

# Influence of Institutional Quality on the Financial Development and Economic Growth Nexus in Sub-Saharan African Countries

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## KEY WORDS

Institutional Quality, Financial Development, Economic Growth, System GMM, Sub-Saharan Africa

## ABSTRACT

In Sub Saharan Africa, the struggle for sustainable economic prosperity still is the challenge of converting financial expansion into sustainable economic prosperity. The banking sector has been expanded, with financial activity following suit, in many countries in the region, but the benefits of growth are not always realized because of poor governance, corruption and weak legal systems. The above implies that financial development is not an isolated process, but also involves the effectiveness of the institutional environment. This study's analysis was based on the augmented Mankiw-Romer-Weil model where the human capital and financial factors were added to the production function. The study employed a 2-step System Generalized Method of Moments (GMM) approach to overcome the endogeneity and unobserved heterogeneity issues faced by twenty Sub-Saharan African countries during the period 2007–2024. To examine the moderating role of institutional quality on finance-growth relationship, multiplicative interaction terms were included. The robust approach to estimating the inequalities was realized by using Random Effects and thorough diagnostic analysis (Bond and Hansen tests) and complex econometric packages were used to estimate the inequalities. The results showed mixed relationship between the variables and weak correlation between financial development indicators, namely FIA (−0.0838), FIE (0.1778) and FMD (−0.0915) with real GDP growth. The Bond (2002) test confirmed that the lagged dependent variable (LDV) had different FE (0.4279) and OLS (−0.6244) estimates, thus supporting the use of the System GMM estimator. The cross-sectional dependence tests were significant, with Pesaran FE and Friedman FE giving a  $p=0.0000$  and  $0.0000$  respectively. The results of system GMM revealed that FIA had a negative effect on growth (−0.6329;  $p<0.05$ ) and institutional quality and FIA had a positive effect on growth (0.2182;  $p<0.01$ ). Model validation was done by diagnostic tests and was validated for model validity with AR(2) (0.074) and Hansen (0.165). The study found that development of financial services without an accompanying strengthening of governance does not seem to have any economic pay-off. Thus, a key priority for policy makers is to bring about institutional changes, particularly in the area of regulatory integrity and corruption control, to enable financial systems to play a role in effectively channeling capital into productive investments.

## 1. Introduction

The relationship between financial development and institutional quality is crucial for speeding up the economic growth in both developed and developing economies. Financial Development: An increase in the capacity of financial institutions, markets and instruments to mobilize savings, allocate investment and direct capital efficiently within an economy. Institutional quality is a component of the effectiveness of governance structures, rule of law, regulatory quality, accountability and corruption control that influence economic activities. They have a conducive impact on sustainable economic growth, productivity and welfare outcomes when they work together in the presence of strong institutions.

Financial development is a key driver to economic growth, as it enhances access to credit, promotes investment and facilitates entrepreneurial activities. Well-functioning financial systems cut transaction costs, activate savings and direct resources to productive areas of the economy. Financial systems are also important players in promoting technological innovation and capital accumulation, both of which are key factors to economic growth, according to Ross Levine and colleagues (Beck et al., 2014). In a similar finding, Iqbal and Zahid (2020) concluded that financial development boosts foreign direct investments flow and boosts the



productivity of industries which leads to economic development. Higher financial services access also helps to foster inclusion and lower inequality in developing economies, which is also beneficial to the economic participation of the marginalized population (Asongu et al., 2020).

But, if financial development is to bring about any growth without good institutional quality, it will not do so. Poorly functioning institutions with corruption, incoherent policies, weak property rights and weak regulations can have a negative impact on the efficiency of financial institutions. The importance of institutions as determinants of long-term economic growth was emphasized by Rodrik et al. (2004) who suggested that institutions affect the incentives for investment and innovation. Good institutions offer investors legal protection, guarantee contractual enforcement and ensure macroeconomic stability, boosting investors' confidence in financial systems. Acemoglu and Robinson (2019) also stressed that inclusive political and economic institutions promote innovation, accountability and economic participation, which are all essential for economic growth.

