

UNIVERSITY OF GHANA BUSINESS SCHOOL

INTERNATIONAL TRADE AND INCLUSIVE GROWTH IN SUB-SAHARAN AFRICA: ROLE OF THE LOCAL FINANCIAL MARKET

BY

RAPHAEL MAWULI WUGAH
(11006154)

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DECLARATION

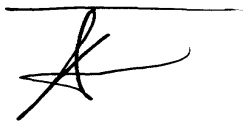
I, Raphael Mawuli Wugah, hereby declare that this thesis is the result of my own research and analysis, and has no part of this thesis or the whole work submitted or presented by anyone for an academic qualification in any institution. All references used in here have duly been acknowledged.

Candidate's Signature:  Date: 05/03/2025



CERTIFICATION

We hereby certify that this thesis is the result of a research work undertaken by Raphael Mawuli Wugah under our supervision as a partial fulfillment of the requirements for the award of a master of Philosophy degree in finance by the University of Ghana. No part of this paper has been presented in part or in whole for any academic exercise or to any institution for an award of any academic certificate.



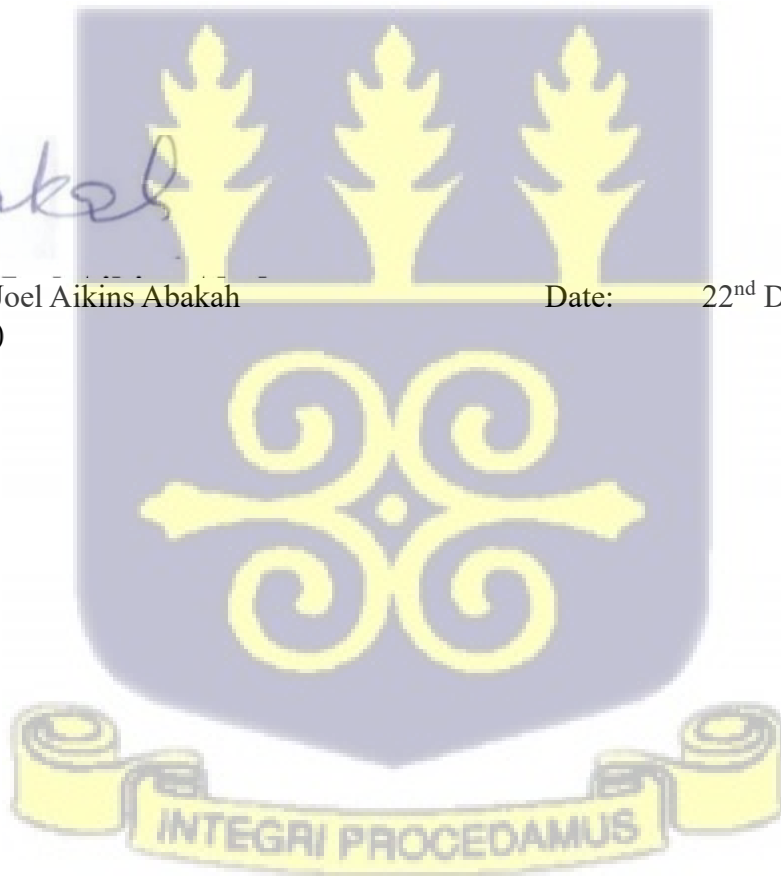
Prof. Joshua Yindenaba Abor
(Principal Supervisor)

Date: 22nd December 2025



Dr. Emmanuel Joel Aikins Abakah
(Co-Supervisor)

Date: 22nd December 2025



DEDICATION

This thesis is dedicated to my mother, Ms. Agnes Bobie, for her tireless efforts, unwavering support, and guidance throughout my childhood, to my lovely sister, Edinam Wugah, for being a supportive sister and friend whom I have always relied on, and to the entire family for providing a home for my upbringing. Special thanks are also due to the Faculty and Finance Department of the University of Ghana Business School.

Thank you.

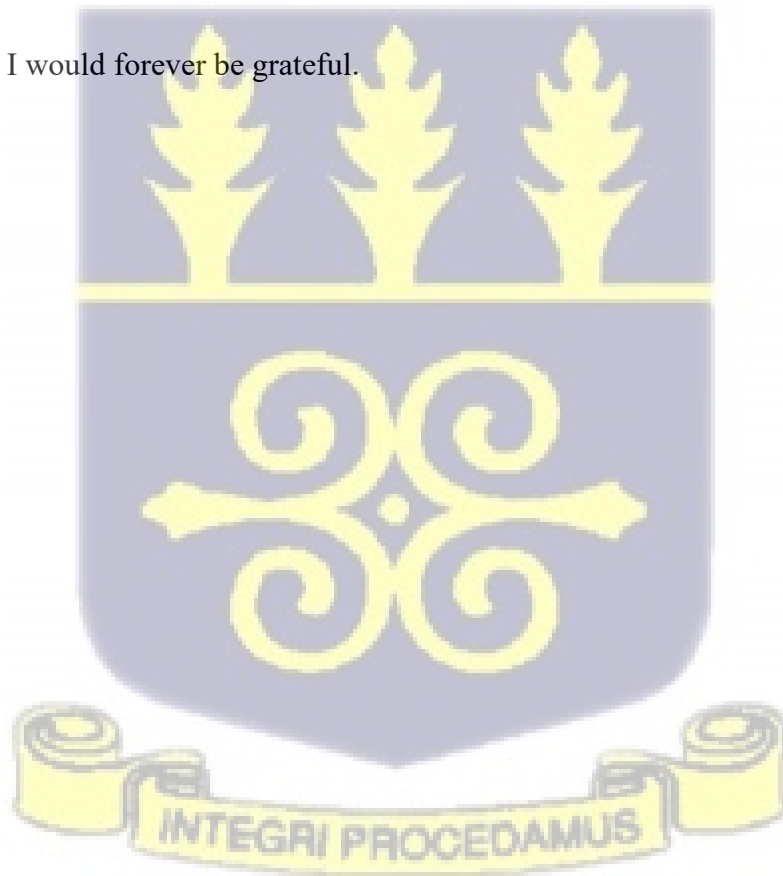


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Thank you, and I would forever be grateful.



ABSTRACT

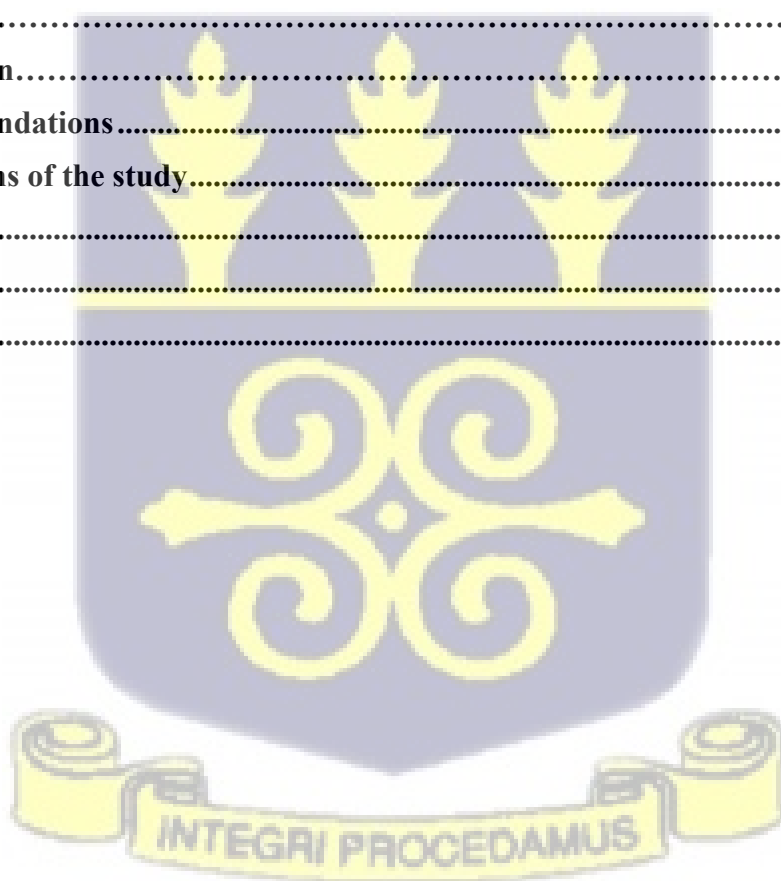
Since the days of the mercantilists, trade has been recognized by some as a tool for creating wealth for nations. Others refer to it as a living standard improvement tool. Trade's positive significant impact on growth has considerable support in literature, but it is yet to garner the same support for its impact on living standard. This is because trade-induced growth is said to be significantly impactful when it leads to a reduction in poverty and closes inequality gap. With the valuable role played by finance in resourcing individuals to participate in economic activities, this study explored the significance of the local financial markets' moderating role in the relationship between international trade and inclusive growth in sub-Saharan Africa, a subregion that is exposed, like the rest of the world, to the fast-developing global financial market. The study employed the Two-Step System General Method of Moment estimating technique to analyze panel data sourced from twenty-seven (27) sub-Saharan African countries covering the period of 14 years (2008-2021). The result of the study generally revealed a negative but insignificant impact of domestic credit to the private sector on export and trade. It has also been revealed that the composition of trade on the continent was a contributing factor to the inclusivity of growth, which is based on the fact that sub-Saharan Africa's export was largely in raw material forms (agrarian), thus employing many unskilled laborers. Interestingly, the results also showed that advancing domestic credit to the private sector without proper regulations would have no significant effect on well-being or inclusive growth. Finally, the moderating role of the local financial market has a significant impact on the relationship between international trade and inclusive growth. We therefore recommend that African economies take full advantage of AfCFTA to trade more, and also undertake reforms that build strong local financial markets and well-regulated, less complex, and easily accessible cross-border platforms for seamless transfers of funds for trade purposes.

Keywords: International Trade; Local Financial Market; Inclusive growth; Sub-Saharan Africa

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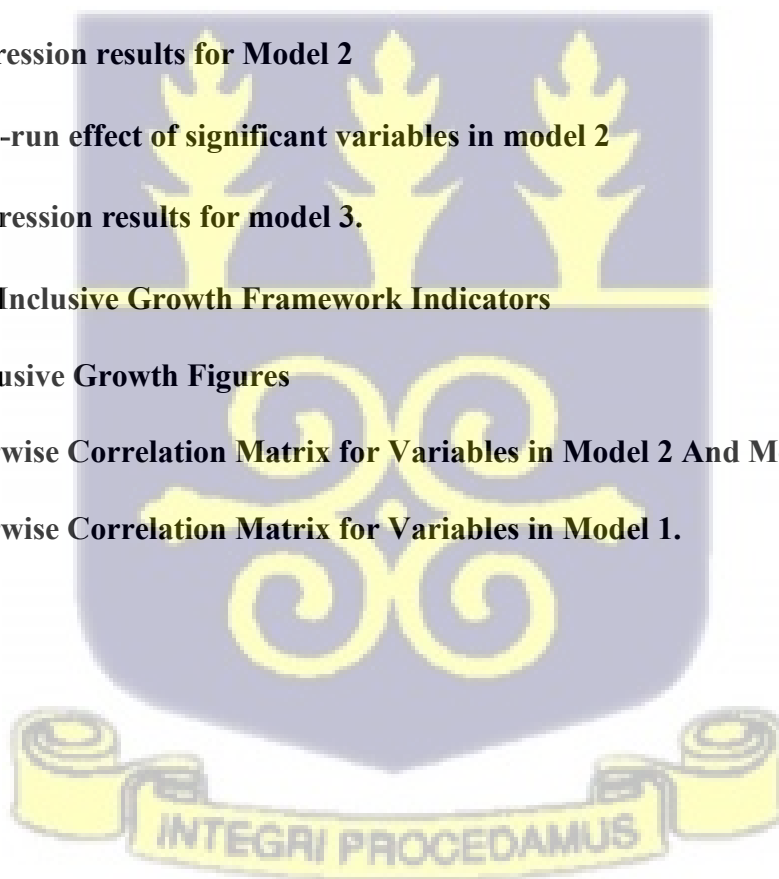
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LIST OF ABBREVIATIONS

AsDB – Asian Development Bank

AU – African Union

AfCFTA – African Continental Free Trade Area

ECOWAS – Economic Community of West African States

GDP – Gross Domestic Product

HDI – Human Development Index

IG – Inclusive Growth

IGI – Inclusive Growth Index

LFM – Local Financial Market

M2 – Broad Money

PC – Domestic credit to the private sector

SDG – Sustainable Development Goal

SSA – Sub-Saharan Africa

UN – United Nations

UNCTAD – United Nations Conference on Trade and Development

WDI – World Development Indicators

WITS – World International Trade Solutions



CHAPTER 1

INTRODUCTION

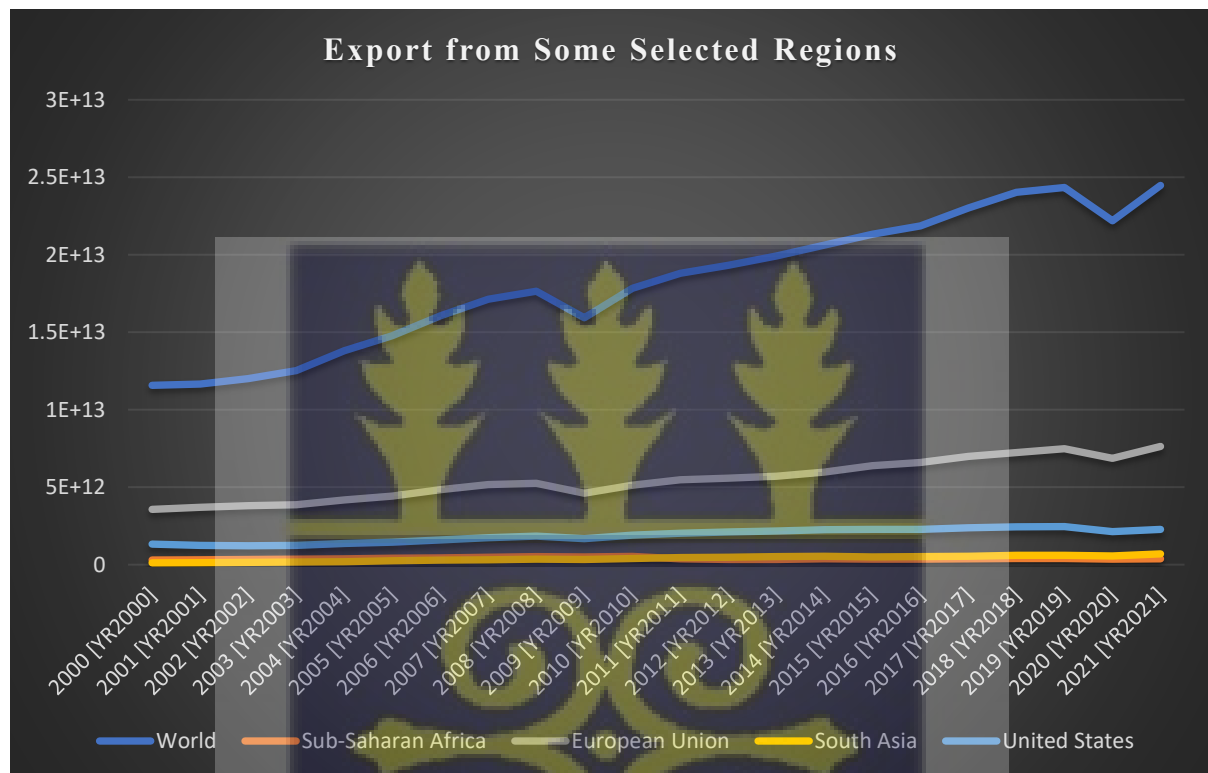
1.1 Background to the Study

Trade is generally viewed, despite some dissenting views, as a living standard improvement instrument through which economic agents have access to a variety of goods and services at comparatively lower costs, regardless of their home country's level of human resources, natural resources, and technology endowment (Asamoah et al., 2019; Bajo-Rubio, 2022). Whereas specialization, a pillar of trade, increases nations' exposure to GDP volatility during shocks, it has been alluded to as a promoter of growth, which, when sustained, enhances the standard of living of individuals and households (Caselli et al., 2020). Support for this assertion can be inferred from some policy directions of nations, regional and economic groupings. An example is the African Union's long-term development plan dubbed "Agenda 2063: The Africa We Want," which aims at achieving inclusive socioeconomic development, with intra-continental trade as the key driver to achieving its set goals. Out of the fifteen (15) flagship projects strategically designed to achieve AU's long-term development objectives, four (4) namely: Integrated High Speed Train Network, African Commodities Strategy, African Continental Free Trade Area, and African Passport and Free Movement of People are directly targeted at boosting trade on the African continent and improving member states' position in trades with the rest of the world (AUDA-NEPAD, 2022). The African Continental Free Trade Area (AfCFTA), which connects over 1.3 billion people across 55 states with a combined Gross Domestic Product (GDP) of over USD 3.4 trillion, has the potential to lift more than 30 million people from extreme poverty (Maliszewska et al., 2020).

Furthermore, the value in "trade" could explain its upward trend over the past two (2) decades, with some intermittent negative deviations caused by factors beyond the immediate control of state governments and multinational organizations. The difficulty in meeting recent trade projections, according to the UNCTAD 2022 report, was attributable to the devastating effects

of the COVID-19 pandemic and other global shocks like the Russia-Ukraine war, etc. These global shocks spanned the financial sector, the energy market, supply chains, the climate, and geopolitics. Consequently, the world's trade export fell to USD 20,644,644,752.00 in 2019 from USD 21,264,863,471.00 in 2018 and further to USD 19,307,194,523.00 in 2020. This negative trend was experienced in almost all the regions of the world, as depicted in **Figure 1.1** below:

Figure 1.1 Graphical display of export performance



Source: Author's own construct based on data sourced from WDI

A similar trend was also observed in the world's imports, as USD 19,337,807,223.00 in 2018 fell to USD 18,674,403,176.00 in 2019 and further to USD 17,301,172,775.00 in 2020. Notwithstanding, the overall positive export trends, as shown in Figure 1.1, could be a testament to the world leaders' belief in trade as a major instrument of economic improvement.

Consistent with any deduction that could be made based on the positive links that have been established by extant empirical works like Perla et al. (2021), Altomonte et al. (2018), etc.,

between trade, which could be used as a proxy to measure the consumption freedom of people to consume what they do not produce, and gross domestic product (GDP) per capita, which is widely used as a proxy to measure living standards, Africa experienced robust economic growth over the past two decades, growing at an average annual rate of 4.5 percent (The World Bank, 2023). Has this growth translated to significant welfare improvements? Has it increased income and reduced the poverty of households? Did other dimensions of well-being, including education, health, physical security, and self-determination, improve proportionately? Have all countries and population groups benefited equally, or has growth progress been experienced at the expense of rising inequality? These questions have become necessary because nations with the highest GDP per capita values are not necessarily nations with the highest living standards, according to data from the World Bank's World Development Indicators database and the United Nations' Human Development Index (HDI), calculated using life expectancy at birth, expected years of schooling, mean years of schooling, and GNI per capita. **Table 1.1** below shows the best ten (10) ranked nations based on their HDI and GDP per Capita scores for the year 2021:

Table 1.1 HDI and GDP/Capital Rating

	HDI	HDI Ranks	GDP/Capita	GDP/Capita values	Ranks
1.	Switzerland	1 st	Monaco	228667.93	1 st
2.	Norway	2 nd	Bermuda	112431.38	2 nd
3.	Iceland	3 rd	Luxembourg	109714.92	3 rd
4.	Hong Kong	4 th	Ireland	97316.88	4 th
5.	Denmark	5 th	Switzerland	90057.03	5 th
6.	Sweden	6 th	Cayman Islands	82929.30	6 th
7.	Germany	7 th	Norway	79434.63	7 th

8.	Ireland	8 th	Singapore	67948.89	8 th
9.	Singapore	9 th	United States	63720.74	9 th
10.	Australia	10 th	Qatar	63428.36	10 th

Source: Author's own construct based on data sourced from WDI of the World Bank Group

This questions the significance of or the over-reliance on GDP per capita in living standard improvement measure, and seems to have solidified the position held by Bluszcz (2018) and others that, whereas a strong, sustained GDP growth is necessary, it is not sufficient to improve lives. The same view is held by many other researchers, including Ranieri and Ramos (2013), who stated that increased economic growth, if not inclusive, would not alone translate to increased wealth and improved living standards. However, growth, according to Bourguignon (2000), has remained the best tool for poverty reduction, accounting for about 70% of the variations in poverty values in the short run. Thus, the pace and pattern of growth matter in poverty reduction and in the fair distribution of development (UNCTAD, 2023).

