African Review of Economics and Finance (2024),
ISSN (Print) 2042-1478
ISSN (Online) 2410-4906

ARTICLE

The Role of Institutional Quality and Financial Development in Economic Growth in Sub-Saharan Africa – Linear and Non-linear Analysis with Structural Breaks

Eunice A. Adu-Darko*

Central University
* Corresponding Author: eadu.darko@central.edu.gh/eunilids@gmail.com

Abstract

This paper explores both linear and non-linear impacts that institutional quality and financial development may have on the economic growth process in the sub-Saharan African region. Annual data from 1984 to 2019 from 28 sub-Saharan African countries was used. Established on the Solow neoclassical theory, we employ the Cobb-Douglas production function to assess the linear relationship; and the Constant Elasticity of Substitution (CES) to investigate a possible non-linear relationship. To prevent model misspecification and increase the power of the regressions, we apply panel cointegration tools that build in cross-sectional dependency and structural breaks. Our investigations expose significant positive relationships among economic growth, institutional quality, financial development, and capital for the 28 sub-Saharan African countries in the long run as long as structural breaks and cross-sectional dependence are taken into account. The impact of financial development enhanced by institutional quality on economic growth is positive and significant when structural breaks are considered for the Cobb-Douglas function. In the case of the CES function, the significantly positive impact is only present for financial development. Important policy implications on effective measures that stimulate economic growth in sub-Saharan Africa are derived from this study.

Keywords: Institutional Quality, Financial Development, Economic Growth, Structural Breaks, Sub-Saharan Africa, Cobb-Douglas Function, Constant Elasticity of Substitution Function

JEL classification: O40, C58, E44

Article history: Received: 20 April, 2022|| Accepted: 5 May, 2024

1. Introduction

The growth of every economy is a major concern for policymakers and the citizens. The desire to enhance human welfare has led to a plethora of research that seeks to unearth both the proximate and fundamental determinants of economic growth. Paramount among these determinants are the financial development of an economy (Levine, 2005, Murinde, 2012; Popov, 2018) and the quality of institutions (Rodrik, 2000; Balach and Law, 2015; Shobhee, 2017). In establishing the determinants of economic growth, both empirical and anecdotal research have corroborated the need to highlight

financial development and the quality of institutions (Murinde, 2012; Balach & Law, 2015; Rodrik, 2000a; Levine, 2005; Akinlo and Egbetunde, 2010; Popov & Rocholl, 2018). However, where these relationships exist, opinions differ as to their nature and direction (Wu et al., 2020; Bist & Bista, 2018). One strand of literature, the supply-leading, proposes that financial development influences changes in economic growth (Bijlsma, Kool & Non, 2017; Murinde, 2012; Levine, 2005), while the demand-following school of thought views growth as influencing financial development (Ellahi et al., 2021; Greenwood & Jovanovich, 1990). The relationship tends to be bi-directional for a third strand (Bangake & Eggoh, 2011; Fry, 1997) whilst a fourth argues in support of the absence of a significant relationship between them (Arcand, Berkes & Panizza, 2015; Rousseau & Wachtel, 2011). Finally, several studies have generated non-monotonic associations between the two such that, the positive effect of financial development on growth in a nation may reverse at certain specific periods or after a certain threshold of financial development has been attained (Berkes, Panizza & Arcand, 2012). The most prevalent finding from the literature is however, the fact that a well-functioning financial system offers many opportunities for sustained growth by providing services to the real sector and hence providing a link to economic growth (Murinde, 2012; Balach and Law, 2015; Levine, 2005; Akinlo and Egbetunde, 2010; Popov, 2018) [1].

Macroeconomic theory postulates that the quality of institutions is a fundamental determinant of economic growth (North 1991; Arvin et al., 2021). Indeed, in ascertaining the impact of finance on growth, an important determinant of growth that must be of equal importance is the quality of institutions. Murinde (2012) highlights the need to consider research on the role of institutional quality within the finance–growth space (Cheng et al., 2020; Fernández & Tamayo, 2017). The significant and important role institutional quality plays in enhancing economic growth in the finance–growth relationship is confirmed by Balach and Law (2015) and, Demetriades and Law (2006). When institutions such as a stable macroeconomic environment and contract enforcement are strong and of high quality, the resultant effect is a reduction in asymmetric information, and financial sector fragility and thus higher efficiency levels brought on by lower information and transaction costs (Ahmed et al., 2022). According to Rodrik et al., (2004) and Acemoglu, et al., (2014), institutions are fundamentally primary over integration and geography when deep determinants of income levels are being assessed. Various institutions have been found to enhance the performance of markets. These include institutions that ensure property rights, regulatory institutions, macroeconomic stabilising institutions, social insurance institutions, conflict management institutions, and democratic institutions (Rodrik, 2000a). However, there are varied findings in the empirical literature when considering the growth-institutional quality relationship. Consequently, in SSA, for financial markets to play their role of financial inclusion and acceleration of economic growth, these institutions must function adequately.

Further to this, strong institutions, such as contract enforcement and a stable macroeconomic environment, tend to reduce information asymmetry, thus reducing volatility and uncertainty in an economy. With SSA consistently being characterised by relatively weak institutions (International Country Risk Guide, 2019; World Governance Indicators, 2019; Knutsen, 2009; Shobhee, 2017; Milo, 2007), it is important to investigate what specific institutional factors moderate economic growth in the region. Rodrik (2000), in his seminal presentation on institutions for high-quality growth, maintains that markets need to be supported by non-market institutions to perform well and SSA markets are no exception (North and Weingast, 1989). In economies where corruption, fraud, and other anti-competitive behaviour generally go unpunished or unsanctioned, such regulatory institutions would be very few, and where they are present, they are not able to enforce fairness and equity in the financial system. Institutions for conflict management and social insurance need to be strengthened as these tend to impact the financial system. Addison et al., (2002) observe that financial

1. Arizala, Cavallo, and Galindo (2013), Ahmed (2010), Habibullah and Eng (2006), Ahmed and Wahid (2011), King and Levine (1993a, b); Fisman and Love (2003) all emphasize the need for finance towards achieving growth

development is vulnerable to social conflict. Rajan (2006) observes that, at the household level, social insurance measures, such as giving each individual a national identification number and creating credit registries where lenders share information about their clients' repayment records would help since all borrowers could then borrow using their future access to credit as collateral.

Sub-Saharan Africa, without a doubt, needs to find the most viable and effective policies that will use the financial sector as a channel for enhancing productivity and economic growth . A portion of the literature however suggests that financial sector reforms in the last few decades have not significantly and positively impacted economic growth. The lack of a stable and effective institutional environment has been given as a reason. There is, therefore, the need to identify institutional factors surrounding financial development in the region. Quality institutions reduce the transaction and information costs associated with financial intermediation, improve predictability as well as allocative efficiency, and thus enhance productivity (Murinde, 2012; Balach and Law, 2015; Demetriades and Law, 2006; Beck et al., 2000; Chinn and Ito, 2005).