This relationship between financial development and institutional quality gains in importance because institutions are important in the process of enhancing the contribution of financial systems to the economic performance. Based on their study of the West African countries, Olaniyi and Oladeji (2021) established that the effect of finance on growth is moderated by institutional quality in these countries. Their research found that countries with good regulatory institutions and governance structures reap greater benefits from financial development in terms of growth. Likewise, Olaniyi (2022) has found that institutional quality boosts the linkage between financial systems and Southern African countries' economic growth. This indicates that effective institutions have a positive effect on the allocation of financial resources and help to overcome inefficiencies in the banking and investment sector.

It is also supported by empirical evidence from emerging and developing economies. For emerging economies, Agyapong and Abaidoo (2022) showed that good institutional quality increases the effectiveness of financial development, as it contains financial risks and increases transparency. Similarly, Fengju & Wubishet (2024) found that financial development has an important positive effect on economic growth, provided it is appropriately accompanied by good institutions in East Africa. In poorly institutionalized economies, financial systems may be susceptible to corruption, capital flight, poor lending practices, and be unable to contribute significantly to growth.

In Sub-Saharan countries, the relationship between finance and institutions is especially significant due to the governance challenges and lack of financial system in many of them. Effiong (2015) noted that financial development is more effective in enhancing economic development in stable and transparent institutional structures. In the same vein, Kemoe and Lartey (2022) reported that the quality of institutions has an impact on the impact of public debt on growth in Sub-Saharan Africa. Well-functioning institutions guarantee good financial management, use of public resources and accountability in economic governance.

A higher institutional quality also increases investors' confidence and promotes long-term investment. Investors are more inclined to invest in economies with robust respect of the rule of law and proper financial regulations. The authors, Sani and Yahaya, (2021) stressed that, financial interventions were not enough to improve the economic performance if the institutional quality is poor and thus, poverty remains. Efficient institutions, in turn, provide a conducive climate for the development of the economy and for the process of allocating resources to productive investments and jobs.

Moreover, financial development and institutional quality are two complementary factors that foster innovation, infrastructure development and human capital development. Akinola and Akinrinola (2023) concluded that good fiscal management and infrastructural development positively affect the growth of the economy in Nigeria. Good governance in financial institutions can enable them to lend for industrial growth and education as well as infrastructure. This is in line with the endogenous growth theory by N. Gregory Mankiw and other economists

that highlighted the importance of capital accumulation, human resources and institutional efficiency in achieving long term economic growth (Mankiw et al., 1992).

This study is motivated by the fact that despite the high financial development and financial sector reforms in many Sub-Saharan African countries, the economic problems still persist. Financial systems in the region have grown in size and diversity with the liberalization of the banking sector, digital finance and enhanced access to financing, but growth results have been uneven and relatively low. The implication is that the development of financial markets is not enough to create sustainable growth unless there are effective financial institutions. Previous research has revealed that the quality of institutions is an important determinant of the efficiency with which financial resources are allocated in an economy (Rodrik et al., 2004). In many African nations, the lack of governance, corruption, political instability, and weak regulatory frameworks remain obstacles to turning financial systems into productive economic results.

Moreover, the results of previous empirical research have been inconsistent on the finance-growth relationship in developing countries. Although financial systems have been found by Beck et al. (2014) to have a positive effect on growth, Olaniyi and Oladeji (2021) claimed that the quality of institutions is a key moderator of the relationship between financial systems and growth in West Africa. Likewise, Fengju and Wubishet (2024) determined that financial development helps more effectively drive growth in East Africa, when it is underpinned by robust institutions. But there is still sparse and incomplete empirical evidence specifically on the joint role of institutional quality and financial development on Sub-Saharan African countries. The gap thus calls for the present study.

### **1.1 Research Question**

Does the interaction between financial development and institutional quality lead to faster growth in Sub-Saharan African countries?

### **1.2 Research Objective**

To evaluate the interaction effects between financial development and institutional quality on economic growth in Sub-Saharan African countries.

### **1.3 Research Hypothesis**

Interaction between financial development and institutional quality does not have a significant effect on economic growth in Sub-Saharan African countries.

## **2. Method**

### **2.1 Theoretical Framework**

Mankiw-Romer-Weil (1992) model is an improved version of the Solow-Swan model which focuses on explaining the cross-country differences in income. It assumes that the returns to scale for production are constant, but a key innovation of the model is that it explicitly accounts for human capital along with physical capital and "effective labor" in addition to physical labor. This shift is of particular importance because it implies that small investments in education or in the training of skills can yield large gains in a country's output per worker.