Critical to development is a renewed focus on the concept of “inclusive growth”—growth that prioritizes both a sustainable, equal, and non-discriminating opportunity for participation in economic activities and the equitable distribution of the benefits thereof. The inclusive growth concept is linked to the work of Kakwani and Pernia (2000), who first introduced pro-poor growth as a departure from the “trickle-down” phenomenon of growth.

Trade and growth have been strongly correlated over the years, but trade's impact on inclusive growth depends on the absorptive capacity and the resourcefulness of individuals of the trading nations to benefit from the larger market trade openness offers (Lederman, 2013). Moreso, trade-related growth would not be inclusive if trade policies are not aimed directly at social objectives like women's empowerment, improved income distribution, and poverty reduction (Arndt, 1983). Achieving these social objectives and building absorptive capacity require both

funding and an efficient financing infrastructure for the seamless movement of funds, which Garg (2021) and Zahra et al. (2023) believe are part of the solution to increasing indigene's participation in trade and to improving trade's significantly positive impact on inclusive growth. According to Adnan (2011), a strong financial system offers risk diversification and effective resource allocation; hence, the more developed the financial sector, the more effective the mobilization of savings and allocation of the mobilized funds to high-return projects with minimal risks. Thus, a well-structured financial system stimulates economic development as asserted by Gelbard (1999). In the case of less developed nations, where getting access to international funding for firms has been difficult, the local financial market is cited as a more impactful growth promoter (Levine and Renelt, 1992; Aregbeshola, 2016).

Therefore, the contribution of local financial markets to the link between inclusive growth and international trade needs to be established and evaluated to help inform policies, particularly in an era in which trade policies are seemingly open and in which trade between Africa and the world has become increasingly reciprocal.

1.2 Research Problem

GDP per capita may be the best-used indicator for measuring the performance of the macro economy, but it is highly deficient in measuring well-being and the living standard of people, particularly in poor and developing economies, where the majority of the productive resources are controlled by a privileged few (about 20%). As hypothesized by Kuznets (1955), economic/income inequality tends to increase during the early stages of economic development, but decreases as a country becomes more developed. This was a reason why extant studies like Bacchetta et al. (2021), Lederman (2013), Ranieri and Ramos (2013), etc. decided to adopt the concept "Inclusive Growth" as an improved proxy for the measurement of well-being and living standard. But unfortunately, they paid little attention to gender inequality indicators in the construction of their inclusive growth composite index; hence, their

findings could be misleading, particularly for Sub-Saharan Africa, where the female sex was a clear majority of about 50.2% (World Bank, 2022) but the most disadvantaged.

In sub-Saharan Africa and Africa at large, where labor-intensive methods of production are still predominant, the African woman still plays a disproportionate role in care, childbirth, and home management, which are mostly unpaid jobs. As cited in Di Tella et al. (2020), the relevance of a larger population to the development of new ideas and a higher standard of living has featured in many endogenous growth models, including Romer (1990), Aghion and Howitt (1992), and Grossman and Helpman (1991), etc. Therefore, by the predictions of these models, we believe that empowering women who are the most populous in labor-intensive developing economies like the Sub-Saharan African states and the dominant labour force in the services sector, which has been the fastest-growing sector (Rocha & Piermartini, 2019) would have a significant impact on the socioeconomic lives of people. Thus, indicators that measure gender equality and women's empowerment should be adequately included in the index. In support of the view on the relevance of women in the African societal settings where they are the bedrocks of the family and child-raising, a Ghanaian scholar Dr. James Emmanuel Kwegyir-Aggrey (1875 - 1927) has been reported to have said, “if you educate a man, you educate an individual, but if you educate a woman, you educate a family (nation)”.

Furthermore, the works of Zahra and Ajija (2023), Bacchetta et al. (2021), Garg (2021), Lederman (2013), Sarpong and Nketiah-Amponsah (2022) etc., paid little attention to the sustainability part of growth by not including environmental indicators in constructing their inclusive growth index. The economy, society, and environment are visualized as overlapping spheres; hence, improving people's lives while protecting the environment is the only way to experience sustainable growth (UNCTAD, 2023). As cited by Barbier (1987), Bartelmus (1986) stated that the goals of the environment and development are basically the same: improvement in the quality of life for both the present and future generations. Therefore, having

an index that does not consider the environment for a concept that has the environment as a key pillar would be misleading. In a nutshell, development is a multi-dimensional concept that requires simultaneous analysis of growth in three main areas: economy, social, and environment (Bluszcz, 2018). Thus, achieving balance in the three dimensions at the same time is key to improving lives. Therefore, our work incorporates these three pillars in calculating the inclusive growth index (IGI) used.

Finally, even though the area of trade and development is endowed with many rich research works, only a few have focused on inclusive growth and how it has been impacted by international trade. Most importantly, we have yet to come across a work on how the local financial market, as a moderator, promotes international trade to impact inclusive growth in Sub-Saharan Africa. Having inclusive growth in focus suggests resourcing/empowering individuals/firms to build the absorptive capacity to be able to participate in the equal, non-discriminatory international trade opportunities. Achieving this requires providing accessible funds and a working financial market. This is corroborated by works, including Levine and Renelt (1992) and Adnan (2011), who asserted the relevance of the financial market in providing capital to local and multinational firms, which are the main vehicles for production and trade. Already, literature has some work, including Gelbard (1999), Cournède et al. (2015), etc, that asserts a significant positive effect of finance on growth. But what is not clear and well represented is finance's impact on inclusive growth and finance as a moderator in the trade-inclusive growth nexus. The unique situation in sub-Saharan Africa, where the majority cannot access foreign capital even in the face of high financial market integration, guided this study to limit its scope to the local financial market (LFM).

1.3 Research Purpose

It may be tempting to accept the view that, because a lot of work has been done on international trade, the area is exhausted, hence any further work would produce findings that may not

contribute significantly to the already existing literature. But we beg to rather align ourselves with the school of thought that believes that activities like trade, commerce, etc., that are centered around human organization and participation aimed at improving human comfort, evolve with time and changing cultures. Hence, they take different forms and shapes with changing determinants at different points in time. More important are the recent calls into focus for reassessing the impacts on human activities and living standards of increasing geopolitical tensions, changing climatic conditions, and the digital revolution centered around artificial intelligence, blockchain tech. etc. We believe our position is the same held by Nicita and Saygili (2021) in their work commissioned by the UNCTAD, where they looked at the resilience of trade during the COVID-19 pandemic era, hence acknowledging the fact that the same phenomenon needs reassessment under different conditions. We are therefore of the fervent view that continuous research on the topic of trade and living standards or growth is needed to explore these changing dynamics.

This paper seeks to fill this gap by empirically examining the international trade and inclusive growth nexus. It makes three significant contributions to the literature. First, it examines the impact of local financial markets on international trade in Sub-Saharan Africa. Second, it explores the effect of international trade and financial markets on inclusive growth. Finally, it examines the moderating role of financial markets in the relationship between international trade and inclusive growth, providing a comprehensive measure of inclusive growth.

1.4 Research Objectives

The objectives of the study are:

- i. To examine the effect of local financial market on international trade in Sub-Saharan Africa.
- ii. To ascertain how international trade and local financial markets drive inclusive growth in Sub-Saharan Africa.

- iii. To investigate the role of local financial markets in the relationship between international trade and inclusive growth in Sub-Saharan Africa.

1.5 Research Questions

Guided by the research purpose to achieve the stated objectives, the following research questions have been defined to guide our work:

- i. What is the impact of local financial market development on international trade in Sub-Saharan Africa?
- ii. To what extent do the local financial market and international trade impact inclusive growth in Sub-Saharan Africa?
- iii. How does the local financial market influence the relationship between international trade and inclusive growth in Sub-Saharan Africa?

1.6 Relevance of Study

The importance of the local financial market as an engine of growth and for the efficient allocation of resources cannot be overemphasized, according to the literature. Hence, any economy that suffers from a financial crisis suffers a decline in productivity, leading to recession (Mishkin, 1991). It is therefore important for policymakers in Africa to understand the extent of impact the financial market has on other development-driving variables like international trade and how they both interact to drive inclusive growth on the continent, particularly in an era where trade liberalization seems to be key in driving development. This has deservedly been acknowledged as one of the pillars for achieving the objectives of the African Union's 'Agenda 2063'. Thus, the findings from this work would guide policy in regards to trade strategies to adopt and social objectives to target in making the impacts from trade inclusive.

Inclusive growth is a new concept and provides a huge space for researchers to explore. Findings from his research work add to the already existing foundational knowledge in

literature on inclusive growth, and how it is impacted by international trade and local financial market operations within the Sub-Saharan African context, since it will be one of the earliest works to be done on the topic (Inclusive growth).

Clearly, it will serve as a reference material on the interactive role of the financial market in trade and inclusive growth nexus, and may also be an advocacy material for promoting a particular policy direction and requesting more investment into sectors that help in efficient allocation of resources and offer equal opportunities for people to participate.

And finally, the results of this research would either reaffirm or not the impact of international trade on growth/inclusive growth as already established in literature. This is highly useful because of the ever-changing trading environments and tools being adopted to meet the exigencies of time.

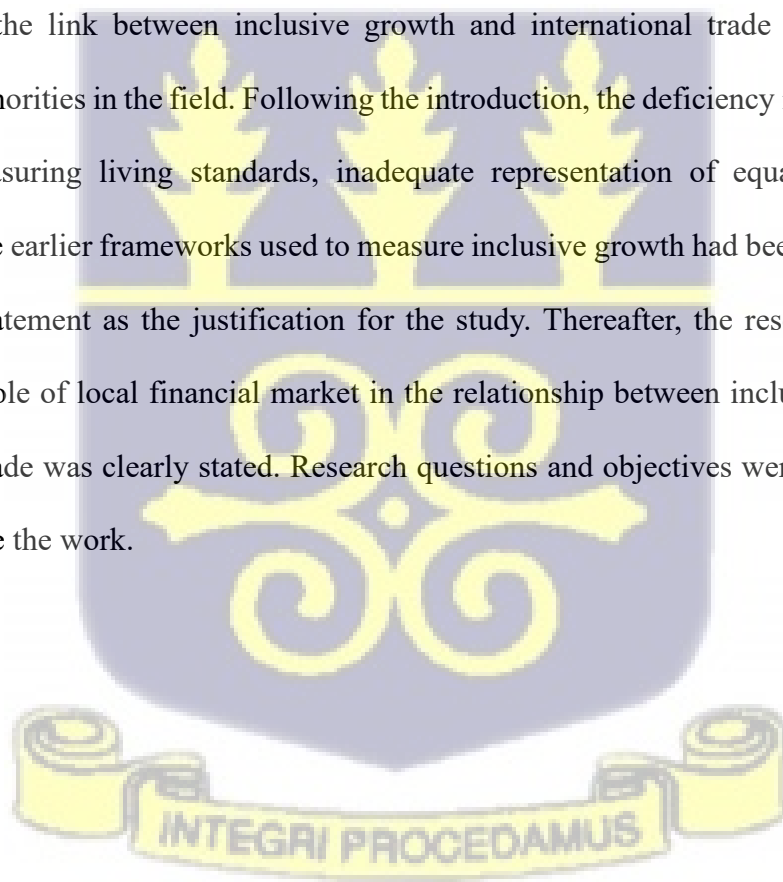
1.7 Organization of Study

The whole research paper has been structured into five (5) main chapters with a supporting appendix. Chapter one introduced the topic and gave a general overview, provoking the need for further research into the field of inclusive growth, international trade, and local financial market performance. The objects of study and research questions needed to shape and guide the research process and procedure have also been captured under this chapter. Chapter two captures reviews of papers based on theoretical, empirical, and conceptual frameworks. It looked at the theoretical underpinnings of international trade and inclusive growth. It further reviewed the measurement frameworks for inclusive growth and financial sector development variables after which established links between the variables of interest were also looked at. Chapter three started off with model specification, following which descriptions for and selection criteria of the sample and variables used in this research work have been spelled out. It then ended with a detailed guide on the inclusive growth composite index calculation and the statistical estimation techniques used to establish links between the dependent and

independent variables. Empirical results and findings were presented and discussed in chapter four. Lastly, chapter five concluded with a general summary of the findings and policy implications thereof. Limitations to our work, areas for further studies identified, and recommendations have been presented under this chapter.

1.8 Chapter Summary

This chapter presented a general background and justification for the study. It started with an introduction section where the importance of trade, among others, was highlighted. Some global and regional authorities' views on the effect of trade were also cited in support of trade. The introduction section further looked at the concept of inclusive growth and its superiority over growth in measuring living standards. Then, the need to introduce local financial market variables into the link between inclusive growth and international trade was justified by referencing authorities in the field. Following the introduction, the deficiency in the use of GDP growth in measuring living standards, inadequate representation of equality and gender indicators in the earlier frameworks used to measure inclusive growth had been captured under the problem statement as the justification for the study. Thereafter, the research purpose of exploring the role of local financial market in the relationship between inclusive growth and international trade was clearly stated. Research questions and objectives were then drafted to guide and shape the work.



CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

In this chapter, a great deal of work in both theoretical and empirical literature has been reviewed for an in-depth understanding and applicability of the concepts of international trade, inclusive growth, and local financial market developments. This review was intended to be a useful guide in identifying gaps in preceding works and the appropriateness of the methodologies used in carrying out these empirical works. The chapter started with a theoretical review of international trade, inclusive growth, and the local financial market. It continued by looking at various models or frameworks, including the variables that had been used to construct the inclusive growth index. Thereafter, a review of empirical works on the relationships involving inclusive growth, international trade, and financial market development was done to establish the presence, direction, and the strength of causality (if any). The chapter then ended with a section on the gaps identified in literature on the moderating role of local financial market (LFM) in the relationship between inclusive growth and international trade.

2.2 International Trade Theory

With the heterogeneous nature of the world, applying general economic principles assumes uniformity and also assumes one large world market with free movement of factors of production and goods without any restrictions. Thus, international economics, a branch of economics, like other distinct branches of economics, has been developed to deal with the non-homogenous nature of the world's economy and from which trade theories are being developed to explain the causes, structure and volume of international trade to help deal with problems emanating from the fact that nations are distinct political entities with their own frontiers. Notably in literature, differences in technology, factor endowment, and differences in taste and preference have been used as some of the foundational variables for theorizing international trade, hence deriving the determinants of trade. The economics of trade is centered on the

general assumption that factors of production are less mobile across nations than within nations, which, on the extreme, could be expressed as perfect national mobility and perfect international immobility of factors of production within an environment of perfect mobility of goods and services produced, which, in some cases, face restrictive measures from nations involved. The following are some relevant trade theories reviewed to enrich our work:

2.2.1 Mercantilism

At the dawn of trade theory development to explain the cause, structure, and volume of international trade, mercantilism took the central stage during the 16th to 18th centuries. The players at the time believed that wealth creation by nations was the main driver of international trade. Export encouragement through deliberate policies or efforts like bounties, drawbacks, treaties, and colonies was used as a tool for accumulating precious metals (gold and silver). Export promotion was done within a restrictive or highly protected trade import policy framework, where high import duties and prohibitions were used (Coleman, 1957). It was actually a policy direction and was based on the belief that wealth, as regarded in terms of gold and silver, was in fixed supply; hence, the higher the volume a country had, the wealthier it was (Magnusson, 2015).

This idea was critiqued by some famous classical economists like Adam Smith, etc., who thought that it was a wrong understanding of wealth creation for the mercantilists to equate money with wealth. He again stated that mercantilism's aim of promoting self-interest harmed the overall benefit of trade to nations. However, amid severe criticism in the past, recent reviews and empirical works have revealed that the relationship between growth and trade, as postulated by the mercantilists, is relevant today. Even at the height of recent globalization, many economies find trade protectionism as an effective measure for the state to capture and control the processes of growth and capital accumulation, and also maintain aggregate demand in a low-wage labour economy (Deblock, 2003).

2.2.2 Absolute Cost Advantage

Following the era of mercantilism came the classical trade theories, which were based on the free market-oriented ideology. The basic conditions, as stated in Gandolfo (2014) for trade were that the factors of production should be less mobile across countries but highly mobile across industries within the same country, but products should be highly mobile across countries. Using this as the basis, an absolute cost advantage theory of Adam Smith (1776) stated that it was beneficial for nations to specialize in the production of goods they produced at the lowest absolute cost and exchange for goods that they are inferior in producing in terms of the cost of production (Sen, 2010). Lower absolute cost advantage was considered the main basis for trade, and little or no attention was paid to the source (whether natural or acquired). Religious application of the theory in its simplest form could lead to a deadlock in a situation where a single or a few countries have all the acquired or endowed capacity to produce at the lowest costs. This means that other countries would halt production and depend on the former for supplies because they produce at a higher cost. The theory also fails to explain the reaction of a nation when it has all the absolute cost advantages, hence it is not incentivized to partake in trade (Schumacher, 2012).

2.2.3 Comparative Cost Advantage

Attempted to resolve the difficulties pointed out with the absolute cost advantage theory, the comparative cost advantage proposed by David Ricardo, with details clearly spelled out in Chapter 7 of his book “Principles of Economics (1817)” came to be known as the most popular/famous laissez-faire or market-oriented approach to understanding international trade. According to Ricardo, there is still an incentive for nations to partake in trade even when they possess all the absolute cost advantages because specialization in the production of goods in which they have the greatest advantage maximizes nation’s gains and minimizes the losses accruing to the nations that are inferior in the production of the all goods in question since they

would have the opportunity to specialize in producing goods in which they are less disadvantaged (Gandolfo, 2014). As a result, trade aids nations with superior production techniques to gain more than without trade, and also helps nations with inferior production techniques by specializing in the production of goods that they are less disadvantaged in producing. Comparative costs to trading nations are used instead of the absolute cost. According to the theory, trade is only beneficial when the terms of trade lie between the comparative costs of the nations involved. Common to both absolute and comparative cost advantage theories is the assumption that labour is the only factor of production.

2.2.4 Marxian Trade Theory

Restricting factors of production to only labour was a major shortfall of the theories of Ricardo and Smith. As production processes evolve and trade volumes increase, more factors and new techniques of production had/have emerged. As such, Marx (1894) developed another explanation of trade with capital as an additional factor of production, which was centered around the labour theory of value developed by David Ricardo. Marx (1894) argued that nations enjoy more value and become more competitive when they have a huge amount of capital because of the competitive absolute cost advantage they enjoy from lowering costs due to the mix of capital and labour. Thus, labour time needed for production decreases due to the assistance of capital. Nonetheless, it does not necessarily support the absolute cost advantage theory because it preaches trade even for a country with the lowest cost advantage. This explains why developed nations benefit more from trade because they add more value to goods than the less developed nations.

2.2.5 Heckscher-Ohlin's Trade Theory

According to Eli Heckscher and Bertil Ohlin, the major cause of international specialization and trade is the differences in factor endowments (Kozo et al., 2017). Based on the assumptions of no factor intensity reversal and same technical coefficient of production across nations, the

differences in marginal cost of production, hence differences in prices, are due to relative production resource endowment, where each nation specializes in the production of goods that require more of the nation's most abundant resource. It clearly provides some explanation for why some countries have a comparative cost advantage as propounded by David Ricardo. Thus, the proponents relied on factor price differences, mostly occasioned by the relative availability of production resources, to explain a nation's choice of production or techniques of production (Gandolfo, 2014). Abundance, as used, was acknowledged either in physical or economic terms. A major criticism of the theory is the assumption of non-existent factor intensity reversal, which has run through most empirical works. Some recent studies, like Kozo et al. (2017), found clear evidence of factor intensity reversal existence hence referred to the logic behind the assumption as premature. Also, the theory didn't fully account for the role of technology, transportation costs, consumer preferences, government policies, or other factors that can influence trade patterns.

2.2.6 New Trade Theory

Contrary to the suggestions of traditional trade theories, mainly dominated fundamentally by Ricardo's comparative cost advantage, the new trade theory recognized the importance of trade in the modern world based on the advantages associated with economies of scale, even among nations that have the same level of development, structures, and factor endowments (Krugman, 1985). Paul Krugman believed that increasing returns to scale and network effects are at least of the same magnitude, if not more important, than national differences as the main motive for trade. Thus, due to the effects of increasing returns to scale, where specialization leads to economies of scale with falling cost of production, even nations with the same strength in productivity would still benefit when they specialize and enjoy economies of scale from trading among themselves. Some protectionists lean on this to justify why some promising industries should be protected in order to build a stronger base aimed at establishing dominance or

influence in the world's market. Very important to the success of this theory is the fact that it was propounded under the conditions or assumptions of imperfect market structures reflecting real economic situations and real-life market operations (Gandolfo, 2014).