Although the SSA financial system is mainly bank-based, the disruptive nature of innovative technology and global pressures have forced the industry to become more visible and more accessible following restructures like the financial liberalisation associated with World Bank's economic recovery programmes and well as the Asian and global financial crises. However, challenges associated with liquidity and depth continue to impede the development of the financial sector in the region, compared to other regions of the world. The main causes of such low levels of financial system advancement include a high number of low-income countries, and underdeveloped, undercapitalised, and illiquid stock markets (Bandura & Dzingirai, 2019; Allen et al., 2011). Although private sector credit to GDP has doubled from its 1995 position concerning financial innovation, SSA's private credit to GDP ratio of 17% was relatively low compared to the global average of between 32% to 43% in the periods before the Global financial crisis of 2008. The trend is the same for liquid liabilities (World Bank, 2017). However, it is important to note that significant progress has been made in SSA's financial sector. The regulatory environment and the economic environment have improved. The region's financial sector has seen size expansion and, stock market capitalisation and trading activity have improved over the last few decades (WDI, 2020). Characterised by military rule and civil wars in the 1950s through the 1790s, the financial sector was typically unstable and underdeveloped. Following 1990 to early 2000's World Bank's structural adjustment programs (SAPs), the region became more democratised in governance, and financially repressive systems gave way to a progressively more liberalized system. It is important to assess the effect of the change in financial structure on the growth of the financial system and the economy of the region.

Indeed, over the past few decades, many political and economic events have taken place across the globe, shaping the world's development during and sometimes, decades after their occurrence. Given their profound influence, many researchers have emphasised the need to account for structural changes caused by these events for more accurate analysis (Karavias et al., 2022; Westerlund, 2006a; Banerjee and Carrion-i-Silvestre, 2015; Ditzen et al., 2022; Lee & Strazicich, 2004). In the case of the SSA region, Structural Adjustment Programs (SAPs) instituted by the World Bank in the late 1980s, 1990s, and early 2000s, which saw the liberalisation of closed financial systems, the adoption of flexible exchange rate regimes, the institutionalisation of trade openness and the democratisation over the years have induced unprecedented political and economic changes.

The region has also witnessed various ethnic and tribal conflicts such as the Ivorian civil war in 2010, the 2008 and 2009 Boko Haram insurgency and Niger Delta conflicts in Nigeria, and the Liberian civil war, which spanned over several years in the 1990s. More recently, the war between Russia and Ukraine as well as the global COVID-19 pandemic are all events that may change the entire structure of economies and firms. It is against this background that this study seeks to detect and account for structural breaks introduced by these historical events to produce more reliable estimates in our investigation. This study is therefore intended to examine the influence of financial

development and institutional factors that impact economic growth in sub-Saharan Africa (SSA) when capital, labour, and technological advancement are all considered in the Cobb-Douglas and Constant Elasticity of Substitution (CES) production framework with structural breaks. Conflicting findings on finance and growth as well as institutions and growth, again, require further research into these associations and relationships. Hence, this research makes four contributions to the literature. Firstly, in SSA, research relating to finance, institutional quality, and economic growth is scanty and has not yet captured this group of 28 SSA countries . Secondly, SSA is consistently characterised by financial sector instability and low-quality institutions (International Country Risk Guide (ICRG), 2020). We therefore test the effect of finance conditioned on an index created from six types of institutions that are deemed to be primary determinants of growth (Rodrik, Subramanian & Trebbi, 2004; Rodrik, 2000a). Thirdly, the majority of research conducted with these three measures mainly conceptualise linear relationships only. We address this gap by considering the relationships for both the Cobb-Douglas and Constant Elasticity of Substitution (CES) production technologies. Finally, the past few decades have been associated with a range of structure-changing and notable events in SSA. Ignoring the effect of structural breaks in analyses would be misleading. Thus, we incorporate endogenously and exogenously determined structural break models in our analysis to avoid any form of model misspecification whilst making allowances for cross-sectional dependence.

Our main findings indicate that, in the absence of structural breaks, we could not find any evidence in support of long-run associations among the variables under investigation. For the linear model, upon introducing structural breaks and accounting for cross-sectional dependency, financial development, and institutional quality tended to have a positive association with economic growth. Interacting financial development and institutional quality, seemed to generate an even larger impact on growth. Thus financial development with adequately working institutions is fundamental to high-quality growth in SSA. In the case of the non-linear model, however, emphasises should be placed on the role of financial development and not institutional quality.

The rest of the paper is organised as follows. The next session is a review of the literature followed by a discussion of the materials and methods, which includes data, model specification, and methods of data analysis. We then have results and discussions leading to conclusions of the study.

2. Literature review

Having briefly discussed the existing schools of thought on the finance growth nexus, this section involves a brief assessment of the literature on institutional quality, financial development, and economic growth. Based on the research findings premised on the different paradigms of the finance–growth link, there's no conclusion on the direction and sign (Batuo et al., 2018; Mlachila et al. 2016). However, existing evidence is strongly tilted toward the important positive role finance plays in economic growth concerning direction, magnitude, or strength (Kaidi et al., 2019). Previous studies have typically focused on a 'more finance, more growth' concept and later 'better finance, more growth' concept. Yet other studies have tested the notion of more finance, better finance, and more growth. The present study leans towards the supply-leading finance-growth hypothesis. Further to this, the evidence also makes a case for moderating factors such as the quality of institutions which are deemed necessary and sufficient for finance to impact growth positively (Fernandez & Tamayo, 2017). Indeed, although finance may play a role in economic growth in terms of the direction, magnitude, and significance, there is growing evidence that various factors (including institutions, which are generally country or region-specific) may moderate this association. This study focuses on the moderating role of institutions by proposing that, without the complementary role of the five high-quality-growth promoting institutional categories and a sound democratic governance system proposed in Rodrik (2000), the growth effect from finance alone may be inadequate and insignificant (See Fernandez & Tamayo, 2017; Law et al., 2013). These institutions include property rights; regulatory institutions; institutions for macroeconomic stabilisation; and institutions for social

insurance with democracy as the bedrock institution.

In asserting that financial development will not have the required impact on growth without adequate institutions, various reasons could be given. Firstly, a lack of respect for and lack of stability for rules produces high levels of uncertainty and inefficient allocation of resources (Fernandez & Tamayo, 2015; Rodrik, 2000; 2002; North & Thomas, 1973) Hall and Jones (1999) and, Arizalla et al., (2013), Filippidis and Katrakilidis (2015), and Heil (2017). find that differences in institutions and government policies are reflected in differences in output per worker, productivity, and capital accumulation. Secondly, in the absence of adequate financial markets, transaction costs associated with financial services are high due to inefficiency in the system (Menyah et al., 2014). Thus, financial markets are unable to develop at rates good enough to propel real activity in economies. Thirdly information sharing reduces the potential of adverse selection and moral hazard when institutional settings are adequate. This results in risk-sharing which again reduces transaction costs and enhances efficiency (Fernandez & Tamayo, 2017). Fourth is the tendency for high levels of instability and illiquidity in the financial system when institutions do not work as they should (Mlachila et al. 2016; Law et al., 2013; Sahay et al., 2015)

Institutions are commonly viewed from the perspective of North (1991), who describes institutions as the rules of the game of a society or, humanly devised constraints that structure human interaction (Aluko & Ibrahim, 2020). Institutions consist of formal restrictions (rules, laws, constitutions), informal restrictions (norms of behaviour, conventions, and self-imposed codes of conduct), and their enforcement characteristics. Typically, the adequacy of institutions and their efficacy is termed institutional quality. The quality of institutions determines their contribution to the efficient allocation of resources. Various definitions of institutional quality are unified by the underlying principle of the existence of social systems and structures that shape the entire society's interactions in the market and non-market sectors. Institutional quality is posited to be a source of efficiency towards overall economic growth (Gylfason, 2004; Berhane, 2018). It is argued that, in the absence of adequately working institutions, volatility and uncertainty in markets will be high. This will be because there'll be a high risk of incentives not working and thus producing adverse outcomes. Quality institutions promote efficiency in several ways-: (a) broaden economic analysis beyond the ambit of traditional markets and thus capture a more wholistic set of mechanisms by which resources are allocated and distributed. (North, 1991); (b) ensure that information and transaction costs associated with economic transactions are reduced by promoting efficiency through the reduction of information asymmetries and adverse selection (Fernandez & Tamayo, 2017; Coase, 1992); and (c) mediating particular economic relationships such as business firms and contractual agreements by serving as governance structures (North, 1991). By ensuring the above, quality institutions produce predictability and stability in economic systems.

