



Does financial sector development have a sustainable level of effects on inclusive growth in Sub-Saharan African countries? Evidence from dynamic panel threshold analysis

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Abstract

This study examines the threshold level of financial sector development on inclusive growth in sub-Saharan Africa (SSA) between 2000 and 2020 with the view to ascertain the level of sustainability in the relationship between financial sector development and inclusive growth in SSA countries. Data extracted from the World Development Indicator (WDI) and International Financial Statistics (IFS) were analysed using dynamic panel threshold (DPT) techniques. Findings revealed that there exists a positive and significant sustainable level of financial sector development of 0.098 (out of a scale of 0-1.0) that can stimulate inclusive growth in SSA. Likewise, findings at the sub-regional level showed that three out of four (Western, Eastern, and Central African sub-region) except the Southern African region, indicated the existence of a threshold level of financial sector development that can effectively impact inclusive growth. Therefore, this study concludes that the relationship between inclusive growth and financial sector development in most SSA countries is nonlinear and conditional on certain macroeconomic policies. It is recommended that policymakers in respective SSA sub-regions and countries implement policies that will promote relevant financial innovations, reforms, and efficiency in financial inclusion in other to promote financial development above the minimum threshold level in SSA countries.

Keywords: Central SSA sub-region, DPT, Eastern, Financial sector development, Inclusive growth, Southern, Western.

JEL Classification: O10; O40; O47; O49; O55; O57.

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Contribution of this paper to the literature

This study contributes to the growing body of literature by investigating the threshold effects of financial sector development on inclusive growth using sub-regional comparative analysis among SSA sub-regional blocs and, offers proper perception and guiding principle to researchers and policymakers on the subject matter of finance–inclusive growth nexus.

1. Introduction

Financial sector development can be defined as a set of improvements in the quality of the financial system's institutions, instruments, markets, and regulatory frameworks with the goal of lowering transaction costs and facilitating the exchange of goods and services through access to financial services. As a result, sector operations have unwavering effects on private wealth, company and customer behaviour, and the economy's cyclical performance. As a result, a well-developed financial sector has been regarded as a crucial impact in encouraging inclusive growth, and a failing financial sector remains one of the reasons why many developing countries around the world stay backward Also, Financial sector progress in both developed and developing countries can be viewed as a driver of inclusive growth and advancement because it facilitates the mobilisation of funds to; promote resourceful capital allocation, increase total factor productivity, facilitate free flow of goods and services and reduce inequality of opportunity through financial inclusion (Adusei, 2019; International Monetary Fund, 2016; Khan, Ahmed, & Bibi, 2019; World Bank, 2015).

Considering the developing region of sub-Saharan Africa in the last two decades, the financial sector development in most of SSA's countries has advanced, especially in middle-income countries. However, the financial market in SSA still lags compared to other regions of the world (Olayiwola, 2022; Olayiwola & Akinbobola, 2022; World Bank, 2018).

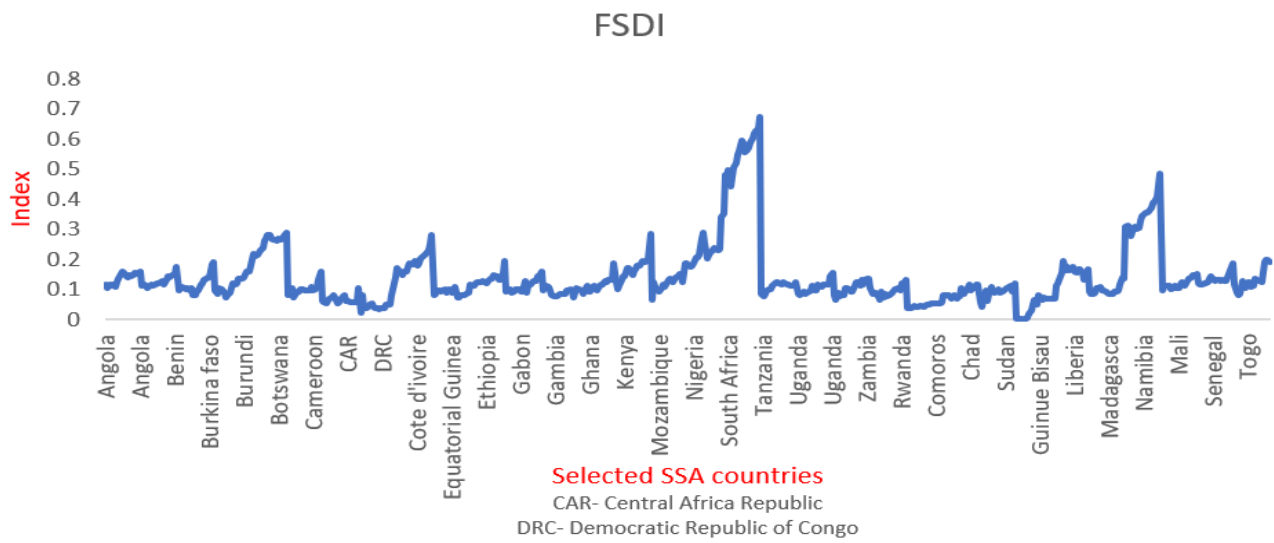


Figure 1. Financial sector development index in selected SSA countries.