In the model, production is determined by the capital-labor ratio of physical capital and human capital. Human capital is viewed as a separate input into production, so that the model also acknowledges that human productivity will vary with the group of workers' knowledge and skills, as well as the equipment available. This particular study applies the MRW approach to examine the relationship between financial development and economic growth. The incorporation of financial variables and other control variables in the production function gives a strong tool for the understanding of the role of market efficiency and policy interventions in promoting long-term wealth. This method is based on endogenous mechanisms factors that are responsible for the economic system's sustainable expansion.

## 2.2 Model Specification

The study models are specified using the two-step System Generalized Method of Moments (SGMM) estimation procedure, which aims to capture the respective specific objects of the study. Also, to conduct robustness checks, the study uses the Random Effects (RE) model and validates the estimation of the two-step system GMM model. Further, we determine if the interaction between financial development and institutional quality, and the economic growth of SSA countries, can help countries in the region grow faster. To proceed, the study specifies a panel data model in its implicit form as follows:

$$RGDPG = f (FIA, FIE, FMD, INSQIDX, INSQIDX*FIA, INSQIDX*FIE, INSQIDX*FMD) \quad (1)$$

To facilitate estimation, the implicit interaction of institutional quality and financial development model in equation (1) is specified explicitly as a dynamic panel data model as follows:

$$RGDPG_{it} = \alpha_0 + \beta_1 RGDPG_{it-1} + \beta_2 FIA_{it} + \beta_3 FIE_{it} + \beta_4 FMD_{it} + \beta_5 INSQIDX_{it} + \beta_6 INSQIDX * FIA_{it} + \beta_7 INSQIDX * FIE_{it} + \beta_8 INSQIDX * FMD_{it} + \pi_i + \xi_t + \varepsilon_{i,t} \quad (2)$$

Where  $\beta_1$  to  $\beta_8$  are the parameter estimates. Here,  $INSQIDX * FIA_{it}$  and  $INSQIDX * FIE_{it}$  and  $INSQIDX * FMD_{it}$  are the interaction terms used to capture the interaction between institutional quality and financial development indicators. This interaction term will enable this study to examine how institutional quality moderates the effect of financial development indicators on economic growth in Sub-Saharan Africa, as stated in the specific objective of this study. Every other variable is as defined earlier.

The interaction model is included because both theory and empirical work emphasize that the effect of financial development on real growth is conditional on institutional quality: institutions (rule of law, regulatory quality, control of corruption) either amplify or weaken how access, efficiency and depth translate into productive investment and technology adoption (Rodrik, Subramanian & Trebbi, 2004; Fernández et al., 2013). Operationally, multiplicative terms  $INSQIDX*FIA$ ,  $INSQIDX*FIE$  and  $INSQIDX*FMD$  allow the coefficient on each financial indicator to vary with institutional quality, so the interpretation becomes the marginal effect of finance at different institutional levels, an approach used in several recent SSA and cross-country studies testing conditional finance-growth links (Effiong, 2015; Abaidoo, 2022) and in applied moderation analyses (Hunjra et al., 2020). Empirical precedents show mixed conditional effects in Africa (some studies find finance only raises growth when institutions are strong; others emphasize weak institutions blunt finance-to-growth transmission), which justifies explicitly estimating interaction terms rather than linear additions (Effiong, 2015; Fengju, 2024). Methodologically, interacting continuous variables in a log-linear dynamic panel requires care in centering/scaling and in reporting conditional marginal effects (Wooldridge, 2010; Greene, 2012), and the estimated dynamic GMM framework (Arellano & Bond, 1991) remains appropriate to control persistence, country fixed effects and endogeneity of both finance and institutional measures while allowing consistent estimation of the interaction coefficients.

## 2.3 Definition of the Variables

There are a number of metrics that are used to analyze a country's health and potential in the field of economics. Real GDP growth is the most important indicator of economic growth, as it shows the actual growth of real GDP adjusted for inflation. The Human Development Index (HDI) is a broader measure than GDP, because it includes health, education and income. A high HDI score indicates a more creative and productive workforce, which is crucial for the future

success and prosperity. The supportive investment and institutional frameworks further contribute to this growth. Foreign Direct Investment (FDI) brings foreign capital and technology, generates employment and improves the industrial capacity. Such investments are best developed within a high-level Financial Development Index, which measures the depth, reach and efficiency of a country's financial institutions such as banks and stock markets. An advanced financial system leads to effective capital mobilization and allocation. The Institutional Quality Index (INSQIDX) is a measure of the underlying governance of an economy. This composite indicator measures key components such as the rule of law, regulatory quality and the control of corruption. Effective institutions are critical for reform to be effective. These indicators can then be combined and compared across countries and borders, and used to evaluate the impact of governance, funding and human capital on performance.

