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IMPACT OF INSTITUTIONAL FACTORS ON FINANCIAL INCLUSION IN THE AFRICAN REGION

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Abstract

The study attempts to measure the extent of financial inclusion in the African region using the principal component analysis. This paper further identifies the underlying institutional factors that determine financial inclusion in the region using system General Method of Moment (GMM) estimator. The study revealed the extent of financial inclusion in Africa and identified legal rights and financial freedom as the institutional factors that affect the level of financial inclusion in Africa. It is also noteworthy to state that GDP per capita is an important determinant of financial inclusion in the region. The study concludes that financial inclusion in Africa is influenced by institutional factors. Consequently, the study recommends that in other to achieve improvement in financial inclusion in the region, attention should also be paid to the institutional factors rather than focusing wholly on socio-economic factors.

Keywords: *Institutional factors; financial inclusion; General Method of Moment (GMM)*

1. INTRODUCTION

The use of formal financial services has grown in recent decade. Formal financial institutions have witnessed a dynamic competitive environment at a cross-border scale. In order to achieve the dividend of financial inclusion, there has been introduction of different formal financial services to attract people. This has captured the interest of the initially financially excluded and those already included. This is evidenced by the increase in the use of formal financial services and competitive product offering among the institutions.
The robustness of the growth of financial inclusion is supported by series of initiatives introduced by the governments of African countries. For instance, in the case of Nigeria, frameworks that promote financial inclusion such as the micro finance policy, electronic payment system, cashless policy and non-interest banking were introduced. Bank of Ghana rationalized the minimum reserve requirements for banks, introduced more financial

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instruments and introduced new banking law; Citizens Economic Empowerment Act was enacted in Zambia; Kenya licensed micro finance banks, agent banking, credit referencing bureau, mobile banking etc. Access to Finance Rwanda and Mzansi were introduced in Rwanda and South Africa respectively, to mention just a few (Kama & Adigun, 2013; M'Amanja, 2015).

Financial inclusion is as old as the formal financial services itself. The latter include ease of access to and continuous use of the formal financial services. Having a formal account is not adequate enough to be referred to as financial inclusion. An account at the formal financial institution without ease of accessibility and continuous use of the services vulnerability will be reduced and opportunities will be captured.

A growing number of literature provides empirical support for institutional factors as a predictor of financial development, private credit and financial inclusion (for example, Beck, Demirgüç-Kunt, & Levine, 2001; Beck & Levine, 2005; Djankov *et al.*, 2007; Farazi, 2014; Filippidis & Katrakilidis, 2014; Khalfaoui & Ben Saada (2015). Marcelin and Mathur (2004) contend that institutional factors influences financial contracts and thus, financial inclusion. This suggest that building efficient institutions is key to financial inclusion. The absence of knowledge about the extent of financial inclusion in the region has hindered relevant authorities to have knowledge about the progress and success of the efforts put in place. Ways to improve these efforts to meet set target is not clear (Faruk & Noman, 2013; Fungáčová & Weill, 2014; Gebrehiwot & Makina, 2015; Gupte, Venkataramanib, & Gupta, 2012; Sarma & Pais, 2011). In addition, despite the importance of institutions in financial development and thus, financial inclusion, Africa countries are still characterized with weak institutional quality (Fan, Titmam & Twite, 2012; Krause, 2016). Anayiotos and Toroyan (2009) opine that the in most African countries, financial institutions conduct financial activities in environment characterised by weak institutional quality. Weak institutional quality in Africa is a plausible factor that influences financial inclusion in Africa.

Extensive research has been carried out on the extent of financial inclusion in other developing regions, however, little research has been done to determine the extent of financial inclusion in Africa. Furthermore, available evidence on the extent of financial inclusion in Africa is based on account ownership only (Demirgüç-Kunt, Klapper, Singer, & Van Oudheusden, 2015). Furthermore, studies (Akudugu, 2013; Babajide, Adegboye, & Omankhanlen, 2015; Marr, Leon, & Ponce, 2014; Onaolapo, 2015; Zins & Weills, 2016) measured financial inclusion with deposit from rural areas and commercial banks' deposits, total number of newly banked people and formal account with a commercial bank respectively. However, these studies ignored the fact that having an account with a formal financial institution might not adequately mean financial inclusion. Furthermore, financial inclusion in the African region can hardly be inferred from the extent studies that used account ownership, deposits from rural areas, commercial banks deposit separately as proxy of financial inclusion without recognizing the robustness of incorporating all the relevant indicators in an index. This is due to the fact that financial inclusion as an important policy objective is comprehensive than each of the proxies (Allen, Demirgüç-Kunt, Klapper, & Martinez Peria, 2012; Sarma, 2008). On the determinants of