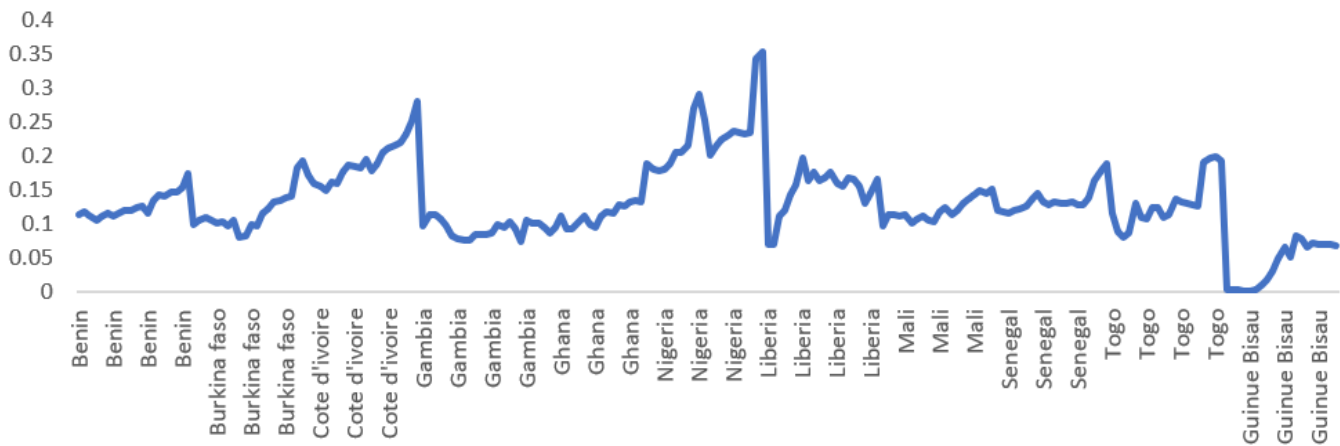


Figure 2. Financial sector development index in selected Western African countries.

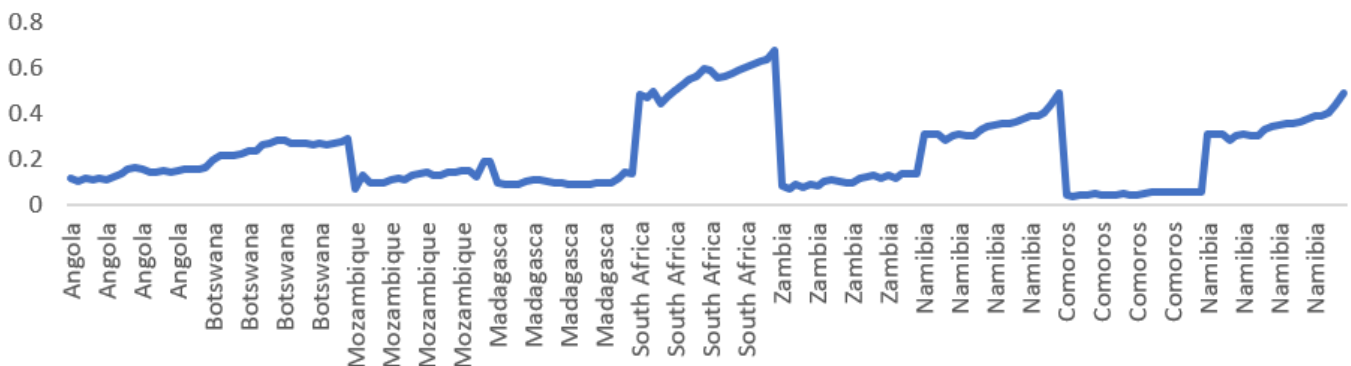


Figure 3. Financial sector development index in selected Southern African countries.



Figure 4. Financial sector development index in selected Eastern African countries.

