

INSTITUTIONAL GOVERNANCE, FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH IN LOW-INCOME COUNTRIES

AKINLO Taiwo

*Department of Economics, Adeyemi Federal University of
Education Ondo, Ondo State,
Email: taiwoakinlo@yahoo.com
Phone No: +2348030624692*

and

OLAYIWOLA Rasheed Kola

*Department of Entrepreneurship Management and Organisation
University of Applied Sciences, Vaasa, Finland
Email: kolaolayiwola93@gmail.com*

Abstract

This study examined the connection between institutional quality, financial development and economic growth in low-income countries of sub-Saharan Africa during the period of 2001-2020. The study makes use of panel data from 22 sub-Saharan countries. The system GMM was used as the technique of estimation. The study found that financial development negatively impacts economic growth in low-income countries. The results also showed that institutional quality contributes to economic growth. The results showed that the interaction of institutional quality with financial development does not enhances economic growth in low-income countries.

Keywords: *Institutional quality, financial development, economic growth, GMM, Sub-Saharan Africa*

1 Introduction

The various channel through which financial development (FD) can promote economic growth (EG) has been discussed empirically and theoretically. FD has been highlighted as a determinant of EG (Anyanwu, 2014; Upreti, 2015) as it contributes to EG by providing long and short-term loans to economic agents. According to Puatwoe and Piabuo (2017), FD promotes growth by increasing productivity. Numerous empirical research has been carried out to examine the effect of FD on EG. However, mixed results have been obtained in the literature as some studies established a positive association

(e.g. Bist, 2018; Ibrahim & Alagidede, 2018; Pan and Yang, 2019; Bassanini, Scarpetta, & Hemmings, 2001) while some studies reported negative relationship (e.g. Adeniyi et al. 2015; Allen, Carletti and Gale, 2009; Allen et al., 2014; Cecchetti and Kharroubi, 2012) and some reported no significant effect of FD on EG (e.g. Effiong, 2015; Recuero and González, 2019; and Appiah, Li and Frowne, 2020).

Even though FD and EG have been the subject of several research, little is known about how institutional quality affects FD's impact on EG, particularly in sub-Saharan Africa's low-income nations. The argument is that economies with higher

institutional quality are more likely to have strong financial policies and stable macroeconomic environments that would enhance the effect of FD on EG. Likewise, when institutional quality lowers the transaction expenses (Dahlman, 1979; Coase, 1992) through the provision of common legal frameworks, the financial sector is more efficient in performing mediating roles. In addition, when institutional quality encourages trust by providing proper monitoring and honesty systems through which people abide by the collective rules and regulations, banks and economic agents can now lend and borrow more easily. This has an economic connotation that investment will rise, which will result in EG. On contrary, for economies that have weak institutional quality, financial regulations and policies might be unstable and ineffective which might result in sub-optimal decisions by the governments, which often engender high macroeconomic instability. This situation might limit the effect of FD on EG. Also, the effect of FD on EG might be hampered when a low level of institutional quality raises the cost of economic transactions, preventing trust among economic agents and promoting corruption as financial institutions will be greatly affected in performing their duties. For instance, a high level of corruption caused by a weak institutional quality may erode the protection of property rights and the efficiency of the legal framework, in consequence reducing the pace of FD which in turn limits EG.

This study intends to examine the joint effect of FD and institutional quality on EG in low-income countries in SSA. According to the World Bank Atlas approach, low-income nations are those with a 2021 GNI per capita of \$1,085 or less. At the moment, 24 SSA nations fall into this

income bracket. These countries are usually characterized by low-income due to their low productivity and small economy. According to Ibrahim, Aluko and Vo (2022), low-income countries have underdeveloped financial sectors and low EG unlike middle- and high-income countries. Some earlier studies did not take into account the individual and regional economic features of the industrialized and developing countries they included in their diverse cross-country samples. Therefore, the policy recommendation from these studies might not be relevant to low-income countries which have underdeveloped financial sectors as well as low institutional quality. It is, therefore, necessary to investigate this relationship among the countries that share the same levels of income, FD, EG, institutional quality and economic fundamentals.

This study will contribute to the literature in the following ways. First, this study uses a more comprehensive FD index from IMF. Most of the previous studies (e.g. Effiong, 2015; Yahyaoui, 2009; Compton and Giedeman, 2011; Demetriades and Law, 2006, Olaniyi, 2022) used domestic credit to private sectors to proxy FD. However, the use of domestic credit to private sectors only captures the banking sector size and excludes the efficiency and stability of the financial sector. The FD index from IMF is more comprehensive as it captures all the dimensions of FD such as depth, access and efficiency of both financial markets and institutions. Second, the past findings in SSA on the influence of institutional quality in the finance-growth nexus might not be sufficient to provide an effective policy regarding the growth of the economy and finance in low-income countries due to heterogeneous cross-country samples. This study will be the first in SSA to take institutional quality into

account as a way that FD can boost EG in low-income nations.

