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A. Aribatise and T.S. Akintunde

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A. Aribatise
T.S. Akintunde

Abstract

*This study examines the dynamic relationship between financial development (FD), institutional quality (INS), and poverty (POV) to determine whether financial development can either reduce or exacerbate poverty while including the mediating role of institutional quality in selected West African countries from 1986–2021. However, the study used the cross-sectional augmented-autoregressive distributed lags (CS-ARDL) technique and the second-generation unit root (CADF and CIPS) test for stationarity due to the cross-sectional dependence in the series. The results showed that FD has a positive (non-significant) impact on POV in the short run and a negative (statistically non-significant) in the long term. In contrast, INQ and POV have a negative (statistically non-significant) and inverse relationship. FD*INS has a negative coefficient in the short run and a positive in the long term; this implies that FD and INQ complement and substitute each other in the short and long term, respectively. The study shows that GDP per capita and government expenditure positively impact poverty in the short run, indicating the effectiveness of expansionary policy in reducing poverty. The study suggests improving governance and regulatory institutions to boost financial sector growth and enhance welfare for low-income people by providing easy access to finance.*

Keywords: *CS-ARDL; CIPS; CADF; financial development; institutional quality; poverty JEL classification: G20; I30*

1. Introduction

The financial sector in Africa, which consists of a relatively diverse array of banks and other financial institutions, is one of the most fascinating in the world. The continent's banking industry is one of the most innovative and fastest-growing in the world. It also ranks second in profitability (Chironga et al., 2018). Following the initial wave of reforms that took place in the 1990s with interest rate liberalization (effective financial intermediation towards productive sectors), the privatization of state-owned financial intermediaries (eliminate political meddling and boost banking sector productivity) as well as implementation of micro-prudential guidelines and strengthening of Central Bank supervision (ensuring financial institutions' viability and stability, as well as the recovery of non-performing assets), a significant transition and development has taken place in financial systems across the African continent. However, as this performance is not somewhat reflected at the level of the various regions, including West African countries and other countries, the evolving character of Africa's financial sector has been a cause for concern (Laghamari, 2020). This is due to the feeble institutional framework

characterized by governance and regulatory deficiencies, high levels of corruption, lack of regulatory agencies' capacity, and ineffective bureaucracies (Kama, 2006).

Several country members of Economic Communities of West African States (ECOWAS) have implemented several institutional reforms over the past two decades to improve corporate governance, including the establishment of international organizations like the African Union (AU) Convention against Corruption, Transparency International, and the United Nations Committee on Anti-Corruption (UNCAC). In line with the Sustainable Development Goals (SDGs), which promote strong institutions, it was anticipated that the institutionalization of democracy (which is being recently threatened by the coup de tat in some countries in West Africa) would bring about several anticipated benefits, including good governance, the strengthening of current institutions, improved corporate governance practices, and an overall improvement in the welfare of the citizenry (Wandeda et al., 2021). Despite these major institutional reforms across the continent, the quality of institutions in West Africa has continued to be weak compared to other regions despite the players, as mentioned earlier, who are vital in improving institutions and financial sector development through regulation and reforms. These reforms and many more are expected to impact the performance of the region's countries, thus ensuring sustainable financial access and improving the standard of living of the citizenry, hence breaking the cycle of poverty.

Furthermore, several attempts, strategies, and approaches have also been adopted in Africa to reduce or alleviate poverty. Some of these key international organizations involved in poverty alleviation through their projects and activities are the World Bank, International Monetary Fund (IMF), The Organisation for Economic Corporation and Development (OECD), Ford Foundation, Bill and Melinda Gate Foundation, Department for International Development, United Nations Development Programme (UNDP), United States Agency for International Development (USAID), International Fund for Agricultural Development (IFAD) and others such as UNESCO, WHO, UNIDO. The government has also implemented macroeconomic changes to lessen the burden of domestic debt and high interest rates; this is anticipated to encourage greater private-sector-led growth and aid in eradicating poverty.

However, this expectation has not been realized in West African economies despite the government's efforts at alleviating poverty with varying reforms and policies to strengthen institutions and promote both uses and access to formal financial products; poverty continues to be a major problem in this region. This study is, therefore, informed by the unimpressive economic performance in this region, which is theoretically attributed to the high level of corruption and weak institutions. However, understanding the influence of institutions' quality on financial development in the West African region is not only necessary but also necessary for a proper analysis of poverty reduction in the region. Therefore, this necessitates a study examining institutional quality's influence on financial development and the effect on poverty in selected West African countries.