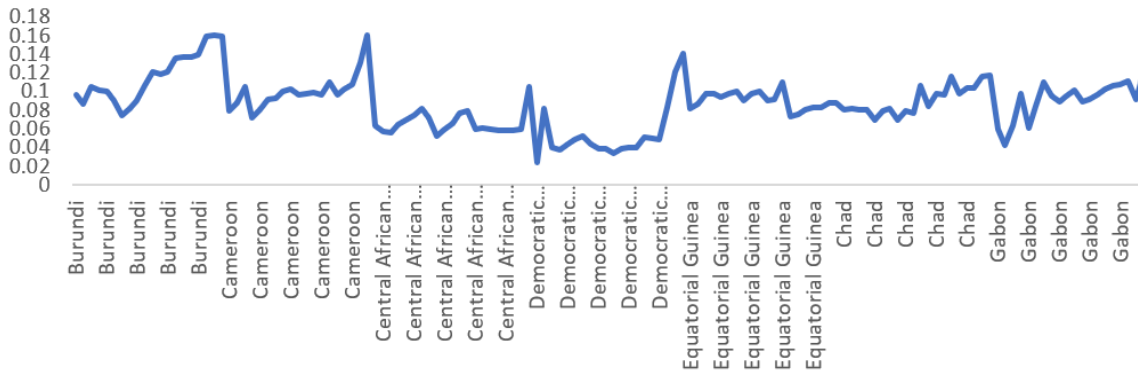


Figure 5. Financial sector development index in selected Central African countries.

On the other hand, the call for inclusive growth becomes topical in line with the United Nations' Sustainable Development Goals (SDGs) given the fact that, inclusive growth is an evolutionary dimension of growth that allows the poor and every stratum of the economy to benefit and participate in the economic growth process. Also, despite increases in their Gross Domestic Products (GDP) (in the last 20 years before the COVID-19 outbreak), most developing countries of SSA still have very low living standards, job opportunities, health, and education indicators. As a result, this concept becomes critical in this study because it is all about improving the general level of investment, productive economy, and education. Inclusive growth is a multifaceted idea of economic growth that is at the center of policy debates around the world because it provides more information about the growth of an economy than ordinary GDP (Asian Development Bank Strategy, 2020; Clarke, Xu, & Fou, 2017; IMF, 2016b; Joseph, Olayiwola, & Yinusa, 2019; Kiani & Ullah, 2015; Munir & Ullah, 2018; Olayiwola, 2022; Olayiwola & Akinbobola, 2022; Olayiwola & Joseph, 2020; Olayiwola, Okunade, & Fatai, 2021).

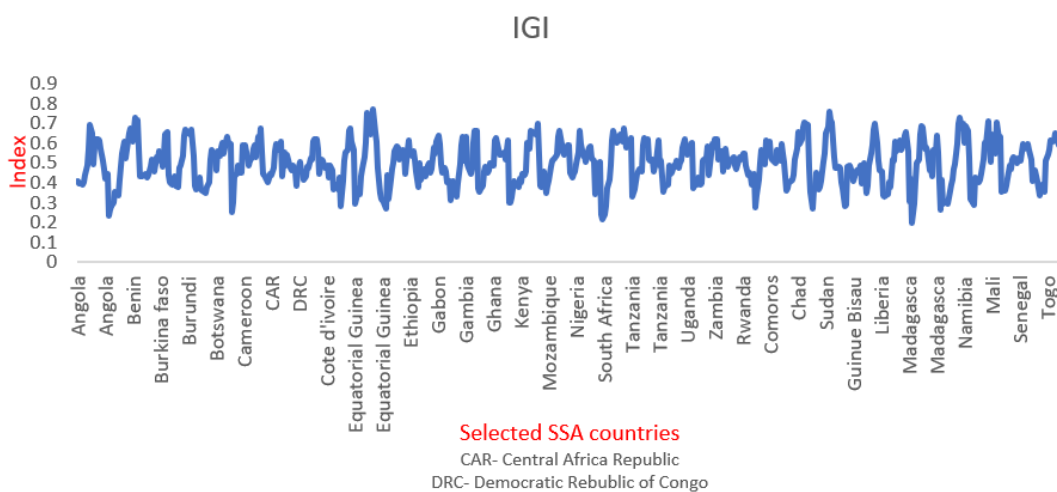


Figure 6. Inclusive growth in selected SSA countries.

Figure 6 illustrates the level of inclusive growth index in selected SSA countries.

Furthermore, despite well-established empirical links between the development of the financial sector and economic growth (a subset of inclusive growth), research outcomes in the context of threshold analysis from existing studies have remained mixed and inconclusive. Some empirical evidence suggested that financial sector development has supported economic progress in emerging economies and as such concluded that there is a threshold beyond which financial sector development can yield contrary effect on the economy (Aluko & Ibrahim, 2020; Bucci & Marsiglio, 2019; Cecchetti & Kharoubi, 2015; Ibrahim & Alagidede, 2017b; IMF, 2016a; Law & Singh, 2014; Ruiz, 2018; Sahay et al., 2015). Conversely, some other studies stated that the development of financial sector and the state of economic growth are unrelated. They concluded that there were no specific thresholds to distinguish between countries and regions that are more financially developed from those that are not (Demetriades & Rousseau, 2016; Ductor & Grechyna, 2015; Law & Singh, 2014; Mhadhbi, 2014). Hence, this study re-examines these conflicting views using inclusive growth which is a broad-based economic growth since studies in this area are relatively scarce in sub-Saharan Africa (SSA).

