number of ATMs per 100,000 adults is 14.56 while the average MMA is 602.06 and the average CBB value is 6.48. With mobile money being the next big driver of financial inclusion, it is no surprise it has a high availability figure over commercial banks and ATMs.

Table 2: Mean and Standard Deviation of the Variables

Variable	Mean	Std Dev	Min	Max
Y ($)	2866.24	2101.03	1363.54	7569.09
ATM	14.56	16.85	0.85	72.95
MMA	602.06	688.93	0.12	3888.82
CBB	6.48	5.83	0.67	24.89
DACB	609.16	529.83	32.74	2119.3
AMMC	325.52	346.58	0.03	1633.45
DCA	290.13	343.21	9.48	1956.94
MMT	30529	43622.8	0.46	228876
BCB	70.18	62.31	23.99	207.68
DCPS	30.5	11.81	13.36	58.08

Considering the penetration dimension, as per the Global Financial Index Database (2021) financial institutions and mobile money accounts in Sub-Saharan Africa have been on the rise. Over 10% increase was seen in Côte d'Ivoire account ownership between 2017 and 2021 from 41 to 51%. With mobile money being one of the drivers of the growth of account ownership, economies such as Benin and Cameroon more than doubled their account ownership on mobile money from 18 to 37%. Studies have shown that mobile money have played a significant impact in driving financial inclusion and driving ownership of accounts. Figure 1 below shows % of mobile money accounts against financial institution accounts.

In addition, the financial access survey report for 2015-2021 shows that the average number of deposit accounts with commercial banks per 1,000 adults was seen to be 609.16 while number of active mobile money accounts per 1,000 adults was 325.52 which is almost 50% of the number of deposit accounts ownership. With the increasing rate of ATMs and card payments, the average number of debit cards per 1,000 adults resulted in 290.13 debit cards seen across the countries sampled.

Considering usage dimension, this dimension was analyzed by using the number of mobile money transactions per 1,000 adults (MMT), borrowers from commercial banks per 1,000 adults (BCB), and the domestic credit to private sector by banks (DCPS). Unlike other studies and research, we decided to add loans/credits statistics to be able to ascertain the impact of these on economic growth. As shown in the result in Table 2, the average MMT value was seen to be 30,528.96 while BCB was 70.18 and DCPS had a value of 30.50. According to the Global Financial Index Database (2021), 53% of adults in Sub-Saharan Africa (SSA) sent and received shows statistics of remittances sent and received using accounts mainly in SSA.

Figure 1 gives details of MMT for few selected countries.