The rest of the study is organized as follows; Section 2 consists of the literature review. The methodology is presented in section 3. Section 4 provides the measurement of variables and data sources. Section 5 contains the empirical results. The implication of the study is presented in section 6. The last section contains the conclusion of the study.

2 Literature Review

Some studies have investigated the connection between FD, institutional quality and EG in SSA and other regions. From these studies, different findings have emerged. For instance, Demetriades and Law (2006) utilized the panel data approach to examine 72 countries between 1978 and 2000, and they found that when a robust institutional framework supports the financial sector, the effects of FD on GDP per capita are more significant. According to the study, FD has significant effects on lower-income countries' economic development when institutional quality is strong. However, even in the midst of a strong institutional environment, the effect of FD on EG is unaffected in both rich and poor countries. Compton and Giedeman (2011) in a similar study examined if the relationship between FD and EG is affected by institutions. Using cross-sectional and panel approaches on data for the period 1970 to 2004, the study found that banking development and well-developed institutions are substitutes in the growth process. However, they found that institutions and stock market development are not substitutes nor play a complementary role in EG. Yahyaoui (2009) examined FD, quality of institutions and EG in seven Arab developing countries from the period 1990-2006. They used the

augmented Solow growth model and different estimates made by panel data. It was found that the financial system cannot stimulate EG in the presence of strong institutional quality. Effiong (2015) used a panel of 21 sub-Saharan African nations during the years 1986–2010 to study the relationship between institutions, FD, and EG. The study estimated standard growth regression with linear FD and institutional quality interaction. The findings revealed that FD has a detrimental effect on SSA's economic growth while institutional quality enhanced EG. The interaction of FD and institutional development has no effect on EG. This result suggests that finance-growth relationship is not improved by the institutional quality. Using the Generalized Moment Method, Kacho and Dahmardeh (2017) investigated the effects of FD and institutional quality on EG in the instance of OECD Countries in the period of 2002–2014. According to the study, EG is significantly positively impacted by both institutional quality and financial development. Similar, the joint effect of FD and institutional quality enhanced EG. Aluko and Ibrahim (2020) examined the mediating role of institutions in the finance-growth nexus in sub-Saharan Africa using the splitting technique without including quadratic terms. When the International Country Risk Guide is used, the study found that when institutional quality is below the threshold level, FD has no effect on EG. However, above the threshold level of institutional quality, FD enhances EG. On contrary, when institutional quality from World Governance Indicators is used, below and above the threshold level FD enhances EG. Filfilan (2022) examined the connection between FD and growth by considering the role of institution. A two-step system dynamic GMM methodology was used in the study for 93 industrialized

and developing nations between 1996 and 2018. The research showed that the nature of governance and the degree of development of nations influence the impact of FD on EG. For instance, the findings indicated that FD had a significant positive impact on EG in middle- and high-income nations but has insignificant effect in low-income countries. The finding also revealed that good governance strengthens the effect of FD on EG.

3 Methodology

The model specification follows the usual cross-country equations like Teixeira and Queirós (2016). The equation is specified as

$$y_{it} = \beta_1 y_{i,t-1} + \alpha_1 FD_{it} + \alpha_2 INS_{it} + X'_{it} \mu_i + \varepsilon_{it} \quad 1$$

where y_{it} indicates GDP per capita growth for country i at the period t . FD represents financial development. INS stands for institutional quality. The WGI six (6) institutional quality indicators are considered in the study. These include corruption control, rule of law, voice and accountability, regulatory quality, government effectiveness and political stability. X'_{it} is the vector of control variables that are associated with EG. These include trade openness (Open), gross capital formation (GCF), inflation (INF), μ_i signifies country-specific effect and ε_{it} is the error term.

However, since this study intends to investigate if institutional quality enhances the EG impact of FD, the interaction terms and the control variables are included. Then, equation 2 is presented as follows.

$$y_{it} = \beta_1 y_{i,t-1} + \alpha_1 FD_{it} + \alpha_2 INS_{it} + \alpha_3 (FD * INS)_{it} + \alpha_4 OPEN_{it} + \alpha_5 GCF_{it} + \alpha_6 INF_{it} + \mu_i + \varepsilon_{it} \quad 2$$

