INSTITUTIONAL QUALITY, FINANCIAL INCLUSION AND ECONOMIC GROWTH: EVIDENCE FROM SELECTED SUB-SAHARAN AFRICAN COUNTRIES

By

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I certify that the aforementioned thesis, submitted to the University of South Africa for consideration of the doctor of philosophy degree is original work of mine, and all sources cited or used were properly cited and acknowledged in the work by means of references.

Signature:  Date: 30 October, 2022

Dedication

I dedicate this thesis to my late parents, Nde Kassem Golpet and Mrs. Cecilia N. Golpet, who believed in me and taught me the significance of education and continual learning as tools for empowerment, but the ‘cold hands’ of the dead could not allow them to witness this achievement.

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Finally, the responsibility for all the opinions and any errors in this thesis is solely mine, with the exception of the supervision and input from the aforementioned people.

Abstract

This study's main goal was to examine the relationship between institutional quality, financial inclusion, and economic growth in selected Sub-Saharan African (SSA) countries from 2004 to 2020. The rationale was to empirically establish the role that institutional quality and financial inclusion play in driving Sub-Saharan African economic growth. This was necessary due to the unstable economic growth rates that the SSA countries have experienced and which have prevented the region from moving toward sustainable development. Despite having enormous amounts of physical, human, and natural resources, the region has had growth rates that have fluctuated between 4 and 6 percent annually for the past 20 years, making it less developed. According to figures from the World Bank and the OECD, Sub-Saharan Africa's combined GDP growth, which peaked at 6.37 percent in 2002, plunged to 1.24 percent in 2016 before making a little recovery to 2.28 percent in 2019 and then slipping into negative growth in 2020. Previous research has focused on the economic causes of growth, with little emphasis paid to institutional quality and financial inclusion as proximate causes, which could explain Sub-Saharan Africa's underwhelming growth. The Generalised Method of Moments (GMM) and panel Autoregressive Distributed Lag (ARDL) approaches, as well as panel Error Correction Models (ECM), were utilised to examine the deterministic relationships, long-run and short-run cointegration and causality linkages, respectively, between institutional quality, financial inclusion and economic growth in the sampled SSA countries. We constructed an institutional quality index and a financial inclusion index using Principal Components Analysis (PCA). The findings showed that the combined effects of financial inclusion, institutional quality, as well as the inflation rate, trade openness, unemployment rate, investment expenditure, literacy level, and total natural resource rent, affect economic growth in the selected SSA nations. The study also confirmed that there were great differences in the mean value of economic growth between the times of the COVID-19 pandemic and the global financial crisis relative to times when those significant disruptions had not occurred. The results of the two-step system Generalised Method of Moments (GMM) analysis revealed significant relationship between institutional quality, financial inclusion, and the control variables and economic growth in the selected countries, though the strength of this deterministic relationship (positive or negative) was largely dependent on the method used to

measure economic growth. The findings of the panel ARDL cointegration test indicated that economic growth, financial inclusion, and institutional quality were positively correlated over the long term in the selected SSA nations. The outcomes of the panel causality tests demonstrated long-run bi-directional causality of the variables, as evidenced by the substantial causative relationship between economic growth and institutional quality in both the short-run and long-run timeframes, and the significant causal relationship between economic growth and financial inclusion over the long term. However, in the short-run, the study found an insignificant causal relationship between economic growth and financial inclusion. The results of the Error Correction Term (ECT) coefficients were negative and statistically significant, implying dynamic stability among the variables. The policy implications of these findings are that in order to foster economic growth and development in SSA nations, financial inclusion must be accelerated and institutional quality must be improved.

KEY WORDS: Economic growth, financial inclusion, institutional quality, Sub-Saharan Africa, cointegration, causality.

Isishwankathelo

Eyona njongo iphambili yolu phando kukuphonononga ubudlelwane phakathi komgagangatho wamaziko, ubandakanyo lwemali nokukhula koqoqosho kumazwe akhethiweyo aseAfrika akwi*Sub-Sahara* ukusukela kumnyaka wama2004 ukuya kowama2020. Esona sizathu yayikukufumanisa ngophando olusekelwe kumava nendima edlalwa ngumgangatho weziko nobandakanyo lwemali ekuqhubeni ukukhula koqoqosho lwaseAfrika kwi*Sub-Sahara*. Oku kwakubalulekile ngenxa yokungazinzi kwezinga lokukhula koqoqosho oluchaphazele amazwe e*SSA* nokuthintele ingingqi ukuba ibe kuphuhliso oluzinzileyo. Nangona kukho ubuninzi bezibonelelo ezibonakalayo, zabantu nendalo, ingingqi yaba nokukhula kwemirhumo eguquguqukayo phakathi kweepesenti ezine ukuya kwezintandathu ngonyaka kule minyaka ingamashumi amabini (20)) idlulileyo, eyenza ukuba ingaphuhli ngokwaneleyo. Ngokwamanani avela kwiBhanki yeHlabathi nakuMbutho woQoqoshao lwamaShishini noPhuhliso (*OECD*), ukukhula kwe*GDP* kwiAfrika ekwiSub-Sahara, ethe yenyuka yaya kwiipesenti ezi6.37 ngo2002, yehla ngamandla nge1.24 yepesenti phambi kokuba ivuseleleke kancinci ngeepesenti ezi2.8 ngo2019 yaze kananjalo yawela kuhlumo olungaluhlanga. Uphando oludlulileyo luqwalasele kwizizathu zokukhula koqoqosho, ngogxininiso olungephi olunikwe umgangatho weziko nobandakanyo lwemali njengezizathu eziphambili, ezazinokucacisa ukukhula okudanisayo kweSud-Saharan Afrika. Iindlela ze*Generalised Method of Moments (GMM)* nephaneli *Autoregressive Distributed Lag (ARDL), kwanegqiza leNdlela YeZilungiso zeZiphene (Error Correction Models) (ECM),* zasetyenziselwa ukuphicotha ubudlelwane obubalulekileyo, ukuhlanganiswa kwexesha elide nelifutshane nokuthungelana kwezizathu, ngokwahluka, phakathi komgangatho weziko, ubandakanyo lwemali nokukhula koqoqosho kumazwe e*SSA* enziwe isampuli. Sayila isalathiso somgangatho weziko nesemali sisebenzisa uHlalutyo lwaMalungu aPhambili (*Principal Components Analysis)* (*PCA*). Iziphumo zabonisa ukuba imiphumela edibeneyo yobandakanyo lwemali, umgangatho weziko, kwanezinga lokuhla kunyuka kwamandla email, urhwebo oluvulelekileyo, izinga lentswelangqesho, inkcitho yotyalomali, umgangatho wesakhono sokufunda nokubhala, nentlawulo yezixhobo zemvelo, ziya kuchaphazela ukukhula koqoqosho kwizizwe ezikhethiweyo ze*SSA.*

Uphando lukwaqinisekise ukuba kwakukho umahluko omkhulu kwixabiso lomyinge wokukhula koqoqosho phakathi kwamaxesha kabhubhane i*COVID-19* kunye nengxubakaxaka yemali kwihlabathi ngokuthelekiswa namaxesha apho ezo ziphazamiso zibalulekileyo zazingenzeki. Iziphumo zenkqubo enamanqanaba amabini yohlalutyo i*GMM* zidandalazise ubudlelwane obubalulekileyo phakathi komgangatho weziko, ubandakanyo lwemali nolawulo lwezinto ezitshintshayo kunye nokukhula koqoqosho kumazwe akhethiweyo, nangona amandla obu budlelwane bumiselweyo (olulungileyo okanye olungalunganga) babuxhomekeke kakhulu kwindlela yophando eyasetyenziswayo ukulinganisela ukukhula koqoqosho. Iziphumo zovavanyo zokuhlanganiswa kwegqiza i*ARDL* zabonisa ukuba ukukhula koqoqosho, ubandakanyo lwemali nomgangatho weziko zahambelana kakuhle ixesha elide kwizizwe ze*SSA* ezikhethiweyo. Iziphumo zeemvavanyo zonobangela wegqiza zabonakalisa izizathu zexesha elide ezimbolombini zezinto ezitshintshayo, nanjengoko kungqinwe bubudlelwane obubalulekileyo bukanobangela phakathi kokukhula koqoqosho nomgangatho weziko kuwo omabini amaxesha angoku nawexesha elizayo, kwanobudlelwane obubalulekileyo bonobangela phakathi kokukhula koqoqosho nobandakanyo lwemali kwixesha elide. Nangona kunjalo, ngexesha elifutshane, uphando lwafumanisa ubudlelwane obungenamsebenzi phakathi kokukhula koqoqosho nobandakanyo lwemali. Iziphumo zemiba ephindaphindayo ye-*ETC* zazingentle kwaye zibalulekile ngokweenkcukachamanani, zithetha uzinzo olunamandla phakathi kwezinto eziguquguqukayo. Imiphumela yomgaqonkqubo wezi ziphumo zezokuba ukuze kukhuthazwe ukukhula koqoqosho nophuhliso kwizizwe ze*SSA,* ubandakanyo lwemali kufuneka lunyusiwe nomgangatho weziko kufuneka uphuculwe.

AMAGAMA ANGUNDOQO: Ukukhula koqoqosho, ubandakanyo lwemali, umgagangatho weziko, iAfrika ekwi*Sub-Sahara*, ubuchule bokubona unxulumano, unobangela.

Kgutsufatso

Sepheo se seholo sa thuto ena e ne e le ho hlahloba kamano pakeng tsa boleng ba mekgatlo, kenyeletso ya ditjhelete, le kgolo ya moruo dinaheng tse kgethilweng tsa Sub-Saharan African (SSA) ho tloha 2004 ho ya 2020. Sepheo se ne se le ho theha ka matla karolo eo boleng ba mekgatlo le ho kenyeletswa ha ditjhelete ho e phethang ho tsamaisa kgolo ya moruo wa Sub-Saharan African.Sena se ne se hlokahala ka lebaka la ditekanyetso tse sa tsitsang tsa kgolo ya moruo tseo dinaha tsa SSA di bileng le tsona le tse thibetseng sebaka sena ho leba ntshetsopeleng ya moshwelella. Le hoja sebaka sena se e-na le matlotlo a mangata haholo a sebaka, a batho le a tlhaho, sekgahla sa kgolo se nnile sa theoha pakeng tsa diphesente tse nne ho ya ho tse tsheletseng selemo le selemo dilemong tse 20 tse fetileng, e leng se etsang hore se be le tshetsopele e tlase.Ho ya ka dipalo tse tswang Bankeng ya Lefatshe le Mokgatlo wa Tshebedisanommoho le Ntshetsopele ya Moruo (OECD), kgolo e kopaneng ya GDP ya Sub-Saharan Africa, e ileng ya fihla sehlohlolong sa diperesente tse 6.37 ka 2002, e theohetse ho diperesente tse 1.24 ka 2016 pele e thuseha hanyane ho fihla ho diperesente tse 2.28 ka selemo sa 2019 mme ya fokotseha ka 20.Diphuputso tse fetileng di tsepamisitse maikutlo ho disosa tsa moruo tsa kgolo, ha ho hatellwa ho fokolang ho lebisitswe ho boleng ba mekgatlo le ho kenyelletswa ha ditjhelete e le disosa tse haufi, tse ka hlalosang kgolo e fokolang ya Sub-Saharan Africa.Katamelo tsa The Generalized Method of Moments (GMM) le panel Autoregressive Distributed Lag (ARDL), hammoho le panel Error Correction Models (ECM), di ile tsa sebediswa ho hlahloba dikamano tsa ketsahalo ya dintho, kopano ya nako e telele le e kgutswanyane le dikamano tsa sesosa, ka ho latellana, pakeng tsa boleng ba mekgatlo, ho kenyeletsa dinaha tsa moruo le sampole ya SA.Re thehile sesupo sa boleng ba setheo le sesupo sa kenyelletso ya ditjhelete re sebedisa Principal Components Analysis (PCA). Diphuputso di bontshitse hore diphello tse kopantsweng tsa ho kenyelletswa ha ditjhelete, boleng ba mekgatlo, hammoho le sekgahla sa theko ya ditjhelete, ho buleha ha kgwebo, sekgahla sa ho hloka mosebetsi, ditshenyehelo tsa ditjhelete, boemo ba ho bala le ho ngola, le kakaretso ya rente ya disebediswa tsa tlhaho, di ama kgolo ya moruo dinaheng tse kgethilweng tsa SSA.

Thuto ena e boetse e netefaditse hore ho na le diphapang tse kgolo ho boleng ba kgolo ya moruo dipakeng tsa nako ya sewa sa COVID-19 le koduwa ya ditjhelete tsa

lefatshe ho latela dinako tseo ditshitiso tse kgolo di sa kang tsa etsahala.Diphetho tsa tlhahlobo ya mehato e mmedi ya GMM e ile ya senola dikamano tse kgolo pakeng tsa boleng ba mekgatlo, kenyeletso ya ditjhelete, le mefutafuta ya taolo le kgolo ya moruo dinaheng tse kgethilweng, le hoja matla a kamano ena ya boikemisetso (e ntle kapa e mpe) e ne e itshetlehile haholo ka mokgwa o sebediswang ho lekanya kgolo ya moruo.Diphumano tsa tlhahlobo ya kgokahanyo ya phanele ya ARDL di bontshitse hore kgolo ya moruo, kenyelletso ya ditjhelete, le boleng ba mekgatlo di ne di amana hantle ka nako e telele ditjhabeng tse kgethilweng tsa SSA. Diphetho tsa diteko tsa lebaka la phanele di bontshitse lebaka la nako e telele la mabaka a mabedi a mefutafuta, jwalo ka ha ho pakwa ke dikamano tse kgolo dipakeng tsa kgolo ya moruo le boleng ba mekgatlo ka nako e kgutshwane le ya nako e telele, le kamano e kgolo ya sesosa pakeng tsa kgolo ya moruo le kenyeletso ya ditjhelete ka nako e telele. Leha ho le jwalo, ka nako e kgutswanyane, thuto e fumane kamano e sa reng letho ya sesosa pakeng tsa kgolo ya moruo le kenyeletso ya ditjhelete. Diphetho tsa dinomoro tse atiswang tsa Error Correction Term (ECT) di ne di le mpe ebile di se bohlokwa ho latela dipalopalo, di fana ka maikutlo a botsitso bo matla hara mefutafuta. Ditlamorao tsa leano la diphetho tsena ke hore molemong wa ho matlafatsa kgolo ya moruo le ntshetsopele ya dinaha tsa SSA, kenyelletso ya ditjhelete e tlameha ho potlakiswa le boleng ba mekgatlo bo tlameha ho ntlafatswa.

MANTSWE A BOHLOKWA: Koglo ya moruo, kenyeletso ya ditjhelete, boleng ba mekgatlo, Sub-Saharan Africa, ho kopanya, sesosa.

List of Abbreviations

AFI	Alliance for Financial Inclusion
ASEAN	Association of South-East Asian Nations
ADF	Augmented Dickey-Fuller
ATMs	Automated Teller Machines
ARDL	Autoregressive Distributed-Lag
CBN	Central Bank of Nigeria
CBB	Commercial Bank Branches
COVID-19	Corona Virus Disease
CPIA	Country Policy and Institutional Assessment
DCPS	Domestic Credit to Private Sector
DFE	Dynamic Fixed Effects
EAS	East Asia & Pacific
ECOWAS	Economic Community of West African States
EG	Economic Growth
ECM	Error Correction Model
ECT	Error Correction Term
ECS	Europe & Central Asia
EU	European Union
FAS	Financial Access Survey
FI	Financial Inclusion
FIINDEX	Financial Inclusion Index
FE	Fixed Effects
FDI	Foreign Direct Investment
GLS	Generalised Least Squares
GFC	Global Financial Crisis
GDP	Gross Domestic Product
GDPR	Gross Domestic Product Growth Rate
GNP	Gross National Product
IQ	Institutional Quality
INSTDEX	Institutional Quality Index
IMF	International Monetary Fund

IPS	Im, Peseran and Shin
JB	Jarque-Bera
LM	Lagrange Multiplier
LNC	Latin America & Caribbean
LLC	Levin, Lin and Chu
LSDV	Least Square Dummy Variable
MG	Mean Group
MEA	Middle East & North Africa
NIE	New Institutional Economists
OECD	Organisation for Economic Cooperation and Development
OIC	Organisation of Islamic Co-operation
OLS	Ordinary Least Squares
PCRGDP	Per Capita Real Gross Domestic Product
PCA	Principal Component Analysis
PMG	Pooled Mean Group
RE	Random Effects
RGDP	Real Gross Domestic Product
SAS	South Asia
SSA	Sub-Saharan Africa
SDGs	Sustainable Development Goals
TOP	Trade Openness
UN	United Nations
USA	United States of America
VAR	Vector Autoregressive
VECM	Vector Error Correction Model
WAEMU	West African Economic and Monetary Union
WB	World Bank
WBG	World Bank Group
WDI	World Development Indicators
WGI	World Governance Indicators

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CHAPTER ONE

BACKGROUND, CONTEXT, AND STUDY SETTING

1.1 Introduction

The diverse natural and human resources of Sub-Saharan African (SSA) economies have the ability to produce inclusive growth and end poverty in the area. Nevertheless, the region still has a long way to go to make up for the ground lost over the years since the economic and social situation in SSA countries remains precarious and susceptible to both internal and external shocks (Basu, Calamitsis & Ghura, 2000). It is imperative to identify the factors contributing to the region's poor economic performance because inclusive growth and sustainable development are the major goals of the Sustainable Development Goals and the African Union's Agenda 2063 (UNCTAD, 2021). According to Basu et al. (2000), SSA countries must address three fundamental challenges: increasing growth, reducing poverty, and integrating into the global economy. In order to significantly reduce the widespread poverty and help these countries catch up to other developing countries, economic growth rates must be raised. What is required in these countries is a sustained and significant increase in real per capita GDP growth rates, along with a major improvement in social conditions.

It has been suggested that a number of underlying variables, including financial inclusion and institutional quality, influence the region's economic performance rate. The institutional foundation upon which these factors will flourish as well as unrestricted access to finance in the resource-rich region of Africa are either weak or non-existent (Ajide, 2017; Effiong, 2016). Even though the traditional drivers of growth like the rate of investment, size of the workforce, technological progress, capital accumulation, and changes in economic policies are still critical considerations, institutional quality is a key enabler to these economic factors of growth. Therefore, due to these peculiarities of the SSA economies, as well as the region's shifting political, financial, and economic landscape, dysfunctional institutions, limited access to finance, pervasive corruption, and other problems, research into the key factors influencing economic growth in the area is necessary to achieve these goals. Through their influence on specific macroeconomic indicators, a nation's institutions will impact

the economic performance.

1.2 Background

Most developing economies seek to achieve inclusive and sustainable growth as a key macroeconomic goal. Despite this overarching objective, the developing nations of Sub-Saharan Africa (SSA) have recorded volatile economic growth rates that cannot catapult the region into sustainable development. Ekpo (2020) noted that the growth rates in many SSA nations have swung between 4 – 6 percent yearly for the past two decades, thus making the region less developed notwithstanding its vast human, physical and natural resources. Over the years, while some literature claimed that Africa is growing, indicating spectacular growth rates in some economies (which were not only dwindling but also non-inclusive); other studies recognised and ascribed the dissatisfactory economic performance of the region to governance failure (Ekpo, 2020). In this regard, Abaidoo and Agyapong (2022) drew attention to the fact that various factors and indicators have been recognised in the history of the causes of economic growth as being significant in the setting up of the favourable environment required for sustained economic growth and development. Accordingly, studies on SSA economies by Ajide (2017) and Effiong (2016) has revealed that achieving inclusive and sustainable economic growth does not only depend on access to financial resources but also on institutional and governance quality. These studies further highlighted that countries with strong institutional frameworks have higher levels of financial inclusion and inclusive growth.

Numerous studies indicated that there exist a relationship between institutional quality and growth (Recuero & Gonzalez, 2019; Haini, 2019; Hamzah, Abdullah & Hamid, 2019; Arbolino & Boffardi, 2017; Zulkhibri & Ghazal, 2017; Siyakiya, 2017). Specifically, the governance and followership nature of most SSA nations are not ideal for sustained growth and development due to issues relating to weak governance systems and state interventions within the economy, poor leadership, absence of transparency and responsibility and corruption, amongst others (Ekpo, 2020). Exogenous elements, such as the quality of governance, political stability, and institutional effectiveness, among others, have therefore been discovered to be crucial in the debate on economic growth in addition to direct contributors such as investments and consumption expenditures (Abaidoo & Agyapong, 2022).

It follows that the level of institutional quality and financial inclusion and how these exert influence on economic growth, particularly, in developing countries have been subject of debate necessitating investigation in recent times. Worthy of note are studies of Vo, Van, Vo and McAleer (2019), Bayar and Gavriletea (2018), Bakar and Sulong (2018), Bigirimana and Hongyi (2018); and Onaolapo (2015) which investigated the nexus between economic growth (EG) and financial inclusion (FI). However, only a few studies established any linkage between financial inclusion (FI), institutional quality (IQ) and economic growth (EG) (For example Olanrewaju, Tella & Adesoye*,* 2019; Effiong, 2016).

A study on the linkage among the three variables is important, especially, in developing countries where solutions to unsustainable growth and ways of addressing poor economic performance are being sought. Most prominent amongst the topical ways of stimulating economic performance and generating and sustaining impressive growth are institutional quality and financial inclusion. In their study, Omar and Inaba (2020) noted that, lately, financial inclusion is seen as a unique device for achieving multi-dimensional macroeconomic solidity, realistic and all-inclusive economic expansion, reduction in unemployment, destitution and income inequality in industrialised and non-industrial nations. On the other hand, Iqbal and Daly (2014) contended that frail institutions redirect assets from gainful sectors to ineffective areas, therefore, advance rent-seeking undertakings. While solid institutions lessen the tendency of rent-looking undertakings; it speeds up economic growth and profitability of reproducible elements. The study contends that feeble institutional frameworks will lead to rent looking philosophy which redirects assets and other productive resources to less useful and economically unproductive sectors of the nation.

Access to finance, as an important means for achieving inclusive growth and development, has become a policy issue in many countries, particularly, developing economies (Kama & Adigun, 2013). In this regard, persons with account number in banks increased by 515 million from 2014–2017. Despite this, about 1.7 billion of the adult populace globally had no account in any bank by 2017 (Demirguc-Kunt *et al.,* 2018). Accordingly, studies by scholars such as Okoye, Adetiloye, Erin and Modebe

(2017), Nkwede (2015), Sahay *et al.* (2015) as well as Aduda and Kalunda (2012), have established a positive connection running from financial inclusion to economic growth and development.

Financial inclusiveness is critical to modern economies as it determine the ability of households and firms to make payments, save, invest, obtain loans and mitigate financial risks facing them. This in turn eliminates or reduces poverty, income inequality and enhances standard of living, stimulate entrepreneurship as well as employment generation which, ultimately, drive inclusive growth (Babajide, Adegboye & Omankhanlen, 2015; Oleka & Onyia, 2017). Demirguc-Kunt, Klapper and Singer (2017) noted that financial inclusion entails that adults have access to, and can utilise a variety of financial products effectively. However, bringing all citizenry into the financial landscape in emerging markets of SSA has, for instance, been a challenge as figures depicting exclusion rates are still high, particularly in Western and Central Africa (Soumane *et al.*, 2016).

Development partners such as the World Bank having recognised the significance of access to finance in promoting inclusive growth has continued to recommend and midwife deliberate government policies aimed at creating access to unbanked population, especially, those living in developing countries. This has resulted in considerable increase in global inclusion level across regions. However, while these opportunities and sustained growth waves are reported for Latin America and Caribbean (LNC), Middle East and North Africa (MEA) countries; their counterparts in SSA have virtually nothing to show (Kama & Adigun, 2013). Even though global Financial Inclusion Index indicates that Sub-Saharan African countries are relatively lagging behind their peers in terms of financial inclusiveness; Eastern and Southern Africa countries are recording significant progress in reaching out to the unbanked population than in Western and Central African sub-regions which have the least financial inclusion (Soumane *et al.*, 2016).

Demirguc-Kunt *et al* (2018) has reported that the number of persons that owned account with a formal institution reached 69 percent. The Global Financial Index showed a global rise of 7 percent from 2014. This means that about 515million people

have gained access to mainstream financial institutions. This statistic suggests that inclusion efforts are rewarded with upward movement in the numbers (Demirguc-Kunt *et al.,* 2018); however, the percentage continue to show slow increase, particularly in SSA. For example, International Monetary Fund (IMF) financial access survey data indicates that while the number of depositors with commercial banks per 1,000 adults in Indonesia doubled from 8.126 in 2010 to 16.853; that of Ghana moved from 5.361 in 2010 to 8.597 in 2017. The implications of financial access for growth and development cannot be over-emphasised. Access to financial services will potentially increase the propensity to save and invest including undertaking other economic ventures that will facilitate earnings of income and reduce exposure to poverty and other related social exclusion ills, thus accelerating economic growth (Sharma, 2016). This suggests that financial exclusion may potentially retard inclusive growth.

Formal account ownership has always remain a challenge to vulnerable groups, that is, low income earners and the unemployed in developing countries. However, account ownership is almost universal in developed countries where every adult is entitled to one form of government funding or the other through banks, whether employed or unemployed. This points to the claim that most of the financially excluded populations are in developing countries (Rhyne & Kelly, 2018). Financial inclusion encompasses a right to essential financial products like credits, payments, investments, deposits, loans, savings, insurance, pensions amongst others. This conception motivates the fact that financial access facilitate poverty reduction, wealth creation, employment generation and lowering income inequality that is endemic in developing countries, thus stimulating economic activities (Omar & Inaba, 2020). Demirguc-Kunt *et al.,* (2017) highlight that admittance to financial products utilisation empower individuals to make financial exchanges all the more effectively and assists the poor to get away from shortages by empowering them to place resources in education and commercial activities. As a result creating tactics to manage income shocks, for example, unemployment, access to finance can likewise keep individuals from falling into poverty.

Accessibility to finance has now become a specific method for accelerated economic growth and is viewed as basic for realising inclusive development (Kama & Adigun,

2013). There is an overwhelming consensus amongst scholars regarding the potential of financial access to boosting inclusive growth and productivity (Balele, 2019) in the long-term, especially in emerging economies. Unfortunately, the population of the financially excluded in Sub-Saharan African nations remain high which is a test not exclusively to these economies, yet to worldwide financial development everywhere in this way, requiring sober minded endeavours by policymakers to eliminate hindrances like schooling, sex, age and unpredictable pay to upgrade access (Kama & Adigun, 2013).

Several scholars such as Dahiya and Kumar (2020), Kim, Yu and Hassan (2018), Nwafor and Yomi (2018), Oleka and Onyia (2017), Omojolaibi (2017), Nwanne (2015) have empirically established nexus of financial inclusion with economic growth at country levels, but empirical literature on this across some countries or region such as Sub-Saharan Africa are scarce. The rationale for a study at regional bloc level cannot be overemphasised. Most regional coalition comprised of nations that are at same or comparative degree of advancement and are within a specific geography with comparable macroeconomic targets. Conducting an investigation at that level will uncover the interests that the different nations need to focus on that are applicable to their stage of advancement and also detailing of suitable approaches between neighbouring nations that would add to the accomplishment of macroeconomic goals (Effiong, 2016). Basically, both internal and external components driving economic growth in nations within a regional grouping are comparative and what works for one nation could likewise work for another in a similar alliance. This shows the significance of carrying out investigations at bloc level which will help in promoting common advancement.

For instance, Kim *et al.,* (2018) look at the connection among financial inclusion and economic growth in Organisation of Islamic Cooperation (OIC) nations utilising panel information for fifty-five OIC nations and assessed the dynamic panel assessment, the panel VAR and panel Granger causality tests. In view of the consequences of dynamic panel assessments, Kim *et al.,* (2018) pinpoint that financial inclusion positively affects economic growth. The results got from the panel VAR examination recommend that financial inclusion and economic growth have common causalities with one another

dependent on the panel Granger causality tests. Subsequently, it appears to be sensible to presume that financial inclusion has beneficial outcome on economic growth in OIC nations (Kim et al., 2018).

Similarly, Oleka and Onyia (2017) examine improvements in quality of institutions and financial inclusion between 1988–2015 using ARDL approach and focused on the financial sector of the Nigerian economy with aggregate rural commercial bank loans and deposits and number of bank branches (branch expansion) as proxy for financial inclusion. The examination finds that financial access prompts numerous open doors which incorporate the coordination of financially and socially rejected individuals into the conventional economy consequently expanding the degree of inclusive growth.

Babajide *et al.,* (2015) break down the nexus between financial inclusion and growth in Nigeria utilising OLS model with yearly information from 1981 to 2012. The discoveries uncover that with up to 100 per cent inclusive finance drive, a growth capability of 374 per cent can be accomplished inside the economy while keeping political and financial components consistent. They infer that practically all inclusive financial frameworks can possibly improve growth through extension of financial products to all portions of the economy and lessen casual financial products, which will upgrade asset distribution and financial development. Additionally, Sharma (2016) utilising VAR and Granger causality test propose positive linkage between economic growth and financial inclusion, especially banking infiltration, accessibility of banking administrations and utilisation of banking services as deposits while Granger causality investigation uncovers a two-way causality.

On the contrary, the findings by Dahiya and Kumar (2020) were not fully consistent with some literature reviewed. In their investigation they show that a connection between economic growth and utilisation measurement of financial inclusion in India exists. However, they presume that all things considered, financial inclusion does not essentially explain economic growth. Their finding demonstrates that admittance to and infiltration of financial products is not sufficient; utilisation of financial services is more essential to stimulating economic activities and business ventures, which expands the GDP in Indian economy. In this manner, financial inclusion prompts

flourishing economy and growth by decreasing destitution, pay disparity and strength of native investors (Dahiya & Kumar, 2020). This conclusion is similar with Haini (2019) who contends that the significance of finance on growth is frail and, at times, negative, as different components, for example, institutional quality that impacts the beneficial outcomes of finance on growth.

Therefore examine the deterministic connection between economic growth and financial inclusion in selected Sub-Saharan African countries from 2004–2020 using panel system Generalised Method of Moments (GMM) approach. More so, the study investigate the connection between quality of institutions and economic growth from some chosen Sub-Saharan African nations. In addition, the study explore the cointegrating relationships as well as the causality between the variables over the study period using panel ARDL approach. The research is therefore different from most literature reviewed in terms of context, variables and proxies adopted, period and data as well as approach.

On the other hand, a number of studies have been carryout to bolster the fundamental issues affecting economic prospects in the Sub-Saharan Africa, highlighting weak institutional quality as the proximate cause. For example, literature that focus on governance and quality of institutions as key factors in accomplishing viable development and improvement and driving of financial inclusiveness in developing economies include Abubakar (2020); Chinoda and Kwenda (2019); Ntow-Gyamfi, Bokpin, Aboagye and Ackah (2019). The influence of institutions on the economic performance of any country has been well established in literature (Shchegolev & Hayat, 2018; Iheonu, Ihedimma & Onwuanaku, 2017; Abu, Karim & Aziz, 2015; Omoteso & Mobolaji, 2014).

Accordingly, strong governance and institutions support and drive sustainable economic growth and development, protecting and encouraging individual households and firms to engage in viable economic activities that spur growth, but such has been in huge deficit in most developing countries (Recuero & Gonzalez, 2019). Abubakar (2020) states that the nature of institutions are fundamental in giving an empowering climate to thrive economically. Similarly, a review of literature by Hamzah *et al.* (2019),

find that institutions contribute to the well-being of the political structure and social interaction that might influence a country's economic structure. Despite these propositions, literature investigating the linkage amongst these variable within the Sub-Saharan region are scarce which require further empirical investigations.

One of the prominent features of underdevelopment is weak institutions and poor governance framework. Effiong (2016) argues that strong institutional quality and governance framework offer protection to individual rights and investments, curtail corruption, promote accountability and transparency, minimise the risk of violence and other social vices which will ultimately create an atmosphere that support economic growth and development. Literature recognised the Economic Community of West African States (ECOWAS) as one of the largest economic alliance within the Sub-Sahara is among the least developed regions of the world and the reasons are rooted in weak institutions (see Iheonu *et al.,* 2017; Abu *et al.,* 2015). The region has continued to battle increasing corruption, political instability, violence and terrorism which successively held the region within the shackles of underdevelopment with severe consequences on savings, revenue, income distribution, production, investment, growth and poverty (Abu *et al.,* 2015). Therefore, many Sub-Saharan countries seems to be ill-prepared against externally induced shocks such as global financial crisis, unfavourable macro-economic changes, and declining foreign direct investments due to weak institutional layouts.

Good institutions are crucial in giving an empowering climate to financial success to stream down to the less fortunate sections of the populace in Sub-Sahara. In light of the guarantee that institutional quality hold for economic growth in developing economies, Osman, Alexiou and Tsaliki (2011) explore the connection between the institutional quality and the financial performance in 27 Sub-Saharan nations. They utilise four pointers for institutional quality. Their discoveries demonstrate a huge and positive connection between institutional quality and economic performance in all nations that are covered in the investigations. While it is similar to this study in terms of context, the major difference is from the indicators of institutional quality used as well as the use of up-to-date data. Essentially, their study adopted only four out of the nine pointers of institutional quality adopted for this study as defined on Table 4.1 (see

page 96). There are many institutional arrangements that help social orders and protection, consolidating frameworks which guard property rights and the lawful structure, the justice system, resource allocation practices, the political framework as well as the system which government works. All things considered, these institutions make up the operational pattern for residents, organisations, political exercises and the economy at large, and give a structure of rules, accepted practices and comprehended cycles that are both unequivocal and certain. Therefore, the combination of nine domains pointing to institutional quality help in building up evidence on how institutions and economic growth strengthens each other within Sub-Sahara comparable to most reviewed studies that used fewer measures.

Similarly, Haini (2019) using a dynamic panel estimator finds that institutional quality plays a critical and positive part in economic performance. In particular, the scholar look at the impacts of the standard of law record on economic growth and analyses the cooperation of the indicator with the financial development indicators. Although, this study investigate the nexus between institutional quality and economic growth, it is essentially different in terms of context, period, approach and the number of indicators used. By using more institutional quality indicators particularly the inclusion of human rights protection, civil liberty and ease of doing business as defined in Table 4.1 (see page 96) as well as current data, the research is confident of unveiling more facts about its relationship with economic growth. Abubakar (2020) indicate that economic growth reacts emphatically to institutional quality and is measurably significant. However, the study also reveal that real governance index had positive and unimportant impact on Nigeria’s economic performance. The context of this study as well as the approach and period enable us to unveil more empirical evidence as regards the relationship between the variables.

However, Gillanders and Whelan (2010) revealed some interesting findings. They argued that the power of legitimate and political organisations to create economic growth might be lost and that business-accommodating financial strategies estimated by doing business pointer are the vital determinant of the degree of per capita income. They presume that a nation's doing business pointer rules a scope of proportions of legitimate and political institutional quality as a logical variable for per capita income

and economic growth. Meanwhile, the emphasis of this investigations on few indicators of institutional quality give us the opportunity for further research with a view to presenting more empirical evidence on the relationship between these variables.

From above, literature has establish bivariate relationships between the variables especially in developing countries but studies on the tripartite linkage covering financial inclusion are scanty. Importantly, most previous studies look at Financial Development, institutional quality and economic growth (see Haini 2019; Hamzah et al. 2019; Ntow-Gyamfi et al. 2019; Effiong, 2016). However, research covering the comprehensive tripartite relationship amongst the institutional quality, financial inclusion and economic growth, particularly within the Sub-Saharan region are scanty. In essence, financial inclusion linkage with these variables is scantly researched especially in the Sub-Sahara. Therefore, a region-specific linkage examination including nations with likeness in their economic performance, financial inclusion and institutional structures is important to infer strategy and policy suggestions for the geographic region and the nations that comprised it. The research focus on examining the tripartite relationship within some selected nations with a view to unveiling various economic growth related issues facing Sub-Saharan countries.

1.3 Problem Statement

It is believe that strong governance and institutions provide guidance for economic systems and the activities of various agents which support and drive sustainable growth and development being the premise of ‘rules of the game’ (North 1990). However, such has been in deficit in most developing countries and the Sub-Saharan countries in particular. On the other hand, there is evidence on how financial inclusion stimulates economic progress (Balele, 2019) by promising access to financial resources. Despite this promise, 1.7 billion (or 31 percent of the populace) globally lacks access to bank account, therefore, remain unbanked and since account possession is almost widespread in advanced economies, essentially, all these unbanked adults live in emerging economies (Demirguc-Kunt *et al.,* 2018). This lack of access to finance in emerging nations represents a huge challenge not exclusively to the different domestic economies, but also the overall economic growth globally (Kama & Adigun, 2013). Although, Eastern and Southern African economies have

made commendable progress in reaching out to the unbanked population, the situation is not the same in Western and Central African countries where high exclusion rates are still recorded (Soumane *et al.*, 2016), making Sub-Sahara one of the regions with lowest rates of financial inclusion with profound consequences for economic performance and development.

The issue of economic growth has received the attention of many scholars on the strength of the argument that continued inclusive growth is critical for a nation's lasting economic advancement and stability (Recuero & Gonzalez, 2019; Udeaja & Obi, 2015). The overconcentration of previous studies on the economic causes of growth with little attention to institutional quality and financial inclusion as proximate causes might be the reason behind the unimpressive growth of countries in Sub-Saharan Africa. More recent literature have offered either financial inclusion or institutional quality or both, controlling for other macroeconomic variables as the two leading explanatory variables for the variation in degree of growth, especially in developing economies (Haini, 2019; Babajide, *et al.,* 2015; Sahay, *et al.,* 2015). Therefore, highly inclusive financial systems hint on viable institutional framework is very crucial to the achievement and maintenance of high economic growth. Despite the association between these variables, empirical studies connecting financial inclusion, institutional quality and economic growth are still limited which may confines reference materials for the operators and regulators in the economy, policy makers and researchers, particularly in developing countries to facilitate transformation.

One of the major constraints to economic growth in Sub-Sahara has been linked to poor access to finance. In spite of these confirmations that financial inclusion is a critical savoury for economic growth and prosperity, the inclusion rates are still low in most African nations when contrasted with what is obtainable in advanced nations. More so, literature on the nexus between financial inclusion and economic growth in Sub-Saharan nations is insufficient. The fact that financial inclusion holds the potential to eliminate the obstructions, for example, destitution, income disparity and joblessness to a large degree and prompts a sustainable economic growth (Dahiya & Kumar, 2020), conducting a focus research in the area assists in revealing some macroeconomic issues inhibiting growth in most developing nations of Sub-Saharan

Africa. Accordingly, financial access is a significant tool used by governments to invigorate financial development due to its capacity to speed up proficient distribution of beneficial assets along these lines thereby lessening the expense of capital (Dahiya & Kumar, 2020). Therefore, expanding the scope of evidence on the association between financial inclusion and economic growth, particularly, in developing nations is necessary to unveil more practical ways of stimulating growth.

On the other hand, some studies have argued that institutional quality is one of the primary causes that underpin economic growth, providing evidence on the influence of institutional framework in stimulating a country's growth aspirations. Meanwhile, empirical evidence on the impact of institutional quality on economic growth in Sub-Saharan Africa are limited. This dearth of research on the association of institutional quality with economic growth in Sub-Saharan Africa is, therefore, a crucial gap that is addressed in this study. It is established that the nature of institutions is imperative in describing economic performance of Sub-Saharan nations as nations with better institutional structures are probably going to realised improved economic advancement as opposed to those with feeble institutions (Effiong, 2016). In any case, much significance is not connected to these discoveries until additional confirmation through strong checks are carried out. Following from this, more research on the nexus of institutional quality with economic growth was necessary to further confirm the roles institutions play in stimulating economic progress in Sub-Saharan economies. This is rightly captured by Radzevica and Bulderberga (2018) who argue that no agreement on the influence of institutional frameworks and government strategies on economic growth have been reached essentially because of absence of concrete proof on the record that it is eminently difficult to gauge institutions and growth causality.

Further, there are conversation on the connection between institutional quality and financial inclusion as of late but insufficient. For instance, Ali *et al.,* (2019) argued that for developing economies, institutional quality advances financial access. They further note that nonappearance of viciousness, viable government, political security and regulatory quality might be decent tools that may advance financial inclusion. Be that as it may, little is thought around the significance of institutional framework in encouraging inclusion across nations. In Sub-Sahara, for example, though progress

is being made in inclusive finance, it is with a descending pattern since 2012. This is possibly so because of stewing clashes, especially, in the delicate states of the region (Muriu, 2020). Some of these clashes continue unabated due to weak institutional framework which has implications for financial inclusion and economic growth. Perhaps, this may explain why the Sub-Saharan nations are unarguably more awfully off concerning financial inclusion indicators. The relevant inquiry remains: What do these low financial inclusion insights predict for Sub-Sahara economic growth and development in the midst of her awful institutional structure? (Ajide, 2017). However, this study focused on the accessibility dimension of financial inclusion due to data availability constraints, thus leaving room for further research.

Categorically, financial inclusion is, moderately, a new idea in the economic writings. This implies that there is scanty empirical work investigating specific connection between it and other economic and political factors. Most of the previous investigations reviewed centred generally around the effect of financial development on economic growth; institutional quality on economic growth amongst others. Some of these investigations looked at financial inclusion proxies that do not adequately represent its key dimensions of accessibility, availability and usefulness as contained in Table 4.1 (see page 96). This study specifically utilises most of the information available in the literature to provide a comprehensive report on the connection of financial inclusion and growth as well as institutional quality.

Therefore, accessible literature on institutions, financial inclusion and economic growth were reviewed. The question is, what is the nexus between these variables with respect to the selected countries of Sub-Sahara? Does causality exist amongst the variables in the selected economies? Among the reviewed works and to the best of our knowledge, only few specifically examine these relationships in general, while no systematic study has been reported regarding the significance of these determinants on economic growth using the selected countries of Sub-Sahara region as a case study. This has largely constrained availability of evidence pointing at the linkage amongst the variables on sampled countries. In addition, most related literature concentrated on bivariate or only two of the relationships. By studying the three dimensions together, this study close the gaps in previous related studies as well

as addressing the dearth in literature.

The recent sluggish growth in developing economies especially the Sub-Saharan Africa cannot be overstated. Recuero and Gonzalez (2019) noted that recent economic literature highlights the prevalence of growth slow-downs in Middle Income Countries (MICs). Consequently, statistics from the World Bank and OECD national account data shows that combined GDP growth in Sub-Sahara which peaked at 6.365 percent in 2002 drastically felt to 1.237 percent in 2016 with a gradual unimpressive rebound of 2.278 percent in 2019 before sleeping into negative growth in 2020. To substantiate this, Africa's Pulse, spring (2018), states that Sub-Saharan economies are as yet recuperating from the stoppage in 2015-2016, yet development is more slow than anticipated.

The problem of economic growth in Sub-Saharan Africa was re-emphasised by Epaphra and Kombe (2017) who highlighted that economic growth in the region has been worse than numerous other emerging nations, for example, East Asia and Pacific and Latin America and Caribbean, particularly during the last part of the 1970s, 1980s, 1990s and mid-2000s. Moreover, total growth in Sub-Sahara during the previous decade has stayed unsuitable when contrasted with exceptional performance of other emerging nations. While some of the causes of poor economic performance in Sub-Sahara were externally induced such as global financial crisis, unfavourable trade balances, dumping amongst others, the major causes are internally induced or self-inflicted such as lack of access to finance and increasing rates of social exclusion, corruption, political instability, persistent violence and conflicts, poor regulatory regimes including poor governance and weak institutional framework (see Omoteso & Mobolaji, 2014). This indicates that institutional quality and financial inclusion are critical aspects of economic growth, especially in developing countries which they may not have been acknowledged and given the right place in Sub-Saharan Africa.

Therefore, strong institutions and financial access has been largely believe to drive sustainable and inclusive economic growth in developing economies. Meanwhile, systematic studies focusing on Sub-Saharan countries to empirically demonstrate this relationship are very scanty. This study thus adds to the scholarly literature by

examining the determinant, cointegrating and causal relationships between institutional quality, financial inclusion and economic growth.

1.4 Aim and Objectives of the Research

Given the research orientation, the study investigated the nexus between institutional quality, financial inclusion and economic growth in chosen Sub-Saharan nations for the period 2004-2020. In order to achieve this aim, the specific objectives of the investigation were to:

i. investigate the deterministic relationship between economic growth and financial inclusion in chosen Sub-Saharan African nations;
ii. examine the deterministic relationship between economic growth and institutional quality in selected Sub-Saharan nations;
iii. assess the cointegrating relationships amongst institutional quality, financial inclusion and economic growth in chosen Sub-Saharan nations; and
iv. explore the causality nexus amongst institutional quality, financial inclusion and economic growth in selected Sub-Saharan countries.

1.5 Research Questions

This study was guided by the following research questions:

i. What is the deterministic relationship between economic growth and financial inclusion in selected Sub-Saharan African countries?
ii. What is the deterministic relationship between economic growth and institutional quality in selected Sub-Saharan African countries?
iii. What co-integrating relationships exist amongst institutional quality, financial inclusion and economic growth, respectively, in selected Sub-Saharan African countries?
iv. What is the causality nexus between institutional quality, financial inclusion and economic growth, respectively, in selected Sub-Saharan African countries?

1.6 Significance of the Study

Examining institutional quality, financial inclusion and economic growth is crucial for government, development partners and researchers across the world, particularly in developing countries. These developing countries face many challenges ranging from poverty, unemployment, inequality and building appropriate resilience to social,

economic and other environmental emergencies which a sustained and robust inclusive economic growth would assist in addressing (see Nguyen, Su, Nguyen, 2018; Oleka & Onyia, 2017; Bonga-Bonga & Ahiakpa, 2015; Udeaja & Obi, 2015; Oluyombo & Aina, 2014). Similarly, Udeaja and Obi (2015) argues that issues of economic growth have been given a lot of consideration in light of the fact that a continued economic growth is critical for a nation's long-run advancement and progression. However, achieving and sustaining high rates of economic growth has remained a problem to emerging economies, especially the Sub-Saharan Africa where the rates have been historically volatile (see World Development Indicators, WDI), thus the significance of any study aimed at contributing to addressing this issue cannot be downplayed.

Furthermore, the recent ranking of most African countries in terms of economic performance indices showed that they are not comparing favourably with the Asian countries which were peers (and even ahead) in the past such as China, Malaysia, India and Indonesia (Omoteso & Mobolaji, 2014). Various factors such as poor infrastructure, low investment, extreme poverty and inequality, poor human and physical capital may not exclusively explain the reasons for poor economic performance in Africa. In light of this, Nguyen *et al.* (2018) asserts that albeit economic growth is widely examined, the mainstream economic theories do not have a structure clarifying the distinctions in economic structures amongst nations outside human and physical capital, labour, technology and innovation and natural assets. This indicates that there are some critical ingredients of growth that have not been given attention in Africa. This might partly be due to over concentration of previous studies on economic factors that spur economic growth to the neglect of institutions and governance frameworks which are core determinants of the rules of the game as well as access to finance which fuel economic activities.

Chinoda and Kwenda (2019) argues that looking at the part of governance and institutions in Africa is critical as reasonable financial inclusion targeting advancing economic growth requires their proficient and strong presence. On the contrary, Chirwa and Odhiambo (2016) thinks that it is hazy regarding which factors are the central drivers of economic growth within and amongst nations. Thus, examining

institutional quality, financial inclusion and economic growth is born out of desire to contribute to unravelling the deterministic relationship between these variables.

Based on the above, significant extant literature lay emphasise on the nexus amongst institutions, governance and economic growth (see Iheonu *et al.* 2017; Abu *et al.* 2015; Omoteso & Mobolaji, 2014; Osman *et al.* 2011) while others focus on the linkage amongst financial development, institutions and economic growth (see Haini, 2019; Hamzah *et al.,* 2019; Recuero & Gonzalez, 2019; Effiong, 2016). Similarly, many studies focus on connection between financial inclusion and economic growth (for example, Dahiya & Kumar, 2020; Balele, 2019; Bayar & Gavriletea, 2018; Babajide *et al.*, 2015), while some few studies examine the connection of institutional quality and financial inclusion (see Saydaliyev, Chin & Oskenbayev*,* 2020; Chinoda & Kwenda, 2019; Oleka & Onyia, 2017; Zulkhibri & Ghazal, 2016). Therefore, it is crucial to conduct a study that focuses on the three factors in the context of Sub-Saharan Africa, where there is a strong desire for sustainable growth and development.

It is important to note that the majority of the literatures mentioned above concentrated on pairings of two of the three factors. Therefore, literature exploring the tripartite relationship is scanty (for example Olanrewaju *et al.,* 2019; Omojolaibi, 2017). Although most of the reviewed studies found positive relationship between the variables with few contradictory findings, the contexts of the studies, approaches and data series were different. According to Olanrewaju *et al.* (2019) in emerging nations like Nigeria, the relationship between institutions and economic progress is still highly contentious. For instance, in a study Omoteso and Mobolaji (2014) discovered that political stability and regulatory quality proxies have growth improving promises, due to their influence on economic growth in the region fundamentally, while government adequacy influences contrarily on the economic growth in Sub-Saharan Africa. On the contrary, a similar study on institutional quality and Economic Performance in West Africa by Iheonu *et al.* (2017) demonstrate that all the pointers of institutional quality utilised for the examination devour positive and huge effect on economic growth in the region when the fixed and random impact assessment method was utilised, however, only government effectiveness was critical in the wake of assessing endogeneity utilising the panel 2-stage least square approach. On their part, Ahmed, Alrashidi,

Shah and Rasheed (2014) conclude that there exists no connection between institutional quality and economic growth. In view of the forgoing, Radzevica and Bulderberga (2018) maintain that while writing holds a lot of hypothesis on the issue, no clear agreement on impact of institutions and government arrangements on economic growth has been reached basically because of absence of credible observational proof. Accordingly, it is not clear if stronger institutions lead to higher economic growth, or the other way round. Therefore, the importance of a research in this subject area cannot be overstated in order to advance the conversation with empirical evidence and to help developing nations in their growth aspirations.

In spite of some evidence on the strong linkage between financial inclusion and economic growth in developing countries, this was not the findings of some few studies which obviously restrict conclusion and pave way for further studies. For instance, Babajide, *et al.,* (2015) in their investigation on financial inclusion and economic growth in Nigeria, contends that all financially inclusive economies can possibly upgrade economic growth by extension of formal finance products to all portions of the economy and lessen casual financial products, which will improve asset distribution and growth in the nation. Meanwhile, Gourene and Mendy (2017) led an investigation on financial inclusion and economic growth in West Africa Economic and Monetary Union (WAEMU) and finds that there is no causality between financial inclusion and economic growth at short-term, however, at medium or long-term, there is a two-way causation.