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financial inclusion in Africa, Boakye and Amankwah (2012); Zins and Weills (2016) argued that age, gender, level of education and income influence financial inclusion in Africa. However, robust impact of institutional factors on financial inclusion was not recognized.

Therefore, this study fills the intellectual gap and thereby contributing to the body of existing knowledge by examining the extent of financial inclusion in Africa and investigating its institutional determinants. Policy makers' need for reliable information about the extent of financial inclusiveness in Africa that captures all relevant dimension will be met and this will also provide opportunity to further make policies that will enhance the achievement of financial inclusion target by 2020. Also, findings revealed by this study will enable governments and other stakeholders to have an indicative understanding of the institutional factors associated with the extent of financial inclusion in the African. The rest of this study is organised as follows. Section 2 describe the literature review. Section 3 presents the methodology. Section 4 discusses the empirical results. Section 5 presents the conclusion and recommendations.

2. LITERATURE REVIEW

2.1 Conceptual Review: Meaning, Dimensions and Indicators of Financial Inclusion

2.1.1 Meaning of Financial Inclusion

Financial inclusion has been the core target of many developing nations since the start of new millennium, as many research findings have identified the importance of financial inclusion. Financial inclusion is a situation that allows for ease of access to, or availability of and usage of formal financial systems by citizens of a nation. It is a situation where everyone in an economy can conveniently, easily and consistently use financial system's products and facilities (Central Bank of Nigeria [CBN], 2012).

2.1.2 Dimensions of financial inclusion

Table 2.1 below presents the dimensions and indicators of financial inclusion adopted from Sarma (2008) with some modifications.

Table 2.1 The Dimensions and Indicators of Financial Inclusion

Dimensions	Indicators
Financial Institution Penetration	Number of Deposit Account per 1, 000 adults
	Number of Mobile Money Account per 1,000 adults
Availability of Financial services	Number of bank branches per 100, 000 adults
	Number of ATM per 100, 000 adults
	Mobile Money Agent Outlets per 100,000 adults
Usage	Creditor at Commercial Banks per 1,000 adults
	Depositors with Commercial Banks per 1,000 adults

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	Mobile Money Transaction per 1,000 adults

Source: Adopted from Sarma (2008)

2.2 Theoretical Framework

2.2.1 Power theory of Credit

The power theory of credit was developed by Townsend (1979); Hart and Moore (1994, 1998); Aghion and Bolton (1992). This theory argues that power of creditor to easily enforce repayment, takeover collateral, and gain control over the debtor's company is critical for the viability of credit. This theory implies that formal financial institution will be willing to give credit if they could easily enforce repayment through means such as seizing collateral in the case of default. The extension of credit in this case would depend on the existence of laws that protect the right of the creditor and on the quality of procedures that lead to repayment (McDonald & Schumacher, 2007). This indicates that there are three parties involved; the creditor who is the fund provider, debtor who borrows the fund and the court of law that will enforce the contract in case the debtor defaults in payment. Default may lead to disagreement or conflict; the third party which is the court of law may help to solve this by recovering the funds of the creditor for him, which could be by taking over of collateral. This may explain why formal financial institutions will not want to release funds to customers unless there is a third party's consent (Jorgepadilla & Requejo, 2000).

Studies such as Acharya, Amihud, and Litov (2011); Djankov, McLiesh, and Shleifer (2007); McDonald and Schumacher (2007), built their work on power theory of credit and found that it is important for financial development.

2.2.2 Information Theory of Credit

The information theory of credit was hypothesized by Jaffee and Russell (1976) and Stiglitz and Weiss (1981). This theory indicates that what matters for the extension of credit is the availability of information about the borrower, his credit history and information of his dealing with his other lenders (Djankov, *et al.*, 2007). According to McDonald and Schumacher (2007), the theory suggests that more credit will be extended to borrowers if financial institutions have access to the credit information of borrower which would enable lenders predict the possibility of repayment of borrowers. Consequently, the availability of information about credit of borrowers will lead to extension of credit. Research works by Boyd and Hakenes (2013); Djankov, *et al.* (2007); McDonald and Schumacher (2007) indicate that there is a link between information sharing and financial development.