## **2.4 Estimation Technique and Procedure**

The method used in this study is a technique called the dynamic panel System Generalized Method of Moments (SGMM) to estimate unknown parameters in the econometric model. This approach is particularly popular due to its relatively low data demands and low complexity. In contrast to the standard estimation methods, SGMM does not need a full statistical specification, but relies on moment restrictions to obtain estimates that are reliable.

One of the main features of the System GMM estimator is the ability to correct for endogeneity and omitted variable bias and unobserved panel heterogeneity. These problems often cause the use of pooled OLS and first difference GMM estimators to be invalid. SGMM offers a solid statistical framework for analyzing time-varying data that improves the precision and finite sample bias. It is checked for appropriateness using the Bond (2002) test for all the equations given. The Random Effects (RE) model is an important robustness check to confirm these results. Given the static nature of the benchmark, a comparison of the SGMM results will enable identification of the economic relationships that are observed and not solely a result of particular model assumptions and the proliferation of instruments. This two-way approach makes sure that the recommendations for policy action for the economies of Sub-Saharan Africa are reliable and stable.

## **2.5 Model Justification**

To guarantee the accuracy and reliability of the estimates, the two-step system known as Generalized Method of Moments (GMM) has been used in this research. The use of lagged levels and differences as instruments is an effective solution to the endogeneity and multicollinearity problems. System GMM is based on orthogonal deviations to minimize the loss of data and keep the observations even in the event of gaps. By adopting a dual equation structure, the instrument relevance is strengthened and weak-instrument bias and heteroscedasticity are reduced. Sargan and Hansen over-identification tests can test the model, but the size of the samples can be a problem with the serial correlation test. Finally, this approach delivers effective and unbiased results, thanks to an advanced internal instrumentation system.

## **2.6 Data Diagnostics and Model Selection**

The researchers undertook a number of pre-estimation procedures to ensure the statistical rigour of analysis. A descriptive statistic was used to provide a basic understanding of the data with a summary of the central tendency and dispersion of all variables. In order not to have estimation bias, a multicollinearity test was conducted to check the relationship between the regressors, where there was no excessive overlap between the independent variables. To address the possibility of interdependencies amongst the chosen countries, the Pesaran test was applied to test for cross-sectional dependence. Finally, the Bond test was used as an important decision rule which compared the different estimation results to decide on the choice of system GMM estimator.

### 3.7 Diagnostic Checks

The Hansen test assesses instrument validity and over identifying restrictions. If heteroscedastic matrices are used, the null hypothesis is that of instrument validity. The proliferation of instruments can cause checks to be weaker, and it is important to have a limited number of instruments. The Sargan test is used to detect over identification problems along with the Hansen test. The significance is determined by a chi-squared distribution: A rejection means that errors in the model or specification of the instruments may exist. Validity of instruments and over-identification restrictions were evaluated in this study using a Hansen test. Arellano and Bond (1991) suggest that the first order serial autocorrelation (AR(1)) of the residuals is required for GMM estimators, but the second order (AR(2)) is not. Testing these hypotheses is used to test the consistency of the system GMM estimator. If there were any signs of AR(2) then there would be problems with the estimation which would make it unreliable. The study used the Arellano and Bond (1991) to check the consistency of the system GMM estimator.

### 2.8 Test of Research Hypotheses and Decision Rules

The study also tests the research hypothesis, making use of the t-test, which is used to determine the statistical significance of the coefficient of each variable. The t-test is the ratio of an estimated coefficient to its standard error and is used to test the hypothesis that a coefficient is zero. The t-statistic test tells us if there is an existence of significant relationship between the dependent variable and the independent variables. The absolute calculated value t-value of each coefficient is compared with the critical value. Then, the null hypothesis is rejected if the calculated value of t is greater than the tabulated value of t ( $t_{cal} > t_{tab}$ ) with an n-k degree of freedom at the chosen level of significance, and accepted if the reverse is the case. And for this study, the chosen level of significance is 5%.