This study employs the Generalised Method of Moment (GMM) approach developed for panel data. This approach is capable of combining time-series and cross-country data. The panel consists of data from 22 low-income countries in SSA from 2001 to 2020. Using Ordinary Least Square (OLS) to estimate Eq 2 will produce biased results. This is due to the inability of OLS to eliminate the unobservable country-specific effects and effectively deal with the possible endogeneity problem in the regressors. Previous research has demonstrated that the GMM estimators of Arellano and Bond (1991) and Arellano and Bover (1995) are more effective than alternative panel data estimators for growth models with dynamic panel determination. The GMM panel estimators use the appropriate lags of the regressors as instruments to address the endogeneity problem while controlling for both time and country-specific effects. To effectively control for country-specific effects and the possibility of an endogeneity problem, that is the possible endogeneity of explanatory variables with the dependent variable, this study used the two-step System GMM estimator developed by Blundell and Bond (1998) to estimate the coefficients of the model. The system GMM estimator is better suited to manage the challenges presented by a weak instrument (Arellano and Bover, 1995; Blundell and Bond, 1998). It uses larger sets of instruments while combining the first-difference and level equations into a single system. The regressors' lagged differences serve as the level equations' instruments. Additionally, additional moment conditions are necessary for the validity of the additional instruments. The country-specific effects do not correlate with the initial differences of the regressors in the equation. According to Reed (2015), if both conditions are met—independent variables

are weakly exogenous and there is no autocorrelation of the error term—then the lagged values of independent variables as instruments in the model are acceptable instruments.

However, to validate the consistency of the GMM estimator, two conditions need to be met. First, there is a need to ensure that the lagged values of the explanatory variables are valid instruments in the growth regression. This issue is addressed by considering the Hansen/Sargan test of over-identifying restrictions. The fact that the null hypothesis was not rejected suggests that the instrumental variables are orthogonal and do not correlate with the residual. Second, the Arellano-Bond test is run to estimate the first-order and second-order autocorrelations to ensure second-order autocorrelation is not present in the estimation.

4 Variables measurement and Sources of Data

This section focuses on the description of the data used in the analysis. For the empirical analysis of this study, we employ panel data covering the period 2001-2020. The choice of the period of this study is based on data availability particularly data on institutional quality. The institutional data employed in this study starts from 1996. EG is the dependent variable and measured by GDP per capita growth (annual). FD is measured by the financial development index. FD index contains nine indices that describe the depth, access, and efficiency of financial institutions and financial markets. These indexes are combined to create a broad measure of financial development. The institutional quality and governance dataset from WGI political stability consist of six governance indicators as earlier stated. However, this study aligned with Asongu &

Nwachukwu (2016a) and Asongu and Odhiambo (2019) to divide the six indicators into three groups using the principal component index. The method entails breaking down a group of strongly correlated variables into a set of unrelated tiny indicators called principal components (PCs). The first group is political governance which comprises political stability and voice & accountability. The second group is economic governance which consists of government effectiveness and regulation quality. The third group is institutional governance which consists of corruption-control and the rule of law. Three control variables are included to avoid omitted variable bias. They are gross capital formation, inflation and trade openness. Gross capital formation as % GDP consists of outlays in addition to the fixed assets of the economy plus net changes in the level of inventories. Trade openness (OPEN) is measured by the sum of export and import as % of GDP. Consumer price index is used to measure inflation.

The data on EG, gross capital formation, inflation and trade openness are from the World Bank Development Indicator. Data on FD index is from International Monetary Fund (Svirydzhenka, 2016). Data on institutional quality indicators is from World Governance Indicator (WGI) dataset developed by Kaufmann et al. (2010). While Appendix A.1 contains the list of the nations that were involved in the study, Table 1 offers summary statistics for the variables. The first observation from table 1 is that the mean of all the variables lies between the minimum and the maximum values. This suggests that the variables are consistent. Another observation from the tables is that the standard deviations of the variables are low except for trade openness and inflation. Financial development has the smallest

standard deviation while trade openness has the largest standard deviation. Having a small standard deviation implies that the

deviation of the variable from its mean is small. GDP per capita has the smallest minimum value (-36.557) while inflation has the largest maximum value (359.973).

Table 1: Summary Statistics of the Variables

Variable	Obs.	Mean	Sta.Dev	Min	Max
GDP per capita growth	418	1.783	4.697	-36.557	28.676
Financial development	323	0.087	0.026	0.03	0.19
Control of Corruption	440	-0.844	0.472	-1.869	0.763
Government Effectiveness	440	-1.023	0.492	-2.447	0.342
Political Stability	440	-0.935	0.894	-3.315	0.826
Regulation Quality	440	-0.901	0.566	-2.645	0.247
Rule of Law	440	-0.936	0.555	-2.606	0.121
Voice & Accountability	440	-0.888	0.616	-2.226	0.336
Trade openness	440	49.025	27.455	0.785	127.204
Gross capital formation	379	20.385	8.363	3.949	59.723
Inflation	381	9.036	21.149	-8.975	359.937
Political Governance	440	-4.99e-09	1	-2.171	1.987
Economic Governance	440	-2.91e-09	1	-3.079	2.027
Institutional Governance	440	2.76e-09	1	-2.171	3.402