Therefore, in dealing with a critical question of how can finance guarantee inclusiveness in the growth process of any economy in SSA, the concept of inclusive growth which views economic growth from a wider-range and broader perspective becomes necessary for policy resolutions in sub-Saharan African countries. This is because inclusive growth is not only seen as an instrumental for enhancing economic inclusivity of nations but also a pivot

for ensuring sustainable development (a long run economic phenomenon). Considering this, this study provides answer to this question of whether the development of financial sector has any major effect on inclusive growth or not, and at what level can this be sustained in Sub-Saharan African (SSA) countries. Thus, it contributes to the growing body of literature by investigating the threshold effects of financial sector development on inclusive growth using sub-regional comparative analysis which has not been fully explored in the literature (particularly in the developing region of SSA). In fact, most research in Sub-Saharan African (SSA) countries and other developing nations concentrated on ordinary GDP in their finance-growth nexus. This study also pays close attention to the peculiarities and divergences of each subregional blocs because these sub-regional economic communities are now considered as the pillars of sub-Sahara African (SSA) economy and as such separating and comparing them would offer proper perception and guiding principle for policy recommendations on this subject matter.

This research is divided into five components. The second section is a review of empirical literature. Section three covers the methodology/model specification; and provides additional information on variable measurement and data sources. Section four offers the study's findings and discussion, while Section five concludes the study with policy recommendations.

2. Literature Review

The relationship between the activities of the financial system and economic growth is one of the most extensively researched issues in economic study, owing to the importance of finance in the growth of any economy. There are numerous studies that support a strong link between financial development and economic growth, beginning with [Schumpeter \(1911\)](#), as supported by [Odhiambo \(2010\)](#); [Uddin, Shahbaz, Arouri, and Teulon \(2014\)](#); and [Beck and Maimbo \(2014\)](#), among others, which had shown empirically how important and crucial the financial sector is to the success of any economy.

However, the last decade has also witnessed a number of investigations testing the connection between finance and the growth of an economy using country-specific and other forms of data with series of econometric tools and some of these studies show that; nations with improved financial system seem to progress sooner; and well-operating financial systems ease external financing constraints that hinder industrial development while others argued that issues concerning financial development and growth nexus remains extremely complex and as such should be taken with extreme caution ([Nyasha & Odhiambo, 2018](#); [Puatwoe & Piabuo, 2017](#)).

Also, it was confirmed that significant economic growth via private sector development and improvement in the public sector performance, are strongly linked to the development of financial sector ([Dhrifi, 2018](#); [Kargbo & Adamu, 2016](#)). Likewise, the empirical findings of [Beck and Maimbo \(2014\)](#); [Asghar and Hussain \(2014\)](#); [Urbšienė and Sendriy \(2014\)](#); [Fang and Jiang \(2014\)](#); [Ibrahim and Alagidede \(2017b\)](#) and [Bist \(2018\)](#) point to the fact that financial sector development helps in reducing economic volatility; promotes growth substantially in the long-run while on the contrary, some authors ([Chen, Hongo, Ssali, Nyaranga, & Nderitu, 2020](#); [Ibrahim & Alagidede, 2017a](#); [Okonji, Nnadi, & Igbanugo, 2018](#)) preach that the overall effect of financial sector advancement on the economy depends highly on some indicators as well as the nature of shock to the financial sector development and argue that financial development impacts economic growth negatively through the pressure of uncertainty in the financial system.

In the context of threshold analysis, research outcomes from existing studies have remained mixed and inconclusive. Some empirical evidences regarding financial sector development - growth nexus, have suggested that financial sector development has supported growth in emerging countries and concluded that there could be a point outside which financial development can have hostile influence on economic growth ([Aluko & Ibrahim, 2020](#); [Bucci & Marsiglio, 2019](#); [Cecchetti & Kharoubi, 2015](#); [Law & Singh, 2014](#); [Swamy & Dharani, 2019](#)) while some concluded that there were no specific thresholds to distinguish between countries and regions that are more financially developed from those that are not ([Demetriades & Rousseau, 2016](#); [Ductor & Grechyna, 2015](#); [Mhadhbi, 2014](#)). It should be noted that most of these extant studies combined data from both advanced and emerging economies and as such conclusions may not be directly applicable to a purely developing sub-Saharan Africa (SSA) region. Besides, these studies used only one-dimensional measure of financial sector development instead of a multidimensional measure (composite measure of financial sector development) that largely captures the rudimentary functions of the financial sector. They also ignored the direct and dynamic threshold level of financial sector development on broad-based growth (inclusive growth) which is the main objectives of this present study.