In addition, another significance of this study is the desire to contribute empirically to the nexus between institutional quality and financial inclusion. Some available evidences has also justified this study. For example, Oleka and Onyia (2017) investigates the improvement in institutional quality and financial inclusion in Nigeria between 1988–2015 using ARDL Model and presumed that institutional quality has no huge effect on financial inclusion for the period during the short-term, however, it is critical over the long-term, while Anthony-Orji, Ogbuabor and Nwosu (2019) explored the interaction amongst financial inclusion, financial stability and institutional quality in Nigeria utilising unlimited error correction techniques of ARDL from 1986–2013, the outcomes show a short and long-term huge constructive outcome of institutional

quality on financial inclusion in the country. This research is in large part motivated by the divergent results, among other things.

Generally, despite the availability of physical and human resources, the developing economies of Sub-Sahara are still struggling hard to achieve sustained economic growth which some scholars have attributed it to institutions, governance issues and high rates of financial exclusion. Therefore, this study investigate the relation among these variables as a basis for explaining why Sub-Saharan countries are struggling in terms of economic growth and development. This, also contribute to the scarce empirical evidence connecting the three variables.

1.7 Scope and Delimitation of the Study

The scope of this study covered Sub-Saharan African countries with specific focus on a panel set of 20 chosen nations for the period 2004–2020. Although, the United Nations (UN) has classified 48 of Africa's 54 countries as Sub-Saharan Africa, the scope of this study will be a sample of 20 selected countries. Accordingly, Ghana; Mauritius; Kenya; Uganda; South Africa; Nigeria; Botswana; Rwanda; Gambia; Gabon; Cameroon; Central Africa Republic; Equatorial Guinea; Tanzania; Zimbabwe; Angola; Guinea; Namibia; Zambia; and Mozambique were chosen as samples of Sub-Saharan Africa. Countries in Sub-Saharan Africa share similar characteristics based on institutional quality, financial access and economic performance, thus focusing on the region will not only enhance the reliability of the findings but also increase its relevancy and applicability with regards to policy implications. More specifically, the choice of nations within the same region was driven by the expectation of minimal variation in important economic metrics like Gross Domestic Product (GDP) and uniformity in governmental structures. For us to be able to determine the policy consequences for various countries, this uniformity is essential as in Effiong (2016) for SSA and Siyakiya (2017) for the European Union (EU).

In terms of limitations, one of the inherent drawbacks of this type of study is the availability and trustworthiness of data, which places significant constraints on selections regarding sample countries and study period choice. The study period of 2004-2020 and the sample size of 20 countries out of about 48 in Sub-Saharan Africa may restrict the generalisation of the findings. Another major limitation of this research is variable selection and subjectivity issues, particularly with financial inclusion

indicators and control variables, which may not produce precise and unbiased results. Additionally, there is a chance that the indicators picked will not accurately reflect the variables. Particularly, there are plenty of prospects for future investigation to identify the variables that perform better due to the abundance of measures of financial inclusion and institutional quality in the World Bank and IMF databases. The delimitations of the study are further discussed under 6.6 on page 187.

1.8 Contribution to Knowledge

The study used a dynamic panel data approach and focused on 20 nations chosen as representative samples of the Sub-Saharan area from 2004–2020. Although few studies adopted similar variables and approach (see for example Balele, 2019; Radzevica & Bulderberga, 2018; Iheonu *et al.*, 2017; Omoteso & Mobolaji, 2014; Gazdar & Cherif, 2014), the uniqueness of this study lies in the selected countries, the Sub-Sahara region and their desire for a sustainable economic growth, the utilisation of current data in conjunction with a triangular approach to the analysis of these linkages.

In order to advance the discussion on the topic, a general survey of the relevant literature was conducted, with a particular emphasis on Sub-Saharan countries. Majority of these studies were on institutional quality and economic growth (for example: Abubakar, 2020 with evidence from Nigeria; Radzevica & Bulderberga, 2018 for Baltic States; Arbolino & Boffardi, 2017 with evidence from Italian regions; Siyakiya, 2017 with evidence from EU 28 and prospective members); or financial inclusion and economic growth (as in Nizam *et al.*, 2020 from 63 chosen advanced and emerging nations; Balele, 2019 for Sub-Saharan countries; Bigirimana & Hongyi, 2018 using Rwanda; Nguyen *et al.*, 2018 case of emerging economies; Sethi & Acharya, 2018 with some cross country evidence; and Wakdok, 2018 with evidence from Nigeria); or institutional quality and financial inclusion (as in Chinoda & Kwenda, 2019 with evidence from Africa; Khan, Kong, Xiang & Zhang, 2019 examine emerging economies; Ajide, 2017 from Sub-Saharan African countries; Ali *et al*., 2016 taking samples from 52 developing countries).

Interestingly, the research clearly linking these three elements was few and limited in breadth (example Olanrewaju *et al.,* 2019 with causality evidence from Nigeria from

1998 to 2017; Omojolaibi, 2017 also drawing empirical evidence from Nigeria). The studied literature, as summarised above, established the relationship between the variables. While financial access is required to stimulate economic activities that generate growth, institutional frameworks are crucial in ensuring that various economic participants play by the *'rules of the game*'. Basically, most previous studies looked at financial development, institutional quality and economic growth (see Hamzah *et al.,* 2019; Ntow-Gyamfi *et al.,* 2019; Effiong, 2016). However, there is a dearth of research, particularly in the Sub-Sahara, covering the tripartite interaction between these variables. In Sub-Saharan Africa, little is known about the relationship between financial inclusion and these variables. To advise strategy and policy for the geographical region and the nations that made up it, it is crucial to conduct a region-specific linkage study that includes nations with similar economic performance, financial inclusion, and institutional frameworks. By looking at how these factors relate to one another within the Sub-Saharan African context, the study make a contribution to previous empirical works.

Additionally, literature on the causal connection between these variables is scarce (see for example Haini, 2019; Olanrewaju *et al.*, 2019; Recuero & Gonzalez, 2019; Omojolaibi, 2017; Effiong, 2016). Any country's greatest desired level of economic growth can only be attained if financial resources are available to support economic activity and, as a result, boost output. Institutional frameworks, on the other hand, are crucial facilitators that let individual households and businesses engage in a range of productive activities. Note that institutional quality exert key influence on the judgement of entities and households to advance for financial access and seek the services provided by formal institutions (Saydaliyev *et al.*, 2020) which will ultimately spur economic growth. On the basis of this, it is anticipated that the literature should be replete with studies on the institutions that can support Sub-Saharan growth. Therefore, based on available resources and country-specific capacity, the research's findings contribute to the limited body of knowledge on these factors and will help Sub-Saharan countries choose which of the dimensions to focus on for sustainable economic growth.

The institutional quality indicators that are used for this research are yet another

contribution to knowledge. Unlike earlier research (for example Chinoda & Kwenda, 2019; Nguyen *et al.*, 2018; Shchegolev & Hayat, 2018; Ajide, 2017; Zulkhibri & Ghazal, 2017) which use only the World Bank's six (6) world governance indicators, this study broadens the institutional quality indicators in order to better capture the characteristics of Sub-Saharan countries, such as manipulation of existing rules, insufficient private investment, poor resource allocation, frequent changes in, and inappropriate economic policies, acute poverty and social exclusion, massive fiscal deficits and debt, and frequent human rights violations, among others.

As such, human rights protection and civil liberty as in Yildirim and Gokalp (2016) and ease of doing business as in Bruinshoofd (2016), Doan (2019) amongst others are added to this study's institutional quality indicators. Human rights protection and civil liberty have direct impact on other institutional quality indicators and measure the degree to which households and entities are at liberty to undertake business ventures on equal basis, thus stimulating economic growth. In addition, the ease of doing business directly capture administrative processes of the business environment, investors' security and confidence, transaction costs and the country's economic policy, thus reducing the risks of investment and could significantly attract FDI. This strategy is anticipated to provide a more true depiction of SSA nations in terms of not only institutional metrics but also how successful they have been at luring investors and fostering economic growth. This expansion of the metrics specifically covers the typical processes, times, and costs for an entrepreneur to start and formally operate a business, as well as the minimal capital required, which add to the body of knowledge in the field.

As noted by Muriu (2020), a major issue in the financial inclusion discourse is the importance and legitimacy of standardised pointers and measures. Many previous studies rely on one or a combination of financial inclusion proxies such as automated teller machine, bank branches, number of depositors, amongst others (see Muriu, 2020; Chinoda & Kwenda, 2019; Ajide, 2017; Oleka & Onyia, 2017; Nkwede, 2015) but this study also include more proxies such as domestic credit to private sector by banks (as a % of GDP) as in Gebrehiwot and Makina (2015). As a result, the study adopted financial inclusion proxies that address its three fundamental criteria of

accessibility, availability, and utilisation in order to strengthen the dependability of findings and contribute to the existing literature. This enhances understanding of the connections between these variables and financial inclusion across the region. Furthermore, providing a comprehensive information on the level of financial inclusion in an economy and to properly estimate the real impact it has on other variables, it is crucial to use several indicators for balanced analysis. This is part of the study's distinctiveness since it uses such a broad range of measures to show the relationship between financial inclusion and institutional quality as well as financial inclusion and economic growth within the SSA context.

Despite being part of the SSA, each of the sample countries is at a distinct stage of development toward economic prosperity. In order to examine how the entire region has fared through time in terms of financial inclusion and governance structures with other parts of the world that are on comparable footings, this study aggregates the variables based on the regional bloc. This method also aid in enhancing knowledge of the relationships between the variables across the countries. The uniqueness of this study therefore resides in the period, context and variety of metrics used to shed further light on the relationship amongst the variables.

1.9 Structure of the Thesis

This study is divided into six chapters. The first chapter dealt with the contextualisation of the study. The introduction focused majorly on the background of the study, statement of the problem, research questions, significance, scope and contribution to knowledge, as well as the structure of the study which are necessary to give insight into the study and guide the process. Chapter Two focuses on a critique of the relevant literature; while Chapter Three addresses conceptual issues and trends of the key variables under study. The research methodology adopted to address the objectives is outlined in Chapter Four, while the findings are presented and discussed in Chapter Five. The thesis ends with Chapter Six which provides a summary of the key findings, draws conclusions, suggests recommendations and puts forth proposals for future research.

1.10 Chapter Conclusion

By describing the study's context, this chapter provided an introduction to the study. The problem was stated in a precise manner. Additionally, it stated the study's objectives, research questions, and the overall background to the study. The thesis structure, which is important to provide insight into the study and serve as a guide for the process, was also detailed here, along with the study's scope, significance, motivation, and contribution to knowledge. It made clear the necessity to look into the underlying factors, including how financial inclusion and institutional quality affect the economic progress of Sub-Saharan Africa. This chapter further articulated the idea that figuring out the main elements influencing the region's economic performance is essential for keeping up with the Sustainable Development Goals and the African Union's Agenda 2063.

CHAPTER TWO

REVIEW OF RELATED STUDIES

2.1. Introduction

This section examined various scholarly works on institutional quality, financial inclusion and economic growth focusing more on emerging nations of sub-Saharan Africa. Works and reports of other scholars, researchers, research institutions and corporate organisations on the variables were contacted to add value to the research objective. This did not only rely on what has been done but critically reviewed them with a view to exploring value addition to existing knowledge in the field of growth, institutional economics and financial inclusion. Specifically, this chapter reviewed relevant concepts, looked at the trends in economic growth in sub-Saharan African countries, and reviewed relevant theories and empirical literatures in the subject area.

2.2 Review of Concepts

2.2.1 Concept of Economic Growth

Economic growth is defined as the expansion or development in Gross Domestic Product (GDP) for a given period. The idea of economic growth infers a yearly expansion in the productive capacity of a nation expressed in monetary value, usually known as GDP. It is the complete volume of output created inside an economy throughout some stretch of time, as a rule, for a one year period. Economic growth means continually expanding the quantity of output in a nation, or expansion in Gross Domestic Product (GDP) as the fundamental quantifiable pointer of output over a time, usually a year (Ivic, 2015).

As indicated by Haller (2012), economic growth can be characterised as follows; from a restricted perspective as an expansion of income per capita, and it comprises the analysis, specifically in quantifiable terms, of the cycle, with prominence on the useful relations between the endogenous factors; from a more wider perspective, it comprises the increase in GDP, Gross National Product (GNP) and National Income, hence of the public wealth, including the gainful limit. This definition typically view economic growth as a cycle of expanding the extents of public economies, estimated by the GDP. Masoud (2014) defined economic growth as increase in per capita GDP. In this investigation, economic growth is defines as real GDP increment of an economy over a period, generally one year. A rise in real GDP is adopted as a measure of economic growth as it takes into consideration the inflationary pressure that is endemic in most developing countries, thus providing a better measure of economic progress.

Economic growth differs from economic development, which is growth plus changes to overall economic indicators, in that various countries experience varied levels of economic growth. Economic development occurs when there is a qualitative change in indices such as poverty, hunger and starvation, inequality, unemployment, and overall improvement in standard of living. Economic growth, in its most basic form, is an increase in the economy's total output while development is how the increase in output translate into the overall social and economic well-being of the people. When comparing one period of time to another, economic growth is a rise in the production of goods and services.

Although economic growth is typically measured as an increase in the total market value of goods and services produced, using estimates such as GDP, this study uses three different measures of economic growth to support its findings, analysis, and conclusion: GDP growth rate, real GDP, and per capita real GDP. This study makes an attempt to model it as a function of financial inclusion and institutional quality, particularly in the Sub-Saharan region. It has usually been treated as a function of physical capital, human capital, labour force, and technology.

2.2.2 Concept of Financial Inclusion

There is still no harmony on the definition of financial inclusion as many authors maintain different views on what it entails. There are many financial products that are serve by different financial services firms (such as banks, insurance companies, capital market instruments, pension products) which account for some of constraints to having a generally accepted definition of financial inclusion. Although the usage of the term means globally the same, there exist significant differences in the products range especially in developing and developed economies. Broadly, Central Bank of Nigeria (CBN, 2012) defined it as a situation that is accomplished when grown-ups have simple access to an expansive scope of products planned by their requirements and gave at moderate expenses. These items incorporate credit, pensions, savings and payments. The perspective of CBN focuses on ease of access for all groups of people in the society; a broad range of products and services for the financially excluded population; the products should be designed based on need of the unbanked; and these products and services must be affordable by the unbanked group regardless of their income status.

Wakdok (2018) defined financial inclusion as a practice or a circumstance which allows simple access to, or gainful utilisation of formal financial products by all individuals from the economy. Financial inclusion alludes to an advancement where all residents of a nation do not have trouble in owning a bank account; can bear to get credit; and may effectively, helpfully and reliably utilise financial services. On the other hand, to Onaolapo (2015), financial inclusion alludes to a cycle that guarantees the straightforward entry, accessibility and utilisation of the formal financial products by all

individuals from an economy. According to Omar and Inaba (2020), financial inclusion speak to all activities that make formal financial products open and reasonable, for the most part to low income and low class people. To Sahay, *et al.* (2015), financial inclusion is the accessibility, utilisation and conveyance of financial services at moderate expenses to weak and vulnerable portions of the populace. It could be seen that a common element across all the definitions is accessibility, availability, usefulness and affordability.

Therefore, the study conceptualised financial inclusion as being about people, particularly the vulnerable income group in the economy, having unrestricted rights and access to appropriate financial services without any form of discrimination. This study adopted the definition by Adenuga and Omotosho (2013) who alluded to financial inclusion as making accessible, at a moderate value, a wide scope of financial products to meet individuals' different financial needs, especially poor, low income and weak family units, as well as micro and small entities, including household businesses. The financial inclusion proxies that this study adopted largely address access and makes this definition more appealing. Fundamentally, the first point of call for inclusive financing is the transaction banking which captures access. It opens the door gate of additional financial products like credit and insurance, amongst others for the hitherto unbanked population, especially in developing countries.

Financial inclusion, according to the World Bank Group (WBG, 2015), is the availability to people and businesses of useful and reasonably priced financial products and services that satisfy their needs for transactions, payments, savings, credit, and insurance that are provided in a sustainable and responsible manner. The WBG maintains that financial inclusion is a crucial tool for reducing extreme poverty and fostering shared prosperity. It further pointed that daily life is made easier by having access to funds, which also helps families and businesses prepare for everything from long-term objectives to unanticipated emergencies. Account holders are more likely to use additional financial services like credit and insurance to launch and grow enterprises, make investments in their children's or own health or education, manage risk, and recover from financial setbacks, all of which can enhance their overall quality of life (WBG, 2015).

Therefore, the availability and equality of opportunities to access financial services is known as financial inclusion. It describes a method by which people and companies can obtain suitable, reasonable, and timely financial products and services. This is important for boosting economic activity, funding investments, and generally promoting wellbeing and social involvement in society.

2.2.3 Concept of Institutional Quality

Albeit there exist a common understanding that institutions and long term economic progress are intricately connected, there remains significant debates about what exactly those institutions are (Bruinshoofd, 2016). Broadly, they can be viewed as mechanisms that sets up the impetus structure that lessens vulnerability, exchanges cost and advances creation effectiveness consequently encouraging interest in physical and human resources, technological developments and progression, private sector improvement, all of which adds to economic growth (Effiong, 2016). Specifically, to World Bank (1992) cited in Recuero and Gonzalez (2019), institutional quality is the way in which authority is practiced in the administration of a nation's economic and social assets for advancement. This conception looks at institutional quality as enabler of economic development.

Zulkhibri and Ghazal (2017) opine that governance comprise customs and institutional bases by which authority is practiced in a nation. These incorporates the strategy by which public officers are chosen, considered responsible and eliminated; the capacity of governments to define and actualise sound arrangements successfully; and consequently the admiration of people including of the nation's institutions that administer economic and social connections in the state. This perception is adopted in this study as it is wide enough to cover the perceptions of institutions in developing countries and cover all the institutional variables that are investigated. Based on this, the research conceptualised institutions as a set of standards or established laws that defined acceptable patterns of behaviour in a society which restrict rent-seeking behaviour and stimulates economic growth and development. In order to achieve sustainable growth and development, a country’s available resources must be judiciously allocated and utilised in productive sectors of the economy while enabling

favourable environment and civil liberties for individual to participate and businesses to flourish. The allocation and utilisation process are guided by established norms called '*rule of the game*' devoid of any predatory and wealth destructive behaviour (North, 1990).

North (1991) pointed that institutions are the limitations that humans have created to structure social, political, and economic interaction. North added that they are both formal regulations (constitutions, laws, property rights) and informal ones, such as prohibitions, taboos, traditions, and codes of conduct. Institutional quality is therefore a measure of the strength of regulatory quality, accountability, rule of law, checks on corruption and government effectiveness, amongst others which established standards of practice and frameworks that restrain abuse of public power and authority. Humans have created institutions throughout history to bring about order and lessen uncertainty in exchange.

Bruinshoofd (2016) pointed out that term institutional quality encompasses the rule of law, individual rights, and excellent public services. Over the long run, institutional quality and economic progress support one another, but institutional quality initiates this positive feedback loop. Bruinshoofd (2016) furthermore maintains that institutional development does not inherently suffer from decreasing returns and unlocks growth potential. He added that countries with strong institutional quality have been more effective in implementing cutting-edge technology and productivity.

In light of the aforementioned, it is more realistic and sustainable to comprehend development dynamics within the context of institutions and governance systems, and this holds the key to launching the Sub-Saharan countries into sustainable economic growth. To achieve and sustain the appropriate degree of economic growth, the study consequently posit that Sub-Saharan African economies must prioritise institutional quality development to drive the agenda.

2.3. Overview of Economic Growth in Sub-Saharan African Economies

Economic performance in Sub-Saharan countries have receive tremendous attention in recent years due to the notion that the region has performed below expectation when compare with its peers in other regions of the world (Olanrewaju *et al*., 2019;

Omoteso & Mobolaji, 2014). Albeit there is no agreement on what is liable for Africa's unfortunate economic progress (Epaphra & Kombe, 2017), literature had categorised the regions constraints to economic growth into two groups – internal and external factors (see for example Omoteso & Mobolaji, 2014). The external factors amongst others include: Foreign Direct Investment (FDI), trade balance, oil and non-oil commodity prices, and costs of borrowing. While the internal factors include: lack of investment in infrastructure, rapid increase in population, poor human capital development, weak institutions, lack of access to finance, inadequate technological know-how and low productive capacity.

Based on the myriad of factors outlined above, it is indicative that economic growth is dependent on a number of factors. However, this study focus on the issue of weak institutions and lack of access to finance as the major constraints to economic growth in emerging economies of Sub-Sahara Africa. Economic growth therefore is thought to be positively impacted by strong institutions supported by easy access to financing developmental initiatives. As countries go through different economic cycles over time, the extent of resilience and responses to these economic cycles depend on institutional framework as well as availability of financial resources.

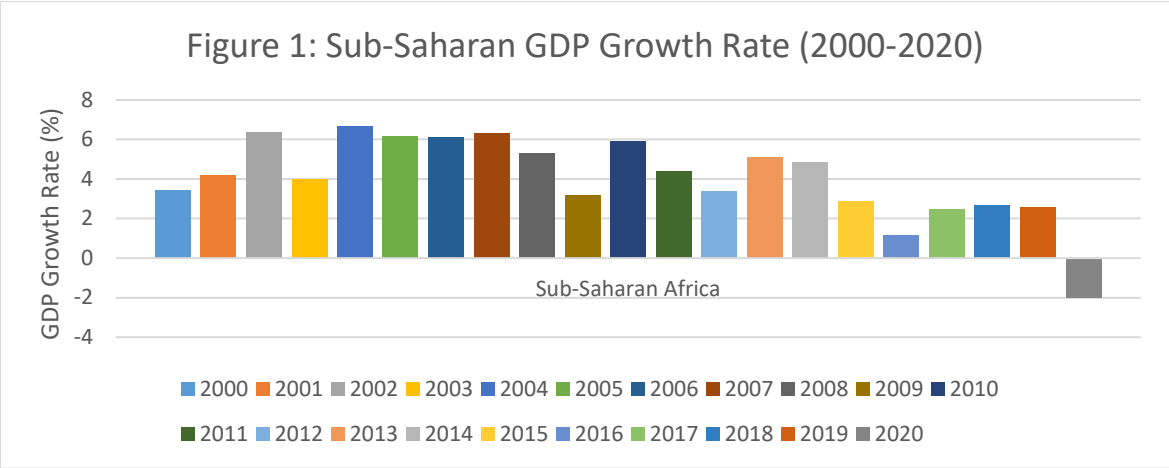


Figure 1: Sub-Saharan GDP Growth Rate

Source: Author's own creation from Accessed Data (WDI, 2000-2020).

The Sub-Saharan African economy is depicted in Figure 1 above, with GDP growth rates from 2000 to 2020. The rise shown in 2000 started to accelerate in 2001, peaking in 2002 before finally declining in 2003. Based on data from WDI (2021 update), a recovery began in 2004 and continued through 2008 before seeing a sharp decline in

2009 for reasons not unrelated to the global financial crises that had shaken the area and the entire world that year. Since then, the 2010 rebound has not been sustained, and growth has been shaky, reaching a low point in 2018 which may be linked to the region's largest economies, such as Nigeria and South Africa expereinced recession that year (World Bank, 2021b). The regions entered a deep recession in 2020, with negative growth of approximately 2.4 percent caused by the COVID-19 pandemic (World Bank, 2022c). The desire to see that the region achieve and sustain high levels of growth through building institutions and creating access to financial services by majority of the populace is part of the rationale for this study.

2.4 Theoretical Literature on Economic Growth

The achievement of a high, sustainable and inclusive growth is the desire of many nations especially the less developed ones. While many objectives such as reducing poverty, inequality, unemployment and the like are behind pursuits of economic growth, the attainment of a long-term economic success and development is fundamental (Popa, 2014). Economic growth models/ theories have evolve over the years which follow largely the dynamics of economic realities, the dominant factors and instruments of economic analysis suitable for the stages of development (Popa, 2014). Notable among the early theories were the Classical, Schumpeterian Theory, the Neoclassical, the Endogenous growth theories and recently the Institutionalists perspective, amongst others. Interestingly, most of the theories focus on the extent of yield and its development after some time as well as factors responsible for economic progress or decline.

2.4.1 The Classical Theory of Growth

Since the development of formal economic analysis during the era of the classical economists, the problem of economic growth, its causes, manifestations, and impacts has been of the utmost importance to economists. As a result, the topic of economic growth has been examined for a very long time from several angles, with the classical economists becoming the mainstream. The term classical growth theory refers to a group of economists who studied the causes and mechanisms of economic growth in the 18th and 19th century, and wrote about them in their works. The classical theorists notably Adam Smith, Thomas Malthus, David Ricardo, John Stuart Mill, Jean-Baptiste

Say, amongst others generally emphasised the significance of capital accumulation, wages, profits, division of labour and specialisation, comparative advantage, population growth, investment and reinvestment which were seen as endogenous; land increase or technological improvement of existing land, all of which spur growth and increase development. The classical economists were able to provide an account of the main factors influencing economic growth as well as the mechanisms behind the growth process as a result of their work in economic analysis (Harris, 2007). Thus, the accumulation of capital match with technological advancement will increase output production and consequently promote economic prosperity.

Harris (2007) further maintained that the crux of the issue with economic growth was thought to be the understanding of the processes that underlie the accumulation process. Technical change, as seen in the changing nature of the production process and the division of labour, is linked to accumulation. Smith in particular placed a lot of focus on the process of expanding the division of labour, but the relationship between capital accumulation and technological advancement is not generally addressed in a systematic way in the work of classical economists, according to Harris.

Consistent with this, Chirwa and Odhiambo (2016) contend that conventional economic growth theories hypothesise that the degree of yield per capita is controlled by the measure of physical and human resources and level of innovation in a nation. In the production cycle, economic growth is connected with the capacity of the country to improve its physical and human resources alongside the innovative advancements. Subsequently, the gathering of capital match with technical progression will build yield formation and hence advance economic fortune.

According to Masoud (2014) the historical backdrop of economic growth theory is development in yield and circulation of pay among wages and benefits were introduced by Adam Smith in 1776 as the "wealth of nations". A huge commitment to economic growth was the presentation of returns to scale dependent on division of labour. Barkai (1969) as in Masoud (2014) noticed that the "wealth of nations" underlined that innovation was unmistakably more significant than different elements that clarified the nature and circumstance of the wealth of a country. The Smith's commitment to the

concept of economic growth likewise talked about advances in stocks which relies upon capital amassing. The capital gathering to stock assumes influence on growth cycle of flowing, fitted capital utilised to help gainful labour thus creates the capital important to help labour later on (Masoud, 2014). In light of this, the classical economists endeavoured to explain the fundamental factors influencing economic growth as well as the mechanisms underpinning the growth process.

As with any theory, the classical theories have come under fire for failing to take into account the technical advancements built into the production process that are fuelled by advances in technology and for assuming that wages will always be at a subsistence level. These presumptions are no longer valid in modern economics, as technology has fundamentally altered every aspect of the economy.

2.4.2 Schumpeterian Theory of Economic Development

One important early contribution to economic growth theory was the "Theory of Economic Development" of Joseph Schumpeter published in 1911. Schumpeter looked at economic growth in terms of entrepreneurial innovation and contended that technological advancement (new combination) is the critical driver to economic growth and development (Marwa & Zhanje, 2015). The concept of creative destruction, which describes the process by which new inventions substitute older technology, has been operationalised by the Schumpeterian growth theory. The Schumpeterian growth model is founded on three main ideas, according to Aghion, Akcigit, and Howitt (2015): (a) Long-run growth results from innovations; (b) innovations result from entrepreneurial investments that are themselves driven by the possibility of monopoly rents; and (c) new innovations replace traditional technologies. To put it another way, progress necessitates creative destruction.

The theoretical postulation by Schumpeter underscored the significance of financial advancement in stimulating growth through innovation. This has been supported by recent empirical evidence (see Haini, 2019; Hamzah *et al.,* 2019; Recuero & Gonzalez, 2019) which argued that finance facilitates economic growth and development. Similarly, the Schumpeterian model also emphasised the significance of institutions in stimulating and promoting economic growth, particularly in developing economies

where the gaps between growth and development was dimensioned. In this light, Aghion, Akcigit, and Howitt (2015) argue that Schumpeterian growth theory contributes to bridging the gap between growth and development by examining how institutional development (or lack thereof) affects firm size distribution and firm dynamics and by providing a straightforward framework to capture the idea that growth-enhancing policies or institutions may vary with a country's level of technological development. They further highlights that the concept of appropriate growth institutions and policies, or the idea that what propels growth in a nation well below the global technological frontier is not always what propels growth in a nation at the technological frontier, where creative destruction plays a more significant role.

The crucial part that credit plays in economic development is another noteworthy point that Schumpeter makes in this examination of economic growth. Saving from current income does not provide capital for investment; rather, the banking system's generation of credit does. According to Levine (1997) as in Haini (2019) financial systems comprise of intercessors and markets with capacities that facilitate economic growth via capital gathering and innovative advancement. According to the Schumpeterian theory financial system advancement is an essential precondition for a powerful economic growth to be realised (Bandura & Dzingirai, 2019). The central point in Schumpeter's theory is the role of an entrepreneur, innovator or a creative business person whose risk taking ventures, initiatives and ideas facilitate a combination of factors of production and promote economic progress and development.

2.4.3 The Neoclassical Theory of Growth

The Neoclassical Growth Theory is an economic theory of expansion that describes how the interaction of the three economic forces of labour, capital, and technology leads to a stable pace of economic growth. The issue of accomplishing potential growth was moved from augmenting unused capacity, to the presentation of new innovation, improving efficiency and improving the association of production which became the centre of the neoclassical theorists. The neoclassical school was represented by Alfred Marshall, Carl Menger, Leon Walras, Irving Fisher, amongst others. However, the Solow-Swan (1956) Growth Model is the most straightforward

and well-liked variant of the Neoclassical Growth Model. In order to achieve the steady state equilibrium of the economy, the Solow-Swan model of economic growth postulates model of long-run continuous production function relating output to the inputs of capital and labour. This function is mostly driven by technological advancement.

The methodological premise of the neoclassical hypotheses depended on the classical style hypothesis of the factors of production, with respect to labour, capital and land as autonomous elements of the arrangement of public good. The neoclassical accepted that only competitive market framework can give balanced economic growth. According to Kibritcioglu and Dibooglu (2001) as in Udeaja and Obi (2015), the beginning stage of regular economic growth theorisation is the neoclassical model of Solow (1956). Solow's (1956) hypothesis uncovered interconnections between three sources of economic growth - investments, labour force and innovative advancement. It features innovative advancement as the sole reason for sustainable growth of welfare and permits you to locate the ideal variation of growth, giving greatest utilisation. Their principle centre is around the significance of public causes, for example, the collection of actual capital and human resources advancement (Chirwa & Odhiambo, 2016). Basically, the theory is prefaced on the accompanying consistent return to scale, decreasing marginal efficiency of capital, externally decided technological advancement and substitutability amongst capital and labour. They argued that economic growth results from the amounts of labour and capital employed during production process and the application of technology. Based on this, the neoclassical theory pinpoints savings or investment ratio or accumulation of physical capital as a vital cause of short term economic growth, while technical advancement was viewed as a main factor of long-term economic growth, but it is exogenously determined (Chirwa & Odhiambo, 2016; Udeaja & Obi, 2015).

Udeaja and Obi (2015) commented that a significant augmentation of the neoclassical approach was the consideration of human resources stock as a vital components motivating economic growth to supplement actual capital collection and technical change. This was upheld by Popa (2014) contention that for Solow (1956) the creation level will be contingent on the amount and on the variables profitability of labour and

capital in the output creation process and the incorporation of the third factor of technical progress whose role was considered exogenous. The incorporation of the third component as determining factor is very critical because absence of technical progress may negates the amount of labour and capital stock accumulated. Albeit the neoclassical theory did not focus on long-term economic growth, one most prominent significance of the technical progress is to sustain the marginal productivity of labour and capital in long-term to avoid the possibility of long-run growth stagnation.

Similar to the classical theory, the neoclassical growth model has come under heavy fire for two of its main conclusions: total output is a function of economic growth in factor inputs, capital, labour, and technological advancement; and in a steady-state equilibrium, the growth rate of total output is equal to the growth rate of the population or labour force and is never affected by the rate of savings. The neoclassical also came to the conclusion that only technological advancement or regression could determine an economy's long-term development rate. Following the establishment of a connection between institutional quality, financial services and economic growth, particularly in emerging and developing nations, the validity of these results has come under criticism.

2.4.4 The New Growth or Endogenous Theory

The period 1980s-1990s witnessed the emergence of a ‘New Growth Theory’ also known as the ‘Endogenous Theory’ which was advanced by Paul Romer, Robert Lucas, amongst others. The theory was triggered through the influential work of (Romer, 1986; Lucas, 1988) which underscores three bases of growth – new information, technological progression and public underpinning (Udeaja & Obi, 2015). The endogenous growth hypothesis as opposed to the neoclassical models are supportive of state's intercession in the advancement process. The scientific and innovative process has been considered as an endogenous growth factors produced by internal causes. The hypothesis speculated about the endogenous character of the main technological advancements dependent on investments in innovative turn of events and in human resources (Romer, 1994).

In endogenous growth hypothesis, innovative advancement is not the only conceivable

reason for economic growth over the long-run. Factors, for example, human resources, insurance of intellectual innovation rights, state uphold for advancement of science and innovation as well as the job of government in establishing a conducive investment environment and pulling in new advances also matters. According to Masoud (2014) the theory explained the variation in the paces of output increment and income per capita increase for the long-term across nations of the world. Romer (1994) asserts that technological advancements are endogenous. As a result, economic growth is a result of technological breakthroughs. Furthermore, innovation is a key component of economic expansion. The production of goods in an economy can be improved by combining advances in human capital with current knowledge.

As captured by Udeaja and Obi (2015) the part of innovative advancement as a vital driver of long-term economic growth has been under assessment in later investigations that recognise steady and increasing re-visitations of capital. These theories, referred to as endogenous growth theories, suggest that the presentation of new amassing factors, for instance, development, knowledge, among others would instigate self-sustaining economic growth. The endogenous growth hypothesis support the connection among finance and growth.

Marwa and Zhanje (2015) highlighted that the endogenous theorists believed that finance influence economic growth by means of various channels through capital gathering. The capital aggregated is invested to finance technical advancement and improve innovative progress which will promote economic growth. This strands of contention by endogenous scholars is in accordance with the Schumpeterian model highlighted above. Moreover, Marwa and Zhanje (2015) place that since the presentation of endogenous growth hypothesis, a ton of interests has been produced both theoretically and empirically regarding testing of the connection among finance and growth.

The information presented above can be summed up as follows: that the theory was developed specifically to challenge the neoclassical exogenous growth models, which predicted economic growth without accounting for technology advancement. This notion is opposed by the endogenous growth theory, which emphasises the

significance of technical breakthroughs. Productivity levels would be important since long-term economic growth is based on the growth rate of economic production per person. The advancement of technological development, which depends on innovation and human capital, factors that are internal to an economy rather than external, would in turn affect productivity. Therefore, contrary to what the Neoclassical Growth Model claims, economic growth is produced by internal economic factors, or endogenous forces, as the name suggests.

2.4.5 The Institutional Theory of Economic Growth

Several scholars have written extensively on institutions and how they support or impede human activity and growth (for example Scott, 1995; North, 1990, 1991; Williamson, 1987; North & Thomas, 1973). The institutional theory of economic growth was founded on these scholarly publications. They mainly concentrated on formal and informal institutions and how both govern how economic activity is conducted. These research' key finding is that by facilitating and regulating human behaviour, formal and informal institutions both contribute to the development of patterns in human behaviour which have significant implications for growth.

However, Douglas North's work is largely responsible for the institutional theory of economic growth. Since North's ground-breaking work, emphasis has been placed on the significance of institutional elements in attaining positive outcomes in terms of growth and economic development. A strong institutional setting can provide an environment that encourages economic actors to invest in high-value projects that support economic growth. North (1990) investigates how to account for the significantly diverse long-term performances of economies in a complex theoretical work. His research focuses on how organisations, which are made to take advantage of opportunities given by institutions in determining the growth of economies, interact with institutions, which are generally understood to be any limitation humans invent to shape their interactions. According to North (1990), there is little doubt that institutions have an impact on how well economies perform. It is also widely accepted that how institutions change over time has a fundamental impact on how various economies perform throughout time. However, since there is currently no analytical framework to incorporate institutional analysis into economics and economic history, neither

contemporary economic theory nor cliometric history exhibit many signs of understanding the importance of institutions in economic performance.

In his argument for institutions, North (1990) outlines that changes must be made to neoclassical theory in order to incorporate institutional analysis into that theory. He also discusses the implications of institutional analysis for the static analysis of economic performance and the development of a dynamic theory of long-run economic transformation. North (1990) further argues that the postulates of the Neo-classical theory implicitly implied the presence of a specific set of institutions and information.

Therefore, the institutional theory is a theory which extends, and modifies neo-classical economic orthodoxy which de-emphasises the role of institutions in economic development. In line with the theory, North (1991), relying on descriptive analysis held that institutions provide incentive structure and, that as this structure evolves, it shapes the direction of economic change towards growth, stagnation or decline. In other words, the economic growth and development is a function of institutional effectiveness and efficiency. North (1991) painted vivid detail of how institutional effectiveness and evolution brought about sustained economic breakthrough in Europe in the last few decades as against economic downturn in developing countries like Nigeria. While the qualitative analysis captured the role of institutions in economic growth and development, it did not empirically measured in quantitative terms the actual degree to which institutional quality impact on economic growth.

Since then, a lot of academics (see for example: Nxumalo & Makoni, 2021; Abubakar, 2020; Haini, 2019; Hamzah et al., 2019; Shchegolev & Hayat, 2018; Iheonu, Ihedimma & Onwuanaku, 2017) have discussed how institutions can indirectly contribute to societies' economic success. Institutions serve as the cornerstones upon which other factors that contribute to economic growth, such as human capital, raw materials, capital accumulation, and technical advancement, can strengthen and sustain economic expansion in any country. Based on this notion, Boldeanu and Constantinescu (2015) pointed out that institutions (financial institutions and private administrations inclusive), the size of aggregate demand, saving and investment rates,

the effectiveness of the financial system, budgetary and fiscal policies, capital and labour migration, and the effectiveness of the government are all indirect influences on economic growth.

2.4.6 Connection between Theories of Economic Growth and Institutional Factors of Growth

Despite the overwhelming theorisation on economic growth as discussed above, recent empirical investigations have opined the important influence of non-economic causes on the progress of nations, particularly institutions (see Marwa & Zhanje, 2015; Rodrik, 2004; North, 1991). As asserted by Marwa and Zhanje (2015) the new institutional economics and pioneers of data economics have indicated that a portion of the presumptions on the job of economic variables in animating economic growth does not generally hold, in reality as other factors also counts. The institutional arrangement in a country are said to demonstrate significant influence on the efficacy of other economic growth enhancing factors by defining the 'rules of the game' which guide how economic agents act. Institutions are known to promote technological progress, facilitate innovation, investment and capital accumulation in the economy.

Chirwa and Odhiambo (2016) assert that state factors, for example, the gathering of actual capital (investment) and human resources stock, and productive causes (technical progress) are significant macroeconomic bases of economic growth in practically all nations. They however, called for attention to the proficiency causes that got noticeable during the 1990s, with three key results being focused on, which include: steadiness of the macroeconomic climate; adequacy of the institutional system of a nation identified with political and economic management, motivation systems and social framework; and setting up of the correct value instrument and essential regulatory climate to vibrant business sectors. This line of economic growth hypothesis obviously draw out the institutional, ecological, political and economic management effects on growth.

According to Udeaja and Obi (2015), Smith (1776) had earlier noted that capital gathering, institutional and innovative advancement and social elements assume an essential job in the economic advancement process of a nation. Therefore, the

conception of institutional quality as a primary driver of economic growth could be argued to date back to the mainstream economists. What has changed significantly is the level of empirical work and revelation of the role that institutions actually play and its level of variation across different countries.

Essentially, while the early writers on economic growth has typically centred around physical and human resources gathering and innovative change as main drivers of economic growth through facilitating investment activities (see Chirwa & Odhiambo, 2016), recent studies had revealed that growth enhancing factors require strong institutional framework to yield meaningful results (see Abubakar, 2020). The most significant of this process of thought is the provision of reliable explanation for the economic performance of most developing countries which historically lacks behind in innovation and technological advancement.

2.5 Empirical Literature on the Link between Institutional Quality and Economic Growth

Numerous studies have been carried on institutional quality and its impact on macroeconomic management, particularly in driving and sustaining an inclusive growth (see Nguyen, Su & Nguyen, 2018; Siyakiya, 2017; Nawaz, Iqbal & Khan, 2014). Although only few of these studies specifically address to the developing countries, thus requiring more research in this area. Shchegolev and Hayat (2018) conducted an investigation on the relationship between institutional quality, governance and economic growth using 5 former Soviet Union nations from 1996 to 2015, applying fully modified OLS technique. They study found that the institutional quality variables has a positive huge growth instigating impact in the nations investigated. The examination likewise find that the individual institutional quality proxies have critical growth upgrading effects in these nations. They find that the GDP increase of chosen nations was significantly affected by institutional quality pointers including corruption control, government adequacy, rule of law and quality regulation. Nonetheless, Shchegolev and Hayat (2018) also found that voice and accountability and political stability effects on economic growth are statistically insignificant.

Iheonu *et al.,* (2017) employ four proxies of institutional quality for twelve West African

nations from 1996–2015. The outcome show that all the pointers of institutional quality utilised in the investigation have positive and huge effect on economic progress in West Africa when the fixed and random impact assessment strategy was utilised, however just government viability was huge in the wake of assessing endogeneity utilising the panel two-stage least square method. In view of the discoveries, the investigation presumes that economic performance in West Africa would be upgraded within the sight of enhanced institutions with more thought to government viability. The conclusion of this study is important for developing countries, particularly those within the Sub-Sahara. However, the uniqueness of this study from the previous one is the number and strength of institutional quality proxies that are adopted, the context, the system GMM methodology and the recency of data used.

One of the studies support the claim of the positive impact of institutional quality was that conducted in the Southeast Asian economies. Haini (2019) examines the part of financial and institutional advancement on financial development in the Association of Southeast Asian Nations (ASEAN) from 1995 to 2017 utilising a dynamic panel estimation method and demonstrate that institutional quality exhibits a critical and encouraging effects on economic growth in the investigated nations. It is arguable that Southeast Asian countries are at similar level of development with Sub-Saharan Africa. Thus, studying the nexus between these variables within the context of Sub-Sahara is important for the potential that institutional quality hold for stimulating and enhancing economic growth, especially in developing countries.

Interestingly, Nguyen *et al*. (2018) carried out a similar research covering the effects of institutional quality on economic growth: The instance of 29 developing economies from 2002 to 2015 by utilising System GMM assessors have some various discoveries. As per their discoveries, corruption control, government adequacy, rule of law, and voice and accountability was found to altogether improve GDP per capita growth. They noticed that the outcomes are in accordance with past investigations on the impacts of institutional quality on economic growth (like Young & Sheehan, 2014). Nguyen *et al.* (2018) infers that institutional quality has a significant impact in invigorating economic activities and quickening economic growth particularly in developing economies where incredible endeavours are put to upgrade institutional quality. While

the study is recent, its findings may not be taken as conclusion for the emerging Sub-Saharan countries as no country within the region was included in the sample size of 29 emerging countries. Therefore, the attempt to validate these findings using Sub-Saharan countries is crucial for this study.

Nawaz, Iqbal and Khan (2014) using both static and dynamic panel system GMM reveals that institutions for sure are significant in deciding the long-term economic growth in Asian countries. Nonetheless, the effect of institutional arrangements on economic growth varies across Asian countries and relies upon the degree of economic advancement as they were more compelling in advanced part of Asia than the emerging Asia. The findings from the study indicates the necessity to understand the peculiarities of every region and country for any meaningful conclusion on the influence of institutional quality on growth.

Epaphra and Kombe (2017) investigates institutions effects on economic growth in Africa from 1196–2016 using GMM approach. The findings confirms that institutional quality indicators such as a stable political system seems to hold substantial explanation for real GDP per capita growth in Africa. On the contrary, Yildirim and Gokalp (2016) during their study of Turkey institutions and economic performance using panel data analysis covering 2000–2011, shows that institutional indicators, for example, the respectability of the legal framework, guidelines on exchange boundaries, limitation of foreign investments amongst others displayed a constructive outcome on the economic performance, however, judicial autonomy, government spending, civil liberties, political stability amongst others have negative effect on the economic performance. While the previous shows that political security have positive effect on economic performance, the later locates a negative connection between the institutional proxies of political strength and economic progress. This study is engaging this discussion from these gaps where discussions are still open-ended and the demand for additional proof is still very much present.

Radzevica and Bulderberga (2018) argue that no established agreement on the influence of institutions and government strategies on the economic growth have being reach just because of absence of sound empirical proof on the record that it is

famously difficult to quantify institutions and set up causality test. Consequently, using the system GMM for a panel of 113 nations covering 2006–2016 focusing on samples from the Baltic States, Radzevica and Bulderberga (2018) settle that institutional quality is critical while evaluating the variations in GDP per capita as the study finds a statistically significant and positive outcomes for a collection of institutional measures.

Similarly, Radzevica and Bulderberga (2018) in their study find that favouritism in decisions of government officials, strength of investor protection, voice and accountability, and transparency of government policy-making to some extent contradict the previously made claims of encouraging effect of institutional arrangements on economic growth and do not have consistent effect on economic growth through diverse nations. In other words, these institutional quality metrics do not show appreciable impacts on the economic performance. This variation in results is common in literature because these variables are predicted to act differently in different nations based on the theories underpinning their operations. This gave validity to the justification for validating this in the context of the countries of Sub-Saharan Africa.

Essentially, most studies reviewed found positive connection between institutional quality and economic growth. These studies reveals improvements in quality of institutional arrangements facilitate economic performance of most developing and developed countries, propelling increase economic growth. While few studies have reported mixed findings (see Recuero & Gonzalez, 2019; Radzevica & Bulderberga, 2018), majority of the empirical studies reviewed above established a positive nexus between institutional quality and economic growth. The context of many of these researches and period covered have propelled the interest to examine this relationship within the context of Sub-Sahara using more current data. In the context of the developing countries, the apriori expectation is that strong institutional quality enforces responsible actions and behaviour as well as enabling atmosphere for advancing economic growth. In view of the differing results of investigations conducted by various scholars, it is obvious that more research is require to add to available empirical evidence on the effects of institutions on economic growth.

2.6 Empirical Studies on the Connection between Financial Inclusion and Economic Growth

There are various investigations on financial inclusion and its nexus with certain macroeconomic factors, for example, economic growth as featured in the background above. Interestingly, a portion of these investigations have featured the influence of financial inclusion on economic growth and uncovered that it positively affects economic growth while others found a two-way causation amongst pointers of these variables.

Dahiya and Kumar (2020) investigates the connection between financial inclusion and economic growth in developing Indian nation from 2005–2017 using Bayesian vector auto-regression model. They find inclusive financial system to be critical to reasonable turn of events and development of a country wherein all fragments of the general public have opportunity of inclusion into financial system and access to products at a moderate expense. It encourages safe keeping of savings, accessibility of credit for numerous reasons, demystifying risk through investment in varied ways, taking of insurance cover for different dimension of risks amongst others, which make the life of individuals simpler and contented. However, Dahiya and Kumar (2020) conclude that financial inclusion index does not elucidate economic growth considerably. In relation to the Indian economy, access to and infiltration of financial services is not sufficient to invigorate economic growth, nonetheless, utilisation of financial products is more imperative to transform savings into investments, which consequently builds the GDP of the nation.

On the other hand, Balele (2019) arrived at a different ending on the outcome of financial inclusion on economic growth utilising a panel of 25 Sub-Saharan nations from 2009–2014. The discoveries dependent on a pooled least squares, fixed effects and random effects assessment uncover the positive outcome of financial inclusion on economic growth. Balele (2019) infer that Sub-Saharan nations can enhance economic growth by upgrading and stimulating financial inclusion. This study differs from previous study in terms of chosen nations, the approach and period of study. The findings of this study is a critical addition to empirical evidence on the effects that financial inclusion has on economic growth in the region.

Similarly, Odeleye and Olusoji (2016) using regression analysis with data covering 1981 to 2014 revealed that financial inclusion seem as the main drivers of economic growth in Nigeria. They further established that finance causes growth in Nigeria. The financial inclusion proxies adopted for this study which include money supply, private credit and liquidity ratio may not capture the key components of penetration, access and usage. Indeed, this presents an opportunity to join the discussion on financial inclusion in Africa. On their part, Mwaitete and George (2018) using OLS techniques on a data set from 2008 to 2015 for Tanzania revealed that financial inclusion have an encouraging significant outcome on economic growth over the period of the investigation. In view of the significance of financial inclusion in accelerating economic growth and given imminent yearnings of most developing economies for high levels of inclusive growth, it is necessary for government and relevant stakeholders to design strategies based on empirical findings to reach the unbanked population to facilitate economic growth.

In spite of the vast literature attesting to the positive connection between financial inclusion and economic growth, there are few investigations that have reported the opposite which require further empirical studies with more robust methods and recent data. For example, Nkwede (2015) examine the impact of financial inclusion on growth of African nations with evidence from Nigeria for the period 1981–2013 using multiple regression technique. The findings demonstrate that financial inclusion has substantial adverse effect on the economic growth of the country for the study period. Although the author adduced that financially inclusive systems promote economic growth and development, level of financially excluded populace in Nigeria was to be blamed for the results and conclusion. Nonetheless, it is a globally accepted standard that empirical evidence are more reliable than theoretical postulations. Therefore, more research is needed to validate these contradictions amongst others with a view to promoting sustainable and inclusive growth in Sub-Sahara.

Therefore, while the effects of financial inclusion on economic growth has received the attention of many researchers with similar conclusion, majority of them found bi-directional causality while some reported unidirectional causality with few revealing negative correlation between the two variables. Meanwhile, investigations on nexus

between financial inclusion and institutional quality remain scarce. This study therefore increase the empirical findings on the nexus amongst these variables.