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2.2.3 Theory of legal origin

This theory argues that past colonial regime and legacy explains to a greater extent the financial system that prevails in an economy. This theory was formalized in the work of La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998). The theory further argued that protection of private property which could be used to access credit is the legacy of the British system. In the case of the French justice system, most legal procedures are codified by the state. This is because historical antecedent of their judiciary system which evolved in response to reducing the discretionary power of the corrupt judiciary (Agyekumi, Wellalage, & Locke, 2015). According to Beck, Demirgüç-Kunt, and Levine, (2003), Bhattacharyya (2013) and La Porta, *et al*. (1998) this system may make economies in French formal colonies less financially developed than the British formal colonies. This is because they hold the legacy of private property protection than the French formal colonies. This theory has been used in studies such as Djankov, *et al.* (2007) and Filippidis and Katrakilidis (2014).

2.3 Empirical Evidence

There are many research studies carried out on the extent of financial inclusion in the developed and developing economies. Furthermore, the methodology used in the literature reviewed are United Nations Development Programme (UNDP) methodology, Distance Based Methodology (DBM) and Principal Component Analysis (PCA).

Notable among the research works that used UNDP methodology to measure financial inclusion is Sarma (2008) who considered three dimensions; the first one is depth (penetration) of access using a proxy measure of the number of bank accounts per 1000 population; the second one is availability of financial services to measure proximity of access using the number of bank branches and number of ATMs per 1000 population; and the last one is usage which include deposits and credit. The study adopted the United Nation Development Programme (UNDP) methodology, similar to the Human Development Index (HDI) which attached equal weights to the various dimensions and used the UNDP methodology. The study showed that the Index of Financial Inclusion (IFI) measures tend to indicate a general improvement in the level of financial inclusion during the study period. Unfortunately, equal weight was allocated to each of the dimensions and in reality they might have different contributions. The bias weight allocation might affect the reliability of the findings. Furthermore, the trending indicators which has allowed for increase in the use of formal financial services such as the mobile money was not included, thus the financial inclusion index is one-sided.

Park and Mercado (2015) incorporated five dimensions into the index of financial inclusion namely; Aautomated Teller Machines (ATM) per 100,000 adults, commercial bank branches per 100,000 adults, borrowers from commercial banks per 1,000 adults, depositors with commercial banks per 1,000 adults, and domestic credit to GDP ratio. The financial inclusion index shows general improvement within the study period. The distance-based methodology which is a modification to the UNDP methodology was used

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by Sarma (2012) for 94 countries. He used the same dimensions and indicators as used in his formal study Sarma (2008). The study shows general improvement just as reported in his previous study, Sarma (2008). The study concludes that the IFI can be used to monitor the progress of the economies with respect to financial inclusion over time. This study has the same limitation as his earlier study Sarma (2008).

Other methodology used in measuring financial inclusion includes the principal component analysis. This was used in a study conducted by Cámara and Tuesta (2014) for 82 countries. The methodologies constructed have three dimensions namely: access, usage and barriers. The methodology used is free of researcher's bias, it uses an intuitive means of allocating weight to each dimension, and however the indicators include barriers, such as cost which has been empirically and theoretically proven to form part of the determinants (Allen, *et al.*, 2012; Mckinnon, 1973; Sarma & Pais, 2011; Shaw, 1973). On the determinants of financial inclusion, evidences from the developing economies dominate literature. Institutional factors such as legal origin, legal right of creditors and debtors were also reported to determine private credits, financial development and external financing which can also be linked to financial inclusion.

Prominent among these scant studies is La Porta *et al.* (1997), who argued that countries with weak investors' protection, measured by creditors' right and legal origin, have less developed capital market. However, pooled OLS was used in these studies which will not take into consideration the individual country fixed effect (Flannery & Hankins, 2013). Chinn and Ito (2005) also agreed that high level of legal development and financial openness spurs equity market development. However, the study used OLS. The study concludes that the level of finance specific legal institutional development is not as important as the general level of legal development. Also, Djankov, McLiesh and Shleifer (2005) argued that the choice between common and civil law approaches to solving economic problems is a matter of comparative advantage of alternative strategies of social control and not just of the absolute advantage of common law solutions. Djankov, *et al.* (2007) posits that access to credit will increase after improvement in creditors' right and information sharing.