For example, while researching the relationship between financial development and growth, [Arcand, Berkes, and Panizza \(2015\)](#) discovered that there is a threshold effect because progress in the level of finance begins to have a negative effect on productivity when credit to the private sector, as a measure of financial development, reaches 80 to 100% of GDP. Their findings were like [Wachtel \(2011\)](#) discovery of a vanishing effect of financial development on economic growth. In addition, [Law and Singh \(2014\)](#) investigated the impact of financial development on economic growth in 87 advanced and developing countries, revealing that higher levels of finance are essentially unfavourable to economic growth. Similarly, while studying the threshold effect between 1980 and 2008, [Samargandi, Fidrmuc, and Ghosh \(2015\)](#) discovered an inverted U-shaped relationship between financial development and economic growth.

On the other hand, the studies by [Mhadhbi \(2014\)](#); [Ductor and Grechyna \(2015\)](#) and [Demetriades and Rousseau \(2016\)](#) while investigating financial development - growth nexus concluded there was no specific thresholds to distinguish between countries that are more financially developed (high or middle income countries) from those that are less developed (middle or low income countries) and as such financial development may not be a substantial determinant of growth when it comes to the issue of threshold. Findings from [Mishra and Narayan \(2015\)](#) while examining finance-growth relationship for 43 advanced and emerging economies, reveal that financial sector development influences growth positively if a nation's level of finance is developed beyond their cross-sectional averages, and negatively affects growth if the level of finance is developed is below the cross-sectional averages between 1980 and 2012. Their findings also revealed that finance promotes economic growth more in emerging nations than advanced economies. However, these generalized findings and conclusion may not be reliable for a purely sub-Saharan African (SSA) study in the context of dynamic threshold and sustainable level of financial sector development that can directly impact economic growth that is inclusive in nature, given the fact that the data used in these studies comprises of both developed and developing countries.

[Kargbo and Adamu \(2016\)](#) supported the finance-led growth hypothesis when investigating the relationship between financial development and economic growth in Sierra Leone between 1970 and 2008. While [Adeniyi,](#)

Oyinlola, Omisakin, and Egwaikhide (2015) discovered a U-shaped association between finance and growth using an autoregressive distributed lag growth model with Nigeria as a case study, and advocated that finance reduces growth up to a certain threshold beyond which it begins to increase growth, this contradicts earlier findings by Cecchetti and Kharoubi (2015).

Okonji et al. (2018) investigated financial depth as a measure of financial sector development then found that financial depth and stability have encouraging effects on economic growth while credit and lending - deposit spread had damaging effects on economic growth. It was also revealed that other financial sector development indicators apart from access to financial service have negative effects on discomfort index, which implies that financial sector development could improve economic welfare. Further, many empirical studies have pointed out that financial development results in faster economic growth with welfare implications (Kargbo & Adamu, 2016; Nwakobi, Oleka, & Ananwude, 2019). The findings of these studies did not determine optimal level of the aggregate welfare gains of financial sector development that benefit the whole economy in the same way or whether it disproportionately benefits the affluent or the underprivileged.

On the issue of finance- inclusive growth nexus, Olusola and Yinusa (2016) investigated this relationship in Nigeria and discovered that the impact of financial development on inclusive growth relies mainly on the measure of finance. Though, it was revealed that both trade openness and capital investment are necessary for inclusive growth. Also, in this study, financial development remained negatively related to inclusive growth as against the findings of Oluwasogo, Oduntan, and Oluwatoyin (2017) that revealed a positive nexus between them and by implication suggested that financial development alone can promote inclusive growth better in Nigeria. another related study by Ajakaiye and Tella (2014) on the potential trade-off between the regulation and stability of the financial sector in Nigeria by considering the implications of regulation on financial inclusion and inclusive growth, revealed that regulations strongly influence the stability of the sector as an essential tool for achieving financial inclusion and growth. However, these studies, though country-specific, did not provide adequate and comprehensive method of measuring and capturing inclusive growth and ignore the issues of threshold level effect in this nexus.

3. Model Specification

This study is based on the supply-leading hypothesis that views financial sector development as an instrument for promoting innovation. The proposition of this view emphasizes that advancement of financial sector has a helpful effect on economic growth (which could be all-encompassing in nature) because the benefit flows from financial sector development to growth due to some level of progress in productivity (wealth accumulation) or an upsurge in the rate of savings together with the rate of capital. According to this theory, the financial system can only promote economic growth and development by providing finance in advance of demand (Patrick, 1966). Therefore, supply leading gives room for resources to be transferred from one sector to another, promotes innovations in terms of entrepreneurial development, propels growth and create incentives for increased saving from the liberation of financial market and as such financial sector boosts the process of inclusive growth. In other words, inclusive growth (IG) is a function of a financial sector development (FSD) and this is stated as:

$$IG = F(FSD, X) \quad (1)$$

Where *FSD* stands for financial sector development, *IG* is the vector of inclusive growth index variables and *X* represents other control variables.