2.7 Link amongst Institutional Quality, Financial Inclusion and Economic Growth

The importance of institutions and financial inclusion in driving economic growth and development has been largely acknowledged in many economics and finance literature. As a result, many developing countries has embraced radical transformation of their institutional structures, governance systems and accelerated inclusive financial systems through various strategies in their journey to sustainable economic growth and development. According to Recuero and Gonzalez (2019) these strategies are normally based on the foundation that strong institutional quality and increase financial inclusion could prompt spontaneously increase sustainable levels of economic growth in developing countries. While some literature has observed the potentially complex relationship between these variables, the possibility of a correlation both in the short and long runs exists.

Increasing financial access means bringing more people into the formal financial system with the aim of achieving some macroeconomic objectives. One basic way to achieve this is penetration of the banks either through branch expansion or licencing of new banks (Oluyombo & Aina, 2014) and these requires effective regulatory and legal framework. Banking system is a critical wheel or grease of economic growth and advancement in emerging economies as it facilitates financial intermediation. A study by Iheonu *et al.,* (2017) recommended improvement in institutions to enhance economic performance in West African countries. The economic and social empowerment form that is more inclusive, effective and permanent is having unrestricted access to finance which promote economic participation and output growth (Babajide *et al.,* 2015).

The quality of institutional framework create an enabling atmosphere for inclusive financial systems which interact to deal with poverty, inequality and promote economic prosperity and growth in less developed countries (Recuero & Gonzalez, 2019). Good institutional arrangements and governance systems are crucial components in

advancing financial inclusion principally for the exposed poor fragment of the people (Chinoda & Kwenda, 2019; Zulkhiri & Ghazal, 2017: 2016), thus increase savings by households and businesses with its multiplier effects on investment decisions which determines economic growth. One of the fundamental building blocks for financial inclusion is trust which is establish, operate and reinforce by sound institutional framework. Indeed, the act of savings in itself is builds on trust and confidence which are supported by institutional arrangements in an economy. This establishes the link amongst the variables.

Furthermore, high rates of financial inclusion are connected to rise in quality of institutions and governance system which also propels higher economic growth, especially in developing countries (Olanrewaju *et al*., 2019). Olanrewaju *et al*. posits that poor countries cannot afford quality institutions of governance which look at the causality as running from financial inclusion through institutions to economic growth. In other words, when people are incorporated into the formal financial landscape, the demand for quality institutions will increase which will propel economic growth and advancement. Financial inclusion generate influence in enhancing the value of life by addressing poverty and inequality, enabling people and households to save and invest for the future, emergencies and manage any risks exposure (Bayar & Gavriletea, 2018; Omojolaibi, 2017).

The savings and investment are being consummated through formal financial system which in the words of Olanrewaju *et al*., (2019) will require “high institutional quality in terms of capacity and character to formulate and implement policies and programmes that would more quickly address poverty, inequality and unemployment”, thus promoting economic growth and development. When people have access to finance they will execute business plans, make investment expenditure, acquire skills and knowledge which will instil the quest for quality institutions. The resultant effect will increase in economic performance as more individual will participate in business activities. This establishes linkage stemming from financial inclusion to institutional quality and economic growth.

Similarly, this causation can run from economic growth through financial inclusion to

institutional quality. For instance, Kuncic (2014) examines 94 to 109 countries for a period of 1990 to 2010 and confirmed that many developed countries in the study (North America, Australia, Central and Northern Europe and Japan) are ranked the best with the calculated institutional quality variables strongly correlating with real GDP per capita, while the least developed countries (South and Central America, Sub-Sahara Africa amongst others) have worst quality of all the institutions. This findings lay credence to the fact that sustained levels of economic growth drive economic prosperity and development which facilitate strong institutional quality. This will also impact on financial system development of the country. This perspective probably explain why financial inclusion and institutional quality are not issue of concern to advanced economies because they have witnessed periods of economic prosperity and development.

Demirguc-Kunt *et al.*, (2018) aptly captured it thus …nearly all these unbanked adults live in emerging economies since account possession is almost general in advanced countries. Achievement of a sustainable inclusive growth that will generate desire for quality institutions is a natural feature of economic advancement. This also come with increased opportunities for both individuals and businesses which will stimulate more demand and utilisation of products and services like credit, insurance and savings amongst others. This establishes the linkage of economic growth through institutional quality to financial inclusion.

Therefore, the nexus among the variables has since been a concern for many researchers and have been empirically investigated (Olanrewaju *et al.,* 2019) but the regional and cross country studies that reveals the tripartite connection spanning through institutional quality to financial inclusion and economic growth remain scanty. This research investigate the link between these variables with samples from chosen Sub-Saharan nations to add to literature in the subject areas.

2.8 Conceptual Framework

Various economic growth theories right from the classical economists, neo-classical, up to the endogenous growth theories amongst others developed in time past to explain economic growth occurrences alongside factors that promote or limit it. Most of these early theories have emphasised the importance of capital accumulation,

labour and technological advancements leading the economic progress of a nation (see for example Masoud, 2014; Popa, 2014). While the issue of relatively low level of capital accumulation, skilled labour and technical progress facing developing countries has been the concern of some scholars such as Chirwa and Odhiambo (2016), focusing on these variables may not adequately explain the economic growth problems in these countries as there are underlying efficiency causes like institutional quality and financial inclusion.

Accordingly, recent economics literature and discourse have consistently pointed to institutional quality as the solution to the problem of achieving sustainable inclusive growth, the policies required to promote best outcomes in economic performances (see Bandura & Dzingirai, 2019; Haini, 2019; Hamzah *et al.*, 2019). For example, Bandura and Dzingirai (2019) defined institutions as the foundation for sustainable and inclusive expansion via many networks. We believe that what shape the finance enhancing effect on growth is the quality of institutions which influences accumulation of capital and technological progress in turn.

On the other hand, some literature also pointed to the importance of financial accessibility in stimulating economic growth and development (see Bakar & Sulong, 2018; Bigirimana & Hongyi, 2018; Wakdok, 2018; Otiwu, Okere, Uzowuru & Ozuzu, 2018). For instance, Wakdok (2018) defined financial inclusion as a cycle that guarantees the simple entry, accessibility and utilisation of the formal financial services by all people from a nation. Regardless of these however, some recent works have contend that the causes of economic growth in emerging nations are foreign aid, FDI, fiscal practices, investment, trade and exchange, human resources advancement, socioeconomics factors, monetary policies, natural assets, reforms changes and geology, provincial, political and financial variables (Chirwa & Odhiambo, 2016). Bruinshoofd (2016) contend that the norm of institutions ought to be seen as an empowering agent not determinant of economic growth since different factors like investment and human resources should be thought about. The advocates of this position accept that economic advancement spurs more prominent interest for quality institutions while empowering nations to afford them. These propositions propels the interest to inspect the nexus amongst these variables in a unified framework with proof

from chosen Sub-Sahara African nations.

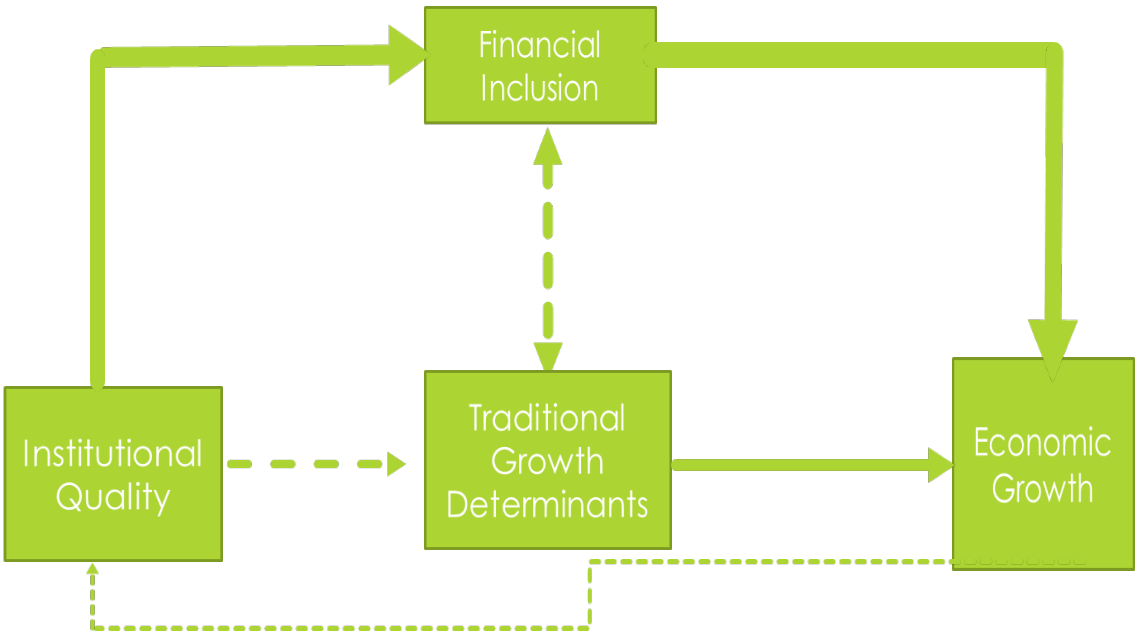
The finance growth linkage is inherently embedded in capital accumulation theory of classical and neoclassical economists. Perhaps, this motivates the seminal contributions from (North, 1990; Williamson, 1987; and Scott, 1995) that popularise the role of institutions and widely reported in literature with their argument that formal institutions (constitutions, laws and guidelines) and casual principles (standards, propensities and social practices) assume a vital part in economic advancement process. Accordingly, Bosma, Content, Sanders and Stam (2018) argue that new investigations on economic growth show that quality of institutions are a principal reason for economic growth, forming more immediate sources like the gathering of physical and human resources. This assertion is in line with this study's conceptualisation of the nexus running from institutional quality through financial inclusion and ultimately to better economic performance and growth.

The volume of empirical work relating institutions to economic growth are overwhelming as noted above. For example Siyakiya (2017) pointed out that since the early 1990, it has been generally accepted that great institutions impacts a nation's capacity to propel economic advancement. This suggests a linkage between economic growth and institutional quality. Sound institutional quality will accelerate economic performance, by facilitating capital accumulation, economic integration, foreign direct investment, foreign aid and technology transfer. Conversely, poor institutions is perceived to have a detrimental effect on economic growth. Therefore strong institutions attract economic integration, human capital, physical capital, aid and investment from advanced economies and development partners which will promote viable economic growth and improvement.

Overall, institutions determine when and how households and firms get access to finance to carry out various economic activities that impact on total output in the country, but the converse may also be true. The study therefore explore the nexus, flowing from institutional quality variables through financial inclusion proxies to real GDP, GDP growth rate, and per capita real GDP as well as the bivariate relationships between the variables. A panel of 20 chosen nations of Sub-Sahara are investigated

for a period of 2004 to 2020 using system GMM approach. This analysis primarily regard various institutional quality variables as fundamental causes while financial inclusion proxies as proximate causes to economic growth. The reverse order is also investigated with a view to contributing to the direction of causation amongst the variables.

Figure 2: Conceptual Framework



(Source: Author's own conceptualisation**)**

Following from the above conceptualisation, the study represent the nexus between the variables as seen on Figure 2 above. The figure shows how institutional quality variables affect economic growth through financial inclusion, while controlling for the mainstream economic growth determinants which are at the bottom of the figure. The upper chamber of the figure show the financial inclusion and how it also impact on the economic growth. The bottom dotted line indicate a possible connection flowing from economic growth to institutional quality. Furthermore, to properly establish the nexus, the study assume the traditional economic determinants impact on economic growth through sound institutional quality while there could be a bi-directional relationship between the variables. Essentially, sound (weak) institutions facilitate (undermine) financially inclusive systems which promote (deter) economic growth of the Sub-

Saharan economies.

2.9. Empirical Investigations on Other Determinants of Economic Growth

A sizeable volume of empirical examinations of economic growth concentrated extensively on economic determinants of growth such as capital accumulation, technological advancement, foreign aid, foreign direct investment, aggregate domestic investment spending, total debt portfolio, openness to trade, inflation, population growth, public infrastructure, fiscal and monetary policies, while only few focus on the important role of non-economic determinants of growth such as , institutions, governance framework, financial inclusion and other socio-cultural variables.

Osman, Alexiou and Tsaliki (2011) examine institutions and economic development in twenty-seven Sub-Sahara nations. The findings revealed that indicators of institutional quality adopted demonstrated critical impact on the economic improvement process, while the control indices (economic variables) exhibited insignificant impact. They concluded that mainstream determinants of growth might fail to totally describe Sub-Sahara nation's experience. The effects of these authors' submission is that economic drivers of growth like aggregate domestic investment expenditure, technology, FDI, foreign aid, physical and human capital accumulation, trade, inflation amongst others are critical to developing economies but the foundation remains the non-economic factors such as institutions and level of financial inclusiveness.

This study attempts to explore the connection amongst the variables of interest. However, it adopts other determinants of economic growth as control variables. Amongst the control variables are: inflation rate, trade openness, investment expenditure, unemployment rate, literacy level, and total natural resources rent (see Table 4.1 on page 96 for similar studies that adopted these variables). Some of the findings of these previous studies are of interest to this investigation.

More interestingly, Nawaz, *et al.* (2014) found that rising inflation escalate the risk premium and obstructs the smooth working of financial sector via the decrease of saving and investment expenditure. This implies that apart from the implications of inflation for economic growth, it also negatively affects the extent of financial inclusion

in the society. With regard to trade openness, Nawaz *et al.* (2014) revealed a progressive and important effects on economic growth, denoting that trade is advantageous for growth. This connection between trade and economic growth has been inherently rooted as it promotes competition, encourages specialisation and thus, increase output level in the economy.

Haini (2019) explore the impact of financial and institutional development on economic growth in the ASEAN covering 1995–2017 utilising a dynamic panel approach. The study used human resources and trade as the control variables and reported expected positive and momentous connection among indices and economic growth. Effectively, the findings indicate human capital and trade openness as positively significant in explaining economic growth of the region. Haini (2019) further noted that trade and exchange can build development as it supports FDI that can prompt significant impacts on the real sectors of the economy. This finding contradicts the disclosure by Nguyen *et al.* (2018) where they argue that the association between FDI and trade exchange negatively affects economic growth, noticing that trade carries wild, worldwide rivalry to developing economies, powers local firms to troublesome climate, and consequently, obstructs the FDI spill-over impact in the short-term. In the interim, they featured that the negative impacts of trade transparency collaboration with FDI in emerging market economies can be minimised with strong institutional quality.

In his study, Ajide (2014) explore Frazer Index on FDI growth linkage covering 1980–2010 for Nigeria using a Multivariate Regression approach. The findings reveals the following results: labour and extent of trade display the greatest significant influence on economic growth while capital variable was statistically insignificant though with a positive sign. Additionally, he demonstrate that life expectancy significantly affect economic growth of Nigeria while financial sector advancement is statistically insignificant in elucidating economic growth in Nigeria. This findings are consistent with a study by Effiong (2016) using a panel of twenty-one Sub-Saharan nations from 1986 to 2010, applying regression model show that financial sector advancement has not considerably backed the region’s economic growth, disagreeing to the substantial progressive consequence of institutional quality.

2.10 Chapter Conclusion

Several theories and empirical literatures related to institutional quality, financial inclusion and economic growth were reviewed in this chapter. Economic performance in Sub-Saharan African countries have receive tremendous attention in recent years due to the notion that the region has performed below expectation when compare with its peers in other regions of the world (Olanrewaju et al., 2019). Based on reviews carried out, economic growth therefore is thought to be positively impacted by strong institutions supported by easy access to financing developmental initiatives. As countries go through different economic cycles over time, the extent of resilience and responses to these economic cycles depend on institutional framework as well as availability of financial resources. Thus, countries that have better institutional frameworks were believed to perform better economically than those with weak institutions. Similar to this, nations with high levels of financial inclusion effectively encourage economic activity, which leads to improved economic performance. It means that if required foundational elements, such as institutions and access to financial services, are lacking, a country with a wealth of natural resources, people and physical capital, and technical advancement may lag behind in its development objective.

CHAPTER THREE

CONCEPTUAL OVERVIEW AND TREND ANALYSIS

3.1 Introduction

This chapter discussed the specific contribution of the key variables of the study within the Sub-Saharan African (SSA) context. The focus was directed towards examining the conceptual issues, trends and historical background of institutional quality, financial inclusion and economic growth in SSA. It further shows how the variables deploy to capture these indices have impacted on the economy of SSA over the study period. The overview of economic growth of the selected countries in SSA is explored while also investigating the major determinants of economic growth in SSA. Sub-Saharan Africa is selected because of its size (48 out of 54 nations) and contributions in Africa's development as a whole. Twenty (20) countries are carefully selected from the forty-eight (48) SSA countries because of their importance in the region regarding their significant improvement within the past decades.

It was reported by Demirguc-Kunt and Klapper (2012) that Kenya leads the way as the most financially inclusive country in Africa. This is because the country is considered to have the most mature mobile money market in the region which has facilitated a 50 percent increase in financial inclusion over the last decade. South Africa and Uganda followed with a strong mobile capacity and high level of formal financial ownership while Rwanda has demonstrated a strong commitment to promoting financial inclusion. Rwanda has experienced tremendous growth in the use of electronic and mobile payments recently. This is believed to have far reaching implications on economic growth of these countries as increased financial inclusion, on a balance, will lead to improvement in economic growth. Although, similar trends are recorded in most of the chosen countries, the level of financial inclusiveness remain low compared to advanced economies. Indeed, access to traditional financial services, however, continues to be a significant barrier in many developing nations of the SSA.

According to Asuming, Osei-Agyei and Mohammed (2019), the international development community and policymakers have stepped up their efforts over the past ten years to increase access to affordable financial services for those who are not part of the official financial system. Governments and other international entities have

started programmes to encourage financial inclusion as a result of this. For example, a legislation recently implemented in India mandates that banks open accounts and offer financial services without the usual necessity of maintaining a minimum account balance. Governments were required to publicly announce their commitment to a particular national financial inclusion plan under the Maya Declaration, which was established by the Alliance for Financial Inclusion (AFI). As a result, these governments are currently implementing plans to deal with financial exclusion in each of their respective nations (Asuming, Osei-Agyei & Mohammed, 2019). Fundamentally, financial inclusion has been proven to have favourable effects on a range of development outcomes which are necessary for developing economies.

On the other hand, focusing only on variables such as financial inclusion may not adequately explain the key mechanics behind economic growth in developing countries as there are underlying causes like institutional quality which provides the fundamental mechanisms upon which the policies are developed, implemented and enforced. In light of this, Bandura and Dzingirai (2019) conceptualised institutions as the basis for sustainable and inclusive development by means of many linkages. To buttress this, Siba (2008) earlier identified history, policies of post independent rulers and proximity to equator as factors explaining current performance of institutional quality in the SSA region. The presence of these linkages and interrelatedness amongst the variables has underscored the need to explore the conceptual underpinnings of institutional quality, financial inclusion and economic growth, drawing inferences from the chosen SSA nations.

3.2 Institutional Quality in Sub-Saharan Africa

It has been established from literature that one of the causes that limits economic growth rate is the weakness of institutions and the quality of institutions is crucial for the success of developing countries (Matthew & Adegboye, 2014). Earlier work by North (1990) highlighted that the effects of institutions on economic performance vary widely; some countries build institutions that promote growth and development, while others develop institutions that promote stagnation. The mere presence of institutions is not an end in itself but the quality also matters in ensuring that the intended objective

is achieved. North (1991) pointed out that institutions are responsible for the incentive structure of an economy, which determines whether economic change will be in the direction of growth, stagnation, or decline as that structure develops.

Kilishi et al. (2013) revealed that among the studies seeking to explain growth differences across Sub-Saharan African (SSA) countries in recent time are institution and policy studies. These studies argued on the roles institutions and governance play in growing economies in recent time and pointed that weak institutions and wrong policy choice hinder growth and vice-versa. Thus, the failure of sustainable growth in SSA countries may be attributable to the poor quality of institutions. This fact has not been entirely followed in efforts to achieve sustainable growth in developing countries including SSA. This is because these economies has been relying on the traditional economic drivers at the expense of the fundamentals such as institutions and governance systems. North (1990) had earlier explained how institutional analysis should be incorporated into neoclassical growth theory and looks into the possibility of developing a dynamic theory of long-term economic development. This is particularly relevant for countries in SSA if sustainable growth that will lead to long-term change is to be achieved.

Similarly, Adegboye et al. (2020) further reiterated that developing economies, like the SSA, are characterised by lack of relevant determining factors that should lead to economic growth. These factors are effective policies and institutional quality which are expected to enhance low cost of production and favourable tax incentives. They would also help to prevent market failure, which destroys motivation and misappropriates resources. This explains why lack of quality institutions dampen growth and development in emerging economies, including SSA.

Awn (2000) espoused that Third World countries (Sub-Saharan Africa inclusive) are poor because the institutional constraints define a set of payoffs to political/economic activity that do not encourage productive activity. The institutional framework affects their growth because it is integral to the amount spent on both the costs of transactions

and the costs of transformation (in the production process). Transaction costs, for example, are far higher when property rights or the rule of law are not reliable. In such situations, private firms typically operate on a small scale, perhaps illegally in an underground economy, and may rely on bribery and corruption to facilitate operations. Transformation costs too, can be raised substantially because unenforceable contracts mean using inexpensive technology and operating less efficiently and competitively on a short-term horizon. Awn noted that weak institutions in SSA could lead to interpersonal exchanges and as such transaction costs may be low, but transformation costs would be high because the economy operates at a very low level of specialisation.

It is worthy to note that with a focus on key variables that are under the country's control, the World Bank's country Policy and Institutional Assessment (CPIA) ratings (World Bank, 2022a update) assesses the quality of a nation's institutional frameworks and policies and how such institutional and policy structure promotes sustainable growth (World Bank, 2022a update). Therefore, given the country CPIA ratings prepared annually by World Bank staff, SSA institutional quality was rated averagely between 2005 and 2020. That is, on the basis of 1 to 6 rating scale (where 1 = very weak to 6 = very strong), SSA was generally rated 2.797, 2.684 and 2.718 points in 2005, 2016 and 2020 respectively on transparency, accountability and corruption in the public sector (See Table 3a). This means that the region’s rating is average and people should hold the government less accountable for quality of institutions. However, countries within the region exhibited differences in the rating. For instance, Ghana was rated 3 points in 2005 but in 2006 through 2013, the country was rated 4 points and dropped to 3.5 points in 2014 to 2019 before regaining 4 points in 2020. Rwanda was rated 3 points in 2006 and 2006, but increased to 3.5 points from 2007 to 2020. Nigeria and Kenya were rated 3 points from 2005 to 2020. Meanwhile, Uganda was rated 3 points between 2005 and 2008, but dropped to 2.5 points from 2009 to 2011 (World Bank, 2022a update). Uganda rating further dropped to 2 points from 2012 to 2017 before improving to 2.5 points from 2018 to 2020. In addition, Zambia was rated 3 points from 2005 through 2009. It dropped to 2.5 points from 2010 to 2012 before improving to 3 points in 2013 through 2017. Zambia rating however, dropped to 2.5 points from 2018 to 2020 (World Bank, 2022a update). Although, all

the ratings cluster around average to below average scores, and are similar with ratings of other countries such as India, Bangladesh amongst others which have posted better economic performance. This suggests that SSA countries with low points should be held less accountable than those rated high like Ghana, Tanzania and Rwanda. This is aptly summarised in Nawaz, Iqbal and Khan (2014) where they reported that institutions do have a significant role in predicting long-term economic success. Institutional influence on economic growth, however, varies across economies and is influenced by the degree of economic development. This suggests that various nations require various sets of institutions to encourage long-term economic success.

World Bank (2022a) conceptualised property rights and rule-based governance as a measure of how well-functioning legal systems and rule-based governance structures, consistently uphold and enforce property and contract rights and facilitate private economic activity of a nation. In terms of property rights and rule based governance, the SSA region is rated below average. Ghana is rated above average, Nigeria is rated below average. Uganda is better rated as it is rated above average. Kenya, although rated average in 2005 and 2006 went below 3 points up to 2011, before improving to 3 points from 2012 through 2020 (See Table 3b). Kenya is currently at position 43rd in terms of observance of rule of law and ranked 38th, 12th, 28th, 34th and 19th for government effectiveness, political stability, regulatory quality, voice & accountability, and corruption respectively in the world percentile ranking of countries (Majoge, 2020). This relates why SSA nations are behind because they lack a clear framework of property rights and rule based governance system free from corruption, political instability and disregard for the rule of law, amongst others which have impeded their abilities to thrive economically.

For Ease of doing business, according to the World Bank ease of doing business database (World Bank, Fact Sheet 2022a), SSA has an average score of 51.8, which continues to be one of the least competitive regions in the ease of doing business rankings. This region's score is significantly lower than both the OECD high-income economy average of 78.4 and the global average of 63. The Bank's database Facts Sheet 2022 indicates that the top-ranked Sub-Saharan African economy overall is Mauritius (13). Additionally, it is the only economy in this sub-region in the top 20

economies. Rwanda has the second-best economy in the area having being ranked 38. Only two Sub-Saharan African economies — Mauritius and Rwanda—appear in the top 50 lists of ease of doing business. The ease of doing business ranking demonstrated how rapidly an economy's business climate has evolved over time and has attracted and encouraged entrepreneurs to invest, which ultimately inspire better economic performance. It is therefore imperative for SSA economies to improve on ease of doing business to promote sustainable economic growth and development.

With respect to business regulatory environment as one of the measure of ease of doing business, the SSA region has been rated 3.122 in 2005 and stood at 2.987 in 2020 (WDI, 2022). A high score for ease of doing business indicates that the regulatory climate is more favourable for setting up and running a local firm. This infers that the environment is unconducive for business and it explains the reason for low productivity and growth. This is not surprising as the SSA countries like Ghana, Kenya and Rwanda are rated higher than Nigeria (See Table 3c).

Table 3a: CPIA Transparency, Accountability, and Corruption in the Public Sector Rating (1=low to 6=high)

Year	Country/Region							
	Ghana	Nigeria	Uganda	Kenya	Rwanda	Mozambique	Zambia	SSA
2005	3.5	3	3	3	3	3	3	2.8
2006	4	3	3	3	3	3	3	2.8
2007	4	3	3	3	3.5	3	3	2.8
2008	4	3	3	3	3.5	3	3	2.7
2009	4	3	2.5	3	3.5	3	3	2.7
2010	4	3	2.5	3	3.5	3	2.5	2.7
2011	4	3	2.5	3	3.5	3	2.5	2.8
2012	4	3	2	3	3.5	3	3	2.7
2013	4	3	2	3	3.5	3	3	2.7
2014	3.5	3	2	3	3.5	3	3	2.7

2015	3.5	3	2	3	3.5	2.5	3	2.7
2016	3	3	2	3	3.5	2.5	3	2.7
2017	3.5	3	2	3	3.5	2.5	3	2.7
2018	3.5	3	2.5	3	3.5	2.5	2.5	2.7
2019	3.5	3	2.5	3	3.5	2.5	2.5	2.7
2020	3.5	3	2.5	3	3.5	2	2.5	2.7

Source: Author's own Creation from Accessed WDI Data.

Table 3b: CPIA Property Rights and Rule Based Governance Rating (1=low to 6=high)

	Country/Region							
Year	Ghana	Nigeria	Uganda	Kenya	Rwanda	Mozambique	Zambia	SSA
2005	3.5	2.5	3.5	3	3	3	3	2.8
2006	3.5	2.5	3.5	3	3	3	3	2.8
2007	3.5	2.5	3.5	2.5	3	3	3	2.8
2008	3.5	2.5	3.5	2.5	3	3	3	2.8
2009	3.5	2.5	3.5	2.5	3	3	3	2.8
2010	3.5	2.5	3.5	2.5	3.5	3	3	2.8
2011	3.5	2.5	3.5	2.5	3.5	3	3	2.8
2012	3.5	2.5	3.5	3	3.5	3	3	2.7
2013	4	2.5	3.5	3	3.5	2.5	3	2.7
2014	3.5	2.5	3.5	3	3.5	2.5	3	2.7
2015	4	2.5	3.5	3	3.5	2.5	3	2.8
2016	4	2.5	3.5	3	3.5	2.5		2.8
2017	4	2.5	3.5	3	3.5	2.5	3	2.8
2018	4	2.5	3.5	3	3.5	2.5	3	2.8
2019	4	2.5	3.5	3	3.5	2.5	3	2.8
2020	4	2.5	3.5	3	3.5	2.5	3	2.8

Source: Author's own Creation from Accessed WDI Data.

Table 3c: CPIA Business Regulatory Environment Rating (1=low to 6=high)

Year	Country/Region							
	Ghana	Nigeria	Uganda	Kenya	Rwanda	Mozambique	Zambia	SSA
2005	4	3	4	4	3	3	3	3.1
2006	4	3	4	4	3	3	3	3.1
2007	4	3	4	4	3	3	3.5	3.1
2008	4	3	4	4	3	3	3.5	3.1
2009	4	3.5	4	4	3	3	3	3.1
2010	4.5	3.5	4	4	3.5	3	3.5	3.0
2011	4.5	3.5	4	4	3.5	3	3.5	3.0
2012	4.5	3.5	4	3.5	3.5	3	3.5	3.1
2013	4.5	3.5	4	3.5	3.5	3	3.5	3.1
2014	4	3.5	4	3.5	3.5	3	3.5	3.1
2015	4	3.5	4	3.5	3.5	3	3.5	3.1
2016	4	3.5	4	3.5	3.5	3	3.5	3.1
2017	3.5	3.5	3.5	4	3.5	3	4	3.0
2018	3.5	3	3.5	3.5	3.5	3	4	3.0
2019	3.5	3.5	3	4	3.5	3	4	3.0
2020	3.5	3.5	3	4	4.5	3	4	2.99

Source: Author's own Creation from Accessed WDI Data.

The CPIA ratings for selected SSA nations are depicted in Tables 3a, 3b, and 3c above, based on transparency, accountability, and corruption in the public sector; property rights and rule-based governance; and business regulatory environment, respectively. The scale runs from 1 (low) to 6 (high). A high score implies that the country is performing well in terms of CPIA ratings, and vice versa. The table shows that the selected countries have either an average or a below-average rating.

3.2.1 Overview of Regional Trends in Country Policy and Institutional Assessment (CPIA)

This section presents an overview of the World Bank's Country Policy and Institutional Assessment (CPIA) ratings across the Sub-Saharan Africa, East Asia and Pacific, Europe and Central Asia, Latin America and Caribbean, Middle East and North Africa, and South Asia based on three selected indices – Transparency, Accountability and

Corruption in the Public Sector, Property Rights and Rule-based Governance, and Ease of Doing Business indicators. Although, each economies performed differently, the goal is to gain a global perspective on the effectiveness of institutional frameworks and the standard of policies in each region of the world, as factors crucial to promoting sustainable economic growth.

Table 3d below provides the ratings of the six regions of the world across the three selected indicators from 2005 to 2020 as well as their cumulative average scores over the period. The cumulative average ratings indicates that the SSA falls below average on transparency, accountability and corruption in the public sector, and property rights and rule-based governance ratings with each rated 2.7 points. The region however, scored an average rating of 3.05 points with respect to business regulatory environment. This highlights the need for governments of SSA countries to take steps to strengthen their institutional frameworks and mechanisms to maximise the gains of stimulating favourable economic performance and growth.

The East Asia and Pacific performed better than the SSA on transparency, accountability and corruption in the public sector, and property rights and rule-based governance indicators with an above average ratings of 3.04 points and 3.07 points respectively. The region, however, was rated below average on cumulative basis with regard business regulatory environment with 2.91 points. A business friendly environment promote entrepreneurship and stimulate investment activities which are very critical to economic growth.

Europe and Central Asia was not much better than SSA having recorded below average ratings of 2.69 and 2.89 points for transparency, accountability and corruption in the public sector, and property rights and rule-based governance ratings respectively. On the other hand, the region slightly performed better that SSA with average rating of 3.62 points for business regulatory environment.

Furthermore, Latin America and Caribbean region is impressive on the cumulative average rating across the years. The region got an above average ratings of 3.43 points, 3.21 points and 3.43 points for transparency, accountability and corruption in

the public sector, property rights and rule-based governance ratings, and business regulatory environment respectively.

The Middle East & North Africa lagged behind SSA with the cumulative average ratings of 2.36 points and 2.38 points respectively for transparency, accountability and corruption in the public sector, and property rights and rule-based governance ratings. Conversely, the region obtained a cumulative average rating of 3.02 points for business regulatory environment for the various years.

The South Asia, though obtained an average cumulative ratings of 2.99 points and 2.94 points for transparency, accountability and corruption in the public sector, and property rights and rule-based governance ratings respectively was better than SSA. In addition, the region also performed better on business regulatory environment with a cumulative average rating of 3.36 points.

Table 3d: CPIA Transparency, Accountability and Corruption in the Public Sector; Property Rights and Rule-Based Governance; and Business Regulatory Environment Ratings for Regions (1=Low; 6=High) from 2005-2020.

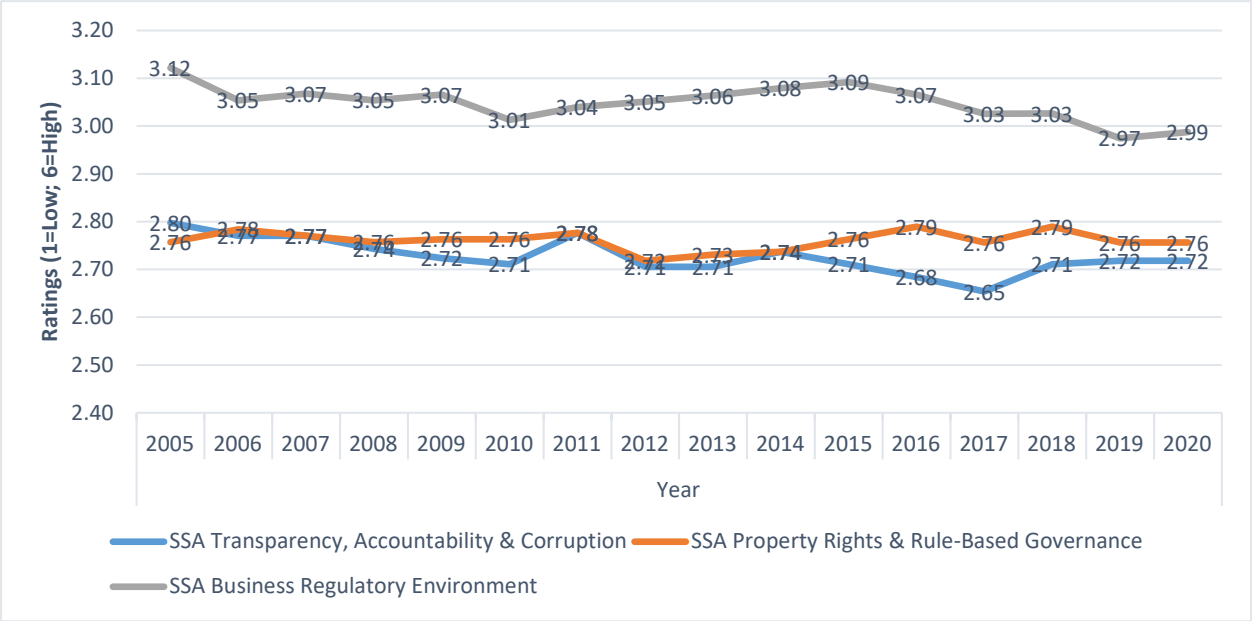
Region	Indicator/Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Cum. Average
Sub-Saharan Africa	TAC	2.797	2.770	2.770	2.743	2.724	2.711	2.776	2.705	2.705	2.737	2.711	2.684	2.654	2.711	2.718	2.718	2.727
Sub-Saharan Africa	PRG	2.757	2.784	2.770	2.757	2.763	2.763	2.776	2.718	2.731	2.737	2.763	2.789	2.756	2.789	2.756	2.756	2.760
Sub-Saharan Africa	BRE	3.122	3.054	3.068	3.054	3.066	3.013	3.039	3.051	3.064	3.079	3.092	3.066	3.026	3.026	2.974	2.987	3.049
East Asia & Pacific	TAC	2.864	2.875	2.955	3.000	2.955	3.000	3.077	3.143	3.100	3.133	3.133	3.143	3.107	3.036	3.036	3.071	3.039
East Asia & Pacific	PRG	3.045	2.875	2.909	3.045	3.045	3.091	3.192	3.179	3.100	3.100	3.100	3.071	3.071	3.036	3.107	3.071	3.065
East Asia & Pacific	BRE	3.182	3.000	3.045	3.045	3.045	3.045	2.962	2.893	2.900	2.900	2.867	2.821	2.750	2.750	2.714	2.679	2.912
Europe & Central Asia	TAC	2.650	2.650	2.625	2.563	2.611	2.667	2.875	3.000	3.000	2.700	2.600	2.600	2.600	2.600	2.600	2.625	2.685
Europe & Central Asia	PRG	2.950	2.900	3.000	3.000	3.000	3.000	3.000	3.000	3.000	2.900	3.000	3.000	3.000	3.000	3.000	2.875	2.977
Europe & Central Asia	BRE	3.550	3.450	3.750	3.875	3.778	3.778	3.750	3.750	3.750	3.300	3.400	3.500	3.800	3.600	3.500	3.375	3.619
Latin America & Caribbean	TAC	3.444	3.444	3.444	3.444	3.500	3.389	3.389	3.389	3.500	3.500	3.444	3.438	3.438	3.438	3.375	3.313	3.431
Latin America & Caribbean	PRG	3.333	3.278	3.278	3.222	3.222	3.167	3.222	3.167	3.167	3.167	3.167	3.250	3.250	3.188	3.188	3.125	3.212
Latin America & Caribbean	BRE	3.778	3.722	3.778	3.667	3.611	3.667	3.500	3.444	3.444	3.444	3.389	3.500	3.188	3.000	2.875	2.875	3.430
Middle East & North Africa	TAC	2.750	2.750	2.750	2.750	2.750	2.500	2.500	2.250	2.250	2.250	2.000	2.000	2.000	2.000	2.000	2.250	2.359
Middle East & North Africa	PRG	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.500	2.250	2.250	2.250	2.000	2.250	2.250	2.250	2.375
Middle East & North Africa	BRE	3.000	3.000	3.500	3.500	3.500	3.500	3.250	3.250	3.250	3.250	2.500	2.500	2.500	2.750	2.500	2.500	3.016
South Asia	TAC	3.071	3.000	2.938	2.938	3.063	3.000	3.000	3.000	3.000	2.929	3.000	3.000	2.917	2.917	3.000	3.000	2.986
South Asia	PRG	3.286	3.063	3.063	2.938	3.000	3.000	2.938	3.000	2.875	2.786	2.857	2.750	2.750	2.833	2.929	2.917	2.936
South Asia	BRE	3.643	3.500	3.500	3.500	3.500	3.438	3.313	3.313	3.375	3.429	3.286	3.250	3.167	3.167	3.286	3.167	3.364

Source: World Development Indicator, 2022.

TAC: Transparency, Accountability, and Corruption in the Public Sector Rating (1=Low; 6=High); PRG: Property Rights and Rule-based Governance Rating (1=Low; 6=High); BRE: Business Regulatory Environment Rating (1=Low; 6=High); Cum. Average: Cumulative Average.

The Middle East and North Africa, followed by Sub-Saharan Africa, are the two regions of the globe with the lowest ratings for the chosen metrics, according to the World Bank CPIA rating scores. East Asia and the Pacific are rated highest, followed by Latin America and the Caribbean. It is remarkably evident that the most business-friendly region is Europe and Central Asia.

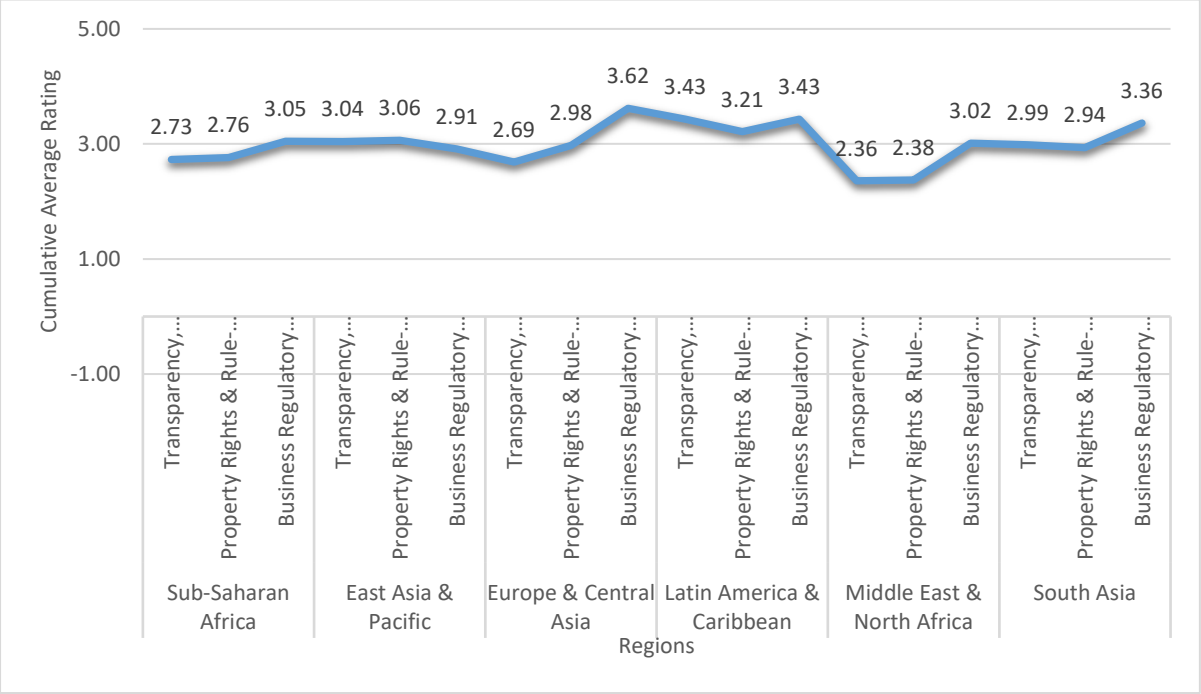
Figure 3a: Sub-Saharan Africa CPIA for Selected Indicators (2005 – 2020):



Source: Author's own computation from WDI Data.

Figure 3a is a graphical representation of the SSA ratings across the three selected indicators of transparency, accountability and corruption in the public sector; property rights and rule-based governance and business regulatory environment ratings. The ratings shows that the region performed better on business regulatory environment and was rated worst on transparency, accountability and corruption.

Figure 3b: Regional CPIA Ratings for Selected Indicators (2005 – 2020):



Source: Author's own computation from WDI Data.

Figure 3b demonstrate graphical representation of the cumulative average CPIA ratings of the regions of the World. Consistent with the earlier analysis, it can be seen that Latin America & Caribbean leads the rest of the world in terms of the three selected indicators of transparency, accountability and corruption in the public sector; property rights and rule-based governance; and business regulatory environment ratings, based on facts from the WDI database from 2005 to 2020.

3.3 Financial Inclusion in Sub-Saharan Africa

Financial inclusion refers to the availability to both individuals and businesses of useful and cost-effective financial goods and services, including payments, transactions, savings, credit, and insurance, that are provided in a sustainable and ethical manner. Since a transaction account enables people to keep money and send and receive payments, having access to one is a first step toward greater financial inclusion. Making sure that everyone can access a transaction account continues to be a concern for the World Bank Group because a transaction account acts as a gateway to additional financial services (World Bank, 2022d).

Like other developing economies, African economies have long faced the difficulty of having sizable populations with little or no access to conventional banking services. People's capacity to send and receive money in an economical manner, as well as their access to financial products like insurance, credit, and savings, have all suffered significantly from a lack of access to banking services (Alhassan & Yengeni, 2022). Deposit account penetration in SSA has been on the decrease since 2012 (Muriu, 2020). That is, only 24 percent of adults have an account with a formal financial institution, compared with the records of 50 percent worldwide and 89 percent in the high-income countries (Ajide, 2017).

According to the World Bank's 2015 Financial Inclusion Report, nearly two billion working-age adults (more than half of the world's total adult population) lack access to formal financial services. In Sub-Saharan Africa, though, the problem appears to be more acute (Omokanmi & Ogunleye, 2020). The low rate of adults owning an account in SSA is as a result of conflicts in most countries in the region including political and labour unrest in Southern Africa, Boko Haram insurgencies in some part of West Africa, terrorist threats in Kenya and the use of political power to restrict entry or competition for continuous rents extraction. Despite the underdevelopment of financial system in SSA, Oyelami et al. (2017) points to the fact that mobile money account penetration helped broadening access to financial services, savings and payment products alike with associated challenges like poor infrastructure and low level of income.

Ajide (2017) stated that the performance of financial inclusion indicators in sub-Saharan Africa (SSA) countries are poor particularly when talking about Automated Teller Machines (ATM) because its ratio to 100,000 adults is 6 ATMs. Specifically, South Africa recorded the highest number of ATM per adult with an average of 60 ATM per 100,000 adults between 2002 – 2019, and stood at 65 ATM per 100,000 adults in 2019, but however, dropped to 59 ATMs per 100,000 adults in 2020 (IMF FAS, 2022). However, in Central Africa Republic, Liberia, Burundi, Democratic Republic of Congo, Chad and Sierra Leon are characterised by average of 1 ATM per 100,000 adults. Ajide (2017) also noted that statistics has it that on average, there is approximately 1

bank branch per 1000km in SSA. For example, account ownership, a key indicator of financial inclusion in high-income OECD economies, is nearly universal at 94 percent; in 2014, it was 51.4 percent in both Latin America and the Caribbean and Central Asia, 46.4 percent in South Asia, and only 34.2 percent in Sub-Saharan Africa, with only the Middle East and North Africa trailing at 14.2 percent (World Bank, 2015). Sub-Saharan Africa also lags behind on a number of key financial inclusion measures. For example, according to the Financial Access Survey (2017), the average number of automated teller machines (ATM) per 100,000 adults is less than 6, with the exception of South Africa, which has 60 ATMs per 100,000 adults (Omokanmi & Ogunleye, 2020).

Similarly, when it comes to commercial bank branches, figures show that there are less than five commercial bank branches per 100,000 adults in the region on average. The burning question today is: What are the consequences of these dismal financial inclusion figures for the SSA's economic development? Given the role of financial inclusion in stimulating and sustaining economic growth, the region cannot boast of achieving economic growth except if the fundamentals are addressed. This is aptly summarised by Soumare, Tchana and Kengne (2016) that without an inclusive financial system, the poor will continue to rely on their meagre savings to fund their daily lives and companies, resulting in increased inequality and stifled economic progress.

According to Omar and Inaba (2020), inequality, poverty, a low standard of life, and generally bad economic performance have all been related to a lack of financial inclusion in developing nations. As a result, without financially inclusive systems, the poor will believe they have insufficient savings for future investments, and micro or small businesses, will be unable to pursue favourable growth prospects because they will have to rely on their meagre earnings, which is the reason for the persistent income disparity and encumbrance to most developing countries' economic progress (Soumare et al, 2016). Indeed, as one of the primary drivers of economic growth and development, the notion of financial inclusion has acquired widespread recognition in the literature. Financial inclusion, according to Bakar and Sulong (2018), has become

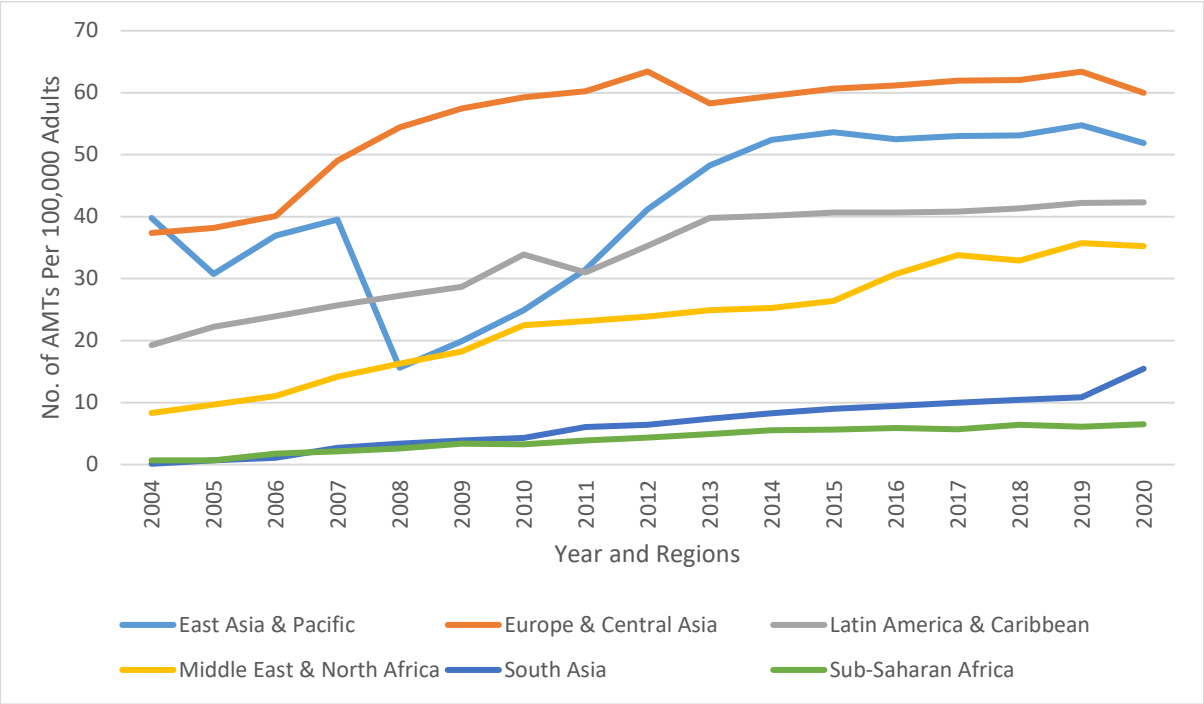
an important phenomenon for policymakers around the world as they prepare robust policies to achieve long-term growth.

From the forgoing, individuals and households save more as a result of increased financial inclusion, which can promote investment spending. Access to finance, on the other hand, will assist the accumulation of savings, the development of wealth, and the expenditure of high-quality consumer goods, all of which will boost output levels and, as a result, the country's economic activity. Despite the fact that vulnerable, poor, and illiterate members of society make up a large portion of the population, the propensity for vulnerable, poor, and illiterate members of society to have access to, available, useful, affordable, and safe financial services is still very low in developing countries of the SSA.