In the same vein, McDonald and Schumacher (2007) also confirmed that countries that share information and have strong legal institution have more financial depth. The study argued further that financial liberalization and legal institutions help in financial deepening. The study suffers the same methodological limitations as (Djankov, *et al.*, 2005; La Porta, *et al*., 1997) due to the use of pooled OLS. In contrast, Effiong (2016) who used system GMM, argued that institutions have not impacted on the finance-growth relationship in the sub-Saharan African region. The study further stressed that financial development in Africa is low and is dominated by the banking system. The contradiction might be because Effiong (2016) was region specific in his research.

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3. METHODOLOGY

3.1 Model Specification

The econometric model for the study on the impact of institutional factors on financial inclusion in Africa is grafted on legal origin theory which was formalized in the work of La Porta *et al.*, (1998), power theory of credit by Townsend (1979) and the theory of information sharing by Jaffee and Russell (1976). The lagged of the dependent variable was included as a regressor in order to introduce dynamism in the model. This is because banking sector development tends to depend on its own past realisations (Aluko & Ajayi, 2017). Control variables were included in the model namely; GDP per capita, interest rate and liquidity ratio. These variables have been identified in literature as important for financial inclusion. The econometric model is given as:

$$IFI_{\mathrm{i,t}} = \beta_0 + \beta_1 IFI\mathrm{i,t}-1 + \beta_2 LO_{i,t} + \beta_3 LR_{i,t} + \beta_4 ID_{i,t} + \beta_5 FF_{i,t} + \beta_6 GDP_{i,t} + + \beta_7 INTi,t + \beta_8 LR_{i,t} + \mu_i + \eta\mathrm{t} + \varepsilon\mathrm{i,t} \ldots\ldots\ldots\ldots\ldots\ldots..(i)$$

Where:
IFI = Index of financial inclusion
LO= Legal Origin; LT= Legal Rights
IS= Information Sharing ; FF= Financial Freedom
GDPP= Gross Domestic product per capita
INT= Interest Rate; LR= Liquidity ratio
μ = Error term
i = country i in the sample

Table 3.1 Apriori Expectations on institutional factors relationship with financial inclusion

Independent Variable	Expected Signs	Supporting Schorlars
LO	_/+	Allen, *et al.* (2012); La Porta, *et al.* (1998); McDonald & Schumacher (2007).
LT	+	Djankov, *et al.* (2005); Naceur, Barajas, & Massara (2015); La Porta, *et al.* (1997).
ID	+	La Porta, *et al.* (1997); Djankov, *et al.* (2005)
FF	+	Agyekumi, *et al.* (2015), Farazi (2014)
INR	-/+	Evans & Adeoye (2016); Sarma & Pais (2011).
LR	+	Ameer (2015); Onaolapo (2015); Sufian & Habibullahi (2009).
GDP per capita	+	Allen *et al.* (2012); Allen, Carletti, Cull, Qian, Senbet & Valenzuela (2014); Evans & Adeoye (2016).

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3.2 Estimation Techniques

The study used principal component analysis to derive financial inclusion index for African countries. On the determinants of financial inclusion, preliminary diagnostics of Wooldridge test for autocorrelation, the Pesaran's test of cross sectional independence and the Breusch-Pagan/ Cook-Weisberg test for heteroskedasticity was performed and these issues were found to be present. Therefore the system GMM estimator was used since it is robust to the above mentioned. In order to ensure the result to be obtained from the GMM are valid and robust, the following validity tests will be carried out, namely; Sargan test for the joint validity of instrument and over identification of the model, Arellano and Bond test of autocorrelation and the Wald Test.

