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FINANCIAL INCLUSION AND HUMAN DEVELOPMENT IN AFRICA, A MODERATING ROLE OF INSTITUTIONAL QUALITY

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Abstract

The major goal of this research is to look into the link between financial inclusion and human development in Africa, as well as the impact of institutional quality in this relationship. Financial inclusion, or access to and use of formal financial institutions and services by poor households, small holder farmers, small businesses, and low-income earners who are either under-banked or unbanked, has become a hot topic in development policy circles throughout the world. Low human development and inadequate institutional structures are the primary causes of financial exclusion in Africa. The study used secondary data from the World Development Indicators (WDI), World Governance Indicators (WGI), and Human Development Resources (HDR), which covered 42 African nations from 2012 to 2021, and use the Generalized Methods of Moments (GMM) to examine the relationship between financial inclusion and human development. The study revealed that, there is a strong significant relationship between financial inclusion, human development and institutional quality in Africa. African governments are encouraged to focus on providing prudent financial literacy education, and building resilient governance institutions to enhance effective financial inclusion.

Keywords: Financial Inclusion, exclusion, Human Development, Institutional Quality

INTRODUCTION

Research has indicated that well-functioning, healthy, and competitive financial institutions are an effective instrument for extending opportunity and combating poverty by providing individuals with a variety of services such as savings, credit, payment, and risk management (Donovan, 2012). Indeed, financial development has been used to stimulate economic growth, with strong correlation operating through three linkages, financial deepening promotes economic growth, economic growth stimulates financial development; and financial development and economic growth influence one another. As a result, it is natural to conclude that inclusive economic development necessitates inclusive financial systems that ensure that formal financial services are accessible, available, and used by the entire population (Demirgüç-Kunt & Klapper, 2013). As a result, a pro-inclusive growth economy must have financial resources.

Despite the obvious advantages of financial inclusion, according to a global survey conducted by Beck and Cull (2013), half of the world is unbanked, with only 50% of adults reporting having an account with a formal financial institution such as a bank, credit union, cooperative, or microfinance institution. The use of formal accounts is said to differ considerably between high-income and low-income countries. In high-income countries, 89 per cent of adults said they had account with a formal financial institution, compared to only 41% in low-income countries (Demirgüç-Kunt & Klapper, 2013).

Account ownership is 51.4 per cent across Latin America, the Caribbean, and Central Asia. South Asia had 46.4 per cent, Africa had 34.2 per cent, and the Middle East was 14.2 per cent behind Africa (Barboni, 2017). Key statistics show that Africa lags behind in other financial inclusion indicators such as the number of Automated Teller Machines per 100,000 adults and the number of commercial bank branches per 100,000 adults. All of these issues remain significant obstacles for African governments to overcome in order to attain financial inclusion (Naci, 2009).

According to the Nyagadza (2019) and World Governance Indicators, poor financial inclusion performance has a negative impact on human development due to inadequate financial literacy and institutional quality. As a result, this is one of the issues that this research aims to address. Lower-income households in developing nations lack access to financial institutions and lending criteria such as collateral and legal services. Some households in geographically isolated locations are restricted by these constraints. There are also gender-based constraints; this lack of inclusivity, as well as other impediments to formal financial systems, exacerbates wealth disparity and stunts human growth (Cochrane, 2019).

Notwithstanding the existence of a body of literature on financial inclusion and human development (Peria, 2020; Demirguc-Kunt K. S., 2017; Nazlioglu S. H., 2015), institutional moderators in the field have not been largely investigated by academics. This study uses secondary data from the World Development Indicators (WDI), World Governance Indicators (WGI), United Nations Development Programme (UNDP), and Human Development Index (HDI) to bridge the knowledge gap in financial inclusion and Human Development in Africa with institutional quality moderators, covering 42 African countries and sampled using convenience sampling technique.