3.3.1 The Performance of Some Financial Inclusion Indicators across the Regional Blocs

There are significant variations in the level of financial inclusion amongst the various regions of the world. Despite the benefits of financial inclusion in terms of poverty reduction, bridging inequality gaps, raising GDP per capita and lowering unemployment, access to financial services remains limited in many parts of the world. Figures 4a, 4b and 4c below shows the trend of financial inclusion across the six region of the world, using three indicators from 2004–2020 with data accessed from Financial Access Survey (FAS, 2022 updated).

Figure 4a: Trend of Regional Distribution of Automated Teller Machines (ATMs) from 2004–2020.



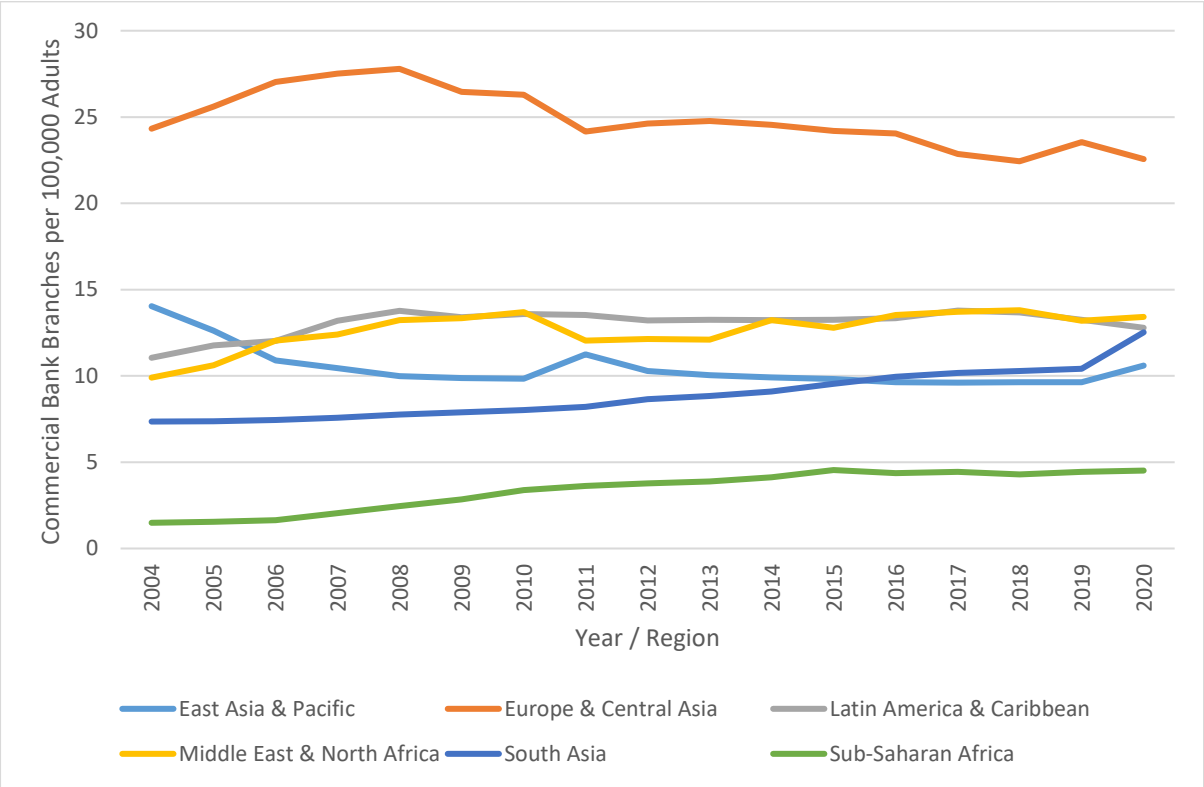
Source: Author's own Computation from Accessed data.

The figure 4a is plotted with data accessed from Financial Access Survey (FAS, 2022 updated) and shows the trend of AMTs per 100,000 adults across the regions. Although, considerable differences were noticeable on a country by country basis, this section focused on how regional blocs performed. From the figure 4a, Europe & Central Asia (ECS) performed better than other regions with an average of 56 AMTs per 100,000 adults from 2004 to 2020, while Sub-Saharan Africa (SSA) recored the least average of 4 AMTs per 100,000 adults. Others include East Asia & Pacific (EAS), Latin America & Caribbean (LCN), Middle East & North Africa (MEA) and South Asia (SAS) recorded an average of 41, 34, 23 and 6 AMTs per 100,000 adults respectively between 2004 and 2020. Using ATM as indicator of financial inclusion shows that SSA significantly lacks behind other regions with less that 10 percent of what is obtainable in other regions such as ECS,and less than just 10 percent of that of EAS.

Similarly, figure 4b shows the Commercial Bank Branches (CBB) per 100,000 adults for the period 2004 to 2020 across the regional blocs based on FAS 2022. While the performaces of the regions in terms of CBB as indicator of financial inclusion indicated issues with financial inclusiveness, the average for SSA is still the poorest compared

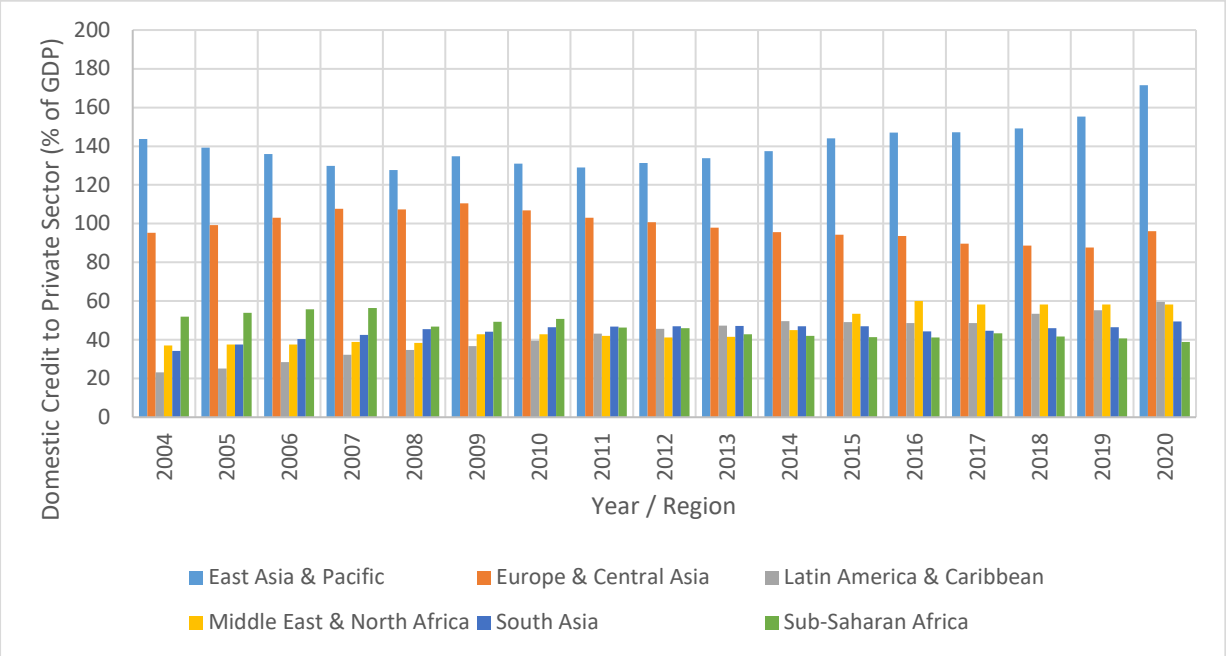
with other regions of the world. The distribution of CBB for ECS was still the best with average of 25 CBB per 100,000 adults between 2004 to 2020. LCN had an average of 13, followed by MEA with 13, EAS with 10, SAS with 9, and SSA with 3 CBB per 100,000 adults from 2004 to 2020 as demontrated on figure 4b. This still indicates that although country specific variation in terms of CBB per 100,000 adults exists, the SSA was still the lest average region. Some of the reasons aduced for low level of financial inclusion in SSA include – high level of illiteracy, poverty, inequality, political instability, infrastartural deficiencies, cumbersome acount opening requirments, and distance to the banking facility. Overall, the level of financial inclusion in Africa has been identified as being impacted by high banking costs, low levels of education, low GDP rates per capita, and large population sizes (Alhassan & Yengeni, 2022). This explains why financial inclusion rate is low in SSA region despite the promise that it holds for combating poverty, promoting economic growth, reducing inequality and facilitating risk management. It is therefore, critical for developing economies of SSA to design measures to increase access to conventional banking services that promote savings, access to credit facilities which stimulate investment activities which are fundamental to growth.

Figure 4 b: Trend of Commercial Bank Branches across the Regions from 2004 – 2020.



Source: Author's own Computation from Accessed data.

Figure 4 c: Regional Performance on Domestic Credit to Private Sector (2004 – 2020).



Source: Author's own Computation from Accessed data.

Figure 4c uses domestic credit to the private sector (as a percentage of GDP) as an indicator to show regional trends in financial inclusion for the 2004 to 2020 period. For the six regions, the average DCPS (percent of GDP) from 2004 to 2020 was 140.46; 98.64; 46.54; 46.44; 44.52; and 42.37 for EAS, ECS, MEA, SSA, SAS, and LCN, respectively. This shows that EAS and ECS both had the best results, whereas LCN had the lowest average. SSA outperformed LCN and SAS on average between 2004 and 2020 when considering DCPS as an indicator, although it was found that the region considerably lagged behind EAS and ECS during the same time period, with significant variations across the countries.

This historically low level of financial inclusion in SSA coupled with the realisation that access to finance may accelerate the growth of the region has necessitated a lot of initiatives aimed at reducing the rate of exclusion. One of such initiatives is leveraging on mobile technology to deliver financial services to the populace. The revolution which started with the advent of M-Pesa in Kenya, spread to other countries in East Africa and eventually across the entire continent. Accordingly, Alhassan and Yengeni (2022)

pointed that the performance of mobile technology in Africa has reinforces the hope that fintech will bank the unbanked and enable a sizable population on the continent to leverage the use of technological advancements in gaining access to financial services from having little or no interactions with the formal financial services industry.

The concerns raised by the information revealed in figures 4a, 4b, and 4c above are validated by the importance of traditional financial institutions in promoting financial inclusion, particularly in SSA. Traditional financial services are still a viable method of financial inclusion, especially in Africa, despite the rise of mobile financial services (Alhassan & Yengeni, 2022). Political unrest, security threats, and poor literacy rates, particularly in Western and Central Africa, have been the main obstacles traditional financial institutions have faced in their efforts to serve the unbanked. Gebrehiwot and Makina (2015) indicated that fixed fees and high account opening and maintenance costs were mentioned as one of the obstacles in Eastern and Southern Africa. In order to address these problems and encourage sustainable economic growth in the region through open access to financial services, it is vital to explain these difficulties by investigating the performance of the area on key traditional banking access and usage factors.

3.4 Economic Growth in Sub-Saharan Africa

Sub-Saharan African region comprises of 46 out of 54 nations on the continent and its contributions in the development of Africa cannot be overemphasised. Between 1960 and 1963 the GDP growth rate rose from 1.43 percent to 6.30 percent before it dropped to 5.37 percent in 1964 (WDI). This better economic performance compared with other regions in Africa could be attributed to the attainment of political independence of most nations within the region from colonial rule in the late 1950s to mid-1960s. Sub-Saharan African countries were growing fairly until late 1970s when GDP growth began to decline substantially, falling short of population growth (World Bank, 2008). It was observed that GDP growth rate was at its peak in 1970 when it stood at 9.97 percent – the highest of all time. However, it is interesting to note that the region experienced recession in early 1980s with a GDP rate of -0.4 percent in 1981, -1.09 percent in 1982 and -2.45 percent in 1983. In 1984, the economy exited recession with 2.56 percent growth rate. Another recession was slipped into in 1992 and 1993 (WDI Database, 2022 update).

Moving ahead to the present time, GDP growth in SSA was 3.41 percent in 2000 and rose steadily over the following years, reaching a peak of 6.29 percent in 2007 before falling to its lowest level in 2016, when it was 1.16 percent. Due to challenges from the drop in oil prices that hit two of the three main economies in the region, growth in SSA slowed from 2015 to 2018 compared to what was possible in other growing markets in East Asia & Pacific and South Asia. In addition, the three largest economies in SSA, Angola, Nigeria, and South Africa, had their growth drop in 2019, remaining well below historical averages, and contracted for a fifth straight year on a per capita basis, according to Global Economic Prospects (2020), which examined the dynamics of growth in Sub-Saharan Africa. Beyond the major economies, growth slowed in a number of countries that export industrial commodities as weaker pricing and lower demand slowed activity in the extractives sector.

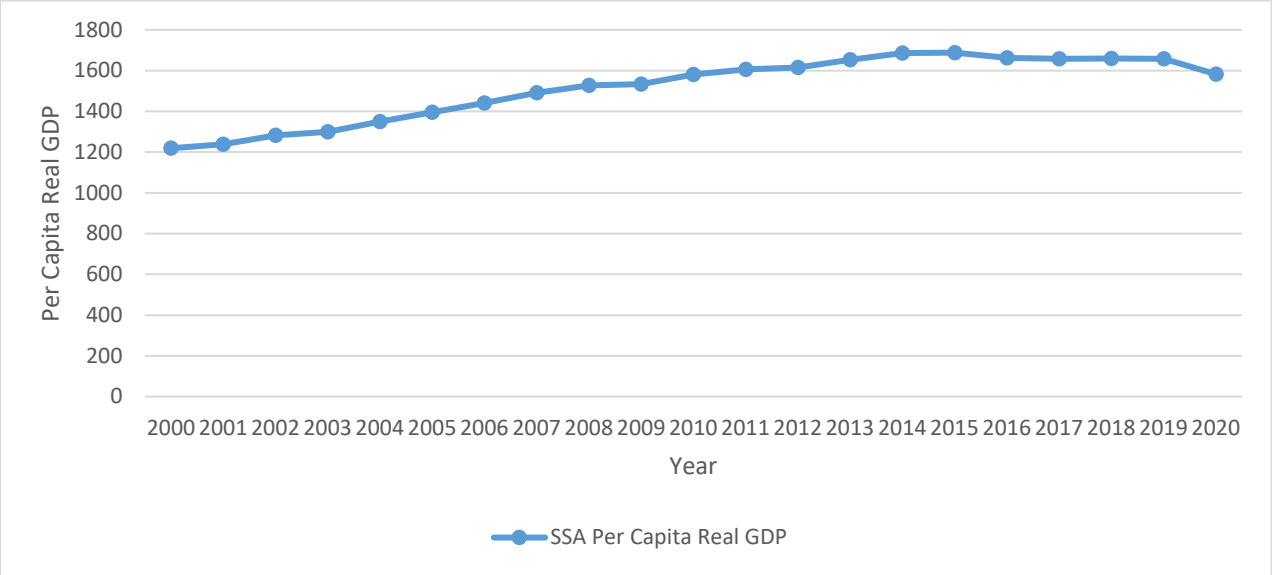
Furthermore, the region's growth is still declining, and in 2020 it was at its weakest of 2.01 percent negative growth, after it faced a severe contraction as a result of the COVID-19 pandemic which forced all nations of the world to shutdown socio-economic activities. World Bank’s Global Economic Prospects (June 2021b) estimates that the COVID-19 pandemic caused SSA's output to decline by 2.4 percent in 2020. The economy in the area had not shrunk in a generation, and this was the worst downturn since the 1960s. The pandemic has played a role in both the deepening of budget deficits and the steep rise in public debt.

More so, despite being modest at 119.18 in 2000, the per capita real GDP (PCRGDP) of the SSA showed steady but unimpressive growth until 2015, when it reached a peak of 1688.53, before gradually declining to 1582.44 in 2020. The WDI statistics revealed that the PCRGDP of SSA had a steady rise over the years prior to its collapse in 2020 as a result of problems brought on by the pandemic's negative consequences. The trends in the PCRGDP and SSA GDP growth rates from 2000 to 2020 are summarised in Figures 5a and 5b below.

Figure 5 1: Trend of Sub-Saharan Africa GDP Growth Rate (Annual %)

Source: Author's own Computation from Data Extracted from WDI.

Figure 5 2: Trend of Sub-Saharan Africa per Capita Real GDP (2000-2020)



Source: Author's own Computation from Data Extracted from WDI.

It is useful to note that the study presented above was based on the assumption that the nations in the region had similar growth trends and had achieved comparable outcomes. However, when it comes to economic performance, there are actually quite a few significant variances among the various countries in the region. A country's institutional frameworks, procedures, and access to financial services, in addition to

the disparities in the natural resource base that support growth, are crucial for reviving and accelerating that growth.

For instance, since gaining its independence in 1968, Mauritius has experienced growth of 6.5 percent in 1977, 3.8 percent in 1978, and a significant negative annual growth rate of -10.1 percent in 1980. However, the economy grew by an average of 6 percent between 1981 and 1990. While Mauritius' real GDP increased below 3 percent on average between 2000 and 2020, with the exception of 2000, when it increased by 8 percent, and 2020, when it decreased by -14.89 percent (WDI 2022 updated). During this time, Mauritius was impacted by both the COVID-related interruptions to tourism that followed lockdowns enforced in several economies and the economic downturn of the euro region brought on by a sovereign debt crisis in the second half of 2011.

Similarly, after experiencing a negative growth rate of -12.5 percent in 1964, Rwanda's growth rate has been positive since 1965. The average annual growth rate between 1965 and 1970 was 7 percent, reaching double digits in 1969. However, 1971 saw a significant decline of roughly 1.2 percent. This persisted and turned negative in 1975 (-2.1 percent) before increasing to 19.5 percent in 1976. In 1994, the GDP growth rate experienced an unheard-of decline with a value of 35.2 percent. From that point on, Rwanda's economy grew steadily slower, by 12 and 13 percent in 1996 and 1997, respectively, compared to the year before. However, it continued to expand at an average rate of 8 percent, peaking at 9.46 in 2019, before declining to -3.36 percent in 2020. Rwanda's growth rate has been twice as high as the average growth rate for all nations worldwide.

On the other hand, Nigeria's per capita GDP has grown at an average annual pace of 1.7 percent since the country gained its independence in 1960, according to Akinkunmi (2017). The economy grew at an average rate of 17 percent from 1961 to 1977. In essence, rates of 24.2 percent, 25.0 percent, and 14.2 percent, respectively, were noted in 1969, 1970, and 1971. Given that Nigeria experienced an oil boom during that time, this is not surprising. Between 1977 and 2009, Nigeria's economy saw steady growth at an average rate of 16 percent. Between 2000 and 2014, the economy's growth rate decreased to an average of 6 percent before plunging into a recession in 2016 and exiting from it in 2018. Due to weak foreign demand, a drop in oil revenue, national lockdowns and other COVID-19 pandemic related disruptions,

the country experienced contractions in 2020, with its growth rate falling to -1.79. The negative growth reflect the severe disruptions of the pandemic on the economy.

Furthermore, Bonga-Bonga and Ahiakpor (2015) highlighted that the economy of Ghana fluctuated all through its independence to date. They further admitted that the growth of the economy in the 1950s was relatively high. That is, GDP growth was about 8 percent on the average and it was due to the excess reserve and the import substitution industrialisation policy which translated to the establishment of industries in the Ghana. However, the economy slowed down in 1964 and experience recession in 1976 after series of alternate negative real growth rate. This was attributed to continuous periods of political instability resulting to drought and low levels of investment. In 1970, the GDP growth rate of the Ghanaian economy reached its peak at 10 percent; unfortunately, this record level of growth was not sustained, following the February 1972 coup headed by General Acheampong. By 1975, the growth rates had hit the lowest rates of -12.43 percent (WDI). Growth remained poor and negative in most years from 1972 until the reform adopted from International Monetary Fund's and World Bank's Structural Adjustment Programme policies which sought to liberalise the economy and increase investment. Between 2005 and 2007, the economy grew at an average of 5.5 percent, and this was largely attributed to the power rationing and energy shortages resulting from the low water level in the Akosombo Dam (Anaman, 2007). The real GDP was sustained between 1992 and 2008 at same frequency with the previous period. This was due to the offshore oil exploration but shortly after it dropped and stood at 12 points, 4 frequency points lower than the period from 1992 to 2008. For 2017, 2018, 2019, and 2020, the economy reported 8.13, 6.20, 6.51, and 0.41, respectively (WDI). Due to the global downturn of all economies in 2020, Ghana is one of the few countries with a positive but modest growth rate.

As a result of the foregoing, SSA countries continue to struggle to achieve rapid and sustainable growth in output, as measured by Gross Domestic Product (GDP), let alone the necessary transformation of growth into addressing real issues such as poverty, inequality, hunger, starvation, malnutrition, unemployment, and overall social well-being of the population. Internal challenges confronting emerging countries are numerous and deep-rooted, preventing responsible governments from properly prioritising these matters.

3.4.1 Trend of Economic Growth across the World

This section discusses global economic growth using the GDP growth rate as the yardstick. According to World Bank data, the LCN region experienced the largest GDP growth in 1961, with a 6.15 percent increase over the SSA (0.96 percent), EAS (3.78 percent), and SAS (4.20 percent) regions. The SSA, however, recovered and saw GDP expand by 6.06 percent the next year, outpacing EAS, LCN, and SAS, which saw growth of 5.49 percent, 4.31 percent, and 3.40 percent, respectively. The increasing growth in SSA was attributed to the oil boom that was experienced during that time in some of the biggest economies in the area.

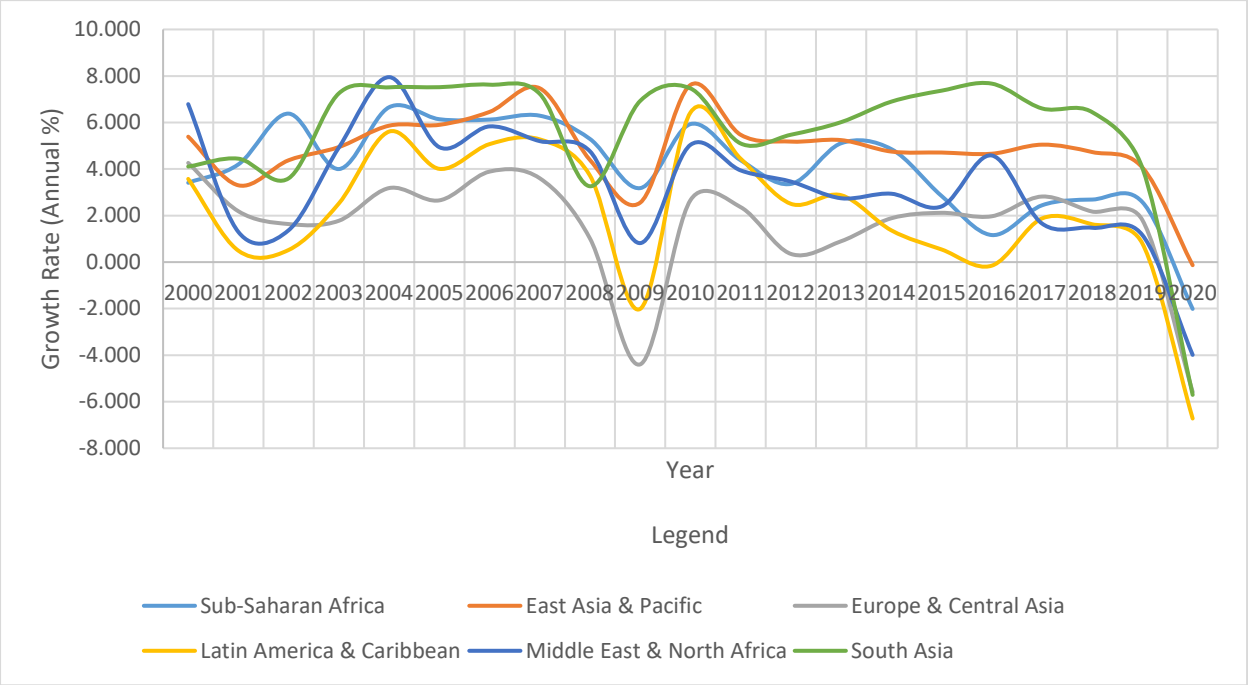
Prior to falling to an average growth rate of 5 percent in the 1970s, the EAS was the region with the highest GDP growth rate, with an average increase of 7.80 percent in 1963. The region continues to be the only one that constantly had positive growth from the 1960s through 2019. Its growth rate of 4.06 percent in 2019 was the highest of any region. However, compared to other regions of the world, it still experienced the best growth in 2020, with a negative increase of roughly -0.13 percent. The COVID-19 pandemic's effects on the region's economies, which spread more quickly, were to blame for the negative growth reported for 2020.

Looking at the GDP growth figures, the SSA economies had done reasonably well with an average of 6 percent between 1962 and 1963, but that number fell to 4.95 percent in 1964 and then negative in 1967 with -1.19 percent. The region experienced its highest growth in 1970, when it registered 10.24 percent, the highest growth rate for the year across all regions. This was not sustained as the region experienced a negative growth of -0.113 percent in 1975, which may have been influenced by the recession of 1973–1975. Since then, the economy's growth has been unstable until 2004, when it averaged 6 percent through 2008. The region’s GDP growth continued to drop with unimpressive rebound in between up until 2019, posting 2.58 percent before entering a recession brought on by the COVID-19 pandemic in 2020 and posting a negative GDP growth of -2.01 percent.

According to World Bank (WDI) data, the SSA economies have fared worse than their counterparts in South Asia and East Asia & the Pacific. Even while the SSA region's figures for 2020 were better than SAS's, they lagged behind what the EAS had

reported. The pandemic's economic contraction would have had disastrous effects on the economies of Asia, as the disease spread quickly and national lockdowns of the economies lasted longer. Figure 6 below shows the GDP growth rates by region between 2000 and 2020:

Figure 6: Regional Trend of GDP Growth Rate (Annual %) (2000 – 2020)



Source: Author's own Computation from Data Extracted from WDI.

As previously said, Europe and Central Asia have experienced the poorest GDP growth from 2000 to 2020, whereas South Asia has experienced the strongest development, with consistent increase between 2003 and 2007 and between 2012 and 2019. Despite having had rapid development in 2000, the Middle East and North Africa experienced a steep fall between 2001 and 2003 before slowly recovering up until 2008. Before recording a significant growth in 2016, the region's growth rate was weak. After registering negative growth of -3.99 percent, the region faced a severe economic contraction.

The main impetus for investigating the causes of slow and unsustainable growth was the SSA region's inability to maintain a growth rate comparable to those of its peers in East Africa & Pacific and South Asia. The output in SSA decreased by a projected 2.4 percent in 2020 as a result of the pandemic, according to the Global Economic

Prospects (June 2021b). The trend above entering the negative zone amply demonstrates this. Further evidence that the recession was weaker than before came from the virus spreading more slowly than expected and unexpectedly robust agricultural activity in several nations.

As was previously mentioned, the SSA economies have the capacity to grow faster than all other economies in the world and to maintain that growth in order to advance the region's economy. The main problems, however, have been the absence of robust institutions to guide the region's development agenda and unrestricted access to capital to support investment and other growth-promoting economic activity. SSA will have the second-slowest growth this year among the emerging markets and developing economy regions, according to the Global Economic Prospects (June 2021b), even though growth is predicted to resume in the region in 2021, reaching 2.8 percent, and firm to 3.3 percent in 2022 as a result of stronger external demand from the region's trading partners, like China and the United States of America (USA), and the containment of the COVID-19 pandemic. The region needs to handle persistent conflicts, policy inconsistencies, infrastructural deficiencies, weak investment and development, political instability and crises, among other things.

3.5 Major Determinants of Economic Growth in Sub-Saharan Africa

The process of economic growth and the sources of differences in economic performance across nations are some of the most interesting, important and challenging areas in modern social science. The analysis of the process of economic growth was a central feature of the work of the classical economists and have highlighted some factors influencing this growth in developed economies, though their thoughts and postulations are now relevant reference in Africa and Sub-Saharan Africa in particular. The classical economists according to Gebru (2015) identified division of labour, investment, technological progress, human capital, export, aid, government policies, external debt, inflation, government expenditure and financial system as major determinants of economic growth. The Keynesians on the other hand, believed that the prerequisite to economic growth is consumers and government demands which is triggered by disposable income.

Harrod-Domar postulated from the supply side that savings and investment spending increase productive capacity of a country. According to Solow-Swan (1956), in a less equilibrium economy, output is mainly determined by physical capital, labour and level of labour skills. However, in a full employment situation, economic growth can only be influenced by constant return to scale, diminishing marginal productivity of capital and exogenously determined technical progress. It can be inferred that the Solow-Swan postulation is a short-run analysis and it favoured factors outside the model as determinants of economic growth. On this basis, some economists in mid-1980s denounced the neoclassical growth determinants. Their reasons are summarised to be that neoclassical economists did not consider the growth process for the long-run and the technical progress is not exogenous but rather an endogenous factor. Thus, Romer (1986) and Lucas (1988) who are classified prominent followers of (new) endogenous growth model, separately identified research and development in human capital (skill and knowledge) as the determinant of economic growth. According to these proponents, the technical progress identified by the neoclassical economists is endogenously determined in the long-run because an economy never reach a steady state even in the long run.

Zhuang et al. (2010) argued that the determinants identified above by previous economists (that is, investment, innovation, economies of scale, education, capital accumulation, research and development amongst others) are not factors influencing growth but growth themselves. Invariably, the existing theories of growth did not truly touch on economic growth's determinants. However, Udeaja and Obi (2015) had noted that Smith (1776), long before the institutional elements of economic growth literature, observed that not only capital accumulation, but also institutional and technological advances, as well as social factors, play vital roles in a country's economic development. The reality is that despite their enormous natural resource base, most developing countries have been unable to achieve rapid sustained economic growth and lift their people out of poverty and other economic ills, leaving many in despair. This points to the fact that the economic growth drivers in all countries are fundamentally the same; the difference, nonetheless is in the strength of those institutions and governance systems.

Accordingly, early recognition of the determinants of economic growth have conventionally focused on physical and human capital accumulation, as well as technological change, as primary drivers of growth through enabling investment activities. However, recent studies have revealed that growth-enhancing factors require a strong institutional framework to produce meaningful results. Many scholars have attempted to disrupt the framework in order to investigate the causes of productivity development, according to Radzevica and Bulderberga (2018). Various issues as inflation, government size and spending, education level, trade openness, and institutional quality are all heavily studied in the literature.

Consequently, the quest for the true determinants of economic growth leads to the emergence of New Institutional Economists (NIE) and the pioneer proponent is North and Thomas (1973), who extended neoclassical economics model by adding institutional analysis. North and Thomas provided a clear definition of institutions to represent the rules (written and unwritten) governing socioeconomic interaction (Grabowski & Self, 2020). To put in different words, institutions is “rules of the game”, involving formal and informal constraints that shape human interactions. The formal constraints (or institutions) refer to constitutions, statutes, and explicit government rules and regulations, codified and enforced by impersonal mechanisms while the informal constraints (or institutions), on the other hand, include unwritten rules such as traditions, norms and codes of behaviour, taboos, and other social mechanisms based on and enforced through interpersonal ties and relations. However, the NIEs are more concerned with the formal constraints that are geared towards protecting property rights and contracts, which allows the extension of market exchange, investment, and innovation over wider economic spheres at a reasonably low cost. They concluded that countries that establish such formal institutions effectively would be faced with very low costs in market transactions, support private initiatives, market exchanges and investments, and economic development.

Hossain and Mitra (2013) in their study addressing the determinants of economic growth in the SSA region and identified trade openness, domestic investment and government spending as determinants of economic growth. However, Hur and Park (2012); and Baunsgaard and Keen (2005) found separately that trade liberalisation has had little impact on economic growth in a number of sub-Saharan African

countries. This is because the majority of developing countries' tax income come from customs taxes. Bonga-Bonga and Ahiakpor (2015) assesses the determinants of economic growth in Ghana and generalised that current account balance, inflation rate, population growth, and dual economy are drivers to economic growth in SSA, while Akinkunmi (2017) modelled investment, political stability and political freedom as determinants of economic growth. He found that only investment drive growth in Nigeria in the long run, while political stability and political freedom do not. Determinants identified above were put to test by Mose (2021) in SSA country, Kenya and concluded that public investment, government consumption, electricity infrastructure, quality of governance, and institutions are long-run causes while human capital and budget utilisation are short-run sources of economic growth.

In terms of decomposing exports and imports into raw and manufacturing products impact on economic growth in SSA, Oyebanjo (2017) found that raw material exports, manufactured imports, and capital formation are determinants of economic growth. In support of the export and capital formation as a determinant, Ndambiri et al. (2012) arrived at positive relationship. They further identified human capital formation as a source of economic growth in SSA. They specifically highlighted some major determinants of economic growth in SSA, to include: Investment, human capital, research and development (R&D), economic policies and macroeconomic conditions, openness to trade, foreign Direct Investment (FDI), and institutional framework.

3.6 Chapter Conclusion

The trends of institutional quality, financial inclusion and economic growth were discussed with respect to Sub-Saharan Africa in aggregate and selected countries. This chapter went further to stylise the facts of institutional quality and financial inclusion as they contribute to the growth and development of SSA region. One of the reasons that economic growth has received so much attention is that it is necessary for a country's long-term prosperity and stability (Udeaja & Obi, 2015).

The study therefore concludes that SSA growth can be said to have been influenced by institutional quality and financial inclusiveness. The research equally noted that institutional quality has no significant difference between countries rating and overall SSA average rating. This points to the fact that institutional quality contribution to SSA

growth is averagely better. In terms of financial inclusiveness, it can be inferred that SSA has recorded considerable rise that is favourable, though leaving large room for improvement to spur the region's economic growth and development.

The ensuing chapter outlines the methodology adopted in addressing this study's research objectives.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

The previous chapter focused on the conceptual analysis on Institutional Quality, Financial Inclusion and Economic Growth in Sub-Saharan African (SSA) Countries. That is, highlighting the progress and challenges of economic conditions of those countries. It is worth noting that, this was guided by the purpose of the study which aimed to analyse the nexus between institutional quality, financial inclusion and economic growth in Sub-Saharan nations for the period 2004–2020.

To recap, specifically this study sought to address the following objectives:

- To investigate the deterministic relationship between economic growth and financial inclusion in chosen Sub-Saharan African nations;
- To examine the deterministic relationship between economic growth and institutional quality in selected Sub-Saharan nations;
- To assess the cointegrating relationships between institutional quality, financial inclusion and economic growth, respectively, in chosen Sub-Saharan nations; and
- To explore the causality nexus between institutional quality, financial inclusion and economic growth, respectively, in selected Sub-Saharan countries.

Consequently, this part of the thesis presents the methodology used to address the objectives of the study. Methodology according to Brown (2006), is the philosophical framework within which the research is conducted or the foundation upon which the research is based.

This chapter presents the research paradigm and design which guides and summarises the fundamental with which the research is based. The term paradigm was originally used by Thomas Kuhn to refer to a philosophical school of thought in 1962. This chapter shows the research methods and techniques of data collection and analysis deployed to achieve the study's objectives. It also presents the models and justifications of the methods including techniques adopted in the study.

4.2 Research Paradigm and Design

A research paradigm described the approach that is thought to be the norm for carrying out research in accordance with established, widely used methods over time. According to Kivunja and Kuyini (2017) the conceptual ideas and doctrines that direct a researcher's worldview, as well as how they understand it and interact in it, are referred to as paradigms. They continued that, in order to choose the research methods that will be employed and how the data will be analysed, the researcher considers the methodological components of their study through the conceptual lens which is the paradigm.

Since the study explicitly rely on empirical data to reveal evidence on the correlations among the variables, positivism is the philosophical viewpoint that is selected for this study. The positivist research paradigm, which underpins the study, was developed by positivism's founder Auguste Comte in 1856 and is based on a scientific process of inquiry. The study's goals include establishing the causes and relationships between economic phenomena through scientific approach that enables future prediction, hence this paradigm was chosen. Considering that Sub-Sahara has been in existence from time, it has institutions, witnessed financial inclusion and exhibited economic growth patterns over the years. This research take a look at the relationship among Sub-Saharan African’s institutional quality, financial inclusion and economic growth over the period, 2004–2020. Accordingly, the research utilised an "ex post facto, a semi experimental" research design to look at the impact of the independent variables (institutional quality and financial inclusion) on the dependent variable (economic growth) within Sub-Saharan Africa over the expressed time horizon. This relationship is tested on a panel of 20 chosen nations through the System Generalised Methods of Moment (GMM) estimation methodology.

The ex post facto design is viewed as most fitting since grouping of nations within a region is dependent on specific attributes or qualities share in common, majorly geography. As such, decision of the nations to examine was chosen based on the four sub-regions (Southern, Eastern, Western and Central Africa) to guarantee fair representation. This design is valuable in establishing whether institutional quality and

financial inclusion have influences on economic growth in the area of interest or vice versa and empirically suggest the causal connections among the variables with no control of the explanatory variables.

The nexus between institutional quality, financial inclusion and economic growth was estimated with conventional static panel estimation techniques namely, Pooled Ordinary Least Squares (OLS), Fixed Effects and Random Effects panel estimation techniques. However, in attempt to explain the dynamics of these variables with Ordinary Least Squares (OLS), it fails to account for the potential of endogeneity in the explanatory variables. There are at least two sources of endogeneity that may bias the estimates of how the explanatory variables affect the dependent variable in each of the specified models. These are the unobservable heterogeneity (which arises if there are unobservable factors that affect both the dependent and explanatory variables) and simultaneity (which arises if the independent variables are a function of the dependent variable or expected values of the dependent variable). One other likely important source of endogeneity often overlooked in most empirical researches is the dynamic relations among individual's (country's) observable characteristics.

There are two ways to work around this endogeneity problem. One is to transform the data to remove the fixed effects. The emphasis on unobservable heterogeneity in the literature as the major source of endogeneity often accounts for the widespread use of panel data and fixed-effects estimator. However, traditional fixed-effects (or within) estimates that eliminate unobservable heterogeneity are only consistent under the assumption that country characteristics or structures are strictly exogenous. That is, they are purely random observations through time and are unrelated to the country's history. This is a strong assumption that is unlikely to hold in practice. So, while OLS estimation may be biased because it ignores unobservable heterogeneity, fixed-effects estimation may be equally biased since it ignores dynamic endogeneity.

The problem of endogeneity associated with the use of panel data is often resolved by Arellano and Bond (1991) differenced Generalised Method of Moment (GMM) estimator and the Blundell and Bond (1998) system GMM estimator. The GMM estimator proposed by Arellano and Bond (1991) differences the dynamic model to get

rid of the effects along with any time-invariant regressor. However, the GMM estimator is designed for situations with few time periods, yet the empirical analysis in the context of this study would require an estimation technique that is suitable for the probable non-stationarity feature of the variables under consideration. As a consequence, and to better illustrate the point, this study explores the mean-group (MG), pooled mean-group (PMG) and dynamic fixed effect estimators (DFE) for its non-stationary dynamic panels in which the parameters are assumed heterogeneous across groups.

The suitability of these techniques for modelling panel data with large cross-section dimension (numbers of countries in this case (N)) and large time series (T) dimensions makes them the more appropriate in the context of this study. As pointed out by Blackburne and Frank (2007), the asymptotic of large N and large T dynamic panels are different from the asymptotic of traditional large N and small T dynamic panels. For example, estimators for Small T panel estimation such as fixed effects and random effects estimators and generalised methods of moment estimator usually require pooling individual groups and allowing only the intercepts to differ across the groups with the slope coefficients assumed to be homogenous. On the contrary however, Pesaran et al. (1997; 1999), among others, have demonstrated that the assumption of homogeneity of slope parameters is often inappropriate when dealing with large N and large T.

4.3 Population and Sample of the Study

The population of the study is 48 countries categorised as Sub-Sahara by the World Bank. The region has been grouped into four sub-regions (Southern, Eastern, Western and Central) which enable us to utilise stratified sampling technique by selecting at least four countries each from the sub-regions. According to Pirzadeh, et al. (2013), stratified sampling techniques are often used when the population of the study is heterogeneous as a whole but can be divided into homogeneous sub-populations, called strata. The Sub-Saharan Africa is diverse in size, culture, and economic strength, thus, it separates the population (that is, 48 countries) into four desired number of strata (Central, Eastern, Southern and Western Sub-Saharan Africa) and then sample elements are drawn from within each stratum. The size of the sample from each stratum is at least four (4) to guarantee representative elements of the population.

A sample of 20 nations – Ghana, Mauritius, Kenya, Uganda, South Africa, Nigeria, Botswana, Rwanda, Gambia, Gabon, Cameroon, Central Africa Republic, Equatorial Guinea, Tanzania, Zimbabwe, Angola, Guinea, Namibia, Zambia; and Mozambique are utilised. The choice of these countries was to ensure satisfactory representation of the area, following the sub-grouping of SSA into four (Southern, Eastern, Western and Central). Out of which a stratified sampling method is embraced to choose the nations. By utilising the four sub-division of the Sub-Sahara, the study sampled four (4) nations each from Western, Eastern and Central sub-regions while Southern sub-regions produced eight (8) nations. As stated earlier, this is based on data availability and the economic size of countries within the sub-regions. This permits us to reach more acceptable conclusions by guaranteeing that each sub-region is appropriately cover in the sample.

4.4 Data Sources and Variables

The variables investigated include: the dependent variable, real GDP, per capita real GDP and GDP growth rate as proxies for economic growth. These data are collected from World Development Indicators (WDI) database. The explanatory variables include institutional quality and the data is from the World Governance Indicators (WGI) and WDI; Financial Inclusion and the data is extracted from the International Monetary Fund (IMF) Financial Access Survey (FAS) and WDI; and all these data are accessed for the 2004–2020 period. The choice of this period is based on basic facts pertaining to real GDP and GDP growth rate in the region. The region started experiencing one of the worst economic performance in terms of GDP from 2000 with a pick up around 2002. However, the region experienced sharp decline in GDP in 2003 and since then, the level of fluctuation has been worrisome with sustained declining results from 2007 up to 2020 as previously demonstrated in figure 1 (WDI Data, 2000–2020). The study employs the World Bank six world governance indicators, and WDI data on Human rights protection scores, ease of doing business and Civil liberties as proxies for institutional quality. Although there are many indicators of institutional quality, these broad categories of key indicators measure and reveals governance performance in each country of interest.

There are diverse financial inclusion variables proposed in the literature which are

grouped into four dimensions or measures. These include; accessibility, availability, affordability and usefulness (Beck, 2016). Due to data availability concerns and period of coverage, this study focuses on access, usage, and availability as three dimensions that influence financial inclusion (see Alhassan & Yengeni, 2022). A system is deemed financially inclusive if it maximises each of these indices (Sarma, 2008). The variable from each dimension is selected through convenience (or accidental) sampling technique. Accidental sampling is a non-probability sampling method that involves the sample being drawn from that part of the population that is available (Ndiyo, 2005). The variables are; Number of ATMs per 1,000 km and Number of Commercial bank branches per 1,000 km both were selected to represent accessibility dimension; Number of ATMs per 100,000 adults and Number of Commercial bank branches per 100,000 adults are used to show availability dimension; and Domestic credit to private sector by banks as percentage of GDP represent the usefulness dimension. Aside the data availability reason for the selection, these variables play a significant role in explaining the difficulty financial institutions face in taking banking closer to the people (Tissot & Gadanecz, 2017; World Bank, 2015). These data are accessed from the IMF's Financial Access Survey and WDI data bases for the 2004–2020 period for 20 Sub-Saharan countries.

In keeping with earlier studies, the research uses FAS data from the IMF as a proxy for financial inclusion and global governance indicators as proxy for institutional quality. These are the independent variables. Economic growth, which is measured by real Gross Domestic Product (GDP), is the dependent variable. The study adds real GDP per capita and the GDP growth rate as additional proxies for economic growth for robustness of the analysis. These economic growth data are obtained from the World Development Indicators (WDI) database and transformed where necessary to provide appropriate economic growth indicator for the various countries. As control variables, some macroeconomic variables that have a significant impact on emerging economies' economic growth would be included in the model. Among these control variables are: inflation rate (IFR), trade openness (TOP), unemployment rate (UER), investment expenditure (INV) proxy by gross capital formation, literacy level (LIL) and total natural resources rent as percentage of GDP (TNRR).

Table 4.1: Indicators of Institutional Quality, Financial Inclusion and Economic Growth Variables, Sources and Similar Studies

Variable	Detailed Description	Indicator	Similar Studies & Sources of Data	Expected Outcomes
Institutional Quality (IQ) Variables				
Control of Corruption (CC).	Described as opinions about how much public power is used for private benefit and the efficacy of a nation's institutional and policy structure for preventing and combating corruption.	Control of Corruption Indicator.	Kaufmann *et al.,* (2010); Ajide (2017); Zulkhibri and Ghazal (2017); Nguyen, *et al.*, (2018); Shchegolev & Hayat (2018); Chinoda & Kwenda (2019); Nxumalo & Makoni (2021); World Bank WGI.	+ve.
Government Effectiveness (GE).	Perceptions of the calibre of public services, the calibre of public servants and, consequently, the degree of the government's independence from political pressures, the calibre of policy formulation and implementation, and, consequently, the legitimacy of the government's adherence to such policies.	Government Effectiveness Indicator.	Kaufmann et al., (2010); Zulkhibri & Ghazal (2017). Ajide (2017); Zulkhibri & Ghazal (2016); Nguyen, *et al*., (2018); Shchegolev & Hayat (2018); Recuero & Gonzalez (2019); Chinoda & Kwenda (2019); Nxumalo & Makoni (2021); World Bank WGI.	+ve/–ve
Political Stability and Absence of Violence (PS).	Perceived likelihood that the government will be overthrown or destabilised through violent or illegal means, including terrorism and bloodshed.	Political Stability Indicator.	Kaufmann *et al.,* (2010); Ajide (2017); Zulkhibri & Ghazal (2017); Nguyen, et al., (2018); Shchegolev & Hayat (2018); Chinoda & Kwenda (2019); Nxumalo & Makoni (2021); World Bank WGI.	+ve
Regulatory	Perceived ability of the	Regulatory	Kaufmann *et al.*	

Quality (RQ).	government to create and put into effect sensible laws and policies that permit and support the growth of the private sector.	Quality Indicator.	(2010); Zulkhibri & Ghazal (2017); Ajide (2017); Nguyen, *et al.*, (2018); Shchegolev & Hayat (2018); Chinoda & Kwenda (2019); Nxumalo & Makoni (2021); World Bank WGI.	+ve
Rule of Law (RL).	When it comes to the standard of contract enforcement, property rights, the police and consequently the courts, as well as the risk of crime and violence, perceptions of how much agents adhere to and respect social norms are described.	Rule of Law Indicator.	Kaufmann et al., (2010); Zulkhibri & Ghazal (2017); Ajide (2017); Nguyen, et al., (2018); Shchegolev & Hayat (2018); Haini (2019); Chinoda & Kwenda (2019); Nxumalo & Makoni (2021); World Bank WGI.	+ve
Voice and Accountability (VA).	Described as opinions on how willing a nation's residents are to choose their government, as well as freedom of expression, freedom of association, and a free press.	Voice and Accountability Indicator.	Kaufmann et al., (2010); Ajide (2017); Zulkhibri & Ghazal (2017); Nguyen, et al., (2018); Shchegolev & Hayat (2018); Chinoda & Kwenda (2019); Nxumalo & Makoni (2021); World Bank's WGI.	+ve
Human Rights Protection	Characterised as the degree to which civil rights and liberties are honoured in a country, as well as equal rights and freedom.	Human Rights Protection Scores	Valeriani & Peluso (2011); Yildirim & Gokalp (2016); World Bank's WDI.	+ve/–ve
Ease of Doing Business (EB).	The average of the scores for each of the component indicators, including the minimum paid-in capital requirement, the steps, time, and costs required for an entrepreneur to launch	Starting a Business Score.	Gillanders & Whelan (2010); Bruinshoofd (2016); Doan (2019); World Bank's WDI.	+ve

	and formally operate a business.			
Civil Liberties	Being only subject to laws passed for the benefit of everyone, especially in terms of speech and action rights.	Civil Liberties Scores	World Bank's WDI.	+ve
Financial Inclusion (FI) Variables (based on three dimensions)				
Number of Automated Teller Machines per 1,000 km (NATM). **(Access)**	Captures the physical outreach component of financial inclusion as well as demographic penetration.	Number of ATMs per 1,000 km.	Onaolapo (2015); Ajide (2017); Bigirimana & Hongyi (2018); Financial Access Survey (IMF).	+ve
Number of Commercial Bank Branches per 1,000 km (NCBB). **(Access)**	This reflects branch penetration and geographic reach, which serve as proxies for the physical outreach component of financial inclusion.	Number of Commercial Bank Branches per 1,000 km.	Babajide, et al., (2015); Onaolapo (2015); Ajide (2017); Bigirimana & Hongyi (2018); Financial Access Survey (IMF).	+ve
Automated Teller Machines (ATM) per 100,000 Adults (ATM). **(Availability)**	Captures the proportion of adults who own and use ATMs, as well as the ownership and availability aspects of financial inclusion.	Number of ATMs per 100,000 Adults.	Onaolapo (2015); Ajide (2017); Bigirimana & Hongyi (2018); Financial Access Survey (IMF).	+ve
Commercial Bank Branches per 100,000 Adults (CBB). **(Availability)**	Represents the retail locations of banks that offer their clients financial services. It shows how easily accessible banks are to bank users.	Number of Commercial Bank branches per 100,000 adults.	Babajide, et al., (2015); Nkwede (2015); Onaolapo (2015); Ajide (2017); Bigirimana & Hongyi (2018); Financial Access Survey (IMF).	+ve
Domestic Credit to Private Sector by Banks (DCPS). **(Usage)**	Banks and other depository organisations lend money to people or businesses for a set period of time with a payback agreement.	Domestic Credit to Private Sector by Banks (% of GDP).	Balele (2019); Onaolapo, (2015); Gebrehiwot & Makina (2015); Cámara & Tuesta (2017) World Bank WDI	+ve
Economic Growth (EG)				
Real GDP (RGDP).	Measure of a nation's economic progress from one time to another that has been adjusted for inflation.	GDP (Constant 2015).	Nkwede (2015); Bayar & Gavriletea (2018); Nguyen, *et al.*, (2018); Odeleye &	

			Olusoji (2016); World Bank World Development Indicators (WDI).	
GDP Growth Rate (GDPGR)	This is a measurement of the annual change in an economy's output from year to year.	GDP Growth (Annual %).	Development Indicators (WDI).	
Per Capita Real GDP (PCRGDP)	A nation's total economic output divided by its population and adjusted for inflation. It is employed to evaluate changes in and between nations' living standards.	Per Capita GDP (Constant 2015)	Balele (2019); Yorulmaz (2016); Development Indicators (WDI).	
Control Variables				
Inflation Rate (IFR).	A sustained rise in pricing for goods and services throughout an economy. The rate of price growth through time, which decreased money's ability to buy things.	Consumer Price Index (CPI).	Nkwede (2015); Ajide (2017); Shchegolev & Hayat (2018); World Development Indicators (WDI).	+ve/–ve
Trade Openness (TOP).	The total of all commodities and service exports and imports expressed as a percentage of GDP.	Trade as percentage of GDP	Makoni (2016); Shchegolev & Hayat (2018); Nguyen, *et al.*, (2018); Haini (2019); World Development Indicators (WDI).	+ve/-ve
Unemployment Rate (UER).	The percentage of the labour force that is unemployed but looking for job.	Unemployment Indicator.	Yorulmaz (2016); World Development Indicators (WDI).	-ve
Investment Expenditure (INV) (Gross Capital Formation).	The total expenditures on improvements to the economy's fixed assets plus net changes in inventory levels.	Gross Capital Formation.	Shchegolev & Hayat (2018); World Development Indicators (WDI).	+ve
Literacy Level (LIL)	The capacity to use, engage with, comprehend, and analyse written texts to further one's goals, knowledge, and potential.	Literacy Score	Yorulmaz (2016); World Development Indicators (WDI).	+ve
Total Natural Resources (TNRR).	This represents the total of the following: oil rents, natural gas rents, hard and soft	Total Natural Resources Rents (% of GDP).	World Development Indicators (WDI).	+ve

	coal rents, mineral rentals, and forest rents.			
Dummy_COVID Dummy for COVID-19 pandemic	The COVID-19 pandemic greatly altered the pattern of some of the variables, therefore this is a dummy to account for it.	Take a value of one (1) for COVID-19 period, otherwise zero(0)	Marozva and Magwedere (2021)	+ve/-ve
Dummy_GFC Dummy for 2007/2009 global financial crises	Since the global financial crisis of 2007–2009 significantly changed the trend of some of the variables, this is a dummy to account for that.	Take a value of one (1) for global financial crisis period, otherwise zero(0)	Marozva and Makina (2020)	+ve/-ve

Source: Author's own Creation from accessed literature.