2. Review of Literature

Empirically, the relationship between financial development and poverty has been the subject of an expanding body of literature, drawing the attention of academics, stakeholders, and policymakers. However, this literature has conflicting and inconsistent empirical evidence across nations, data, and methodology. Herger et al. (2008) examined institutional quality as one of the factors influencing financial development. Using 129

countries, the study showed that regulatory institutions were crucial to financial growth. These studies, however, confirmed the findings of Levine (1998) that the legal and regulatory environment is crucial for financial development. Also, using threshold estimation techniques in a cross-section of 85 countries from 2009 to 2012, Ng et al. (2015) explored whether there is a difference in the growth effect of stock market development depending on the protection levels for minority shareholders and property rights. They found that the extent of property rights protection proxy for the quality of institutions affects the growth effect of stock market development. Huang and Sing (2015) examined 37 Sub-Saharan African nations from 1992 to 2006 to examine this relationship. Their findings suggest that if financial deepening is not supported by strong ownership rights protection, it causes income disparity to worsen and poverty to rise. The relationship between financial development, institutional quality, and poverty was further examined by Cepparulo et al. (2016); the study's scope included several developed nations surveyed between 1984 and 2012. According to the findings, financial development (FD) lowers poverty.

Additionally, the authors demonstrated how institutional competence lessens FD's effects on poverty. Similarly, a panel of 60 developing nations was studied between 1985 and 2008. Abdin (2016) estimated the effect of financial development and financial instability on poverty reduction in a different study. This analysis discovers a strong and theoretically significant association between the concerns using a time series data collection for Bangladesh between 1974 and 2013. According to the findings, financial development directly lowers poverty by giving people experiencing poverty more access to credit and savings opportunities and indirectly by fostering economic growth. Using a different approach but obtaining similar results, Rewilak (2017) examines whether financial development helps reduce poverty. They applied the instrumental variables approach, divided financial development into four categories, and used recently released data. The study discovered that decreasing the percentage of persons living below the poverty line can be achieved through financial deepening and improved physical access. Rashid and Intartaglia (2017) examined the effect of financial development on poverty in developing economies. The study determines whether institutional quality and GDP growth impact financial development's ability to reduce poverty. The study discovered that financial development significantly impacts poverty alleviation when institutional frameworks are robust or/and high economic growth is strong.

Another study by Muhammad (2017) uses cross-sectional and panel data sets for Islamic nations to investigate the relationships between financial development, institution quality, and poverty. The empirical results demonstrate that economic growth and inclusion considerably reduce poverty in the Muslim world. However, the impact of financial development on alleviating poverty is inconsistent across different financial development indicators. In contrast, the impact of institutional quality on alleviating poverty is still strongly negative and substantial across all models. In the Muslim world, corruption is the most critical predictor of poverty. Using the three-stage least squares method, Kaidi et al. (2019) employed a sample of 132 nations observed between 1980 and 2014 to explore the relationship between financial development, institutional quality, and poverty. They demonstrated that FD does not enhance the conditions of people experiencing poverty and that the choice of KPIs affects how well institutions perform concerning poverty and financial development. In a similar study but on the contrary, Kaidi and Mensi (2019) also explored the connections between poverty, political institutions (PI), income inequality (INEQ), and financial development (FD). Different

estimating techniques and two distinct samples were used in their investigation to examine the link. A panel of 93 democratic countries makes up the first sample, while a panel of 31 autocratic nations makes up the second. Results show that, in contrast to autocratic nations, FD and democratic institutions, considered separately, contribute to closing the wealth gap by lowering poverty in democratic nations. Strangely, the connection between FD and PI in democratic countries does not lower INEQ and poverty compared to authoritarian nations.