LITERATURE REVIEW

Researchers have used a variety of models to highlight how lack of access to financial systems can lead to income inequality and poverty traps as a result of development (Blotevogel, Imamoglu, Moriyama, & Sarr, 2022; Pennell, 2022; Youssouf & Hackloufi, 2022; Blotevogel, Imamoglu, & Moriyama, 2022). Microeconomic research underlying the links between financial inclusion, income inequality, poverty alleviation, and economic development is explained using contemporary applied general equilibrium models (Kaboski, Lipscomb, Midrigan, & Pelnik, 2022; Liu, 2022; Adeleye, 2022). According to systems theory Laursen (2022) financial inclusion results are realized through the existence of sub-systems such as economic, social, or financial systems. Any change to any of the established systems will have a significant impact on the overall expected results of financial inclusion. Because users interconnect with service providers, if the government imposes limits on financial service providers, it will harm users of these financial services.

Aprea (2016) also proposed that, in today's dynamic and complex financial market, financial education should be a lifelong endeavour that allows consumers of all ages and economic backgrounds to remain aware of changes in their financial needs and circumstances, as well as to take advantage of products and services that best meet their objectives.

An efficient financial system, according to Demirgüç-Kunt and Klapper (2012) usually fulfills a critical purpose, such as providing savings, credit, payment, and risk management products to consumers or individuals with a variety of demands. Poor people and other vulnerable groups in society will gain from an inclusive financial system that has no restrictions. In the context of frontier markets, Ofosu-Mensah Ababio et al,. (2021) investigated the level of human development that drives financial inclusion and vice versa. They used dynamic panel data for 20 frontier countries from 2005 to 2014 and discovered that Human Growth promotes financial inclusion scale-ups in the financial industry and so accelerates development. The study

also provided new evidence that individual, household, and corporate income levels are all linked.

Inoue (2019) examined financial inclusion and poverty reduction in India using unbalanced panel data for India states and Union territories from 1973 to 2004. He found that financial inclusion and financial deepening are negatively correlated with poverty ratio for public sector banks but not for private sector banks. Furthermore, most public sector banks show a negative and statistically significant association between financial inclusion and financial deepening. This suggests that low-income persons choose to conduct business with private banks rather than public banks because private banks may not have the same statistical quality as public banks. In Africa, illiteracy is also one of the most significant barriers to financial inclusion (Sydney, 2017). Financial inclusion, according to several studies on economic development and poverty, is critical to economic prosperity. It improves access to financial services, according to empirical research, not only facilitates growth and income, but also reduces poverty (Honohan, 2009; Klapper, 2013; Laurine, 2012). Financial inclusion, according to Ozili (2018) is defined as the provision of access to formal financial services to individuals, the poor and other persons who have been excluded.

Dimensions of financial inclusion

The definition and measurement of financial inclusion in terms of who is included and who is excluded has developed to a multi-dimensional understanding of financial inclusion (Sarma, 2008). The Alliance for Financial Inclusion (AFI) agreed on three primary characteristics of financial inclusion that give theoretical underpinning for data collecting in order to provide a more realistic understanding of the definition of financial inclusion. These dimensions are: Access, Usage, and Quality. These have aided in resolving the ambiguity, and they feel that financial inclusion concerns can be addressed only through access to financial systems. A more definitive definition of financial inclusion, on the other hand, should include how often consumers utilize financial services and whether the solutions fit their desired needs.

Table 1 Dimensions of financial inclusion

Financial Inclusion	Description
Access	Availability of formal, regulated financial services
	Physical proximity, Affordability
Usage	Actual usage of financial services and products
	Regulation, frequency, duration of time used
Quality	Products are well tailored to clients need
	Appropriate segmentation to develop products for all income levels

Individual Access to finance

Africa's financial system is underdeveloped, with high illiteracy rates, infrastructure constraints, low income levels, high inflation, and poor governance and regulatory quality, among other issues; these are some of the elements policymakers use to explain the financial sector's underdevelopment. Individual access to finance, as well as many characteristics of usage, potential hurdles, and formal sources of finance, individual savings behaviour, and the need to borrow, as well as certain reasons for access to credit should be examined (Allen, Demirguc-Kunt, Klapper, & Peria, 2016).

Account penetration

According to Allen, Demirguc-Kunt, Klapper, and Peria (2016) roughly 23% of African adults have bank accounts with reputable financial institutions. In Africa, account ownership varies by nation, with 42 per cent of individuals in Southern Africa having bank accounts with recognized financial institutions and only 7% in Central Africa. More than 95 per cent of adults in Central Africa and the Democratic Republic of Congo are "unbanked," while 23 per cent of individuals in North Africa have bank accounts at official financial institutions, ranging from 39 per cent in Morocco to 10 per cent in Egypt Arab Republic. In Africa, men are more likely than women to have bank accounts, albeit the differences are fewer than in other regions. Adults with a tertiary education are more likely to have a formal financial institution bank account.