The quality of institutions has been a focus of attention in the finance-growth studies in SSA (Aluko & Ibrahim, 2020; Kebede et al., 2017; Wandeda et al., 2021; Acemoglu et al., 2014; Sahay et al., 2015b). Gries and Meirrekes (2010) investigate the associations between institutional quality and financial development by studying the factors that drive SSA's financial development. They do this for a panel of 19 SSA countries with data from 1984 to 2007. They find that SSA diverged indicating a vast financial underdevelopment and a relatively low level of financial openness. Highlighting the possible cause of such results to be low low-quality institutional framework, Mlachila et al., (2013) find that weak judicial enforcement is one of the major impediments to the region's banking system development. The quality of institutions is therefore essential to the finance-growth link. Quality institutions in the form of legal enforcement and better creditor protection catalyse access to external finance for firms (Beck et al, 2003) and creditor protection increases the credit to the private sector (Djankov et al., 2005). Legal systems that are effective make room for more flexible and adaptable conflict resolution. Effective legal systems again are associated with financial systems that are more efficient through lower interest rate spreads (Laeven & Majnoni, 2005). In a study based on the

Cobb-Douglas production function, Wandeda et al., (2021) institutional quality enhances growth for SSA countries using a 2-step systems GMM on 35 SSA countries with data from 2006 to 2018. Kebede and Takyi (2017) use data from 1996 to 2014 for 27 SSA countries and find a unidirectional relation running from finance to growth and growth to institutional quality after establishing a long-run cointegration relationship among these variables.

There's a possibility for problems of misspecification of models in the above studies because the possible presence of structural breaks and cross-sectional dependency were not factored into designing these tests. Boamah et al., (2017) attempt to address these issues in SSA by examining structural breaks in the response of equity returns to global factors when they investigate the country and industry effects on African equity returns. They explore the proportion of the variability in country index returns that are explained by global industry and country factors. By applying the Quandt test for unknown structural breaks method and the Bai and Perron (1998) test for structural breaks and variance decomposition techniques to investigate the response, Boamah et al., (2017) focused on 11 African countries between January 1996 and January 2013 within the framework of the Cobb-Douglas production function and observed that there is a presence of significant level and regime breaks in the relation between African index returns and the global industry factor around the period of the Global and Asian financial crises.

Scanty and inconclusive findings from SSA call for focusing on the institutional framework of SSA countries and their extent of contribution (Mlachila et al., 2016). It is a well-known fact that the absence of quality institutions may have impeded progress in many macroeconomic phenomena in SSA. Having adequate levels of legal, regulatory, policy, contract enforcement, property rights, and other institutional quality frameworks is essential for SSA to reap the full benefits of better financial systems (Effiong, 2015). Sub-Saharan African countries have made substantial progress in financial development over the past decade, but there is still considerable scope for further development, especially compared with other regions. Indeed, until a decade or so ago, the level of financial development in a large number of sub-Saharan African countries had regressed relative to the early 1980s. Except for the region's middle-income countries, both financial market depth and institutional development are lower than that of other developing regions. The Rodrik (2000) growth-promoting institutional categories, namely property rights institutions, regulatory institutions, institutions for macroeconomic stabilisation, institutions for social insurance, and institutions for conflict management may present some answers for SSA to better realize gains from financial development on growth.

An attempt to focus on the institutions for promoting high-quality growth proposed by Rodrik (2000) within the finance-growth link in the literature highlighted a few important findings. Due to weak property rights and contract enforcement in many SSA countries (ICRG, 2020; Aluko & Ibrahim, 2020; Abaidoo et al., 2022), financial systems are often faced with challenges that produce friction and higher transaction costs which result in negative growth. Djankov et al., (2007), using a sample of 129 countries, observed that, when the legal system spells out creditor protection rights and there are information-sharing institutions, private credit to gross domestic product ratios go up (See also Kaidi et al., 2019). Where regulatory institutions are not able to punish or sanction fraud, corruption and other anti-competitive behaviour, fairness and equity in the financial system tend to be non-existent. Furthermore, financial development is negatively associated with social conflict. Addison et al., (2002) observe that conflict reduces the demand for domestic currency as a medium of exchange and a store of value and that there is a significant reduction in financial development when there is conflict and this reduction is further impacted by increasing intensity of conflict.

Concerning the need for adequate social insurance institutions within the financial systems, Rajan (2006) observes that at the household level, giving each individual a national identification number and creating credit registries where lenders share information about their clients' repayment records would help since all borrowers could then borrow using their future access to credit as collateral. Strengthening institutions for conflict management and social insurance is likely to have a positive

impact on the financial system. Finally, a financial system situated in economic and political instability is not likely to thrive effectively due to interference, diversion, and misallocation of resources. This is because, when a financial system is found in a politically and economically unstable and corrupt society, there is very little chance of it succeeding as there are tendencies for political interference and misallocation and diversion of credit and other financial assets into unproductive ventures,) Indeed, although the general assumption that strong financial systems reduce transaction costs associated with finding the right kind of investment (which in turn promotes growth), other studies have stressed the need for moderating factors claiming that the absence of factors such as quality institutions will impede these functions of finance in the growth process (Law & Balach, 2015; Demetriades & Law, 2006; Murinde, 2012)

The vast majority of studies on financial development-institutional quality-economic growth have focused on the role of institutions such as legal origins, political stability, macroeconomic stability, contract enforcement, and property rights institutions (Effiong, 2015; Demetriades & Law, 2006; Aluko & Ibrahim, 2020; Kebede et al., 2017; Wandeda et al., 2021; Acemoglu et al., 2014). These studies among others have mainly found financial development to be inconsequential to growth in the absence of adequately functioning institutions. Moving a step further, we attempt to broaden the scope of institutional quality by including both market and non-market institutions as proposed by Rodrik (2000). We diverge from Rodrik's application of these institutions by considering their individual effects in the form of an index created from each of these institutions including democracy which Rodrik (2000) used as a meta-institution for these five institutions.

An important contribution this study seeks to make to the finance institutional quality growth study in SSA is the role that alternate production technologies can play in examining this relationship. Studies in finance-growth literature that have adopted the CES production framework include Alfaro et al. (2010) who developed a theoretical framework with CES production technology among others in the finance-FDI growth association; Agénor and Canuto (2017) who observed interactions between access to finance, product innovation, and labour supply within the CES framework and Macchiavello (2009) who investigate institutional quality and trade in the CES production framework. Given that the CES production function is an extension of the Cobb-Douglas, findings from SSA about institutional quality, finance, and growth may have important implications for policymakers. However, there's a gap with respect to the role of institutions in finance via efficiency enhancement in the CES framework.

3. Materials and Methods

This section focuses on the methods and materials used for the study, a discussion on economic growth, data sources, model specification, and the estimation methods used in this paper.