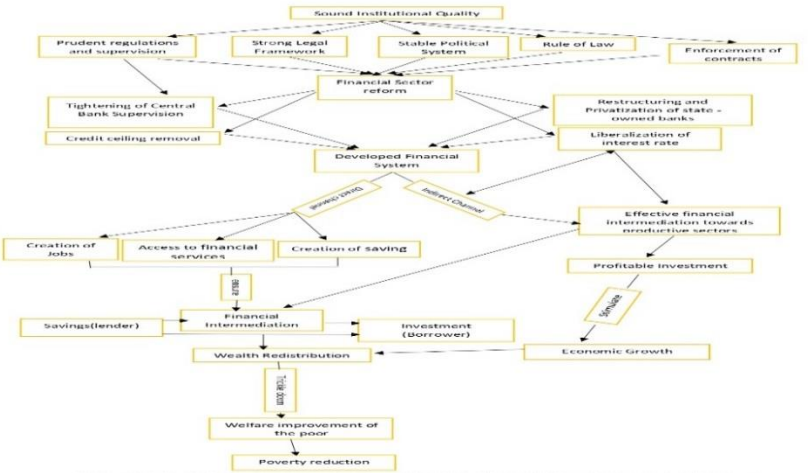
In contrast to high-income countries, the sub-democratic analysis produces different conclusions in poor, mid, and upper-mid-income countries. Using fixed effects and accounting for the interaction effect between the financial sector and institutional framework, this study examines the relationship between financial development and poverty for a sample of SSA nations from 2000 to 2019. According to Fashina (2021), financial progress had a statistically significant and advantageous effect on the decline of poverty. The estimates also show that the quality of institutions has a considerable, favourable impact on reducing poverty. However, it was shown that where institutions function better, financial development's pro-poor impact is also better. Applying the Limited Information maximum likelihood (LIML) estimate technique. Abaidoo and Agyapong (2022) investigated the relationship between institutional quality and the variations in financial growth among Sub-Saharan African (SSA) economies. All things being equal, the results imply that institutional quality accelerates the financial development rate among the sub-region economies. Also, for a sample of 16 West African nations covering the years 2002–2019, Appiah-Otoo et al. (2022) evaluate the moderating influence of institutional quality in the finance–poverty nexus. The results demonstrate that finance (as measured by domestic credit and money supply) lowers poverty; however, the beneficial impact of finance on reducing poverty is lessened by poor institutional quality. In a similar study, Aracil et al. (2022) investigated the moderating role of institutional quality on the connection between financial inclusion and poverty reduction over a sample of 75 developing and developed countries (2004–2017) using the OLS and quasntile regressions. The study discovered that the positive impacts of financial inclusion on poverty rates are amplified by institutional quality. In contrast to wealthier economies, this effect is more noticeable in poorer ones.

Introducing a new dimension to growing literature, Olaniyi et al. (2022) incorporated an asymmetric framework into how poverty reduction reacts to shifts in economic growth. This goal was achieved using Nigerian data for 1980–2018 and a nonlinear autoregressive distributed lag estimator. The results show an asymmetric structure in the finance-poverty nexus over the long run, but the asymmetric influence is absent over the short term. The banking sector's expansionary and contractionary policies are found to be long-term drivers of poverty reduction in Nigeria. However, only an expansionary strategy offers a powerful short-term stimulant for accelerating poverty reduction. From the studies reviewed in this section, the bulk of the studies in the literature focus on the typical proxies for financial development, such as the ratio of private credit to GDP or stock market capitalization, which cannot fully account for the concept of financial development. This study, however, differs in the area of financial development measurement. It brings a new dimension to existing studies on this subject by resorting to the broad-based financial development recently proposed by Svirydzenka (2016). Extant literature on the subject matter has not focused on this; hence, this study fills this gap in West Africa.

3. Methodology

This study's fundamental tenet regarding the conceptual framework of the linkage between the quality of institution and financial development is drawn from the law and finance theory (La Porta et al., 1998) and is predicated on the institutional school of thought. The theory stressed the significance of legal institutions in the financial market and the effect on poverty reduction.

Figure 1. The Linkage Among Institutional Quality, Financial Development and Poverty



Sources: Author's concept (2023)

Figure 1 explains the linkage between the quality of institutions, financial development, and poverty. However, strong/quality institutions would bring about a robust legal framework, stable political system, rule of law, prudent regulations, and enforcement of contracts. La Porta et al. (1997) and Beck et al. (2003) stated that financial development is consistently higher when legal frameworks are strong. However, weak frameworks may erode the efficiency of the legal framework, reducing the pace of financial development. Girma and Shortland (2008) and Rose and Siegel (2009), while explaining the roles of political institutions, stated that there is strong evidence that political and administrative stability induces financial development.

Furthermore, it is found that the political system that constrains the influence of specific interest groups, which is quite common in democratic systems, exhibits more developed financial systems. Thus, the evidence indicates that stable political systems that constrain executive influence exhibit higher levels of financial development. When systems are stable, there are more incentives to invest in the long run and to develop trust in the financial sector. However, when the political elites are less restricted, this influence may be used to constrain financial development.