Barriers to formal account ownership

According to an IMF financial access survey, nearly 80% of adults in Africa do not have bank accounts, with the primary reason being a lack of income. Cost, location, and documentation all play important roles, with at least 25% of adults citing them as a barrier or bottleneck to opening a bank account. According to the Morgan (2022) International Monetary Fund (IMF) research, cost is one of the most regularly mentioned factors in East Africa, along with distance. In West Africa, one of the most common reasons why adults are unable to use or obtain a bank account is a lack of documents. The high cost of opening a bank account in Southern Africa also makes it difficult to open a bank account for free. One of the most significant roadblocks is a lack of paperwork.

Account usage gap

Many adult account holders in Africa deposit or withdraw money twice a month from their bank accounts. In a typical month, almost 36% of individuals in North Africa claim that they do not conduct any financial transactions from their accounts. However, research has revealed that

Automated Teller Machines (ATMs) are mostly used to withdraw and deposit money in Eastern and Southern Africa. Account holders in West and Central Africa are also more likely to conduct financial transactions over the counter. Around 16% of adults on the African continent hold an ATM (debit) card (Demirgüç-Kunt, Klapper, Singer, Van, & Oudheusden, 2015).

Savings behaviour

According to Demirgüç-Kunt, Klapper, Singer, Van, and Oudheusden (2015) roughly 36% of adults in Africa have saved money in the previous year. According to the researchers, half of adults in West Africa and one-fifth of adults in North Africa had saved money. In addition, 13% of adults say they have saved in a professional financial institution.

METHODOLOGY

Research Design

The study adopted a longitudinal research design strategy based on the multi-dimensional nature of the data, and the observations of multiple phenomena obtained over multiple time periods. Fifty-four (54) African countries were targeted using convenience sampling technique. Forty-two (42) countries were sampled using secondary data from the World Development Indicators (WDI), World Governance Indicators (WGI), United Nations Development Programme (UNDP) and Human Development Index, spanning 2012 to 2021. The choice of the research sample is informed by the characteristics of the nature and availability of research data, including research questions proffered. Two-step system Generalized Method of Moments was used based on the short time series dimension of the sample as compared to cross-sectional T(number of years) which is ten (10), N(number of countries) forty-two (42).

GMM is a dynamic panel estimator that controls for endogeneity of the lagged dependent variables in a dynamic panel model when there is correlation between the explanatory variable and the error term in a model. GMM also controls for omitted variable bias, unobserved panel heterogeneity and measurement error. There are two main GMM estimators that are used in estimating panel data, difference and system GMM. According to (Arellano, 1991), Difference GMM corrects endogeneity by transforming all regressors through differencing to remove fixed effects. According to (Blundell, 2000; Blundel & Bond, 1998) system GMM corrects endogeneity by introducing more instruments to dramatically improve efficiency. It transforms the instruments to make them uncorrelated (exogenous) with the fixed effects. This leads to the building of two equations, the original equation and the transformed equation. System GMM also uses orthogonal deviations instead of

subtracting the previous observation from the contemporaneous one; it rather subtracts the average of all future available observations of a variable, no matter the number of gaps. This is computable for all observations except the last for each individual and therefore minimizes data loss.

Model Specification

The study adopted a dynamic panel specification and system Generalized Methods of Moments (GMM) estimation technique from, (Beck, Levin, & Angelone, 2007; Beck, Demirguc-Kunt, & Levine, 2004). The dynamic panel regression model provides the researcher with the opportunity to include lags of the dependent variable as a predictor variable which is specified as follows:

$Y_{it} = \gamma Y_{it-1} + \beta X_{it} + \varepsilon_{it}$ ..... (1)

$\varepsilon_{it} = \delta_t + \acute{\omega}_i$

The Y_{it} represents the dependent variable for the model, Y_{it-1} is the lag of the dependent variable, whereby Y, $X_{it,}$ represent a matrix of the dependent variable (1 x k), $б_0$ is the unobserved country effect, γ is the coefficient of the lag dependent variable, β is the coefficient of the explanatory variables including the control variables. The unobserved individual effect is represented by $\acute{\omega}_i$, δ_t is the time effect, N is the number of variables or observations in the study. *i* represents the number of countries and *t* is the time (years). Ɛ represents the error term which is correlated with the lagged dependent variable (Y_{it-1}). The inclusion of the lag dependent variable is to enable researchers deal with the issues of autocorrelation. Since the equation is generally dynamic models, the Generalized Method of Moments (GMM) is used in the estimation process.