2.3 Inclusive Growth

The concept started with attempts to explain how economic activities or growth could benefit society as a whole, particularly in improving the living standard/well-being of people. The **Trickle-down** approach, which was dominant in the periods before the 1970s, explained the impact of economic growth on well-being through the mechanisms of open market forces (Kakwani & Pernia, 2000). It was understood that because productive resources were owned by a few privileged rich in society, reliance on market forces to distribute proceeds from economic activities made the rich richer. But the proponents believed that the poor also get to benefit indirectly from growth through other economic interactions with the rich. Kakwani and Pernia (2000) and Dollar and Kraay (2000) suggested that high growth translates into an increase in well-being provided the government avoids higher inflation and maintains fiscal discipline. Dollar and Kraay (2000)'s empirical work actually concluded that the income of the poor rises one-for-one with overall growth. But because of non-uniformity or problems with general acceptability in concept and measurement of income, inequality, and poverty, it may be misleading to rely on the work of Dollar and Kraay (2000). Moreso, individual nations' experiences vary significantly, hence the cross-country empirical work, which used average values, could not establish a conclusive link between growth and wellbeing as was the case in Dollar and Kraay (2000). As a result, Kakwani and Pernia (2000) came up with the concept of Pro-Poor growth.

Pro-Poor growth was thought of as that growth which enables the poor to actively participate and benefit from economic activities. Thus, whether the concept is looked at from relative terms, as espoused by Kakwani and Pernia (2000), or in absolute terms, as espoused by

Ravallion (2004) as cited in Gyamfi et al. (2022a), it is targeted at improving the well-being of the poor. Critics of the concept argued that strategies geared towards mainly improving the lives of only the poor give rise to distortions in the economy due to the perceived trade-off between efficiency and equity.

As a result, Ali and Son (2007) came up with an inclusive growth concept where they suggested that, instead of promoting the well-being of only the poor, creating new economic opportunities with equal access by all economic agents was by far a better and more acceptable way of reducing poverty. According to Ali and Son (2007), growth becomes inclusive when it offers equal access to participate in opportunities created, irrespective of an individual's situation. Thus, inclusive growth increases the social opportunity function, a concept developed based on the general welfare function by Bergson (1948) and Samuelson (1947), which had “average opportunity available to the community” and “how these opportunities are shared” as the two (2) parameters for the function. In conclusion, they stated that growth in itself is not sufficient to be inclusive. It should be sustainable and also increase employment opportunities in order to be inclusive. How does mere opportunity translate into inclusiveness of growth? And how do growth opportunities equitably affect everybody? These questions were answered by Ali et al. (2007) in their explanation that creating an environment of opportunities and social inclusion signifies how inclusive economic growth is. Failure on the part of some individuals to take advantage of the opportunity due to some belief systems, etc., could not render growth non-inclusive. Holding a similar view to Ali and Son (2007), Ali et al., (2007) stated that inclusive growth goes beyond income redistribution to feature the employment avenues created by growth. Thus, they suggested the following major policy components for attaining inclusive growth:

- High and sustainable growth
- Social inclusion

- Capacities
- Social safety

In addition to the earlier proponents' view on inclusive growth as a growth that promotes non-discriminatory access to beneficial opportunities, the United Nations SDG Pulse (2022) introduced protection of the environment to deal with the sustainability of growth in making it inclusive. Thus, the SDG Pulse agreed to a larger extent with Ali and Son (2007) and Ali et al. (2007) yet asserted that the sustainability of increased growth was also important for continuous employment and the deepening of the inclusiveness of growth. This view has led to the inclusion of a fourth pillar called "Environment" in the inclusive growth framework for constructing a composite index designed by the United Nations.

2.4 Measurement of Inclusive Growth

Measurement methodology or composite index construction framework for inclusive growth developed by Terry McKinley (2010) of the Asian Development Bank appeared to be the most dominant in literature. As indicated in Khan et al. (2016) and many other works, this approach starts with selecting the dimensions/pillars and the needed indicators. Below are the four pillars settled on by AsDB.

1. Economic Growth, Employment and Infrastructure (U1);
2. Inequality, Poverty and General Equity (U2);
3. Accessibility (Health, Water and Sanitation) (U3);
4. Governance (U4)

Thereafter, weights were assigned to the various indicators reflecting their level of importance. Third, standardization was done to reduce and unify the units of measurement. It was observed that the researchers' aim for constructing the IGI and the preferred statistical model that suits the data determines the choice of normalization method to use. In the work done by Khan et al. (2016), standardization was settled on as the preferred method for their work. The fourth and

final step was the calculation of the inclusive growth figure through weighted sums, as shown below:

$$IGI = \sum_{i=1}^m \left(\sum_{j=1}^n U_R * w_j \right) * W_i$$

Where,

U_R Standardised single index score

W_j weight of a single indicator at this level

W_i Dimensional layer weight

The United Nations' inclusive growth framework, the latest published in 2022 in the UN's SDG pulse, was also reviewed. The procedures are similar to those used by authors who adopted the Asian Development Bank framework, as both frameworks rely on a common composite index construction technique outlined by Saisana et al. (2008) in bringing their indicators together. The difference is in the composition of the indicators used for constructing each index. The UN has included a pillar on the environment, which signifies natural resources and environmental conservation in order to protect the capacity of future generations to meet their needs. It also included more gender parity indicators than all the earlier developed frameworks. The pillars under the UN's framework are outlined below:

1. Economy
2. Living Condition
3. Equality
4. Environment



Thus, the multi-dimensional nature of well-being/ inclusive growth, as alluded to by Bluszcz (2018) and other extant works, has been acknowledged in both frameworks. Differences are noticed only in the pillars and the set of indicators that the authors of each framework believed

to be necessary for an all-rounded and a more acceptable definition of the inclusive growth concept.

2.5 Measurement of Financial Markets

Many indicators have been proposed as suitable measures of financial market development covering the banking sector, bond market, stock market, etc., depending on the users' or researchers' area of interest. Pill and Pradhan (1995) and Gelbard (1999) speculated that these indicators, when separately considered, are not entirely appropriate or adequate to capture the reality of the level of development in the financial market. Literature has identified two (2) theoretically different schools of thought with different measurement bases for financial market development. A group relies on the observed outcomes of the market, like the size, depth, and access, to measure the level of development, whereas the other group measures financial development on the basis of prevailing institutional, business, and political environment (Adnan, 2011). But in all, both groups believe that the more developed the financial market/system, the wider the availability of financial services and the more efficient the market allocates resources. But as has been observed, measurements based on observed outcomes have established dominance, as the other is highly time-invariant (Adnan, 2011).

The ratio of liquid liability to GDP ($M2/GDP$) is used to measure the size of financial intermediation opportunity. But as stated by Adnan (2011), the size of intermediation says little or nothing about their real activities undertaken in the sector; hence, the addition of other indicators like the ratio of private credit by deposit money banks to GDP and the ratio of credit issued to the private sector by deposit money banks and other financial institutions to GDP. Thus, beyond knowing the size of intermediation in terms of the pool of funds, some other details like the proportion of credit advanced to private and public sectors, etc., should be unearthed.

Levine (1996) and Rioja and Velasco (2002) believed that the expansion of commercial banks' assets is also an important indicator of financial sector development. It is measured using “the ratio of commercial bank assets to commercial plus central bank assets”. It has been used to examine the extent to which commercial banks have the capacity to allocate resources as compared to the central bank. Equally important, and which even provides more details on the expansion of commercial banking, the measurement of the concentration level of commercial banks provides some clarity into the banking sector structure of a nation. Bank concentration is defined by the ratio of the three (3) biggest banks' assets to all commercial banks' assets (Adnan, 2011). Higher values of the ratio signify market control by a handful of banks, hence the presence of less competitive pressure, which leads to ineffective and inefficient resource allocation. It is therefore important to always evaluate the concentration of the market after the level of expansion is calculated in order not to be misled by high expansion value into believing that the banking sector is efficiently allocating resources when it is actually not.

Also, evaluating the efficiency of the banking sector and the financial sector as a whole is an important measure of the core functions of the market/sector. Net interest margins or net interest revenue as a share of total assets, and banks' overhead costs as a share of total assets are mainly used to measure the operational efficiency of intermediaries (Levine, 1996). Thus, a combination or the right blend of these aggregates paints the correct picture of the level of development of the banking sector/financial sector of any economy.

Furthermore, the contribution of the stock market, which has become integral to the financial market, is assessed through its size, activities, and efficiency (Adnan, 2011). Stock market capitalization, a term used for the size of the stock exchange, is defined as the value of all listed shares divided by GDP, whereas the volume of activities is evaluated by looking at the value of shares or stocks traded as a percentage of GDP. These two clearly measure the total value of shares and trading in relation to the value of the total economy, respectively. And finally, the

efficiency of the stock market is measured using a turnover ratio, which is defined as the total value of stocks traded on a nation's stock exchange as a percentage of GDP to stock market capitalization (Adnan, 2011).

However, these conventional indicators are saddled with identified shortfalls, yet are the most used because of ease in computation and, in most cases, the availability of data for their computations. Financial deepening or development can literally be misleading because it ignores very critical influencers like openness of the country to capital flows and the difficulties in assessing the level the development of non-bank financial intermediation (Gelbard, 1999). GDP is used as a scale variable in most of the indicators when GDP figures are considered not reliable due to the weaknesses in national accounting, particularly in the less developed regions of the world. And finally, ratios involving the quantity of money are closely related to monetary policy and demand for money that may cause fluctuations for reasons that are unrelated to financial development, but rather to factors such as the legal and regulatory environments.

2.6 Growth Theories

Growth theories try to explain the fundamental principles, processes, and mechanisms that determine the pace and level of economic growth of nations. The attempt is to demystify how the fortunes of nations change over time, i.e., the determinants of the wealth of nations and their evolution. Two traditional factors of production, i.e., capital and labour, have been included in developing the majority of growth theories.

Before the industrial revolution, income per capita was deemed to be stagnant, hovering around subsistence level as output growth rate and population growth rate were seemingly at par. Malthus (1789) held a pessimistic view of the effect of population growth on economic growth in the long run and also stipulated that growth in population was highly influenced by livelihood or the means of subsistence (Diebolt & Perrin, 2016). Therefore, the effect of population growth is counterbalanced by the expansions in resources, which explains the

movement of income per capita around subsistence levels before the industrial revolution. The existence of both positive checks and preventive checks assumptions had been key to keeping population around subsistence levels. Positive checks were referred to as deaths caused by hunger, disease, and war, whereas preventive checks were birth control, abortion, late age of marriage, etc. (Sharipov, 2015). Though Malthusian theory could effectively explain growth during the era before the industrial revolution, characterized by stagnation, its predictions were inconsistent with the happenings of the post-industrial revolution (Diebolt & Perrin, 2016).

It is worth noting that most classical economic growth theorists like Adam Smith, David Ricardo, Thomas Robert Malthus, etc., believed that the main driving force of productivity was division of labour and improvement in technology, with competition as a key factor for economic equilibrium.

In attempts to resolve the difficulties associated with the classical theories with regard to the somewhat inconsistent predictions engineered by the industrial revolution, the neo-classical theories were developed. The neo-classicals also adopted the workings of the market, where the interactions of aggregate demand and supply establish equilibrium (Sharipov, 2015). Solow-Swan (1956) model, the most popular, postulated that among the factors of production, only investment could be influenced by policy; thus, endogenous through savings. Population growth was determined by socioeconomic-cultural factors that fall outside the frontiers of the production process (Accinelli & Brida, 2007). Solow and Swan believed that the production potentials could best be depicted by the Cobb-Douglas production function with diminishing marginal returns in factor and returns to scale being constant. As such, in the short run, a nation could alter its income per capita by influencing the savings rate to some extent, after which income per capita reconverges to a steady state. Growth in the long run was based on technological progress, which was also exogenous (Sharipov, 2015).

In trying to endogenize factors that influence growth in order to sustain it in the long run, the endogenous growth models or theories were developed in the 1980s. Thus, according to Arestis et al. (2007), endogenous growth theories explicitly model technical progress as a variable generated within the model rather than treating it as exogenously given “manner from heaven”. The core of these theories has been attributable to the works of Romer (1986), Lucas (1988), etc., with the assumption of non-decreasing returns in factors because of the existence of other accumulable factors like human capital, whose contribution to output compensates for the decreasing returns of physical capital. The strength of these models, according to Lucas (1988), lies in the limitless accumulation nature of human capital. Non-decreasing returns of technology and training, and the externalities that may exist, contribute to the unlimited accumulation of human capital, which is the stimulus for long-run sustained growth. Famous among the endogenous class is the AK model, which employed a production equation of the form $Y = AK$ where A is the exogenous production technology, and K represents all the reproducible capital that is accumulable, hence includes human capital, stock of knowledge, and financial capital (Diebolt & Perrin, 2016). As in the case of the neoclassical theory where government intervention is presumed to have little or no impact on growth unless the interventions stimulate savings through which growth could be affected, the endogenous theories postulate that government interventions like the creation of favourable investment climate, policies geared toward attracting new technologies and the support for science and technology are growth stimulating hence government interventions are potent in affecting growth (Sharipov, 2015). It can hence be summarized that conscious investment in research for new ideas, training, and education for human capital development are key influencers of the long-run rate of economic growth.

2.7 Empirical Literature Review

2.7.1 Finance and Trade

The relevance of the local financial market has been questioned, particularly in recent times, because the financial sector has been highly integrated. Findings by King and Levine (1993) and many other works done a few years ago showed that countries' level of financial development (financial market performance) impacted trade and growth positively, and this was the period when cross-border capital movement was limited (Guiso et al., 2002). Can the same assertion be made today, in an era best described as an information technology age, where financial markets are highly integrated even for the developing states? This question is relevant because capital is now easily moved across borders, reducing firms and households' reliance on the local/national financial market for funds (Hanif et al., 2020). This section aims to explore the relationship that exists in empirical literature between the local financial market or sector and trade/growth/IG.

The ease with which firms can access financial capital to settle extra costs associated with trading across borders affects decisions of firms regarding export business entry and operations, hence the international trade (export) pattern of nations (Foley & Manova, 2015). According to Foley and Manova (2015), most multinational activities have longer turnover ratios, locking up capital for longer periods, hence the need for financial markets to support the financing needs of most locals venturing into trade across borders in order to be competitive. It is, however, important to stress that even though the findings from their review aligned with findings from many other works, like Guiso et al. (2002), Ma and Cheng (2005), etc. Notwithstanding, financial friction and the development of the local financial environment affect the decision of multinationals in locating and relocating production plants, integration, and the corporate governance strategies to adopt.

Asserting similar findings as Foley and Manova (2015), Aregbeshola (2016) came to the conclusion that the local financial market has a significant effect on growth on the African continent as well, using a panel data set on three (3) subregions (Northern Africa, Southern Africa, and Western Africa). Most significant of its findings was that the local financial markets' effects are more in the northern and western Africa than in southern Africa, which supports the assertion that financial development is more effective in the less developed economies than the developed ones. This is believed to be so because in most of the developed nations, most firms have the capability to source funds from the international market, hence their less reliance on local financial markets as in the case of developing nations. More revealing from Aregbeshola (2016)'s finding was that, while the equity market aids trade and growth more in western Africa, a developed banking sector potentially stimulates economic growth more in northern Africa. In conclusion, Aregbeshola (2016) stated that the causality between economic growth and financial market development is cyclical, as economic growth is a strong catalyst for financial market development, which would ultimately have a further positive impact on economic growth.

The impact of financial market development on trade appeared to be consistence in literature, as Beck (2002) also posited a significant positive link. This relation seemed pervasive to the extent that even when Beck (2002) segregated trade in manufactured goods into export, import, and balance of trade using GDP as the base, the regression result showed positive links between these trade variables and finance, though the effects were stronger for export share to GDP and trade balance to GDP. This explains why the developed nations export more manufactured products since they have well-functioning financial sectors that provide capital for investment in machinery for production and export, hence a stronger balance of trade position than in developing nations, as alluded to by Kravis et al. (1981). What is profound is the role of the financial sector to mobilize and reallocate capital to productive investment (Svirydzenka,

2016), hence propelling producers of goods that enjoy increasing returns to scale to make more profit as international trade expands markets beyond the borders of each nation (Beck, 2002).

An interesting revelation, among others, was the work done by Paudel and Alharthi (2021) in Nepal, a landlocked developing country, on the impact of financial development on export performance, which asserted a negative relationship, even though statistically insignificant, i.e., financial development measured with a composite index did not cause export to grow. This and many other works like Bilas et al., (2017) and Yucel (2009) that have shown a negative nexus between financial development and trade or economic growth have rendered findings in literature on the relationship inconclusive. This negative relationship seems to be present in countries where the finances provided by the financial sector are used for activities that are highly related to import, i.e., real estate, building and construction, hospitals and educational institutions, and wholesale and retail trade, rather than export, as in the case of Nepal (Paudel and Alharthi, 2021). Hence developed financial market has the tendency to impact trade and growth positively, but that depends on whether funds are used to promote production for export by importing machines and technologies to enhance growth, or import consumables that do not promote growth and retard the growth of industries, leading to higher unemployment.

In an attempt to assess the relevance of the local financing structure in a broader context of financial integration, a study on Italy, representing the developed states with highly developed local financial market and as well as highly exposed to the international market, revealed that even for countries that are highly exposed to the global financial sector due to integration, local financial market was still relevant (Guiso et al., 2002). It was revealed that local financial development has varying importance to large and small firms, as smaller firms rely more on it to finance their activities. Thus, dependent on the size distribution of firms in any nation and the minimum threshold to access foreign capital markets, the local financial market is relevant and still stimulates growth.

Zeroing down on the impact of a major financial sector development indicator, domestic credit to the private sector on growth, the findings of Ifeoma et al. (2023) indicate a significant positive impact in a study on the Nigerian economy, whereas domestic credit to the public sector had an insignificant effect on growth. This reveals how growth retarding crowding out by government is, particularly in African nations, where governments in most cases fiercely compete with the private sector for domestic credit. It is worth noting that the conflicting results on the link between international trade and finance, as in the sampled cases of Foley and Manova (2015), Ifeoma et al. (2023) and Paudel and Alharthi (2021) render literature inconclusive, begging for further studies to fill the existing gaps.

2.7.2 Trade and Inclusive Growth

Empirical works review revealed that literature abounds on the relationship between economic growth and trade, yet little could be found on the nexus involving inclusive growth. This is not surprising considering the fact that the concept of inclusive growth is relatively new, with some institutional attempts to derive a proper definition that would best suit the concept; the latest being the work of UNCTAD of the United Nations, published in 2022. A brief overview of the few empirical works found on inclusive growth in literature is presented in this section, where trade's impacts on various definitions of inclusive growth are examined.

The effect of trade openness on inclusive growth, as has been captured in literature seems inconclusive. Some works reviewed show insignificant effects, whilst others show significant effects conditioned on other economic moderators and the statistical estimation approach adopted. Even for the sub-Saharan Africa sub-region, where the depth and incidence of poverty are most severe (Anyanwu, 2013), there are varying effects of trade openness on economic growth and its inclusiveness based on how nations utilize their comparative advantage (Osabohien et al., 2021).

Similar to developing nations, where inequality varies greatly across regions of the same country, Arabiyat et al. (2020) revealed that the impact of trade, even though positive, needs lower levels of inequality to be significant. Jordan's situation, as uncovered by Arabiyat et al. (2020) can be likened to the situation in many developing countries in sub-Saharan Africa, where there is little or no impact of trade on poverty reduction and equitable distribution of employment opportunities (Anyanwu, 2013). This corroborates the findings of Aekapol (2020) on Southeast Asia nations that suggested that trade openness without conscious policies to assist in redistributing income would not have a significant effect on inequality reduction, which is a critical determinant of inclusive growth. Therefore, from Aekapol (2020) which was a work done on a more developed region, and the works of Anyanwu (2013), Arabiyat et al. (2020) etc., on developing nations, trade needs income parity in both developed and less developed nations to have a greater impact on income growth.