4. FINDINGS AND DISCUSSIONS

4.1 Descriptive Statistics

Table 4.1 Descriptive Statistics

Variables	Mean	Standard Deviation	Minimum	Maximum
IFI	0.0195041	1.44098	-1.16824	7.28491
GDP	2.00725	7.465647	-62.2251	32.2478
LR	26.65113	29.94479	0	222.295
IR	24.24066	73.54673	0	578.958
FF	41.33333	15.28436	0	70
LT	4.627	2.148005	1	10
ID	0.815	1.697718	0	6

Table 4.1 above shows presents the descriptive statistics of the variables used in the study. Dependent variable (IFI) has mean of 0.0195041 while the standard deviation is 1.44098. However, the mean of GDP stood at 2.00725 with standard deviation of 7.465647, liquidity ratio has mean of 26.65113 and standard deviation of 29.94479 and mean of interest rate is 24.24066 while the standard deviation is 73.54673. Turning to the main explanatory variables of interest, financial freedom has a mean ratio of 41.33333 and standard deviation of 15.28436, legal right has a mean ratio of 4.627 and standard deviation of 2.148005, information sharing has a mean ratio of 0.815 and standard deviation of 1.697718.

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4.2 Correlation Analysis

The bivariate relationship between variables in the model is examined n Table 4.2 before carrying out the regression. This relationship is observed through a pairwise correlation analysis of the coefficients that assists in determining the direction and strength of the relationship irrespective of the existence of other variables. In addition, it also helps to detect the presence of muliticollinearity among the variables in the model.

Table 4.2 Pairwise Correlation Matrix

	1	2	3	4	5	6	7	8
IFI	1.0							
GDP per capita	0.0433	1.0						
Liquidity ratio	-0.0857*	0.0817*	1.0					
Lending rate	-0.0176	-0.0054	-0.1006*	1.0				
Financial freedom	0.1827*	0.1138*	-0.0277	-0.2556*	1.0			
Legal right	0.1644*	0.1429*	-0.1564*	0.1459*	0.1596*	1.0		
Information depth	0.4069*	0.0155	-0.1181*	0.1537*	0.2617*	0.2474*	1.0	
Legal origin	0.1130*	0.0701	-0.1742*	0.2180*	0.1787*	0.7455*	0.2560*	1.0

* Significant relationship at 5% level of significance

Presented in the Table 4.2 above is the pairwise correlation analysis conducted to assess the relationship among explanatory variables. The Pairwise correlation result presented above shows that most of the coefficients are below 0.5 except for legal origin and legal right which is above 0.5. Cohen, Cohen, West and Aiken (2013) indicate that variables with coefficient above 0.5 are highly correlated; therefore this influenced the exclusion of legal origin in the regression.

4.3 Index Financial Inclusion

The table presented below shows the rank of Index of Financial Inclusion among African countries. The index was generated using the principal-components analysis (PCA) on three sets of financial dimensions namely – financial institution penetration, availability of financial services and usage of financial institution services. Average of the index was taken for each countries and the rank is given in the table below.

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Table 4.3 Top Ten Average Index of Financial Inclusion of Africa Countries

Rank	Country	IFI
1	Seychelles	5.746198
2	Mauritius	3.530186
3	Cabo Verde	2.722523
4	South Africa	1.638297
5	Kenya	1.579338
6	Botswana	1.523651
7	Tunisia	1.427564
8	Sao Tome and Principe	1.320741
9	Namibia	1.296664
10	Swaziland	0.875521

Author's Computation (2018).

The ranking in Table 4.3 above shows the countries that make it to the top ten. Seychelles has the highest average IFI among African countries. South Africa and Kenya are ranked 4th and 5th respectively. Nigeria could not make it into the top ten countries with highest IFI. The top ten countries were distributed across North (Tunisia), West (Seychelles, Cabo Verde and Sao Tome and Principe), East (Mauritius, Kenya and Namibia) and South African countries (South Africa, Botswana and Swaziland). None of the Central African countries made it to the top ten.

4.4 Preliminary Diagnostic Test

Before carrying out the system GMM, preliminary diagnostics of heteroskedasticity, autocorrelation and cross sectional independence tests were performed. The Wooldridge test for autocorrelation was carried out to determine the presence of autocorrelation. The Pesaran's test of cross sectional independence was performed to check for spatial correlation among the errors in the panel date model. When errors are not independent and identically distributed overtime and across sectional unit, cross sectional dependence is said to be present. The Breusch-Pagan/ Cook-Weisberg test was performed to test for heteroskedasticity. In a situation where the residuals or errors of panel data model have similar variance within cross sectional units, the error process is referred to as heteroskedasticity. The results of the preliminary diagnostic tests are presented in Table 4.4 below.