In order to ascertain the effect of human development on financial inclusion, a model is specified as follows:

$Human_{it} = \alpha_1 Human_{it-1} + \alpha_2 Institution_{it} + \alpha_3 z_{it}\lambda' + \mathcal{E}_{it}$ ---------- *(2)*

$Human_{it}$ is financial inclusion for country *i* at time t_t $Institution_{it}$ represents human development for country *i* at time t_t z_{it} represent a set of control variable showing general development for country *i* at time *t*. (rural population, lending interest rate, export of goods) parameter estimates measuring the effect of explanatory variables on the dependent variables.

Also, to investigate the impact of financial inclusion on human development, a third model is specified below:

$Human_{it} = \alpha_1 Human_{it-1} + \alpha_2 Financial_{it}\ \alpha_3 zit\lambda' + \mathcal{E}_{it}$ ---------- *(3)*

The $\alpha_3 z_{it}\lambda'$ is the variables which determine financial inclusion without human development index, $\mathcal{E}_{it}$ is the error term.

Another model is also specified to investigate the impact of institutional quality on financial inclusion in Africa. The equation is specified as follows:

$financial_{it} = \alpha_1 financial_{it} + \alpha_2 institutional_{it} + \alpha_3 z_{it}\lambda' + \mathcal{E}_{it}$ ---------- *(4)*

Moderating Effect Model Specification

Finally, to investigate the moderating effect of institutional quality on financial inclusion and human development in Africa, an equation is equally specified as follows:

$hdevelopment_{it} = \alpha_1 hdevelopment_{it} + \alpha_2 financial_{it} + \alpha_2 financial_{it} * IQ + \alpha_3 z_{it}\lambda' + \mathcal{E}_{it}$ -------- *(5)*

Table 1: Description of variables

Human Development Index	HDI	It is the composite of four (4) Human Development indicates, (i) life expectancy rate at birth, (ii) literacy rate, (iii) educational attainment, (iv) Government expenditure on education, obtained from HDR
Financial inclusion index	FII	It is a composite index of five financial inclusion variables as follows: (i) ATM per 100000 people, (ii) commercial bank branches for 100000 adults, (iii) borrowers with commercial bank for 1000 adults (iv) depositors with commercial Bank per 1000 adults, data obtained from WDI, (v) account ownership (PCA index)
Institutional Quality Index	IQI	The index is consisting of six dimensions of governance indicators obtained from the WDI. Control of corruption, government effectiveness, political stability and absence of violence, regulatory quality, the rule of law and voice and accountability (Dwumfour, 2018), (PCA index)
Foreign Direct Investment	FDI	FDI is net inflows (% of GDP) of investment
Natural resources (export of goods and services)	Natural	Export of Goods of services (% of GDP)
Market size/rural economy (Rural population)	RPOP	It is the difference between the total population and urban population
Corruption Control	COR	it captures ability to curb the extent to which public power is exercised for private gain

RESULTS AND DISCUSSION

Descriptive Statistics

Descriptive statistics provide a concise overview of the many coefficients that summarize the research data (Yellapu, 2018). Human development index, institutional quality, automated teller machine, commercial bank branches, commercial bank depositors, account ownership,

voice and accountability, and corruption control all have a score of 420 in table 2. 419 observations were made in the areas of financial inclusion, rule of law, regulatory quality, political stability, and government effectiveness. Borrowers of commercial bank loans have observations of 421, 409, and 414, respectively, for export of products and services and foreign direct investment.