It is, however, important to state that the export part of trade tends to mitigate inequality, whereas import increases inequality in Southeast Asia, as captured by Aekapol (2020). Excesses in the production of non-extractive raw materials (agricultural products) for export by developing nations could mean the engagement of more unskilled labour, hence providing employment opportunities to many and closing the inequality gap. This assertion by Aekapol (2020) is aligned with the findings of Osabohien et al. (2021) that examined how agricultural trade and foreign direct investment (FDI) influence inclusive growth in developing countries, using data from West Africa. Their findings also affirmed and lent credence to the inclusive growth definition of providing equal employment opportunity to all by Ali and Son (2007). Contrary to the popular assertion made by many other papers reviewed that the impact of trade on inclusive is insignificant unless other moderating factors are considered, Osabohien et al. (2021) came out with a finding on the West Africa sub-region which suggested that agricultural trade for developing countries and less developed countries where agricultural sector employs

a clear majority of the population has positive and significant impact on inclusive growth even when little attention is paid to critical moderating factors.

What is still not clear in the trade openness inclusive growth nexus is the strength of the link, but the positive nature is largely settled, hence the surge in works aimed at examining the effects of moderators or mediators in the link. As such, Agyei and Idan (2022) after examining the impact institutions had on trade-inclusive growth recommended that Sub-Saharan Africa economies should pursue policies aimed at improving government effectiveness, reducing corruption, enhancing regulatory quality, abiding by the rule of law, and allowing voice and accountability. This recommendation was proffered based on the findings of Agyei and Idan (2022) that uncovered and suggested that institutions strengthened the positive relation between trade openness and inclusive growth. Therefore, by and large, with the few works available both on the developed and underdeveloped nations, trade has a positive relationship with inclusive growth, though its significance or otherwise varies based on other political, social, and economic factors.

2.7.3 Finance and Inclusive Growth

Finance has been identified and duly acknowledged for its significant impact on growth (Cournède et al., 2015; Gyamfi et al., 2022b; Olarewaju Afolabi, 2020). Its effect is felt at all levels of the economy, with emphasis on the micro economy, where disposable income has a significant positive effect on better livelihood, educational attainment, better healthcare accessibility, etc. Thus, any framework designed to facilitate easy access at lower costs to funds promotes growth. However, the difficulty has been whether financial development and its indicators, beyond their seemingly positive impact on economic growth figures, reduce inequality and promote fair income distribution. In a study done on the Organization of Economic Cooperation and Development (OECD) nations by Cournède et al. (2015), in admitting to finance's significant impact on economic growth like the works done by Gyamfi

et al. (2022b) and Olarewaju Afolabi (2020), they underscored the need for a planned threshold targeting else it could rather become a drag on growth. They stressed on how the composition of finance was important in influencing inclusive growth with the explanation that the development of areas of finance that channeled funds to businesses exhibited potential of impacting IG positively whereas channels that moved funds to households without adequate monitoring had negative impact on IG hence held the view that stock market financing was a better financing option to boost growth and by extension inclusive growth. This seemed to be in tune with the findings of a work done on 48 African nations by Gyamfi et al. (2022b) that showed how critical the strength of an institutional setup of financial development was on inclusive growth. According to Gyamfi et al. (2022b), weak institutional setups hurt inclusive growth and lend credence to the view espoused by Cournède et al. (2015) and others that, because of strong institutional arrangements coupled with regulations that the stock market was subjected to, made it a better channel of financing in promoting inclusive growth. Cournède et al. (2015) actually asserted that domestic credit in any form or shape, when not regulated, results in not having a positive impact on growth because it may be channeled to unproductive sectors or may be channeled to higher income earners, thereby deepening inequality, hence impacting inclusive growth negatively. Olarewaju Afolabi (2020) in their study on the Nigerian economy concentrated on the financial inclusion aspect of financial development and came to a similar conclusion to the findings of Cournède et al. (2015) and Gyamfi et al. (2022b) that stressed the importance of other factors, particularly strong institutions and adequate regulation of the financial sector, to positively impact inclusive growth. Acknowledging the dangers of increased inequality with the development of the financial sector, they believe that adequate monitoring and regulation can help impact inclusive growth significantly. Their study revealed that improvement in the financial inclusion aspect of finance, i.e., rural loan, number of bank branches, etc., had a significantly positive relationship with inclusive growth. Thus, rural dwellers focused finance policy has significant impacts on inclusivity of growth. Notably, all

the three studies came to a similar conclusion that when finance is totally left in the hands of free market without adequate regulation and strong institutional structures, funds would be channeled largely to the affluents in society hence widening the inequality gap and having negative impact on inclusive growth.

What seems to be consistent in literature is the fact that improvement in financial sector development indicators would rather worsen the all-desired inclusivity of growth when it is experienced in an environment characterized by high inequality. According to another research work done on selected nations in sub-Saharan Africa that asserted similar findings to the earlier works reviewed on the topic, Sarpong and Nketiah-Amponsah (2022b) stated that financial sector development and service provision should be done in an environment of innovation, sustainability, and inclusivity capable of distributing growth benefits equitably in order to impact inclusive growth positively. The importance of inequality reduction has been referred to by all these authors, which lends credence to the theoretical explanation by Ali et al. (2007) and Ali and Son (2007) in their quest to provide a suitable definition and intuition to the inclusive growth concept.

It is, however, worth noting that whereas improvement in inclusive growth desires stock market development to the banking sector's domestic credit to the private sector as an alternative means of sourcing funds, both are critical and complementary rather than substitutes in fostering growth, which has been considered a major determinant in poverty reduction as captured in a study by Masoud and Hardaker (2012) on finance and economic growth in emerging markets over twelve years. They asserted that both instruments for funds mobilization and reallocation are important for growth and the inclusivity of growth. However, the right mix of stock market and banking sector domestic credit is needed to impact inclusive growth positively, else development of the sector may rather be a drag on inclusive growth.

A work done by Guiso et al. (2002) on whether the local financial markets really matter in this era of high financial market integration, with relatively easier mobility of funds across borders, was also reviewed. They revealed that whereas the LFM remained relevant in impacting economic activities and growth, small firms are the most impacted. They explained that because small firms do not have the capacity to source funds from the international market, unlike the big multinational firms, they rely mainly on the local market. This explains the inclusivity of growth potentials of the local financial market when it is well regulated in an environment of fairness and equity.

2.8 Chapter Summary

This chapter presented a review of the literature to understand the underpinning theories explaining variations in our main variables of interest and some empirical works done to verify and establish links. The study first reviewed the concept of mercantilism to explain why nations trade. Thereafter, we introduced the neoclassical theories that considered key absolute cost and relative cost advantages in understanding trade. For more insight into the source of the cost advantages alluded to by the classical economists, the study relied on Marxian and Heckscher-Ohlin's trade theories. Finally, on trade, the study gave a brief insight into the New Trade Theory, which explained to need for trade even when no nation has any advantage over the others in terms of cost. The study further reviewed the genesis of the inclusive growth concept from the Trickle-down underpinnings through the pro-poor concept to its current meaning. Financial market indicators normally used to measure the sector's performance, particularly in terms of size, depth, access, expansion, concentration, etc., were also reviewed. Growth theories from all schools of thought were reviewed to explain the mechanisms underpinning the pace and level of growth of nations. And finally, some relevant empirical works were reviewed and their findings juxtaposed with the predictions of theories.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter introduced, explained, and justified the models, variable choices, sample, and the statistical estimating techniques employed to explore the impact of international trade on inclusive growth, the local financial market on international trade, and the moderating effect of the local financial markets on international trade in influencing inclusive growth. It started with the research design, followed by model specification with the necessary justifications, the graphical constructs to depict the relationship already specified in the models, and concluded with variable descriptions and their measurements.

3.2 Research Design

This has been structured into four subsections that basically detail the sample of data used, the procedure for calculating the inclusive growth index, and the descriptive statistics and inferential statistics employed to analyse the data.

3.2.1 Sample

The study employs the quantitative research methodology to evaluate the nature and significance of the relationships between dependent variables and independent variables. The study relies on secondary data mainly sourced from the World Development Indicators, Sustainable Development Goals Global Database, and the World Income Inequality Database. Empirical analysis covering the period 2008 to 2021 (14 years) on twenty-seven (27) sub-Saharan African countries that do not produce crude oil in commercial quantities has been employed. The study developed a comprehensive panel data set for these economies from 2008 to 2021. Our choice is based on data availability and ease of access, as we believe these selected countries have basic facilities to feed various databases with adequate data on our variables of interest. The table below lists the countries used in our study:

Table 3.1 List of Sampled Nations

1.	Benin	11.	Kenya	21.	Sierra Leone
2.	Botswana	12.	Madagascar	22.	South Africa
3.	Burkina Faso	13.	Mali	23.	Tanzania
4.	Burundi	14.	Mauritania	24.	Togo
5.	Comoros	15.	Mauritius	25.	Uganda
6.	Eswatini	16.	Mozambique	26.	Zambia
7.	Gabon	17.	Namibia	27.	Zimbabwe
8.	The Gambia	28.	Niger		
9.	Guinea	29.	Rwanda		
10.	Guinea-Bissau	20.	Senegal		

Source: Author's construct

3.2.2 Measurement of Inclusive Growth

Following guidance from Saisana et al. (2008) on composite index construction and the adoption of the new UNCTAD inclusive growth composite index framework, published in UN SDG Pulse 2022 (United Nations, 2022), instead of AsDB's framework (Development Bank, 2014), we constructed the inclusive growth index used in our work. Our choice of the UNCTAD framework was influenced by the inclusion of environmental sustainability indicators as well as the increased attention given to gender equity, which are not adequately represented in the AsDB's framework. The framework is built on four (4) pillars, namely: economy, living conditions, equality, and the environment, with twenty-seven (27) indicators as can be found in Appendix A.

For this work, we used only seventeen (17) out of the twenty-seven (27) indicators as shown in the table below for our inclusive growth calculation due to the Principal Component Analysis (PCA) requirement for complete data that could not be met for all the variables or countries.

Even with the seventeen (17) variables used, data gaps still existed but were filled by using external data as proxies, regression model estimations, extrapolation, etc. Below is the set of indicators we actually used in calculating IG for our work:

Table 3.2 IGI construction indicators

	Economy (Pillar 1)	Living Conditions (Pillar 2)	Equality (Pillar 3)	Environment (Pillar 4)
1.	GDP per capita Source: WDI	Fixed Internet broadband subscriptions per 100 Source: SDG GD	Income concentration ratio (Gini index) Source: WIID	CO2 emissions Source: SDG GD
2.	Adjusted net national income per capita Source: WDI	Under-five mortality rate (deaths per 1,000 live births) Source: SDG GD	Ratio of female to male employment rate Source: WDI	Energy intensity level of primary energy Source: SDG GD
3.	GDP per person employed Source: WDI	People using at least basic drinking water services Source: WDI	Ratio of youth to adult employment rate Source: WDI Source: ILOSTAT	Efficiency of water use (water productivity) Source: SDG GD
4.	Employment to population ratio, (15+) Source: WDI		Gender parity in the number of seats held by women and men in national parliaments	Terrestrial protected areas (% of total land area) Source: SDG GD

			Source: SDG GD	
5.			Ratio of female to male labour force participation rate Source: WDI	
6.			Wage and salaried workers in women's employment to men's employment Source: WDI	

Source: Author's own construct

Thereafter, some of the original indicators, particularly under Pillar 2, Pillar 3, and Pillar 4, were inverted to simplify the interpretation of figures such that higher values signify better results. This was basically done by deducting the original values from either the theoretical maximum or observed maximum for a normal inversion as in the case of under “5” mortality with observed maximum of 202.8, income concentration ratio (Gini) with theoretical maximum of 100, CO2 emission to gdp with theoretical maximum of 1 and energy intensity level of primary energy with observed maximum of 22.44. Also, symmetric inversions were done to most indicators under Pillar 3 (Equality). These indicators were the ratio of female to male employment rate, the ratio of youth to adult employment rate, gender parity in the number of seats held by women and men in national parliaments, the ratio of female to male labour force participation rate, and wage and salaried workers in women's employment to men's employment. With parity indicators, closer values to 1 signify better performance; hence, the absolute values of the results from deducting the original values from 1 were deducted from 1.

Notational presentation may look like $P = 1 - \text{abs}(1-x)$. At the end, all the variables in the data set had higher values representing better performance and lower values representing poorer performance.

Thereafter, a normalized panel was generated to reduce and unify the units of measurement. The min-max normalization technique was used to normalize the indicators to a range of 0-1 by subtracting the minimum value for the data set of each variable from each data point of the same variable, and the result was divided by the range.

Mathematically, $\delta^*_{it} = \frac{x_{it} - x_{t,min}}{x_{t,max} - x_{t,min}}$, where $i = 1, 2, 3, \dots, 27$ and $t = 1, 2, 3, \dots, 14$

After the data scaling procedure, we adopted the principal component composite index construction technique introduced by Karl Pearson (1901), which was further developed by Hotelling (1933). This technique reduces the dimensionality while maintaining maximum variation in the dataset as much as possible. Most important is the fact that weights generated using PCA are based on correlations among variables. Thus, the weights are results of a more mechanical than subjective process, which limits the level of discretionary biases (Adnan, 2011). We employed a single weighted value of all the Principal Components to capture the variation in the data for our studies; Multivariate statistical analysis was conducted on the normalized data of each pillar separately to obtain the components' factor loadings, which were multiplied by their corresponding normalized observations and summed to obtain the PC scores. These PC scores were then weighed with the proportion of total variations they explained and summed to obtain a single index for each pillar. The indices for each pillar were further weighed equally and summed to obtain the final IG composite index for our analysis. Appendix 2 presents the IGI calculated and used in our work.

3.2.3 Descriptive Statistics

Descriptive statistics, namely: central tendencies, variance, distribution (skewness and kurtosis), etc., were performed on the variables of interest (inclusive growth, trade, financial market variables, etc.) to establish trends and also conduct the necessary comparative analysis on the performances of individual selected countries with their peers, the continent's average, and the world's average. The grand average of the selected countries was also compared with the best performer on the world's stage and the world's average as well. Within and between variations were also critically analyzed to understand the differences in the performance scores of sampled nations on inclusive growth over time and to proffer explanations to why some countries have performed better than others.

3.2.4 Inferential Statistics (Model Estimation)

The models were estimated within a panel data framework in order to account for unobserved individual heterogeneities associated with sourcing data from several different units across time. We decided not to use the traditional panel data estimation techniques (fixed effect and random effects) that are usually used to explore the cross-sectional behavior of a panel dataset because of the problem of endogeneity, particularly with dynamic models, as in the case of our study. The endogeneity problem is even accentuated due to the fact that our dataset has a shorter period of time (T) and a much larger sample size of countries (N). Even less well-known is the violation of strict exogeneity resulting from feedback effects from the response variable to the regressors. This dynamic model endogeneity problem is also present because shocks that affect the dependent variable would probably affect any determinants of these regressors in subsequent periods (Barros et al., 2020). Other causes of endogeneity may come from omitted variables and measurement errors that would find their way into the error term.

To go around these problems of endogeneity, possible heteroskedasticity, and serial correlation, we employed the Two-Step Systems Generalized Method of Moments (GMM) of

Blundell and Bond (1998) of which specific lags (and/or temporal differences) of the original regressors are used as instrumental variables, assuming zero correlation between the instruments and the models' errors (i.e., sequential exogeneity assumptions) to estimate our models. We again settled on the System GMM because of its strength in estimating unbalanced panel data correctly. The two-step system GMM, instead of the one-step system GMM, was used because of its theoretically proven efficiency. Since the models are dynamic panel data models with lagged dependent variables, the long-run effects of short-run significant independent variables were estimated, aimed at revealing their impacts beyond the contemporaneous year. This is done by dividing the coefficients of the independent variables of interest by $(1 - \sum \gamma_i)$, where γ_i is a lagged dependent variable coefficient. Note: high and significant values of the lagged dependent variables' coefficients represent strong persistence and a strong influence of the models' histories on current dependent variables.

To ensure that our models have been correctly specified and properly estimated, serial correlation and validity of instruments diagnostic tests were carried out. Arellano and Bond serial correlation tests, AR (1) and AR (2), were performed to check the presence of first-order and second-order serial correlations, respectively, and the Sargan and Hansen tests were performed to check the validity of instruments. It is expected that aside from AR (1), none of the null hypotheses of any of these tests is rejected. We also employed the Wald test to check and ensure that the dependent variable is adequately explained by the collective variations in the explanatory variables. It is therefore expected that the null hypothesis of zero coefficient of all independent variables simultaneously is rejected.

3.3 Model Specification

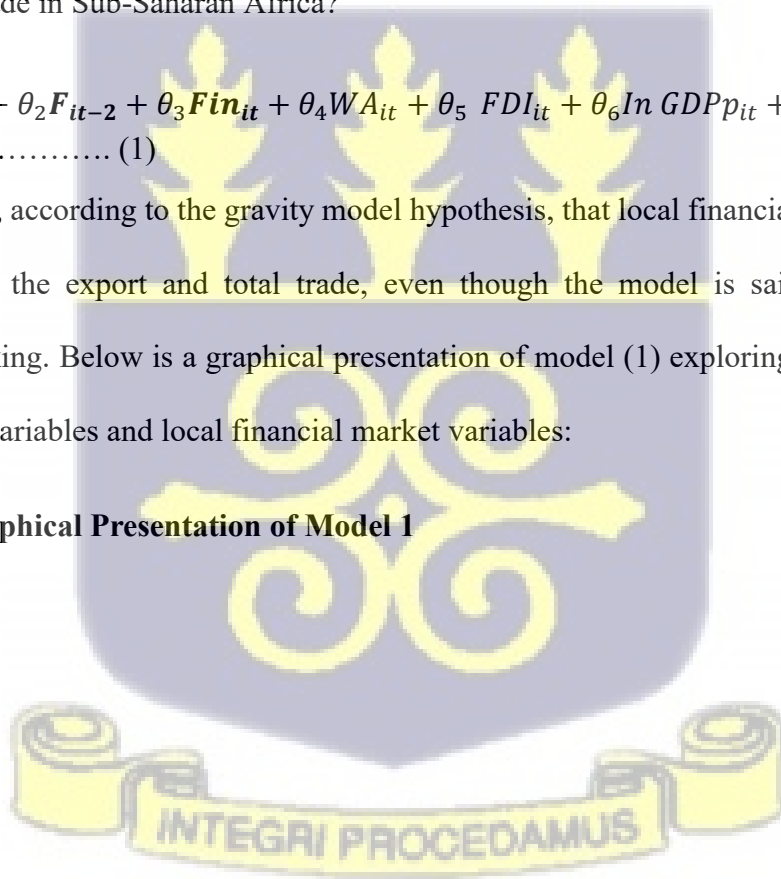
We adopted the export performance model similar to the models used by Beck (2002) and Paudel and Alharthi (2021) to study the relationship between international trade and local financial market development. As cited in Paudel and Alharthi (2021), some extant works like

Kadochnikov and Fedyunina (2017) and Coban (2015) also employed similar models in their studies. This model was developed using the gravity modeling approach first introduced by Walter Isard in 1954 and popularized by Tinbergen (1962) and Linneman (1966), who suggested that trade between nations is mostly influenced by the characteristics of the origin, destination, and some degree of impedance to free movement of goods and services, as cited by Kepaptsoglou et al. (2010). Thus, determinants of trade are factors related to the production capacity of the nation of origin, the taste and preference of the destination nation, and cross-border frictions that influence free movement across borders. Therefore, tapping into the knowledge or view espoused by Beck (2002), the model (1) below has been used to answer research question (1): What is the impact of local financial market development on international trade in Sub-Saharan Africa?