5 Results and discussion

5.1 Unit root test results

Analyzing the unit root test is the first step in this study's analysis. Unit root test is necessary to avoid spurious results. To perform the unit root test, this study uses Levin et al. (2002), Im et al. (2003), ADF-Fisher, and PP-Fisher Chi-square statistics unit root tests. According to Maddala and Wu (1999) and Choi (2000), Levin et al. (2002) t-statistic presume a homogenous or common unit root process. The Im et al. (2003) W-statistic, ADF-Fisher, and PP-Fisher statistics on the other hand,

presuppose a heterogeneous or individual unit root process. Table 2 contains the results of the unit root tests. From table 2, some variables are stationary at a level while some are stationary at first difference. For instance, variables like GDP per capita, inflation, rule of law, voice and accountability, political governance and institutional governance are convincingly stationary at the level. However, the variables that are not stationary at level are all stationary at first difference. Also, the results from table 2 show that none of the variables is I(2) which indicates that panel GMM is appropriate for this study.

Table 2: The result of unit root test

	Method	At level		At first difference	
		Intercept	Trend	Intercept	Trend
GDP per capita growth	Levin, et al.	-1.161	-2.369	-8.645***	-7.533***
	Im et al.	-4.188***	-3.866***	-12.258***	-8.95544***
	ADF-Fish	100.899***	91.379***	220.192***	170.535***
	PP-Fish	194.755***	208.240***	1572.83***	410.489***
Gross capital formation	Levin, et al.	-4.957***	-3.269***	-9.826***	-8.822***
	Im et al.	-2.129**	-0.042	-7.642***	-5.387***
	ADF-Fish	69.107***	51.953	159.038***	130.008***
	PP-Fish	48.155	32.392	239.102***	230.292***
Financial Development	Levin, et al.	-2.511**	-4.668***	-8.899***	-6.752***
	Im et al.	-0.912	-2.574***	-9.369***	-6.826***
	ADF-Fish	39.394	58.524***	147.541***	107.109***
	PP-Fish	57.045***	72.912***	668.734***	244.521***
Inflation	Levin, et al.	-0.415	2.364	-12.996***	-10.568***
	Im et al.	-7.204***	-5.721***	-17.841***	-15.094***
	ADF-Fish	142.149***	115.779***	316.289***	245.017***
	PP-Fish	183.191***	185.127***	1015.26***	357.652***
Trade Openness	Levin, et al.	-0.465	1.178	-3.639***	-1.530**
	Im et al.	-0.264	0.938	-7.105***	-4.905***
	ADF-Fish	38.021	32.474	133.344***	100.603***
	PP-Fish	51.618	65.684	525.148***	231.874***
Control of corruption	Levin, et al.	1.171	2.955	-6.028***	-3.896***
	Im et al.	-0.121	1.689	-13.088***	-10.820***
	ADF-Fish	60.797	58.561	302.907***	244.052***
	PP-Fish	93.960***	101.666***	572.150***	1309.68***
Government effectiveness	Levin, et al.	-3.358***	-0.299	-6.582***	-4.649***
	Im et al.	-3.126***	-1.179	-9.7131***	-7.433***
	ADF-Fish	86.103***	58.824*	178.884***	135.188***
	PP-Fish	89.709***	85.163***	400.359***	305.373***
Political stability	Levin, et al.	-2.393***	-1.016	-4.053***	-2.167***
	Im et al.	-1.734**	-0.581	-8.487***	-6.329***
	ADF-Fish	68.204**	43.804	154.597***	117.747***
	PP-Fish	97.421***	76.914***	436.145***	324.148***
Regulatory quality	Levin, et al.	-1.700*	0.048	-7.862***	-6.497***
	Im et al.	-0.745	-0.139	-9.862***	-7.703***
	ADF-Fish	51.401	46.061	215.716***	121.358***
	PP-Fish	139.751***	101.205***	538.380***	291.589***
Rule of law	Levin, et al.	-4.078***	-4.049***	-9.092***	-7.320***
	Im et al.	-2.080**	-2.237**	-10.606***	-8.581***
	ADF-Fish	68.182**	68.627**	194.039***	153.464***
	PP-Fish	80.117***	74.340***	346.375***	300.207***

Voice and accountability	Levin, et al.	-3.498***	-2.979***	-7.232***	-6.056***
	Im et al.	-2.893***	-1.443***	-8.348***	-6.258***
	ADF-Fish	82.061***	65.695***	155.184***	119.703***
	PP-Fish	104.632***	92.869***	558.866***	255.842***
Economic governance	Levin, et al.	-1.700**	0.048	-7.862***	-6.497***
	Im et al.	-0.745	-0.139	-9.862***	-7.703***
	ADF-Fish	51.401	46.061	215.716***	121.358***
	PP-Fish	139.751***	101.205***	538.380***	291.589***
Political governance	Levin, et al.	-3.498***	-2.979***	-7.232***	-6.056***
	Im et al.	-2.893***	-1.443**	-8.348***	-6.2583***
	ADF-Fish	82.061***	65.695**	155.184***	119.703***
	PP-Fish	104.632***	92.869***	558.866***	255.842***
Institutional governance	Levin, et al.	-2.460**	-1.501**	-6.045***	-5.019***
	Im et al.	-1.778**	-0.545	-7.466***	-5.277***
	ADF-Fish	71.120***	53.049	137.027***	103.179***
	PP-Fish	59.228*	61.166**	348.376***	249.973***

Note: ***, **and * indicate 1%, 5% and 10% levels of significance.