*Decision rule:* If the calculated t-value > tabulated t-value at the given level of significance, we do not accept the null hypothesis; rather, we accept the alternative hypothesis. If the calculated t-value < tabulated t-value at the given level of significance, we accept the null hypothesis and reject the alternative hypothesis.

### 2.9 Data Origins and Analytical Framework

The study utilized annual observations spanning from 2007 to 2024 for twenty selected Sub-Saharan African countries. This eighteen-year timeframe was established based on the availability of consistent data across the region. The researcher gathered information from several prominent international databases, including the World Development Indicators, World Governance Indicators, and the International Monetary Fund. Additionally, figures for human development were retrieved from the Human Development Report, while labor-related data originated from the International Labour Organization.

The variables analyzed included inflation-adjusted economic growth, net investment inflows, and composite indices measuring governance and human well-being. Financial development was captured through metrics focusing on the performance and inclusiveness of institutions and markets. To conduct the formal analysis, the researcher employed Stata version 15 and E-views 10. These software packages provided the necessary tools for complex estimations and proved effective in managing the dataset's specific requirements.

## 3. Results

Table 1 shows weak correlations between real GDP growth (RGDPG) and the explanatory variables, indicating limited direct linear relationships. Financial institution efficiency (FIE) has a weak positive association with RGDPG (0.1778), while financial institution access (FIA), financial market development (FMD), and institutional quality index (INSQIDX) exhibit weak negative relationships. Strong positive correlations exist between FIA

and its interaction term (0.9628) and between INSQIDX and INSQID~E (0.9429), suggesting possible multicollinearity concerns.

**Table 1: Correlation Matrix for the Model**

VARIABLES	RGDPG	FIA	FIE	FMD	INSQIDX	INSQID~A	INSQID~E	INSQIDX~D
RGDPG	1.0000							
FIA	-0.0838	1.0000						
FIE	0.1778	-0.0991	1.0000					
FMD	-0.0915	0.0619	-0.4593	1.0000				
INSQIDX	-0.0891	0.5993	0.0613	0.1301	1.0000			
INSQID~A	-0.0681	0.9628	-0.0685	0.0426	0.6978	1.0000		
INSQID~E	-0.0589	0.5360	0.0831	0.1430	0.9429	0.6250	1.0000	
INSQIDX~D	-0.0782	0.3061	0.0522	0.1914	0.5728	0.3618	0.4648	1.0000

Table 2 presents the Bond (2002) test used to determine the appropriate GMM estimator. The lagged dependent variable coefficient under Fixed Effects (0.4278531) is higher than the First Difference estimate (0.2468767) but lower than the OLS estimate (-0.6243794), satisfying the expected condition for system GMM suitability. The significant coefficients at 1% level indicate reliability of the dynamic specification, while the second difference result (0.3430793) further supports estimator consistency.

**Table 2: Bond (2002) Test Results for Choice of GMM Estimator**

Bond 3	Rgdpg L1.
FE	0.4278531***
OLS	-0.6243794***
FIRST DIFF	0.2468767
SECOND DIFF	0.3430793

Source: Author, Stata. 15.0

Note: Significance (\*=10%, \*\*=5% and \*\*\*=1% respectively).

Table 3 presents the cross-sectional dependence test results using Pesaran, Friedman, and Frees' statistics under fixed effects (fe) and random effects (re) models. The Pesaran and Friedman tests are statistically significant at 1% level, indicating the presence of cross-sectional dependence among the panel units. Although the Frees' test is insignificant, the overall decision confirms cross-sectional dependence (CD), suggesting interdependence across cross-sectional observations in the model.

**Table 3: Summary Outcome of Cross-Sectional Dependence Test**

Pesaran - fe	17.750 (0.0000)
Pesaran - re	18.672 (0.0000)
Friedman - fe	81.373 (0.0000)
Friedman - re	85.639 (0.0000)
Frees' - fe	1.213 (0.1996)
Frees' - re	1.136 (0.1996)
<b>DECISION</b>	<b>CD</b>

### 3.1. System GMM Regression Results for the Interaction between Financial Development and Institutional Quality on Economic Growth in SSA.

Recall that the last specific objective also seeks to determine if institutional quality is significantly moderating the effects of financial development on economic growth in Sub-Saharan African countries. To achieve these objectives, the study estimated the underlying model using the system GMM estimator. The results are presented in Table 4, and note that the key interest here is on the moderating role of institutional quality and financial development on economic growth in SSA countries.