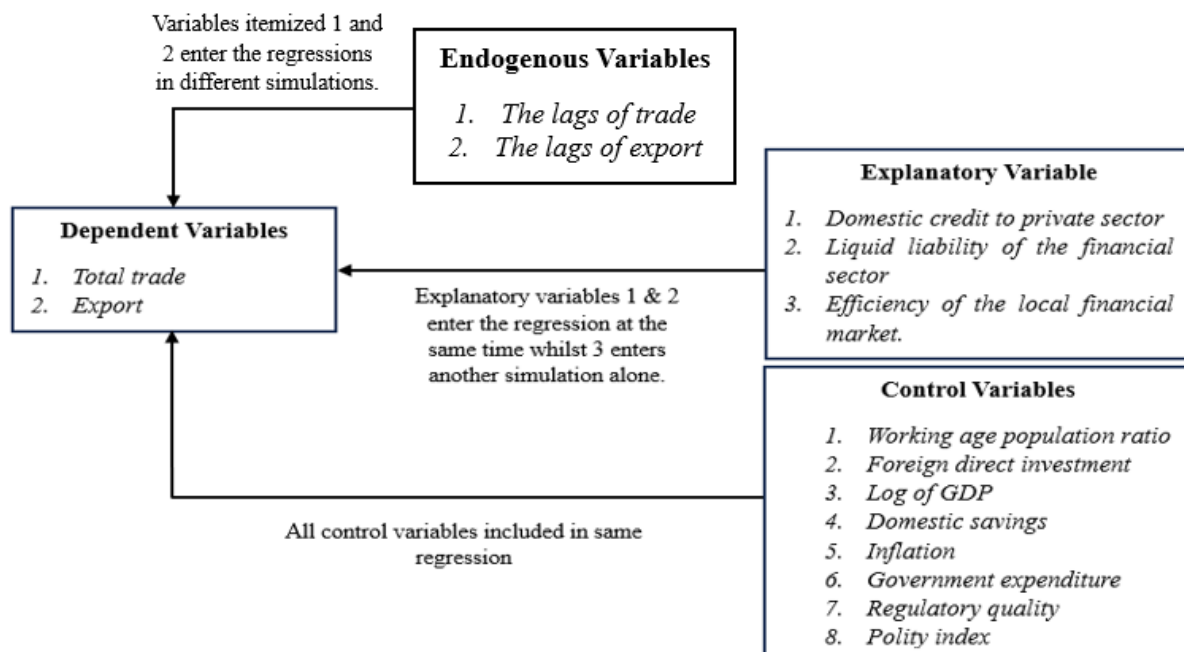
$$F_{it} = \theta_1 F_{it-1} + \theta_2 F_{it-2} + \theta_3 \mathbf{Fin}_{it} + \theta_4 WA_{it} + \theta_5 FDI_{it} + \theta_6 \ln GDP_{it} + \theta_7 \mathbf{CO}_{it} + \vartheta_i + \rho_t + \epsilon_{it} \dots\dots\dots (1)$$

It was expected, according to the gravity model hypothesis, that local financial variables relate positively with the export and total trade, even though the model is said to have weak theoretical backing. Below is a graphical presentation of model (1) exploring the relationship between trade variables and local financial market variables:

Figure 3.1 Graphical Presentation of Model 1



² where F_{it} represents one of the trade variables (either total trade to GDP or export to GDP), F_{it-1} represents first lag of trade variables, F_{it-2} represents second lag of trade variables, WA_{it} represents working age population ratio, FDI_{it} is net foreign direct investment, $\ln GDP_{it}$ is natural log of gdp, $\mathbf{Fin}_{it}$ represents a 14 * 2 matrix of local financial market variables and $\mathbf{CO}_{it}$ represents a 14 * 4 matrix of other control variables.



Source: Author's construct

To explore the extent local financial market and international trade impact inclusive growth, and how the local financial market influences the relationship between international trade and inclusive growth in Sub-Saharan Africa, we took guidance from the economic growth model developed by Knight et al. (1993) which has been considered appropriate, used, or referenced by many economic growth researchers, including Barro (1996) and Durlauf et al. (2005) to establish relationships between economic growth and its determinants. It is considered a richer and an effective add-on work done to Mankiw et al. (1992) model which was itself an augmented Solow-Swan (1956) neo-classical growth model (Durlauf et al., 2005). Solow-Swan (1956) made use of the Cobb-Douglas traditional aggregate production function with constant returns to scale and a diminishing marginal return (well-behaved production function) to develop their model, which has become the foundation for understanding modern economic growth theories (Ramanayake, 2019). The production function used by Solow and Swan was of the form:

$$Y_t = K_t^\alpha (A_t L_t)^{1-\alpha} \dots\dots\dots (2)$$

Where labour and labour-augmenting factors are exogenously determined. They are assumed to grow exponentially as indicated below:

$$A_t = A_0 e^{gt} \dots\dots\dots (3)$$

$$L_t = L_0 e^{nt} \dots\dots\dots (4)$$

Capital growth was assumed to follow the continuous time accumulation equation of the form:

$$\dot{K}_t = s_k Y_t - \delta K_t \dots\dots\dots (5),$$

Combining these equations in the face of parameter constancy assumption implies a steady state output per effective labour, of which the natural log was taken to linearize the relationship between output and its determinant.

Mankiw et al. (1992)'s empirical examination of Solow-Swan growth theory using a multi-country dataset constructed by Summers and Heston (1988) for the years 1960-1985 revealed physical capital's share of factor income of about 0.60, too high compared to the conventional value (based on U.S. data) of about one-third, despite correct predictions of the signs of correlation as cited by Bernanke et al. (2002). This problem was then resolved by introducing human capital as another factor of production in a symmetric fashion, as physical capital, to moderate physical capital's share of factor income to the conventional level of around one-third. As stipulated by many empirical researchers, including Agiomirgianakis et al. (2002) and

³ Note: $\alpha < 1$ and represents *physical capital's share of factor income*; Y_t represents *total output of the economy at time t*; K_t represents *physical capital stock at time t*; L_t represents *raw labour at time t*; A_t represents *labour augmented efficiency factor at time t*, g represents *exogenous growth rate of efficiency factor*, n is *exogenous growth rate of population*, s_k is *saving rate for capital*, δ is *the rate of depreciation*.

Strober (1990), human capital is a key factor in studying the variations in economic growth and income, hence the need for its inclusion to correct for the omission of variable problem that was believed to have biased the effect of other variables in the Solow-Swan (1956) model. As a result, the Mankiw, Romer, and Weil model was developed, and it was a buildup or an augmented Solow-Swan model, which considered human capital as a key factor in the production process (Knight et al., 1993). Thus, a three-factor Cobb-Douglas production function, which incorporated human capital with the same attributes (constant returns to scale and diminishing marginal returns) as the two-factor production function used by Solow-Swan, was used and takes the form:

$$Y_t = K_t^\alpha H_t^\beta (A_t L_t)^{1-\alpha-\beta} \dots\dots\dots (6)$$

In addition to the set of equations from (3) to (6), a continuous time accumulation equation for human capital was also introduced and takes the form:

$$\dot{H}_t = s_h Y_t - \delta H_t \dots\dots\dots (7),$$

However, Knight et al. (1993) believed that the efficiency factor (A_t) does not only depend on exogenous factors but also on other factors like the degree of openness of the economy, which affects import of capital goods that are key in production processes. Other efficiency factor determinants include: level of government's non-current investment (infrastructure), resource endowment, climate, institutional quality, and many others, which affect productive sector efficiency. As such, they expressed the efficiency factor (A_t) as a function of Trade, government expenditure, and the exogenous part (A_0) which encapsulates all other

⁴ Where $\alpha+\beta < 1$ and the level of A_t and L_t are determined exogenously as in the case of eqn (2). H_t represents human capital, β represents human capital's share of factor income, s_h is saving rate for human capital accumulation, H_t is the level of human capital.

determinants not captured by the other elements of the function. Therefore, Knight et al. (1993) notational presentation of efficient factor looks similar to:

$$A_t = A_0 e^{gt} F_t^{\theta_f} P_t^{\theta_p} \dots\dots\dots (8)$$

The modification according to Knight et al. (1993) was relevant to aid empirical works in capturing the effect of open trade policies on economic growth. They suggested that technology improvement tends to be mostly absorbed domestically through the importation of capital goods and new production processes into less developed and developing economies. They again asserted that productive sector efficiency also depends highly on the non-current investment made by governments.

The capital accumulation side/demand side of the model formation process mimics that of the Solow-Swan (1956) and Mankiw et al. (1992). Kindly refer to Knight et al. (1993). Thereafter, the steady state quantities per effective labour were calculated and substituted into the production function, where the natural log of output per labour or the natural log of GDP per capita was taken to linearize the relationship between output per labour and its determinants. The equation as specified below shows the relationship that exists between the dependent variable and its explanatory variables:

$$\ln \left[\frac{Y_t}{L_t} \right] = \ln A(0) + gt - \frac{\alpha+\beta}{1-\alpha-\beta} \ln(n+g+\delta) + \frac{\alpha}{1-\alpha-\beta} \ln(s_k) + \frac{\alpha}{1-\alpha-\beta} \ln(s_h) + \theta_f \ln F_t + \theta_p \ln P_t \dots\dots\dots (9)$$

Where according to Knight et al. (1993), g and δ should be considered constants as there was no reason to believe that these rates vary greatly across nations, particularly when the nations

g represents the exogenous growth rate, t is time, F is level of trade openness at time t , P is the level of capital investment by Government at time t , θ_f is the elasticity of trade, θ_p is the elasticity of government's capital investment.

involved had perceived similar characteristics, as in the case of this research work, where all the nations sampled are developing nations from sub-Saharan Africa. $A(0)$ expresses not only technological advancement but all other labour efficiency factors not already captured in the model, hence could be written as $A(0) = \alpha + \varepsilon$, where α is the constant term and ε represents the error term or the shock. As such, eqn (7) could safely be rewritten as:

$$\ln \left[\frac{Y_t}{L_t} \right] = \alpha_0 - \alpha_1 \ln(\dot{n}) + \alpha_2 \ln(s_k) + \alpha_3 \ln(s_h) + \alpha_4 \ln F_t + \alpha_5 \ln P_t + \varepsilon_t \dots \dots \dots (10)$$

This relationship is mimicked in specifying our regression model to explore the relationship between well-being and its variables. It is therefore expected that the relationship between international trade and inclusive growth remains positive ($\alpha_4 > 0$) whilst the impact of population growth rate (α_1) remains negative, as asserted by many other empirical works, including Tella and Alimi (2016). Our modifications to Eq. (10) to suit our objects are as follows:

1. The use of inclusive growth (IG) instead of GDP growth because of the general acceptance that IG is an improved proxy for well-being as compared to GDP per capita. As captured by theory, sustained economic growth and reduction in inequality aimed at reducing poverty are the main influencing factors of inclusive growth (Ali et al., 2007; Ali & Son, 2007). Rephrased by Gyamfi et al. (2022a), IG is a multidimensional variable of inequality and growth. Notwithstanding, growth still plays a substantial role in poverty reduction. This was supported by the empirical works of Bourguignon (2000) and Moser and Ichida (2001). They revealed that economic growth in most cases accounts for about 70% variations in poverty levels. We therefore emulated a similar relationship between GDP per capita and its determinants by regressing inclusive growth (IG) values on the determinants of growth in addition to other inequality reduction factors to explore the effect of trade and local financial markets development on welfare. As has been buttressed in literature through Ali

and Son (2007), Kuznets (1955), Lederman (2013a) etc., it would be misleading to use GDP per Capita as a measure of the benefit people derive from economic activities particularly in the poor and developing nations (where inequality is very high), hence our resolve to use the concept of inclusive growth instead. Since our study is an extension of the growth, trade, and finance debate, we believe the use of inclusive growth fits perfectly into the model, as the same belief was held by Gyamfi et al. (2022).

2. The introduction of local financial market development indicators. Financial development has been mentioned by several works as a key determinant of growth/IG, as it helps mobilize and efficiently allocate resources to more productive areas. Thus, papers like Adjasi et al. (2012) and Gyamfi et al. (2022b), etc., mentioned and in most cases established positive links between financial development and growth. In the modern-day organization of nations, it is even more justifiable to consider financial development as a key determinant of growth by looking at the human and physical capital accumulation process, where saving is key. This function of mobilizing savings and directing saved funds to viable investments is being performed by financial intermediaries (Svirydzenka, 2016). On this basis, we included the local financial market development indicators into the model to explore their effects and moderating effects on Inclusive growth. We opted not to use an aggregated index or composite index like the financial development index as used by Paudel and Alharthi (2021) because of the obscuring nature of composite variables; they give an overall picture, not the nitty-gritty necessary for policy formation and implementations.
3. We also added other control variables like regulatory quality, inflation, polity index, etc., to deal with the omission of relevant variables biases on our parameter estimates.

The new models for our work using panel data regression are rewritten to first explore the effect of local financial market indicators and international trade on inclusive growth. Second, to evaluate the moderating effect of local financial market indicators on inclusive growth international trade nexus. Guided by the works of Agbloyor et al. (2016) and Gyamfi et al.

(2022a) who studied economic growth and inclusive growth, respectively, using dynamic growth models without logs, we also estimated dynamic models ignoring the logs as specified below to explore the relationships in question, since most of the variables take the values between zero to one (0-1) or are in percentages.

Thus, the two (2) models, namely model 2 and model 3, are as specified below:

$$IG_{it} = \alpha_1 IG_{it-1} + \alpha_2 IG_{it-2} + \alpha_3 n^*_{it} + \alpha_4 s_{kit} + \alpha_5 s_{hit} + \alpha_6 F_{it} + \alpha_7 P_{it} + \alpha_8 Fin_{it} + \alpha_9 C_{it} + \delta_i + \pi_t + \varepsilon_{it} \dots\dots\dots (11)$$

Equation (11) above answered research question (ii): To what extent do local financial markets and international trade impact inclusive growth in Sub-Saharan Africa?

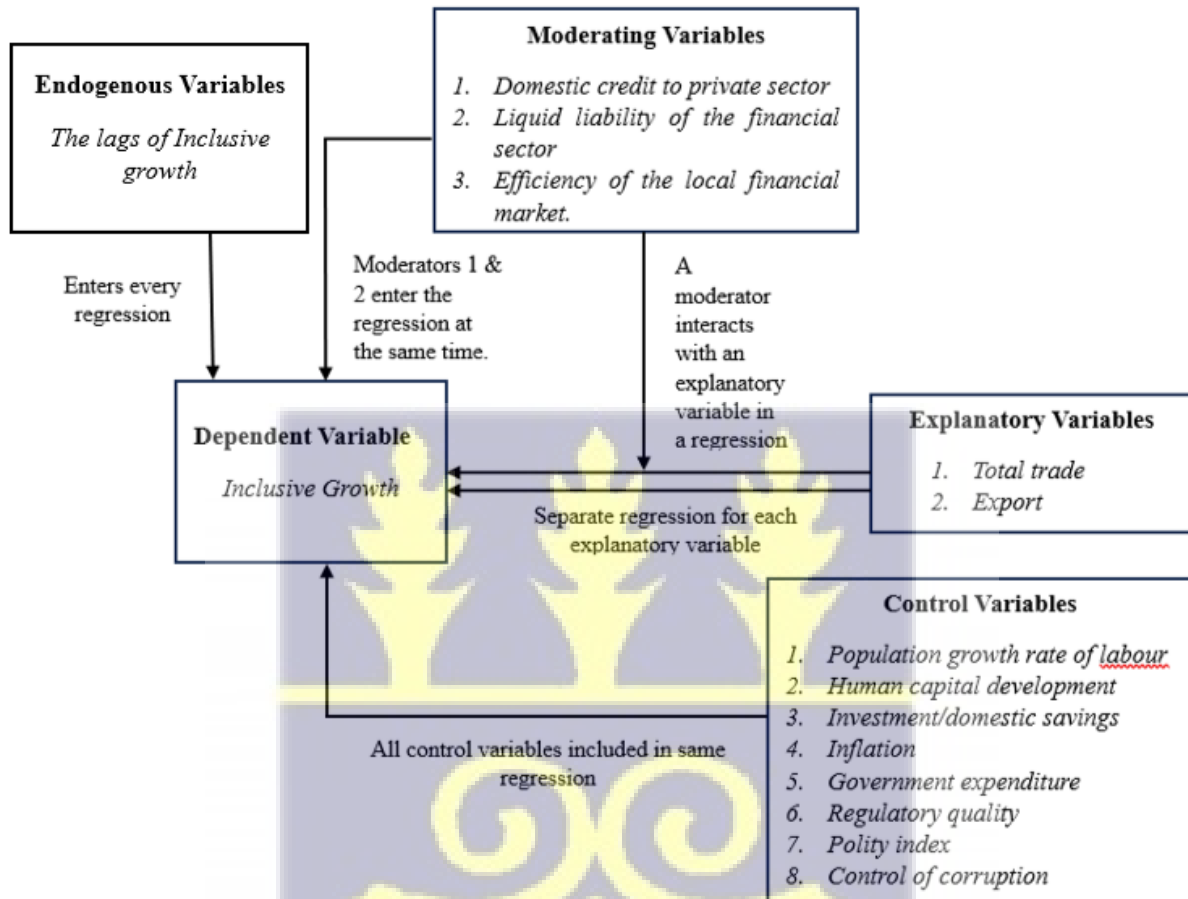
$$IG_{it} = \beta_1 IG_{it-1} + \beta_2 IG_{it-2} + \beta_3 n^*_{it} + \beta_4 s_{kit} + \beta_5 s_{hit} + \beta_6 F_{it} + \beta_7 P_{it} + \beta_8 (F_{it} * Fin_{it}) + \beta_9 Fin_{it} + \beta_{10} C_{it} + \omega_i + \gamma_t + \mu_{it} \dots\dots\dots (12)$$

Equation (12) answered research question (iii): How does the local financial market influence the relationship between international trade and inclusive growth in Sub-Saharan Africa? To explore this relationship, we interacted the trade openness variables with local financial market development variables.⁶

⁶ Where **IG_{it}** represents **inclusive growth**, **IG_{it-1}** is the lag of inclusive growth, **IG_{it-2}** is the second lag of inclusive growth, **n^{*}_{it}** represents **population growth rate**, **s_{kit}** represents **rate of savings for physical capital** and it is proxied by **non-current investment to GDP**, **s_{hit}** represents **rate of savings for human capital** and it is proxied by **secondary school enrolment**, **F_{it}** represents **one of trade variables (either total trade to GDP or export to GDP)**, **P_{it}** is **government's expenditure to GDP**, **Fin_{it}** is a **14 * 2 matrix of local financial market variables**, **C_{it}** is a **14 * 4 matrix of other control variables**.

Figure 3.1 below graphically depicts the relationship established by model 3 to explore the moderating role of local financial markets in the relationship between international trade and inclusive growth.

Figure 3.2 Graphical presentation of model 3



Source: Author's construct

3.4 Variables Descriptions and Measurement

3.4.1. Trade openness (F_{it})

Best described conceptually as the degree to which a country maintains its outward orientation to trade (Fujii, 2019). We stuck to the two (2) most pervasive proxies for trade openness used in the literature, particularly for cross-country data analysis. These two were exclusively used in separate regressions: (1) total export to GDP (%), and (2) total trade to GDP (%) of non-oil-

extracting nations or nations that do not produce oil in commercial quantities. These are used to measure trade openness. We restricted ourselves to data from non-extractive economies because of the ultimate link we intended to investigate, i.e., the relationship between international trade, local financial market variables, and inclusive growth. It is evident that indigenes of Africa are less present in the extractive sectors because of the lack of capacity to invest and participate in the sector (Gajigo et al., 2012; Laporte & Quatrebarbes, 2015), hence have only benefited indirectly through governments' spending of royalties, which averages less than 20 percent of the total value of annual extracts. Therefore, including trade from extractive activities for a study that seeks to investigate the effect of trade on the livelihood of people would be misleading; hence, our focus on trade in activities where indigenes are predominant. As such, Mankiw et al. (1992) also excluded oil producing nations from their study with the explanation that, using the standard growth model as has also been used as the main guide for the models in our study to examine the variations in total GDP per capital (crude inclusive) as a proxy for living standard would be misleading since the bulk of GDP figures in most oil producing nations represents the extraction of already existing resources where foreign citizens and a small percentage of locals are predominant, no value added. A typical example was the GDP growth rate of 14.05% the Ghanaian economy experienced in 2011, which was largely attributed to the commencement of oil exploration in commercial quantities from the Jubilee Field, yet little could be said about the translation of such growth into improving the lives of indigenes.

Total export to GDP represents the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and

transfer payments as a percentage of GDP. And Trade to GDP is the sum of exports and imports of goods and services measured as a share of gross domestic product.

Data was sourced from the World Bank's World Development Indicators database (WDI).

3.4.2. Financial market (Fin^*_{it}):

Used to define the system or marketplace that offers opportunities for trade in funds between those who have in excess and those who are in need to undertake viable projects. We concentrated on only three (3) indicators to measure the development of the financial market. Ratio of domestic credit to the private sector to GDP (PC/GDP (%)) as a proxy for the relative depth of intermediation, the ratio of liquid liabilities of the financial sector to GDP (Broad Money (M2)/GDP) as a proxy to measure market size, and the ratio of domestic credit to the private sector to GDP (PC/GDP) to the ratio of liquid liabilities of the financial sector to GDP (M2/GDP) as a proxy to measure the efficiency of the market since a financial system that channels more funds to the private sector is perceived to be more involved in the performance of its core mandates. Our choice of these variables is based on one of the main functions of the financial sector, i.e., redistribution of funds from agents that have in excess to agents who need them for profitable projects/investments. Thus, we considered the size, depth, and efficiency of the local financial market in the performance of its functions to select these variables, following the guidance of Giannetti et al. (2002), King and Levine (1993), and Adjasi et al. (2012).