The institutional framework, such as prudent regulation and supervision, enforcement of contracts, and rule of laws that guide the operations of the banks and protect the depositors, encourages savings. The banks pool the savings together and make it available in short- and long-term loans for borrowers and investors, boosting economic activities. Additionally, essential factors for the growth of banking and financial systems generally include the level of trust and transparency of the laws governing the financial sector and the legal protection provided to creditors. These institutional frameworks,

therefore, aid and facilitate better reform in the financial sector. Basic reforms in the financial sector, such as interest rate liberalization, restructuring and privatization of state-owned banks, abolishment of credit ceiling, tight central bank supervision, etc., ensure a development in the financial system. Thus, any financial reform's effect on the financial sector's development is necessarily the reorganization of the institutional environment.

Furthermore, a developed financial system would either directly or indirectly facilitate improvement in the welfare of the poor, reducing poverty. Therefore, the developed financial system would increase access to financial services for low-income people, create jobs, encourage remittance, and, as such, encourage savings, which will assist them in growing their income and obtaining capital, ensuring financial intermediation. Financial intermediation through the banking system is crucial in advancing technological advancements and economic development by providing necessary services like directing capital to high-yielding (profitable) investments, which encourage economic growth. Aghion and Bolton (1997) reveal that wealth redistribution from the wealthy to the poor may be a means through which the advantages of a thriving financial sector trickle down to the poor. This, therefore, improves the poor's welfare and ultimately enables them to overcome the cycle of poverty.

3.1 Model Specification

In line with the conceptual framework discussed above and to investigate the dynamic association among institutional quality, financial development, and poverty in selected West African countries over the period 1986-2021 and follow the available literature and corroborating empirical evidence in line with Dollar and Kraay (2002), Clark *et al.,* (2006) and Kaidi *et al.,* (2018), the study specifies the level of poverty as a function of financial development and institutional quality.

POV= f (FD, INS) (1)

Where POV is a measure of the incidence of poverty, *INS* is an institutional quality indicator, and *FD* is the financial development indicator.

The empirical specification of the relation discussed in Eq (3.1) is expressed as follows:

$$POV_{it} = \beta_0 + \beta_1 INS_{it} + \beta_2 FD_{it} + \mu_{it} \quad (2)$$

The study introduces a set of control variables in the model to incorporate other variables that might impact the poverty level. Therefore, Eq (3.2) can be re-written as follows:

$$POV_{it} = \beta_0 + \beta_1 INS_{it} + \beta_2 FD_{it} + \beta_3 GDPPC_{it} + \beta_4 \text{GOVEXP}_{it} + \beta_5 \text{TRO}_{it} + \beta_6 (INS_{it} * FD_{it}) + \mu_{it} \quad (3)$$

where $POV_{it}$is a measure of the incidence of poverty in country i and period t; $INS_{it}$is institutional quality indicator; FD_{it} is the financial development indicator; $GDPPC_{it}$is the actual gross domestic product per capita; GOVEXP_{it} is government expenditure ; TRO_{it} is trade openness and the variable $(FD_{it} * INS_{it})$ represents the interaction terms of financial development and institutional quality. i and t represent the country and period, respectively. The coefficients $\beta_0, \beta_1, \beta_3, \beta_4, \beta_5 \; and \; \beta_6$ are parameters to be estimated while μ_{it} equals error correction term.

3.2 Panel CS-ARDL and Unit Root Test (Cross-Sectional Dependence Series)

The conventional unit root test is ineffective when cross-sectional dependence is present. To evaluate the degree of stationarity of the data, cross-section-augmented Dickey-Fuller (CADF) and cross-sectionally-augmented Im, Pesaran, and Shin (2003) are employed as second-generation unit root tests.

The CADF unit root test is modelled as follows:

$$\Delta Y_{it} = \alpha_i + b_i + Y_{i,t-1}\sum_{j=1}^{\rho i} c_{ij}\ \Delta Y_{i,t-j} + d_i t + h_t \bar{Y}_{t-1} + \sum_{j=0}^{\rho i} \eta \Delta \bar{Y}_{t-1} + \varepsilon_{i,t} \quad (4)$$