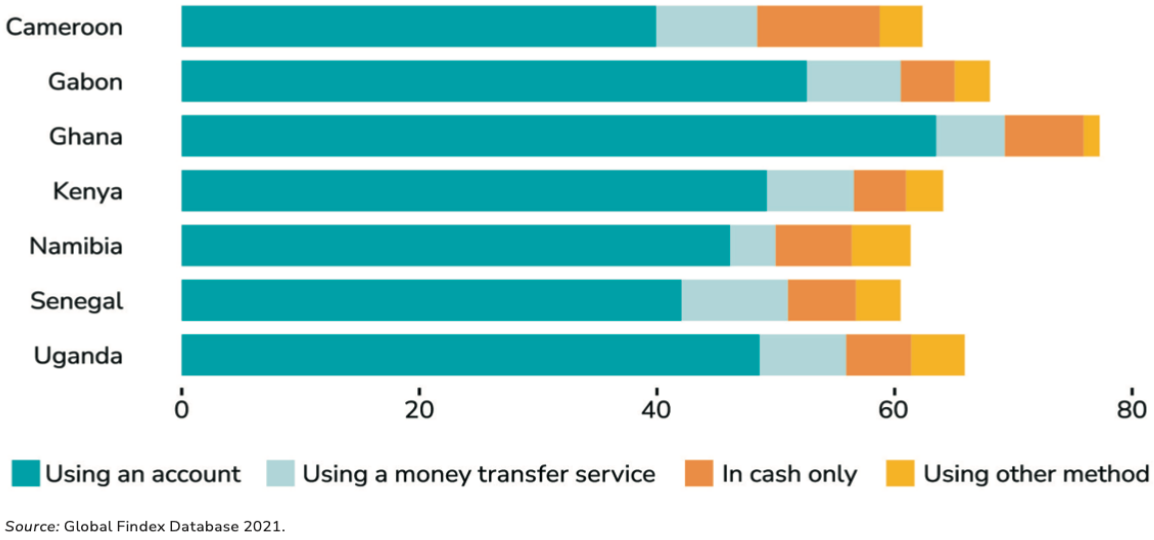

Figure 1: Percent of Adults Sending or Receiving Domestic Payments in 20210

With the growth of mobile money accounts in Africa, account features have also been growing to encourage borrowing by account owners (Global Financial Index, 2021). According to the financial index in 2021, 30% of adults in Kenya have reported borrowing activities via their mobile money accounts while about 10% of adults borrowed in Ghana and Tanzania. Figure 2 shows results of borrowing in selected countries.

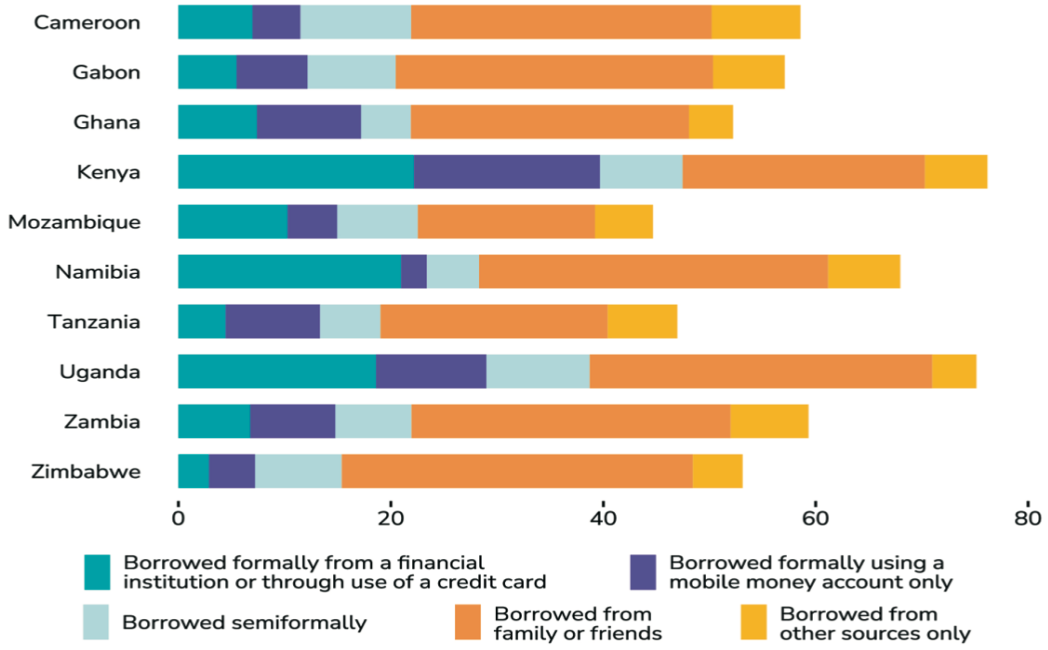

Figure 2: Mobile Money Borrowing in Selected Countries

Source: Global Findex Database 2021

The results collated above is further analyzed to identify the correlation between these financial inclusion indicators and economic growth. The results are first represented in its natural logarithm form for a better representation of the values gotten from the results. Table 3 shows a detailed description of the statistical figures. It shows that Number of registered mobile money agents' outlets (MMT) has the highest mean value 10.33 while commercial bank branches (CBB) have the lowest mean value of 1.87.

In identifying the relationship between the variables and the GDP per capita (Y) by using a correlation matrix for the period. Table 3 shows us a positive relationship between the financial inclusion indicators across the different dimensions (availability, penetration, and usage) against economic growth variable (Y) with the highest correlation indicator being the borrowers from commercial banks (BCB) with a correlation value of 0.98 and the lowest being number of mobile money transactions (MMT) with a value of 0.75. This positive correlation gives us an indicator of how strongly related these financial inclusion dimensions and indexes are to the economic growth in Africa.