Domestic credit to the private sector is measured by financial resources provided by financial corporations to the private sector, such as loans, purchases of non-equity securities, and trade credits and other accounts receivable that establish a claim for repayment. Broad Money (M2)/GDP represents the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors

other than the central government; bank and traveler's checks; and other securities such as certificates of deposit and commercial paper.

Data was sourced from the World Bank's World Development Indicators database (WDI).

3.4.3. Working age population ratio

It captures the effect of workforce strength or capacity of a nation on growth. Beck (2002) and Paudel and Alharthi (2021) adopted and used similar variables in their work as one of their control variables. It is measured by the proportion of the total population of persons aged 15-

60. **Data Source: WDI.**

3.4.4. Savings (s_k)

It defines output that is not consumed but saved for investment. As used by Adjasi et al. (2012), Agbloyor et al. (2016) and many other growth research works, we also adopted gross domestic savings to GDP (%) as the proxy for the savings variable. Theory predicts a positive relationship between living standard and savings. It is calculated as GDP less final consumption expenditure (total consumption) as a percentage of GDP. Data was sourced from the World Bank's World Development Indicators database (WDI).

3.4.5. Human Capital (s_h)

Used to represent the economic value of workers' abilities and capabilities, and is proxied by the school enrolment rate (Secondary education enrolment rate). We, however, acknowledge other forms of training, particularly skills training, as well as quality and accessible health care, as contributors to human capital development. The limitation is the unavailability of reliable data on these other variables. This same indicator was used by Adjasi et al. (2012), Arabiyat et al. (2020) and Barro (1996). It is measured by the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education.

Data was sourced from the World Bank's World Development Indicators database (WDI).

3.4.6. Government Consumption (P)

It seeks to capture the impact that government spendings on public goods have on inclusive growth. We adopted the most used proxy of government expenditure to GDP (%) by many growth researchers, including Mankiw et al. (1992), Adjasi et al. (2012), Agbloyor et al. (2016), and Lederman (2013b). It includes all government current expenditures for purchases of goods and services (including compensation of employees) and expenditures on national defense and security, but excludes government military expenditures that are part of government capital formation.

Data was also sourced from the World Bank's World Development Indicators database (WDI).

3.4.7. Foreign Direct Investment (FI_{it})

It measures how attractive foreigners perceive other countries as good investment destinations, and it is best defined by the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. We adopted Foreign direct investment, net inflows (% of GDP) as a proxy, as used by Adjasi et al. (2012), Paudel and Alharthi (2021) and many other authors. It is measured by summing up equity capital, reinvestment of earnings, other long-term capital, and short-term capital, as shown in the balance of payments as a percentage of GDP.

Data was sourced from the World Bank's World Development Indicators database (WDI).

3.4.8. Gross Domestic Product ($GDPp_{it}$)

It measures the level of economic activities or output of a nation. It has been employed in our work to capture the impact of economic activity on trade. In some instances, like in the case of Paudel and Alharthi (2021), it is a proxy for the quality of infrastructure development. Its value

is the sum of gross value added by all resident producers in the economy, plus any product taxes, and minus any subsidies not included in the value of the products. Data are in constant 2015 prices. It is sourced from the World Bank's World Development Indicators database (WDI).

3.4.9. Population Growth (n^*_{it})

Represents the annual population growth rate used to proxy the effect of increasing total population on growth and inclusive growth. Beck (2002) adopted the same indicator in their work on growth. Justification for its inclusion is fortified by trade theories as pioneering theorists like Adam Smith and David Ricardo recognized labour as the only factor of production. Labor's influence on growth is also captured by endogenous growth theories, justifying the need for its inclusion in order to escape the biases caused by the omission of relevant variables. It is measured by the exponential rate of growth of midyear population from year $t-1$ to t , expressed as a percentage. Data was sourced from the World Bank's World Development Indicators database (WDI).

Other control Variables:

Acemoglu et al. (2004) identified the indicators used as control variables in our model as key drivers of growth according to the endogenous growth literature, hence appropriate choices for controls. Among these indicators are some Institutional Quality and Worldwide Governance Indicators. It is suggested that good governance, coupled with vibrant institutions, promotes fairness, equitable distribution of resources, and economic performance (Agbloyor et al., 2016; North, 1990) which are core to the inclusive growth definition as espoused by Ali et al. (2007) and Ali and Son (2007).

3.4.10. Polity index (Institutionalized Democracy Index)

It is an institutional quality indicator that is used to control for the impact democratic governance has on inclusive growth. It is derived from coding the competitiveness of political participation, openness, and the competitiveness of executive recruitment, and constraints on the chief executive. Acemoglu et al. (2003) qualify a nation as having strong, effective institutions when it is democratic. This was also used by Adjasi et al. (2012) to control for the same effect. Data was sourced from the World Bank's World Development Indicators database (WDI).

3.4.11. Control of corruption index

Measures the extent to which fiducial power of public office is exercised for private gain as well as “capture” of the state by elites and private interests. It is a Worldwide Governance Indicator that is added to control for the huge impact corruption has on the inclusivity of growth. In support of the need to include this variable in models seeking to explore well-being, Jain (2001) indicated that, consequently, corruption skews the pattern of resource allocation and the distribution of income in society. The three main dimensions assessed to build this index are the accountability of the executive to oversight institutions and of public employees for their performance, access of civil society to information on public affairs, and state capture by narrow vested interests. Data was sourced from the World Bank's World Development Indicators database (WDI).

3.4.12. Inflation

We share the same school of thought that inflation has a huge impact on inclusive growth since it deepens inequality by shifting income from wage earners, who are mostly among the lower class, to profit owners, who are the affluents who own the productive resources (Siame-Namini & Hudson, 2019). We therefore control for this short-run macroeconomic effect with the use of consumer price indices of the selected countries over time. Data was sourced from the World Bank's World Development Indicators database (WDI).

3.4.13. Regulatory quality

It is also one of the Worldwide Governance Indicators used to measure the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. It is a research dataset summarizing the views on the quality of governance provided by a large number of enterprise, citizen, and expert survey respondents in industrial and developing countries. Data was sourced from the World Bank's World Development Indicators database (WDI)

3.5 Chapter Summary

This chapter presented the methods and procedures used. It presented the dynamic linear regression models used to answer the study's research questions, models inspired by the export performance model of Walter Isard in 1954 and the economic growth model developed by Knight et al. (1993). Data was limited to only twenty-seven (27) sub-Saharan African nations not producing crude oil in commercial quantities. The chapter further gave a vivid account of how the inclusive growth index was calculated using the Principal Component Analysis statistical method, with indicators selected based on the United Nations inclusive growth framework. In the concluding sections, the Two-Step Systems GMM was employed to estimate models exploring the relationship between international trade and the local financial market, the relationship between inclusive growth and international trade, and the moderating role of the local financial market in the inclusive growth-trade nexus.



CHAPTER 4

DISCUSSION OF RESULTS

4.1 Introduction

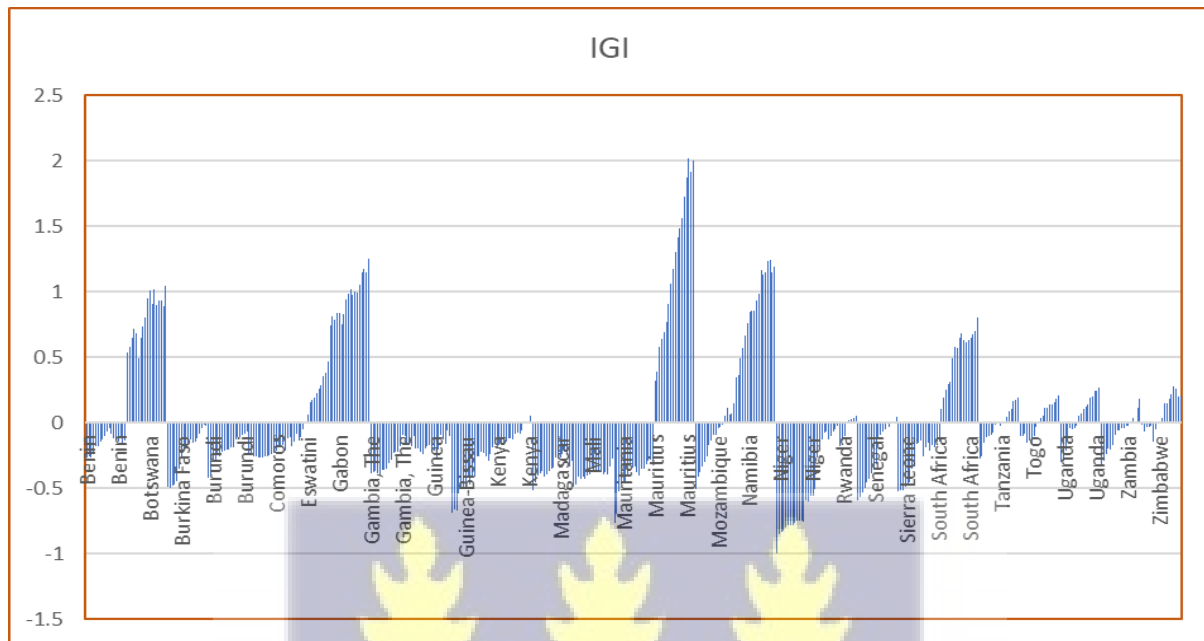
This chapter presented an in-depth analysis of the variations, behavioral patterns, and traces of correlations noticeable in the data set. It started by discussing the descriptive statistics of all variables of interest within the frameworks of internal capacities of nations to do better or worse, and with comparison to both African and the world's averages, in some cases, the world's best or European worst performers. Thereafter, the results of the estimated models using various regression techniques aimed at answering our research questions were discussed.

4.2 Descriptive Statistics

According to the inclusive growth index (IGI) attached in Appendix 2 and the bar chart generated thereof, as shown in Figure 4.1, Mauritius recorded the highest IGI value of 2.02029 in 2019 and the highest average value of 1.213 for the period among the sampled nations. This could partly be attributed to its sustained high GDP per capita over the period, with the highest of 25739.36 in 2019, highlighting the huge impact GDP growth still had on inclusive growth in the recent past. Mauritius, which has one of the largest exclusive economic zones in Africa, is among the top tourist destinations and exporters on the continent, probably with a large number of indigene participation as suggested by its comparatively higher financial market development indicators, particularly its domestic credit to private sector ratio with the best record among its peers for the period with 104.89 percent in 2013. According to the data (WDI), Mauritius had also consistently maintained the highest spot for the percentage of above fifteen (15+) years population that held accounts with a financial institution or with mobile-money service providers, recording the highest of 90.53 percent for the period in 2021. As has been used by many researchers as a proxy for financial inclusion, high account ownership suggested high local/indigene participation in the financial sector, particularly the banking sector, which

positioned individuals well to take advantage of the domestic credits advanced to the private sector.

Figure 4.1 Graphical Presentation of IGI



Source: Author's own construct

Further analysis on how top performers with inclusive growth figures fared in terms of their local financial market development revealed that, even though the region's star performer (Mauritius) had an average domestic credit to private sector value of 85.749 percent, about 40.046 percentage points higher than the sub-Saharan Africa average of 45.703 percent, it was lower than the European Union average of 94.160 percent. This probably explains Mauritius's top performance in terms of growth and the inclusivity of growth among its peers on the African continent. With the influence of its outperforming local financial market, financial inclusion performed on average of about 85.675 percent of the working age population and above (15+) holding accounts with financial institutions or mobile money providers, which has been touted by many as a vehicle for aiding indigenes to participate in growth processes, hence a reduction in inequality.

Table 4.1 Descriptive summary of financial inclusion data on Mauritius

Mean	85.675
Standard Error	2.642323788
Median	86.025
Mode	#N/A
Standard Deviation	5.284647576
Sample Variance	27.9275
Kurtosis	-5.153745077
Skewness	-0.118932701
Range	10.41
Minimum	80.12
Maximum	90.53
Sum	342.7
Count	4

Source: Author's computation based on data sourced from WDI

On trade, it was also observed that nations that scored high marks on the IGI had high export and trade to GDP values, suggesting a possible positive effect of trade on inclusive growth. This can be explained by the employment opportunities that export offers and the benefit of importing technology, new production techniques, and machines to boost production. This is supported by the work of Arabiyat et al. (2020) and others who predicted significant positive impacts of trade on IGI when inequality is at an acceptable level. Table 4.2 shows the top five (5) performers in export/gdp (%), trade/gdp (%), and Inclusive Growth Index (IGI) based on average values for the period under study.

Table 4.2 Top Sub-Saharan Africa performers in trade, export, and inclusive growth

Export (%)		Total Trade (%)		IGI	
Mauritius	108.8368	Gabon	54.4349	Mauritius	0.3205
Eswatini	98.1559	Mauritius	50.5349	Gabon	0.7453
Botswana	96.3952	Eswatini	47.5495	Namibia	0.3485
Namibia	94.8085	Botswana	47.5487	Botswana	0.5344
Mozambique	92.0787	Namibia	40.7202	South Africa	-0.1502

Source: Author's computation based on data sourced from WDI

Variation Analysis

Table 4.3 Panel Data Descriptive Analysis Results

Variable		Mean	Std. Dev.	Min	Max	Observations
Export/gdp (%)	overall	27.0524	13.01729	4.54932	62.19971	N = 378
	between		12.29367	7.308789	53.2628	n = 27
	within		4.85046	12.07788	43.44666	T = 14
Trade/gdp (%)	overall	64.61161	23.27649	22.24029	125.783	N = 378
	between		21.42779	34.15319	105.8918	n = 27
	within		9.923595	31.02979	109.9986	T = 14
Domestic credit (DC) (%)	overall	24.90929	26.20573	0.0047693	128.8384	N = 358
	between		26.39971	0.0061241	120.5308	n = 27
	within		4.194012	-2.454257	40.48763	T-bar = 13.2593
M2/gdp (%)	overall	33.66153	20.90438	0.0230385	159.9491	N = 377
	between		20.06074	9.969174	110.5745	n = 27
	within		6.918797	15.85384	83.03606	T-bar = 13.963
Ratio of DC to M2	overall	66.76965	31.51401	0.023969	197.4893	N = 358
	between		30.52658	11.40964	177.6378	n = 27
	within		9.703529	21.99479	95.75865	T-bar = 13.2593

IGI	overall	0.0559012	0.5064531	-0.8040402	2.02029	N = 378
	between		0.4958893	-0.6970026	1.422325	n = 27
	within		0.1380873	-0.6724076	0.6538663	T = 14

Source: Author's own computation

Out of an inclusive growth's overall variation of 0.5065, the between variation had a higher figure of 0.4959, whilst the within variation was only 0.1381. Which means that the levels/differences in living standards of people at any point in time in the sub-region were highly dependent on the country in which they found themselves. Thus, even though the living standard of people on average changed over time, policy differences and nation-specific conditions in these individual countries played key roles in the lives of people on the continent.

Among the other variables of interest, there seems to be similar trends where greater portions of the overall variations are attributable to variations between the countries, which suggests that major steps have not been taken to improve the scores of individual nations in relation to our variables of interest over the years to bridge the performance gap between nations. Starting with export to gdp (%), overall variation was 13.01729, with between variation of 12.29367 and within variation of only 4.85046. This suggests huge gaps among selected nations in terms of their production and export capabilities at any point in time, but little improvement or add-ons to each country's production capacity over time. On average, African exports to gdp (%) accounted for only 41.87 percent of the total trade to gdp (%). This is the statistical evidence of the negative trade balances that the sub-Saharan region has been known for. Unfortunately, Africa's imports had been dominated by consumables like luxury automobiles, personal IT products, clothing and fashion accessories, pharmaceuticals, etc., and less of capital goods, which could partly explain the higher unemployment being experienced on the continent. And finally, on international trade, trade to gdp (%) experienced an overall variation of 23.27649, a 78.8 percent increase of the export to gdp (%) overall variation, with a between variation of

21.42779, a 74.3 percent increment of the export to gdp between variation. This suggests that import volatility was the major contributor to the overall and between variations in trade values, though export volatility was also a significant influencer. On within variations, the data shows 104.6 percent increase on average in variations on export to total trade. This clearly speaks to the inconsistencies in local production to meet local demand, hence changes in import volumes to fill the demand gap.

To aid a thorough understanding of the impact of the local financial market, the study first looked at its volatility. Its comparatively higher variation figures suggested huge volatility and differences in the local financial markets' effects and capacities in funding the private sectors of each nation. While within variations for domestic credit to the private sector showed a volatility that suggested no clear trend or pattern of growth hence the non-reliance of domestic firms on funds from the local financial market to grow output needed for growth, larger between variations suggested huge differences in the level of financial market development of nations in terms of advancing finances to the private sector. This non-assuring nature of the market explains why most African nations are still underdeveloped despite the huge market available on the continent, coupled with huge deposits of mineral resources.

4.3 Inferential Statistics

From the pairwise correlation matrix table attached in Appendix 3, the correlation coefficient of 0.8921 suggested the presence of collinearity, hence separate sets of regressions were run for export/gdp and trade/gdp to resolve estimation bias that may characterize our result if these two variables were present in the same model and run together. All the financial market indicators were also not run together because of the high correlation coefficient of 0.8012 between domestic credit to the private sector and the efficiency indicator generated from the ratio of domestic credit and broad money. A robustness test on the correlation matrix result was conducted using the variance inflation factor (VIF) to reaffirm that the data set is free of

any problem of multicollinearity. VIF value of above 10 poses a severe multicollinearity issue and must be addressed (Marquardt, 1970). Table 4.4 presents the Variance Inflation Factor (VIF) when trade/gdp and export/gdp were separately used in the model as regressors on IGI, and Table 4.5 presents the VIF when export/gdp or trade/gdp was used in the model as the dependent variable.

Table 4.4 VIF for models 2 and 3

Total Trade/GDP				Export/GDP		
Variable	VIF	1/VIF		Variable	VIF	1/VIF
regulatory~y	5.86	0.17071		regulatory~y	5.84	0.171196
popugrowth~e	4.38	0.228284		popugrowth~e	4.73	0.211403
M2gdp	4.37	0.22862		M2gdp	4.22	0.237178
secschenrol	4.19	0.238497		secschenrol	4.05	0.24703
controlofc~n	3.91	0.255781		controlofc~n	3.9	0.25639
dcredit	3.71	0.269773		dcredit	3.7	0.270204
tradegdp	1.9	0.527259		exportgdp	2.63	0.379509
polityindex	1.59	0.629238		dsavgdp	1.83	0.545414
dsavgdp	1.44	0.693834		polityindex	1.59	0.62872
gexpengdp	1.43	0.697364		gexpengdp	1.46	0.686827
cpinflation	1.08	0.924588		cpinflation	1.08	0.925167
Mean VIF	3.08			Mean VIF	3.18	

Source: Author's own construct

Table 4.5 VIF for model 1

Variable	VIF	1/VIF
dcredit	5.92	0.168952
regulatory~y	5.35	0.186866
M2gdp	4.68	0.213609
adultptotalp	3.86	0.259329
controlofc~n	3.6	0.277972
loggdp	2.57	0.388745
dsavgdp	1.59	0.630312
polityindex	1.33	0.751653
gexpengdp	1.2	0.832171
netfdigdp	1.07	0.931415
cpiinflation	1.07	0.938463
Mean VIF	2.93	

Source: Author's own construct

Effects of Local Financial Markets on Inclusive Growth

Table 4.6 presents results that exclusively answer research question (1), which seeks to evaluate the impact of local financial market development indicators on trade openness variables. Sub-models (1a) and (1b) of model (1) present results where export to gdp was used to proxy trade openness, and sub-models (1c) and (1d) had total trade to gdp as the proxy for trade openness. Sub-models (1b) and (1d) of model (1) had the efficiency variable being a ratio derived from domestic credits advanced to the private sector to broad money (M2) as the only local financial

sector indicator, and sub-models (1a) and (1c) had domestic credit to the private sector and M2 as the variables proxying financial sector development.