Where $i = 1,2,3, \ldots, t$

In this equation, α_i is constant, t is trend, $\Delta \bar{Y}_{t-1}$ is lags of differences and $\bar{Y}_{t-1}$ is the value of one term lag of $\bar{Y}_t$, respectively. While the CIPS unit root test is expressed as:

$$CIPS\ (N,T) = N^{-1}\ \sum_{i=1}^{N} CADF_i \quad (5)$$

Following Li and Ingham (2020), Ameer et al. (2020), Vo *et al.* (2022), and Carvelli (2023), this study employs the panel cross-sectionally augmented ARDL model (CS-ARDL) proposed by Chudik et al. (2016). However, the general cross-sectionally augmented ARDL model (CS-ARDL is specified as follows:

$$\Delta Y_{it} = \mu_i + \varphi_i(Y_{it-1} - \beta_i X_{it-1} - \emptyset_{1i}\bar{Y}_{t-1} - \emptyset_{2i}\bar{X}_{t-1}) + \sum_{j=1}^{\rho-1} \lambda_{ij} \Delta Y_{it-j} + \sum_{j=0}^{q-1} \zeta_{ij} \Delta X_{it-j} + \eta_{1i}\Delta \bar{Y}_t + \eta_{2i}\Delta \bar{X}_t + \varepsilon_{it} \quad (6)$$

Y_{it} (log POV) is the dependent variable, μ_i is the intercept, β_{it} is the slope coefficients of independent variables and lagged dependent variable. X_{it} (FD, INS, logGDPPC, GOVEXP, and logTOP) is a vector of independent variables. Where $\emptyset_{1i}$ which is the error correction term (ECM), after an economic shock, suggests an adjustment of short-run disequilibrium towards long-run equilibrium. $\bar{Y}_{t-1}$ and $\bar{X}_{t-1}$provide a long-run proxy for the unobserved factor, while $\Delta \bar{Y}_t$ and $\Delta \bar{X}_t$ provide a short-run proxy for the unobserved factor in equation (6).

The study employs data from 10 West African countries. The countries were chosen based on the availability of data for the years 1986 to 2021. Appendix 1 is a list of the selected West African nations.

3.3 Definition and Measurement of Variables

Table 1. Measurement of Variables and Sources

Variable	Symbol	Description	Sources	Measurement
Financial Development	FD	Overall Financial Development Index	IMF International Financial Statistics database	Index
Institutional Quality	INS	Democratic accountability Government stability Bureaucratic quality Corruption control Law and order	International Country Risk Guide (ICRG) assembled by the Political Risk Services (PRS) group.	Index
Poverty	POV	This is measured by household consumption as a ratio of population	World Development Indicator, 2021	Index
Economic growth	GDPPC	Gross Domestic Product per capita	World Development Indicator, 2021	US$ million
Government Expenditure	GOV_EXP	This is measured by the ratio of general government final consumption expenditure to GDP.	World Development Indicator, 2021	Index
Trade Openness	TRO	This is measured by the sum of exports and imports as a share of the GDP	World Development Indicator, 2021	Index

Source: Created by the authors

This study evaluated the moderating effect of institutional quality on the relationship between poverty and finance. In order to achieve this, a dataset covering ten (10) West African countries from 1986 to 2021 (Cameroun, Senegal, Niger, Togo, Mali, Burkina Faso, Nigeria, Ghana, Gambia, and Sierra Leone) was employed. The enactment informed this period of several institutional reforms and policies, and this period marked a paradigm shift towards democratization and strengthening the institutional, political, and legal framework for increased credit availability with various checks and balances. Additionally, most West African countries began implementing initiatives for poverty alleviation, bank reconsolidation in the 2000s, and economic liberalization in 1986 to expand the market-oriented financial industry.

4. Data Analysis, Result and Discussion

4.1 Descriptive statistics

Descriptive statistics emphasize the characteristics and composition of the data and how the variables behaved during the research period (Akintunde and Aribatise, 2022). Table 2 presents the results of the descriptive statistics.

Table 2. Descriptive Statistics

	LogPOV	INS	FD	LogGDPPC	GOVEXP	logTOP
Mean	4.4749	3.3837	0.1024	6.3552	12.5045	3.0984
Median	4.5084	3.3917	0.0935	6.3411	12.3351	3.9056
Maximum	4.7889	4.8250	0.2700	8.0712	26.0650	4.8789
Minimum	3.4401	1.6000	0.0178	4.8485	0.9112	2.2122
Std. Dev	0.1661	0.5978	0.0408	0.6757	4.6395	0.3540
Skewness	-2.7539	-0.2629	1.2489	0.2594	-0.1491	-0.1926
Kurtosis	13.3917	3.2208	4.8132	2.4195	3.3708	4.4091
Jarque-Bera	2137.79	4.8797	142.91	9.0932	3.3969	32.0095
Prob	0.0000	0.0871	0.0000	0.0108	0.1829	0.0000
Obs	360	360	360	360	360	360