Linearizing Equation 1, is the transformational form is specified as:

$$IG_{it} = \beta_0 + \alpha_1 FSD_{it} + \alpha_2 X_{it} + \varepsilon_{it} \quad (2)$$

$$\text{Where, } \varepsilon_{it} = \mu_i + \nu_{it} \quad (3)$$

ε_{it} signifies the composite error term made up of the country-specific term μ_i and the time-varying disturbance term ν_{it} , both of which are supposed to remain identically and independently distributed. Similarly, Equation 2 is changed to a dynamic panel model. Thus, by adjusting Equation 2 to represent the panel threshold regression model created by Seo and Shin (2016) and Seo, Kim, and Kim (2019), Equation 4 which explains the threshold level of financial sector development that can affect inclusive growth in SSA can be derived as:

$$IG_{it} = (1, x'_{it})\alpha_1 1\{FSD_{it} \leq \gamma\} + (1, x'_{it})\alpha_2 1\{FSD_{it} > \gamma\} + \varepsilon_{it}\varepsilon_{it} - (\rho_i + \omega_{it}) \quad (4)$$

with $i = 1, \dots, n, t = 1, \dots, T$

IGI_{it} represents the dependent variable, which is a vector of inclusive growth indicators for nation *i* at time *t*; x'_{it} represents $k_1 \times 1$ vector of time-changing regressions consisting of sets of covariates representing control variables; $1\{ \cdot \}$ represents an indicator function; FSD_{it} stands for the threshold or transition variable of financial development; γ denotes the threshold estimate; α_1 and α_2 are the gradient coefficients related to regimes (1 & 2) separately; ε_{it} represents error term obtainable from the unobserved individual fixed effect (ρ_i) and zero mean "idiosyncratic random disturbance" (ω_{it}) (Olaniyi, 2021; Seo et al., 2019). The dynamic panel threshold method is still chosen over other threshold analysis methods because it allows the transitional variable(s) and other covariates to be endogenous. It also generates a resilient bootstrap method that establishes the presence of a threshold effect if the bootstrap p-value based on a higher statistical value exceeds the predicted levels of significance (Aluko, 2020; Seo & Shin, 2016).

3.1. Measurement of Variable and Sources of Data

The study collects annual data from 2000 to 2020, a period of 21 years. The descriptions and data sources are listed below.

FSD (Financial sector development index): The FSD index is a combined component of financial sector expansion that includes nine influences that summarize how advanced the financial segment is, based on the depth, access, and competence of financial institutions and financial markets (Source: International Financial Statistics, IFS).

IG (Inclusive Growth Index): This is an evolutionary component and comprehensive extreme degree of economic growth that allows the impoverished to benefit from and contribute to the economic growth process. The Inclusive Growth Index is calculated using the Z-sum score technique and is based on important economic development indicators such as education expenditure (%GDP), mortality rate under-5, primary school enrollment, health expenditure (%GDP), GDP per capita, investment, total reserve, and employment (all sourced from the World Development Indicator, WDI). As instrumental factors, other variables such as trade openness and inflation are used.

4. Findings and Discussion of Results

The dynamic panel threshold (DPT) results in Tables 1-5 show that all lag-dependent variables have statistically significant effects on their current states in all panels of SSA nations and sub-regions at the 1% level of significance. This demonstrates the significance of inclusive growth indicators' starting state in the present level of inclusive growth indices in SSA nations and sub-regions. This supports the use of a dynamic panel data model. As a result, the dynamic panel threshold (DPT) model used in this work is suitable.

The estimated DPT results in Table 1 from the panel of SSA nations show that financial sector development has a positive and statistically significant threshold value of 0.98 on inclusive growth in the Sub-Saharan Africa (SSA) area. This means that the threshold level required for financial sector development to have an impact on inclusive growth in Sub-Saharan African (SSA) countries is 0.1 (on a scale of 1.0). This implies that for inclusive growth indicators to successfully contribute to poverty reduction, most SSA nations must operate and maintain a minimum level of development in the financial sector that is more than 0.1 on a scale of 0 to 1.0. According to this minimum requirement, financial sector development cannot drive inclusive growth indicators to reduce poverty in any country that operates below this minimum degree of financial sector development.

Indeed, as illustrated in Figure 1, financial sector development in the majority of the selected SSA nations is running, on average, above this threshold point. This finding contradicts the findings of Law and Singh (2014), Mhadhbi (2014), Ductor and Grechyna (2015), and Demetriades and Rousseau (2016), who concluded that financial sector development and "state of economic growth" are unrelated and that at most frequency levels, there are no specific thresholds to distinguish between financially developed countries and regions. Aside from establishing this threshold level, the results show that the kink slope is statistically significant at the 1% level of significance (3.68). As a result, there appears to be a nonlinear link between financial sector development and inclusive growth in Sub-Saharan Africa (SSA). That is, the link between inclusive growth and financial sector development is indirect and so, on average, dependent on macroeconomic policies in SSA.