Table 4.6 Effects of local financial sector variables on international trade

	Model 1(a) (Exportgdp%)	Model 1(b) (Exportgdp%)	Model 1(c) (Tradegdp%)	Model 1(d) (Tradegdp%)
L1.	0.757*** (0.0556)	0.744*** (0.0605)	0.767*** (0.0659)	0.756*** (0.0678)
L2.	-0.047 (0.0738)	-0.043 (0.0753)	0.0241 (0.0769)	0.027 (0.0791)
Domestic Credit	-0.040 (0.0281)		-0.061 (0.0482)	
M2/gdp	0.037** (0.0177)		0.063*** (0.0228)	
Dc/M2		0.032** (0.0161)		0.047* (0.0282)
NFI/gdp	0.087* (0.0527)	0.079* (0.0534)	0.475*** (0.1259)	0.473*** (0.1118)
Log of gdp	-0.523 (1.1159)	-0.165 (1.1321)	-0.875 (1.6865)	-0.423 (1.6812)
Popul. (A/T)	0.428*** (0.1545)	0.456*** (0.1470)	0.434* (0.2362)	0.483** (0.1977)
Regul. Quality	-0.738 (0.7387)	-0.458 (0.7509)	0.479 (0.9097)	0.986 (1.0006)
DS/gdp	0.187*** (0.0518)	0.185*** (0.0537)	0.089 (0.0603)	0.082 (0.0591)
Inflation (CPI)	-0.0003 (0.0002)	-0.0005** (0.0002)	-0.0002 (0.0003)	-0.0005* (0.0002)
Gov. Exp/gdp	0.152** (0.0768)	0.182** (0.0762)	0.210** (0.1061)	0.265** (0.1143)
Polity Index	-0.051 (0.0853)	-0.084 (0.0941)	-0.018 (0.1268)	-0.056 (0.1504)

	Diagnostics			
	Yes	Yes	Yes	Yes
Year dummies				
Wald Chi2	218932.21	71867.34	178584.91	114978.79
P(Wald)	(0.00)	(0.00)	(0.00)	(0.00)
AR (1)	-3.01	-3.02	-2.7	-2.72
P-values	(0.003)	(0.003)	(0.007)	(0.007)
AR (2)	-0.2	-0.18	0.4	0.41
P-values	(0.843)	(0.855)	(0.693)	(0.68)
Sargan Chi2	1.24	1.32	2.13	2.17
P(Sargan)	(0.265)	(0.251)	(0.145)	(0.141)
Hansen Chi2	1.29	1.62	1.23	1.31
P (Hansen)	(0.255)	(0.203)	(0.268)	(0.253)
No. of Groups	27	27	27	27
No. of Instru.	25	24	25	24
No. of Obs.	311	311	311	311

Source: Author's own construct

According to results from Table 4.6, model 1(a) indicates that only broad money to GDP of the finance variables had significant impacts on export to GDP at 5% significance level. Other significant predictors of export to GDP were net foreign direct investment, adult (15+) population ratio, domestic savings to GDP, and government expenditure to GDP. The coefficient of 0.037 suggests that, *ceteris paribus*, a percentage point increase in broad money to GDP, which indicates the size of the market, leads to an average 0.037 percentage point increase in export to GDP at 5% significance level in the short run. The positive impact of

⁷ **Note:**

*L1 and L2 represent the first and second lags of the dependent variables, domestic Credit represents domestic credit to private sector to gdp, m2/gdp represents m2 to gdp, Dc/M2 represents the ratio of dcredit and m2gdp, NFI/gdp represents net foreign direct investment to gdp, log of gdp represents the natural log of gross domestic product, Popul. (A/T) represents the ratio of adult population to total population, DS/gdp represents domestic savings to gdp, inflation (CPI) represents the consumer price index, Gov.exp/gdp represents government expenditure to gdp. ***, **, * represent statistical significance at 1%, 5% and 10% respectively. Also, note that the values in parenthesis under the estimated coefficients are their corresponding standard errors unlike the values in parenthesis under the diagnosis which are P-values.*

broad money affirms the position of the school of thought that asserts that an increase in money supply leads to a rise in exports as exports become cheaper through the rise in exchange rate (Hailu, 2010). Hence, the net effect of expansion in the money supply base could lead to an improvement in trade balances. As was asserted by Dormusch (2019), money supply is a key variable dominating the course of exchange rates in the short run. A similar argument could be extended to sub-model 1(c), which also had broad money to GDP as the only significant finance variable at 1% significance level. Broad money's coefficient of 0.063 suggested that, *ceteris paribus*, a percentage point increase in broad money to GDP, which indicates the size of the market, leads to an average 0.063 percentage point increase in trade to GDP at 1% significance level in the short run. As observed, the impact on total trade to GDP is nearly twice the impact that broad money had on exports to GDP. Thus, beyond the money supply's impact on export through exchange rate mechanisms, the volume of imports into the continent of Africa does not decrease significantly. Even if it does, it has not been huge enough to offset the impact on exports due to increases in exchange rates. This can largely be attributed to the over-reliance of the African continent on other continents of developed taste for foreign products and inadequate installed productive/processing capacity to meet demands on the continent. Another intuition provided by Hailu (2010) was that, because Africa's main imports (pharmaceuticals, energy, etc.) are price inelastic, import amounts increase even with the same quantity when exchange rates rise. Hence, both exports and imports in the case of Africa increase substantially when the value of domestic currencies falls. This underpins the observed inverse relationship between international trade and the value of domestic currency. Many other works, including Mbongo et al. (2014), also asserted the significant impact of money supply on trade through exchange rate mechanisms and inflationary pressures, hence corroborating our findings with the belief that sub-Saharan African states can tweak the amount of money supply to regulate trade, particularly export. Other variables with significant impact on trade, as established by model 1(c), are net foreign direct investment, adult (15+) population ratio, domestic savings to

gdp, and government expenditure to GDP. This is consistent with the conclusion reached by many other extant works, including Beck (2002) and Hailu (2010), on the determinants of trade.

Also from table 4.6, model 1(b) and 1(d), the ratio of domestic credit to the private sector to broad money used to proxy the efficiency of the financial system posed significant impacts on both export to GDP and trade to GDP at 5 percent and 10 percent significance levels, respectively. The indicator's coefficient of 0.032 in model 1(b) suggests that, *ceteris paribus*, a unit increase in the value leads to an average 0.032 percentage point increase in export to GDP at 5% significance level in the short run. A similar interpretation is offered for the coefficient of 0.047 in model 1(d). It suggests that, *ceteris paribus*, a unit increase in the value of the efficiency variable leads to an average 0.047 percentage point increase in trade to GDP value at a 10% significance level in the short run. These results are in line with the findings of Adjasi et al. (2012), Gyamfi et al. (2022b), Svirydzhenka (2016) etc., who explored the importance of financial sector development and intermediation on output and growth. They asserted that the financial sector function of mobilizing resources and directing saved funds to viable projects promotes growth through increases in productivity and production for both domestic consumption and trade when it is efficient. Thus, an increase in the efficiency ratio means an increase in the proportion of money in circulation that has been channeled to the private sector for production. The importance of efficiency in financial sector performance was also captured by Ifeoma et al. (2023). They stated that inefficiencies in fund allocation and the inadequacy of domestic credit hinder nations' ability to operate at full capacity.

And finally, as again indicated in Table 4.6, the impacts of domestic credit to the private sector on export and total trade to GDP were negative and insignificant. As has been noticed for most developing regions and states, the lion's shares of funds to the private sector are channeled to local consumption-driven sectors and low-risk areas. Whereas this may be the result of banks', the main financial intermediary, profit and loan recovery motives, nations themselves,

sometimes, consciously implement policies that promote the establishment of import substitution enterprises, hence reducing trade. This reiterates the findings of Paudel and Alharthi (2021), who suggested that Nepal's financial sector's insignificant impact on exports was due to banks' financing priority areas being real estate, wholesale and retail trade, building and construction, hospitals and educational institutions, etc., which are import-aligned.

Trade openness and local financial market (Long-run effect)

Beyond the short-run effects of Model 1, Table 4.7 below presents results for the long-run effects of variables that were significant in the short run.



Table 4.7 Long-run effects on export and total trade

	Model 1(a) (Exportgdp)	Model 1(b) (Exportgdp)	Model 1(c) (Tradegdp)	Model 1(d) (Tradegdp)
M2/gdp	0.154* (0.0809)		0.269** (0.1357)	
Dc/M2		-0.125** (0.0637)		-0.192* (0.1100)
NFI/gdp	0.359 (0.2347)		2.041*** (0.5592)	1.935*** (0.4801)
Popul (A/T)	1.764*** (0.6132)	1.779*** (0.5552)	1.867* (1.1020)	1.976** (0.9272)
DS/gdp	0.764*** (0.2497)	0.723*** (0.2219)		
Inflation(CPI)		-0.002** (0.0008)		-0.002* (0.0011)
Gov.Exp/gdp	0.628* (0.3313)	0.709** (0.3028)	0.901* (0.5024)	1.082** (0.5020) ⁸

Source: Author's own construct

The long-run results from models 1(a) and 1(c) indicate that m2/gdp continued to impact exports and trade even in the long-run though their levels of significance seemed to be lower than the short-run effects. In model 1(a), ceteris paribus, a percentage point increase in m2/gdp

⁸ *Note:*

m2gdp represents *m2* to *gdp*, *dcreditm2* represents the ratio of *dcredit* and *m2gdp*, *netfdigdp* represents *net foreign direct investment* to *gdp*, *adultptotalp* represents the ratio of *adult population* to *total population*, *dsavgdp* represents *domestic savings* to *gdp*, *cpiinflation* represent the *consumer price index*, *gexpengdp* represents *government expenditure* to *gdp*. ***, **, * are statistical significance at 1%, 5% and 10% respectively. Also, note that the values in parenthesis under the estimated coefficients are their corresponding standard errors.

leads to a 0.154 percentage point increase in export to gdp and 0.269 percentage point increase in trade to gdp in the long run at 10 percent and 5 percent significance levels, respectively. This long-run effect could still be attributed to the reactive behaviour of the exchange rate when money supply changes. This outcome aligns with the findings of Islam et al. (2022), who stated that in the long run, money supply significantly propels economic growth because of its impact on exchange rates and lending rates.

The efficiency variable again proved its significance in sub-models 1(b) and 1(d) at 5 percent and 10 percent significance levels, respectively, in the long run, but the effects were negative on export to GDP and trade to GDP, contrary to the positive effects it had on the same variables in the short run. Thus, a unit increase in $Dc/M2$ leads to 0.125 and 0.192 percentage point decreases in export to GDP and trade to GDP at 5% and 10% significance levels, respectively, *ceteris paribus*, in the long run. This seems to assert a similar inverse relationship that existed among domestic credit to the private sector as a percentage of GDP and export as a percentage of GDP, and trade as a percentage of GDP in the short run, though not significant. This reaffirms the findings of Paudel and Alharthi (2021) who suggested that the allocation of domestic credit to local consumption industries impacted trade and growth negatively. An increase in credit to the private sector in Africa increases the number of import substitution enterprises, which leads to a reduction in the reliance on imports and the reduction in export of raw materials since they are used locally to feed the domestic enterprises.

Effects of Local Financial Markets and International Trade on Inclusive Growth

The regression results of model (2) and its sub-models are presented in Table 4.8 below. These models evaluated the impacts of international trade variables and local financial market development variables on inclusive growth. Sub-models (2a) and (2b) of model (2) present results where export to GDP was used to proxy trade openness, and sub-models (2c) and (2d) had total trade to GDP as the proxy for trade openness. Also, sub-models (2b) and (2d) of

model (2) had an efficiency indicator derived from dividing domestic credits advanced to the private sector by broad money (M2) as the only local financial sector indicator, and sub-models (2a) and (2c) had domestic credit to the private sector and M2 as the variables proxying local financial market development.

Table 4.8: Effects of local financial market variables and international trade on inclusive growth

	Model 2(a) (IG)	Model 2(b) (IG)	Model 2(c) (IG)	Model 2(d) (IG)
L1.	0.788*** (0.0962)	0.834*** (0.0828)	0.811*** (0.0957)	0.849*** (0.0842)
L2.	0.058 (0.0666)	0.069 (0.0672)	0.053 (0.0706)	0.061 (0.0710)
Trade/gdp			0.0007** (0.0003)	0.0007** (0.0003)
Export/gdp	0.002** (0.0007)	0.002*** (0.0006)		
Domestic Credit	-0.00003 (0.0003)		-0.00007 (0.0003)	
M2/gdp	0.0013 (0.0008)		0.001 (0.0008)	
Dc/M2		-0.00004 (0.0001)		-0.00004 (0.0002)
DS/gdp	-0.00009 (0.0009)	-0.0002 (0.0008)	0.0006 (0.0007)	0.0005 (0.0006)
Popugrowthrate	-0.013** (0.0121)	-0.014** (0.0113)	-0.018* (0.0122)	-0.018** (0.0111)
Secschenrol	0.0004 (0.0005)	0.0004 (0.0004)	0.0004 (0.0005)	0.0004 (0.0004)
Gov. Exp/gdp	-0.0004 (0.0012)	-0.0004 (0.0010)	-0.0003 (0.0012)	-0.0004 (0.0011)
Polity Index	-0.001 (0.0019)	0.0002 (0.0013)	-0.0006 (0.0018)	0.0004 (0.0013)
Contr. of Corr	-0.001 (0.0240)	-0.019 0.039424	-0.004 (0.0222)	-0.019 (0.0136)

Reg. Quality	0.068*	0.072**	0.063*	0.0675
	(0.0389)	(0.0325)	(0.0375)	(0.0319)
Inflation (CPI)	-0.002**	-0.002*	-0.015**	-0.003*
	(0.0002)	(0.0001)	(0.0002)	(0.0001)
Diagnostics				
Year dummies	Yes	Yes	Yes	Yes
Wald Chi2	263015.31	124852	153341	119246
P(Wald)	(0.000)	(0.000)	(0.000)	(0.000)
AR (1)	-3.79	-3.83	-3.68	-3.79
P-values	(0.000)	(0.000)	(0.000)	(0.000)
AR (2)	0.39	0.42	0.48	0.52
P-values	(0.700)	(0.677)	(0.633)	(0.601)
Sargan Chi2	0.48	0.37	0.63	0.42
P(Sargan)	(0.487)	(0.542)	(0.426)	(0.517)
Hansen Chi2	0.38	0.41	0.59	0.50
P (Hansen)	(0.536)	(0.520)	(0.443)	(0.480)
No. of Groups	27	27	27	27
No. of Instru.	26	25	26	26
No. of Obs.	259	259	259	259 ⁹

Source: Author's own construct

Model 2, as presented in Table 4.8, answers research question (2) that seeks to explore the effects of trade openness and local financial market development on inclusive growth. The results show that at 5% significance level, trade as a percent of GDP has a significantly positive

⁹ Note:

*L1 and L2 represent the first and second lags of the dependent variables, trade/gdp represents total trade as a percentage of gdp, export/gdp represents export as a percentage of gdp, domestic credit represents domestic credit to private sector to gdp, m2/gdp represents M2 to gdp, Dc/M2 represents the ratio of dcredit and m2gdp, Ds/gdp represents domestic savings to gdp, popugrowthrate represents population growth rate, secschenrol represents secondary school enrolment rate, Inflation (CPI) represent the consumer price index, Gov. Exp/gdp represents government expenditure to gdp, polity index measures the level of democratic governance. ***, **, * are statistical significance at 1%, 5% and 10% respectively. Also, note that the values in parenthesis under the estimated coefficients are their corresponding standard errors unlike the values in parenthesis under the diagnosis which are P-values.*

effect on inclusive growth. The coefficient of 0.0007 means that a percentage point increase in trade to GDP leads to a 0.0007 unit increase, on average, in the inclusive growth index at 5% significance level in the short run as the other variables are held constant. While not discounting Aekapol (2020)'s assertion that import increases inequality in developing states, generalizing from their work on Southeast Asian states, we hold the view that the Sub-Saharan Africa subregion's exposure to new and improved technologies of production through trade contributed to the significant effect international trade had on inclusive growth. Our view is supported by the findings of this study and Fofana and Issaka (2024), who stated that imports have significant impacts on growth when they are targeted at capital goods needed for building productive capacity; Capital goods that are products of expensive research and development (R&D) investments that developing nations struggle to finance. In fact, agriculture has been the mainstay for indigenes in the subregion and has experienced a steady boost in cultivation due to the ease and improved cultivation methods adopted through trade. Exports to GDP, as shown under models 2(a) and 2(b), are also significant at 5% and 1%. This again falls in line with the findings of Aekapol (2020) and Osabohien et al. (2021) that suggested that, because most developing nations are agrarian, promoting export could mean the engagement of more unskilled labour, hence providing employment for more vulnerable people and closing the inequality gap. Fundamental to the inclusive growth argument is how independent variables widen or close the inequality gap. This was affirmed by the findings of Arabiyat et al. (2020), who suggested that the impact of trade needed lower inequality to be significant. Thus, the coefficient of 0.002 for exports to GDP in both models 2(a) and 2(b) suggests that a percentage point increase in exports to GDP leads to a 0.002 unit increase in IGI, on average, in the short run, other variables held constant. However, our finding apparently seems to be inconsistent with the assertion of Irwin (2015), who saw trade as a threat to domestic jobs, firm productive capacity, and income growth in developing economies, hence could not agree that trade is an engine for inclusive growth. We believe Irwin's (2015) findings rather tacitly affirmed the

findings of our work; Job losses occasioned by trade were core to the findings of Irwin (2015), which we believe is yet to be a problem in the subregion since the subregion's main exports (agricultural products) are still in the hands of indigenes.

Even though literature, as in the case of Adjasi et al. (2012), Aregbeshola (2016), and Foley and Manova (2015), asserted a positive and significant impact of finance on growth, our results, as presented in Table 4.8, show an insignificant impact of finance on IG, which aligns with the findings of Sarpong and Nketiah-Amponsah (2022b), Cournède et al. (2015), and others who asserted negative impact of financial development on inclusive growth in the absence of strong regulation and institutions. The study's findings are not contradictory to the popular stand or findings of Aregbeshola (2016) and others. It is rather a call to question the sectors where finance-driven growths are mostly witnessed and the impact of such growth on the lives of the people. Even in the case of domestic credit to the private sector, as presented under models 2(a) and 2(b), a negative and insignificant link to inclusive growth has been established. This suggests that the financial market reallocated funds to the few rich who owned most of the productive resources in the subregion, hence widening the inequality gap, or even the funds that got to households were not used in business, hence lending credence to the assertion of Cournède et al. (2015) on the composition and use of finance. Compounding the problem is the huge yearly repatriation that hits the continent because the majority of the few that own these productive resources are foreign nationals. We dare say our findings fall in line with the inclusive growth definitions of Kakwani and Pernia (2000) and Ali and Son (2007) that considered development beyond growth to include reduction in inequality. It is also supported by the assertion of Bourguignon (2003), who suggested that about 30% variation in poverty reduction was attributable to inequality reduction. Other significant predictors of inclusive growth, as shown in Table 7.8, are population growth rate, regulatory quality, and inflation. Apart from regulatory quality which exhibited positive impact emphasizing the importance of

regulation in making growth inclusive thus corroborating the findings of Agyei and Idan (2022) who recommended strengthening regulatory quality among others to improve well-being because of a positive and a significant influence of institutions in trade-IG nexus, population growth and inflation posed negative effects signifying the economic pressure and social pressure exerted when economic growth rate is not proportionate to population growth rate, and the how inflation further widens the inequality gap by moving cash from the average income earners (employees) to the affluents (employers).

Inclusive growth, international trade, and local financial market (Long-run)

Furthermore, whereas Table 4.8 presents result on the short-run effects of the independent variables on inclusive growth in model (2), Table 4.9 presents further analytical results on the long-run effects of all variables that proved significant in the short-run.

Table 4.9 Long-run effects of significant variables in model 2

	Model 2(a) (IG)	Model 2(b) (IG)	Model 2(c) (IG)	Model 2(d) (IG)
Trade/gdp			0.0035** (0.0017)	0.0049** (0.0024)
Export/gdp	0.009*** (0.0033)	0.011** (0.0046)		
popugrowthrate	-0.003 (0.0001)	-0.003 (0.0012)	-0.004 (0.0001)	-0.004 (0.0001)
Regul. Quality	0.319* (0.1713)	0.434** (0.2215)	0.331* (0.1984)	0.446* (0.2597)
Inflation (CPI)	-0.013 (0.0005)	-0.009 (0.0011)	-0.015 (0.006)	-0.012 (0.0009)

Source: Author's own construct.