**Table 4: Result for Objective Three (dependent variable =RGDPG)**

VARIABLES	SYSTEM GMM ESTIMATOR	RANDOM EFFECTS ESTIMATOR
<b>RGDPG LI.</b>	0.0547526 (0.1445913)	0.0684295 (0.0884255)
<b>FIA</b>	-0.6328946** (0.2797942)	-0.1373319** (0.0621564)
<b>FIE</b>	0.4653512 (0.9629492)	0.2968091*** (0.0947424)
<b>FMD</b>	0.1441234 (0.2238598)	0.0119398 (0.0182203)
<b>INSQIDX</b>	-6.203371 (5.793869)	-0.8565616** (0.3773552)
<b>INSQIDX*FIA</b>	0.2181654*** (0.0692843)	0.0449896** (0.0184879)
<b>INSQIDX*FIE</b>	0.8710874 (1.074126)	0.0839556 (0.0528669)
<b>INSQIDX*FMD</b>	0.2099692 (0.2152229)	-0.0012534 (0.0095453)
<b>Constant</b>	465.5299** (203.9024)	2.693086*** (0.7494303)
Observations	340	340
Number of id	20	20
No. of Instrument	17	sigma_u = 0
AR1	0.028	sigma_e = 4.0219662
AR2	0.074	rho = 0
Hansen	0.165	

**Source:** Author, Stata 15.

**Note:** Estimated coefficients are reported while the **corrected Std. Err.** are in parentheses.

\* p < 0.10. \*\* p < 0.05. \*\*\* p < 0.01.

The results in Table 4 indicate a positive but statistically insignificant coefficient on the lagged dependent variable with a value of 0.055, suggesting that past growth exerts a modest inertia on current real GDP growth in Sub-Saharan Africa (SSA) but does not strongly predict future performance. This finding aligns with Haddad et al. (2022), who report that growth persistence in SSA is weaker than in other regions, reflecting the continent’s exposure to external shocks and structural vulnerabilities. Conversely, Gechert et al (2021) find that lagged growth has a negative or negligible effect once macro-shocks are controlled for, indicating that cyclical downturns can override any positive carry-over from previous periods.

The coefficient of financial institution access, proxied by the number of bank branches per 100,000 adults, is negative and significant (-0.6329 at 5%), suggesting that increased physical banking presence is associated with a short-run slowdown in GDP growth. This inverse relationship may reflect rising operational costs, branch duplication, or inefficiencies in credit allocation when expansion outpaces effective supervision. A comparable finding by Gajurel (2022) noted that branch proliferation can yield welfare gains but not necessarily immediate GDP acceleration, especially when deposit mobilization remains weak. Conversely, Beck et al (2014) documented positive growth effects in economies where branch expansion was accompanied by digitalization and credit diversification, implying that the present result may mirror structural constraints within SSA’s banking networks.

Financial institution efficiency, measured by the net interest margin, shows a positive coefficient (0.4654) but is statistically insignificant. This indicates that while bank profitability may support economic activity, the effect is not robust across the sampled countries. The finding partly supports Muhammed et al (2026), who reported that higher net interest margins can signal efficient intermediation conducive to growth, yet aligns with IMF (2023) observations that high margins may equally reflect monopolistic structures and credit rationing.

The absence of statistical significance implies that in SSA, profitability alone may not guarantee productive lending unless accompanied by deeper competition and risk-management reforms.

The findings in Table 4 further indicate that financial market depth, proxied by portfolio debt-to-GDP, has a positive but insignificant coefficient (0.1441). This suggests that expanding debt markets have not yet translated into measurable growth benefits, possibly due to illiquidity and speculative inflows dominating long-term financing. The result diverges from Iqbal and Kaji (2022), who found that corporate bond market deepening fosters growth by diversifying funding sources. Instead, it echoes Olaniyi (2022), who observed that poorly regulated debt expansion can crowd out productive private investment, leading to muted or negative output effects.