Table 3: Number of Registered Mobile Money Agents

Variable	Mean	Std. Dev.	Min	Max
Y	7.96	7.65	7.22	8.93
ATM	2.68	2.82	-0.16	4.29
MMA	6.40	6.54	-2.12	8.27
CBB	1.87	1.76	-0.39	3.21
DACB	6.41	6.27	3.49	7.66
AMMC	5.79	5.85	-3.41	7.40
DCA	5.67	5.84	2.25	7.58
MMT	10.33	10.68	-0.77	12.34
BCB	4.25	4.13	3.18	5.34
DCPS	3.42	2.47	2.59	4.06

A notable data point that stands out is the high correlation between borrowers from commercial banks and all other financial inclusion indicators. This shows that lending is linked to almost all aspects of financial inclusion and can be a good way to increase economic growth on the long run.

American Journal of Accounting
ISSN 2789-3156 (Online)
Vol.5, Issue 1, pp 15 - 33, 2023

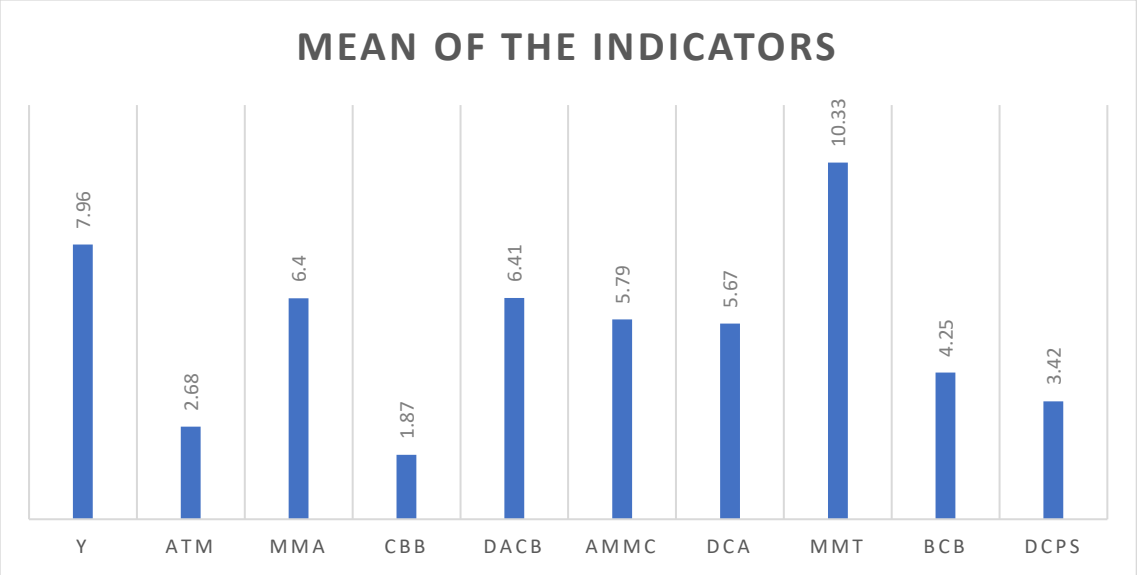

Figure 3: Mean of the Indicators

Table 4: Correlation Matrix for the Period 2015-2021

	Y	***ATM***	***MMA***	***CBB***	***DACB***	***AMMC***	***DCA***	***MMT***	***BCB***	***DCPS***
Y	1.00									
ATM	0.89	1.00								
MMA	0.78	0.98	1.00							
CBB	0.92	1.00	0.96	1.00						
DACB	0.88	1.00	0.98	1.00	1.00					
AMMC	0.76	0.97	1.00	0.95	0.98	1.00				
DCA	0.89	1.00	0.98	1.00	1.00	0.97	1.00			
MMT	0.75	0.97	1.00	0.95	0.97	1.00	0.97	1.00		
BCB	0.98	0.96	0.89	0.98	0.96	0.87	0.96	0.87	1.00	
DCPS	0.92	0.71	0.60	0.76	0.72	0.58	0.70	0.57	0.84	1.00

To further breakdown the impact each of the dimensions to be able to ascertain what dimension really impacts the economic growth from the correlation data, we can see that the availability dimension has marginally higher correlation as seen in the aggregated data in the pie chart below.