3.1 The Economic Growth Model

The Cobb-Douglas production function in equation (1) (Cobb & Douglas, 1928;) has been widely used in research on economics (Demetriades & Law, 2006).

$$Y = F(K, L) = A.L^{\alpha}K^{\beta} \tag{1}$$

Where: Y = production rate; L = labor input; K = capital/equipment input; A = technology; α and β are the output elasticity of labour and capital respectively. This study involves institutional quality and financial development in augmenting labour and capital in the allocative function of economic growth. Therefore, economic growth is a function of real capital stock per labour, institutional quality, and financial development, as presented in equation (2).

$$Y = f(k, INS, FD) \tag{2}$$

The baseline empirical model from Cobb-Douglas is given by equation (3)

$$lny_{it} = \alpha_0 + \alpha_1 t + \alpha_2 lnk_{it} + \alpha_3 lnINS_{it} + \alpha_4 lnFD_{it} + \alpha_5 ln(INS.FD)_{it} + v_{it} \quad (3)$$

Where γ_{it} is real output per labour for i country and time t, k_{it} real capital stock per labour, INS is institutional quality, FD represents financial development while INS.FD is the interaction variable that captures the effect of the moderating effect of institutional quality on financial development. 's are the coefficients of the independent variables and v is the error term. The CES production function is usually of the form in equation 4 as:

$$Y = F(K, L) = A[\omega K^{-\rho} + (1 - \omega)L^{-\rho}]^{\frac{-1}{\rho}} \quad (4)$$

Where $A > 0; 0 < \omega < 1; > -1$ and where ρ is the substitution parameter that determines the elasticity of substitution σ.ω is the distribution parameter; for any given value of σ (or ρ), ω determines the functional distribution of income. ϕ is the returns to scale parameter; the elasticity of substitution (ω) equals $\omega = 1/(1 + \rho)$. When $\phi = 1 and \omega = 0$, equation (4) collapses to the Cobb-Douglas production function. The empirical baseline model from CES is given by equation (5)

$$lny_{it} = \beta_0 + \beta_1 t + \beta_2 lnINS_{it} + \beta_3 lnFD_{it} + \beta_4 ln(INS.FD)_{it} - \frac{\phi}{\rho} ln[\delta k_{it}^{-p} + (1 - \delta)] + \epsilon_{it} \quad (5)$$

Where γ_{it} is real output per labour for i country and time t, k_{it} real capital stock per labour, INS institutional factors, FD represents financial development.β_0, β_1, β_2, β_3 and β_4 represent constant and coefficients of trend, institutional quality, financial development, and the interaction term. ϵ represents the error term, ρ is the substitution parameter and δ is the elasticity of substitution.

3.2 Data Sources

Based on the availability of data, annual data on real GDP per capita, capital stock, a cumulated institutional quality index, and financial development between 1984 and 2019 is used in this study. The individual institutional measures are law and order, bureaucracy, budget balance as a percentage of GDP, public spending on all social insurance programs, political stability, absence of violence/terrorism, and democratic accountability sourced from the ICRG and the World Development Indicators (WDI). An index of financial development constructed from Principal Component Analysis was employed (Menyah et al., 2014). To capture every aspect of the financial development process, the index was created from liquid liabilities, private sector credit, M2, and domestic credit from the banking sector, all expressed as ratios to GDP and extracted from the WDI. The capital stock was obtained from the Penn World Tables 9.1 (PWT 9.1). It is interesting to note that each section of SSA is represented in the panel of countries. All variables were logged.

3.3 Structural Breaks of the Model Specification

In the presence of structural breaks, the models to be estimated are stated below: Model 1: Constant, time trend with change in level

$$y_{i,t} = \mu_i + \beta_i t + \alpha_i D_{i,t} + \delta_i' X_{i,t} + e_{i,t} i = 1, 2, \ldots, N \text{ and } t = 1, 2, 3, \ldots, T \quad (6)$$

Model 2: Constant, time trend with change in both level and coefficients

$$y_{i,t} = \mu_i + \beta_i t + \alpha_i D_{m,i,t} + \delta_i' X_{i,t} + \gamma_i' X_{i,t} D_{m,i,t} + e_{i,t} i = 1, 2, \ldots, N, m = 1, 2 \text{ and } t = 1, 2, 3, \ldots, T \quad (7)$$

Where y_{it} is the dependent variable for each i at time t($\ln GDPPC$); $X_{i,t}$ is a $(T \times 4N)$ dimensional matrix of the independent variables ($\ln INS, \ln FD, \ln(INS.FD)$), μ is the intercept term, δ is the slopes of $(T \times 4N)$ dimensional matrix of the independent variables, γ the slope of the shift in the coefficient vector and t represents the time index. The break is not applied to lnk. m is the number of breaks, $D_{i,t}$ are dummy variables with τ being the breakpoint are defined as:

$$D_{i,t} = \begin{cases} 0 & \text{if} \quad t \leq \tau \\ 1 & \text{if} \quad t > \tau \end{cases}$$

3.4 Methods of Analysis

This section is a discussion of the analytical tools and techniques used to estimate the models. It includes the various unit roots tests, cointegration, and the regression models used.

3.4.1 Unit Root Tests

Panel unit root tests without structural breaks were conducted using the commonly applied Levin et al., (LLC) t^* (2002) test, Im et al., (IPS) W-stat (2003) test, and the Breitung t-Test (2000). To ascertain the integrated properties of each series in the presence of structural breaks, the Carrion-I-Silvestre et al, (2005) stationarity test with breaks, adjusted for cross-sectional dependence was conducted.

3.4.2 Cointegration Tests

The Pedroni (1999; 2004) cointegration test which can handle any data set due to its combination of parametric and non-parametric estimators was used to test for the presence of cointegration in the study. Two panel cointegration tests with structural breaks were conducted. The first is the Westerlund (2006) with the panel LM test with a level break; and the second, with a level and trend break. Next, the Banerjee and Carrion-I-Silvestre (2015) cointegration test, which accounts for both structural breaks and cross-sectional dependence, was employed. Here, one estimation involved a time trend and a level break only whilst the other had a time trend and breaks in constant and the cointegrating vector.

3.4.3 Long-run Coefficients and Error Correction Term

With the presence of cointegration, the speed of adjustment and the long-run elasticities will be determined using the dynamic fixed effect estimators (DFE) as applied in Pesaran et al., (1999), and Salim et al., (2017) and panel Fully Modified Ordinary Least Square regression. The DFE maintains constant slope parameters in the long and short run. To establish a unified break point, a Chow test is conducted on the two most frequently occurring break dates, which are then exogenously incorporated as breakpoint estimates for the panel. The breaks are applied to the trend and coefficients of FD and INS to accommodate the theoretical foundations of the production functions. To test the CES function, we apply a non-linear least square regression model in extending the work of You and Sarantis (2013) to a panel framework. We estimate the model in first difference to account for the stationarity of variables and thus avoid spurious outcomes since the variables are I (1) at level (Lee, Kim & Newbold, 2005). We exogenously incorporate the break dates used in the FMPOLS estimations into the model.

4. Results

4.1 Summary Statistics and Cross-Sectional Dependency Test Results

The results of the analysis are presented in this section. Table 1 entails descriptive statistics covering the 28 SSA countries as well as The results for the four tests used to determine the presence of

cross-sectional dependence provide evidence of strong cross-sectional dependence. The reported mean for capital stock per person was negative that of lnGDPPC and lnFD which were all positive. The Breusch-Pagan LM, Pesaran scaled LM, Bias-corrected scaled LM and the Pesaran CD tests strongly suggest evidence of non-spatial cross-sectional dependence. The results from Table 1 show that, the panel of countries have interdependencies when we consider their economies and financial systems.