Table 3 contains the direct effect of FD and institutional quality on EG. The table consists of 9 models where each model presents the results of each institutional quality indicator and the three groups of governance generated through PCI. From the table, the coefficient of FD indicates negative signs and as well significant across the models. It implies that an increase in FD is retarding EG in SSA. All the institutional quality indicators significantly stimulate EC. The positive sign and significant coefficient of all the institutional quality indicators show that the growth of the economies of the SSA countries is connected to institutional quality. Likewise, the coefficients of political governance, economic governance and institutional governance generated through the PCI show positive signs. However, the coefficient of economic governance is not significant which implies that only political governance and institutional governance significantly promote EG. Regarding the

control variables, trade openness is positively signed and significant in some models and insignificant in others. For example, in models 1, 3, 7 and 8 trade openness significantly enhance growth while in models 2, 4, 5, 6 and 9 it is insignificant. Gross capital formation significantly enhances EG in models 3, 4, 5, 6, and 9. This implies that when there is an increase in the availability of physical capital, it will boost EG in sub-Saharan Africa. Inflation has a detrimental impact on EG.

The reliability and consistency of GMM estimations depend on whether the estimations conform to the requirement of the diagnostic tests. Therefore, the results in table 3 need to be evaluated based on diagnostics test performance to confirm the validity of the estimations. Starting with AR1 and AR2, AR1 (first-order autocorrelation) is expected to be present in the estimations while AR2 (second-order autocorrelation) must not present for a valid

estimation. Based on this, it can be concluded that the estimations are valid because AR1 is present and AR2 is absent. Specifically, the significance of the p-value of AR1 and the insignificance of the p-value of AR2 implies the acceptance of the null hypothesis of the existence of first-order autocorrelation and rejection of second-order autocorrelation. Likewise, to ensure that the instruments used in the estimation are valid the p-value of the Hansen test must

be insignificant. Based on this criterion, it can be affirmed that the estimation instruments are in order as the p-values of the Hansen test are insignificant in none of the models. In addition, it is expected that the number of groups must be greater than the number of instruments as a condition to avoid instrument proliferation (Roodman, 2009). From the estimations, the number of groups is seventeen which is higher than the number of instruments.

Table 3. The effect of FD and institutional quality on Economic growth (Dependent Variable: GDP per capita growth)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Lagged GDP per capita growth	0.777*** (0.000)	0.682*** (0.000)	0.672*** (0.003)	0.572*** (0.000)	0.662*** (0.000)	0.928*** (0.000)	0.840*** (0.000)	0.764*** (0.000)	0.716*** (0.000)
Financial Development	-18.172** (0.017)	-25.176** (0.011)	-32.229*** (0.008)	-23.944*** (0.006)	-22.290** (0.033)	-28.189*** (0.007)	-18.755** (0.027)	-18.669** (0.025)	-12.557* (0.081)
Control of corruption	0.785** (0.027)								
Rule of law		0.952** (0.005)							
Institutional governance			0.864** (0.038)						
Voice and accountability				1.117*** (0.002)					
Political Stability					0.692** (0.044)				
political governance						1.136*** (0.001)			
Regulatory quality							0.919** (0.020)		
Government Effectiveness								1.017** (0.010)	
Economics governance									0.020 (0.951)
Openness	0.018* (0.060)	0.009 (0.392)	0.015** (0.038)	0.003 (0.806)	0.002 (0.841)	0.004 (0.525)	0.016* (0.097)	0.023** (0.024)	0.002 (0.869)
Gross capital formation	0.091 (0.106)	0.527 (0.685)	0.136** (0.026)	0.181*** (0.000)	0.160*** (0.007)	0.150*** (0.008)	0.095 (0.116)	0.095 (0.106)	0.101*** (0.027)
Inflation	-0.040* (0.077)	-0.070*** (0.006)	-0.055*** (0.001)	-0.0779** (0.044)	-0.065** (0.061)	-0.065** (0.037)	-0.035 (0.129)	-0.035 (0.138)	-0.082** (0.043)
AR(1)	(0.014)	(0.029)	(0.018)	(0.032)	(0.029)	(0.017)	(0.014)	(0.013)	(0.034)
AR(2)	(0.680)	(0.746)	(0.729)	(0.833)	(0.759)	(0.624)	(0.658)	(0.682)	(0.725)
Hansen	(0.539)	(0.367)	(0.357)	(0.148)	(0.521)	(0.576)	(0.574)	(0.662)	(0.710)
No of Instruments	13	13	13	13	13	13	13	13	13
No of countries	22	22	22	22	22	22	22	22	22
No of observations	260	260	260	260	260	260	260	260	260
No of sample groups	17	17	17	17	17	17	17	17	17

Notes: The p-values are in brackets. ***, indicates 1% significance, ** stands for 5% significance and * represents 10% significance. The Sargan test is for the over-identifying restrictions.