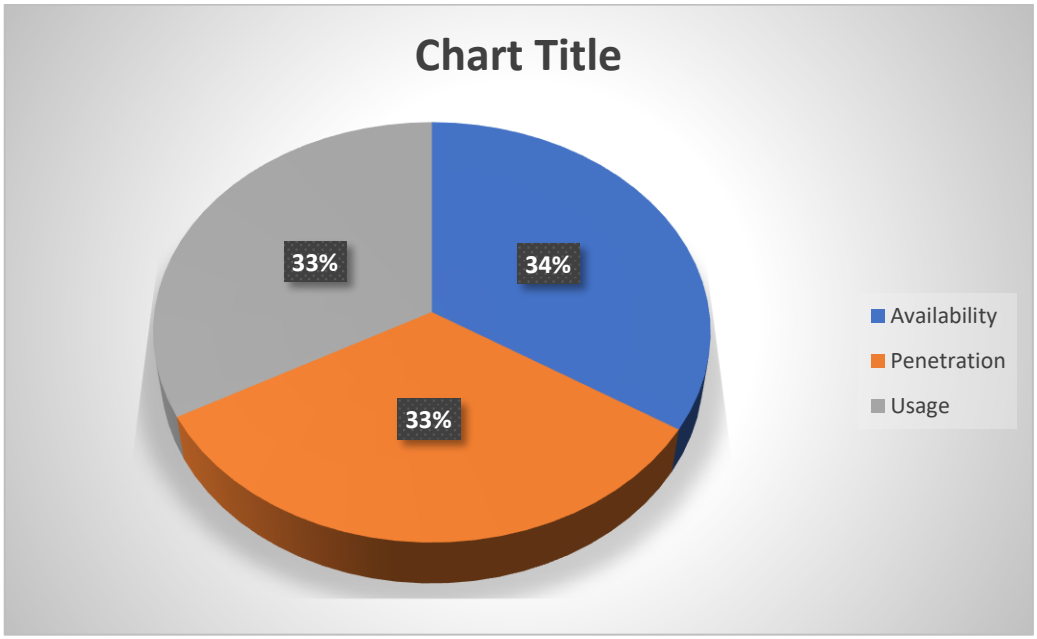

Figure 4: Correlation of Dimensions to Economic Growth

The chart above shows that the availability dimension has a 34% correlation in relation to the others on the impact on the economic growth of Africa which is just slightly higher than the usage and penetration dimensions.

The data points used in assessing the usage dimensions are MMT, BCB, and DCPS while MMT is relatively low compared to BCB and DCPS, this shows that variables that are gotten from lending space have a significant impact on the economic growth. Previous studies such as Masoud & Hamad (2022) identified ATM and CBB as one of the highest financial inclusion indicators that aid economic growth, in the same light, Ernest et. al (2022) was also able to point out the strong relationship between ATM and CBB, however, with the introduction of BCB and DCPS in this research study, we have been able to identify a new correlation stat with economic growth in Africa.

The data shows that BCB has a high correlation value with economic growth and other financial inclusion indicators even with its recent entry into data points, as African countries have just started adopting the lending and borrowing scheme.

5.0 CONCLUSION

The results clearly outline the different variables used in achieving the research objectives. The current level of financial inclusion as seen from the variables used show that Africa is gradually implementing steps towards including the underserved and un-banked. DACB and AMMC results are high with values of 609.16 and 325.52 respectively showing that penetration is rapidly increasing in Africa per 1,000 adults. In addition, the relationship between financial inclusion indicators and economic growth is seen to be high when we look at the correlation data in Table 4 this shows that the introduction of the financial inclusion concept in Africa has really yielded

positive results in the economy.

The factors that drive financial inclusion were also outlined in terms of availability, penetration and usage dimensions. However, the areas that needs more work is the mobile money agent indicator, as its correlation to economic growth is not so high but could have a strong influence in the nearest future as the correlation between MMT and other indicators are also seen to be high.