Table 1. Descriptive Statistics and Cross-sectional Dependence (CSD) Tests

Descriptive Statistics					
Variables	Ob.	Mean	Std. Dev.	Maximum	Minimum
lnGDPPC	1008	6.9132	0.9510	9.4513	5.1019
lnk	1008	-0.5178	1.0742	2.1492	-3.1750
lnFD	1008	5.6836	0.2145	5.7168	6.1413
lnINS	1008	4.4493	0.4588	4.3869	10.1971

Cross-Sectional Dependency Tests				
Variables	Breusch-Pagan LM	Pesaran scaled LM	Bias-corrected scaled LM	Pesaran CD
lnGDPPC	6010.914***	204.8671***	204.4671***	39.0620***
lnk	5584.482***	189.3579***	188.9579***	47.3117***
lnFD	6278.016***	214.5815***	214.1815***	-2.00347**
lnINS	2101.451***	62.6813***	62.2813***	32.17102***

Summary statistics of the log of GDPPC, FD, INS, and k the entire panel of 28 SSA, Countries over the 36 years. (2) For CSD Test: H0: Cross-sectional independence. Tests based on fixed effect estimation (3) (***), (**) and (*) denote rejection at 1%, 5%, and 10%, respectively.

4.2 Panel Unit Root Test Results

The results from Table 2 indicate that all variables exhibit I (1) properties with and without structural breaks. Thus, the I (1) properties of variables theoretically allow for panel cointegration estimation. With structural breaks under consideration, we reject the null of stationarity and conclude that there's a unit root in the model when there's a trend and two level breaks. The results from the Carrion-I-Silvestre, Barrio-Castro, and Lopez-Bazo (2005) panel stationarity test are presented in Table 4. Break point estimates are based on the Liu et al., (LWZ, 1997) information criterion. Under the option of Bartlett and Quadratic spectral kernels and, regardless of the assumption concerning the heterogeneity in the long-run variance estimate, the variables had unit roots.

4.3 Cointegration Test Results

4.3.1 Panel Cointegration without Structural Breaks Results

Based on the Pedroni (1999; 2004) panel cointegration test presented in Table 3, the null of null cointegration is strongly supported for the panel. The results presented in Table 5 show that, there is no significant long-run association between per capita gross domestic product, financial development, institutional quality, and capital. These findings contrast the assertion by Rodrik (2000a) regarding institutions for high-quality growth but confirm the findings of Arcand et al., (2015) and Rousseau and Wachtel (2011). The Westerlund (2006) cointegration test results confirm the presence of cointegration among the variables in the presence of multiple breaks. As such, institutional quality has a significant relationship with financial development, capital, and economic growth when structural breaks are taken into consideration. The outcome is that; institutional quality is a necessary condition in economies when considering the finance-growth relationship.

Table 2. Panel Unit Root and Stationarity Test results

Without Breaks			
	Im, Pesaran, and Shin	Breitung	Levin, Lin, and Chu
Variables	W-stat (2003)	t-test (2000)	t*stat (2002)
lnGDDPC	2.4587	2.35892	-0.46471
	(0.9930)	(0.9908)	(0.3211)
△lnGDDPC	-10.3226***	-7.54600***	-7.0780***
	(0.0000)	(0.0000)	(0.0000)
lnINS	-0.38044	4.8819	1.5857
	(0.3518)	(1.000)	(0.943)
△lnINS	-19.3209***	-2.7421***	-12.6647-***
	(0.0000)	(0.0031)	(0.0000)
lnFD	3.80829	4.8240	2.0329
	(0.9999)	(1.0000)	(0.9790)
△lnFD	-3.4583***	3.5268***	-6.4953***
	(0.0003)	(0.9998)	(0.0000)
lnk	1.9708	-1.0143	0.4999
	(0.9756)	(0.1552)	(0.6914)
△lnk	-7. 4289***	-17.1340***	-5.2689 ***
	(0.0000)	(0.0000)	(0.0000)

Carrion-I-Silvestre, Barrio-Castro and Lopez-Bazo (2005) Panel Stationarity Test with Breaks				
Variable	Bartlett Test		Quadratic Test	
	Homo	Hetero	Homo	Hetero
lnGDPPC	9.296***	7.814***	21.108***	33.411***
lnFD	9.764***	8.4040***	51.9225***	66.6464***
lnINS	2.2664**	7.4655***	2.1085**	5.2514***
lnk	13.562***	9.331***	93.145***	118.513***

Notes: Deterministic intercept and trend; User-specified lag length: 1; Automatic bandwidth selection-: Newey-West; Kernel-Bartlett. All variables are I (1). For Carrion I Silvestre et al (2005), Null of Stationarity. LWZ information criterion. Maximum breaks, "mm" = 2. Spectral Kernel- Bartlett and Quadratic. Automatic Spectral window bandwidth selection from Andrews (1991), Andrews and Monahan (1992), and Phillips and Sul (2003). All variables are I (1). N= 28; T= 36 years. (***), (**) and (*) denote rejection at 1%, 5% and 10%, respectively.

Table 3. Panel Cointegration Test Results

Without Breaks			With Breaks		
Pedroni (1999; 2004) Panel Cointegration Test			Westerlund (2006) Panel Cointegration Test with Breaks		
Test	Statistic	Probability	Model	One Break	Two Breaks
Panel v-Statistic	-0.706	0.760	break in constant	28.146***	22.890***
Panel rho-Statistic	4.044	1.000			
Panel PP-Statistic	2.321	0.989			
Panel ADF-Statistic	2.104	0.982			
Group rho-Statistic	4.871	1.000	break in constant and trend	21.415***	30.816***
Group PP-Statistic	1.526	0.937			
Group ADF-Statistic	0.839	0.799			

For the Pedroni Test: H0: No cointegration. Deterministic intercept and trend; User-specified lag length: 1; Automatic. The results indicate a rejection of the null of no cointegration. bandwidth selection, Newey-West. Kernel: Bartlett. For Westerlund Test: H0: Cointegration. Critical values are on the left tail of the standard normal distribution. The null of cointegration is rejected. (***), (**) and (*) denote rejection at 1%, 5% and 10%, respectively.

4.3.2 Banerjee and Carrion-I-Silvestre (2015) Panel Cointegration with Structural Breaks

Results from the Banerjee and Carrion-i-Silvestre (BC) (2015) indicate that there's cointegration among lnGDPPC, lnFD, lnINS, and lnk. As presented in Table 4, both the Pseudo t ratio and the Bias rho test results favour the alternative hypothesis of cointegration. Indeed, the model with a level break with a time trend results in 57.143% of the individual countries significantly rejecting the null of cointegration. When the model is set up to account for a regime shift, the percentage of countries that significantly reject the null increases to 64.286%. There is evidence of the presence of common stochastic trends based on the results of parametric and non-parametric MQ tests. This is evidenced by the presence of 12 common factors. The Banerjee and Carrion-i-Silvestre (2015) test thus provides strong evidence in favour of a long-run relationship between the variables. Similar to the Carrion-I-Silvestre et al. (2005) test, the years in which breaks occurred most frequently are 1989 and 2009. Results from the Chow test indicate that there are significant breaks in 1989 and 2009 as a rejection of the null lends support to the existence of structural breaks at stated years . The Banerjee and Carrion-i-Silvestre (2015) test has further confirmed that given that structural breaks and cross-sectional dependency are recognised, financial development conditioned on good institutions in the SSA panel will have associations in the long run. Work done by Acemoglu et al., (2014), Balach and Law (2015), and Demetriades and Law (2006) affirm this position, while Papaioanno (2007) contrasts these findings.