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
hdi	420	32.029	29.359	-.155	115.813
fi	419	40.309	21.027	3.756	89.671
iq	420	39.191	23.222	3.365	88.462
atmp	420	28.759	28.803	-.062	120.716
cbbra	420	25.192	30.321	-19.837	170.689
borrow	421	15.601	21.947	-30.882	188
deposit	420	44.186	198.937	1.232	2173.18
acctown	420	22.865	27.95	.084	145.063
voice	420	53.824	21.783	1.259	89.85
rule	419	37.376	21.294	1.878	86.385
reg	419	38.954	19.548	2.392	90.385
politic	419	43.78	26.268	1.896	98.578
gov	419	36.016	21.645	.481	87.5
coc	420	39.183	23.229	3.365	88.462
export	409	28.909	19.8	1.136	99.329
fdi	414	5.008	9.056	-11.625	86.989

The standard deviation of the human development index, which has a mean of 32.0 per cent and a standard deviation of 29.34 per cent, indicates how far the standard deviation deviates from the mean. Human development has increased by 32.0 per cent on average, according to this. The automatic teller machine, which is one of the proxies for financial inclusion, has a mean of 28.75 per cent and a standard deviation of 28.8 per cent, indicating that the standard deviation and the mean do not differ significantly. The mean of institutional quality is 39.1%, with a standard deviation of 23.2 per cent. The average rate of financial inclusion is 40.3 per cent, with a standard deviation of 21.0 per cent. This interpretation approach can be used on the remainder of the variables in the dataset as well. The values of all the variables in the dataset are also measured by the minimum and maximum.

Correlation Analysis

In table 3 (refer appendix), a correlation matrix was created to determine the statistical relationship between the dependent variable and the independent factors. Strongly correlated variables are strongly correlated, whereas weakly correlated variables are rarely correlated or

are simply not related to each other in the model. According to table 3 in appendix, the HDI has a positive relationship with financial inclusion, which means that as Human Development rises, financial inclusion rises by 0.185 per cent, however the relationship is modest. There is also a skewed link between IQ and HDI, which suggests that as educational attainment declines, so does institutional quality, reducing financial inclusion in the process.

The results thus indicate that, there is no collinearity issues among the explanatory variables and therefore no perfect or near perfect collinearity is observed. In that respect, no variable could be drop from the model since the model has no multi-collinearity problems.

Diagnostic Test

The assumption that the residuals are distributed with equal variance at each level of the predictor variable is one of the fundamental tenets of linear regression. Homoscedasticity is the name for this presumption. When it is broken, the findings of a regression are no longer trustworthy. According to the Breusch-pagan test for heteroskedasticity, the null hypothesis should have a constant variance, this means that when p-values are higher than 0.05, then we fail to reject the null hypothesis that, there is no constant variance and therefore no heteroskedasticity. On the other hand, when p-values fall below 0.05 or equals 0.05, it means there is no constant variance and as such there is heteroskedasticity in the model. Heteroskedasticity, Hausman, and Lagrangian Multiplier test conducted indicated that there is constant variance, and random effect in the model.

Inferential Statistics

Table 4: Dynamic two-step systems GMM estimation for financial inclusion and Human Development in Africa, does institutional quality matter

	(1)	(2)	(3)
Variable	Human	Human	Financial
L.Human	0.979***	0.960***	
	(24.39)	(32.25)	
Human			0.00341
			(0.23)
Institute	77.25*	0	0.267***
	(2.17)	(.)	(5.16)
Financial	0.338	0.369*	
	(1.26)	(2.02)	
Atmperadult	0.0477	0.143**	-0.0836***
	(0.60)	(3.06)	(-5.87)
Cbranches	-0.0617	-0.0491	0.0434**
	(-1.21)	(-1.51)	(3.01)