Finally, the lending/borrowing indicators show a high correlation with economic growth and can aid the growth of the African economy on the long run. This in association to mobile money transactions for low-income earners and un-banked individuals can help increase poverty level and increase the economy of Africa at large. The outcome of the study will guide policy makers to identify the most effective strategies to achieve financial inclusion that enhances economic growth.

The limitations of the study include availability of data on public databases such as FAS and WDI and some countries data were not completely populated, thus affecting the general scope of the research. The research was only limited to 34 African countries as opposed to 54 countries in Africa because of data availability. Relying heavily on secondary data collected by other researchers was also another limiting factor.

6.0 RECOMMENDATIONS

While previous studies identified ATM and CBB as one of the highest financial inclusion indicators that aid economic growth, it is recommended that BCB with a higher correlation be considered too for economic growth. Therefore, governments should focus on building structures and systems that encourage borrowing to stimulate economic growth.

While the scope of this research is limited to just financial inclusion indicators, further studies could take an in-depth look on the long-run effect of loans on the economic growth of Africa. Thirdly, further studies could be directed at identification of parametric variables in the financial inclusion dimensions that can spur economic growth.

REFERENCES

Adedokun, M. W., & Ağa, M. (2021). Financial inclusion: A pathway to economic growth in Sub-Saharan economies. *International Journal of Finance and Economics*, 1–17. https://doi.org/10.1002/ijfe.2559

Aduda, J., & Kalunda, E. (2012). Financial inclusion and financial sector stability with reference to Kenya: A review of literature. *Journal of Applied Finance and Banking*, *2*(6), 95–120

Akhtar, S., & Pearce, D. (2010). Microfinance in the Arab World: The challenge of financial inclusion. The World Bank, Quick Notes Series, No 25, 1-4.

Akileng, G., Lawino, G. M., & Nzibonera, E. (2018). Evaluation of determinants of financial inclusion in Uganda. *Journal of Applied Finance and Banking*, *8*(4), 47–66.

Allen, F., Carletti, E., Cull, R., Qian, J. Q., Senbet, L., & Valenzuela, P. (2014). The African financial development and financial inclusion gaps. Journal of African economies, 23(5), 614-642.

Allen, F., Demirguc-Kunt, A., Klapper, L., & Peria, M. M. (2016). The foundations of financial inclusion: Understanding ownership and use of formal accounts. *Journal of Financial Intermediation*, vol. 27, issue C, pp 1-30.

Amidžic, G., Massara, A., & Mialou, A. (2014). *Assessing countries' financial inclusion standing – A new com- posite index*. IMF Working Paper 14/36, International Monetary Fund, Washington. https:// www.imf.org

Asli et al (2022), The Global Financial Index Database 2021, Financial inclusion, *Digital Payments, and Resilience in the Age of Covid-19*

Ayyagari, M., & Beck, T. (2015). financial inclusion in Asia: An overview. Asian Development Bank Economics Working Paper Series, No. 449, 1-21.

Barboni, G., Cassar, A., & Demont, T. (2017). Financial exclusion in developed countries: A field experi- ment among migrants and low-income people in Italy. *Journal of Behavioral Economics for Policy*, *1* (2), 39–49.

Beck, T., Senbet, L., & Simbanegavi, W. (2014). Financial inclusion and innovation in Africa: An overview. Journal of African Economies, No. 24(supplement), i3-i11.

Chatterjee, A. (2020). Financial inclusion, information and communication technology diffusion, and economic growth: A panel data analysis. *Information Technology for Development*, 1–29. https://doi.org/10. 1080/02681102.2020.1734770

Chibba, M. (2009). Financial inclusion, poverty reduction and the millennium development goals. The European Journal of Development Research, 21(2), 213-230.

Chikalipah, S. (2017). What determines financial inclusion in Sub-Saharan Africa? African Journal of Economic and Management Studies, 8(1), 8-18.

Chuka I, Kenechukwu O. O, Eze F., Samuel M., Anthony E. A, Godwin I. & Josaphat U. J. Onwumere | (2022) Financial inclusion and its impact on economic growth: *Empirical evidence from sub-Saharan Africa, Cogent Economics & Finance*, 10:1, 2060551, DOI: 10.1080/23322039.2022.2060551

Clamara, N., & Tuesta, D. (2014). *Measuring financial inclusion: A multidimensional index*. BBVA Working Paper 14/26, Banco Bilbao Vizcaya Argentaria, Madrid. https://www.bbvaresearch.com

Comparato, G. (2015). The rationales of financial inclusion in the changing European private law. European Review of Contract Law, 11(1), 22-45.