Table 4. Banerjee and Carrion-i-Silvestre (2015) Panel Cointegration with Breaks and CSD

	Model A	Model B
Bias rho-test	-59.893	-20.423
% Individual rejections at the 5% level of sig	57.143%	64.286%
Common stochastic trends		
MQ test (Non-parametric)	-33.799	-32.206
r_{NP}: Number of common factors (Non-parametric)	12	12
MQ test (Parametric)	-32.284	-34.595
r_{NP} : Number of common factors (Parametric)	12	12

Note: Parametric Statistics for the Panel Cointegration Test. Sample: 1984-2019. H0: No cointegration. Under H0, both statistics have an N (0, 1) distribution. N=28, Cross-section dependence. Model A includes a level shift with a time trend and model B includes two regime shifts with a time trend. The most frequently occurring breaks were in 1989 and 2009.

4.4 Panel Structural Breaks Analysis

Structural breaks are important to the studies conducted in the SSA region. This is because; the region is characterised by events that are likely to alter the structure of its economy. Events and phenomena that may be attributed to the beak in 1989 include the Structural Adjustment Programs (SAPs) initiated by the World Bank in the latter part of the 1980s to early 2000s. Many SSA countries including Ghana, Nigeria, and Zambia are common examples of countries that adopted the SAPs. Many structure-changing constraints and conditions accompanied the SAPs. These included financial liberalization, democratization, educational reforms, trade openness, and exchange rate liberalisation. These conditions affected the region's economic structure as a whole due to the large number of countries that adopted them. Indeed, many countries transitioned from military rule into democracies during the 1990s and early 2000s. Other events that caused changes in SSA's structure included armed tribal wars, ethnic unrest, and conflicts. Such included the prolonged war in the Liberian war (1989 -1997) and the Rwandan genocide (1990 – 1994) and the operationalisation of a new constitution in Nigeria and the subsequent lifting of a ban on political parties (1989) among many others had a general impact on the sub-region. Furthermore, the southern part of the sub-region proved to be quite eventful and transformative in the latter part of the 1980s up to and including

the middle 1990s. Such transformative events included the creation of a decolonized Namibia and an ending to South Africa's apartheid. The second break period of 2009 can be attributed to the insurgency of Boko Haram and the conflicts in the Niger Delta in Nigeria in 2009; the 2007 to 2009 insurgency and rebellion of Mali's Tuareg tribe; the civil war in Cote d'Ivoire in 2010 and the Azawad insurgency in Niger from 2007 to 2009. From a global source, Africa was not excluded from the effect of the structure-changing effect of the global financial crises of 2006 to 2008 in the West. This may have been a contributory factor to the estimation of 2009 as the second break year (Essers, 2013).

The central finding from the analysis conducted suggests that including structural breaks and incorporating cross-sectional dependency renders the model used appropriately specified since the results encapsulate the possible impact of notable events that may be likely to affect the panel and by extension, the SSA region. The findings suggest that institutions enhance financial development to propel economic growth in SSA as long as the role of structural breaks is not neglected. Indeed, ignoring structural breaks is likely to yield major distortions in outcomes and lead to incorrect policy and economic outcomes.

4.5 Panel Long-run Coefficients and Error Correction

Results from Table 5 indicate that the FMOLS estimation suggests that all parameters were significant throughout the period under study. We submit that the negative parameter associated with the shift in 2009 may be due to the 2008 global financial crisis. The estimates for institutional quality were also negative in the slope shift in 1989. Again, the significantly negative slope shift parameter in 1989 may be linked to the weak institutional framework of the region that necessitated the economic recovery programs in SSA. Capital(k) is significant and positive as in theoretical assumptions. The time trend was negatively associated with GDPPC growth indicating a decline in technological advancement. More importantly, the interaction between financial development and institutional quality was positive before and after each break. The magnitude of the interaction progressively increased after each break and had a larger impact on growth than each of the variables did on their own. The negative effect of finance on growth is in line with findings from Cheng et al. (2021) and Nawaz et al., (2019) among others. According to Arcand et al. (2015), when credit is expanded with little accountability and a weak regulatory framework accompanied by inadequate monitoring of intermediaries, the role of finance in economic growth is likely to be negative. Taken as a whole, the FMOLS results reveal that although FD, INS, and k have a significant and positive impact on economic growth, the interaction of institutional quality and financial development had a higher impact. The error correction term, however, indicates that the economy of the panel can go back to its equilibrium at a slow rate of 5.40%. The findings of Bist & Bista, 2018 and Esso (2010), with data from 1960 to 2005 in growth in six West African countries that there's a long-run relationship between financial development and economic growth are confirmed by these results. These results again confirm the findings of Aluko & Ibrahim, 2020; Kebede et al., 2017; and Wandeda et al., 2021 which highlight the importance of institutional quality in the finance-growth association in SSA. It is important to mention that although the size effects are low, the R-square statistics show that the model fits the data well and has very good predictive capability.

4.6 Test Results with the CES

Based on a non-linear regression estimator for the CES production function, the results presented in Table 5 indicates a positive and significant association between financial development and growth in both the first and second regime. However, for the 3rd regime, this association becomes negative just like the linear model. Unlike the linear Cobb-Douglas specification, institutional quality does not have a significant association with growth in the non-linear CES model. Interestingly, the coefficient for the interaction term is not significant in all regimes for the non-linear model. The trend is

negative and significant only before the first break showing a rather negative effect of technological advancement on growth before 1989 for the panel.

Table 5. Panel Regressions

Fully Modified OLS			Non-Linear Least Square with Breaks			
Variable	Coefficient	Std. Error	Variables	Coefficient	Std. Error	Z-value
ECT	-0.054***	0.013				
Trend	0.003***	0.003	*Trend*	-0.287*	0.152	-1.890
$Trend_{1989}$	0.006**	0.006	$Trend_{1989}$	-0.013	0.026	-0.520
$Trend_{2009}$	0.013***	0.001	$Trend_{2009}$	0.008	0.007	1.150
lnINS	-0.457***	0.011	*DInFD*	0.055**	0.027	2.050
$InINS_{1989}$	0.089***	0.008	$DInFD_{1989}$	0.006***	0.002	3.640
$InINS_{2009}$	-0.123***	0.011	$DInINS_{2009}$	-0.004***	0.001	-3.000
lnFDINS	0.110***	0.011	*DlnFD*	0.0001**	0.000	-2.460
$lnFDINS_{1989}$	-0.142***	0.011	$DInINS_{1989}$	-0.142	0.128	-1.100
$lnFDINS_{2009}$	0.092***	0.011	$DInINS_{2009}$	-0.025*	0.014	-1.760
lnFDINS	0.2635***	0.0006	*DlnFDINS*	-0.019	0.014	-1.320
$lnFDINS_{1989}$	0.3626***	0.007	$DlnFDINS_{1989}$	0.030	0.139	0.220
$lnFDINS_{2009}$	0.4822***	0.0355	$DlnFDINS_{2009}$	-0.016	0.034	-0.450
			δ	-0.001***	0.000	-9.920
			ρ	-0.936***	0.079	-11.820
			φ	-33.385***	7.197	-4.640
			Wald Test			
R-squared	0.973		φ = 1	ρ = 0		
Adjusted R-squared	0.972		35.870	112.870		
			(P=0.000)	(P=0.000)		

Notes: FMOLS results are based on Banerjee and Carrion-I- Silvestre's (2015) cointegration test with two breaks in the coefficients and trend. (***), (**) and (*) denote rejection at 1%, 5% and 10%, respectively. Non-linear least squares estimates are heteroscedasticity and autocorrelation-consistent (HAC) standard errors. The Wald Test –Chi-square statistics value is used and probability is in brackets.