Source: Created by the authors

Table 2 reports the descriptive statistics of the variables for the study. The results reveal that the standard deviation values spread out significantly from their respective mean values. Furthermore, the variables from the result of the descriptive statistics are within the range of their minimum and maximum values, respectively, depicting exceptional consistency between the mean and the median. For the skewness, the statistics revealed that all the variables except two skewed negatively. FD and LogGDPPC are positively skewed, and LogPOV, INS, GOVEXP, and logTOP are negatively skewed. Also, all the variables exhibited a leptokurtic distribution (value greater than 3) except LogGDPPC, whose distribution is platykurtic as the value is less than 3. Also, the Jarque-Bera (JB) statistics significantly reject the normal distribution for LogPOV, FD, logGDPPC, and logTOP, indicating non-normality and accept for INS and GOVEXP, indicating normality of their conditional distributions.

4.2 Correlation Test

It is always important to perform correlation analysis to show the presence of or otherwise exact or linear dependence among the regressors in a bit to avoid multicollinearity. Table 3, therefore, presents the Correlation matrix of variables.

Table 3. Correlation Matrix

	LogPOV	INS FD	logGDPPC	GOVEXP	logTOP
LogPOV	1				
INS	0.2538	1			
FD	-0.4689	-0.2103	1		
logGDPPC	-0.2448	0.1511	0.4628	1	
GOVEXP	0.4951	-0.1315	-0.2857	-0.2800	1
logTOP	0.3352	0.1264	-0.1585	-0.0428	0.1126	1

Source: Created by the authors

Since all of the variables' coefficients are less than 0.8, typically used as the benchmark, the summary of the correlation matrix shown in Table 3 shows that the correlation between all variables is modest. This demonstrates that the variables do not exhibit significant or exact multicollinearity. So, based on the outcome, we can observe that there is no linear dependence between any of the regressors. Specifically, the correlation matrix's coefficients fall between -0.042 to 0.495.

4.3 Preliminary Test

4.3.1 Cross-sectional dependence test

It is not implausible that there is cross-sectional reliance or dependence among African nations as they experience external shocks from commerce, capital mobility, financial systems, and other factors because of globalization. Therefore, the cross-sectional dependence (CD) test developed by Pesaran (2004) is used in this study to determine the presence or otherwise of cross-sectional dependence. The CD test contrasts the null hypothesis, which states that the residuals are cross-sectionally independent, with the alternative hypothesis, which states that the errors are cross-sectionally dependent.

Table 4. Cross-sectional dependence test

Variable	CD-Test	P-value	Correlation	Absolute Correlation
LogPOV	8.08	0.000	0.103	0.402
FD	13.26	0.000	0.329	0.454
INS	16.69	0.000	0.415	0.472
logGDPP	32.69	0.000	0.812	0.812
GOVEXP	13.23	0.000	0.713	0.527
logTOP	5.45	0.000	0.135	0.314

Source: Created by the authors

At a 5% significance level, Table 4, which shows the cross-sectional dependence test results, disproves the null hypothesis that the variables are cross-sectionally independent. As a result, cross-sectional dependence as an alternate hypothesis is accepted, i.e., for all of the variables considered, there is compelling evidence that cross-sectional dependence exists.

A second-generation unit root test that considers the variables' cross-sectional dependence and variability is used further to evaluate the degree of stationarity of the variables. Two tests were used: the cross-sectionally enhanced Im, Pesaran, and Shin (CIPS) test and the cross-sectionally enhanced Dickey-Fuller (CADF) test. CIPS is utilized for balanced panels, but CADF is acceptable for both balanced and unbalanced panels.

Contrary to cross-sectional augmented Dickey-Fuller (CADF), which is based on the null hypothesis that the series are all heterogeneous non-stationary with cross-sectional dependence, cross-sectional augmented IPS (CIPS) is based on the null hypothesis that the data are all homogeneous non-stationary (Pesaran, 2007).