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Table 4.4 Preliminary diagnostic Results

Test	Result	Null hypothesis	Decision
Wooldridge Test	17.605***		
	(0.001)	No first-order autocorrelation	Reject
Breusch-Pagan/ Cook-Weisberg T	4.74**		
	(0.0295)	No heteroskedastcity	Reject

Note that *** and ** denote rejection of null hypothesis at 1% and 5% respectively. The P-values are reported in ( ).

Source: Author's Computation (2018)

The Wooldridge test for autocorrelation in panel data confirms that there is first-order autocorrelation. Furthermore, Breusch-Pagan/ Cook-Weisberg test of heteroskedasticity indicates that the errors of all the models are not homoskedastic. These tests indicate that a dynamic panel GMM estimator will be appropriate for the study. The estimator is robust to autocorrelation, cross sectional dependency and heteroskedasticity (Wooldridge, 2002).

4.5. Model Estimation

The study regressed the index of financial inclusion derived from the Principal Component Analysis using the three dimensions comprising eight indicators in total on the potential determinants. This was estimated using system GMM estimator. The result is presented in Table 4.5 below.

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Table 4.5 System Generalized Method of Moments Regression Estimates for the Impact of Institutional Determinants on Financial Inclusion in Africa

Variable	Coefficient	p-value
Lagged dependent variables IFIi,t-1	0.8378492*** (0.0913835)	0.000
GDP per capita	0.0025653 (0.002955)	0.385
Lagged GDP per capita	0.0170133*** (0.006034)	0.005
Liquidity ratio	0.0000169 (0.0024654)	0.995
Interest rate	0.0007752 (0.0012426)	0.533
Financial freedom	0.0126274*** (0.0046668)	0.007
Legal right	0.065422** (0.0304969)	0.032
Credit information	0.0516023 (0.0555207)	0.353
Constant	-0.883789 (0.1938026)	0.000
Model Diagnostics		
AR(1) test A	-3.2772 (0.0010)	
AR(2)test	-0.93123 (0.3517)	
Sargan test	40.78944 (0.2679)	
Wald chi2	304.40 (0.0000)	
Number of groups	50	
Number of instruments	45	
Number of observation	550	

*,**, *** indicates 10%, 5% and 1% level of significance respectively. The table in addition reports the number of groups, number of instruments and number of observations. WC-Robust standard errors and p-values are in ( ).

Presented in Table 4.5 above is the System Generalized Method of Moments regression conducted to assess the impact of institutional factors on financial inclusion in Africa. The dependent variable used is the index of financial inclusion computed for each of the countries while the explanatory variables include GDP per capita, liquidity ratio, and interest rate (which are control variables from theoretical and empirical issues) while

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information depth, financial freedom and legal right (the institutional variables). Legal origin was dropped to avoid multicollinearity as identified in the pairwise correlation analysis. A period lag of GDP per capita was also included as instruments to avoid endogeneity problem.

The result shows that all variables influence financial inclusion in Africa positively except liquidity ratio, interest rate and information depth. The result also shows that all variables have positive coefficients. The result also shows that lag of IFI, lag of GDP per capita, financial freedom and legal right have significant influence on the level of financial inclusion in Africa. This is evident from the fact that each of their probability values is less than the chosen 5% significance level (0.05), implying the rejection of null hypothesis that these variables do not significantly affect financial inclusion in Africa. This indicates that each of these variables determines the level of financial inclusion in Africa.

On the other hand, contemporaneous GDP per capita growth, interest rate, information depth and liquidity ratio do not significantly affect financial inclusion in Africa. This is evident from the fact that each of their probability values (p-value) is greater than the chosen 5% significance level, implying the acceptance of null hypothesis. This implies that the current GDP per capita, interest rate and liquidity ratio of banks do not determine financial inclusion in Africa and the availability of credit information depth do not influence financial inclusion in Africa. The significant positive coefficient of lag of GDP per capita indicates that a per cent increase in GDP per capita will lead to increase in financial inclusion index in Africa by approximately 0.017 units. This implies that improvement in last period's standard of living brings an improvement in financial inclusion in Africa.