The tabulated variables will now be considered in greater detail.

4.5.1 Institutional Quality (IQ) Variables

The institutional quality variable is proxy by voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, control of corruption and rule of law. For robustness, the study also consider ease of doing business, human rights protection and civil liberties variables under the institutional quality. Voice and accountability is the degree of perception to which a country's citizens are ready to participate in choosing their government. Also, having the freedom of expression, freedom of association, and a free media. According to Majoge (2020), voice and accountability enhances the capacity of people to choose their leaders and minimises the chances of misappropriation in expenditure that will reduce growth. Other literature on the impact of voice and accountability is linked to are the works of Nxumalo and Makoni (2021); Chinoda and Kwenda (2019); Nguyen, et al., (2018); Shchegolev and Hayat (2018); Ajide (2017); Zulkhibri and Ghazal (2017); Kaufmann et al., (2010); World Bank's WGI. The voice and accountability is expected to exhibit positive relationship with economic growth. That is, as voice and accountability increase so does economic growth and vice-versa. This implies that improving voice and accountability can foster economic growth in Africa if efforts are geared towards improvement. This is also confirmed by Kpognon and Bah (2019) in their empirical study which predicted voice and accountability indicator to have impact

on growth.

Political stability and absence of violence are said to describe the perceptions of the likelihood that the government are going to be destabilised or overthrown by unconstitutional or violent means, including violence and terrorism. Political stability is expected to positively impact on economic growth as well while violent on the other hand is expected to negatively affect economic activities, hence, economic growth both in the long and short term. These relationships are empirically arrived at by the likes of Chinoda and Kwenda (2019); Nguyen et al. (2018); Shchegolev and Hayat (2018); Ajide (2017); Zulkhibri and Ghazal (2017); Kaufmann et al. (2010); World Bank WGI. According to Kpognon and Bah (2019), Political stability is proving to be the indicator that has the greatest impact (both quantitatively and qualitatively) on labour productivity, hence, economic growth.

Government Effectiveness, measured by the quality of public services, the capacity of the civil service and its independence from political pressures, and the quality of policy formulation. Economic growth is expected to respond positively to a change in government effectiveness. This relationship is supported by the studies of Chinoda and Kwenda (2019); Nguyen, et al., (2018); Shchegolev and Hayat (2018); Ajide (2017); Zulkhibri and Ghazal (2017). Government effectiveness lays the groundwork for policy design and implementation of actions to alleviate poverty, promote social inclusion, reduce inequality, and accelerate growth.

Regulatory Quality is measured by the ability of the government to provide sound policies and regulations that enable and promote private sector development. Kilishi et al. (2013) observed in their study that using all other indicators of institutional quality without regulatory quality amounts to insignificant impact on economic growth. Therefore, an improved regulatory quality is expected to positively impact on economic growth. This assertion is also found in the work of Chinoda and Kwenda (2019); Nguyen, *et al.*, (2018); Shchegolev and Hayat (2018); Zulkhibri and Ghazal (2017); Ajide (2017).

The rule of law has a positive and significant effect on economic growth. This is the

words of Zhuang, Dios, and Lagman-Martin (2010). They further defined it as the extent to which agents have confidence in and abide by the rules of society, including the quality of property rights, the police, and the courts, as well as the risk of crime. According to Nxumalo and Makoni (2021), Chinoda and Kwenda (2019); Hayat (2018), rule of law can foster growth of African economy. Therefore, the a priori expectation is positive, meaning that economic growth respond positively to a change in rule of law.

4.5.2 Financial Inclusion (FI) Variables

This is treated as another independent variable which is assumed to impact the level of economic growth. There are several articles that empirically examined the relationship between these variables (see for example Amponsaha, Agbola & Mahmood, 2021; Yinusa, Aworinde & Odusanya, 2020; Abdulmumin, et al. 2019; Olanrewaju, Tella & Adesoye, 2019). Although these studies utilise different measures as proxy for financial inclusion, majority adopted variables that specifically focused on bringing the unbanked into the formal financial system. For instance, ATMs, opening of bank branches, total number of depositors, access to credit amongst others (see Bigirimana & Hongyi, 2018; Ajide, 2017).

Accordingly, while the study exercises restrain over the variables included as proxy for measuring financial inclusion because of data availability issues as well as standard comparison across different countries, it searches the literature with a view to enriching that the variables included facilitate valid conclusion and generalisation. As such, the following accessible measures are adopted as proxy for determining financial inclusion: ATM's/100,000 adults; commercial bank branches/100,000 adults; ATMs/1,000 km; commercial bank branches/1,000 km; and domestic credit to private sector by banks (% of GDP). There are different ways of measuring financial inclusion described in the literature without establishing superiority of any measure to another, particularly in developing countries but the traditional methods focus on accessibility, availability, affordability and usefulness. The study's approach is predicated on the three (3) of these dimensions of a financially inclusive system. Though, evidence from available literature has shown that, there is no commonly accepted dimensions or indices developed by previous researchers to match with any socio-economic context to test in an individual perspective. In order to be fair in the analysis and generalisation,

the study utilises the three traditional dimensions. This is in line with Sarma's (2008) conclusion that the definition of a financially inclusive system is one that maximises each of these sub-indices.

Financial accessibility is captured by number of ATM per 1,000 km (NATM) and number of Commercial Bank Branches per 1,000 km (NCBB); while availability is captured by ATMs per 100,000 Adults (ATM) which represents the number of adults that own and hold ATM, signifying ownership of account; and Commercial Bank Branches per 100,000 Adults (CBB) which show how the services are closer to individuals and firms (Bhargava, 2017; Demirguc-Kunt & Klapper, 2013; Gupte et al., 2012). Finally, the usage dimension is captured by Domestic Credit to Private Sector by banks (% of GDP). This denotes the use of loans by corporations and enterprises to launch new ventures, grow current ones, and fund other forms of entrepreneurship.

Overall, financial inclusion allows people to take advantage of business opportunities, investing, save for retirement, and insure against risks. It is expected to have positive impacts on growth, income distribution and lower poverty levels, among others (Kumari, 2021). Financial inclusion variables are expected to have positive relationship with economic growth. Ability to use formal financial services does not necessarily imply a higher level of financial inclusion. There is a threshold for access since a marginal increase does not necessarily generate a financial inclusion increase. It may enhance frequency in the use of financial services, by improving intensive margin of usage but does not necessarily increase extensive margin, in terms of higher percentages of accounts held or any other financial service (Camara & Tuesta, 2017). Usage on the other hand, shows that some may have indirect access, such as using someone’s bank account, or already using a substitute (Kodan & Chhikara, 2013). Others may not use financial services as they do not need them for cultural and religious reasons (Kumari, 2021). Therefore, to assess the extent of usage of the formal financial services, the study proxy the usage dimension with credit facility from formal financial institution to the private sector (Camara & Tuesta, 2017; Gebrehiwot & Makina, 2015) proxy with domestic credit to private sector by banks as percentage of GDP. This variable is expected to have a positive relationship with economic growth. That is, as people make use of the banking system by depositing their finances with

the bank and bank in return create more access to credit, the economy flourishes, hence economic growth.

4.5.3 Economic Growth (EG) Variables

This study hypothesises that institutional framework and greater financial inclusion stimulate economic activities and hence, result in increased growth. GDP growth rate (GDPGR), per capita real GDP (PCRGDP) and Real GDP (RGDP) are employed as proxies of economic growth. These three proxies are used in order to account for their individual responses on institutional quality and financial inclusion variables. Increase in real GDP is the reflection of inflation adjusted improvement in the productive capability of a nation that result in increase in output of goods and services over a certain period, usually a year. Real GDP per capita shows the value of an economy when the population is considered. That is, deflating the real GDP by population of a country. Lastly, GDP growth accounts for the physical value of goods and services produced in a country over a year. Though, in the literature, such as Abubakar (2020) and Olanrewaju, Tella and Adesoye (2019), economic growth is usually measured by the rise in a country's total output (GDP growth) or real GDP, this study adopt three different measures to strengthen the analysis. Specifically, the study adopts testing the institutional quality and financial inclusion on different economic growth proxies in order to account for robustness of the result and be able to practically generalise.

4.5.4 Control Variables

Traditionally, the determinants of economic growth are largely economic factors such as capital accumulation, investment, technological changes amongst others (see for example, Bonga-Bonga & Ahiakpor, 2015; Ndambiri et al., 2012; Fofack, 2009). However, recent research has turned to non-economic factors such as institutions and governance systems since they enable the economic factors to work effectively and efficiently especially in developing countries (see for example, Grabowski & Self, 2020; Mose, 2021; Hossain & Mitra, 2013). Control variables are therefore essential to this research because it examined the causes of economic growth, where the literature reviewed above revealed various determinants. This led to the consideration of numerous control variables to ensure the validity and reliability of the research's findings and conclusions.

Accordingly, the control variables for this study include: inflation rate, trade openness (trade as percentage of GDP), unemployment rate, investment expenditure (gross capital formation), literacy level and total natural resources rent as percentage of GDP. The data for these variables are from World Development Indicators (WDI) database. The study explore the control variables in detail and their presumed relationship with the dependent variable. The relationship of these variables on economic growth is both positive and negative for inflation and trade openness; negative for unemployment; and positive for gross capital formation, literacy level and total natural resources rent as determined in separate studies by Haini (2019); Shchegolev and Hayat (2018); Nguyen, et al., (2018); Ajide (2017); Nkwede (2015); Babajide, et al., (2015), amongst others. Although there are many factors that can affect economic growth, the impact of the factors mentioned above can be very useful in identifying the growth-promoting factors in emerging and developing economies as well as the ways that institutional frameworks and access to finance are mainstreaming economic growth.

4.6 Econometric Model Specifications

As a preliminary to the detailed empirical analysis, the study presents an informal and formal preliminary diagnostic test. The informal tests cover the trend analysis, descriptive statistical analysis and correlation analysis of all the variables under investigation. The formal diagnostic test conducted is the stationarity test and cointegration test. This enables the study to understand the properties of the variables and choose the appropriate model to adopt. Though, some of these pre-diagnostic tests are not recommended for certain model particularly when the N is large and T is small. This is because in a micro-Panel data one does not worry about non-stationarity and issue of cross-sectional dependence. However, in case of panel Autoregressive Distributed-Lag (ARDL) model, one may need to test for stationarity to confirm that none of the series are integrated of order two, I(2).

The study broadly investigates the deterministic relationships between institutional quality, financial inclusion and economic growth with evidence from chosen Sub-Saharan nations for the period 2004–2020. Specifically, the long run association of the variables is determined (after the data properties suggest stationarity at first difference

or mixture of integrating order zero and one), the impact of institutional quality on economic growth; impact of financial inclusion on economic growth; and the nexus between the variables is obtained through the error correction term results.

To achieve the above objective, the study uses data from 20 Sub-Saharan African countries covering the periods of 2004 to 2020. Since, it involves time-series and cross-section data of these countries, the study adopts a dynamic panel data analysis approach of Generalised Method of Moments (GMM) estimator. The consideration of the dynamic model is characterised by two reasons (see Baltagi, 2008). These are to account for the autocorrelation resulting from the inclusion of a lagged dependent variable among the explanatory variables and the unobserved main effects and interaction effects characterising the heterogeneity among the countries. Applying either Ordinary Least Squares (OLS) or Fixed Effect (FE) estimator may render the estimates biased and inconsistent for a number of reasons. For example, if y is a function of both the country specific effects (μ_i). This follows that the lag of dependent variable (a predetermined variable) is correlated with the error term. This undoubtedly renders the OLS estimator biased and inconsistent even if the error term (v_{it}) is not serially correlated (Olubusoye, Salisu & Olofin, 2016).

The FE estimator of within transformation might have eliminated the effects, but, the mean value of the predetermined variable of the dependent variable could still be correlated with the mean value of the error term. This correlation also renders the FE estimator inconsistent particularly when N is large and T is small. Also, the use of the generalised least-squares (GLS) method of estimation of the random effects model produces similar results as the least-squares dummy variables (LSDV) estimation of the fixed effects model. That is, the GLS estimator produces biased and inconsistent result as well.

To overcome these econometric problems inherent in the use of OLS, FE (Within and LSDV) and Random Effects (GLS) estimators for the estimation of dynamic model, a number of empirical studies have suggested the Arellano and Bond (1991) Generalised Method of Moment (GMM) estimator and the Blundell and Bond (1998) system GMM estimator. The GMM estimator proposed by Arellano and Bond (1991)

differences the dynamic model to get rid of the effects along with any time-invariant regressor.

$$y_{it} - y_{i,t-1} = \delta(y_{i,t-1} - y_{i,t-2}) + \beta(x_{it} - x_{i,t-1}) + (\mu_{it} - \mu_{i,t-1}) \quad 4.1$$

Where is assumed to follow first order moving average process (i.e., MA (1)) with unit root. The differencing of the dynamic model as shown in (4.1) also eliminates any endogeneity that may be due to the correlation between the regressors and the effects. Based on the fact that the GMM estimator assumes that $(\mu_{it} - \mu_{i,t-1})$ follows MA (1) with unit root, Arrelano and Bond (1991) propose a test for the hypothesis that there is no second-order serial correlation for the remainder disturbances of the differenced equation. This becomes inevitable as the consistency of the GMM estimator relies upon the assumption that $E(\Delta\mu_{it}, \Delta\mu_{i,t-1}) = 0$. This test along with other tests such as the Sargan test of over-identifying restrictions are usually computed to complement the Arellano and Bond GMM estimator. Another notable estimator for dynamic panel data models is the Blundell and Bond (1998) system GMM which improves the standard GMM estimator. Blundell and Bond (1998) show that an additional mild stationarity restriction on the initial conditions process allows the use of an extended system GMM estimator that uses lagged differences of its y as instruments for equations at levels, in addition to lagged levels of its y as instruments for equations in first differences (see Baltagi, 2008). Blundell and Bond (1998) also argue that the system GMM estimator performs better than the first difference GMM estimator because the additional instruments remain good predictors for the endogenous variables in this model even when the series are very persistent (Sigmund & Ferstl, 2017). The model can be presented as follows:

$$\begin{aligned} &Y_{it} = \delta w_{it} + \beta X_{it} + \mu_{it} \\ &where, \\ &i = 1,...,n; t = 1,...,T \\ &\mu_{it} = \mu_i + v_{it} \end{aligned} \quad 4.2$$

Where w_{it} is a vector of predetermined covariates (which may include the lag of y) and endogenous covariates, all of which may be correlated with the μ_i. Of course,

predetermined variables are potentially correlated with past errors. Following Holt-Eakin, Newey, and Rosen (1988), Arellano and Bond (1991) developed a Generalised Method of Moments estimator that instruments the differenced variables that are not strictly exogenous with all their available lags in levels. Arellano and Bond also developed an appropriate test for autocorrelation, which, if present, can render some lags invalid as instruments. A problem with the original Arellano-Bond estimator is that lagged levels are poor instruments for first differences if the variables are close to a random walk. Arellano and Bover (1995) propose the use of orthogonal deviations to eliminate the potential endogeneity problem in the dynamic panel data model instead of first differencing suggested by Arellano and Bond. Essentially, the orthogonal deviations involve subtracting the average of all available future observations rather than subtracting the previous observation. Like differencing, taking orthogonal deviations removes fixed effects. Because lagged observations of a variable do not enter the formula for the transformation, they remain orthogonal to the transformed errors (assuming no serial correlation), and available as instruments. With this procedure, exactly the same lags of variables are valid as instruments under the two transformations. In the Blundell and Bond system GMM estimator, the levels or untransformed equation is still instrumented with differences. They describe how, if the original equation in levels is added to the system i.e. in addition to lagged levels of variables as instruments for equations in first differences, additional instruments can be brought to bear to increase efficiency. In this equation, variables in levels are instrumented with suitable lags of their own first differences. The assumption needed is that these differences are uncorrelated with the unobserved country effects.

4.6.1 Principal Component Analysis (PCA)

The Principal Component Analysis (PCA) method is used to generate a single composite index for financial inclusion as well as for institutional quality for all 20 countries in the sample of the study. This is necessitated by the absence of a common or unique measure of both financial inclusion and institutional quality in the literature. Hence, the PCA technique made it possible to develop uni-dimensional measures of financial inclusion and institutional quality for the sample of countries for the study, making the analysis for the study more tractable and comparable across the countries (Katchova, 2013).

PCA is a data reduction method which is used to re-express multivariate data with fewer dimensions (Katchova, 2013). This method is particularly targeted at re-orienting the data in a way that a few factors which represents the maximum possible variation from the original variables, summarise the plethora of original variables. While the PCA technique is similar to the factor analysis, it has the advantage of not being based on assumptions about the variations in the data. Also, the index weights for the construction of the composite index is based in this case on the correlation of the individual measures of financial inclusion (ATM per 100,000 adults, Bank branches per 100,000 adults, ATM per 1000km, Bank branches per 1000km and domestic credit to private sector) (see example in Birgirimana & Hongyi, 2018; Ajide, 2017; Onaolapo, 2015); and institutional quality (voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, control of corruption, rule of law, human rights protection, ease of doing business and civil liberties) (see example Chinoda & Kwenda, 2019; Nguyen, et al., 2018; Shchegolev & Hayat, 2018; Zulkhibri & Ghazal 2017).

The goal of the PCA is to find components $k = [k_1, k_2, \ldots, k_p]$, which are a linear combination $u = [u_1, u_2, \ldots, u_p]$ of the original variables $x = [x_1, x_2, \ldots, x_p]$ that yield the maximum variance. The first component k_1 is given by the linear combination of the original variables x and accounts for maximum possible variance. The second component captures most information not captured by the first component and it's also uncorrelated with the first component.

PCA maximises the variance of the elements of k=xu such that u'u=1. The solution is obtained by performing an eigenvalue decomposition of the correlation matrix, by finding the principal axes of the shape formed by the scatter plot of the data. The eigenvectors represent the direction of one of these principal axes. Solving the equation $(R-\lambda I)u=0$, where R is the sample correlation matrix of the original variable x, λ is the eigenvalue and u is the eigenvector. The eigenvalues λ are the variances of the associated components/factors k. The diagonal covariance matrix of the components is denoted as $D=diag(\lambda)$.

Furthermore, evidence from the literature suggests that all other principal components after the first maximise the variance between the unit length linear combination and are orthogonal to the prior components, and capture different aspects of the data

under consideration (Johnson & Wichtern, 1992; Makoni, 2016). Hence, following from the literature, for this study, the first principal components are adopted as the aggregate measure of financial inclusion as well as institutional quality.

The composite indices for financial inclusion and institutional quality for the selected countries are generated using the following equation:

$$k_j = v_{j1}x_1 + v_{j2}x_2 + v_{j3}x_3 + \ldots + v_{jp}x_p \quad 4.3.$$

Where:

k_j is the estimate of the j^{th} factor;

v_j is the weight on factor score coefficient;

x_j is the variable of interest.

The ensuing chapter summarizes and discusses the specific derivation and index values for financial inclusion and institutional quality variables.

4.6.2. Panel Cointegration Models

This study's third objective seeks to test for the cointegrating relationships among institutional quality, financial inclusion and economic growth in Sub-Saharan Africa. Therefore, after confirming the order of integration and the series exhibit stationarity at first difference (integration of order one, I(1)), the next stage of the analysis tests for evidence of long-run cointegration among variables by conducting the Pedroni (1999; 2004) and Kao (1999) panel cointegration tests. The Pedroni (1999; 2004) and Kao (1999) tests are based on the panel data model for an I(1) dependent variable y, and tests the null hypothesis of no cointegration against the alternative of cointegration.

$$y_{it} = x_{it}\beta_i + z_{it}\delta_i + \varepsilon_{it} \quad 4.4.$$

Where for each panel i, the covariates in x_{it} is an I(1) series and both tests require the covariates to not be integrated amongst themselves. The Kao test assumes a common cointegrating vector across all countries in the panel and thus restricts $\beta_i = \beta$. Although both tests have the same null and alternative hypothesis, there are some differences

between them. In fact, the Pedroni test allows for panel-specific cointegrating vectors and such heterogeneity distinguishes it from the Kao test.

4.6.3 Panel Autoregressive Distributed-Lags (Panel ARDL) or Heterogeneous Panel Model

The objective three investigates the cointegrating relationship between institutional quality, financial inclusion and economic growth in Sub-Saharan Africa countries. The study utilises the panel ARDL estimation technique for the analysis in achieving this objective. Panel ARDL requires the establishment of mean group (MG) estimate or dynamic fixed effects (DFE) estimate or the pooled mean group (PMG) estimate (Pesaran & Smith, 1995; Pesaran et al., 1999). Mean Group (MG) model is suggested in order to resolve the bias due to heterogeneous slopes in dynamic panels, the MG estimator provides the long-run parameters for the panel through making an average of the long-run parameters from ARDL models for individual countries (Rafindadi & Yosuf, 2013). The MG does not impose any restriction and allows for all coefficients to vary and be heterogeneous in the long-run and short-run. However, the necessary condition for the consistency and validity of this approach is to have a sufficiently large T. That is, according to Pesaran et al. (1999) MG is inconsistent and not a good estimator when either N or T is small.

Pesaran et al. (1999) proffer solution to the heterogeneity issue across countries associated with MG by establishing the Pool Mean Group (PMG). The dynamic FE estimator is remarkably similar to PMG estimator, however; it confines the coefficient of the co-integrating vector to be equal across all panels in the long run. The FE model further restricts the speed of adjustment coefficient and the short-run coefficient to be equal. Dynamic fixed effect model allows panel-specific intercepts. DFE also calculate the standard error while making allowance of intragroup correlation. As discussed in Baltagi, Grin, and Xiong (2000), FE models are subject to a simultaneous equation bias from the endogeneity between the error term and the lagged dependent variable. The Hausman test can be easily performed to measure the extent of this endogeneity.

The main difference between the MG and the PMG is that under MG estimator, separate equations for each cross section (N) are run and the consistent estimators

are produced by averaging of parameters of the model (Pesaran et al. 1999). Contrary, to the MG and the DFE, the PMG estimator incorporates MG estimator characteristics and pools the estimators (Pesaran et al., 1999). Consistency and the independence of the regression residuals across countries is the essential assumption of the PMG estimation (Loayza & Rancière, 2006). Other assumptions of PMG are; the error terms are serially uncorrelated and are distributed independently of the regressors; there is a long-run relationship between the dependent and explanatory variables; the long-run parameters are the same across countries (Oyelami, Saibu & Adekunle, 2017).

The PMG permits country heterogeneity in error variances, the short-run coefficients, together with the intercepts, the speed of adjustment to the long run equilibrium values with a proposal of homogenous long run slope coefficients across countries (N) (Loayza & Ranciere, 2006; and Pesaran et al., 1999). Therefore, the best fitted estimators between MG and PMG is determined by Hausman test. The general panel model is as follows:

$$Y_{it} = \alpha \sum_{j=1}^{p-1} y_{i,t-j} + \delta \sum_{j=0}^{q-1} X_{i,t-j} + \varphi Y_{i,t-1} + \mu_i + \varepsilon_{it} \qquad 4.5.$$

Where Y_{it} is the dependent variable and $X_{i,t-1}$ is the vector of the explanatory variables for group, i and μ_i is the fixed effect, p and q as the lag length (see Pesaran et al., 1999). Below is the ECM model specifications of the ARDL system when cointegration is established:

$$\Delta Y_{it} = \varphi_i(Y_{i,t-1} - \beta_i X_{i,t-1}) + \Omega_1 \sum_{j=1}^{p-1} \Delta y_{i,t-j} + \Omega_2 \sum_{j=0}^{q-1} \Delta X_{i,t-j} + \mu_i + \varepsilon_{it} \qquad 4.6.$$

Where the β_i are the long-run parameters and φi; are the equilibrium (or error) correction parameters. Y is a vector of economic growth proxies (real GDP, GDP per capita and GDP growth), X is a set of independent variables including the financial inclusion and institutional quality indicators, Ω_1 and Ω_2 represent the short-run coefficients of dependent and independent variables respectively, while the subscripts

i and t represent the country and time, respectively. The term in the square brackets contains the long-run growth regression. Therefore, fixing in the variables of this study into the model 4.6 while accounting for constant and trend, it becomes:

$$\Delta Log(EG_t) = \alpha_i + \alpha_i T + \beta_1 Log(EG_{i,t-1}) + \beta_2 Log(FI_{i,t}) + \beta_3 Log(IQ_{i,t}) + \beta_4 Log(IFR_{i,t}) + \beta_5 Log(TOP_{i,t}) + \beta_6 Log(UER_{i,t}) + \beta_7 Log(INV_{i,t}) + \beta_8 Log(LIL_{i,t}) + \beta_9 Log(TNRR_{i,t}) + \sum_{i=1}^{n} \Omega_{1i} \Delta Log(EG_{i,t-i}) + \sum_{i=0}^{n} \Omega_{2ii} \Delta Log(FI_{i,t-i}) + \sum_{i=0}^{n} \Omega_{3i} \Delta Log(IQ_{i,t-i}) + \sum_{i=0}^{n} \Omega_{4i} \Delta Log(IFR_{i,t-i}) + \sum_{i=0}^{n} \Omega_{5i} \Delta Log(TOP_{i,t-i}) + \sum_{i=0}^{n} \Omega_{6i} \Delta Log(UER_{i,t-i}) + \sum_{i=0}^{n} \Omega_{7i} \Delta Log(INV_{i,t-i}) + \sum_{i=0}^{n} \Omega_{8i} \Delta Log(LIL_{i,t-i}) + \sum_{i=0}^{n} \Omega_{9i} \Delta Log(TNRR_{i,t-i}) + \varphi_i ECT_{i,t} + \varepsilon_{it}$$

- - 4.7.

Where EG is the (logarithm) level of economic growth (that is, GDP growth rate, real per capita GDP and real GDP as the case may be); FI is the financial inclusion indicators (that is, ATM/100,000 adults, Bank Branches/100,000 adults, ATM/1,000 km, Bank Branches/1,000 km and Domestic Credit to Private sector); IQ denotes institutional quality (that is, voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, control of corruption, rule of law, human rights protection, ease of doing business and civil liberties); IFR is the inflation rate; TOP is trade openness; UER is unemployment rate; INV is investment expenditure (gross capital formation); LIL is literacy level; and TNRR is total natural resources rent. In addition, β's are the long run coefficients; and Ω's are the short-run coefficients. All variables are in their natural logarithm forms.

4.6.4 Panel Causality Models (Error Correction Model (ECM))

The fourth objective is to explore the causality nexus amongst institutional quality, financial inclusion and economic growth in selected Sub-Saharan countries. According to Granger (1969) representation theorem which illustrates that if two-time series are cointegrated, then there must be at least a unidirectional causality between them. This framework is extended by Dumitrescu and Hurlin (2012) which allow it to detect

causality in panel data. Thus, the Dumitrescu and Hurlin causality test is employed to determine whether there is bidirectional or unidirectional causality between the two variables. To investigate the direction of causality a two-way Granger test is carried out as follows;

$$Y_{it} = \beta_i + \alpha_{ij}\sum_{j=1}^{j} Y_{i,t-j} + \delta_{ij}\sum_{j=1}^{j} X_{i,t-j} + \varepsilon_{it} \quad 4.8.$$

$$X_{it} = \beta_i + \alpha_{ij}\sum_{j=1}^{j} X_{i,t-j} + \delta_{ij}\sum_{j=1}^{j} Y_{i,t-j} + \varepsilon_{it} \quad 4.9.$$

Where, $Y_{i,t}$ and $X_{i,t}$ are the dependent variable (economic growth) and explanatory variables (institutional quality, financial inclusion and control) respectively for country i in period t.

4.6.5 Panel 2-Step System Generalised Methods of Moment (GMM)

In the literature, a wide range of approaches have been adopted to explore the relationship amongst variables. Prominent among these are Ordinary Least Squares (Onaolapo, 2015); dynamic system GMM (Ajide, 2017); panel GMM (Static and Dynamic) (Nawaz *et al.,* 2014); regression and system GMM (Effiong, 2016); system GMM (Chinoda & Kwenda, 2019); panel vector autoregressive model (Recuero & Gonzalez, 2019). Although these approaches have their strengths and weaknesses, this study employ the dynamic system-GMM panel technique because of its capability to address endogeneity problem inherent in the regression of variables such as the ones being investigated as well as other control variables to guarantee consistency, normality and efficiency.

In the selected SSA nations from 2004 to 2020, the first and second objectives aimed to investigate the deterministic relationships between the variables. To explore the connection among the variables, system GMM estimator is employed. For growth models (with dynamic specification), the GMM estimators are superior to other panel data estimators. The system GMM panel estimator accounts for time and country-specific effects and address the endogeneity problem using lags (appropriate) of the

regressors as instruments (Blundell & Bond, 1998). The GMM estimation starts from the assumption of a set of L moment conditions that the K-dimensional parameters should satisfy.

The general model of the data generating process for the GMM model is specified below:

$$y_{it} = \alpha y_{i,t-1} + X'y + \varepsilon_{it} \qquad 4.10.$$

$$\varepsilon_{it} = \mu_i + \omega_{it}$$

$$E(\mu_i) = E(\omega_{it}) = E(\mu_i \omega_{it}) = 0$$

In other words, the error term has two components which are orthogonal: the fixed effects, μ_i and the idiosyncratic shocks, ω_{it}.

Where:

y_{it} is Economic growth (proxy by real GDP, per capita real-GDP and real GDP growth rate); X is a matrix of explanatory variables which include the indicators of both institutional quality and financial inclusion, their interactions and other control variables; ε_{it} is the error term.

Subtracting $y_{i,t-1}$ from both sides, equation 4.10 can be rewritten as:

$$\Delta y_{it} = (\alpha - 1) y_{i,t-1} + X'y + \varepsilon_{it} \qquad 4.11.$$

Hence, the model can be thought of as being for the level or increase of y. However, as noted by Nickell (1981), due to the correlation between $y_{i,t-1}$ and the fixed effects in the error term, a “dynamic panel bias” is generated and therefore implies that OLS cannot be applied to equation 4.11. In the light of the shortcoming of the OLS estimator, two solutions are proposed in the literature for the inherent endogeneity problem: the difference-GMM, which transforms the data to remove the fixed effects; and the system-GMM, which instruments $y_{i,t-1}$ and any other similarly endogenous variables with variables thought uncorrelated with the fixed effects.

The first-difference transformation is effected by the $I_N \otimes M_\Delta$, where I_N is the identity matrix of order N and M_Δ consists of diagonal of -1s with a sub-diagonal of 1s just to the right. Applying the transformation to 4.11, it becomes:

$$\Delta y_{it} = \alpha \Delta y_{i,t-1} + \Delta X'_{it}\beta + \Delta \omega_{it} \qquad 4.12.$$

This eliminates the fixed effects. System GMM on the other hand, augments difference GMM by estimating simultaneously in differences and in levels equations 4.11 and 4.12, with each being uniquely instrumented (Roodman, 2009).

Blundell and Bond (1998) formulated the system estimator to exploit the new moment conditions for the data in levels while retaining the original Arellano-Bond conditions for the transformed equation. With system GMM, time-invariant regressors can be included. This does not affect the coefficient estimates for other regressors asymptotically because all instruments for the levels equation are assumed to be orthogonal to the fixed effects and by implication to all the time-invariant variables (Roodman, 2009). Note that for system GMM, the validity of the additional instruments depends on the assumption that changes in the instrumenting variables are uncorrelated with the fixed effects.

The general model specification under the system GMM is summarised in equation 4.13 as follows:

$$y_{it} = \alpha y_{i,t-1} + X_{it}\beta + \mu_i + \omega_{it} \qquad 4.13.$$

Based on the analytical technique discussed above, the research specify the relationship linking institutional quality (IQ), financial inclusion (FI) and economic growth (EG). The study first consider, financial inclusion direct effect on growth by specifying a conventional growth regression model as in equation 4.14:

$$EG_{it} = \beta_o + \beta_1 FI_{it} + \beta_2 IQ_{it} + \beta_3 FI * IQ + \mu_i + \omega_{it} \qquad 4.14.$$

Where EG denotes the (logarithm) level of real-GDP growth rate as the dependent variable. FI captures financial inclusion indicators; IQ is institutional quality; μ_i and ω_{it}

are the unobserved country-specific effects and error term respectively. Equation 4.14 is augmented with an institutional quality variable and interact with both indicators of financial inclusion and institutional quality as the hypothesis seeks to investigate the nexus amongst institutional quality, financial inclusion and economic growth, before significance testing of the interaction coefficient terms. To account for the effect of institutional quality on economic performance in SSA, the equation becomes:

$$EG_{it} = \beta_o + \beta_1 FI_{it} + \beta_2 IQ_{it} + \beta_3 IQ * FI + \mu_i + \omega_{it} \quad 4.15$$

To account for both the effects of the two independent variables on economic performance of the selected countries, the dynamic model now becomes:

$$EG_{it} = \beta_o + \beta_1 EG_{i,t-1} + \beta_2 FI_{it} + \beta_3 IQ_{it} + \beta_4 FI * IQ + \mu_i + \omega_{it} \quad 4.16.$$

Where EG_{it-1} denotes the dynamic component of the relationship. By adding the control variable, equation 4.16 becomes:

$$\begin{aligned} EG_{it} = {} & \beta_o + \beta_1 EG_{i,t-1} + \beta_2 FI_{it} + \beta_3 IQ_{it} + \beta_4 FI * IQ + \beta_5 IFR_{it} + \beta_6 TOP_{it} + \\ & \beta_7 UER_{it} + \beta_8 INV_{it} + \beta_9 LIL_{it} + \beta_{10} TNRR_{it} + \mu_i + \omega_{it} \end{aligned} \quad 4.17.$$

Where IFR is inflation rate, TOP is trade openness, UER is unemployment rate, INV is investment expenditure, LIL is the literacy level and TRNN is the total natural resources rent as control variables.

To account for the impact of the global financial crisis of 2007/2009 and the COVID-19 pandemic that impacted the region significantly, the equation 4.17 becomes:

$$\begin{aligned} EG_{it} = {} & \beta_o + \beta_1 EG_{i,t-1} + \beta_2 FI_{it} + \beta_3 IQ_{it} + \beta_4 FI * IQ + \beta_5 IFR_{it} + \beta_6 TOP_{it} + \beta_7 UER_{it} \\ & + \beta_8 INV_{it} + \beta_9 LIL_{it} + \beta_{10} TNRR_{it} + \beta_{11} Dummy\_GFC_{it} + \\ & \beta_{12} Dummy\_COVID_{it} + \mu_i + \omega_{it} \end{aligned} \quad 4.18.$$

This study employed the Dynamic System-GMM panel technique because of its potential to address endogeneity inherent in regression of variables such as the ones under investigation to guarantee consistency, normality and efficiency. The model in

equation 4.18 was estimated using both the dynamic GMM and the system GMM.

In summary, by not considering the effects of institutional quality, the effects of financial inclusion on economic performance was empirically tested using Equation 4.19 – 4.21.

$$LRGDP_{it} = \alpha LRGDP_{i,t-1} + \beta_1 FIINDEX_{it} + \beta_2 Dummy\_GFC_{it} + \beta_3 Dummy\_COVID_{it} + \sum_{n=1}^{i} \beta X_{it} + \mu_i + \omega_{it} \quad 4.19.$$

$$GDPGR_{it} = \alpha LRGDP_{i,t-1} + \beta_1 FIINDEX_{it} + \beta_2 Dummy\_GFC_{it} + \beta_3 Dummy\_COVID_{it} + \sum_{n=1}^{i} \beta X_{it} + \mu_i + \omega_{it} \quad 4.20.$$

$$LPCRGDP_{it} = \alpha LRGDP_{i,t-1} + \beta_1 FIINDEX_{it} + \beta_2 Dummy\_GFC_{it} + \beta_3 Dummy\_COVID_{it} + \sum_{n=1}^{i} \beta X_{it} + \mu_i + \omega_{it} \quad 4.21.$$

In the absence of financial inclusion, the effects of Institutional quality on economic performance was specifically tested using Equations 4.22 – 4.24.

$$LRGDP_{it} = \alpha LRGDP_{i,t-1} + \beta_1 INSTDEX_{it} + \beta_2 Dummy\_GFC_{it} + \beta_3 Dummy\_COVID_{it} + \sum_{n=1}^{i} \beta X_{it} + \mu_i + \omega_{it} \quad 4.22.$$

$$GDPGR_{it} = \alpha LRGDP_{i,t-1} + \beta_1 INSTDEX_{it} + \beta_2 Dummy\_GFC_{it} + \beta_3 Dummy\_COVID_{it} + \sum_{n=1}^{i} \beta X_{it} + \mu_i + \omega_{it} \quad 4.23.$$

$$LPCRGDP_{it} = \alpha LRGDP_{i,t-1} + \beta_1 INSTDEX_{it} + \beta_2 Dummy\_GFC_{it} + \beta_3 Dummy\_COVID_{it} + \sum_{n=1}^{i} \beta X_{it} + \mu_i + \omega_{it} \quad 4.24.$$

To account for both effects of institutional quality and financial inclusion on economic performance, equations 4.19 – 4.24 were put into perspective as thus:

$$LRGDP_{it} = \alpha LRGDP_{i,t-1} + \beta_1 INSTDEX_{it} + \beta_2 FIINDEX_{it} + \beta_3 INSTDEX_{it} * FIINDEX_{it} + \beta_4 Dummy\_GFC_{it} + \beta_3 Dummy\_COVID_{it} + \sum_{n=1}^{i} \beta X_{it} + \mu_i + \omega_{it} \quad 4.25.$$

$$GDPGR_{it} = \alpha LRGDP_{i,t-1} + \beta_1 INSTDEX_{it} + \beta_2 FIINDEX_{it} + \beta_3 INSTDEX_{it} * FIINDEX_{it} + \beta_4 Dummy\_GFC_{it} + \beta_3 Dummy\_COVID_{it} + \sum_{n=1}^{i} \beta X_{it} + \mu_i + \omega_{it} \quad 4.26.$$

$$LPCRGDP_{it} = \alpha LRGDP_{i,t-1} + \beta_1 INSTDEX_{it} + \beta_2 FIINDEX_{it} + \beta_3 INSTDEX_{it} * FIINDEX_{it} + \beta_4 Dummy\_GFC_{it} + \beta_3 Dummy\_COVID_{it} + \sum_{n=1}^{i} \beta X_{it} + \mu_i + \omega_{it} \quad 4.27.$$

Where: α is the intercept; β is the slope, LRGDP is log real GDP, LPCRGDP is the log per capita real GDP, FIINDEX is the financial inclusion index, INSTDEX is the institutional quality index, i is the country, t is the time factor, ∑ is the summation notation, while X_{it} is a vector of control variables which include IFR-inflation rate, TOP-trade openness, UER-unemployment rate, INV-investment expenditure, LIL-literacy level, and TNRR-total natural resource rent. The time invariant country specific effects are captured by μ_i whilst ω_{it} is the error term. The Dummy GFC was used to take a value of one (1) for a global financial crisis or zero (0) otherwise because the analysis period had some structural breakdowns. Additionally, the Dummy COVID was utilised to take the value of one (1) for the COVID-19 era or zero (0) otherwise to account for the COVID-19 pandemic. By logging the values for empirical analysis, the real GDP and per capita real GDP were normalised to obtain LRGDP and LPCRGDP, respectively.

When N is more than T, the GMM models are typically simple to estimate, but when N is smaller than T, they are more likely to give estimates that are biased (Roodman,

2009). The lagged dependent variables' slope coefficients are assumed to be homogeneous, which could lead to conflicting long run estimations for heterogeneous slope coefficients (Samargandi et al., 2015; Pesaran & Shin, 1998; Pesaran & Shin, 1997; Pesaran & Smith, 1995). In order to ascertain the cointegrating link between economic growth, institutional quality, and financial inclusion in the chosen SSA nations, the panel ARDL as explained above is used for a dynamic panel analysis.

4.7 Diagnostic Tests

A set of pre- and post-diagnostic tests are also conducted in the work to check the appropriateness of the fitted GMM models as well as the panel ARDL models. The test includes: unit root test, endogeneity test, autocorrelation Lagrange Multiplier (LM) test, Heteroskedasticity test and residual normality test. The diagnostic tests also conducted to validate the GMM estimation results also include; the Hansen over-identification restrictions test, and the Arellano and Bond's test of no second-degree serial correlation. Similarly, there is also a difference in Hansen statistics which tests the exogeneity of the GMM instrument subsets. Therefore, failure to reject these null hypotheses signifies the validity of GMM estimates.

4.7.1 The Panel Unit-Root Test

The study examine the time-series features of the data and test if the variables have unit roots, i.e., whether stationary conditions are satisfied. Most economic and financial variables are non-stationary and employing non-stationary variables within the model might cause spurious regressions. The primary or second difference terms of most variables will often be stationary. Hence, the variables are tested at levels, first and second differences for stationarity invoking the Augmented Dickey-Fuller (ADF) as well as Philip-Peron tests, amongst others to determine the normality of the data and the appropriateness of the models to adopt.

Recent literature shows that panel-based unit-root tests are more powerful than unit root tests based on individual time series. Levin, Lin and Chu (2002) considered the following basic ADF specification:

$$\Delta y_{it} = \alpha y_{i,t-1} + \sum_{j=1}^{p_i} \beta_{ij} \Delta y_{i,t-1} + X'_{it}\delta + \varepsilon_{it} \qquad 4.28.$$

Where α = ρ -1, but allow the lag order for the difference terms, ρ_i, to vary across cross-sections. The null and alternative hypotheses for the tests are specified as: H_0: α = 0 and H_1: α < 0. Under the null hypothesis, there exists unit root while for the alternative, there is no unit root. The ADF test is employed for this purpose. A variable is considered stationary if the absolute ADF value is higher than any of the Mackinnon absolute critical values. In other words, the ADF test statistic must be more negative than the MacKinnon values at a given level of significance.

4.7.2 Autocorrelation Lagrange Multiplier (LM) Test

To examine the residuals of the models for evidence of serial correlation, the autocorrelation LM test was be estimated. This is an alternative to the Q-statistics (used for testing serial correlation). When concerns exist of the possibility of the errors exhibiting autocorrelation therefore Lagrange LM test is recommended. The null hypothesis of the LM test is that there is no serial correlation up to lag order p, where p is a pre-specified integer.

4.7.3 Residual Heteroskedasticity Test

These tests check for specifications of heteroskedasticity within the residuals of an equation. OLS estimates are consistent heteroskedasticity, but the traditional computed standard errors are not valid. If there is heteroscedasticity, then the research either choose the robust standard errors to correct the quality errors or model the heteroscedasticity to get more efficient estimates using weighted method of least squares. The white heteroskedasticity test is therefore be employed.

4.7.4 Residual Histogram-Normality Test: Jarque-Bera (JB) Normality Test

The JB test of normality is an asymptotic/large-sample, test based on OLS residuals. This test computes the skewness (S) and kurtosis (K) measures of OLS residuals. For a variable that is normally distributed, S = 0 and K = 3. Therefore, the JB test is a test of the joint hypothesis that S and K are 0 and 3, respectively. In that case the value of

the JB statistic was expected to be 0, based on the test statistics.

4.8 Ethical Consideration, Reliability and Validity

This study relies entirely on secondary sources for information and data. All relevant literature and data sources were properly acknowledged and cited. All related ethical concerns were addressed as the research fully complied with the UNISA's ethical clearance procedures. First, an application for ethical clearance was submitted which was approved and Ethical Clearance Certificate was issued before the study proceeded on data collection. The data sources are entirely public and did not include any type of manipulation, injury, or risk.

The reliability and validity of the data, as well as the extent to which it corresponds to, and answers the research questions, were essential considerations in this study. The information was gathered from public sources that are not only reputable but also respectable, and it was carefully collected on aspects that are pertinent to the research objectives. This improves the validity and dependability of the research findings.

4.9 Chapter Summary

This chapter discussed the methodology and research design of this study which systematically addressed the stated research objectives. First, the study conducted unit root on the variables to ascertain their stationarity. This, it employed the panel-based unit root of Levin, Lin and Chu (2002) test. The chapter also presented the Principal Component Analysis (PCA), a method used to generate a single composite index for financial inclusion as well as for institutional quality for all 20 countries in the sample of the study. After which, the Kao and Pedroni cointegration tests were adopted to check for the long run relationship among the variables, particularly when they do not all exhibit stationarity at level. This cointegration tests addressed the first objective of cointegrating relationships amongst institutional quality, financial inclusion and economic growth in chosen Sub-Saharan nations. Thereafter, the different estimators of analysing panel data were discussed and these included the Arellano and Bond difference Generalised Method of Moments (GMM), Blundell and Bond system GMM, Panel Autoregressive Distributed-Lag Model (Panel ARDL) and Error Correction Method (ECM).

Lastly, the Panel causality model and ECM was developed to test for the last objective of causality nexus amongst institutional quality, financial inclusion and economic growth in selected Sub-Saharan countries.

The following chapter delves into the presentation of data, analysis and discussion of the results of the research.

CHAPTER FIVE

DATA ANALYSIS AND DISCUSSION

5.1 Introduction

This chapter focuses on the presentation of findings and the interpretation and discussion of research results obtained using the methods discussed in the preceding chapter. Analysis of the connections between institutional quality, financial inclusion, and economic growth in a panel of 20 Sub-Saharan African nations from 2004 to 2020 was the primary objective of the study. It was important to empirically establish the connection between these variables across some countries in the same region, as the case for a study at the regional bloc level cannot be overstated. Most regional coalitions are made up of states with comparable macroeconomic aims which are at the same or comparative stage of development.

This study reveals the interests that different nations should focus on that are relevant to their stage of development, as well as the description of appropriate techniques amongst neighbouring nations that would contribute to the achievement of macroeconomic goals. Essentially, both internal and external factors driving economic growth of countries within a regional grouping are comparable, and what works for one country may also work for another in a similar alliance. The study at the regional bloc also compares how the entire region has performed over time in terms of institutional quality, financial inclusion, and economic growth with other regions of the world that are on a level footing to encourage cooperation in the pursuit of initiatives like the Sustainable Development Goals, the African Union's Agenda 2063, and the African Continental Free Trade Agreement (AfCFTA), amongst others.

This study adds to the body of knowledge on the connection between financial inclusion, institutional quality, and economic growth, particularly with regard to the SSA region. In particular, it provides a comprehensive overview of the relationship in that it explores both the deterministic, cointegration and causal relationships between and among the key variables. In addition, the use of the panel ARDL methodology as one of the estimation methods in this study comes with several advantages including the fact that among other estimation methods, the panel ARDL does not require that the variables be integrated of the same order, although, they cannot be integrated of an

order higher than I(2) (Pesaran, Shin and Smith, 1999). Also, while the panel ARDL is applicable to smaller samples, it jointly incorporates both the long-run and short-run effects of the variable in the model (Pesaran et al., 2001). On the other hand, the GMM is advantageous over other methods like the OLS in that it addresses the problems of endogeneity and specification errors in panel data (Arellano & Bond, 1991).

The results of the empirical analyses of each of the research questions are presented therein, in particular, results of the dynamic system GMM - used to assess the deterministic relationships between economic growth and financial inclusion, as well as between economic growth and institutional quality (objectives one and two); Panel ARDL utilised to examine the cointegrating relationships among institutional quality, financial inclusion and economic growth (objective three); and Panel ECM results for the causality nexus among institutional quality, financial inclusion and economic growth (objective four). In addition, diagnostic test results for each of the models are also presented and discussed.

The study's primary goal, the justification for conducting a study at the regional bloc, and the methodology used to accomplish the study's objectives, are all outlined in the introduction, which is the first section of this chapter. Descriptive statistics, which are presented in the second section, give a basic overview of the nature, structure, and distribution of the data used to capture the study's variables. The results of Principal Component Analysis (PCA) used to create a single composite index for financial inclusion and institutional quality across the nations and time period is shown in the third part. The fourth segment concentrated on unit root testing, which verifies the stationarity of the variables and determines the order of their integration. The empirical findings, discussion, and analysis in relation to the study's objectives are presented in Section five. This further discusses and reveals the causality nexus as well as the deterministic and cointegrating linkages between the variables.