Indeed, in accounting for structural breaks, we find that the results generally suggest a need to focus on financial development instead of institutional quality as a determinant of economic growth in the panel of countries and SSA. The Wald test results in the CES framework with breaks reject the hypothesis that the returns to scale parameter has constant returns to scale (=1) Consequently, in the absence of unity elasticity of substitution, the CES is significantly different from the Cobb-Douglas function. Thus, for the SSA panel, an important finding and contribution to literature is that the role of institutional quality in the finance-economic growth association tends to be dependent on the underlying productive structure of an economy although the role of financial development is unchanged by this structure.

5. Conclusion

This study investigated the importance of financial development that is conditioned on quality institutions' growth in enhancing economic growth in SSA. Panel cointegration analysis with endogenously determined single and multiple unknown structural breaks and subsequent FMOLS estimations were conducted. Annual data on capital, financial development, institutional quality, and economic growth were used. In the absence of structural breaks, we could not find any evidence in support of long-run associations among the variables under investigation. For the linear model, upon introducing structural breaks and accounting for cross-sectional dependency, financial development,

and institutional quality tended to have a positive association with economic growth. Interacting financial development and institutional quality, seemed to generate an even larger impact on growth. Thus financial development with adequately working institutions is fundamental to high-quality growth in SSA. In the case of the non-linear model, however, emphasises should be placed on the role of financial development and not institutional quality.

6. Policy Recommendations

Given that the financial system is a necessary tool for the generation and allocation of capital as well as increasing productivity and hence growth, the large information and transaction costs associated with investment decisions may not allow the efficient allocation of capital. With adequately working institutions, however, financial development can better mitigate these costs and hence contribute to high-quality growth through more efficient information as financial institutions and markets will operate in an enabling environment. SSA countries need to place some emphasis on building adequate institutions that will complement the financial system's efforts at making financial information less costly and more efficient. Good institutions will ensure that stock markets play their role effectively to ensure faster productivity levels (Osman et al., 2011). Attention should be given to maintaining democratic dispensations devoid of conflicts. Again, the social insurance systems should be implemented and managed to ensure equity and fairness; whilst regulatory and contract enforcement institutions should be devoid of government interference and corruption. Additionally, institutions that manage the macro economy should institute policies that ensure a stable economy in terms of both fiscal and monetary policies.

Institutions that are growth-promoting such as are proposed by Rodrik (2000) should be strengthened as they tend to reduce the occurrence structure –changing events and phenomena that disrupt the underlying structure of the economy to achieve high and sustainable growth. Recent events such as the COVID-19 pandemic as well as the Russian –Ukrainian war among many other global and national events should inform policy–making in advance as many of them are cyclical and when not anticipated in policy-making can adversely impact nations and economies as many developing and even developed countries are experiencing. The geographical scope of this research poses a limitation in the sense that not all countries could be included due to the lack of data. Furthermore, to capture additional structural changes and their effects, a longer period of data would have been preferred although the 36 years is sufficient to make meaningful findings and contributions. Going further, these growth-promoting institutions proposed by Rodrik (2000) can be assessed individually to capture their individual effects on the financial system as well as the non-bank financial sector which continues to grow in the region.

Author Bio

Dr. Eunice Adu-Darko is a Senior Lecturer and former Head of the Department of Banking and Finance at and the Director for the Centre for Distance and Professional Education in Central University. She is a development finance economist. Her particular interest is econometrics, financial sector development, institutional quality, financing the extractive industries and the economics of distance education. She has expertise in the development and facilitation of eLearning. She acts as a reviewer for a number of journals and is a section editor of Social Science and Humanities Open (SSHO).

References

Abaidoo, R., & Agyapong, E. K. (2022). Financial development and institutional quality among emerging economies. Journal of Economics and Development, 24(3), 198-216.

Acemoglu, D., Gallego, F. A., & Robinson, J. A. (2014). Institutions, human capital, and development. Annual Review of Economics, 6(1), 875-912.

Addison, T., Chowdhury, A. R., & Murshed, S. M. (2002). To what extent does conflict reduce financial development? WIDER Discussion Papers//World Institute for Development Economics (UNU-WIDER).

Adu-Darko, E.A., (2021). Institutional quality in the finance-growth nexus in Sub-Saharan Africa (Doctoral dissertation, London Metropolitan University).

Ahmed, F., Kousar, S., Pervaiz, A., & Shabbir, A. (2022). Do institutional quality and financial development affect sustainable economic growth? Evidence from South Asian countries. Borsa Istanbul Review, 22(1), 189-196.

Akinlo, A. E., & Egbetunde, T. (2010). Financial development and economic growth: The experience of 10 sub-Saharan African countries revisited. The review of finance and banking, 2(1).

Aluko, O.A. and Ibrahim, M., (2020). Institutions and the financial development–economic growth nexus in sub-Saharan Africa. Economic Notes, 49(3), p.e12163.

Andrews, D.W., (1991). Heteroskedasticity and autocorrelation consistent covariance matrix estimation. Econometrica: Journal of the Econometric Society, pp.817-858.

Andrews, D.W. and Monahan, J.C., (1992). An improved heteroskedasticity and autocorrelation consistent covariance matrix estimator. Econometrica: Journal of the Econometric Society, pp.953-966.

Arcand, J. L., Berkes, E., & Panizza, U. (2015). Too much finance? Journal of Economic Growth, 20(2), 105-148.

Arvin, M. B., Pradhan, R. P., & Nair, M. S. (2021). Are there links between institutional quality, government expenditure, tax revenue, and economic growth? Evidence from low-income and lower-middle-income countries. Economic analysis and policy, 70, 468-489.

Balach, R., & Law, S. H. (2015). Effects of financial development, institutional quality, and human capital on economic performance in SAARC countries. The Empirical Economics Letters, 14(2), 131-141.

Banerjee, A., & Carrion-i-Silvestre, J. L. (2015). Cointegration in panel data with structural breaks and cross-section dependence. Journal of Applied Econometrics, 30(1), 1-23. https://www.econstor.eu/bitstream /10419/153025 /1/ecbw p0591.pdf

Bangake, C., & Eggoh, J. C. (2011). Further evidence on finance-growth causality: A panel data analysis. Economic Systems, 35(2), 176-188.

Beck, T., Demirgüç-Kunt, A., & Levine, R. (2003). Law, endowments, and finance. Journal of Financial Economics, 70(2), 137-181.

Berhane, K. (2018). The role of financial development and institutional quality in economic growth in Africa in the era of globalization. In Determinants of Economic Growth in Africa (pp. 149-196). Palgrave Macmillan, Cham.

Berkes, M. E., Panizza, U., & Arcand, M. J. L. (2012). Too much finance? (No. 12-161). International Monetary Fund.

Bijlsma, M., Kool, C., & Non, M. (2018). The effect of financial development on economic growth: a meta-analysis. Applied Economics, 50(57), 6128-6148.

Breitung, J. and Das, S., (2005). Panel unit root tests under cross-sectional dependence. Statistica Neerlandica, 59(4), pp.414-433.

Carrion-i-Silvestre, J. L., Barrio-Castro, T. D., & Lopez-Bazo, E. (2005). Breaking the panels: An application to the GDP per capita. Econometrics Journal, 8(2), 159-175.