4.1. Evidence from West African Sub-Region of SSA

This sub-section focuses on the amount of financial sector development required to effectively promote inclusive growth in the SSA West African sub-region. Table 2 reveals that the financial sector development has a positive and statistically significant threshold value of 1%. This demonstrates that the minimal level of financial sector development required in West African countries to achieve favourable effects on inclusive growth is 0.12 (0.116) on a scale of 1.0. This suggests that, on average, financial sector expansion cannot boost inclusive growth to yield acceptable results in the West African sub-region when a country operates below this threshold level. The average sustainable level at which finance sector expansion might effectively accompany inclusive growth in Western African nations is 0.12.

This research outcome from West African sub-region contradicts the findings of Mhadhbi (2014); Ductor and Grechyna (2015) and Demetriades and Rousseau (2016) which concluded there was no specific thresholds to distinguish between countries that are more financially developed from those that are less developed. One of the reasons for this outcome could be that most West African countries have their financial sector development indicators around this threshold (see Figure 2). Meanwhile, inclusive growth would be effectively stimulated to reduce poverty level if the development in the financial sector, on the average, is persistently above the 0.12 threshold level in most West African countries.

4.2. Evidence from Southern African Sub-Region of SSA

The dynamic panel threshold (DPT) results in Table 3 indicate that financial sector development, on the average, has positive but not statistically significant threshold value. This indicates that the minimum level of development in the financial sector required in the Southern African countries to positively impact poverty reduction effects of inclusive growth is 0.12 out of the scale of 1.0. This implies that financial sector development has propensity to impact inclusive growth positively if above 0.12 on the average. It is obvious that this insignificant value may have occurred since it has been revealed in Figure 3 that most countries, if not all, in Southern African sub-region have their financial sector development indicators far above this threshold level. This stands in line with the conclusion of Mhadhbi (2014); Ductor and Grechyna (2015) and Demetriades and Rousseau (2016) that financial sector development may not be a substantial determinant of growth that is inclusive in nature when it comes to the issue of threshold because there were no significant thresholds to distinguish between countries that are more financially developed from those that are less developed.

4.3. Evidence from East African Sub-Region of SSA

The East African sub-region's financial sector development threshold value is positive and statistically significant at 1%. This conclusion implies that the minimal value of financial sector development required to enable equitable growth and poverty reduction in East African nations is 0.11 on a scale of 1.0 (see Table 4). As a result, for inclusive growth to have a significant influence on poverty reduction, financial sector development metrics in most East African nations must be consistently above 0.11. This shows that, on average, certain nations in the East African sub-region, as shown in Figure 4, are functioning below this threshold level, while others achieve this level but are inconsistent in their financial sector development.

Comparatively, this research outcome, like other SSA sub-regions apart from South African countries, indicates existence of threshold level of financial sector development that can effectively impact inclusive growth. This supports some of the previous empirical findings regarding the threshold effects of financial sector development on growth (Aluko & Ibrahim, 2020; Arcand et al., 2015; Bucci & Marsiglio, 2019; Samargandi et al., 2015; Swamy & Dharani, 2019).

4.4. Evidence from Central African sub-Region of SSA

According to the DTP results in Table 5, financial sector development in the Central African sub-region of SSA has a positive and statistically significant threshold level at the 1 percent level of significance. This means that the financial sector development index must be more than 0.10 on a scale of 1.0 before the industry may successfully impact inclusive growth. However, the average level of development in the financial sector in most Central African countries falls below the threshold value specified in section one's descriptive Figure 5. As a result, most of the

countries in this subregion operate below this criterion. This could be one of the key reasons why inclusive growth is so low in this subregion, given that the financial sector in most Central African nations has not evolved to the point of successfully channeling financial resources to the productive sector. This research concludes that, as in the case of West and East African sub-regions, there exists a threshold level beyond which financial sector development can effectively and positively impact poverty reduction effects of inclusive growth in Central African countries if adequate policies and measures to develop financial systems are put in place.

Table 1. Dynamic panel (DPT) threshold of financial sector development on inclusive growth in SSA.

Dependent variable: IG		Cross-section: 33 Time = 21 No of bootstrap: 1000 Prob > Boots: 0.000				
		Coefficient	Std. error	z	P> z	[95% conf. interval]
SSA: All selected countries	Lag_ig	0.319*	0.016	19.900	0.000	0.2877 0.3506
	fsd	-3.906*	0.470	-8.300	0.000	-4.8275 2.9838
	fsd_ig	-0.831*	0.015	-56.980	0.000	-0.8599 0.8027
	kink_slope	3.680*	0.456	8.070	0.000	2.7860 4.5733
	Threshold (r)	0.098*	0.001	99.050	0.000	0.0962 0.1001

Note: * and ** denote 1% and 5% level of significance respectively. fsd, ig and fsd_ig represent financial sector development index, inclusive growth index and the interaction between fsd and ig respectively. Also, r is the threshold level of financial sector development.