5.2 Descriptive Statistics

The summary descriptive statistics of the variables utilised for this study is presented and discussed in this section. Descriptive statistics provides a preliminary overview of the structure and distribution of the data as well as the variables used in the study.

Specifically, it provides details of the measures of central tendency (mean, median etc.), measures of distribution (variance, standard deviation, skewness, kurtosis), among others. This is depicted in table 5.1 below which presents descriptive statistics of the variables including the proxies for economic growth: RGDP, GDPGR and PCRGDP; financial inclusion variables, institutional quality variables as well as the control variables used for the analysis of the study.

Table 5. 1: Summary of Descriptive Statistics

Variables	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Observations
Financial Inclusion Variables									
FIIN_INDEX	0.00	-0.59	8.65	-1.57	1.95	2.84	11.36	1448,00***	340
ATM	13.80	6.44	72.45	0.00	17.33	1.80	5.27	256,04***	340
CBB	5.84	4.65	22.47	0.30	4.55	1.53	5.52	222,65***	340
NATM	13.31	1.36	228.57	0.00	43.78	4.16	18.88	4554,66***	340
NCBB	8.67	2.92	111.82	0.00	20.72	3.92	17.35	3786,54***	340
DCPS	21.94	13.22	106.26	0.01	21.16	2.00	6.47	396,50***	340
Institutional Quality Variables									
IQ_INDEX	0.00	-0.25	5.24	-4.81	2.52	0.26	2.32	10,43***	340
VA	-0.50	-0.59	0.94	-2.00	0.76	0.19	2.02	15,64***	340
PS	-0.37	-0.23	1.20	-2.70	0.86	-0.33	2.51	9,75***	340
GE	-0.56	-0.67	1.06	-1.85	0.66	0.45	2.53	14,57***	340
RQ	-0.49	-0.48	1.13	-2.24	0.67	0.05	2.95	0,16	340
CC	-0.59	-0.78	1.16	-1.82	0.69	0.62	2.40	27,17***	340
RL	-0.58	-0.55	1.03	-1.85	0.70	0.31	2.33	11,89***	340
HR	0.50	0.50	1.00	0.00	0.21	-0.03	2.96	0,08	340
SB	65.15	68.89	94.50	13.10	17.80	-0.67	2.57	27,77***	340
CL	0.62	0.64	0.86	0.28	0.14	-0.44	2.31	17,94***	340
Economic Growth Variables									
RGDP	57300000000	15000000000	503000000000	1090000000	107000000000	2.72	9.38	994,82***	340
GDPGR	4.15	4.70	38.00	-36.39	5.47	-0.97	16.32	2568,18***	340
PCRGDP	3082.85	1375.29	16438.64	364.08	3268.28	1.62	5.41	230,88***	340

Control Variables									
INF	7.42	5.93	43.54	-2.43	5.97	1.86	8.95	699,12***	340
INV	12000000000	4210000000	127000000000	85532400	20400000000	2.68	10.17	1135,08***	340
LIL	0.37	0.37	0.79	0.00	0.20	0.14	2.25	9,21**	340
TNRR	11.41	8.24	56.08	0.00	11.12	1.84	6.32	347,20***	340
TOP	67.69	63.56	144.67	0.00	27.03	0.46	2.37	17,68***	340
UER	8.46	5.15	29.45	0.88	7.04	1.22	3.41	86,57***	340

*** P < 0.1%; **P < 5%; *P < 10%. FIINDEX is the financial inclusion index, ATM is the number of ATMs per 100,000 adults, CBB is the number of commercial bank branches per 100,000 adults, NATM is the number of ATMs per 1,000km, NCBB is number of commercial bank branches per 1,000km, DCPS is domestic credit to the private sector by banks. INSTDEX is the index for institutional quality, VA is voice and accountability, PS is political stability, GE is government effectiveness, RQ is regulatory quality, CC is control of corruption, RL is rule of law, HR is human rights protection scores, SB is doing business, and CL is civil liberties. The RGDP is the real gross domestic product, GDPGR is the Growth rate of GDP, PCRGDP is the per capita real GDP. INF is the inflation rate, INV is the gross domestic investment, LIL is the literacy level, TNRR is the total natural resources rents (% of GDP), TOP is trade openness (trade as a % of GDP), UER is the Unemployment rate.

Source: Author's computation using Stata.

Table 5.1 above presents the summary of the descriptive statistics using a sample of 340 observations for the time period 2004 – 2020. In addition to the basic summary statistics of the variables, Table 5.1 also presents results of the tests of normality of the data including skewness, kurtosis and the Jarque-Bera test. In particular, for the skewness which measures degree and direction of asymmetry of the data, a symmetric distribution as a normal distribution has a skewness of 0 while a distribution is left skewed if it has a negative skewness, in which case the mean is less than the median, with the converse being the case of positive skewness. On the other hand, kurtosis provides a measure of the heaviness of the tails of a distribution, with a normal distribution having a kurtosis of 3. However, a kurtosis greater than 3 indicates a heavy tailed distribution and a light tailed distribution if the kurtosis is less than 3. The Jarque-Bera statistics provides a measure of the treat for normality of the data with a null hypothesis that the data is normally distributed and the alternative hypothesis being that the data does not come from a normal distribution. As a rule, a p-vale of less than 5 percent leads to the rejection of the null hypothesis which shows that the data is not normally distributed.

From the results, the minimum value for the financial inclusion index is -1.57 and a maximum value of 8.65. The mean value of the index is about zero (0.00) implying a very low rate of financial inclusion across the selected countries in the study sample. This means that while there are efforts at improving financial inclusion, there has been little or no significant change. Meanwhile, the standard deviation of the index is about 1.95 which indicates that it is not close to the mean value. In other words, the data points are above the mean which implies that financial inclusion is widely spread across the region. However, in terms of the distribution of the data, the result indicates that for the financial inclusion index, the distribution of the data is positively skewed with its mean being greater than the median, whereas the kurtosis shows that the tails of the distribution are heavy with a value of 11.36. The Jarque-Bera (JB) statistics however, shows that the data is not from a normal distribution as the null hypothesis is rejected even at the 1 percent significance level. The data distribution case is similar for other indicators of financial inclusion. The descriptive for other proxies of financial inclusion were not discussed as they were not run separately.

Institutional quality as proxied by the institutional quality index has a minimum value of -4.81 and a maximum of 8.65. The index has a mean value of zero (0.00), indicating a low level of institutional quality across the selected countries in the study sample. This finding is further corroborated by the average values of each of the components of the index which have negative values except for the ease of doing business (SB), Civil liberties (CL) and Human rights protection (HR) indicators which have positive means. In addition, the standard deviation of the index is about 2.52 indicates that data points are significantly above the mean value. This implies that the performance in terms of institutional quality vary significantly across the region. While the result shows that the distribution of the data for institutional quality index is positively skewed, the tail of the distribution is light with a kurtosis value of 2.32. However, the Jarque-Bera (JB) statistics shows that the null hypothesis of a normally distributed data is rejected implying that the data does not have a normal distribution. The data distribution is similar for other indicators of institutional quality including voice and accountability (VA), Political instability and absence of violence (PS), Government effectiveness (GE), Regulatory quality (RQ), Control of corruption (CC), Rule of Law (RL), Ease of doing business (SB), Civil liberties (CL). The case is however, different

for the Human rights protection (HR) indicator which shows that the distribution is both symmetric and normal, in which case the null hypothesis of the JB statistics is not rejected.

Economic growth as measured by real GDP (RGDP) has a minimum value of 1.09 billion and a maximum value of 503 billion, the average RGDP across the countries in the sample is about 57.30 billion for the period under evaluation. Whereas the standard deviation is about 10.70 billion which is below the mean value. This implies existence of data points within the sampled countries that are below the average value. The distribution is positively skewed with mean greater than the median value, the tail of the distribution is heavy with a kurtosis value of 9.38 and the data is not normally distributed. On the other hand, the GDP growth rate (GDPGR) proxy of economic growth recorded the average of 4.15 percent which shows that though the distribution is negatively skewed with a heavy tail, it is also not normally distributed as the null hypothesis of the JB test is rejected even at the 1 percent level of significance. In addition, the standard deviation is 5.47 percent which shows that data points amongst sampled countries are above the mean value. Furthermore, the per capita real GDP (PCRGDP) proxy of economic growth, has average of 3082.85 across the selected countries with a standard deviation of 3268.28 which shows that the distribution is not only negatively skewed with a heavy tail, but also not normally distributed.

The minimum inflation rate is -2.43 while the maximum is 43.54 indicating that while some of the countries are doing relatively well in terms of the inflation rate, some are experiencing deflation, with the negative inflation, and others are faring very poorly with a high double digit inflation rate. Furthermore, the result shows that the average inflation rate among the selected countries is about 7.42. This indicates that most countries in the region are facing a positive inflation rate on the average which is however single digit. The standard deviation of inflation is 5.97 percent which is below the mean value which indicate that inflation rates amongst the chosen nations are clustered around the mean value. In addition, the distribution of the inflation data from the result was found to be positively skewed with a heavy tail, and as a consequence is not normally distributed, which is indicated by the JB statistics where the null hypothesis is rejected. The value of standard deviation being higher than the mean indicates that contrary to the claim that data points on inflation are clustered, they are actually spread out. This is not alien in empirical studies that take into account different

samples and context as well as period of the studies.

Gross domestic investment across the countries has a minimum value of 85.5 million and a maximum value of 127 billion while the average is about 12 billion. The distribution of the data for the gross domestic investment is shown from the result to be positively skewed with a heavy tail and consequently, do not have a normal distribution as depicted by the JB statistics. The standard deviation is about 20.4 billion which indicates that Gross domestic investment is highly spread out from the mean. This implies that the Gross domestic investment of each country in the study sample is highly different from the other as represented by the average value.

The minimum literacy level for the countries is zero (0), indicating that in some of the countries in the sample, almost a 100 percent of the population are illiterates, which is quite worrisome, and the maximum literacy level is 0.79 which is relatively lower than that of most developed countries of the world. The average level of literacy from the result is about 0.37 which is quite low relative to those of most developed countries. Also, from the result, the distribution of the data for literacy level is positively skewed with a light tail and consequently, do not have a normal distribution as depicted by the JB statistics, in which case the null hypothesis of a normal distribution is rejected at the 5 percent level of significance. The standard deviation of 0.20 shows that the data is sparsely dispersed from the mean.

Total natural resources rent, as a percentage of GDP, has a minimum value of 0 and a maximum value of 56.08. This shows that some countries in the sample do not receive any natural resources rent, which would be case for most of the non-resource intensive countries such as Mozambique. The mean natural resources rent is about 11.41 with a standard deviation of 11.12, which indicates that the data is sparsely distributed from the mean. As with most of the other variables, the distribution of the data for the total natural resources rent is positively skewed with a heavy tail, hence, the data is not normally distributed.

For trade openness, the minimum value is 0 and a maximum of 144.67 also indicating that while some of the countries in the sample have a very low trade value such that the trade as a percentage of GDP (measure of trade openness) is zero, others have a high volume of trade which contributes significantly to their GDP. The average value for trade openness for the selected countries in the study sample is about 67.69

whereas the standard deviation is 27.03 which implies that it is highly dispersed from the mean value. However, while the distribution of the data is positively skewed, since the kurtosis value is less than 3, the tail of the distribution is light and the data does not come from a normal distribution.

The minimum unemployment rate from the result is 0.88, while the maximum is 29.45 indicating that the unemployment rate of some of the countries is quite lower than those of the others. Across the countries within the study sample, the results show that the average unemployment rate is about 8.46 while the standard deviation is about 7.04 indicating that the unemployment rate within each country in the sample are closely distributed. In addition, the distribution of the data is positively skewed, since the kurtosis value is less than 3, the tail of the distribution is heavy, and the data is not normally distributed.

5.3. Principal Component Analysis (PCA)

For each of the 20 countries in the study's sample, a single composite index for institutional quality and financial inclusion is created using the Principal Component Analysis (PCA) method. By calculating the variance matrix's Eigen values, PCA is accomplished. The benefit of using PCA to create composite indices was that the index weights were determined by the correlation of the various financial inclusion measures (ATM per 100,000 adults, Bank branches per 100,000 adults, ATM per 1000km, Bank branches per 1000km and domestic credit to private sector); and institutional quality indicators (voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, control of corruption, rule of law, human rights protection, ease of doing business and civil liberties). As a result, the unit length linear combination of a set of variables is the first principal component for that set of variables and it always contains the maximum variance for any given combination. The variables are uncorrelated if more than one principal component is produced for each of them (Makoni, 2016).

The goal of the PCA is to find components $k = [k_1, k_2, \ldots, k_p]$, which are a linear combination $u = [u_1, u_2, \ldots, u_p]$ of the original variables $x = [x_1, x_2, \ldots, x_p]$ that yield the maximum variance. The first component k_1 is given by the linear combination of the original variables x and accounts for maximum possible variance. The second component captures most information not captured by the first component and it's also

uncorrelated with the first component.

PCA maximises the variance of the elements of k=xu such that u'u=1. The solution is obtained by performing an eigenvalue decomposition of the correlation matrix, by finding the principal axes of the shape formed by the scatter plot of the data. The eigenvectors represent the direction of one of these principal axes. Solving the equation (R-λI)u=0, where R is the sample correlation matrix of the original variable x, λ is the eigenvalue and u is the eigenvector. The eigenvalues λ are the variances of the associated components/factors k. The diagonal covariance matrix of the components is denoted as D=diag(λ).

Furthermore, evidence from the literature suggests that all other principal components after the first maximise the variance between the unit length linear combination and are orthogonal to the prior components, and capture different aspects of the data under consideration (Johnson & Wichtern, 1992; Makoni, 2016). Hence, following from the literature, for this study, the first principal components are adopted as the aggregate measure of financial inclusion as well as institutional quality.

The composite indices for financial inclusion and institutional quality for the selected countries are generated using the following equation:

$$k_j = v_{j1}x_1 + v_{j2}x_2 + v_{j3}x_3 + \ldots + v_{jp}x_p \qquad 5.1$$

Where:

k_j is the estimate of the j^{th} factor;

v_j is the weight on factor score coefficient;

x_j is the variable of interest.

5.3.1. Institutional Quality Index

Table 5.2 below presents the eigenvalues of the correlation matrix of the nine (9) indicators of institutional quality. The sum of the eigenvalues equals the number of individual indicators.

Table 5. 2: Principal Component Analysis: Eigenvalues

Principal Component	Eigenvalue	% of Variance	Cumulative %
1	6.333906	70.38	70.38
2	1.047011	11.63	82.01
3	0.581721	6.46	88.47
4	0.496079	5.51	93.99
5	0.223148	2.48	96.47
6	0.145462	1.62	98.08
7	0.086431	0.96	99.04
8	0.048738	0.54	99.58
9	0.037505	0.42	100

Source: Author's own computation

From Table 5.2 above, the results shows that the first principal component explains the maximum variance of about 70.4 percent in all the individual indicators with an eigenvalue of 6.33. The second principal component explains the maximum of the remaining variance (11.63 percent) with an eigenvalue of 1.05. Subsequently, the third principal component explains 6.46 percent of the variance while the fourth, fifth and sixth explains 9.61 percent of the remaining variance and the seventh, eighth and ninth principal components explain only about 1.92 of the variances. Hence, the first two principal components are adopted as the most relevant measures of institutional quality as they account for about 82 percent of the variance.

Table 5. 3: Principal Component Analysis: Eigenvectors (Loadings)

Variable	PC 1	PC 2	PC 3	PC 4	PC 5	PC 6	PC 7	PC 8	PC 9
VA	0.355783	-0.278618	-0.179885	0.281452	0.043673	-0.220732	-0.743755	-0.212149	0.188172
PS	0.291102	0.553828	-0.177215	-0.066196	0.733126	0.060614	0.007924	0.037351	0.173614
GE	0.378658	-0.062039	-0.069308	-0.285863	-0.169415	-0.133044	-0.105338	0.841299	-0.031088
RQ	0.371829	-0.128806	-0.043260	-0.265258	-0.138099	-0.495014	0.472571	-0.301162	0.441346
CC	0.361996	0.041437	-0.162752	-0.291439	-0.330171	0.754124	-0.052169	-0.220001	0.164253
RL	0.386341	0.032582	-0.040093	-0.192005	0.020881	-0.160783	0.029090	-0.288542	-0.837148
HR	0.243949	0.630770	0.202421	0.513297	-0.473393	-0.112472	0.029426	0.018891	0.014014
SB	0.274008	-0.184482	0.902977	-0.022959	0.221427	0.144105	-0.039909	-0.005755	0.059737
CL	0.303557	-0.400653	-0.212422	0.615240	0.173975	0.238523	0.454225	0.151885	-0.084477

Source: Author's own computation

Results from Table 5.3 indicates that as noted in the discussion above, the first principal component (PC1) represents the overall measure for institutional quality and this is shown by the positive coefficients of PC1. However, while human rights protection has the highest positive weight in PC2, ease of doing business has the maximum weight in PC3, hence exerting the highest influence on the principal component. The maximum weight in PC4 is for civil liberties whereas political stability and absence of violence has the highest influence on PC5 as it has the maximum positive weight in PC5. In PC7 and PC9, regulatory quality has the maximum weights compared to the other variables whereas the maximum weight for PC6 is the control of corruption. Government effectiveness has the highest positive impact on PC8. However, following from the positive coefficients of the first principal component, it is evident that all the variables indicated: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, control of corruption, rule of law, human rights protection, ease of doing business and civil liberties, are important for institutional quality in the countries under study.

The specific PCA equation used to generate an appropriate composite index of institutional quality for the selected countries in the sample is given below:

$$INSTDEX = 0.3558\times VA + 0.2911\times PS + 0.3787\times GE + 0.3718\times RQ + 0.3620\times CC + 0.3863\times RL + 0.2439\times HR + 0.2740\times SB + 0.3036\times CL \quad – \quad 5.2$$

Where:

INSTDEX is the first principal component for institutional quality; VA is the voice and accountability; PS is the political stability and absence of violence; GE is government effectiveness; RQ is regulatory quality; CC is the control of corruption; RL is the rule of law; HR is the human rights protection; SB is the ease of doing business; and CL is the civil liberties.

5.3.2. Financial Inclusion Index

For the financial inclusion, Table 5.4 below presents the eigenvalues of the correlation matrix of five indicators of financial inclusion based on literature. These include ATM per 100,000 adults, bank branches per 100,000 adults, ATM per 1000km, bank branches per 1000km and domestic credit to private sector. The sum of the eigenvalues equals the number of individual indicators.

Table 5. 4: Principal Component Analysis: Eigenvalues

Principal Component	Eigenvalue	% of Variance	Cumulative %
1	3.778169	75.56	75.56
2	0.892318	17.85	93.41
3	0.203196	4.06	97.47
4	0.108707	2.17	99.65
5	0.017609	0.35	100

Source: Author's own computation

From Table 5.4 above, the first principal component explains the highest variance (76 percent) in all the individual indicators with an eigenvalue of 3.78 whereas the second principal component explains the maximum percentage (17.85 percent) of the remaining variance with an eigenvalue of 0.89. The third and fourth principal components explain about 6.23 percent of the variance while the fifth principal component only explains 0.35 percent of the variance. As with the preceding discussion, the first and second principal components which together accounts for about 93 percent of the variance are therefore the most relevant measures of financial inclusion for the selected countries in the sample.

Table 5. 5: Principal Component Analysis: Eigenvectors (Loadings)

Variable	PC 1	PC 2	PC 3	PC 4	PC 5
ATM	0.376384	0.684947	0.208789	0.585133	0.056655
CBB	0.470591	0.131683	-0.845459	-0.139259	-0.164347
NATM	0.459030	-0.442483	0.289905	0.185972	-0.689108
NCBB	0.445650	-0.512635	-0.007004	0.249081	0.690298
DCPS	0.477040	0.234355	0.396879	-0.735934	0.135642

Source: Author's computation

From Table 5.5 above, the positive values of the first principal component shows that it represents the overall measure of financial inclusion for all the countries in the sample under study. However, the result also shows that the maximum weights in PC2 and PC4 is ATM which indicates that the number of ATMs per 100,000 adults (ATM) has the greatest influence on both principal components. Also, Domestic credit to private sector has the maximum weight in PC3 while the number of commercial bank branches per 1000km (NCBB) has the highest influence on PC5. In what follows, given the positive values of the first principal components (PC1), domestic credit to private sector (DCPS), number of commercial bank branches per 100,000 adults (CBB) and number of ATMs per 1,000KM (NATM) have the highest influence on financial inclusion index across the selected countries under study.

Therefore, to establish an appropriate composite index for financial inclusion across the selected countries in the sample for the study, the following specific equation was adopted for the PCA:

$$FIINDEX = 0.3764 \times ATM + 0.406 \times CBB + 0.4590 \times NATM + 0.4457 \times NCBB + 0.4770 \times DCPS \quad - 5.3$$

Where:

FIINDEX = The first principal components for financial inclusion index based on the five individual variables: number of ATMs per 100,000 adults, number of commercial bank branches per 100,000 adults, number of ATMs per 1000km, number of commercial bank branches per 1000km and domestic credit to private sector.

ATM = Number of ATMs per 100,000 adults; CBB = Number of commercial bank branches per 100,000 adults; NATM = Number of ATMs per 1000km; NCBB = Number of commercial bank branches per 1000km; DCPS = Domestic credit to private sector.

5.4. Unit Root Tests

This section presents results of the Unit Root Tests of the variables used for analysis, in other words, the variables are tested for stationarity and to ascertain their order of integration, which subsequently guides the empirical approach for analysis. In particular, the tests employ the Levin, Lin and Chu (LLC) (2002) test, which is homogenous in the dynamics of autoregressive coefficients for the elements of the panel structure (common unit roots processes), as well as its heterogenous counterparts, Im, Pesaran and Shin (IPS) (2003); Augmented Dickey Fuller-Fisher (ADF-F) and the Phillip Peron-Fisher (PP-F) tests. The latter tests (IPS, ADF-F, PP-F) allows for heterogeneity in dynamic relationships (individual unit root processes) and accounts/controls for cross-sectional dependence among the variables.

The decision rule is based on the level of significance of each variable. For each of the tests, the null hypothesis is that the series have unit root, hence, a p-value less than 1 percent or 5 percent significance level results in a rejection of the null hypothesis. The results show that all the variables, except for inflation rate which is integrated of order zero, I(0), are integrated of order one, I(1), that is, they have first-order integration. This is true for both the homogenous and heterogenous tests and robust to the different specifications including individual intercepts and trend. The results are presented in tables 5.6 below.

Table 5. 6: Unit Root Tests

Variable	Individual effects	Individual effects, individual linear trends	None	Decision
Panel Unit Root Test using the LLC				
FIINDEX	-3.04488***	-3.61168***	-8.00928***	I(1)
INSTDEX	-6.73524***	-4.60973***	-13.0738***	I(1)
L.RGDP	-7.23218***	-5.68075***	-14.9127***	I(1)
GDPGR	-7.51750***	-7.53995***	-15.8441***	I(1)

L.PCRGDP	-7.35626***	-5.79986***	-15.0441***	I(1)
INF	-4.51576***	-7.42197***	-3.82416***	I(0)
TOP	-7.06050***	-4.85710***	-13.3796***	1(1)
UER	-2.24227***	-3.74430***	-11.0802***	I(1)
L.INV	-4.83777***	-7.08923***	-9.25831***	I(1)
LIL	-1.94063**	-5.72671***	-5.83416***	I(1)
TNRR	-14.8907***	-13.9685***	-17.9088***	I(1)
Panel Unit Root Tests using IPS				
FIINDEX	-3.05386***	-3.54626***	-	I(1)
INSTDEX	-7.34605***	-5.76798***	-	I(1)
L.RGDP	-7.87101***	-5.03561***	-	I(1)
GDPGR	-9.02997***	-6.21315***	-	I(1)
L.PCRGDP	-8.00108***	-5.09919***	-	I(1)
INF	-4.71012***	-5.58246***	-	I(0)
TOP	-7.40605***	-4.48596***	-	1(1)
UER	-3.81632***	-2.82003***	-	I(1)
L.INV	-4.47280***	-5.26073***	-	I(1)
LIL	-3.40032***	-3.69455***	-	I(1)
TNRR	-11.0053***	-8.44040***	-	I(1)
Panel Unit Root Testing using ADF – Fisher Chi-square				
FIINDEX	67.1388***	74.4543***	116.541***	I(1)
INSTDEX	127.701***	103.592***	208.542***	I(1)
L.RGDP	142.483***	100.481***	227.666***	I(1)
GDPGR	159.848***	115.201***	245.395***	I(1)

L.PCRGDP	144.554***	101.411***	230.415***	I(1)
INF	91.5403***	101.517***	51.3421***	I(0)
TOP	129.356***	89.9197***	214.491***	I(1)
UER	76.7206***	64.9057***	159.703***	I(1)
L.INV	88.4636***	98.5160***	143.000***	I(1)
LIL	36.4975***	63.4847***	51.2372***	I(1)
TNRR	184.368***	136.671***	279.448***	I(1)
Panel unit root testing using PP - Fisher Chi-square				
FIINDEX	**122.178*** **	**151.677*** **	**176.248*** **	I(1)
INSTDEX	275.350***	261.646***	336.029***	I(1)
L.RGDP	268.915***	219.100***	307.521***	I(1)
GDPGR	308.284***	270.487***	348.692***	I(1)
L.PCRGDP	269.994***	215.940***	307.665***	I(1)
INF	150.808***	166.827***	70.6783***	I(0)
TOP	217.943***	178.703***	284.753***	I(1)
UER	76.2772***	31.6335	160.156***	I(1)
L.INV	175.824***	209.389***	232.131***	I(1)
LIL	72.2832***	138.258***	95.0342***	I(1)
TNRR	237.585***	186.446***	327.965***	I(1)

ADF- F = Augmented Dickey Fuller-Fisher Chi-Square; PP-F = Phillips Peron-Fisher Chi-Square; stat = statistics; prob = probability; *** 1%; ** 5%; * 10% Significance levels. All the tests are at first difference (except indicated otherwise.) Probabilities for all the tests assume asymptotic normality except for Fisher tests which are computed using the asymptotic Chi-square distribution. LRGDP is the log of the real gross domestic product, GDPGR is the Growth rate of GDP, PCRGDP is the per capita real GDP, INSTDEX is the index for institutional quality, FIINDEX is the financial inclusion index, INF is the inflation rate, TOP is trade openness (trade as a % of GDP), UER is the Unemployment rate, INV is the gross domestic investment, LIL is the literacy level, TNRR is the total natural resources rents (% of GDP), Dummy GFC is the dummy variable for Global financial crisis while dummy_COVID-19 is the dummy for COVID-19 pandemic.

Source: Author's computation using Stata.

To ascertain the stationarity of the variables and the degree of differencing necessary to make the data stationary, unit root tests were performed. From the results of the unit root tests, it can be deduced that with the exception of inflation, which remained stationary at level across all tests, all other variables used for the study are of first order integration as demonstrated in Table 5.6.

5.5. Econometric Model Estimation Results, Discussion and Analysis

Estimation results of the different econometric model estimated for each of the research objectives are presented in this section. In particular, results of 2-step system GMM for assessing the deterministic relationships between economic growth and financial inclusion as well as between economic growth and institutional quality; the panel ARDL estimation for examining the cointegrating relationships among institutional quality, financial inclusion and economic growth; and panel VECM for ascertaining the causality nexus among institutional quality, financial inclusion and economic growth, are presented and discussed. For robustness, different proxies are utilised to represent economic growth, these include, GDP growth rate; per capita real GDP and real GDP. The estimation results are presented for each of these proxies of economic growth.

5.6. Deterministic Relationships amongst Institutional Quality, Financial Inclusion and Economic Growth in Chosen Sub-Saharan African Countries

This section presents the results and analysis that speaks to the two (2) objectives of the study – to investigate the deterministic relationship between economic growth and financial inclusion as well as between economic growth and institutional quality in the selected sub-Saharan African nations. This is to ascertain if there is a deterministic relationship between variables of interest and to demonstrate empirically how these countries can solve their problems by addressing or ensuring improvement in each of the variables as appropriate. The study used GDP growth rate, per capita real GDP and real GDP as proxies for measuring economic growth; financial inclusion index (FIINDEX) for measuring financial inclusion and institutional quality index (INSTDEX) for institutional quality.

This section used economic growth primarily as a dependent variable to investigate the changes in economic growth arising from changes in financial inclusion and institutional quality. In other words, financial inclusion and institutional quality were established as key determinants of economic growth in the study area. Although, other determinants of economic growth were investigated as control variables. The study period included the period that the countries experienced global financial crisis and COVID-19 pandemic, so they were also included as dummy variables to gauge the impact of these on economic performance of the selected countries.

To demonstrate the robustness of this study, the subsequent section reverse the order and investigated the impact of economic growth (as independent variable) on financial inclusion and institutional quality (as dependent variables). In investigating these relationships to achieve the study objectives, a 2-step system Generalised Method of Moments (GMM) was the preferred technique. As articulated in the previous chapter, to solve the issues of endogeneity and specification errors, the Generalised Method of Moments (GMM) is used instead of OLS. Arellano and Bond (1991) presented the GMM to deal with endogeneity and specification mistakes in panel data that the OLS approach was unable to correct. Consequently, in order to capture the endogeneity of the lagged dependent variable and the independent variables in this analysis, the study utilises the dynamic panel GMM estimator, which generates a matrix of internal instruments (see Arellano & Bond, 1991; Arellano & Bover, 1995; Blundell & Bond, 1998).

For reliability and robustness, real GDP (RGDP), per capita real GDP (PCGDP), and GDP growth rate (GDPGR) are used in the study as three economic growth proxies. It then examines how explanatory variables explain changes in the selected countries' economic performance. For all of the economic growth proxies, linear equations were used in the dynamic panel estimations. The diagnostics on the validity of the instruments were confirmed by the Sargan and Hansen statistics because the validity of the instruments is essential for the reliability of the econometric model (Sargan, 1958; Hansen, 1982). The validity of the instruments could not be refuted using the Hansen statistics for all the models using the three economic growth proxies. This is crucial because the Hansen result shows that there are no type II errors when valid

and invalid instruments are combined. The results of first order AR(1) and second order AR(2) serial correlation, which were carried out using the Arellano and Bond model, show that the estimations of the model are consistent. First order serial errors in the model are indicated by the AR(1), which is presented in the appendices at the end of this thesis.

In addition, the findings of the models accept the null hypothesis of no second order (AR(2)) serial correlation. The serial correlation in the error term affects the estimates' consistency as well. The expected presence of serial correlation of order one is confirmed by the Arellano-Bond test for AR(1), while the test for AR(2) shows no evidence of instrument correlation with the error term. As a result, the study accept the null hypothesis of no second order serial correlation in any of the regressions. Consequently, in view of the study's failure to detect second-order serial correlation, the use of lags in this investigation is justified, and the validity of a dynamic model is further established (Akobeng, 2016). Therefore, the dynamic GMM estimations for this study remain the most credible and compatible with other investigations (see Magwedere, 2019). The Table 5.7, the system GMM's summarised findings for the determinants of economic growth proxies are shown, and the analysis followed afterwards.

Table 5. 7: Summary of the 2-Step System GMM Regression Results for the Determinants of Economic Growth

Variables	2-Step System GMM LRGDP	2-Step System GMM LPCRGDP	2-Step System GMM GDPGR
L.LRGDP	0.817***		
	(0.0481)		
L. LPCRGDP		0.727***	
		(0.0488)	
L.GDPGR			-0.161*
			(0.0589)
FIINDEX	0.261*	0.0185	1.594
	(0.102)	(0.0249)	(4.062)
INSTDEX	-0.0605**	0.0245***	3.003*
	(0.0200)	(0.00607)	(1.436)
FIINDEXINSTDEX	-0.137**	-0.00415	0.348
	(0.0475)	(0.00548)	(3.623)

INF	-0.000121	-0.000681**	-0.0473
	(0.000295)	(0.000222)	(0.0573)
TOP	0.000116	-0.000321	-0.0240
	(0.000129)	(0.000257)	(0.0259)
UER	0.00246	0.000105	-0.175
	(0.00140)	(0.000567)	(0.0982)
LINV	0.0694***	0.0464***	7.704**
	(0.0108)	(0.00954)	(2.102)
LIL	-0.241	0.137	-43.36***
	(0.142)	(0.0843)	(8.009)
TNRR	0.00104**	0.00173**	0.533***
	(0.000304)	(0.000468)	(0.0570)
DUMMY_GFC	-0.000957	-0.00476**	-0.991***
	(0.00383)	(0.00147)	(0.187)
DUMMY_COVID	-0.00747	-0.0227***	-6.090***
	(0.00433)	(0.00203)	(0.296)
_cons			
N	300	300	300
Instruments	50	18	18
Groups	20	20	20
AR(1)	-1.68	-1.49	-1.88
AR(2)	-1.61	-0.56	-1.87
Sargan test	29.55	34.63	57.31
Hansen test	4.17	7.40	8.72

Notes: ***, **,* are statistically significant at the levels of significance of 1%, 5% and 10% levels respectively; t-statistics in parentheses, p-values reported for AR(2) and the Hansen Statistic. The Hansen statistic test for over identifying restrictions, which is asymptotically distributed as chi2 under the null of instrument validity. LRGDP is the log real GDP, LPCRGD is the log per capita real GDP, GDPGR is the GDP growth rate, FIINDEX is the financial inclusion index, INSTDEX is the institutional quality index, INF is the inflation rate, TOP is the trade openness, UER is the unemployment rate, LINV is the log investment, LIL is the literacy level, TNRR is the total natural resources rent, GFC is the global financial crisis. Each column represents a different economic growth proxy using the 2-Step System GMM estimation technique.

Source: Authors' own computations.

The results of the 2-Step System GMM summarised for all the economic growth proxies are presented in Table 5.7. The Table 5.7 reveals the different economic growth measures and how they related differently to explanatory variables and the control variables. The Table equally show the relevant signs, level of significance and magnitude of the coefficients of each variable with respect to economic growth of the

selected Sub-Saharan countries. The results, though proved that the deterministic relationship will largely depends on how economic growth is measured, explain the relationship between economic growth and its determinants in the sub-region. The detailed explanation on the determinants of economic growth in the selected SSA nations based on the empirical findings are discussed beneath.

5.6.1. Financial Inclusion as a Determinant of Economic Growth

This sub-section achieved the study objective one namely the deterministic relationship between economic growth and financial inclusion. Financial inclusion is the extent by which the economic agents have access to useful, affordable and quality financial services and products. The research expected it to be positively related to economic growth implying that as the bracket of financial inclusion expands, it would propel economic activities hence, invigorate economic growth. This expectation is supported by the empirical results in Table 5.7 which reveals that financial inclusion has a significant positive relationship with economic growth. In other words, as more economic agents have access to quality and formal financial products, it increases their propensity to undertake savings, investments and manages risks which raises the level of economic activities, which in turns promotes economic growth. This conforms to the findings of Odeleye and Olusoji (2016); and Balele (2019). However, this finding is contrary to the findings of Dahiya and Kumar (2020) which opines that financial inclusion does not stimulate economic growth. Similar to Dahiya and Kumar (2020) findings, Haini (2019) contends that the significance of finance on growth is frail and, at times, negative. The difference in findings could be as a result of difference in scope, context and period of the studies.

The results on Table 5.7 also revealed that the nexus between financial inclusion and economic growth depends on how the economic growth is measured. This is so because the results on the impact of financial inclusion on economic growth were mixed. The findings indicates that the relationship is positive and insignificant when economic growth is measured by per capita real GDP and GDP growth rate, while it is positive and significant at 10 percent level of significance when it is measured by real GDP, implying that the nexus is a function of how economic growth is measured.

Expectedly, real GDP measure the impact of growth on economic agents and how that will cascade into addressing poverty, inequality and unemployment, thus promoting economic growth and development. This finding which uncover a positive and significant impact of financial inclusion on economic growth as measured by real GDP is remarkable with policy implications. Based on this findings, government and policy makers in the selected countries are encouraged to formulate policies and programmes that promote access to financial services by the unserved population to aid participation in economic activities which will support economic growth.

5.6.2. Institutional Quality as a Determinant of Economic Growth

This sub-section achieved the study objective two which is the deterministic relationship between economic growth and institutional quality. In a broader sense, institutional quality could be referred to the mechanism instituted to minimise vulnerability, exchange costs and enhances creation of effectiveness mainly to improve interest in physical and human resources, technological advancement and private sector improvement with ultimate effect of promoting economic growth (Effiong, 2016).

The study expects that, an improved institutional quality should enhance economic growth. The results in Table 5.7 reveals significant impacts of institutional quality on economic growth. In other words, irrespective of the proxy of economic growth, the results show that institutional quality has a significant impact on the economic growth. Where economic growth is measured as per capita real GDP and GDP growth rate, the study reveals that institutional quality has significant positive impact on economic growth. This is in conformity with the findings of Shchegolev and Hayat (2018); Nguyen *et al*. (2018); Epaphra and Kombe (2018); Iheonu *et al.* (2017); and Omoteso and Mobolaji (2014). This was aptly summed by Abubakar (2020), who pinpoints that economic growth has a measurably significant and strong response to institutional quality.

However, the results of the study further reveal that, using real GDP to proxy economic growth, institutional quality has significant negative effect on the economic growth. The correlational matrix between these two variables had indicated very little association between them haven recorded an insignificant score of 0.0271 (see the appendices). This is possible because unlike GDP growth rate, the real GDP is account for distortions in the economy occasioned by inflation and how the growth impact on human lives. This is nevertheless, not alien in literature as the results is in conformity with the findings of some scholars such as Yildirim and Gokalp (2016) who argued that institutional quality has negative effect on economic performance. Furthermore, other studies such as Radzevica and Bulderberga (2018) have maintained that owing to the absence of empirical proof and difficulty in measuring and quantifying institutions, there is no established agreement on the impact of institutions on the economic growth. These findings are essentially different from what Ahmed, Alrashidi, Shah and Rasheed (2014) reported in their study that there exists no connection between institutional quality and economic growth. The variance in findings were expected due to some elements such as scope, context, period and how the variables are measured (proxies) in the studies.

Meanwhile, there is an overwhelming evidence that high quality institutions today enhances development by creating atmosphere of governance and justice, contributing to stability, addressing uncertainties, allocating resources and providing incentives that support investments and other economic activities that are the cornerstone of economic growth. Numerous studies as discussed in previous sections have demonstrated the importance of institutions in positively prompting a nation's level of economic growth and development (Chinoda & Kwenda, 2019; Ntow-Gyamfi, Bokpin, Aboagye & Ackah, 2019; Iheonu, Ihedimma & Onwuanaku, 2017).

Accordingly, the government and policy makers of SSA countries are encouraged to establish institutions, systems and formulate rules and regulations that reduces uncertainties, engender confidence and promote economic activities which generates economic growth. It is necessary for government to focus on governance and quality of institutions as critical conditions for accomplishing sustainable growth and viable development agenda for the SSA economies. For better economic performance and

social inclusiveness, government is encouraged to focus on policies that facilitate institutional improvements that will make the difference for SSA either in the short, medium or long term.

5.6.3. Inflation Rate and Economic Growth

Inflation rate is one of the control variables of the study which was expected to exhibit negative impact on economic growth. As can be seen from Table 5.7 above, the empirical results demonstrates that irrespective of the way it is measured, inflation rate has negative impact on the economic growth. However, the results of the study show that how economic growth is measured determines the significant impact of inflation rate on economic growth. The results show that inflation rate has significant negative effect on economic growth when measured by per capita real GDP. This implies that as inflation rate increases, it reduces per capita real GDP (Nkwede, 2015; Ajide, 2017). However, considering other proxy of economic growth, the results show that inflation rate is insignificant in predicting economic growth. According to Magwedere (2019), enhancing social security and social assistance transfers as well as managing hyperinflation are two measures for reducing poverty in emerging nations. The poor suffer from inflation because it devalues income and raises the possibility of financial instability. The study argued that implementing various techniques to lessen poverty and broaden access to financial services is one of the fundamental approaches to promote economic activity and, by extension, growth. In line with these empirical findings, the monetary authorities of these study countries are advice to make concerted effort to address inflation cogently in order to avert its negative effects on economic growth.

5.6.4. Trade Openness and Economic Growth

Another control variable for the study was Trade Openness. It is the liberalisation of cross-border exchange of commodities and services through greater national integration. It is anticipated that nations with greater trade openness will fare better than those with decreased openness. Accordingly, trade has a lot to offer developing nations of the SSA. The coefficients of trade openness were not significant for all the economic growth measurements and related differently depending on how economic

growth is measured. When economic growth is measured by per capita real GDP and GDP growth rate, the results reveal that trade openness has a negative but insignificant impact on the economic growth of the countries. This may be contrary to the well acknowledged expectation that trade openness may enhance the quality of economic growth. For instance, Makoni (2016) discovered that trade openness had a favourable and highly significant impact on FDI inflows into the chosen African economies. The impact of FDI on economic growth and development, particularly in emerging nations cannot be overstated. Similarly, Kebede and Takyi (2017) revealed that trade openness has a beneficial impact on SSA countries' economic growth. The mixed results is consistent with expectation which was based on the premise that trade liberation should be supported with strong institutional frameworks and enabling environment for it to generate beneficial outcomes.

5.6.5. Unemployment Rate and Economic Growth

Unemployment Rate (UER) is one of the control variables for this study which was expected to exhibit negative relationship with the level of economic growth of a country. The results of the study reveal on Table 5.7 indicates that none of the coefficients of unemployment rate was significant for all the proxy of economic growth. However, unemployment rate related differently depending on how economic growth is measured. The results show that when economic growth rate is measured by the real GDP and per capita real GDP, unemployment rate has positive effect on the economic growth. These findings are not consistent with the study expectation as unemployed represent the percentage of people that are out of labour force and may not contribute to the current level of output in the economy. According to a study by Yorulmaz (2016), unemployment and financial inclusion are statistically and negatively correlated for both EU member and candidate nations. In this regard, people who are unemployed appear not to participate in the financial system. As a result, they will be less able to engage in economic activities and contribute to economic growth and development.

On the contrary, unemployment rate generates negative but insignificant impact on economic growth when GDP growth is used to measured economic growth. This is

consistent with study expectation as increase in unemployment reduces the percentage contribution to GDP growth rate. In other words, increase in unemployment rate could lead to decrease in growth rate of the selected countries. According to a study by Idris (2021), unemployment has a negative and significant impact on Nigeria's economic growth. Meanwhile, it is instructive to note that irrespective of the measures of the economic growth adopted by the study, the results show that unemployment rate has insignificant impact on the economic growth of the selected economies.

5.6.6. Investment Expenditure and Economic Growth

The role of investment expenditure in promoting economic growth is clear and direct. Investment is one of the key factors influencing GDP growth in every economy. The study adopted gross capital formation as proxy for investment expenditure and was expected to impact growth and development positively. The positive expectation implies that as investment expenditure increases, output level increases which in turns raises economic growth. The results contained in Table 5.7 show that investment expenditure was statistically significant and exert positive impact on the growth. Consistent with expectation, the results show that irrespective of how economic growth is captured, investment expenditure generates significant positive effect on the economic growth. In general, Harris (2007) notes that classical economists emphasised the importance of capital accumulation, investment, and reinvestment among other things, which were considered to be endogenous are growth and development catalysts.

According to Shchegolev and Hayat (2018), domestic investment considerably influence the level of a country’s economic growth. Historically, economic variables including capital accumulation, investment, and technological advancements, among others, have been the main drivers of economic growth (Bonga-Bonga & Ahiakpor, 2015; Ndambiri et al., 2012; Fofack, 2009). These findings provide empirical justification that investments significantly influence economic growth of these countries in the positive direction. The implications of this is that government of these countries should make every effort to encourage investments through the provision of

suitable basic infrastructure, sound institutional environment and qualitative human capital to stimulate growth enhancing initiatives and ventures.

5.6.7. Literacy Level and Economic Growth

Literacy level which measures the capability to use and grow knowledge and potentials to achieve intended goals is one of the control variables of the study. The role of literacy level on economic growth is expected to be positive by the study. This is because literacy has conventionally been considered to play an important role in the development of a nation. It helps people spread awareness of their rights, create enabling environment to enjoy a higher standard of living, and can continue to learn new skills that will be useful contribute to better economic performance (Yeoh & Chu, 2012).

The findings on Table 5.7 reveals that the impact of literacy level on economic growth is largely determined by the way in which economic growth is measured. It shows that literacy level has a negative significant effect on economic growth when economic growth is proxy by the GDP growth rate. This implies that as literacy level increases, economic growth decreases. This is inconsistent with the study expectations and evidence from the literature as a country's economic performance and literacy rate have a significant impact on each other (Yorulmaze, 2016). Similarly, capturing economic growth using real GPD demonstrate negative but insignificant influence on economic growth of the SSA countries. The negative impact could be as a result of the massive migration of skilled labour from the SSA countries to other part of the world, particularly the advanced economies. This has been aptly captured by Coulombe and Tremblay (2006) who pointed out that unexpected outcome in measuring this variable could be due in part to the difficulty of assessing human capital because it is rarely traded in markets like other economic goods. Because of this, human capital is often assessed indirectly by looking at enrolment and/or educational achievement rates. They maintained that, given the great variety of school systems worldwide and the cross-country heterogeneity in the original schooling data sources, such human capital measures are frequently prone to measurement error and comparability issues at the cross-country level.

However, capturing economic growth in terms of per capita real GDP shows that literacy level has positive but insignificant effect on economic growth. The positive effect is consistent with expectations of the study. A country with a high literacy level is likely to adjust favourably in response to structural changes that will attract investors and entrepreneurs, thus impacting positively on the country's economy. The conflicting results are not surprising as it is common to observe in developing countries the lopsided nature of educational access which favour the rich class than the majority poor. And since majority poor may have restricted access, the impact of literacy level on growth may be reversed. According to Coulombe and Tremblay (2006), growing the proportion of people who reach high levels of literacy skills has less of an impact on growth than growing the average level of literacy across all persons.

Similar to Makoni (2019), this implies that policies that facilitate educational advancement and knowledge acquisition of the people should be encouraged in SSA countries, while deliberate attempts should be made to address the incessant skilled labour migration from developing countries of the SSA to the advanced European and North American countries as well as broaden the school enrolment access to all citizens.

5.6.8. Total Natural Resources Rent and Economic Growth

Controlling for the total natural resources rents as percentage of GDP, the study expects it to impact positively on the level of economic growth. Generally, natural resources rents has been the backbone of their economies. The results show that total natural resources has a positive and statistically significant impact on economic growth irrespective of the ways and manners economic growth is measured by the study. In other words, natural resources rents demonstrates significant positive impact on growth at 5%, 5% and 1% level of significance when economic growth is measured as real GDP, per capita real GDP and GDP growth rate respectively. These findings are in line with the study expectations, and the studies conducted by Hamdi and Sbia (2013) who found that natural resources has a tremendous impact on government revenue and is the main driver of economic growth. Hamdi and Sbia (2013) maintained

that resources endowed nations such as oil deposits have had robust economic growth and very solid balances of payments as a result of exports of those products.

This implies that as total natural resources rents increase it promotes economic growth. Huge natural resource rents, it is contended, might encourage investment activity and boost the nation's infrastructure. In turn, this would encourage economic activity and growth (Hamdi & Sbia, 2013). Therefore, natural resource rich SSA nations are encouraged to diversify the economies and reduce resource-induced social ills such as political strains, dependency, conflicts over control and corruption so as to achieve remarkable economic performance and impressive progress.

5.6.9. Global Financial Crisis and Economic Growth

The study period of 2004 to 2020 falls within when key macroeconomic variables in the region and the world at large were significantly altered by the Global Financial Crisis (GFC), hence the need to capture its impact on economic growth by using dummy variable. The expectation is that the dummy GFC exert mixed impact on growth in the emerging SSA countries. The results show that there is a significant differences in the mean value of economic growth between the periods when there was global financial crisis and the periods when there was no global financial crisis when economic growth is captured by per capita real GDP and GDP growth rate. However, there was no significant mean difference in the economic growth between these two periods when economic growth is measured by real GDP.

In other words, the GFC exhibited negative impact on economic growth across all the three proxies. While it shows negative but not significant impact when economic growth is measure by real GDP, it was negative and significant at 1% and 5% when economic growth is measured by GDP growth rate and per capita real GDP respectively. This is expected as the GFC had a significant impact on developing countries as GDP recorded in emerging and developing economies were drastically decreased, and the robust economic expansion experienced in the pre-crisis period turned into marginal growth or negative growth in some countries (Marozva & Makina, 2020; Marozva, 2017).

Although, depending on the country's institutional frameworks, financial systems and social structures, different countries have exhibited varying degrees of ability in responding to the crisis and its shocks. According to IMF (2009) the GFC originally had widely varied effects on developed economies, developing markets, and low-income countries. Since the financial crisis was initially spread to developing nations of SSA from advanced economies, the magnitude of effects on each country depends on the reliance of the economic, social, political and governance systems.

5.6.10. COVID-19 and Economic Growth

Another dummy variable considered by the study is COVID-19 impact on economic growth in selected SSA countries. This is important because the outbreak of the pandemic in the region considerably altered the performance of some macroeconomic variables. The impact of COVID-19 on economic growth was expected to exhibit mixed outcomes, that is, both negative and/or positive impact on dependent variables (see for example Marozva & Magwedere, 2021). The results reveal that the way economic growth is measured determines the significance mean value in the economic growth in the two periods; period prior to COVID-19 and period after COVID-19 pandemic. The study shows that, measuring economic growth using per capita real GDP and GDP growth rate, there is a significant mean difference in the economic growth between the two periods. In other words, the pandemic significantly altered the pattern of economic growth negatively in the region when growth is measured by per capita real GDP and GDP growth rate. However, when economic growth is captured by the real GDP, the results reveal that there was no significant mean differences in the economic growth between the two periods. Although, in all the three ways that the study measured growth, it reveals negative alteration to these macroeconomic variable in the selected countries.

The COVID-19 pandemic forced many countries into economic recession significantly constraint aggregate expenditures both by government, businesses and households. According to the IMF's forecasts on the world economy's prognosis, released in April 2020, the global economy is predicted to fall substantially by 3 percent, with Sub-

Saharan Africa's economy expected to contract by 1.6 percent in 2020. The pandemic actually put pressure on decision-makers and governments around the world, leading to the initiation of a number of government-sponsored projects aimed at minimising the possible adverse social-economic effects on individuals and enterprises. It is therefore consistent to conclude that the findings of this study reveal far-reaching consequences of the pandemic on macroeconomic variables.