Corrado, G., & Corrado, L. (2015). The geography of financial inclusion across Europe during the global crisis. Journal of Economic Geography, 15(5), 1055-1083.

Demirguc-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2018). *Global Findex database 2017: Measuring financial inclusion and the Fintech revolu- tion*. World Bank. https://openknowledge.worlbank. org/handle/10986/29510

Domar, E. D. (1946). Capital Expansion, Rate of Growth, and Employment. *Econometrica, 14*(2), 137–147. https://doi.org/10.2307/1905364

Ernest C. Winful, K. Opoku-Asante, Mathew. O. Mensah, and Josiah N. A. Quaye (2022). Financial Inclusion and Economic Development in Africa *European Journal of Business and Management Research www.ejbmr.org*

Evans, O., & Adeoye, B. (2016). *Determinants of financial inclusion in Africa: A dynamic panel data approach*. MPRA Paper 81326, Munich University Library, Munich. https://mpra.ub.uni-muenchen.de/81326/

Evans, O. (2018). Connecting the poor: the internet, mobile phones and financial inclusion in Africa. Digital Policy, Regulation and Governance, 20(6), 568-581.

Fonté, E. F. (2012). Mobile Payments in the United States: How Disintermediation May Affect Delivery of Payment Functions, Financial Inclusion and Anti-Money Laundering Issues. Wash. JL Tech. & Arts, 8, 419.

Fungáčová, Z., & Weill, L. (2015) Understanding financial inclusion in China. China Economic Review, 34, 196-206.

Ghosh, M. M., & Ghosh, A. (2014). Financial inclusion strategies of banks: Study of Indian states. *International Journal of Applied Financial Management Perspectives*, *3*(2), 990–996.

Gupte, R., Venkataramani, B., & Gupta, D. (2012). Computation of financial inclusion index for India. *Procedia – Social and Behavioral Sciences*, *37*, 133–149. https://doi.org/10/1016/j.sbspro.2012.03.281

Hartmann, P., Heider, F., Papaioannou, E., & Lo Duca, M. (2007). The role of financial markets and innovation in productivity and growth in Europe. ECB Occasional Paper No. 72, European Central Bank, Frankfurt. https://www.ecb.europa.eu

Honohan, P. (2008). Cross-country variation in household access to financial services. *Journal of Banking and Finance*, *32*(11), 2493–2500. https://doi.org/10.1016/j. jbankfin.2008.05.004

Ibrahim, M., & Alagidede, P. (2018). Effect of financial development on economic growth in sub-Saharan Africa. *Journal of Policy Modeling*, *40*(6), 1104–1125. https://doi.org/10.1016/j.jpolmod.2018.08.001

Infelise, F. (2014). Supporting Access to Finance by SMEs: Mapping the initiatives in five EU countries. ECMI Research Report No. 9, 1-45. Available at: https://ssrn.com/abstract=2430116

Inoue, T., & Hamori, S. (2019). Financial inclusion and eco- nomic growth: Is banking breadth important for eco- nomic growth? In *Financial inclusion, remittance inflows, and poverty reduction in developing countries: Evidence from empirical analyses* (pp. 1–16). World Scientific Publishing. https://doi.org/10.1142/11231

Karlan, D., Kendall, J., Mann, R., Pande, R., Suri, T., & Zinman, J. (2016). *Research and impacts of digital financial services*. NBER Working Paper 22633, National Bureau of Economic Research, Cambridge. http://www.nber.org/papers/w22633

Kumar, N. (2013). Financial inclusion and its determinants: evidence from India. Journal of Financial Economic Policy, 5(1), 4-19.

Lenka, S. K. (2021). Relationship between financial inclu- sion and financial development in

India: Is there any link? *Journal of Public Affairs*, e2722. https://doi.org/ 10.1002/pa.2722

Marshall, J. N. (2004). Financial institutions in disadvantaged areas: a comparative analysis of policies encouraging financial inclusion in Britain and the United States. Environment and Planning A, 36(2), 241- 261.