Borrowers	-0.0906	-0.103**	0.0426***
	(-1.95)	(-3.20)	(3.39)
Depositors	0.0551	-0.0256	0.0108
	(1.23)	(-0.98)	(1.32)
Ownership	-0.0140	0.0599	-0.0207
	(-0.43)	(1.32)	(-1.53)
Exports	0.0781	-0.0784	0.0591**
	(1.39)	(-1.72)	(3.01)
Foreign	-0.116	-0.129*	0.0624***
	(-1.87)	(-2.40)	(4.35)
VO	-0.0869	-0.0490	0.0757***
	(-1.07)	(-0.89)	(3.62)
RL	0.180	-0.0205	-0.164*
	(0.85)	(-0.14)	(-2.37)
RQ	-0.653	-0.539**	0.459***
	(-1.34)	(-2.61)	(5.76)
PS	-0.148	0.00721	0.0855*
	(-1.15)	(0.10)	(2.48)
GE	0.473	0.671***	-0.406***
	(1.18)	(3.42)	(-5.40)
CC	-77.46*	-0.444*	0
	(-2.17)	(-1.96)	(.)
L.financial			0.825***
			(22.85)
_cons	0.464	0.338	-0.755***
	(0.76)	(1.42)	(-4.67)
N	329	329	330
AR2	0.320	0.205	0.670
Sargan	0.612	0.971	0.921
Hansen	0.313	0.257	0.332
No. of Instr	24	25	24
No. of Group	42	42	42
Prob>chi2	0.000	0.000	0.000

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

From the results in table 4, the lag of human development has a positive relationship with current value of human development index; the past behaviour of human development index has the propensity to replicate the same pattern or behaviour presently or in the future if some policies are not implemented by the government to change the trend. Government therefore need to constantly improve upon the human development indicators such as health, education and GDP per capita. According to the findings, institutional quality has a positive

relationship with the human development index, which means that when there is effective rule of law, effective corruption control, and voice and accountability, it will lead to effective allocation of government resources, such as education spending, improved health systems, and per capita income, all of which will result in an increase in human development. Idrissa, Ngoah, and Henri (2020) found a link between institutional quality and human development in Africa in a comparable study. This finding differs from that of Stephen Akpo (2016), who conducted similar research and concluded that there is a negative relationship between institutional quality and human development in Africa; the study therefore recommended that policies such as economic and social development be implemented.

Table 4 models 2, shows that the lag of human development is significant, suggesting that the present value of financial inclusion has a historical connection with the lagged value and the future value of human development index. Financial inclusion has a positive association with human development, which indicates that more financial inclusion reduces poverty and aids in the reduction of income inequalities, hence increasing living standards and contributing to human development. These findings are in line with those of Raichoudhury (2016) who performed study on financial inclusion and human development and determined that the two are positively associated. As a result, countries with high levels of financial inclusion also have high levels of human development. This suggests that there is a strong positive association between financial inclusion and human development, and that African countries should spend more in financial inclusion in order to achieve higher levels of human development. The results in table 4, model 3 also shows the estimates of the impact of institutional quality on financial inclusion in Africa. Financial inclusion is the dependent variable and its lag is positively significant. This means that the current financial inclusion depends on the past lag of financial inclusion as well as the future. From the results in table 4, institutional quality has a positive relationship with financial indicating that, institutional quality promotes financial inclusion in Africa.

The findings are in line with those of Teutio, Kamdjoug, and Gueyie (2021) who looked at the relationship between institutional quality and financial inclusion and found that institutional quality had a beneficial impact on financial inclusion. Commercial bank branches, commercial bank borrowers, export of products and services (natural resources), and foreign direct investment all have a favourable link with financial inclusion, according to these findings. The ability to acquire credit due to low interest rates and finance costs, as well as the proximity of banks to customers, all contribute significantly to financial inclusion. In Africa, the lack of violence, political stability, and regulatory quality aided financial inclusion. Financial inclusion, on the other hand, had a negative association with the rule of law and government effectiveness. This suggests that, in order for financial inclusion to be more effective in Africa, policymakers

must pay close attention to the rule of law and governance resources to ensure that financial regulations are adequately followed or observed, resulting in inclusion. However, the findings of Chinoda and Kwenda (2019) who conducted similar investigations into the impact of institutional quality on financial inclusion in Nigeria and determined that institution quality had no substantial impact on financial inclusion, are not compatible with the findings of the previous study.