In table 4, the attention is focused on corruption control and rule of law as institutional governance indicators. FD impedes EG a significant and negative coefficient in the control of corruption and rule of law models. Control of corruption stimulates EG as its coefficient is significant at 1% and positive. This finding agrees with Henisz (2000) and Olson et al. (2000). For instance, the finding by Henisz (2000) showed that reducing corruption raises the likelihood of investment and, consequently, growth. Similarly, Olson et al. (2000) highlighted that a low level of corruption leads to higher productivity growth. Rule of law boosts EG at 1% significant level. This finding confirms that the presence and abiding by the rule of law in a country guarantee stability and attracts investments

as investors have the assurance that their investments are protected by law. Institutional governance presents a positive and significant effect on EG. The interaction of control of corruption and FD negatively impacts EG at 5% significant level. The interaction of rule of law and FD produces no impact on EG. The interaction term of institutional governance and FD contributes to EG. Trade openness as well as gross capital formation enhance EG. EG is negatively impacted by inflation. The p-value of AR1 is significant suggesting the presence of AR1 while the p-value of AR2 is insignificant indicating the absence of AR2. There is no instrument proliferation because the number of instruments is less than the number of groups. The p-values of the Hansen test are insignificant confirming the validity of the instruments.

Table 4: Institutional Governance, FD and Economic Growth

	Dependent Variable: Economic Growth		
	Control of corruption	Rule of Law	Institutional governance
Lagged GDP per capita growth	0.781*** (0.000)	0.672*** (0.004)	0.960*** (0.000)
Financial development	-32.043*** (0.003)	-27.004*** (0.009)	-12.936 (0.134)
Control of corruption	2.167*** (0.003)		
Rule of law		1.806** (0.017)	

Institutional governance			2.405*** (0.004)
Control of corruption* Financial development	-18.760** (0.050)		
Rule of law * Financial development		-3.427 (0.769)	
Institutional governance* Financial development			-27.898** (0.019)
Openness	0.026*** (0.007)	0.232*** (0.006)	0.009 (0.438)
Gross capital formation	0.119** (0.056)	0.126* (0.058)	0.074 (0.179)
Inflation	-0.039* (0.083)	-0.024 (0.241)	-0.075** (0.040)
AR(1)	(0.014)	(0.009)	(0.022)
AR(2)	(0.694)	(0.732)	(0.643)
Hansen	(0.718)	(0.719)	(0.491)
No of Instruments	13	13	13
No of countries	22	22	22
No of observations	260	260	260
No of sample groups	17	17	17

*Notes: The p-values are in brackets. ***, indicates 1% significance, ** stands for 5% significance and * represents 10% significance. The Sargan test is for the over-identifying restrictions.*

Table 5 presents the results of political governance and the two indicators (i.e voice and accountability and political stability) used to generate political governance through PCI. The results of the interaction of these indicators with FD are presented in the table as well. The coefficient of FD is significant and shows a negative sign in all the models. The coefficient of voice and accountability is positive and significant at 1%. This indicates a voice and accountability enhances EG. Political stability and political governance contribute to EG as their coefficients are positive and significant. The positive and significant effect of political stability on EG found in this study is consistent with Radu (2015). Political stability promotes continuity of policies,

stable market activities and labour relations which increases productivity and hence EG. Similarly, Younis et al. (2008) stated that a stable political environment contributes to an increase in the accumulation of human capital and physical capital and as well stimulates the growth process. The interaction of voice and accountability with FD produces a negative effect on growth. Likewise, the interaction of political stability and FD fails to contribute to EG in low-income countries. The interaction term of FD and political governance harms EG. Openness significantly stimulates EG except in the political stability model where it is not significant. Gross capital formation produces positive and a significant effect on EG in voice and accountability and political stability models. Inflation harms EG.