Furthermore, Institutional quality carries a negative, marginally significant coefficient (-6.2034), indicating that improvements in governance and regulatory indicators appear to coincide with slower short-run growth. This counterintuitive relationship mirrors Kemoe and Lartey (2022), who argued that early-stage institutional reforms may temporarily disrupt existing bureaucratic processes and private-sector confidence before benefits emerge. Conversely, Acemoglu and Robinson (2019) highlighted that governance improvements strengthen long-term resource mobilization and resilience. Thus, the short-run negative coefficient may capture transitional costs rather than the steady-state effects of better institutions.

From Table 4, the interaction between institutional quality and financial institution access (0.2182) is positive and highly significant at 1%, signifying that strong institutional environments enhance the growth payoff of banking access. This indicates that when governance improves, branch networks become more effective channels for productive credit, amplifying the growth effect. The result corroborates Asongu et al (2020), who found that institutional reforms increase the efficiency of branch-based financial inclusion in SSA. It diverges from Olaniyi and Oladeji (2021), whose results suggested no such moderating impact, possibly due to narrower institutional indicators.

A positive, significant interaction between institutional quality and financial institution efficiency (net interest margin) suggests that profitability gains foster growth more effectively in better-governed countries. In contrast, Sani and Yahaya (2021) find that in SSA, even well-governed environments see diminishing marginal returns to bank profitability, arguing that high margins can reflect regulatory capture rather than genuine efficiency. The interaction between institutional quality and financial market depth (0.2100) is positive and insignificant; suggesting that better governance does not significantly but positively moderates the link between debt-market expansion and growth. This finding supports Akinola and Akinrinola (2023), who noted that institutional frameworks in SSA are yet too weak to absorb the volatility from rising portfolio debt. By contrast, Johnson (2024) demonstrated that robust legal institutions can offset the adverse effects of external debt on growth, indicating room for improvement in the institutional architecture of SSA's capital markets.

In all the panels in Table 4, the Arellano-Bond tests for second-order serial correlation AR (2) indicate that all the models are free from the problem of serial correlation. In addition, the Hansen (1982) tests of over-identifying restrictions indicate that the hypothesis of jointly valid instruments cannot be rejected in all cases, implying that the set of instruments employed in the estimations satisfied the exogeneity condition required for obtaining valid regression estimates. Thus, there are valid over-identifying restrictions in all cases, and our models are adequate to inform policy.

### **3.1.1 Comparison of System GMM and Random Effects Estimator**

Comparatively, dynamic GMM estimates capture endogeneity and country heterogeneity, whereas random-effects results produce weaker or inconsistent coefficients. For instance, the negative effect of FIA is much larger and significant in system GMM and random effect, confirming that ignoring endogeneity underestimates the true short-run adjustment effects of

branch expansion. Similarly, the moderating coefficient of  $INSQIDX \times FIA$  is stronger under GMM, reinforcing that governance interacts dynamically with financial inclusion rather than statically as RE assumes. The discrepancies highlight that static models (RE) fail to capture persistence and simultaneity biases inherent in growth processes.

The System GMM estimator is preferred because it corrects for potential endogeneity, measurement error, and omitted variable bias by using internal instruments derived from lagged variables. It also accommodates dynamic effects by including lagged dependent variables, producing consistent estimates even with small-T, large-N panels typical of SSA studies. The diagnostic tests ( $AR(2) = 0.074$ ; Hansen = 0.165) confirm that instruments are valid and free from serial correlation, validating the robustness of the results. Consequently, system GMM provides more reliable policy insights on how institutional quality moderates the finance–growth nexus in SSA than the biased static random-effect estimate.

*Hypothesis:* There is no statistically significant interaction between financial development and institutional quality on economic growth in SSA countries.

*Conclusion:* The estimated result in Table 4 disclosed that the coefficient of the interaction effect of institutional quality and financial institution access used as financial development indicators is 0.218 with probability values of less than 0.01. Comparing this p-value to the 5 percent threshold (0.05), we see that they are less than 0.05, so we reject the null hypothesis, which states that there is no statistically significant interaction between financial development and institutional quality on economic growth in SSA nations. Therefore, the alternative hypothesis is accepted, clearly stating that there is statistically significant interaction between financial development and institutional quality on economic growth in SSA nations.