Interaction Effect of Institutional Quality on
Financial Inclusion and Human Development in Africa

An interaction effect between the variables in the model was used to assess the moderating effect of institutional quality on financial inclusion and human development in Africa. According to the regression results in model (2) Table 5 (refer appendinx), financial inclusion, rule of law, and regulatory quality all have a favourable effect on human development. Financial inclusion, regulatory quality, and political stability all have a favourable impact on human development in Africa, according to model (3). This indicates that, all things being equal, the government should continue to improve on these three variables in order for human development to improve further. Financial inclusion, corruption control, and institutional quality all have a combined positive effect on human development in Africa, according to model (5). Finally, institutional quality was interacted with financial inclusion to determine their combined effect on human development, and the results in table 5 showed that the two variables have a positive effect on human development in Africa. These findings are consistent with those of Chinoda and Kwenda (2019) who conducted similar research into the role of institutional quality in financial inclusion and concluded that the findings were positively significant, implying a positive relationship between institutional quality and financial inclusion. The findings also demonstrate that political stability and regulatory quality are ideal examples of how to improve governance.

CONCLUSION, POLICY IMPLICATIONS AND, RECOMMENDATIONS

The study examined financial inclusion and human development in Africa, moderating institutional quality and using secondary data with a two-step approach GMM, a dynamic panel data estimator, to cover 42 African countries. Four significant conclusions were obtained from the research. Institutional quality plays a significant influence in human development in Africa, and policymakers should devote substantial resources to strengthening institutions in order to promote better levels of human development on the continent. It was also discovered that financial inclusion in Africa has a good impact on human development. Without the backing of cash and resources, no human resource can grow effectively. African leaders should

concentrate on establishing efficient financial institutions and devising laws that will enable individuals and households to access and use quality financial services. Institutional quality has a positive relationship with financial inclusion, for the financial sector to work efficiently, government institutions and other Non-Governmental Organizations (NGOs) must be up to date to make sure there is financial discipline in Africa. Financial organizations are all governed by rules and regulations and if these regulations fail to work at every material moment, financial inclusion will not be efficient, access to and usage of quality financial services will be impaired. Finally, the findings demonstrated that institutional quality, financial inclusion, and human development have a significant synergy. The findings reveal a favourable link between the three variables.

Future researchers will have better findings if they concentrate on nation-level studies employing time series analysis or industry level data for analysis. This study concentrated more on cross-country panel data without paying crucial attention to country specific analysis. More study is needed on the impact of other structural reforms on financial inclusion, including how some people manage bank assets, the barriers to entrance for foreign banks, and the level of independence of stakeholders or supervisory agencies. Last but not least, future research should focus on the direction of causality between financial inclusion and the explanatory variables.

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APPENDICES

Table 3: Matrix of correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) hdi	1.000															
(2) fi	0.185	1.000														
(3) iq	0.125	0.807	1.000													
(4) atmp	0.191	-0.077	-0.131	1.000												
(5) cbbra	-0.118	-0.197	-0.136	0.295	1.000											
(6) borrow	-0.057	-0.008	-0.069	0.116	-0.115	1.000										
(7) deposit	-0.011	0.189	0.123	-0.035	-0.095	-0.040	1.000									
(8) acctown	-0.184	-0.069	-0.082	0.214	0.452	-0.064	0.130	1.000								
(9) voice	0.050	-0.135	-0.103	-0.053	-0.304	-0.017	0.027	-0.219	1.000							
(10) rule	0.184	0.840	0.891	-0.093	-0.132	-0.040	0.188	-0.062	-0.068	1.000						
(11) reg	0.166	0.790	0.818	-0.111	-0.178	0.017	0.243	-0.074	-0.046	0.912	1.000					
(12) politic	0.062	0.675	0.737	0.011	0.038	0.042	0.205	0.112	-0.259	0.739	0.607	1.000				
(13) gov	0.186	0.785	0.852	-0.139	-0.150	0.000	0.221	-0.060	-0.076	0.926	0.919	0.704	1.000			
(14) coc	0.125	0.807	1.000	-0.131	-0.136	-0.069	0.123	-0.082	-0.103	0.890	0.818	0.737	0.851	1.000		
(15) export	-0.101	0.119	0.168	0.051	0.218	0.072	0.026	0.217	-0.318	0.107	0.038	0.362	0.131	0.167	1.000	
(16) fdi	-0.162	0.067	0.081	-0.154	-0.024	-0.107	-0.003	0.034	-0.056	0.016	-0.039	0.114	0.003	0.081	0.245	1.000