Table 5: Political governance, FD and economic growth

	Dependent Variable: Economic Growth		
	Voice and accountability	Political stability	Political governance
Lagged GDP per capita growth	0.737*** (0.000)	0.796*** (0.000)	0.680*** (0.000)
Financial development	-32.329*** (0.001)	-38.011** (0.015)	-22.799*** (0.007)
Voice and accountability	2.305*** (0.000)		
Political Stability		2.375** (0.013)	
political governance			3.756** (0.032)
Voice and accountability	-19.769** (0.043)		
*Financial development		-27.696** (0.038)	
Political Stability * Financial development			-37.845** (0.042)
Political governance* Financial development			
Openness	0.024* (0.057)	0.035** (0.014)	0.003 (0.786)
Gross capital formation	0.126* (0.062)	0.093 (0.119)	0.149*** (0.002)
Inflation	-0.039* (0.075)	-0.035 (0.114)	-0.071** (0.042)
AR(1)	(0.014)	(0.016)	(0.029)
AR(2)	(0.717)	(0.668)	(0.746)
Hansen	(0.839)	(0.677)	(0.624)
No of Instruments	13	13	13
No of countries	22	22	22
No of observations	260	260	260
No of sample groups	17	17	17

Notes: The p-values are in brackets. ***, indicates 1% significance, ** stands for 5% significance and * represents 10% significance. The Sargan test is for the over-identifying restrictions.

In table 6, where regulatory quality and government effectiveness are used as institutional quality indicators, FD development is unable to positively impact EG. The coefficient of FD presents a negative sign and is significant at 5% in regulatory quality and government effectiveness models and 1% in the economic governance model. Regulatory quality promotes EG as its coefficient is significant at 1%. This finding supports Appiah, Li and Frowne (2020) and Jalilian et al. (2007). It implies that there is a direct connection between regulatory quality and growth which suggests that adhering to the rules and regulations of institutions will adequately increase growth. Jalilian et al. (2007) found a strong connection between regulatory quality and economic performance. Government effectiveness also contributed to EG by having a positive coefficient and significance at 1%. This supports the findings by Kossele et al. (2017) and Tiwari and Bharadwaj (2021). Countries that have a smooth-running

government can effectively introduce and implement policies that can accelerate growth and development. On contrary, economic governance shows no effect on EG as its coefficient is insignificant. The interaction of regulatory quality and financial development impact negatively on EG. However, the coefficient of the interaction of government effectiveness and financial development is not significant. Similarly, the coefficient of the interaction of economic governance and financial development is insignificant. On the control variables, trade openness is a determinant of EG as it positively enhances EG. Like in other tables, the effect of gross capital formation is positive while the impact of inflation on EG is negative. Based on the diagnostic tests, the estimation is valid and reliable. AR1 is present in all the models as its p-values are significant. AR2 is absent as its p-value is insignificant. The p-values of Hansen are not significant confirming the validity of the instruments. The number of instruments is also below the number of groups.

Table 6: Economic governance FD and economic growth

	Dependent Variable: Economic Growth		
	Regulatory quality	Government Effectiveness	Economic governance
Lagged GDP per capita growth	0.820*** (0.000)	0.586** (0.015)	0.673*** (0.004)
Financial development	-34.199** (0.017)	-23.541*** (0.007)	-14.862*** (0.005)
Regulatory quality	2.309*** (0.026)		
Government Effectiveness		1.961*** (0.009)	
Economics governance			-1.006 (0.540)

Regulatory quality * Financial development	-24.617* (0.079)		
Government Effectiveness * Financial development		4.646 (0.642)	
Economic governance* Financial development			12.780 (0.974)
Openness	0.028** (0.025)	0.040*** (0.004)	-0.005 (0.496)
Gross capital formation	0.105* (0.085)	0.142** (0.033)	0.124 (0.108)
Inflation	-0.011*** (0.001)	-0.016 (0.466)	-0.045** (0.042)
AR(1)	(0.014)	(0.009)	(0.008)
AR(2)	(0.683)	(0.826)	(0.748)
Hansen	(0.667)	(0.859)	(0.522)
No of Instruments	13	13	13
No of countries	22	22	22
No of observations	260	260	260
No of sample groups	17	17	17

*Notes: The p-values are in brackets. ***, indicates 1% significance, ** stands for 5% significance and * represents 10% significance. The Sargan test is for the over-identifying restrictions.*

5.2 Discussion of Findings

FD negatively impacts EG in low-income countries across the models. This finding supports some past studies (e.g., Ngongang, 2015; Ibrahim and Alagidede, 2018; Asteriou and Spanos, 2019; Nguyen, Brown and Skully, 2019; Yang, 2019 and Nguyen et al., 2021). The negative effect of FD might be linked to the underdeveloped state of financial institutions in low-income countries. The level of development of the financial sector determines its efficiency and effectiveness in performing the crucial roles of allocating funds to the most productive sector of the economy and mobilization of funds for investment.

Institutional quality enhances the EG of low-income countries in SSA.

Studies by Akpan and Atan (2016), Sahni, Nsiah, and Fayissa (2021), Mehmood et al. (2022), and Ashraf, Luo, and Khan (2022) have also confirmed the growth impact of institutional quality. According to Akinlo (2016), institutional quality promotes low transaction costs by providing a legal framework and trust which allows transactions to take place decently. The low transaction cost encourages more investment in the economy hence EG. Also, when institutional quality guarantees property rights, savings and investment will increase which leads to an increase in output.