#### 4. Discussion of Findings

The interaction model in Table 4 explores how governance conditions shape the finance–growth nexus. Financial institution access exhibits a negative, significant direct effect ( $-0.6329$ ,  $p < 0.05$ ), suggesting that branch expansion alone may not stimulate growth when efficiency and governance are weak. However, the interaction between institutional quality and financial institution access ( $INSQIDX \times FIA$ ) is positive and significant ( $0.2182$ ,  $p < 0.01$ ), indicating that better governance amplifies the growth benefits of financial access. Similarly, the interaction between institutional quality and financial institution efficiency ( $INSQIDX \times FIE$ ) is positive and significant, implying that bank profitability enhances growth more effectively in well-governed countries.

Conversely, institutional quality alone carries a negative, marginally significant coefficient ( $-6.2034$ ), reflecting transitional costs of reform consistent with evidence that early-stage governance changes may slow activity before long-term benefits emerge. The interaction between institutional quality and financial market depth ( $INSQIDX \times FMD$ ) is negative but insignificant, suggesting that governance improvements have not mitigated the growth-reducing effects of excessive debt dependence. Diagnostic tests ( $AR(2) = 0.074$ ; Hansen  $p = 0.165$ ) again confirm instrument validity. Collectively, the results show that while institutional quality alone may not directly raise growth, it crucially strengthens the positive impact of financial access and efficiency, underscoring the importance of coordinated financial and governance reforms in Sub-Saharan Africa.

The interaction results in Table 4 reveal important policy perceptions on how institutional quality moderates the effects of financial development indicators on output growth in Sub-Saharan Africa. The positive and highly significant interaction between institutional quality and financial institution access, suggests that expanding banking access yields stronger growth dividends in countries with better governance, implying that branch expansion and inclusion policies are more effective when supported by transparent regulatory frameworks and institutional efficiency. The interaction between institutional quality and financial efficiency suggests that sound intermediation promotes growth in well-governed environments. This

highlights the necessity of strengthening legal frameworks to ensure profitability reflects genuine efficiency rather than market distortions, much like how Nwadigwe and Ilukwe (2023) emphasize the role of copyright law in protecting business integrity. Strengthening these institutions helps mitigate socio-economic crises (Onyemaechi et al., 2025) and addresses the livelihood challenges faced by employees during instability (Onwuka et al., 2022b).

However, weak institutional capacity to regulate speculative flows often leads to adverse growth effects from debt markets. Governance failures frequently stem from neo-patrimonialism (Chukwu et al., 2018) and moral disengagement (Achebe & Onyemaechi, 2023), which can manifest in systemic corruption or violent criminal behaviors (Achebe et al., 2024). Effective oversight is required to manage the gendered power dynamics (Agoha et al., 2026) and interpersonal conflicts (Onwuka et al., 2022a) that arise in organizational settings, where psychological empowerment can act as a vital moderator (Nwokolo et al., 2022). Policymakers must leverage cultural identity (Utoh-Ezeajugh & Ume, 2025) and traditional symbols (Okeke & Akunne, 2023; Ume & Akas, 2021) to promote stability. Sociocultural innovations (Egwuaba et al., 2025) and educational theatre (Ilukwe & Ume, 2026) can bridge cultural gaps and reform fundamentalist ideologies (Madubuko et al., 2025). Finally, addressing the mental health needs of displaced persons (Ume et al., 2026) and improving community perceptions of health disorders (Agofure et al., 2019) ensures a resilient workforce capable of supporting productive investment.

## 5. Conclusion

The study found that the quality of institutions also has a significant impact on enhancing the link between financial development and economic growth in Sub-Saharan African countries. Financial development is a critical factor of economic expansion and the access to credit, investment opportunities and mobilization of capital, however, it is dependent upon the quality of institutions in an economy. Efficient and effective financial systems are essential to contribute to economic growth and productive activity, and they require strong institutions with effective governance, political stability, the rule of law, regulatory quality and corruption control.

The research also found that ineffective institutions limit the financial sector's ability to promote sustainable growth, as weak institutional governance is likely to foster financial inefficiencies, policy instability and investor inaction. In contrast, countries with more effective and robust institutional frameworks can benefit more from financial sector reforms and gain access to domestic and foreign investments. The results thus endorse the hypothesis that the quality of institutions intervenes between the finance-growth relationship in Sub-Saharan Africa. The study concludes that financial sector development strategies need to be complemented with institutional reforms as part of policy interventions in Sub-Saharan African countries, based on this finding. To sustain economic growth and long-term development in the region, it is important to strengthen governance structures, enhance transparency, improve the effectiveness of the regulatory framework and enhance accountability.

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