Table 5: the Moderation effect of institutional quality on financial inclusion and human development in Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLE	**HUMAN**	**HUMAN**	**HUMAN**	**HUMAN**	**HUMAN**	**HUMAN**	**HUMAN**
L.human	1.060***	0.652***	0.650***	0.756***	0.936***	0.966***	0.891***
	(11.81)	(4.46)	(6.55)	(4.61)	(7.32)	(14.48)	(23.66)
financial	1.811	0	5.615**	10.99*	-15.63**	-5.330***	-0.473
	(0.68)	(.)	(3.05)	(2.33)	(-2.63)	(-4.26)	(-1.49)
institute	-3.546***	-1.822	-2.426***	-3.458*	-9.795	0	-4.322***
	(-4.54)	(-1.95)	(-3.94)	(-2.40)	(-0.88)	(.)	(-9.22)
atmperadult	-0.442*	0.104	-0.0889	-0.148	-0.291	-0.0153	0.365***
	(-2.07)	(0.71)	(-0.30)	(-0.47)	(-0.70)	(-0.12)	(3.80)
cbranches	-0.219	-0.204	-0.112	0.0462	0.0114	-0.360***	-0.361***
	(-1.47)	(-1.37)	(-1.08)	(0.26)	(0.04)	(-5.98)	(-7.41)
borrowers	-0.480***	0.217*	0.133	0.212	0.113	0.0266	-0.0120
	(-4.84)	(2.03)	(0.82)	(1.27)	(0.86)	(0.69)	(-0.52)
depositors	0.630**	0.102	0.361	0.218	0.222	0.404***	0.0382
	(2.71)	(1.42)	(1.37)	(0.57)	(0.38)	(5.04)	(0.51)
ownership	0.139	-0.241*	-0.346*	-0.0689	-0.186	-0.0674	0.0215
	(0.95)	(-2.14)	(-2.35)	(-0.34)	(-1.33)	(-1.27)	(0.39)
exports	1.182***	-0.0868	-0.720***	-0.720***	0.208	0.298**	-0.105*
	(7.31)	(-0.81)	(-4.32)	(-6.20)	(0.84)	(2.64)	(-2.54)
foreign	-0.858***	-0.483*	-0.218	-0.665*	-0.916*	-0.641***	-0.528***
	(-5.48)	(-2.15)	(-1.13)	(-2.19)	(-2.36)	(-7.44)	(-8.81)
VO	5.985***	-0.486	-0.853**	0.0623	-1.222***	-1.583***	-0.802***
	(3.51)	(-1.73)	(-2.68)	(0.10)	(-3.67)	(-11.37)	(-9.59)
RQ	0.355	0	-0.0424	-2.775	-2.723	-2.824***	-3.632***
	(0.30)	(.)	(-0.02)	(-1.81)	(-1.45)	(-3.87)	(-7.20)

PS	-1.563**	-0.750	8.031**	4.326	-1.789***	-2.174***	-1.218***
	(-2.70)	(-1.51)	(2.65)	(1.23)	(-3.85)	(-10.19)	(-7.53)
GE	-1.789	0.959	-0.417	-9.893*	-20.55	0.236	2.244***
	(-1.89)	(1.15)	(-0.38)	(-2.01)	(-1.65)	(0.37)	(5.95)
RL	11.60***	0	2.275**	5.668*	5.435***	3.888***	2.179***
	(5.89)	(.)	(2.91)	(2.36)	(3.93)	(8.97)	(6.16)
FI*VO*RL	1.164***						
	(3.50)						
FI*RL*RQ		0.206*					
		(2.56)					
FI*RQ*PS			0.766***				
			(3.62)				
FI*PS*GE				0.302			
				(1.32)			
FI*GE*CC					-0.841		
					(-1.14)		
FI*IQ						0	0.686***
						(.)	(5.73)
FI*CC*IQ						0.172***	
						(4.26)	
_cons	0	10.22*	0	0	65.18*	21.17***	13.72***
	(.)	(2.20)	(.)	(.)	(2.56)	(11.96)	(8.80)
N	329	329	329	329	329	329	329
AR2	0.25	0.62	0.68	0.470	1.195	0.22	0.735
Sargan	0.78	0.911	0.92	0.88	0.802	0.818	0.79
Hansen	0.37	0.71	0.257	0.43	0.116	0.11	0.61
No. of Instr	24	24	24	24	24	24	24
No. of Group	42	42	42	42	42	42	42
Prob>Chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000

t statistics in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$