5.6.11. Institutional Quality, Financial Inclusion and Economic Growth

This study empirically investigated if institutional quality is the channel through which financial inclusion impact on economic growth in the chosen countries. It is expected that strong institutions provide the basis to increase financial access and hence stimulate economic activities which enhances growth. In other words, institutional frameworks are essential in ensuring that different economic actors follow the "rules of the game", while financial access is necessary to support economic activities that lead to growth. According to Saydaliyev, et al. (2020) institutional quality has a significant impact on how companies and families decide whether to pursue financial access and employ the services offered by formal institutions, which will eventually promote economic growth. However, depending on how growth is evaluated, this study reveals whether institutional quality is the channel through which financial inclusion promotes economic growth as shown on Table 5.7. Measuring economic growth using real GDP demonstrates a negative but statistically significant influence of financial inclusion on economic growth through institutional quality, while using per capita real GDP and GDP growth rate, respectively, as measures - demonstrates negative and positive effects respectively, with both findings statistically insignificant. This evidence reinforces the point made by Olanrewaju et al. (2019), who argued that high rates of financial inclusion are linked to improvements in institutions and governance systems, which in turn drive higher economic growth, particularly in developing countries. However, poor countries cannot afford high-quality institutions of governance, so this argument assumes a causal relationship between financial inclusion and economic growth through institutions. In other words, as more people participate in the mainstream financial system, there will be a greater need for reputable institutions, which will fuel economic and social development.

Furthermore, the formal financial system is used to carry out savings and investments, which, according to Olanrewaju et al. (2019), will require high institutional quality in terms of capacity and character to formulate and implement policies and programmes that would more quickly address poverty, inequality and unemployment. This will support economic growth and development. Similarly, Recuero and Gonzalez (2019) maintained that quality of institutional framework fosters an environment that is supportive of inclusive financial systems that work together to address poverty and inequality and encourage economic growth and prosperity in less developed nations.

Many other studies have found that, in order to advance financial inclusion, particularly for the exposed poor segment of the population, good institutional arrangements and governance systems are essential (Chinoda & Kwenda, 2019; Zulkhiri & Ghazal, 2017: 2016). This increases savings by households and businesses with its multiplier effects on investment decisions, which determine economic growth. Trust is one of the key pillars of financial inclusion and is established, maintained, and strengthened through a strong institutional framework. Whichever the direction of causality, the typical premise is that improved financial inclusion and good institutional quality could lead to substantially higher levels of sustained economic growth in developing nations (Recuero & Gonzalez, 2019).

5.7. Deterministic Relationship between Economic Growth and Financial Inclusion in Chosen Sub-Saharan African Countries

This section presents results and analysis that specifically address the objective one of the study which is to investigate the deterministic relationship between economic growth and financial inclusion in chosen SSA countries. Although this objective was addressed in the previous section, this section isolate the two main independent variables of the study, and focuses on financial inclusion as the main independent variable, thus ignoring the institutional quality impact on economic growth. This section used financial inclusion as a primary determinant of economic growth in the selected SSA countries. Detailed results using 2-step system GMM are presented on Table 5.8.

Table 5. 8: Summary System GMM Regression Results for Financial Inclusion as Determinant of Economic Growth

	2 Step System GMM	2 Step System GMM	2 Step System GMM
Variables	LRGDP	LPCRGDP	GDPGR
L.LRGDP	0.955***		
	(0.0231)		
L.LPCRGDP		0.924***	
		(0.115)	
L.GDPGR			0.262*
			(0.109)
FIINDEX	0.00952**	0.0277***	0.476
	(0.00320)	(0.00654)	(0.865)
INF	-0.000509	-0.00126*	-0.332**
	(0.000334)	(0.000523)	(0.0861)
TOP	-0.000194	-0.000680	0.0290
	(0.000272)	(0.000438)	(0.0485)
UER	0.00340	0.00449	3.622*
	(0.00268)	(0.00422)	(1.361)
LINV	0.0579***	0.0465*	9.482*
	(0.0123)	(0.0174)	(4.234)
LIL	-0.138*	-0.110	-92.33***
	(0.0648)	(0.196)	(21.38)
TNRR	0.00224**	0.00406***	0.0711
	(0.000654)	(0.000963)	(0.101)
DUMMY_GFC	0.000337	0.000253	0.337
	(0.00128)	(0.00319)	(0.727)
DUMMY_COVID	-0.0262***	-0.0301**	-6.424***
	(0.00504)	(0.00796)	(1.372)
_cons	-0.0640	-0.190	-85.11
	(0.160)	(0.314)	(45.78)
N	320	320	320
Instruments	14	18	13
Groups	20	20	20
AR(1)	-1.71	-1.80	-1.43
AR(2)	-1.89	-1.18	-0.73
Sargan test	34.34	36.66	31.34
Hansen test	6.76	14.41	6.59

Notes: ***, **,* are statistical significance at the levels of significance of 1%, 5% and 10% levels respectively; t statistics in parentheses, p values reported for AR(2) and the Hansen Statistic. The Hansen statistic test for over identifying restrictions,

which is asymptotically distributed as chi2 under the null of instrument validity. LRGDP is the log real GDP, LPCRGD is the log per capita real GDP, GDPGR is the GDP growth rate, FIINDEX is the financial inclusion index, INF is the inflation rate, TOP is the trade openness, UER is the unemployment rate, LINV is the log investment, LIL is the literacy level, TNRR is the total natural resources rent, GFC is the global financial crisis. Each column represents a different economic growth proxy using the System GMM estimation technique.
Source: Authors' own computations.

For robustness purposes, this study took further steps to validate the achievement of objective one. The Table 5.8 above reveals the deterministic relationship between economic growth and financial inclusion while ignoring the institutional quality effects. The results reveals that whichever way economic growth is measured, it is positively impacted by financial inclusion across all the proxies. The 2-step system GMM results shows that financial inclusion has significant positive effect on economic growth when growth is measured as real GDP and per capita real GDP at 5 percent and 1 percent level of significance respectively. These results establishes a more robust link between the two variables of interest in the study period and context. This finding is in conformity with the findings of Mwaitete and George (2018) that financial inclusion has an encouraging significant outcome on economic growth. Similarly, studies such as Dahiya and Kumar (2020); Kim, Yu and Hassan (2018); Nwafor and Yomi (2018); Aduda and Kalunda (2017); Okoye, Adetiloye, Erin and Modebe (2017); Nkwede (2015) had established a positive connection running from financial inclusion to economic growth and development.

However, measuring economic growth using GDP growth rate shows that financial inclusion does not have a significant impact on economic growth even though the coefficient exhibits positive pattern as expected. However, the findings suggest that the more economic agents have access to high-quality and reasonably priced financial products, the higher the level of economic activity, which in turn leads to greater economic growth.

Accordingly, governments and decision-makers in the selected nations of SSA are encouraged to leverage on financial inclusion as a critical enabler of economic growth and development which the sub-region desires. This can be achieved through various incentives by banks' supervisors and regulatory agencies as well as other financial institutions to respond appropriately with diverse initiatives and innovations to reach out to the unbanked, under-banked and underserved populace of the region with a view to stimulating economic activities and engender progress.

5.8. Deterministic Relationship between Economic Growth and Institutional Quality in Chosen Sub-Saharan African Countries

This section contains results and analysis that speaks to objective two of the study which is to examine the deterministic relationship between economic growth and institutional quality in chosen SSA countries. Even though this objective was addressed in the previous section, here the research ignore financial inclusion as an independent variable and its impact on growth, and focus only on the institutional quality impact on economic growth in the context of the study parameters. Therefore, institutional quality was adopted as the primary determinant of economic growth in the selected SSA countries. The detail results using 2-step system GMM are presented on Table 5.9 below.

Table 5. 9: Summary of System GMM Regression Results for Institutional Quality as Determinant of Economic Growth

Variables	2-Step System GMM LRGDP	2-Step System GMM LPCRGDP	2-Step System GMM GDPGR
L.LRGDP	0.939***		
	(0.0112)		
L.LPCRGDP		0.732***	
		(0.0412)	
L.GDPGR			0.0748***
			(0.00629)
INSTDEX	-0.00916**	0.0177**	-2.967*
	(0.00304)	(0.00516)	(1.394)
INF	-0.000298*	-0.000542**	-0.0337
	(0.000120)	(0.000166)	(0.0686)
TOP	-0.0000508	-0.000217	-0.0131
	(0.000231)	(0.000196)	(0.0302)
UER	-0.00192***	0.000368	-0.508***
	(0.000249)	(0.000539)	(0.0530)
LINV	0.0389***	0.0381***	10.34**
	(0.00722)	(0.00837)	(3.143)
LIL	-0.0937**	0.141*	-69.61***
	(0.0302)	(0.0643)	(11.87)

TNRR	0.000866*	0.00145**	0.318***
	(0.000340)	(0.000382)	(0.0430)
DUMMY_GFC	-0.00400***	-0.00327*	-1.149***
	(0.000475)	(0.00130)	(0.268)
DUMMY_COVID	-0.0171***	-0.0245***	-5.626***
	(0.00156)	(0.00149)	(0.214)
_cons			
N	300	300	300
Instruments	18	16	18
Groups	20	20	20
AR(1)	-1.75	-1.47	-1.94
AR(2)	-1.92	-1.14	-2.22
Sargan test	11.44	24.68	36.79
Hansen test	11.40	10.48	9.47

Notes: ***, **,* are statistically significant at the levels of significance of 1%, 5% and 10% levels respectively; t statistics in parentheses, p values reported for AR(2) and the Hansen Statistic. The Hansen statistic test for over identifying restrictions, which is asymptotically distributed as chi2 under the null of instrument validity. LRGDP is the log real GDP, LPCRGD is the log per capita real GDP, GDPGR is the GDP growth rate, INSTDEX is the institutional quality index, INF is the inflation rate, TOP is the trade openness, UER is the unemployment rate, LINV is the log investment, LIL is the literacy level, TNRR is the total natural resources rent, GFC is the global financial crisis. Each column represents a different economic growth proxy using the System GMM estimation technique.
Source: Authors' own computations.

In order to corroborate the results in the Table 5.7 where the deterministic impacts of all the variables of interest and the control variables are examined on the economic growth, Table 5.9 reveals the impact of institutional quality on the economic while relaxing the financial inclusion effects. The Table reveals mixed results. The results show that irrespective of how the study measure economic growth, institutional quality has a significant effect on the economic growth of the sub-region. However, the results is diverse in terms of the expected sign of the coefficients. The study expected significant positive impact of institutional quality on economic growth. Consistent with expectation, the results revealed that when economic growth was measured as per capita real GDP, institutional quality exerts positive and significant impact on growth in the selected countries. This emphasises good governance and high-quality institutions as essential elements for achieving sustainable growth and development in emerging nations. Many scholars such as Nxumalo and Makoni (2021); Abubakar (2020); Chinoda and Kwenda (2019); Ntow-Gyamfi, Bokpin, Aboagye and Ackah (2019) reported that an enabling environment for economic growth is fundamentally dependent on the form of institutions.

However, the findings revealed negative and significant impact of institutions on growth when economic growth is measured as real GDP and GDP growth rate. These findings are contrary to what is extensively reported in literature on the impact of institutions on a nation's economic performance (Shchegolev & Hayat, 2018; Iheonu, Ihedimma & Onwuanaku, 2017; Abu, Karim & Aziz, 2015; Omoteso & Mobolaji, 2014). Nonetheless, the mixed findings that are being revealed by the study is not alien in literature as there are studies such as Recuero and Gonzalez (2019), Radzevica and Bulderberga (2018) that have equally discovered such mixed findings, pointing out that the debate on the impact of institutions on growth remain inconclusive. On their part, Ahmed, Alrashidi, Shah and Rasheed (2014) found that there is no relationship between institutional quality and economic growth.

Intuitively, it implies that even though institutional quality has significant effect on economic growth, the way and manner economic growth is measured determines the direction of the impact. It is therefore imperative for government to establish structures and institutional mechanisms that will enable and promote businesses and household in their economic activities to support the cause of growth in the sub-region.

5.9. Cointegration and Error Correction

Estimation results for objectives three and four, specifically, examining the cointegrating relationships among institutional quality, financial inclusion and economic growth; as well as assessing the causality nexus among institutional quality, financial inclusion and economic growth, are presented in this section.

Cointegration tests ascertains the existence or otherwise of a long-run relationship between or among variables, specifically, the test provides an indication of whether a long run relationship exists among institutional quality, financial inclusion and economic growth. To achieve this, the panel ARDL technique is utilised. This technique is appropriate given the advantages over other techniques, in particular, it allows for the estimation of variables with different orders of integration but not higher than the first order, I(1) (Peseran & Smith, 1995). Also, the panel ARDL method allows for the estimation of both short run and long run relationships in addition to the error correction coefficients which serves as a measure for examining the existence of the short run relationship (Rafindadi & Yusuf, 2013).

The models were examined for stability and structural breaks before the final results were run. This test determines whether there has been a significant change in the data series and the method used to obtain them, or whether the coefficients in a regression model are the same for the sample period. According to Perron (2018), the theory of structural change takes serial correlation into account when testing for structural change, in which case a common practice is to apply a heteroscedasticity and autocorrelation robust Wald test. As demonstrated in Bai and Perron (1998), if a one-break model is estimated with stationary variables while multiple breaks exist, the estimate of the break fraction converges to one of the true break fractions. Thus, despite the fact that dummy variables were included to represent the times of expected structural change, the tests showed that the models were unaffected by structural breaks. The null hypothesis that there are no structural breaks in the panel data models was therefore confirmed by the test.

5.9.1. Pooled Mean Group (PMG), Mean Group (MG) or Dynamic Fixed Effects (DFE)

For the choice of the most appropriate estimator for the panel ARDL among Pooled Mean Group (PMG), Mean Group (MG) and the Dynamic Fixed Effect (DFE) estimators, the Hausman test is performed. The PMG, MG and DFE estimators all account for the long-run equilibrium and the heterogeneity of dynamic adjustment process (Demetriades & Law, 2006). However, a distinguishing feature of the PMG estimator is that it allows the short-run coefficients and the error variances to be heterogenous, country by country while the long-run slope coefficients are restricted to be homogenous across countries (Rafindadi & Yusuf, 2013).

The Hausman test reveals whether or not there is significant difference among the PMG, MG and DFE. The null hypothesis of the test is that there is no significant difference between PMG and MG. In this case, if the null hypothesis is not rejected, implying that both estimators are not statistically different, the study use the PMG estimator, which is relatively efficient. However, if the null hypothesis is rejected, implying that there is significant difference between both estimators, the research use the average estimator. According to Pesaran et al. (1999), the PMG estimator offers increased efficiency of the estimates among the mean group estimators. The results of the test are presented in appendices. While the results for both the PMG, MG and

DFE estimators are presented, the results show that the PMG estimator is preferred and to be adopted as the study fail to reject the null hypothesis. Hence, only results from the PMG estimator are presented and discussed in the following sub-sections.

5.9.2. Panel Cointegration and the Error Correction Model: Pooled Mean Group (PMG) Approach

This section presents and discusses results of the analysis of the cointegration relationships among the proxies of economic growth (GDPGR, PCRGDP and RGDP), financial inclusion (FIINDEX) and institutional quality (INSTDEX). The results presented here are those of the Pooled Group Mean (PMG) estimator as is justified by the Hausman test presented in the appendices and discussed in the preceding sub-sections. The PMG estimator is based on the assumption that the long-run relationship between economic growth, financial inclusion and institutional quality is identical across countries while allowing for the short-run relationship to be country specific. The results are presented in Table 5.10 below.

5.9.3. Cointegration and Error Correction Model for Economic Growth Proxies, Financial Inclusion and Institutional Quality

Table 5.10 below presents the Pooled Mean Group (PMG) estimates of the cointegrating relationships between economic growth (measured with GDPGR, PCRGDP and RGDP), financial inclusion and institutional quality for the selected SSA countries.

Table 5. 10: Summary of the Pooled Mean Group (PMG) with GDPGR, PCRGDP and RGDP as the Dependent Variables

Variables	PMG (1) D.GDPGR	PMG (2) D.LPCRGDP	PMG (3) D.LRGDP
Long-run			
FIINDEX	-12.71***		
	(-5.29)		
L.FIINDEX		0.0992***	
		(9.11)	
L2.FIINDEX			0.104***
			(7.88)
L.INSTDEX	1.896***	-0.0400***	
	(4.55)	(-5.38)	
L2.INSTDEX			0.0671***
			(4.14)
ECT	-0.706***	-0.142***	-0.135***
	(-7.99)	(-4.54)	(-3.84)
Short-run			
D.FIINDEX	-577.1	-2.523	-4.336
	(-0.78)	(-0.70)	(-0.78)
D.INSTDEX	4.038*	0.0147*	0.0158*
	(2.47)	(1.98)	(2.10)
_cons	0.480	0.461***	1.385***
	(0.68)	(4.15)	(4.01)
N	320	320	320

Notes: *t* statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. GDPGR (GDP Growth Rate), PCRGDP (Per capita Real GDP) and RGDP (Real GDP) as proxies for economic growth, FIINDEX is the financial inclusion index, INSTDEX is the index for institutional quality. The first panel displays the results of the long run effects whist the second panel displays the results of both the error correction term (ECT) and the short run effects. D denotes the difference operator while L denotes lag operator.
Source: Author's computation.

The results from Table 5.10 showed that long run positive relationship exist among economic growth, financial inclusion and institutional quality (study objective three). The long run relationship between economic growth and financial inclusion is positive and significant at 1 percent level irrespective of the proxy of economic growth used by the study. Increase in financial inclusion in the long run increases economic growth; as greater number of economic agents have access to useful and affordable financial services, it will increase economic growth. This result is in line with theory of economic development by Joseph Schumpeter (1911) which underscore the significance of

financial advancement in stimulating growth through innovation. This also confirm findings by Balele (2019); and Odeleye and Olusoji (2016). On the contrary, Dahiya and Kumar (2020) conclude that financial inclusion does not invigorate economic growth, the difference in findings could be as a result of difference in scope of the studies.

Based on the study's findings, the need to focus on increasing financial inclusion in the selected SSA countries with a view to stimulate economic activities cannot be overemphasised. Economic growth is highly desirable by the developing countries as a means to achieving development of which financial inclusion can be used as a stepping stone to sustainable and inclusive growth. This can be achieved through governments and relevant agencies providing enabling environment that will make financial institutions open branches and position ATMs at accessible spots.

Similarly, there is a positive long run relationship between economic growth and institutional quality. The long run relationship between economic growth and institutional quality is positive and significant at 1 percent level. This implies that, improvement in institutional quality in the long run will increase economic growth. An instinctual expectation was a positive relationship between economic growth and institutional quality where an improvement in institutional quality is expected to increase economic growth. These result is in conformity with the findings of Shchegolev and Hayat (2018); and Iheonu *et al.,* (2017). It goes to further strengthen the stance that governments of developing countries of SSA should build institutions, establish mechanisms for the guide conducts and behaviour of individuals and business entities.

It is therefore instructive to note that the above evidences demonstrate the achievement of the study objective number three which was predicated upon examining the cointegrating relationships between the variables of interest in the study area. Financial inclusion and institutional quality stimulate economic growth in the selected sub-Saharan region.

The error correction term is negative and significant under the PMG estimator. Economic growth rate adjusts to any shocks in financial inclusion and institutional quality to its long run equilibrium at a speed of adjustment of 70.6 percent, 14.2 percent and 13.5 percent when economic growth is measured by GDP growth rate, per capita

real GDP and real GDP respectively. According to Gujarati and Porter (2009), in order to rectify the short run divergence to the convergence of its long run equilibrium, the ECT must be negative and significant. From the results, it can be seen that none of the error terms from this investigation were positive, which indicates that the time series did not drift from its equilibrium in the long run. The study's findings also meet the PMG requirement for dynamic stability (long run relationship), with error coefficients that are both negative, statistically significant and greater than -2 (Loayza & Ranciere, 2006). A study conducted by Magwedere (2019) also revealed similar findings where all the ECT results were negative and statistically significant. In addition, In the event of any disequilibrium resulting from institutional quality, Utile, Ijirsha, and Sem (2021) discovered that the error correction term was negative and statistically significant, indicating that the economic growth was capable of slowly reverting to the long-run equilibrium path.

However, in the short run, the results show that there is no short run cointegration between economic growth and financial inclusion. This implies that, there is no short run relationship between economic growth (irrespective of the proxy used by the study) and financial inclusion. On the contrary, the results show that a short run cointegration exist between economic growth and institutional quality. The short run relationship between economic growth and institutional quality is significant at 10 percent.

Expectedly, for all the proxies of economic growth, the error correction term is negative and significant. In other words, for all the proxies of economic growth there is a long run cointegration among the variables at 1 percent significance level. Thus, any shock in from the long run equilibrium are corrected and adjusted at the speed of adjustment of 70.6 percent, 14.2 percent and 13.5 percent for GDP growth rate, per capita real GDP and real GDP respectively.

5.9.4. Cointegration and Error Correction Model for Financial Inclusion, Institutional Quality and Economic Growth Proxies

The analysis has primarily regard financial inclusion as one of the fundamental causes of economic growth in SSA. This section investigates the reverse order in the region to examine how economic growth cointegrate with financial inclusion in the region. It also establishes how institutional quality explains the level of financial inclusion in the sub-region. The Table 5.11 below summarises the pooled mean group estimates for

financial inclusion as a dependent variable of economic growth and institutional quality in the selected countries of the study.

Table 5. 11: Summary of the Pooled Mean Group (PMG) with Financial Inclusion as the Dependent Variable

Variables	PMG (1) D.FIINDEX	PMG (2) D.FIINDEX	PMG (3) D.FIINDEX
Long-run			
GDPGR	-0.000116		
	(-0.68)		
L.LPCRGDP		-0.00143	
		(-1.20)	
L.RGDP			0.0114***
			(36.58)
INSTDEX	0.0146***		0.00934***
	(9.62)		(5.68)
L.INSTDEX		0.0124***	
		(6.77)	
ECT	-0.0917***	-0.0885***	-0.0953***
	(-4.89)	(-4.82)	(-5.27)
Short-run			
D.GDPGR	0.000343		
	(1.65)		
D.LPCRGDP		0.0292	
		(0.72)	
D.RGDP			0.0276
			(0.67)
D.INSTDEX	0.00648	0.00692	0.00605
	(0.41)	(0.45)	(0.40)
_cons	0.0249	0.0256	0.0118
	(0.68)	(0.70)	(0.32)
N	320	320	320

Notes: *t* statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. GDPGR (GDP Growth Rate), PCRGDP (Per capita Real GDP) and RGDP (Real GDP) as proxies for economic growth, FIINDEX is the financial inclusion index, INSTDEX is the index for institutional quality. The first panel displays the results of the long run effects whist the second panel displays the results of both the error correction term (ECT) and the short run effects. D denotes the difference operator while L denotes lag operator.

Source: Author's computation.

The results from Table 5.11 demonstrates that the level of financial inclusion in the

selected countries does not depend on the level of economic growth in the long run as measured by GDP growth rate and real per capita GDP. However, economic growth as measured by real GDP is positive and significant at 1 percent in explaining the level of financial inclusion in the region. Therefore, increase in real GDP in the long run will significantly increase the level of financial inclusion in the region. In other words, this further reveals that there is a long run cointegration between economic growth and financial inclusion in the selected nations. This findings lay credence to the fact that sustained levels of economic growth drive economic prosperity and development which enhances household ability to save, access credit and other financial services which propels financial development of a country. The results are consistent with the findings of Gourene and Mendy (2017) who finds that there is a medium to long run bi-directional relationship between economic growth and financial inclusion.

On the other hand, the results shows that institutional quality is positive and significant at 1 percent level in the long run. This shows that as the quality of institutions improves, it will impact positively on the level of financial inclusion in the region which also suggest cointegration between them. This results are consistent with the findings of Ali et al., (2019) who discovered that for developing economies, institutional quality advances financial access. Hence, good institutional arrangements and governance systems are crucial components in advancing financial inclusion principally for the exposed poor fragment of the people. This is in conformity with previous findings such as Chinoda and Kwenda (2019), Zulkhiri and Ghazal (2017), and Zulkhibri and Ghazal (2016). Essentially, the nonappearance of corruption, viable government, political security and regulatory quality are decent tools that may advance financial inclusion particularly in developing countries. In addition, Anthony-Orji, Ogbuabor and Nwosu (2019) show a short and long-term huge constructive outcome of institutional quality on financial inclusion. Olanrewaju et al., (2019) expounded that rates of financial inclusion are connected to rise in quality of institutions and governance system which also propels higher economic growth, especially in developing countries.

However, in the short run, the results show positive but insignificant impact of both economic growth and institutional quality on financial inclusion. In other words, economic growth as measured by all the proxies used in this study and institutional

quality does not cointegrate with the level of financial inclusion in the selected SSA countries in the short run. This is consistent with the findings of Oleka and Onyia (2017) who discovered that institutional quality has no huge effect on financial inclusion for the short-term, however it is critical over the long-term. In addition, Gourene and Mendy (2017) finds that there is no bi-directional relationship between financial inclusion and economic growth in the short term. On the contrary, Anthony-Orji, Ogbuabor and Nwosu (2019) reported a short term huge constructive outcome of institutional quality on financial inclusion. This conflicting finding could arise from the context and period of the study.

With regard to the ECT, the results are negative and significant as expected. Thathsarani, Wei, and Samaraweera (2021) contend that the value of ECT must be negative and substantial in order to validate the long-term relationships between the variables. Accordingly, for financial inclusion there is a long run relationships among the variables at 1 percent significance level. Consequently, any shock from the long run equilibrium are corrected and adjusted at the rate of 9.17 percent, 8.85 percent and 9.53 percent for the effect of financial inclusion with respect to GDP growth rate, per capita real GDP and real GDP respectively. This is in line with the findings of Thathsarani, Wei, and Samaraweera (2021) who discovered that ECT was negative and significant with the five factors used to construct the financial inclusion index, illuminating the specific impacts of the financial inclusion measurement on economic growth in South Asian nations and the speed of adjustment to any shock in the long-run.

Based on the results of this investigation, it is essential for government of the chosen nations to put in place mechanisms and frameworks that will support high institutional quality in terms of capacity and character to formulate and implement policies and programmes that would provide access to financial services which will in turn more quickly address poverty, inequality and unemployment, thus promoting economic growth and development. It is instructive for government and policy makers to correlate the high rates of financial exclusion being experience in the region to absence and/or weak institutional quality to be able to address the matter from the root cause through promoting sustainable and viable institutions.

5.9.5. Cointegration and Error Correction Model for Institutional Quality, Financial Inclusion and Economic Growth Proxies

The previous section had regarded institutional quality as one of the ultimate determinants of economic growth in SSA. This section explores the reverse order in the region to examine how economic growth determine the level of institutional quality in the region. It also establishes how financial inclusion explains the level of institutional quality in the sub-region. The Table 5.12 below summarises the pooled mean group estimates for institutional quality as a dependent variable of economic growth and financial inclusion in the selected countries of the study.

Table 5. 12: Summary of the Pooled Mean Group (PMG) with Institutional Quality as the Dependent Variable

Variables	PMG (1) D.INSTDEX	PMG (2) D.INSTDEX	PMG (3) D.INSTDEX
Long-run			
L.FIINDEX	-0.274*	2.424***	-0.828***
	(-2.42)	(5.77)	(-3.94)
L.GDPGR	0.00637*		
	(2.02)		
L.LPCRGDP		-4.393***	
		(-83.49)	
L.LRGDP			0.275
			(1.65)
ECT	-0.399***	-0.121*	-0.467***
	(4.82)	(-2.54)	(5.62)
Short-run			
D.FIINDEX	30.96	44.47	25.22
	(0.74)	(1.07)	(0.76)
D.GDPGR	-0.0000222		
	(-0.01)		
D.LPCRGDP		1.506	
		(1.00)	
D.LRGDP			-0.333

			(-0.25)
_cons	-0.0925	1.578*	1.380***
	(-0.52)	(2.35)	(4.06)
N	320	320	320

Notes: *t* statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. GDPGR (GDP Growth Rate), PCRGDP (Per capita Real GDP) and RGDP (Real GDP) as proxies for economic growth, FIINDEX is the financial inclusion index, INSTDEX is the index for institutional quality. The first panel displays the results of the long run effects whist the second panel displays the results of both the error correction term (ECT) and the short run effects. D denotes the difference operator while L denotes lag operator.
Source: Author's Computation.

Table 5.12 revealed a long run significant cointegrating relationship running from financial inclusion to institutional quality. This implies that an increase in the level of financial inclusion in the country will significantly impact the level of institutional quality that the country will put in place. It was expected that when people have access to finance they will save, access credit, pensions, and insurance to execute business plans, make investment expenditure, acquire skills and knowledge which will instil the quest for quality institutions.

These findings are in conformance with the position of Olanrewaju et al., (2019) who argue that savings and investment are being consummated through formal financial system which require high institutional quality in terms of capacity and character to formulate and implement policies and programmes that would support them. Olanrewaju et al., (2019) found that poor countries cannot afford quality institutions of governance which established the relationship as running from financial inclusion through institutions to economic growth. The resultant effect will be increase in economic performance as more individual will participate in business activities. In other words, when people are incorporated into the formal financial landscape, the demand for quality institutions will increase which will propel economic growth and advancement, hence the cointegration between these variables.

Furthermore, looking at the cointegrating relationship of economic growth as measured by per capita real GDP, the results from the Table 5.12 showed a negative and significant cointegration of economic growth on institutional quality at 1 percent significance level. However, economic growth as measured by GDP growth rate showed a positive and significant long run relationship with institutional quality at 10 percent level of significance. This implies that the attainment of a sustainable inclusive

growth generate the desire for quality institutions which is an expected feature of economic advancement. This also come with increased opportunities for both individuals and businesses which will stimulate more demand and utilisation of products and services like credit, insurance and savings amongst others.

Meanwhile, in the short run, all the economic growth proxies and financial inclusion does not exhibit cointegration with institutional quality. This implies that changes in economic growth variables and financial inclusion does not cointegrate with changes in institutional quality in the short run. The findings are consistent with Abubakar (2020) who revealed that real governance index had positive and unimportant impact on Nigeria's economic performance. Abubakar (2020) had argued that the nature of institutions are fundamental in giving an empowering climate to thrive economically. He further indicated that economic growth reacts emphatically to institutional quality. This means that it is the economic growth that depends on institutions and not the other way round. Similarly, Hamzah et al. (2019), find that institutions contribute to the well-being of the political structure and social interaction that might influence a country's economic structure.

The error correction term is negative and significant in line with expectation. Essentially, for institutional quality, there is a long run relationships among the variables. Accordingly, any shock from the long run equilibrium are corrected and adjusted at the rate of 39.90 percent, 12.10 percent and 46.70 percent for the effect of institutional quality with respect to economic growth proxies. This is consistent with the findings of Radulovic (2020), which showed that the error correction term (ECT) for both EU and non-EU countries is negative and statistically significant and illustrates how much of the short-term disequilibrium brought on by any shock will be corrected in the long-term effects of institutional quality on economic growth. The study also showed that, while the ECT was statistically significant at 5 percent level for countries that are EU members, it was statistically significant at 1 percent level for nations that are not EU members.

Based on these findings, the government of SSA countries can achieve sustainable economic growth and development through focusing on establishing sound institutions

that support growth. Government should build institutions as they have a significant impact on how people interact and work and encourages effectiveness for the growth of the economy. Building sound institutions create the framework and fabric through which people, organisations, organised sectors, and the economy at large function to drive social and economic development of a country.

5.10. Panel Causality Test

An important objective of empirical research in general and of this study in particular is to establish causal links between variables. The relationship between institutional quality, financial inclusion, and economic growth has been experimentally demonstrated, nonetheless, determining the direction of the relationship is crucial for informing policy making. The goal is to demonstrate that institutional quality, financial inclusion, or both contribute to sustain economic growth in the investigated nations, and that growth can also affect both of these factors. In other words, when financial inclusion and institutional quality change for the better or worse, so does economic growth, and vice versa. This study used the ECM to investigate the causation between the relevant variables rather than the Granger causality test. The three types of causal relationships that the study indicated are long-term causality, short-term causality, and strong/joint causality. It was therefore necessary to establish the link between the variables using the panel causality instruments.

Accordingly, to investigate the causal relationships between each of the economic growth proxies and the financial inclusion and institutional quality, the study employs the use of tri-variate ECM within the ARDL framework. For the purpose of this study, the causality links are in three categories; long run causality, short run causality and strong causality/joint causality. The results of the causality links are contained in the Tables 5.13 and 5.14 for each of the economic growth proxies. In the tri-variate analysis done by the study, each of the variables selected for examining the causal relationship were taken in turns as a dependent variable. This section enables us to achieve objective four which is to investigate the causality between economic growth, financial inclusion and institutional quality in selected SSA nations.

Table 5. 13: Panel-VECM

Dependent Variables	Source of Causation (independent variables)						
	Long run coefficients			Short run coefficients			
	GDPGR	**FIINDEX**	**INSTDEX**	**∆GDPGR**	**∆FIINDEX**	**∆INSTDEX**	**ECT**
∆GDPGR		-12.71***	1.896***		-577.1	4.038*	-0.706***
		(-5.29)	(4.55)		(-0.78)	(2.47)	(-7.99)
∆FIINDEX	-0.000116		0.0146***	0.000343		0.00648	-0.0917***
	(-0.68)		(9.62)	(1.65)		(0.41)	(-4.89)
∆INSTDEX	0.00637*	-0.274*		-0.0000222	30.96		-0.399***
	(2.02)	(-2.42)		(-0.01)	(0.74)		(4.82)
	LPCRGDP	**FIINDEX**	**INSTDEX**	**∆LPCRGDP**	**∆FINDEX**	**∆INSTDEX**	**ECT**
∆LPCRGDP		0.0992***	-0.0400***		-2.523	0.0147*	-0.142***
		(9.11)	(-5.38)		(-0.70)	(1.98)	(-4.54)
∆FIINDEX	-0.00143		0.0124***	0.0292		0.00692	-0.0885***
	(-1.20)		(6.77)	(0.72)		(0.45)	(-4.82)
∆INSTDEX	-4.393***	2.424***		1.506	44.47		-0.121*
	(-83.49)	(5.77)		(1.00)	(1.07)		(-2.54)
	LRGDP	**FIINDEX**	**INSTDEX**	**∆LRGDP**	**∆FINDEX**	**∆INSTDEX**	**ECT**
∆LRGDP		0.104***	0.0671***		-4.336	0.0158*	-0.135***
		(7.88)	(4.14)		(-0.78)	(2.10)	(-3.84)
∆FIINDEX	0.0114***		0.00934***	0.0276		0.00605	-0.0953***
	(36.58)		(5.68)	(0.67)		(0.40)	(-5.27)
∆INSTDEX	0.275	-0.828***		-0.333	25.22		-0.467***
	(1.65)	(-3.94)		(-0.25)	(0.76)		(5.62)

Notes: *t* statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. GDPGR (GDP Growth Rate), PCRGDP (Per capita Real GDP) and RGDP (Real GDP) as proxies for economic growth, FIINDEX is the financial inclusion index, INSTDEX is the index for institutional quality. The left panel displays of the long run coefficients whist the right panel displays the short run coefficients. ∆ denotes the difference operator while L denotes lag operator.

Source: Author's Computation.

For the purpose of establishing the causality links between the variables, this study relies on the statistical significance of the coefficients, while the statistical significance of the respective error terms are used to determine the join causality of the variables. Table 5.13 reveals the causal links between the variables. The results show that there is a significant causal link between economic growth and financial inclusion in the long

run. The causal links are mainly in the long run and there is significant joint causality among the variables as ECT coefficients are statistically significant. The results are in conformity with the findings of Recuero and Gonzalez (2019); and Olanrewaju *et al*., (2019). Furthermore, the results confirm a significant short run causal link between economic growth and institutional quality. This implies that irrespective of the time horizon, institutional quality has a significant relationship with economic growth. This further reaffirms the cointegration results in Table 5.10.

However, the study reveals a significant bidirectional causality link between financial inclusion and institutional quality in the long run. This result conforms to the findings of Olanrewaju *et al*., (2019) which reveals that high rates of financial inclusion are connected to rise in quality of institutions. The study further reveals a significant bidirectional long run causality link between economic growth (when measure as GDP growth rate and per capita real GDP) and institutional quality. This conforms to the findings of Kuncic (2013) which uncovered that many developed countries are ranked the best with the calculated institutional quality variables strongly correlating with real GDP per capita. On the other hand, a significant bidirectional long run causality is revealed between economic growth (when measure as real GDP) and financial inclusion. These findings are consistent with those of Gourene and Mendy (2017) who concluded that there is no causality between financial inclusion and economic growth over the short-term; although, in the medium or long-term, there is a two-way causation.

Table 5.14 summarises the causal links among economic growth, financial inclusion and institutional quality. Many studies have revealed that good institutional arrangements and governance systems are crucial components in advancing financial inclusion predominantly for the exposed poor fragment of the people (see Chinoda & Kwenda, 2019; Zulkhiri & Ghazal, 2016). The study can therefore deduce that the variables are intrinsically link to one another, having confirm this empirically. The summary of the results is depicted in Table 5.14 and it further elaborates the relationships among the variables.

Table 5. 14: Panel-VECM: Causal Links Among Economic Growth, Financial Inclusion and Institutional Quality

Dependent variables	Source of Causality (independent variables)						
	Long run coefficients			Short run coefficients			
	GDPGR	**FIINDEX**	**INSTDEX**	**∆GDPGR**	**∆FIINDEX**	**∆INSTDEX**	**ECT**
∆GDPGR		Causality*** (-5.29)	Causality*** (4.55)		No Causality (-0.78)	Causality* (2.47)	Causality*** (-7.99)
∆FIINDEX	No Causality (-0.68)		Causality*** (9.62)	No Causality (1.65)		No Causality (0.41)	Causality*** (-4.89)
∆INSTDEX	Causality* (2.02)	Causality* (-2.42)		No Causality (-0.01)	No Causality (0.74)		Causality*** (4.82)
	LPCRGDP	**FIINDEX**	**INSTDEX**	**∆LPCRGDP**	**∆FINDEX**	**∆INSTDEX**	**ECT**
∆LPCRGDP		Causality*** (9.11)	Causality*** (-5.38)		No Causality (-0.70)	Causality* (1.98)	Causality*** (-4.54)
∆FIINDEX	No Causality (-1.20)		Causality*** (6.77)	No Causality (0.72)		No Causality (0.45)	Causality*** (-4.82)
∆INSTDEX	Causality*** (-83.49)	Causality*** (5.77)		No Causality (1.00)	No Causality (1.07)		Causality* (-2.54)
	LRGDP	**FIINDEX**	**INSTDEX**	**∆LRGDP**	**∆FINDEX**	**∆INSTDEX**	**ECT**
∆LRGDP		Causality*** (7.88)	Causality*** (4.14)		No Causality (-0.78)	Causality* (2.10)	Causality*** (-3.84)
∆FIINDEX	Causality*** (36.58)		Causality*** (5.68)	No Causality (0.67)		No Causality (0.40)	Causality*** (-5.27)
∆INSTDEX	No Causality (1.65)	Causality*** (-3.94)		No Causality (-0.25)	No Causality (0.76)		Causality*** (5.62)

Notes: *t* statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. GDPGR (GDP Growth Rate), PCRGDP (Per capita Real GDP) and RGDP (Real GDP) as proxies for economic growth, FIINDEX is the financial inclusion index, INSTDEX is the index for institutional quality. The left panel displays of the long run coefficients whist the right panel displays the short run coefficients. ∆ denotes the difference operator while L denotes lag operator.

Source: Author's Computation.

Table 5.14 reveals the causal links among the economic growth, financial inclusion and institutional quality. The results confirms the significant long run causal link among the variables. Intuitively, the causal link among the economic growth, financial inclusion and institutional quality implies that a quality of institutional structure provides an avenue for inclusive financial institutions which ultimately relate with the economic activities which promotes growth. This is in conformity with the findings of Babajide et

al, (2015); Recuero and Gonzalez (2019). A bidirectional significant long run relationship exist between economic growth and the institutional quality. This is in line with the findings of Nguyen *et al.* (2018) that a significant nexus exist between economic growth and institutional quality. The results further show that a significant bidirectional causality exist between financial inclusion and institutional quality. These findings are in agreement with the findings of Chinoda and Kwenda (2019); Zulkhiri and Ghazal, (2016) who discovered that high institutional quality are fundamental to expanding the financial inclusion bracket.

Furthermore, the results reveals that by measuring economic growth with per capita Real GDP, a significant causal link subsist between economic growth, financial inclusion and institutional quality. In the same vein, the results show the existence of significant bidirectional causal link between economic growth and institutional quality, and financial inclusion and institutional quality. The same trend is revealed when economic growth is measured by the real GDP. However, in the short run, irrespective of the measure of economic growth, the results reveal significant short run causal link between economic growth and institutional quality.

5.11. Chapter Conclusion

In summary, this chapter presented the findings of the study in line with the earlier stated objectives. Preliminary diagnoses such as descriptive and the eigenvalues of the correlation matrix statistics were done to establish the nature of the data. The results of the unit root tests demonstrate that all the variables have first-order integration, with the exception of the inflation rate, which is integrated of order zero, I(0).

The 2-step system GMM established the deterministic relationship between economic growth, financial inclusion and institutional quality. It revealed that financial inclusion has a strong positive link with economic growth, even though the system GMM's results were inconsistent and suggested that the impact's level depends on how economic growth is measured. Similarly, the chapter established that institutional quality has a considerable impact on economic growth.

In addition, the panel ARDL show the cointegrating relationships between economic growth, financial inclusion and institutional quality. The analysis revealed that there is a long run relationship among the variables. The study further revealed a short run relationship between economic growth and institutional quality. However, an insignificant short run relationship was revealed between economic growth and financial inclusion. The error correction term for all the variables was negative and significant which implies any drift or shock in the short run, the variables adjust to their long run equilibrium. Also, this chapter established the causal links among the variables using the significance of the long run, short run and the ECT coefficients.

The ensuing chapter is the final part of this thesis which covers a summary of key findings, draws conclusions based on empirical results, and suggests policy and future research recommendations.

CHAPTER SIX

SUMMARY OF MAIN FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1. Introduction

This chapter presents the summary of the study which examined the various relationships between institutional quality, financial inclusion, and economic growth in a sample of 20 SSA countries from 2004 to 2020. The imperative for all developing nations, including those in the SSA, to pursue inclusive and sustainable growth as a crucial macroeconomic objective to lift the region out of poverty and accelerate its inclusion into the world's modern economies encouraged the study. Despite having abundant human, physical, and natural resources, the emerging countries of SSA have recorded low and unstable economic growth rates that prevent the region from achieving sustainable development. The United Nations' Sustainable Development Goals and Agenda 2063 of the African Union place emphasis on inclusive growth and sustainable development, making it critical to understand the issues causing the region's dismal economic performance which may negatively impact on the achievement of these goals. The poor economic performance has been attributed to a number of underlying anomalies, including low rates of financial inclusion and poor institutional quality, among others. To accomplish these objectives, research into the primary factors influencing economic growth in the region is required due to its peculiarities, including shifting political, financial, and economic landscape, dysfunctional institutions, limited access to finance, pervasive corruption, and other problems.

This chapter is organised as follows: it summarises the objectives of the study; highlights the key empirical findings; considers the theoretical, social, and policy implications of the findings; and highlights the contributions to knowledge. Additionally, the study's weaknesses were acknowledged, followed by proposals for potential future research areas.

6.2. Motivation and Objective of the Study

The main goal of this thesis was to investigate the impact of financial inclusion and institutional quality on economic growth in some selected SSA countries, to establish the cointegration between the variables, and to determine the direction of causality. This was done by examining the causal and cointegration linkages between institutional quality, financial inclusion, and economic growth in the selected SSA nations between 2004 and 2020, as well as the deterministic relationships between economic growth and these variables over the same period.

By examining the deterministic, cointegration, and causal linkages between and among the major variables, this study provides a thorough review of the interactions between these variables. In doing so, it contributes to the body of knowledge by uncovering the tripartite links amongst financial inclusion, institutional quality, and economic growth, particularly in relation to the SSA region.

The SSA countries' historically unimpressive economic performance over time in comparison to their contemporaries in other parts of the world is the study's primary source of motivation. Even the low growth rates observed, which fluctuated between 2 and 6 percent on average over the study period, are unstable and mostly not inclusive to facilitate economic development. Recent studies have attributed poor economic performance in developing countries to both bad institutional quality and a lack of access to financial services that would have allowed economic agents to engage in business. Therefore, it was essential to objectively establish the relationship between these variables in some selected region's nations. It is interesting because the region is made up of nations with similar macroeconomic goals and comparative stages of development, meaning that what works for one nation may also work for another. This was conducted in order to empirically demonstrate the interests that various countries should concentrate on in accordance with their stage of development and to describe appropriate national policies that would promote cooperation in the pursuit of initiatives like the Sustainable Development Goals (SDGs), the African Union's Agenda 2063, and the African Continental Free Trade Agreement (AfCFTA), amongst others.

6.3. Summary of Results

6.3.1. Determinants of Economic Growth in Sub-Saharan African Countries

The study investigated the effects of the selected variables (independent and control variables) on economic growth in the sampled 20 SSA nations in order to answer the study's first three research questions. According to the study, the primary drivers of economic growth in the sampled nations were financial inclusion, institutional quality, inflation, trade openness, unemployment, investment, literacy level, and total natural resource. It also shown that regional economic performance is significantly impacted by the COVID-19 pandemic and the global financial crisis.

The financial inclusion index had positive and substantial effects on economic growth in SSA when it was regressed against real GDP, per capita real GDP, and GDP growth rate (proxies for economic growth). However, the research discovered that how economic growth is defined and measured had an impact on how it relates to the financial inclusion index. Essentially, when economic growth is measured by GDP growth rate and per capita real GDP, the relationship is positive but insignificant, however when it is measured by real GDP, it is positive and significant at a 10percent level.

Meanwhile, the investigation revealed that regardless of the method used to evaluate economic growth, the institutional quality index had favourable and significant effects on selected countries' economic growth. In other words, the study showed that there is a significant deterministic association between institutional quality and economic growth in the tested countries, regardless of how economic growth is measured. This demonstrates the necessity for SSA countries to build their institutions as the cornerstone for the development of other elements that contribute to economic success.

Inflation, as was expected, has a negative and significant impact on economic growth, whereas investment (proxied by gross capital formation) and natural resources (proxied by total natural resource rent as % of GDP) both have positive and significant benefits. Depending on how economic growth in the chosen SSA nations is defined, the level of literacy and trade openness have mixed effects. These were anticipated

based on the idea that for trade liberation to have positive results, it had to be supported by strong institutional frameworks, an enabling environment, and human capital development.

Since this study period falls within the time frame during which the world experienced major events, this study also used dummy versions of the global financial crisis and COVID-19 to assess their influence on economic growth. The results showed that the sampled countries' economic growth was negatively impacted by the global financial crisis and COVID-19 pandemic, which both drastically changed the pattern of economic activities.

Therefore, this research came to the conclusion that financial inclusion and institutional quality, as established by this study, determine economic growth in the selected SSA economies of Ghana, Mauritius, Kenya, Uganda, South Africa, Nigeria, Botswana, Rwanda, Gambia, Gabon, Cameroon, Central African Republic, Equatorial Guinea, Tanzania, Zimbabwe, Angola, Guinea, Namibia, Zambia, and Mozambique.

Table 6.1. summarises the study's results regarding the factors that influence economic growth in the selected SSA countries.

Table 6. 1: Summary of Determinants of Economic Growth in selected SSA Countries and their Effects

Dependent variable	Independent Variable	Coefficient	Effect and Significance
RGDP	Financial Inclusion Index (FIINDEX)	0.261	Positive*
	Institutional Quality Index (INSTDEX)	-0.0605	Negative**
	FIINDEX/INSTDEX	-0.137	Negative**
	Inflation (INF)	-0.000121	Negative
	Trade Openness (TOP)	0.000116	Positive
	Unemployment (UER)	0.00246	Positive
	Investment (INV)	0.0694	Positive***
	Literacy Level (LIL)	-0.241	Negative
	Total Natural Resource (TNRR)	0.00104	Positive**
	Global Financial Crisis (DUMMY_GFC)	-0.000957	Negative

	COVID-19 Pandemic (DUMMY_COVID)	-0.00747	Negative
PCRGDP	Financial Inclusion Index (FIINDEX)	0.0185	Positive
	Institutional Quality Index (INSTDEX)	0.0245	Positive***
	FIINDEX/INSTDEX	-0.00415	Negative
	Inflation (INF)	-0.000681	Negative**
	Trade Openness (TOP)	-0.000321	Negative
	Unemployment (UER)	0.000105	Positive
	Investment (INV)	0.0464	Positive***
	Literacy Level (LIL)	0.137	Positive
	Total Natural Resource (TNRR)	0.00173	Positive**
	Global Financial Crisis (DUMMY_GFC)	-0.00476	Negative**
	COVID-19 Pandemic (DUMMY_COVID)	-0.0227	Negative***
GDPGR	Financial Inclusion Index (FIINDEX)	1.594	Positive
	Institutional Quality Index (INSTDEX)	3.003	Positive*
	FIINDEX/INSTDEX	0.348	Positive
	Inflation (INF)	-0.0473	Negative
	Trade Openness (TOP)	-0.0240	Negative
	Unemployment (UER)	-0.175	Negative
	Investment (INV)	7.704	Positive**
	Literacy Level (LIL)	-43.36	Negative***
	Total Natural Resource (TNRR)	0.533	Positive***
	Global Financial Crisis (DUMMY_GFC)	-0.0991	Negative***
	COVID-19 Pandemic (DUMMY_COVID)	-6.090	Negative***

*significant at 10%; ** significant at 5%; *** significant at 1%.

Source: Author's own computation

6.3.2. Cointegrating Relationships between Institutional Quality, Financial Inclusion and Economic Growth in Selected Sub-Saharan Africa Countries

The study was also interested in observing the nature of the link between institutional quality, financial inclusion, and economic growth in the sub-region using the panel data for the years 2004-2020 after identifying the factors that influence economic growth in the sampled SSA nations.

The study therefore evaluated the variables for the existence of long-run (cointegrating) linkages between institutional quality, financial inclusion, and economic growth using the panel autoregressive distributed lag (ARDL) approach. The third and fourth research objectives of the study, which focused on the cointegrating links between economic growth, financial inclusion, and institutional quality variables, were addressed via the PMG/ARDL technique. The findings showed that the variables had strong long-run (cointegrating) connections. This suggests that improving institutional quality and financial inclusion over time will boost economic growth in SSA nations.