Mckinnon, R. I. (1973). *Money and capital in economic development*. Brookings Institution Press.

Mitton, L. (2008). Financial inclusion in the UK: Review of policy and practice. York: Joseph Rowntree Foundation. Available at: https://kar.kent.ac.uk/78253/

Mezmir, E.A. (2020) Qualitative data analysis: An overview of data reduction, data display and interpretation. *Research on Humanities and Social Sciences*, 10(21), pp. 15-27.

Masoud, M. A. & Hamad O. B (2022) The Role of Financial Inclusion on Economic Growth in Sub Saharan African (SSA) Region. *Athens Journal of Business & Economics – Volume 8, Issue 4, October 2022 –Pages 363-384*

Neaime, S., & Gaysset, I. (2018). Financial inclusion and stability in MENA: Evidence from poverty and inequality. Finance Research Letters, 24, 230-237.

Nguyen, T. T. H. (2020). Measuring financial inclusion: A composite FI index for the developing countries. *Journal of Economics and Development*, *23*(1), 77–99. https://doi.org/101108/JED-03-2020-0027

O'Gorman, K. & MacIntosh (2015) *Research Methods for Business & Management: A guide to writing your dissertation*. 2nd Ed. Goodfellow Publishers Limited. UK: Oxford.

Ozili P. K (2020) Financial Inclusion research around the world: A review *SSRN Electronic Journal*

Park, C. Y., & Mercado, R. (2015). Financial inclusion, poverty, and income inequality in developing Asia. Asian Development Bank Economics Working Paper Series, No. 426, 1-18.

Partech Partners (2020). 2019 Africa tech venture capital report. Paris: Partech Partners.

Partech Partners (2021). 2020 Africa tech venture capital report. Paris: Partech Partners.

Pearce, D. (2011). Financial inclusion in the Middle East and North Africa: Analysis and roadmap recommendations. The World Bank Middle East and North Africa Region, Financial and Private Sector Development Unit. The World Bank.

Population Stat Webpage (2021), Available at: https://populationstat.com/continents/ (Accessed 1 October 2022)

Sahay, R., Čihák, M., N'Diaye, P. M. B. P., Barajas, A., Mitra, S., Kyobe, A., ... & Yousefi, S. R. (2015). Financial inclusion: can it meet multiple macroeconomic goals? IMF Staff Discussion Notes, No. 15/17, 1-33. Washington, DC: International Monetary Fund.

Sarma, M. (2008). *Index of financial inclusion*. Working Paper 215, Indian Council for Research on International Economic Relations, New Delhi. https://www.icrier.org

Saunders, M., Lewis, P. & Thornhill, A. (2015) *Research Methods for Business Students*. 17th Ed. Pearson Education: Essex.

Schumpeter, J. A. (1912). *Theory of economic develop- ment*. Routledge.

Sethi, D., & Acharya, D. (2018). Financial inclusion and economic growth linkage: Some cross country evidence. *Journal of Financial Economic Policy*, *10*(3), 369–385. https://doi.org/10.1108/JFEP-11-2016-0073

Shaw, E. S. (1973). *Financial deepening in economic development*. Oxford University Press.
Siddik, M. N. A., Ahsan, T., & Kabirag, S. (2019). Does financial permeation promote economic growth? Some econometric evidence from Asian countries. *Sage Open*, *9*(3), 1–13.https://doi.org/101177/ 2158244019865811

Statista Webpage (2022), Available at: https://www.statista.com/statistics/553180/distribution-of-unbanked-population-by-region/ (Accessed 1 October 2022)

Thathsarani, U. S., Wei, J., & Samaraweera, G. R. S. R. C. (2021). Financial inclusion's role in economic growth and human capital in South Asia: An econometric Tsai, K. S. (2017). FinTech and Financial Inclusion in China. HKUST Institute for Emerging Market Studies, No. 20.

Zins, A., & Weill, L. (2016). The determinants of financial inclusion in Africa. Review of Development Finance, 6(1), 46-57.