Table 5. Unit root test with cross-section (constant)

Variables	CIPS Test		CADF test	
	Levels	1st diff	Levels	1stdiff
LogPOV	-2.502**	-6.101	-1.845	-3.785**
FD	-2.728**	-5.669	-2.394**	-4.023
INS	-1.988	-4.911**	-2.072	-3.802**
LogGDPPC	-2.157	-5.692**	-2.064	-3.205**
GOVEXP	-2.341**	-5.915	-2.078	-2.814**
logTOP	-2.511**	-5.861	-1.913	-3.533**
Critical Value 10%	-2.21		-2.21	
5%	-2.33		-2.33	
1%	-2.55		-2.55	

Source: Created by the authors

Table 6. Unit root test with cross-section (constant and Trend)

Variables	CIPS Test		CADF test	
	Levels	1st diff	Levels	1st diff
LogPOV	-3.317**	-6.277	-2.616	-3.691**
FD	-3.195**	-5.738	-2.954**	-4.111
INS	-2.482	-4.187**	-2.503	-4.173**
LogGDPPC	-2.716	-5.806**	-2.177	-3.344**
GOVEXP	-2.969**	-6.075	-2.280	-2.860**
logTOP	-3.051**	-5.734	-2.375	-3.657**
Critical Value 10%	-2.73		-2.73	
5%	-2.84		-2.84	
1%	-3.06		-3.06	

Source: Created by the authors

The unit root tests presented in Tables 5 (constant) and 6 (constant and trend), which use cross-sectionally augmented IPS (CIPS) and cross-sectionally augmented Dickey-Fuller (CADF) test statistics, reveal that the variables are either stationary at a level I(0) or stationary at the first difference I(1), indicating the existence of a mixed order of integration. Hence, As the estimation model excludes the I(2) series, the validity of the panel ARDL technique is ensured. As a result of the cross-sectional dependence and unit root hypothesis tests, this study uses an error correction model (ECM) variant of the cross-sectional autoregressive distributed lag model (CS-ARDL) created by Chudik et al. (2016) to investigate the mediating role of institutional quality on the relationship between financial development and poverty in selected West African countries. The CS-ARDL methodology is most appropriate as it includes additional averages of the lagged cross-section of the dependent variables and all regressors in the estimation.

Table 7. CS-ARDL regression results
(Dynamic) Common Correlated Effects Estimator - (CS-ARDL)

Variables	Coefficients	Std. Error	P-Value
	Short-run Estimation		
Δ logPOV	0.1122	0.9536	0.036**
Δ FD	0.2049	2.8478	0.943
Δ INS	-0.0214	0.0542	0.692
Δ logGDPPC	0.0006	0.0362	0.986
Δ GOVEXP	0.0027	0.0020	0.186
Δ logTOP	0.0155	0.0275	0.574
Δ (FD*INS)	-0.0868	0.7686	0.910
ECT(t-1)	-0.0887	0.0536	0.000
	Long-run Estimation		
FD	0.9413	2.9169	0.747
INS	-0.0481	0.0603	0.425
logGDPPC	-0.0060	0.0416	0.885
GOVEXP	0.0039	0.0023	0.096*
logTOP	0.0217	0.0280	0.438
(FD*INS)	0.2240	0.8032	0.780

Source: Created by the authors

In order to achieve the main objective of this study, which is to analyze the dynamic relationship among institutional quality, financial development, and poverty to examine the influence of institutional quality on financial development and the effect on poverty reduction in selected West African countries, The CS-ARDL result presented in Table 7 revealed that financial development (FD) at 5% level of significance has a positive and insignificant effect on poverty (POV) in the short run and negative and insignificant in the long-run. This implies that financial development can reduce poverty in West Africa in the short run, but the impact is not felt as it is not significant; however, in the long run, the positive relationship fades away. This could be due to the correlation between a greater poverty gap and increased income disparity, a byproduct of financial development. The coefficients of institutional quality are negative and statistically non-significant both in the short run and long run (see Table 7). This indicates that poverty and institutional measures have an inverse relationship, i.e., poverty levels decline as institutional quality rises in the short and long run. However, this is also not felt in the West African region due to poor economic performance, which is notable in West African economies and is associated with weak institutions (Butkiewicz and Yanikkaya, 2006).

Furthermore, the short-run coefficients of the interactive term of financial development and institutional quality (FD*INS) are negative and statistically insignificant at a 5% level and positive in the long run. This shows that financial development and institutional quality are complementary and substitute both in the short and long run. In the short run,

sound institutions strengthen the pro-poor impact of financial development to reduce poverty in West Africa. Also, in Table 7, statistics show that the error correction terms (ECT) estimate is negative. This is appropriately signed with a probability value of 0.0000 and an expected value of -0.0887. This indicates that the current year has corrected for about 8% of the difference from the previous year.