Sound institutional quality is expected to stimulate FD by increasing savings and investment in the financial sector and thereby resulting in EG. As noted

by Recuero and González (2019), the development of the financial sector would be aided by good institutions, notably a legal system that can enforce financial contracts, encourage financial intermediation, and lower transaction costs. However, evidence from this study shows that the interaction of institutional quality and FD harms EG in low-income groups. This might be due to the low level of institutional quality in the low-income countries of SSA. For instance, Demetriades and Law (2006) found that FD has more impact on EG in middle-income countries due to sound institutional quality and attributed the low impact of FD on EG in low-income countries to weak institutional quality. Also, in South Asia where Anwar and Cooray (2012) found that institutional quality stimulates the effect of FD on EG, the institutional quality is stronger than SSA. The finding by Effiong (2015) in SSA shows that the interaction of FD and institutional quality on EG is insignificant which differs from the negative interaction term found in this study. The possible reason might be due to the different FD indicators used by the studies.

The study found a positive effect of gross capital formation on EG in low-income countries. This highlights the importance of gross capital formation to the growth of the economy. This finding is in line with Aslan and Altinoz (2021) and Uneze (2013), Akinlo and Oyeleke (2020), and Zaman, et al., (2021). The availability of infrastructure facilities is capable of attracting foreign direct investment and thereby increasing the investment level which in turn increases the level of output. The availability of gross capital formation also helps in lowering the production costs of industries and firms. This enables them to produce higher output and the same time makes their products cheaper and affordable which will increase the demand for their products.

According to the results of this study, trade openness fosters EG. This finding is consistent with Aremo and Arambada (2021) who found a positive connection between trade openness and EG in low-income countries. This finding also supports Fankem and Oumarou (2020) and Yinusa, Akinlo and Adejumo (2022). According to Baldwin et al., (2005) and Almeida and Fernades (2008), an increase in international trade can produce EG by promoting the diffusion of knowledge and technology from the direct import of high-tech goods. According to Bond et al. (2005), countries can profit from the potential advantages of rising returns to scale and economies of specialization when trade is open. Along this line, low-income countries in SSA can increase their income through the exportation of their raw materials that are unable to convert to finished products through their limited technology. Additionally, trade openness allows low-income nations to benefit from the transfer of new technology, promoting technological advancement and productivity growth that has boosted EG in those nations.

Inflation is found to negatively impact EG in low-income countries. This finding is consistent with Akinkunmi (2017) and Mandeya and Sin-Yu Ho (2021). Inflation causes instability and uncertainty in the economy. Uncertainty leads to a reduction of investment in the economy as the economic agents are reluctant to invest due to the unpredictable investment climate.

6 Conclusion and Implication of Findings

FD is critical to the development of any economy. However, the contributions of FD to EG might depend on institutional quality. Therefore, this study examined the interaction effect of FD and institutional quality on the EG of low-income countries in sub-Saharan Africa during the period

2001-2020. The study used the FD index reported by IMF to proxy FD. The study employed the system GMM in estimating the results. The results found that FD fails to contribute to EG in low-income countries. The study also found that institutional quality enhances EG. Finally, the study found that institutional quality does not enhance the effect of FD on EG.

On the basis of the findings from this study, some significant conclusions can be made. First, the negative effect of FD on EG implies that the necessary policies must be put in place to ensure the efficient operation and growth of financial institutions in the region. Therefore, the low-income countries in SSA should make intensive efforts to develop the financial sector. This might be essential for effective resource allocation, which could be a game-changer in advancing the growth agenda of the region through competition, innovation, dynamism, and increased participation in the global value chain. Therefore, funds ought to be directed toward the creation of payment system platforms and services,

financial innovation, and consumer information flow. Second, the ability of institutional quality to promote EG shows that institutional quality is important for growth in low-income countries. Sound institutional quality reduces corruption, strengthening the protection of property rights and the efficiency of the legal framework which might increase the pace of EG. Therefore, policymakers must focus on more development of institutional quality through appropriate policies. Third, since institutional quality failed to enhance the effect of FD on EG, it implies that institutional quality is necessary but insufficient to boost the effect of FD on EG. Though the development of institutional quality is a good network through which the financial sector can be developed in low-income countries but additional policies must be in place to achieve the optimum growth impact of FD. There is a need for various governments of low-income countries to put in place policies that will ensure the improvement of both the financial sector and institutional quality.

Appendix A2: List of the Selected low-income countries in SSA region

Burkina Faso	Ethiopia	Mali	Sudan
Burundi	The Gambia	Mozambique	Togo
Central African. Rep	Guinea	Niger	Uganda
Chad	Guinea-Bissau	Rwanda	Zambia
Congo, Dem. Rep	Madagascar	Sierra Leone	
Eritrea	Malawi	Somalia	

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