Cheng, T.J., Haggard, S. and Kang, D., 2020. Institutions and growth in Korea and Taiwan: the bureaucracy. In East Asian Development: New Perspectives (pp. 87-111). Routledge.

Coase, R. H. (1992). The institutional structure of production. (Nobel Prize Lecture). The American Economic Review 82(4), 713-719. http://time.dufe.edu.cn/jing jiwencong/waiwenziliao/coase.pdf

Cobb, C. W., & Douglas, P.H. (1928). A Theory of production, American Economic Review, 18(1), Supplement,Papers and Proceedings of the Fortieth Annual Meeting of the American Economic Association, pp.139-165. http://links.jstor.org/sici?sici=0002-8282

Demetriades, P., & Law, S. H. (2006). Finance, institutions, and economic development. International Journal of Finance and Economics, 11 (3), 245–260. http://0-content.ebscohost.com.emu.

Djankov, S., Mcliesh C., & Shleifer, A. (2007). Private credit in 129 countries. Journal of Financial Economics, 84(2007), 299–329.

Ellahi, N., Kiani, A.K., Awais, M., Affandi, H., Saghir, R., & Qaim, S. (2021). Investigating the institutional determinants of financial development: empirical evidence from SAARCsaarc countries. SAGE Open, 11(2),

Esso, L. J. (2010). Re-examining the finance-growth nexus: structural break, threshold cointegration causality evidence from the ECOWAS. Journal of Economic Development, 35(3), 57.

Fernández, A., & Tamayo, C. E. (2017). From institutions to financial development and growth: What are the links? Journal of Economic Surveys, 31(1), 17-57. https://www.econstor.eu/bitstream/

Fry, M. J. (1997). Emancipating the Banking System and Developing Markets for Government Debt. Psychology Press. London, United Kingdom

Greenwood, J., & Jovanovich, B. (1990). Financial Development, Growth and the Distribution of Income, Journal of Political Economy, 98(5), 1076-1107

Gries, T., & Meierrieks, D. (2010), Institutional quality and financial development in Sub-Saharan Africa, Available at: http://www.csae.ox.ac.uk/conferences/2010-EDiA/papers/174-Gries.pdf

Gylfason, T. (2004). To grow or not to grow: Why Institutions must make a difference. CESifo DICE Report: journal for institutional comparisons; the international platform of Ludwig-Maximilians University's Center for Economic Studies and the IFO Institute. - Munich: IFO Inst, ISSN 1612-0663, ZDB-ID 21171841. – 292), 3-9, www.cesifo-group.de/DocCIDL/

ICRG (2020). International Country Risk Guide (ICRG) Researchers Dataset. https://doi.org/10.7910/DVN/4YHTPU, Harvard Dataverse, V9, UNF:6:UsSrUAVgGhE1GXc/I94ckg== [fileUNF].

Im, K.S., Pesaran, M.H. and Shin, Y., (2003). Testing for unit roots in heterogeneous panels. Journal of Econometrics, 115(1), pp.53-74.

Kaidi, N., Mensi, S., & Ben Amor, M. (2019). Financial development, institutional quality, and poverty reduction: worldwide evidence. Social Indicators Research, 141, 131-156.

Laeven, L., & Majnoni, G. (2005). Does judicial efficiency lower the cost of credit? Journal of Banking & Finance, 29(7), 1791-1812.

Lakens, D. (2022). Sample size justification. Collabra: Psychology, 8(1), 33267. https://online.ucpress.edu/

Lee, Y.S., Kim, T.H. and Newbold, P., (2005). Spurious nonlinear regressions in econometrics. Economics Letters, 87(3), pp.301-306.

Levin, A., Lin, C.F. and Chu, C.S.J., (2002). Unit root tests in panel data: asymptotic and finite-sample properties. Journal of Econometrics, 108(1), pp.1-24.

Levine, R. (2005). Finance and Growth: Theory and Evidence. In: Philippe Aghion and Steven Durlauf (ed.), Handbook of Economic Growth (1st ed.), 1(12), 934. Elsevier.

Liu, J., Wu, S., & Zidek, J.V. (1997). On segmented multivariate regression. Statistica Sinica, 497-525.

Menyah, K., Nazlioglu, S., & Wolde-Rufael, Y. (2014). Financial development, trade openness and economic growth in African countries: New insights from a panel causality approach. Economic Modelling, 37, 386-394.

Mlachila, M., Park, S. G., & Yabara, M. (2013). Banking in sub-Saharan Africa: the macroeconomic context. Banking in sub-Saharan Africa, 7. https://www.econstor.eu/ bitstream/10419/88938/

Murinde V. (2012). Financial Development and Economic Growth: Global and African Perspective. Journal of African Economies, 21(AERC Supplement 2), i10–i56, doi:10.1093/jae/ejr042, downloaded from http://jae.oxfordjournals.org/ at Pamukkale University on January 17, 2012.

North, D. C. (1991). Institutions. Journal of Economic Perspectives, 5(1), 97-112.

Osman, R., Alexiou, C. and Tsaliki, P. (2011), "The role of institutions in economic development", International Journal of Social Economics, Vol. 39 Nos 1/2, pp. 142-160.

Pedroni, P. (1999). Critical values for cointegration tests in heterogeneous panels with multiple regressors. Oxford Bulletin of Economics and Statistics, 61(S1), 653-670.

Pedroni, P. (2004) Panel Cointegration: Asymptotic and Finite Sample Properties of Pooled Time Series Tests with an Application to the Ppp Hypothesis. Econometric Theory, 20, 597-625.

Pesaran, M. H., Shin, Y., & Smith, R. P. (1999). Pooled mean group estimation of dynamic heterogeneous panels. Journal of the American Statistical Association, 94(446), 621-634.

Phillips, P. C., & Sul, D. (2003). Dynamic panel estimation and homogeneity testing under cross-section dependence. The econometrics journal, 6(1), 217-259.

Popov, A., & Rocholl, J. (2018). Do credit shocks affect labor demand? Evidence for employment and wages during the financial crisis. Journal of Financial Intermediation, 36, 16-27.

Rajan, R.G. (2006). Has finance made the world riskier? European financial management, 12(4), 499-533.

Rodrik, D. (2000). Institutions for high-quality growth: what they are and how to acquire them. Studies in comparative international development, 35(3), pp.3-31.

Rodrik, D., Subramanian, A., & Trebbi, F. (2004). Institutions rule: the primacy of institutions over geography and integration in economic development. Journal of Economic Growth, 9(2), 131-1 65. Accessed: 27-09-2013

Rousseau, P.L., & Wachtel, P. (2011). What is happening to the impact of financial deepening on economic growth? Economic Inquiry, 49(1), 276-288.

Salim, R., Yao, Y., & Chen, G. S. (2017). Does human capital matter for energy consumption in China? Energy Economics, 67, 49-59.

Westerlund, J. (2006). Testing for panel cointegration with multiple structural breaks [computer software]. Oxford Bulletin of Economics and Statistics, 68, 101-132. Oxford UK.

Wu, L., Shao, Z., Yang, C., Ding, T., & Zhang, W. (2020). The impact of CSR and financial distress on financial performance—evidence from Chinese listed companies of the manufacturing industry. Sustainability, 12(17), 6799.

You, K. and Sarantis, N., (2013). Structural breaks, rural transformation and total factor productivity growth in China. Journal of Productivity Analysis, 39(3), pp.231-242.