In the same vein, the significant positive coefficient of financial freedom indicates that a unit increase in index of financial freedom increases index of financial inclusion in Africa by approximately 0.013 units. This implies that improvement in the financial freedom brings about an improvement in financial inclusion in Africa. Legal right has a significant positive effect on financial inclusion and its coefficient value indicates that a unit increase in legal right increases index of financial inclusion in Africa by approximately 0.065. This implies that higher legal right increases the level of financial inclusion in Africa. The results of the model diagnostics confirm that the model is valid. The null hypothesis of no first-order autocorrelation is rejected at 1% significant level while no second order autocorrelation is not rejected. The Sargan test did not reject the null hypothesis of over identifying restrictions; this implies that the instruments satisfy the orthogonality condition which means they are uncorrelated with the error term. This indicates that the instruments are valid and thus, model is correctly specified. Wald x^2 indicates that the models are statistically significant at 1% significant level which implies the variables in the model are jointly significant. The number of instrument does not exceed the number of group as advised by Roodman (2009).

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4.5 Implication of Findings

Consequent upon the results of the regression, some implications can be highlighted. Theoretical literature portrays that GDP per capita influences financial development. Furthermore, effect of GDP per capita on financial inclusion which is postulated by the demand-following perspective of finance-growth nexus is evidenced by the finding of the study. This is implied by the positive and significant coefficient of the GDP per capita. This is in line with the findings of Akudugu (2013), Chithra and Selvam (2013), Laha, Kuri and Sharma (2011) and Sarma and Pais (2011).

The liquidity ratio has a positive but insignificant relationship with financial inclusion in Africa. This suggests that when formal financial institutions are highly liquid, they might be attracted to investing in other businesses which may restrain their ability to extend credits and attract more customers as previously observed by Sufian and Habibullahi (2009). However, this finding suggests that the effect of liquidity ratio is not as postulated by the financial repression theory. Furthermore, the non-significant but positive coefficient suggests that the rate at which interest is fixed do not affect the level of financial inclusion in Africa. This is contrast to the financial repression theory but consistent with previous studies such as Evans and Adeoye (2016) and Sarma and Pais (2011).

Financial freedom has a significant relationship with financial inclusion in the African region. This implies that government regulation of financial services, government influence on allocation of credit and government intervention through ownership affects the extent of financial inclusion in the African region. This indicates that government interventions in the banking activities have influenced financial inclusion in the Africa region. Legal rights of the creditor and debtor as it is protected by bankruptcy and collateral laws have a positive and significant relationship on the extent of financial inclusion in Africa. This is in line with Acharya, Amihud and Litov (2011) and McDonald and Schumacher (2007). This shows that when rights of the creditor and debtor are protected, more confidence will be created and credit will be accessed, thus, improving financial inclusion. Thus this finding is in line with the power theory of credit.

However, information sharing has a positive but insignificant relationship with the level of financial inclusion in the African region. This implies that the provision of credit information by private and public bureau has not influenced financial inclusion deepening in the African region. The result is not as postulated by the information theory of credit and the study of Djankov, McLiesh and Shleifer (2007) and McDonald and Schumacher (2007) which indicates that there is a link between information sharing and financial development. Nevertheless, this result is in line with Qian and Strahan (2007).

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5. CONCLUSION AND RECOMMENDATIONS

The study concludes that in order to achieve a desirable level of financial inclusion in the African region, this must be pursued within the context of institutional factors prevailing in the region. This is due to the fact that result has shown institutional factors impact on the level of financial inclusion in the African region. The study therefore submits that legal rights and financial freedom affect the level of financial inclusion in the African region. It is important to mention that income proxy with GDP per capita is an essential factor that determines financial inclusion in Africa.

The study recommends that governments should not relent in the protection of right of both the creditor and the debtor as this instill confidence in the two parties which makes depositors have incentives to entrust their savings to financial institutions and financial institutions have incentives to lend to debtors at better rates. This is because the financial institutions can seize collaterals when debtors default happens and are compensated according to pre-established rules in bankruptcy as indicated by power theory of credits. Government should ensure increase in economic activities in the region which will further boost the income level of individuals as this has been seen as an important determinant of financial inclusion. Also, government intervention in financial institution ownership, regulation, credit allocation and openness to foreign competition should be enhanced as this (financial freedom) is reported to have positive impact on financial inclusion.

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