Table 2. Results of DPT of financial sector development on inclusive growth in West African region.

West African Sub-Region		Cross-section:11 Time = 21				
Dependent variable: IG	Coefficient	Std. error	z	P> z	[95% conf. interval]	
Lag_ig	-0.127*	0.036	-3.560	0.001	-0.3933 0.1389	
fsd	-2.824**	1.234	-2.290	0.022	-5.2429 0.4059	
fsd_ig	-1.280*	0.156	-8.200	0.000	-1.5862 0.9739	
kink_slope	2.040	1.241	1.640	0.100	-0.3935 4.4727	
Threshold (r)	0.116*	0.010	11.400	0.000	0.0961 0.1360	

Note: * and ** denote 1% and 5% level of significance respectively. fsd, ig and fsd_ig represent financial sector development index, inclusive growth index and the interaction between fsd and ig respectively. Also, r is the threshold level of financial sector development.

Table 3. Results of DPT of financial sector development on inclusive growth in South African Region.

South African Sub-Region		Cross-section:08 Time = 21				
Dependent variable: IG	Coefficient	Std. error	Z	P> z	[95% conf. interval]	
Lag_ig	-0.341*	0.011	-30.860	0.000	-0.6793 0.6572	
fsd	5.255	35.196	0.150	0.881	-63.727 74.2367	
fsd_ig	-1.077**	0.533	-2.020	0.043	-2.1213 0.0324	
kink_slope	-5.505	36.150	-0.150	0.879	-76.3575 65.3474	
Threshold (r)	0.117	0.281	0.420	0.678	-0.4343 0.6680	

Note: * and ** denote 1% and 5% level of significance respectively. fsd, ig and fsd_ig represent financial sector development, index, inclusive growth index and the interaction between fsd and ig respectively. Also, r is the threshold level of financial sector development.

Table 4. Results of DPT of financial sector development on inclusive growth in East African region.

East African Sub-Region		Cross-section:07 Time = 21				
Dependent variable: IG	Coefficient	Std. error	Z	P> z	[95% conf. interval]	
Lag_ig	1.222*	0.129	9.510	0.000	-2.2664 2.5237	
fsd	-1.698	7.776	-0.220	0.827	-16.9388 13.5419	
fsd_ig	-0.635*	0.229	-2.780	0.006	-1.0830 0.1866	
kink_slope	1.960	10.240	0.190	0.848	-18.1091 22.0297	
Threshold (r)	0.112*	0.015	7.250	0.000	-0.0360 0.2597	

Note: * denotes 1% level of significance respectively. fsd, ig and fsd_ig represent financial sector development, index, inclusive growth index and the interaction between fsd and ig respectively. Also, r is the threshold level of financial sector development.

Table 5. Results of dynamic panel threshold of financial sector development on inclusive growth in Central African Sub-Region.

Central African Sub-Region		Cross-section:07 Time = 21				
Dependent variable: IG	Coefficient	Std. error	Z	P> z	[95% conf. interval]	
Lag_ig	-0.438*	0.130	-3.350	0.000	-0.9882 0.7273	
fsd	-6.524	5.663	-1.150	0.249	-17.6234 4.5751	
fsd_ig	-1.196	1.520	-0.790	0.431	-4.1752 1.7834	
kink_slope	7.685	6.384	1.200	0.229	-4.8265 20.1972	
Threshold (r)	0.102*	0.006	18.340	0.000	0.0913 0.1131	

Note: * denotes 1%, level of significance respectively. fsd, ig and fsd_ig represent financial sector development index, inclusive growth index and the interaction between fsd and ig respectively. Also, r is the threshold level of financial sector development.

5. Conclusion and Policy Recommendation

This study explores the threshold level of financial sector development that can affect inclusive growth in Sub-Saharan Africa (SSA) between 2000 and 2020 to determine the nature of the relationship between financial sector development and inclusive growth in SSA nations. The results of the threshold level of financial sector development (minimum level) beyond which inclusive growth indicators are effectively stimulated in Sub-Saharan Africa (SSA) revealed that there exists a positive and significant threshold level beyond which financial sector development can

effectively impact inclusive growth, and thus the relationship between inclusive growth and financial sector development is not direct. In comparison, outcomes from the East African sub-region, like those from other SSA sub-regions other than South Africa, suggested the presence of a threshold level of financial sector development that can successfully impact inclusive growth. The study concludes that the relationship between inclusive growth and financial sector development in most SSA countries is not direct (nonlinear) and as such conditional, on average, on certain macroeconomic policies. As a result, policymakers in respective SSA countries and sub-regions are advised to implement special monetary regulatory policies such as liberalisation, deregulation, and risk-mitigation policies that promote the development of the region's financial sector above the minimum threshold level.

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