Also, the coefficients of GDP per capita and Government expenditure are positive and non-significant in the short run. This shows that the poverty rate also reduces in the short run as income per head increases. The poverty rate tends to decline as the government engages in policy that enhances overall aggregate demand while reducing budget surpluses or adding to deficits (expansionary policy). However, at a 10% level of significance, the coefficient of government expenditure is positive and statistically significant in the long run. This implies that government spending on alleviating poverty is most capital in nature as the impact is felt later. However, in the long run, government spending on productivity-enhancing investments would have been adequate to improve the welfare of people with low incomes in West Africa.

The trade openness (TOP) coefficients are also insignificant and positive in the short and long run. This implies that increased trade openness lowers poverty in West Africa. This finding implies that trade openness is advantageous to people with low incomes and has the potential to improve their living standards. The inference is that, if properly utilized, trade openness can lessen the burden of poverty in West Africa. As a result, the region's economic exchanges with the rest of the globe have raised the standard of living for the impoverished in West Africa.

5. Conclusion

Poverty has persisted as a significant societal issue and threat to nations all across the world, and it is more defined in Africa. West Africa has the highest poverty rates in the world (World Bank, 2019). However, despite the various reforms in West Africa to strengthen institutions and the positive and improved financial system over the years, poverty remains a challenge in the region. This prompted a study to examine the dynamic relationship among institutional quality, financial development, and poverty in selected West African countries to investigate the mediating role institutional quality plays in the finance-poverty nexus.

Due to the presence of cross-sectional dependence in the series, the study employed cross-section augmented Dickey-Fuller (CADF). It cross-sectionally augmented Im, Pesaran, and Shin (CIPS), which are second-generation unit root tests to check the order of integration of the variables. A cross-sectional augmented-autoregressive distributed lags (CS-ARDL) approach was applied to the analysis. The study revealed that financial development (FD) has a positive and insignificant impact on poverty (POV) in the short run and a negative and insignificant in the long run. This finding conforms to Clarke et al. (2006), Sing and Huang (2015), Zahonogo (2017), and de Haan et al. (2021). Empirical analysis also revealed that poverty and institution measures have an inverse relationship as coefficients of institutional quality are negative and statistically non-significant both in the short and long run. This finding reaffirms Tebaidi and Mohan's (2010) submission on the relationship between institutions and poverty but conflicts with the findings of Kwon and Kim (2014).

Furthermore, the interactive term of financial development and institutional quality (FD*INS) is negative in the short run and positive in the long run, showing that financial

development and institutional quality are complementary and substitute in the short and long run, respectively. This is in tandem with the findings of Rashid and Intartaglia (2017) and Aracil et al. (2022), which demonstrate that institutional quality enhances the positive benefits of financial development on poverty rates. Conversely, weak institutions reduce the pro-poor impact of financial development on poverty in the long run.

Furthermore, per capita GDP has a positive, non-significant effect on poverty in the short run but also negative in the long run. On the contrary, the coefficient of government expenditure in the long run is positive and statistically significant. This aligns with Zulher and Ratnasih (2021) and Tsaurai (2021). Trade Openness (TOP) coefficients revealed a positive, non-significant impact on poverty in West Africa in both the short and long run. These findings contradict the findings of Fowowe and Abidoye (2013), Ezzat and Ezzat (2018) and Magombeyis and Odhiambo (2018). However, they align with the findings of Zhang and Naceur (2019) and Musakwa and Odhiambo (2019).

5.1 Policy Implication of the Study

Strong institutional quality and the growth of the financial sector are effective means of promoting poverty reduction in selected West African countries. Hence, enhancing governance and regulatory institutions can positively impact the financial sector's growth. This will make it easier for people in socially and economically disadvantaged groups to access finance, which will help them raise their incomes, amass capital, and ultimately help them break the cycle of poverty. As a result, governments and policymakers in West African economies are urged to provide notable regulatory institutions with the necessary resources to support the growth of the financial sector and effectively increase the welfare of people experiencing poverty.

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About the Authors

Mr. A. Aribatise, Lecturer, Department of Economics, College of Social and Management Sciences, *Wesley University Ondo, adekunle.aribatise@wesleyuni.edu.ng*

Mr. T.S. Akintunde, Associate Professor, Department of Economics, Faculty of Social Sciences, Osun State University, Osun, *temitope.akintunde@uniosun.edu.ng*