In particular, there is a long-term association between economic growth and financial inclusion because the PMG finding was favourable and statistically significant at the 1 percent level regardless of the study's choice of economic growth proxy. The long-term association between institutional quality and economic growth was also positive. Economic growth and institutional quality have a favourable and substantial long-term association that is significant at the 1 percent level. This suggests that sustained institutional quality improvement will boost economic growth. One of the distinguishing features of this study is the discovery of the tripartite cointegrating linkages.

The findings, however, indicate that there is no short-run cointegration between financial inclusion and economic growth. This suggests that there is no short-term link between financial inclusion and economic growth (regardless of the study's proxy adopted). Contrarily, the findings indicate that economic growth and institutional quality exhibit short-term cointegration. With a 10 percent correlation across all variables, the short-term association between institutional quality and economic growth is significant.

The error correction model (ECM) was used to evaluate the study's short-run associations. According to Gujarati and Porter (2009), the error correction instrument helps to balance the long-term trends of an economic variable with its short-term behaviour. Based on the PMG estimator approach, the error correction term was expectedly negative and significant for all the proxies of economic growth used by the study. In other words, at a 1 percent level of significance, there is a long-run

cointegration between economic growth, institutional quality, and financial inclusion for all of the economic growth proxies. As a result, any shock to the long-run equilibrium is rectified and adjusted at a rate of 70.6 percent, 14.2 percent, and 13.5 percent, respectively, for GDP growth rate, per capita real GDP, and real GDP.

Interestingly, the PMG estimator found evidence of long-term cointegrating associations in both cases where financial inclusion and institutional quality were regressed as dependent variables. However, in the short run, neither scenario showed any indication of cointegration. Additionally, in the two instances, the error correction term was negative and significant at the 1 percent level.

6.3.3. Causality between Institutional Quality, Financial Inclusion and Economic Growth in the Selected Sub-Saharan African Countries

Using the panel causality instruments, it was necessary to check the relationship between the variables in more detail with a view to determining whether there is any causality between the long-term correlations. Makoni (2016) argues that it would be inappropriate to infer that the three important variables must be causally related even though cointegrating connections were discovered.

Rather than employing the Granger causality test, this study used the ECM to examine the causality relationships between institutional quality, financial inclusion, and economic growth. Accordingly, long-term causality, short-term causality, and strong/joint causality between the variables where cointegrating correlations were discovered are the three types of causal linkages that the study investigated.

The study used the tri-variate ECM within the ARDL framework to examine the causal links between each of the economic growth proxies and financial inclusion and institutional quality in order to respond to the study's fifth research question. Each variable chosen for analysing the causal relationship was used as a dependent variable in turn in the study's tri-variate analysis.

The findings confirmed that, in the long-term, there is a strong causal relationship between economic growth and financial inclusion. Since ECT coefficients are statistically significant at the 1% level for all measures, the causal relationships are mostly long-term, and there was considerable joint causation across the three key variables. On the other hand, economic growth (as measured by real GDP) and financial inclusion are found to have a significant bi-directional long-run causal relationship.

The study also demonstrates a strong long-term causal relationship between institutional quality and economic growth across all the measures adopted. The findings also show a reasonable short-run causal relationship between institutional quality and economic growth recording 10 percent level of significance across all proxies. This suggests that institutional quality has a considerable causal association with economic growth regardless of the time horizon.

Additionally, the analysis shows a significant long-term bi-directional causality relationship between financial inclusion and institutional quality. The study further demonstrate that a strong causal relationship exists between economic growth, financial inclusion, and institutional quality when evaluating economic growth using per capita real GDP. This is a crucial realisation and addition to empirical evidence since it ties together the three variables that this study sought to achieve.

Notably, this study found a strong bi-directional causal relationship between economic growth and institutional quality; and between financial inclusion and institutional quality. The same causality was observed when real GDP is used to measure economic growth in the selected SSA countries. It was found that regardless of the measure of economic growth, there is a short-term causal link between economic growth and institutional quality, even though the causality nexus was generally passive in the short run. However, none of the chosen proxies showed any evidence of a short-term causal relationship between economic growth and financial inclusion in the panel data.

Finally, it is instructive to indicate that the study has achieved its intended objectives and answered the research questions that were raised. The research have emphasised the deterministic relationships between institutional quality, financial inclusion, and economic growth in the chosen SSA economies and have identified the impact of other determinants on growth in the sub-region. Using a panel ARDL/PMG technique, the variables' long-term cointegrating relationships were identified, while a panel ECM approach highlighted the variables' short-term relationships. In order to accomplish this, the panel ARDL framework's tri-variate ECM technique was applied to determine the relationship between the study's key variables and causality. The results demonstrated a strong causation between institutional quality, financial inclusion, and economic growth in the SSA nations that were chosen.

6.4. Contribution to Knowledge

In several respects, the study adds to the body of literature already in existence. The study period, context, and range of measures utilised to examine the links between institutional quality, financial inclusion, and economic growth are the initial considerations for the contribution to literature and knowledge.

With reference to the SSA countries, the unearthing of the tripartite link between three variables was novel. This is due to the fact that the literature rarely examines these tree associations together because the majority of studies have focused on pairings of two of the three variables. The closest researches found were those by Olanrewaju et al., (2019), and Omojolaibi (2017), however, they only looked at Nigeria. Consequently, a study on the relationship between the three variables is crucial, particularly in SSA where remedies to unsustainable growth and approaches to rectify unsatisfactory economic performance are sought after. The study emphasised the empirical relationship between financial inclusion, institutional quality, and economic growth in the selected SSA economies.

Furthermore, this study differs from other studies in that it offers thorough examinations of the interactions between the variables by focusing on all the significant relationships (deterministic, cointegration and causation). Despite the fact that economic growth was the dependent variable, the study regressed each variable

separately in order to fully capture and highlight their relationships and the direction of causation. The separate and joint analyses of the relationship between financial inclusion and economic growth; institutional quality and economic growth; and institutional quality and financial inclusion through an analysis of the determinism, cointegration, and causation linkages in one study is a contribution to literature. To the best of our knowledge, no study has performed such a thorough examination within the context of SSA utilising several approaches.

Moreover, the analysis is robust and distinct because the study used three proxies to measure economic growth. The investigation show that the method used to assess economic growth affects how it relates to its determinants. The study was unable to find this comprehensive measurement of economic growth in any study, so this is an addition to the literature. It is crucial to unveil these linkages in a comprehensive manner especially in the context of SSA, where there is a strong desire for improvement in these selected variables.

Additionally, this study differs from earlier studies by using more criteria to assess financial inclusion and institutional quality. With respect to institutional quality, the study expanded on the conventional Six World Governance Indicators (WGI) by including Human Rights Protection, Ease of Doing Business, and Civil Liberties (from the WDI database, 2022 update). This makes it possible for us to create an institutional quality index employing principal component analysis (PCA) using nine component indices, setting this study apart from others. By including these indicators, the study can better understand and reflect the distinctive characteristics of the SSA countries chosen, including the manipulation of existing laws, a lack of private investment, inefficient resource allocation, frequent changes in, and unsuitable economic policies, extreme poverty and social exclusion, massive fiscal deficits and debt, frequent violations of human rights, which the significance of institutions in addressing these issues and promoting sustainable economic growth cannot be overemphasised. Similar to this, a financial inclusion index was created using PCA by combining five component indicators from the IMF Financial Access Survey (FAS) and World Development Indicators (WDI). This improved the study's index, emphasised the

findings of the research, and highlighted the significance of financial inclusion in fostering inclusive growth in SSA nations.

The study's final contribution is that, despite only including 20 SSA countries, the findings of the empirical panel study can be extrapolated to the rest of the region because the countries have comparable institutional structures, financial inclusion rates, and economic performance. By utilising recent data, the study offers one of the most recent empirical evidence on the connections between institutional quality, financial inclusion, and economic growth in SSA economies. Additionally, the study employed panel ARDL/PMG methodology, tri-variate ECM technique, and 2-step system GMM estimation for cointegrating relationships, causality linkages and deterministic relationships, respectively, which reinforced and amplified the findings.

6.5. Policy Implications and Recommendations

The research prompted positive policy outcomes for the governments of the selected SSA countries. These included enhancing institutional frameworks, implementing financial inclusion programs, and boosting other macroeconomic factors that have an impact on economic growth.

The findings highlighted the critical role that institutions and governance structures play in promoting and accelerating economic growth in the SSA economies that were chosen. An improvement in institutional quality will likely enable and boost the economic growth of the SSA economies, according to the cointegration analyses, which found substantial long- and short-term correlations between institutional quality and economic growth. As a result, policymakers must coordinate their strategies and concentrate on measures that would improve the standard of institutions. This will further enable the accomplishment of the Sustainable Development Goals (SDGs) 9 (infrastructure, industrialisation and innovation), and SDG 16 (peace, justice and strong institutions), respectively.

More importantly, the governments of the SSA should be aware of the advantages of stable institutions in pursuing economic development and prosperity. This is the case since deterministic analyses revealed that institutional quality significantly affects

economic growth regardless of the economic growth proxy used. The results have the implication that high quality institutions will promote development by fostering an atmosphere of governance and justice, promoting stability, addressing uncertainties, allocating resources, and offering incentives to support investments and other economic activities, which are the main drivers of economic growth in SSA countries. As a result, the SSA countries' governments and policymakers are urged to create institutions, processes, and develop laws and regulations that foster trust, minimise uncertainty, and support economic activities, which leads to economic progress.

In accordance with the study's findings, the degree of financial inclusion in the countries had a considerable impact on their economic growth. This supports the World Bank's and other development organisations' recommendations for deliberate, focused government policies aimed at increasing the population's access to financial inclusion, especially in developing nations. This arose when it was realised how crucial financial inclusion was for promoting economic growth. The SSA countries' governments and policymakers are advised to create deliberate policies that enhance access to financial services by, among other things, encouraging banks to open more branches and set up additional ATM locations.

The study specifically demonstrates that financial inclusion significantly boosts economic growth when evaluated by real GDP and per capita real GDP. This suggests that in the chosen nations, financial inclusion is an essential step toward inclusive and sustainable growth. As a result, governments and decision-makers in the SSA nations that have been chosen are urged to use financial inclusion as a key tool for the desired region's economic growth and development. This can be accomplished by offering incentives to banks, bank supervisors, bank regulators, and other financial institutions to respond appropriately with a variety of initiatives and innovations to reach out to the unbanked, under-banked, and underserved population of the region in an effort to boost financial inclusion, promote economic inclusion and foster growth. Sharma (2016) had earlier noted that financial access a significant panacea for increasing savings and investments as well as other economic activities that will contribute to income generation, which in turn could lower the poverty level and other social exclusion vices while fostering economic progress.

The study's revelation of the relationship between financial inclusion and institutional quality has further policy implications and offers the selected SSA nations the chance to enhance their economic performance by creating and executing policies that support these important growth drivers. Particularly, the cointegrating research showed that institutions have a beneficial impact on the region's level of financial inclusion, which together fosters economic growth. Additionally, a causality test reveals evidence of a reciprocal relationship between the variables, suggesting that institutions can increase the financial inclusion bracket and vice versa. Government is urged to concentrate on policies that support institutional reforms and foster financial inclusion as they are the two main variables driving growth in the studied areas in order to increase economic performance and social inclusiveness.

Although this study also found that there are other factors that affect economic growth in the SSA countries that were chosen, such as inflation, investment, unemployment, trade openness, literacy level, and natural resources among others, the study presume based on outcomes of this investigation that for these other factors to have any real impact on economic growth, they must be combined with strong institutions and financial access. To corroborate this, Makoni (2016) discovered in her study that good institutional quality attracts foreign direct investment (FDI) and foreign portfolio investment (FPI), both of which are advantageous to the host nation, particularly to emerging nations of Africa. Building institutions and governance systems that will offer the necessary framework for other economic elements that promote growth to thrive should therefore be a top priority for the SSA countries.

Finally, the study emphasised the importance of proper policies that will improve the quality of institutional frameworks and boost access to financial services in the chosen nations. In addition, the impact of other macroeconomic factors on economic growth would be strongly influenced by an overall improvement of the institutional mechanism accompanied by effective financial inclusion policies.

6.6. Limitations and Areas for Further Research

Regardless of the reality that we have carried out a thorough investigation into the deterministic relationships between economic growth and financial inclusion; and between economic growth and institutional quality; investigating the cointegrating relationships as well as causality between the variables, the relationship between institutional quality, financial inclusion, and economic growth cannot be fully explored in a single study. The findings also highlight the fact that how economic growth was defined affects the impact of institutional quality and financial inclusion. As a result, this suggests a potential subject for future research to determine which indicator is best suited to proxy economic growth and for policymakers to concentrate on addressing it.

This study's findings demonstrated that institutional quality had a considerable impact on the economic growth of the selected countries, regardless of how economic growth was measured, and across all time periods. The essential question posed, however, was the level of institutional quality development necessary to achieve the required level of economic growth. Future research, in our opinion, should look at whether SSA countries need to establish their institutions to a certain degree in order to foster economic growth. Such a study could consider the threshold level that respective countries should attain, in order to fully realise the potential that institutional quality can reach in order to spur economic growth.

Although this study used more indicators to evaluate economic growth, financial inclusion, and institutional quality than earlier empirical studies reviewed, there is the risk that the chosen indicators may have errors when it comes to actual reflection of the variables. In particular, the plethora of measures of financial inclusion and institutional quality in the World Bank and IMF databases, provides sufficient opportunities for future analysis to determine the indicators that perform better.

Furthermore, one of the variables in this study, financial inclusion, comprises four dimensions: availability of financial services, access to financial services, usage of financial services, and quality of services. It is critical for generalised conclusions to use indicators that encompass all of these elements. However, due to the number of

selected nations and time period for this study, the investigation addressed three components which suggested a future research opportunity.

Finally, broadening the scope of this study provides a critical opportunity for future research. The study was confined to a sample of 20 countries from the SSA region which has approximately 48 countries. Future research could broaden the scope of this study to include other nations in order to improve its conclusion and generalisation.

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Appendices

Appendix 1: Pairwise Correlation Matrix

Variable	FIIN_INDEX	ATM	CBB	NATM	NCBB	DCPS	IQ_INDEX	VA	PS	GE	RQ	CC	RL	HR	SB	CL	INF	INV	LIL	RGDP	TNRR	TOP	UER	GDPGR	PCRGDP
FIIN_INDEX	1.000000																								
ATM	0.7315***	1.000000																							
CBB	0.9147***	0.7047***	1.000000																						
NATM	0.8922***	0.4058***	0.7135***	1.000000																					
NCBB	0.8662***	0.3367***	0.7276***	0.9715***	1.000000																				
DCPS	0.9272***	0.7918***	0.8183***	0.7417***	0.6772***	1.000000																			
IQ_INDEX	0.6636***	0.6656***	0.6535***	0.4715***	0.4124***	0.6952***	1.000000																		
VA	0.6123***	0.6825***	0.5574***	0.4248***	0.3216***	0.6973***	0.8954***	1.000000																	
PS	0.4929***	0.4760***	0.5832***	0.3159***	0.3245***	0.4502***	0.7326***	0.5093***	1.000000																
GE	0.7002***	0.6696***	0.6506***	0.5209***	0.4579***	0.7538***	0.9530***	0.8392***	0.6511***	1.000000															
RQ	0.6310***	0.5735***	0.5612***	0.5031***	0.4279***	0.6810***	0.9358***	0.8334***	0.5998***	0.9372***	1.000000														
CC	0.5333***	0.5871***	0.5384***	0.3371***	0.2855***	0.5875***	0.9110***	0.7594***	0.6711***	0.9026***	0.8491***	1.000000													
RL	0.6641***	0.6338***	0.6508***	0.4963***	0.4457***	0.6698***	0.9723***	0.8391***	0.7377***	0.9445***	0.9342***	0.8974***	1.000000												
HR	0.4040***	0.3964***	0.4991***	0.2563***	0.2695***	0.3426***	0.6140***	0.4132***	0.6995***	0.4837***	0.4407***	0.5156***	0.5647***	1.000000											
SB	0.4698***	0.4107***	0.4755***	0.3594***	0.3479***	0.4506***	0.6896***	0.5742***	0.3438***	0.6249***	0.6327***	0.5382***	0.6411***	0.3762***	1.000000										
CL	0.4354***	0.5285***	0.4064***	0.2778***	0.1968***	0.5051***	0.7640***	0.8717***	0.3597***	0.6664***	0.6857***	0.6189***	0.6724***	0.3151***	0.4974***	1.000000									
INF	-0.1735***	-0.1329**	-0.1543***	-0.1294***	-0.1244**	-0.2089***	-0.0880	0.0193	-0.1894***	-0.1037	-0.0574	-0.0903	-0.1220*	-0.1277*	-0.0889	0.0753	1.000000								
INV	0.0995	0.3079***	0.0779	-0.0247	-0.0806	0.1848***	0.0498	0.2013***	-0.2684***	0.0660	0.0948*	-0.0328	0.0131	-0.2544***	0.2720***	0.2171***	0.1336***	1.000000							
LIL	0.5142***	0.5711***	0.5122***	0.3131***	0.3056***	0.5525***	0.3773***	0.2993***	0.5304***	0.4084***	0.2845***	0.2844***	0.4085***	0.2817***	0.2151***	0.1314**	-0.3631***	0.0634	1.000000						
RGDP	0.0994*	0.3035***	0.0726	-0.0115	-0.0764	0.1762***	0.0271	0.1916***	-0.3216***	0.0551	0.0777	-0.0426	-0.0111	-0.3000***	0.2581***	0.2178***	0.1433***	0.9634***	0.0384	1.000000					
TNRR	-0.3402***	-0.3258***	-0.2893***	-0.2575***	-0.1831***	-0.4251***	-0.4883***	-0.5229***	-0.0992*	-0.5509***	-0.4766***	-0.5303***	-0.4820***	-0.1355**	-0.3820***	-0.3698***	0.1767***	0.0049	-0.0013	-0.0245	1.000000				
TOP	0.3864***	0.3086***	0.4438***	0.2929***	0.3178***	0.3144***	0.2413***	0.1670***	0.5523***	0.1672***	0.1139**	0.1812***	0.2086***	0.4569***	-0.0416	0.1169*	-0.0028	-0.2797***	0.4268***	-0.3135***	0.3421***	1.000000			
UER	0.4013***	0.6858***	0.4996***	0.0742	0.0280	0.5036***	0.5272***	0.4722***	0.5543***	0.4623***	0.4164***	0.4785***	0.4861***	0.4187***	0.2505***	0.4472***	-0.2033***	0.2431***	0.5349***	0.2296***	-0.0489	0.3286***	1.000000		
GDPGR	-0.1438***	-0.2085***	-0.1267*	-0.0739	-0.0814	-0.1491**	0.0320	0.0323	0.0297	0.0194	0.0422	0.0382	0.0237	0.0085	-0.0532	0.0890	0.1006*	-0.0405	-0.1435***	-0.0576	0.1565***	-0.0007	-0.1733***	1.000000	
PCRGDP	0.4855***	0.4384***	0.4911***	0.3789***	0.3857***	0.4229***	0.2342***	0.1016*	0.4878***	0.2033***	0.2008***	0.1282**	0.2627***	0.3560***	0.0493	0.0373	-0.2347***	0.0924*	0.7195***	0.0750	0.3664***	0.6015***	0.5392***	-0.0844	1.000000

Appendix 2: Dynamic panel-data estimations on the determinants of economic growth proxy by GDP growth rate

Variables	Pooled Effects GDPGR	Fixed Effects GDPGR	Random Effects GDPGR	2-Step System GMM GDPGR	FGLS GDPGR
L.GDPGR	0.281***	0.188***	0.281***	-0.161*	0.281***
	(0.0514)	(0.0531)	(0.0514)	(0.0589)	(0.0503)
FIINDEX	-1.898	-4.389	-1.898	1.594	-1.898
	(1.607)	(2.723)	(1.607)	(4.062)	(1.574)
INSTDEX	1.273**	0.799	1.273**	3.003*	1.273**
	(0.402)	(0.827)	(0.402)	(1.436)	(0.394)
FIINDEXINSTDEX	1.021	1.261	1.021	0.348	1.021
	(0.982)	(1.239)	(0.982)	(3.623)	(0.962)
INF	-0.0679	-0.0472	-0.0679	-0.0473	-0.0679
	(0.0521)	(0.0650)	(0.0521)	(0.0573)	(0.0510)
TOP	0.00432	0.0000626	0.00432	-0.0240	0.00432
	(0.0140)	(0.0216)	(0.0140)	(0.0259)	(0.0137)
UER	-0.140**	-0.0554	-0.140**	-0.175	-0.140**
	(0.0492)	(0.255)	(0.0492)	(0.0982)	(0.0482)
LINV	1.943***	5.777***	1.943***	7.704**	1.943***
	(0.495)	(1.239)	(0.495)	(2.102)	(0.485)
LIL	-5.847**	-14.23	-5.847**	-43.36***	-5.847**
	(1.887)	(7.302)	(1.887)	(8.009)	(1.849)
TNRR	0.00888	0.201***	0.00888	0.533***	0.00888
	(0.0289)	(0.0583)	(0.0289)	(0.0570)	(0.0283)
DUMMY_GFC	0.401	0.0256	0.401	-0.991***	0.401
	(0.646)	(0.695)	(0.646)	(0.187)	(0.632)
DUMMY_COVID	-6.057***	-5.847***	-6.057***	-6.090***	-6.057***
	(1.025)	(1.030)	(1.025)	(0.296)	(1.004)
_cons	-12.66**	-48.84***	-12.66**		-12.66**
	(4.677)	(12.30)	(4.677)		(4.581)
N	320	320	320	300	320
R^2		0.330			

Note: standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Each column represents a different regression technique.

Source: Author's own computations using Stata

Appendix 3: Dynamic panel-data estimations on the determinants of economic growth proxy by per capita real GDP

Variables	Pooled Effects LPCRGDP	Fixed Effects LPCRGDP	Random Effects LPCRGDP	2-Step System GMM LPCRGDP	FGLS LPCRGDP
L.LPCRGDP	0.968***	0.819***	0.968***	0.727***	0.970***
	(0.00671)	(0.0240)	(0.00671)	(0.0488)	(0.00626)
FIINDEX	-0.000198	0.000925	-0.000198	0.0185	0.000114
	(0.00783)	(0.0118)	(0.00783)	(0.0249)	(0.00752)
INSTDEX	0.00582**	0.00599	0.00582**	0.0245***	0.00563**
	(0.00187)	(0.00343)	(0.00187)	(0.00607)	(0.00176)
FIINDEXINSTDEX	0.00256	0.00285	0.00256	-0.00415	0.00222
	(0.00469)	(0.00522)	(0.00469)	(0.00548)	(0.00450)
INF	-0.000418	-0.000374	-0.000418	-0.000681**	-0.000406
	(0.000241)	(0.000273)	(0.000241)	(0.000222)	(0.000233)
TOP	0.000127	-0.00000441	0.000127	-0.000321	0.000125
	(0.0000676)	(0.0000909)	(0.0000676)	(0.000257)	(0.0000644)
UER	0.000112	-0.000854	0.000112	0.000105	0.0000668
	(0.000279)	(0.00107)	(0.000279)	(0.000567)	(0.000258)
LINV	0.0144***	0.0519***	0.0144***	0.0464***	0.0139***
	(0.00238)	(0.00599)	(0.00238)	(0.00954)	(0.00224)
LIL	-0.00709	-0.0193	-0.00709	0.137	-0.00741
	(0.0108)	(0.0314)	(0.0108)	(0.0843)	(0.0100)
TNRR	0.000246	0.000969***	0.000246	0.00173**	0.000204
	(0.000157)	(0.000240)	(0.000157)	(0.000468)	(0.000148)
DUMMY_GFC	0.00304	-0.00132	0.00304	-0.00476**	0.00312
	(0.00295)	(0.00293)	(0.00295)	(0.00147)	(0.00290)
DUMMY_COVID	-0.0263***	-0.0219***	-0.0263***	-0.0227***	-0.0265***
	(0.00469)	(0.00436)	(0.00469)	(0.00203)	(0.00461)
_cons	-0.0358	0.104	-0.0358		-0.0352
	(0.0244)	(0.0688)	(0.0244)		(0.0230)
N	320	320	320	300	320
R^2		0.916			

Note: standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Each column represents a different regression technique.

Appendix 4: Dynamic panel-data estimations on the determinants of economic growth proxy by real GDP

Variable	Pooled Effects LRGDP	Fixed Effects LRGDP	Random Effects LRGDP	2-Step System GMM LRGDP	FGLS LRGDP
L.LRGDP	0.972***	0.852***	0.972***	0.817***	0.973***
	(0.00642)	(0.0183)	(0.00642)	(0.0481)	(0.00626)
FIINDEX	-0.00289	0.00505	-0.00289	0.261*	-0.00286
	(0.00756)	(0.0119)	(0.00756)	(0.102)	(0.00738)
INSTDEX	0.00366	0.00246	0.00366	-0.0605**	0.00368
	(0.00209)	(0.00345)	(0.00209)	(0.0200)	(0.00204)
FIINDEXINSTDEX	0.00119	-0.00209	0.00119	-0.137**	0.00116
	(0.00461)	(0.00530)	(0.00461)	(0.0475)	(0.00450)
INF	-0.000197	-0.000463	-0.000197	-0.000121	-0.000196
	(0.000245)	(0.000273)	(0.000245)	(0.000295)	(0.000239)
TOP	-0.0000122	-0.000000125	-0.0000122	0.000116	-0.0000122
	(0.0000649)	(0.0000907)	(0.0000649)	(0.000129)	(0.0000632)
UER	-0.000841***	-0.000775	-0.000841***	0.00246	-0.000843***
	(0.000221)	(0.00107)	(0.000221)	(0.00140)	(0.000214)
LINV	0.0328***	0.0591***	0.0328***	0.0694***	0.0326***
	(0.00528)	(0.00623)	(0.00528)	(0.0108)	(0.00515)
LIL	-0.0155	0.0164	-0.0155	-0.241	-0.0154
	(0.00971)	(0.0324)	(0.00971)	(0.142)	(0.00944)
TNRR	0.0000210	0.000431	0.0000210	0.00104**	0.0000167
	(0.000133)	(0.000249)	(0.000133)	(0.000304)	(0.000130)
DUMMY_GFC	0.00372	-0.00354	0.00372	-0.000957	0.00373
	(0.00296)	(0.00295)	(0.00296)	(0.00383)	(0.00290)
DUMMY_COVID	-0.0267***	-0.0145**	-0.0267***	-0.00747	-0.0267***
	(0.00469)	(0.00454)	(0.00469)	(0.00433)	(0.00460)
_cons	0.000499	0.970***	0.000499		0.0000180
	(0.0284)	(0.160)	(0.0284)		(0.0276)
N	320	320	320	300	320
R^2		0.967			

Note: standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Each column represents a different regression technique.

Source: Authors own computations using Stata

Appendix 5: Dynamic panel-data estimations on the financial inclusion as a determinant of economic growth proxy by GDP growth rate

Variables	Pooled Effects GDPGR	Fixed Effects GDPGR	Random Effects GDPGR	2 Step System GMM GDPGR	FGLS GDPGR
L.GDPGR	0.325***	0.195***	0.325***	0.262*	0.325***
	(0.0500)	(0.0522)	(0.0500)	(0.109)	(0.0492)
FIINDEX	-0.150	-2.634	-0.150	0.476	-0.150
	(0.238)	(1.631)	(0.238)	(0.865)	(0.234)
INF	-0.0578	-0.0559	-0.0578	-0.332**	-0.0578
	(0.0527)	(0.0635)	(0.0527)	(0.0861)	(0.0518)
TOP	0.0221	-0.00209	0.0221	0.0290	0.0221
	(0.0131)	(0.0215)	(0.0131)	(0.0485)	(0.0129)
UER	-0.0912*	-0.0724	-0.0912*	3.622*	-0.0912*
	(0.0441)	(0.251)	(0.0441)	(1.361)	(0.0433)
LINV	1.528***	5.749***	1.528***	9.482*	1.528***
	(0.453)	(1.225)	(0.453)	(4.234)	(0.445)
LIL	-4.311*	-13.48	-4.311*	-92.33***	-4.311*
	(1.856)	(7.266)	(1.856)	(21.38)	(1.823)
TNRR	-0.0159	0.201***	-0.0159	0.0711	-0.0159
	(0.0281)	(0.0576)	(0.0281)	(0.101)	(0.0277)
DUMMY_GFC	0.545	0.0555	0.545	0.337	0.545
	(0.653)	(0.689)	(0.653)	(0.727)	(0.641)
DUMMY_COVID	-5.981***	-5.899***	-5.981***	-6.424***	-5.981***
	(1.038)	(1.025)	(1.038)	(1.372)	(1.020)
_cons	-10.51*	-48.06***	-10.51*	-85.11	-10.51*
	(4.219)	(12.10)	(4.219)	(45.78)	(4.146)
N	320	320	320	320	320
R^2		0.329			

Note: standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Each column represents a different regression technique.

Source: Author's own computations using Stata

Appendix 6: Dynamic panel-data estimations on the financial inclusion as a determinant of economic growth proxy by per capita real GDP

Variables	Pooled Effects LPCRGDP	Fixed Effects LPCRGDP	Random Effects LPCRGDP	2 Step System GMM LPCRGDP	FGLS LPCRGDP
L.LPCRGDP	0.965***	0.824***	0.965***	0.924***	0.969***
	(0.00720)	(0.0238)	(0.00720)	(0.115)	(0.00626)
FIINDEX	0.00399**	0.00105	0.00399**	0.0277***	0.00343**
	(0.00142)	(0.00710)	(0.00142)	(0.00654)	(0.00121)
INF	-0.000428	-0.000468	-0.000428	-0.00126*	-0.000384
	(0.000248)	(0.000268)	(0.000248)	(0.000523)	(0.000237)
TOP	0.000215**	-0.0000180	0.000215**	-0.000680	0.000214***
	(0.0000656)	(0.0000910)	(0.0000656)	(0.000438)	(0.0000597)
UER	0.000423	-0.000756	0.000423	0.00449	0.000302
	(0.000287)	(0.00106)	(0.000287)	(0.00422)	(0.000245)
LINV	0.0140***	0.0520***	0.0140***	0.0465*	0.0129***
	(0.00242)	(0.00599)	(0.00242)	(0.0174)	(0.00214)
LIL	0.0000949	-0.0258	0.0000949	-0.110	-0.000770
	(0.0114)	(0.0312)	(0.0114)	(0.196)	(0.00988)
TNRR	0.000218	0.000993***	0.000218	0.00406***	0.000105
	(0.000164)	(0.000238)	(0.000164)	(0.000963)	(0.000147)
DUMMY_GFC	0.00395	-0.000777	0.00395	0.000253	0.00406
	(0.00296)	(0.00292)	(0.00296)	(0.00319)	(0.00294)
DUMMY_COVID	-0.0261***	-0.0225***	-0.0261***	-0.0301**	-0.0263***
	(0.00473)	(0.00436)	(0.00473)	(0.00796)	(0.00470)
_cons	-0.0303	0.0908	-0.0303	-0.190	-0.0308
	(0.0234)	(0.0676)	(0.0234)	(0.314)	(0.0205)
N	320	320	320	320	320
R^2		0.915			

Note: standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Each column represents a different regression technique.

Source: Author's own computations using Stata

Appendix 7: Dynamic panel-data estimations on the financial inclusion as a determinant of economic growth proxy by real GDP

Variables	Pooled Effects LRGDP	Fixed effects LRGDP	Random Effects LRGDP	2 Step System GMM LRGDP	FGLS LRGDP
L.LRGDP	0.963***	0.854***	0.963***	0.955***	0.966***
	(0.00599)	(0.0180)	(0.00599)	(0.0231)	(0.00538)
FIINDEX	-0.000404	-0.0000465	-0.000404	0.00952**	-0.000584
	(0.00126)	(0.00702)	(0.00126)	(0.00320)	(0.00106)
INF	-0.000168	-0.000517	-0.000168	-0.000509	-0.000128
	(0.000249)	(0.000266)	(0.000249)	(0.000334)	(0.000238)
TOP	0.0000162	-0.00000589	0.0000162	-0.000194	0.0000218
	(0.0000680)	(0.0000903)	(0.0000680)	(0.000272)	(0.0000615)
UER	-0.000689**	-0.000617	-0.000689**	0.00340	-0.000705***
	(0.000232)	(0.00105)	(0.000232)	(0.00268)	(0.000195)
LINV	0.0391***	0.0596***	0.0391***	0.0579***	0.0368***
	(0.00512)	(0.00619)	(0.00512)	(0.0123)	(0.00469)
LIL	-0.00977	0.0125	-0.00977	-0.138*	-0.00825
	(0.0101)	(0.0321)	(0.0101)	(0.0648)	(0.00870)
TNRR	0.0000303	0.000435	0.0000303	0.00224**	-0.0000609
	(0.000144)	(0.000246)	(0.000144)	(0.000654)	(0.000126)
DUMMY_GFC	0.00419	-0.00323	0.00419	0.000337	0.00439
	(0.00291)	(0.00293)	(0.00291)	(0.00128)	(0.00289)
DUMMY_COVID	-0.0260***	-0.0148**	-0.0260***	-0.0262***	-0.0264***
	(0.00465)	(0.00452)	(0.00465)	(0.00504)	(0.00462)
_cons	0.0253	0.947***	0.0253	-0.0640	0.0167
	(0.0273)	(0.156)	(0.0273)	(0.160)	(0.0235)
N	320	320	320	320	320
R^2		0.967			

Note: standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Each column represents a different regression technique.

Source: Author's own computations using Stata

Appendix 8: Dynamic panel-data estimations on the institutional quality as a determinant of economic growth proxy by GDP growth rate

Variables	Pooled Effects GDPGR	Fixed Effects GDPGR	Random Effects GDPGR	2-Step System GMM GDPGR	FGLS GDPGR
L.GDPGR	0.285***	0.194***	0.285***	0.0748***	0.285***
	(0.0513)	(0.0530)	(0.0513)	(0.00629)	(0.0504)
INSTDEX	1.038**	0.419	1.038**	-2.967*	1.038**
	(0.351)	(0.775)	(0.351)	(1.394)	(0.345)
INF	-0.0660	-0.0454	-0.0660	-0.0337	-0.0660
	(0.0521)	(0.0650)	(0.0521)	(0.0686)	(0.0512)
TOP	0.00282	0.00360	0.00282	-0.0131	0.00282
	(0.0133)	(0.0214)	(0.0133)	(0.0302)	(0.0130)
UER	-0.142**	-0.142	-0.142**	-0.508***	-0.142**
	(0.0468)	(0.250)	(0.0468)	(0.0530)	(0.0459)
LINV	1.714***	5.426***	1.714***	10.34**	1.714***
	(0.452)	(1.221)	(0.452)	(3.143)	(0.444)
LIL	-5.903**	-17.26*	-5.903**	-69.61***	-5.903**
	(1.856)	(6.859)	(1.856)	(11.87)	(1.824)
TNRR	0.0201	0.196***	0.0201	0.318***	0.0201
	(0.0270)	(0.0578)	(0.0270)	(0.0430)	(0.0266)
DUMMY_GFC	0.408	0.0729	0.408	-1.149***	0.408
	(0.645)	(0.695)	(0.645)	(0.268)	(0.634)
DUMMY_COVID	-6.098***	-5.876***	-6.098***	-5.626***	-6.098***
	(1.024)	(1.030)	(1.024)	(0.214)	(1.006)
_cons	-10.12*	-43.38***	-10.12*		-10.12*
	(4.140)	(11.83)	(4.140)		(4.068)
N	320	320	320	300	320
R^2		0.323			

Note: standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Each column represents a different regression technique.

Source: Author's own computations using Stata

Appendix 9: Dynamic panel-data estimations on the institutional quality as a determinant of economic growth proxy by per capita real GDP

Variables	Pooled Effects LPCRGDP	Fixed Effects LPCRGDP	Random Effects LPCRGDP	2-Step System GMM LPCRGDP	FGLS LPCRGDP
L.LPCRGDP	0.976***	0.821***	0.976***	0.732***	0.977***
	(0.00569)	(0.0231)	(0.00569)	(0.0412)	(0.00550)
INSTDEX	0.00564***	0.00552	0.00564***	0.0177**	0.00560***
	(0.00158)	(0.00323)	(0.00158)	(0.00516)	(0.00154)
INF	-0.000419	-0.000371	-0.000419	-0.000542**	-0.000416
	(0.000240)	(0.000273)	(0.000240)	(0.000166)	(0.000235)
TOP	0.000156*	-0.0000139	0.000156*	-0.000217	0.000155*
	(0.0000651)	(0.0000897)	(0.0000651)	(0.000196)	(0.0000634)
UER	-0.000223	-0.000837	-0.000223	0.000368	-0.000230
	(0.000243)	(0.00104)	(0.000243)	(0.000539)	(0.000235)
LINV	0.0128***	0.0516***	0.0128***	0.0381***	0.0127***
	(0.00217)	(0.00596)	(0.00217)	(0.00837)	(0.00211)
LIL	-0.00965	-0.0134	-0.00965	0.141*	-0.00977
	(0.0102)	(0.0302)	(0.0102)	(0.0643)	(0.00990)
TNRR	0.0000405	0.000997***	0.0000405	0.00145**	0.0000303
	(0.000133)	(0.000237)	(0.000133)	(0.000382)	(0.000129)
DUMMY_GFC	0.00325	-0.00138	0.00325	-0.00327*	0.00327
	(0.00298)	(0.00292)	(0.00298)	(0.00130)	(0.00293)
DUMMY_COVID	-0.0263***	-0.0219***	-0.0263***	-0.0245***	-0.0263***
	(0.00474)	(0.00435)	(0.00474)	(0.00149)	(0.00466)
_cons	-0.0423*	0.0988	-0.0423*		-0.0423*
	(0.0203)	(0.0640)	(0.0203)		(0.0196)
N	320	320	320	300	320
R^2		0.916			

Note: standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Each column represents a different regression technique.

Source: Author's own computations using Stata

Appendix 10: Dynamic panel-data estimations on the institutional quality as a determinant of economic growth proxy by GDP growth rate

Variables	Pooled Effects LRGDP	Fixed Effects LRGDP	Random Effects LRGDP	2 Step System GMM LRGDP	FGLS LRGDP
L.LRGDP	0.972***	0.854***	0.972***	0.939***	0.972***
	(0.00622)	(0.0175)	(0.00622)	(0.0112)	(0.00612)
INSTDEX	0.00324	0.00301	0.00324	-0.00916**	0.00324
	(0.00176)	(0.00320)	(0.00176)	(0.00304)	(0.00173)
INF	-0.000185	-0.000462	-0.000185	-0.000298*	-0.000185
	(0.000243)	(0.000272)	(0.000243)	(0.000120)	(0.000239)
TOP	-0.0000243	-0.00000196	-0.0000243	-0.0000508	-0.0000243
	(0.0000614)	(0.0000893)	(0.0000614)	(0.000231)	(0.0000603)
UER	-0.000818***	-0.000676	-0.000818***	-0.00192***	-0.000818***
	(0.000207)	(0.00104)	(0.000207)	(0.000249)	(0.000204)
LINV	0.0328***	0.0590***	0.0328***	0.0389***	0.0328***
	(0.00523)	(0.00621)	(0.00523)	(0.00722)	(0.00514)
LIL	-0.0158	0.0171	-0.0158	-0.0937**	-0.0158
	(0.00941)	(0.0312)	(0.00941)	(0.0302)	(0.00925)
TNRR	0.0000522	0.000437	0.0000522	0.000866*	0.0000522
	(0.000124)	(0.000244)	(0.000124)	(0.000340)	(0.000122)
DUMMY_GFC	0.00375	-0.00352	0.00375	-0.00400***	0.00375
	(0.00295)	(0.00294)	(0.00295)	(0.000475)	(0.00290)
DUMMY_COVID	-0.0268***	-0.0146**	-0.0268***	-0.0171***	-0.0268***
	(0.00468)	(0.00451)	(0.00468)	(0.00156)	(0.00460)
_cons	0.00542	0.946***	0.00542		0.00542
	(0.0246)	(0.149)	(0.0246)		(0.0242)
N	320	320	320	300	320
R^2		0.967			

Note: standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Each column represents a different regression technique.

Source: Author's own computations using Stata

Appendix 11: Cointegration, vector error correction and causality between economic growth (measured by GDP growth rate), financial inclusion and institutional quality.

Variables	PMG D.GDPGR	MG D.GDPGR	DFE D.GDPGR
Long-run			
FIINDEX	-12.71***	-93.36	-5.837
	(-5.29)	(-0.97)	(-1.81)
L.INSTDEX	1.896***	1.892	1.203
	(4.55)	(0.81)	(0.98)
ECT	-0.706***	-0.955***	-0.674***
	(-7.99)	(-9.11)	(-12.39)
Short-run			
D.FIINDEX	-577.1	-546.3	-0.571
	(-0.78)	(-0.75)	(-0.07)
D.INSTDEX	4.038*	4.826*	3.129*
	(2.47)	(2.04)	(2.24)
_cons	0.480	-22.85	2.497***
	(0.68)	(-0.67)	(6.58)
N	320	320	
		Hausman test p-value: 0.6883	

Notes: *t* statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. GDPGR is gross domestic product growth rate, FIINDEX is financial inclusion index, INSTDEX is institutional quality index.

Appendix 12: Cointegration, vector error correction and causality between economic growth (measured by per capita real GDP), financial inclusion and institutional quality.

Variable	PMG D.LPCRGDP	MG D.LPCRGDP	DFE D.LPCRGDP
Long-run			
L.FIINDEX	0.0992***	3.124	-0.0473
	(9.11)	(0.45)	(-0.41)
L.INSTDEX	-0.0400***	-0.139	0.0882*
	(-5.38)	(-0.68)	(2.04)
ECT	-0.142***	-0.228***	-0.110***
	(-4.54)	(-4.58)	(-4.61)
Short-run			
D.FIINDEX	-2.523	-6.998	-0.00591
	(-0.70)	(-0.88)	(-0.14)
D.INSTDEX	0.0147*	0.0254*	0.0195**
	(1.98)	(2.12)	(2.97)
_cons	0.461***	0.403	0.364***
	(4.15)	(1.04)	(4.68)
N	320	320	
		Hausman test p-value: 0.9654	

Notes: *t* statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. PCRGDP is per capita real gross domestic product, FIINDEX is financial inclusion index, INSTDEX is institutional quality index.

Appendix 13: Cointegration, vector error correction and causality between economic growth (measured by real GDP), financial inclusion and institutional quality

	PMG D.LRGDP	MG D.LRGDP	DFE D.LRGDP
ECT			
L2.FIINDEX	0.104***	10.91	-0.0227
	(7.88)	(1.18)	(-0.15)
L2.INSTDEX	0.0671***	-0.167	0.0962
	(4.14)	(-0.60)	(1.64)
SR			
ECT	-0.135***	-0.261***	-0.0794***
	(-3.84)	(-6.00)	(-5.36)
D.FIINDEX	-4.336	-6.653	0.00706
	(-0.78)	(-0.95)	(0.19)
D.INSTDEX	0.0158*	0.0201	0.0174**
	(2.10)	(1.85)	(2.63)
_cons	1.385***	2.685***	0.832***
	(4.01)	(5.10)	(5.47)
N	320	320	
		Hausman test p-value: 0.99987	

Notes: *t* statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. RGDP is real gross domestic product, FIINDEX is financial inclusion index, INSTDEX is institutional quality index.

Appendix 14: Cointegration, vector error correction and causality between three key variables (Economic growth measured by GDPGR, while financial inclusion is dependent variable)

Variables	PMG D.FIINDEX	MG D.FIINDEX	DFE D.FIINDEX
Long-run			
GDPGR	-0.000116	-0.0252	-0.00295
	(-0.68)	(-1.28)	(-1.06)
INSTDEX	0.0146***	0.317	0.00351
	(9.62)	(0.64)	(0.10)
ECT	-0.0917***	-0.113***	-0.153***
	(-4.89)	(-3.64)	(-14.05)
Short-run			
D.GDPGR	0.000343	0.000934	0.000266
	(1.65)	(1.72)	(0.72)
D.INSTDEX	0.00648	0.0220	0.00731
	(0.41)	(0.83)	(0.87)
_cons	0.0249	0.0441	0.0133***
	(0.68)	(0.57)	(5.34)
N	320	320	320
		Hausman test p-value: 0.8672	

Notes: *t* statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. GDPGR is gross domestic product growth rate, FIINDEX is financial inclusion index, INSTDEX is institutional quality index.

Appendix 15: Cointegration, vector error correction and causality between three key variables (Economic growth measured by PCRGDP, while financial inclusion is dependent variable)

Variables	PMG D.FIINDEX	MG D.FIINDEX	DFE D.FIINDEX
Long-run			
L.LPCRGDP	-0.00143	3.508	0.240
	(-1.20)	(1.92)	(0.98)
L.INSTDEX	0.0124***	0.189	-0.00963
	(6.77)	(0.37)	(-0.22)
ECT	-0.0885***	-0.151**	-0.137***
	(-4.82)	(-2.90)	(-11.23)
Short-run			
D.LPCRGDP	0.0292	0.0547	-0.0232
	(0.72)	(0.80)	(-0.27)
D.INSTDEX	0.00692	-0.00486	0.00768
	(0.45)	(-0.86)	(0.80)
_cons	0.0256	-0.126	-0.0969
	(0.70)	(-0.26)	(-0.85)
N	320	320 Hausman test p-value: 0.8968	

Notes: *t* statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. PCRGDP is per capita real gross domestic product, FIINDEX is financial inclusion index, INSTDEX is institutional quality index.

Appendix 16: Cointegration, vector error correction and causality between three key variables (Economic growth measured by RGDP, while financial inclusion is dependent variable)

	PMG D.FIINDEX	MG D.FIINDEX	DFE D.FIINDEX
Long Run			
LRGDP	0.0114***	0.507	0.235
	(36.58)	(0.28)	(1.53)
INSTDEX	0.00934***	0.447	-0.00192
	(5.68)	(1.16)	(-0.04)
ECT	-0.0953***	-0.251***	-0.139***
	(-5.27)	(-5.39)	(-11.47)
Short Run			
D.LRGDP	0.0276	-0.0138	-0.0368
	(0.67)	(-0.17)	(-0.44)
D.INSTDEX	0.00605	0.0232	0.00905
	(0.40)	(0.92)	(1.03)
_cons	0.0118	-0.661	-0.327
	(0.32)	(-0.53)	(-1.43)
N	320	320	320
		Hausman test p-value: 0.7255	

Notes: *t* statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. RGDP is real gross domestic product, FIINDEX is financial inclusion index, INSTDEX is institutional quality index.

Appendix 17: Cointegration, vector error correction and causality between three key variables (Economic growth measured by GDPGR, while institutional quality is dependent variable)

Variables	PMG D.INSTDEX	MG D.INSTDEX	DFE D.INSTDEX
Long-run			
L.FIINDEX	-0.274*	-73.86	-0.600
	(-2.42)	(-1.66)	(-0.79)
L.GDPGR	0.00637*	0.107	-0.0466
	(2.02)	(1.19)	(-1.67)
ECT	-0.399***	-0.710***	-0.132***
	(4.82)	(-10.71)	(3.64)
Short-run			
D.FIINDEX	30.96	-1.319	0.347
	(0.74)	(-0.13)	(0.87)
D.GDPGR	-0.0000222	0.00981	0.00451
	(-0.01)	(1.36)	(1.77)
_cons	-0.0925	-7.053	-0.0307
	(-0.52)	(-1.63)	(-1.72)
N	320	320	
		Hausman test p-value: 0.9926	

Notes: *t* statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. GDPGR is gross domestic product growth rate, FIINDEX is financial inclusion index, INSTDEX is institutional quality index.

Appendix 18: Cointegration, vector error correction and causality between three key variables (Economic growth measured by PCRGDP, while institutional quality is dependent variable)

Variables	PMG D.INSTDEX	MG D.INSTDEX	DFE D.INSTDEX
Long-run			
L.FIINDEX	2.424***	140.8	1.174
	(5.77)	(0.65)	(1.67)
L.LPCRGDP	-4.393***	-6.097	-1.143
	(-83.49)	(-0.28)	(-0.83)
ECT	-0.121*	-0.0602	-0.175***
	(-2.54)	(-0.69)	(-5.04)
Short-run			
D.FIINDEX	44.47	37.79	0.557
	(1.07)	(1.07)	(1.36)
D.LPCRGDP	1.506	2.643	1.664**
	(1.00)	(1.39)	(2.98)
_cons	1.578*	1.967	0.633
	(2.35)	(0.38)	(0.83)
N	320	320	
		Hausman test p-value: 0.9974	

Notes: *t* statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. PCRGDP is per capita real gross domestic product, FIINDEX is financial inclusion index, INSTDEX is institutional quality index.

Appendix 19: Cointegration, vector error correction and causality between three key variables (Economic growth measured by RGDP, while institutional quality is dependent variable)

	PMG D.INSTDEX	MG D.INSTDEX	DFE D.INSTDEX
Long Run			
L.FIINDEX	-0.828***	17.86	-1.099
	(-3.94)	(0.40)	(-1.30)
L.LRGDP	0.275	-0.562	1.909
	(1.65)	(-0.35)	(1.64)
ECT	-0.467***	-0.801***	-0.133***
	(5.62)	(9.86)	(3.73)
Short run			
D.FIINDEX	25.22	30.81	0.447
	(0.76)	(0.83)	(1.11)
D.LRGDP	-0.333	0.636	0.831
	(-0.25)	(0.36)	(1.49)
_cons	1.380***	5.734	2.598
	(4.06)	(0.56)	(1.85)
N	320	320	320
		Hausman test p-value: 0.9949	

Notes: *t* statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. RGDP is real gross domestic product, FIINDEX is financial inclusion index, INSTDEX is institutional quality index.

Appendix 20: List of Countries used for the study

Ghana, Mauritius, Kenya, Uganda, South Africa, Nigeria, Botswana, Rwanda, Gambia, Gabon, Cameroon, Central Africa Republic, Equatorial Guinea, Tanzania, Zimbabwe, Angola, Guinea, Namibia, Zambia; and Mozambique.

Appendix 20: Turnitin snippet of similarity index

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