The long-run effects from models 2(a) and 2(b) indicate that export/gdp continued to impact inclusive growth positively at 1% and 5% levels of significance. In model 2(a), a percentage point increase in export/gdp leads to a 0.009 unit increase in inclusive growth at 1% significance level and a 0.011 unit increase in inclusive growth at 5% significance level in the long run. These effects can still be attributed to the agrarian nature of sub-Saharan Africa's economies and their exports, such that increases in exports mean employing more hands, particularly the unskilled labour for cultivation, which was the assertion of Osabohien et al. (2021). Thus, the study's results identify export as one of the engines for inclusive growth even in the long run. Same for total trade to GDP, which is also significant in the long run as presented under models 2(c) and 2(d). This result indicates that at 5% significance levels, a percentage point increase in total trade to GDP leads to 0.0028 unit and 0.0045 unit increases in the inclusive growth index, as shown by models 2(c) and 2(d), respectively. Trade's effects are the combined effects from both import and export, where export affects IG through employment opportunities offered by export promotion, and import affects IG through the importation of new technologies, machinery for import-substituting industries, or for adding value to exported products.

Among the short-run significant control variables, only regulatory quality has shown significant positive impacts on IG in the long run from all four (4) simulations. This solidifies the position held by Agyei and Idan (2022) on the importance of strengthening or resourcing institutions to perform their regulatory responsibilities in promoting growth and maintaining fair and just societies. It could clearly be seen that the magnitude of impacts attributed to regulations is even higher than trade and export, which supports the need for referees or regulators in what would have been a free-for-all game that has the tendency of tilting benefits to only the rich in society.

The Moderating Effect of Local Financial Markets on the Relationship Between International Trade and Inclusive Growth

Table 4.10 presents results from estimating model 3, which seeks to explore the moderating effects of local financial markets on the relationship between international trade and inclusive growth in Sub-Saharan Africa. Sub-models 3(a), 3(b), and 3(c) are different simulations that used export/gdp as the main trade openness variable, and sub-models 3(d), 3(e), and 3(f) are also different simulations that used total trade/gdp as the main trade openness variable. With each set of simulations, local financial market variables were used to moderate the impact of trade openness variables.

Table 4.10 Effects of the moderating role of local financial markets in the relationship between international trade and inclusive growth

	Model 3(a) (IG)	Model 3(b) (IG)	Model 3(c) (IG)	Model 3(d) (IG)	Model 3(e) (IG)	Model 3(f) (IG)
L1.	0.801*** (0.0889)	0.791*** (0.0908)	0.835*** (0.0837)	0.804*** (0.0797)	0.815*** (0.0893)	0.841*** (0.0824)
L2.	0.066 (0.0909)	0.036 (0.1083)	0.068 (0.0654)	0.075 (0.0688)	0.038 (0.0965)	0.075 (0.0671)
Export/gdp	0.001** (0.0008)	-0.00003 (0.0011)	0.002** (0.0013)			
Trade/gdp				0.00003** (0.0014)	-0.0004* (0.0005)	0.0002 (0.0005)
Domestic Credit	-0.001*** (0.0004)	0.0002 (0.0004)		-0.002* (0.0037)	0.0002 (0.0003)	
M2/gdp	0.001 (0.0009)	-0.001		0.001 (0.0006)	-0.002* (0.0009)	
Dc/M2			-0.0001 (0.0004)			-0.0005 (0.0004)
(Export * Dc)	0.00004** (0.00002)					
(Export * M2)		0.0001** (0.00002)				
(Export * Dc/M2)			0.00002			

	(0.00002)					
(Trade * Dc)	0.00002					
	(0.00004)					
(Trade * M2)	0.00003***					
	(0.00001)					
(Trade * Dc/M2)	0.00001					
	(0.000008)					
DS/gdp	0.0001	0.0001	-0.0002	0.0007	0.0007	0.0004
	(0.0008)	(0.0009)	(0.0008)	(0.0007)	(0.0006)	(0.0005)
Popugrowthrate	-0.009**	-0.007**	-0.0140**	-0.0118*	-0.0137**	-0.0167*
	(0.0108)	(0.0119)	(0.0109)	(0.0145)	(0.0116)	(0.0098)
Secschenrol	0.0005	0.0008	0.0004	0.0006	0.0008	0.0004
	(0.0005)	(0.0006)	(0.0004)	(0.0009)	(0.0005)	(0.0004)
Gov. Exp/gdp	0.0001	0.0006	-0.0004	0.0002	0.0006	-0.0005
	(0.0011)	(0.0013)	(0.0010)	(0.0015)	(0.0013)	(0.0009)
Polity Index	-0.0013	-0.0024	0.0003	-0.0010	-0.0014	0.0005
	(0.0021)	(0.0030)	(0.0013)	(0.0017)	(0.0022)	(0.0012)
Contr. of corr	-0.0040	-0.0020	-0.0189	-0.0032	-0.0064	-0.0201*
	(0.0209)	(0.0269)	(0.0136)	(0.0152)	(0.0219)	(0.0121)
Regul. Quality	0.055*	0.058*	0.073**	0.045**	0.053*	0.065**
	(0.03204)	(0.0311)	(0.0311)	(0.0320)	(0.0306)	(0.0268)
Inflation (CPI)	0.0002	0.0003	-0.0002	0.0002	0.0001	-0.00001
	(0.0002)	(0.00023)	(0.0001)	(0.0001)	(0.0002)	(0.0001)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Wald Chi2	152463.05	277325.32	138243	700966.97	152435.52	317236.84
P(Wald)	(0.000)	(0.000)	(0.000)	(0.00)	(0.00)	(0.00)
AR (1)	-4.00	-3.93	-3.83	-3.83	-3.90	-3.83
P-values	(0.003)	(0.009)	(0.004)	(0.023)	(0.021)	(0.031)
AR (2)	0.33	0.63	0.42	0.17	0.55	0.31
P-values	(0.523)	(0.532)	(0.673)	(0.859)	(0.579)	(0.753)
Sargan Chi2	1.24	1.83	0.34	0.421	0.352	0.18
P(Sargan)	(0.193)	(0.253)	(0.562)	(0.234)	(0.252)	(0.185)
Hansen Chi2	1.31	2.01	0.41	0.43	0.46	0.24
P (Hansen)	(0.251)	(0.311)	(0.524)	(0.294)	(0.301)	(0.241)
No. of Groups	26	26	26	26	26	26

No. of Instru.	24	24	25	24	24	24
No. of Obs.	259	259	259	259	259	259

Source: Author's own construct

The result for sub-model 3(a), as presented in Table 4.10, explains the moderating impact of domestic credit to the private sector (finance variable) on the relationship between inclusive growth and export/gdp (trade openness variable). The estimated coefficient of the interaction term for domestic credit to the private sector and export to gdp is 0.00004, and it is significant at 5%. Interestingly, the coefficient of export/gdp has reduced from 0.002 in model 2 to 0.001. Also revealing is the fact that domestic credit to the private sector negative impact has become stronger and significant at 5%. The reduction in the impact of export on inclusive growth reveals the real influence of export in the absence of local finance in the subregion. The net effect of domestic credit to the private sector induced export on IG is the partial differential of IG with respect to export. Therefore, the net effect as computed is $0.0009996 (0.001 + (0.00004 * - 0.001))$, which can be approximated to 0.001. The significantly positive interaction term indicates that the effect of export on inclusive growth is stronger when domestic credit is high. Since the main occupation in SSA is agriculture or raw material production, encouraging export with more domestic credit means engagement of more labour, particularly the unskilled, to meet higher market demands. This aligns with the findings by Aekapol (2020) and Osabohien et al. (2021) who suggested that promoting exports provides more employment, hence closing the inequality gap. Even in the case of processed goods, trade liberalization coupled with easy access to domestic credit affects the location/relocation of production plants decisions by multinational firms, as asserted by Foley and Manova (2015). Thus, the attraction of multinationals leads to more jobs and a reduction in inequality.

On the moderating role of money supply (M2) in the relationship between export/gdp and IG estimated using sub-model 3(b), the coefficient of export/gdp reduced to -0.00003 from 0.002

and the coefficient of M2/gdp also reduced to -0.001 with no significant impact from 0.001 in Model 2(a). However, the interaction term is significant at 5% with a coefficient of 0.0001. The significant positive coefficient of the interaction term indicates that the effect of export on inclusive growth is stronger when M2 is high. Thus, monetary policies targeted at boosting trade within a stable economic environment (stable inflation) improve living standards. This corroborates the monetarists' theory of a stable money supply rate promoting economic growth and also the findings by Aslam (2016), Nouri and Samimi (2011), etc., who postulated a positive and significant impact of M2 on growth.

Sub-model 3(c) of Table 4.10 presents the result with interaction between export-to-GDP and efficiency term, having an insignificant impact on IG. The coefficient of export/GDP remained significant at 5% with the same value of 0.002 as in sub-models 2(a) and 2(b). This suggests that when efficiency plays a moderating role between trade and IG, the best result could be the effect export/GDP already had on IG without the interaction. This is attributable to the informal nature of sub-Saharan African economies, which makes regulation and monitoring difficult when funds get into private hands.

Results from sub-model 3(e) from table 4.10 depict the moderating role of money supply (M2) in the relationship between inclusive growth and trade to GDP in Sub-Saharan Africa. The interaction term of a significant positive figure indicates a more impactful trade on IG when the money supply rate grows steadily. We believe that the fluidity of trade that comes with liquidity encourages export to promote inclusive growth, as also supported by the findings of Aekapol (2020).

4.4 Interpretation of Diagnostic Tests

At 5% significance level, the p-values of AR (1) for all the simulations/ sub-models from all our result tables show rejections of the null hypothesis, which suggests no autocorrelation processes. This suggests the presence of first-order serial correlation. The p-values of AR (2)

for all the simulations/sub-models indicate no rejection of the null hypotheses of no autocorrelation, indicating the presence of no second-order serial correlation. The combined effect of the p-values of AR (1) and AR (2) is that our estimated models are free of autocorrelation. Also, the p-values of the Wald tests show rejection of the null hypothesis that claims Zero coefficients of all independent variables simultaneously. It means that the dependent variables were adequately explained by the collective variations in the independent variables. All the p-values of the Sargan test are not significant, even at either 5% or 10% implying the non-rejection of the null hypothesis that the instrumental variables used in the model are all exogenous. This means that all the instrumental variables used in the models, as shown in the result tables, are valid. And finally, in support of the validity of the instruments used, Hansen tests were also presented with insignificant p-values, which indicate non-rejection of the null hypothesis. This suggests zero covariance between the instruments and error terms

4.5 Chapter Summary

From the above findings, aside from the descriptive statistics that indicate huge between variations in our variables of interest, the following general deductions could be made: (1) Broad money has a significant positive impact on export and trade. (2) Efficiency in resource allocation by the local financial market (LFM) promotes export and trade. (3) Export and trade have a significant positive impact on inclusive growth. (4) The moderating role of LFM boosts the impact international trade has on inclusive growth. These are attributable to trade openness's potential of creating larger markets, and also financial markets' ability to equitably empower indigenes to participate in trade.

CHAPTER 5

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the basis for this research work, the procedures, processes, and methods adopted in our work, and the findings thereof with regard to the impact of trade on inclusive and the moderating role of the local financial market in this relationship. Conclusions based on research findings were reached for how impactful trade can be on IG with or without the moderating effect of the local financial market. The chapter concludes with recommendations and limitations of the study.

5.2 Summary

The exigency of the time, a period of ever-changing technological advancement with integration on all fronts due to globalization, calls for reassessment of the impacts and policy directions on many economic issues, including trade. Thus, reassessing the performance and impact of trade, which was subtly once referred to as a living standard improvement tool by Asamoah et al. (2019) and Bajo-Rubio (2022) because of the opportunities it offered, has become necessary to guide policy and future trade commitments. Trades' impact on growth seems to be conclusive, dating back from the days of mercantilism to recent days where literature appears to favour the assertion of a significant positive relationship between the two in the face of a few dissenting findings. Recognizing the importance of trade on growth, the AU pillared its long-term development plan dubbed "The Africa we want" on fifteen (15) flagship programs, of which four (4) are directly targeted at trade among member states and to also strengthen members' positions in trade with the rest of the world (AUDA-NEPAD, 2022).

But the important question of how growth figures directly impact the lives of people brought up the concept of inclusive growth with varying definitions and different measurement frameworks. According to the UNCTAD report in 2021, growth could have been more

impactful if it were inclusive. Therefore, for a study that seeks to examine the impact of trade on living standards, the inclusive growth index was settled on to deal with the deficiencies in using GDP per capita as a proxy. The inappropriateness of using GDP was also confirmed by Kuznets (1955), who stated that at the early stages of development, growth widens the gap of inequality. The appropriateness of inclusive growth is such that it takes into account both the pace and pattern of growth, which are necessary for reducing poverty and inequality (UNCTAD, 2023). That is not to say growth doesn't matter because it actually accounts for over 70% of the variations in poverty reduction, according to Bourguignon (2003). Whereas trade may have a significant impact on inclusive growth through its positive established impact on growth, as suggested by literature, we believe that interfering with this relationship using local financial market variables offers an opportunity to really assess how finance promotes trade to impact living standards in sub-Saharan Africa. The importance of finance and the activities of well-developed financial sectors in resource mobilization and allocation, also reiterated by Svirydzenka (2016), and the significant impact of finance, as asserted by Adjasi et al. (2012) and Gyamfi et al. (2022a), on growth motivated the moderating role of finance variables in the study's models.

To study these relationships, we adopted and modified the growth model developed by Knight et al. (1993) and the export performance model, similar to the models used by Beck (2002) and Paudel and Alharthi (2021). Twenty-seven (27) sub-Saharan African countries not producing crude oil in commercial quantities were studied over the period of 14 years (2008 – 2021). We adopted the UNCTAD inclusive growth framework to compute the inclusive growth index used in the study, using the principal component analysis statistical technique of Karl Pearson (1901) and Hotelling (1933). Mainly due to the problems of endogeneity, heteroskedasticity, and serial correlation, the Two-Step Systems GMM of Blundell and Bond (1998) was used to estimate the dynamic models designed to answer our research questions.

A cursory descriptive statistic revealed Mauritius as the best performer in IGI with higher sustained economic growth per capita values, better domestic credit to private sector performances, and better, on average, financial inclusion figures measured by the number of plus fifteen (15+) years population that held accounts with a financial institution or with mobile money service providers. It has also been realized that the top performers in international trade (export and total trade) also featured strongly among the top IGI performers, suggesting a possible positive and significant relationship, which would later be supported by our regression results. Our results affirm the suggestions made in theoretical literature by Kakwani and Pernia (2000), Ali & Son (2007) and Ali et al. (2007) about the importance of growth in living standard improvement which was evident in Mauritius' high sustained growth values, and the need for lower or reduced inequality gap which was satisfied by the combined effect of high domestic credit to the private sector and a high financial inclusion level which promotes the opportunity for people to access the needed funds to participate or engage in desired economic activities. This also supports empirical literature findings of Arabiyat et al. (2020), Aekapol (2020) and others who mentioned inequality reduction and growth as key predictors of inclusive growth. Also, variation analysis revealed huge differences in performances among sampled nations in relation to all our variables of interest, suggesting huge differences in living standards depending on the nation one finds themselves whereas within variations, which tackle differences in performance of each nation over time, showed not as much improvement in performances of each nation over time.

The result of the study generally revealed a negative but insignificant impact of domestic credit to the private sector on export and trade. This could be attributed to the local consumption-driven funding, mostly influenced by the financial intermediaries' (banks) profit motives and loan recovery objectives. In addition, import substitution-oriented policies by states are also contributing factors. The efficiency variable exhibited significant impacts on both export and

trade in the short-run, but a negative impact in the long-run. This is a reaffirmation of domestic credits' negative impact on export and trade, though not significant. Again, our research findings reveal that the composition of trade on the continent promotes inclusivity of growth, which is based on the fact that sub-Saharan Africa's exports are largely in raw material forms (agrarian), thus giving employment to many unskilled labourers. Interestingly, the results also show that advancing domestic credit to the private sector without proper regulations would have no significant effect on well-being or inclusive growth. And finally, on average, the local financial market variables moderating impact on IG through international trade proved to be significant, particularly when the sector is developed with bridging inequality gaps at its core.

5.3 Conclusion

Based on the study's results, different local financial market or sector variables have varying effects on exports and total trade. Domestic credit to the private sector proved not to be exclusively influential in promoting trade when regulation is poor and financial inclusion is low, as in the case of sub-Saharan Africa. Due to the operations of free market mechanisms, M2 has a significant impact on export and trade through its effect on the exchange rate. Trade and export in the sub-Saharan African context have significant positive impacts on IG because of the agrarian nature of the subregion's export and the productive inputs and medicine-related consumables characterizing its imports. And finally, the Local Financial Market's moderating impact on IG through international trade is significant.

5.4 Recommendations

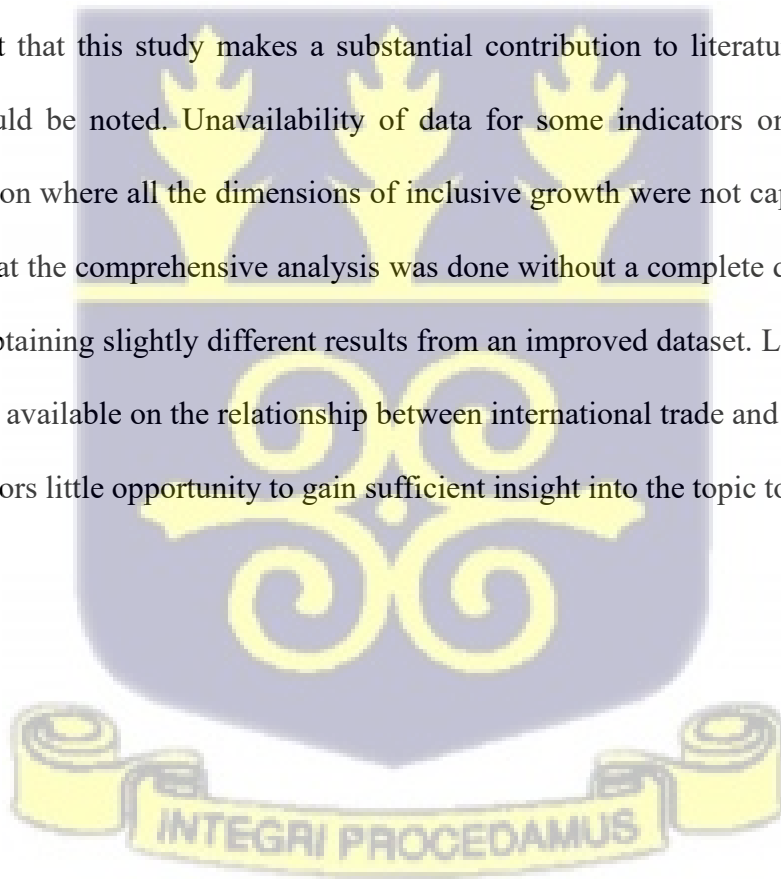
By the findings of the study, it is recommended that SSA nations open up more for trade, but should be strategic and selective in the products at the center of trade decisions under a well-regulated environment with lower inflation. Thus, trade should be encouraged within a framework where trade policies are aimed directly at both social and economic objectives. Because of high-level inequality in the subregion, domestic credit advancement to the private

sector should not be left in the hands of free market mechanisms to allocate, but targeted at specific industries and sectors with less stringent requirements to access in order to improve living standards. Even though an increase in money supply promotes exports, the over-reliance of the subregion on some imports that are price inelastic increases inflation, which further widens the inequality gap. It is therefore recommended that money supply should not be used as a tool to promote exports.

Finally, whereas we recommend that African nations take full advantage of AfCFTA to promote international trade, we also recommend that it is done alongside promoting financial market reforms and development that empower the generality of the indigenes.

5.5 Limitations of the study

Despite the fact that this study makes a substantial contribution to literature, the following drawbacks should be noted. Unavailability of data for some indicators on some countries created a situation where all the dimensions of inclusive growth were not captured. Also, it is worth noting that the comprehensive analysis was done without a complete dataset, hence the possibility of obtaining slightly different results from an improved dataset. Lastly, insufficient literature works available on the relationship between international trade and inclusive growth offered the authors little opportunity to gain sufficient insight into the topic to enrich the study



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APPENDIX 1

Annex 1.1 UN Inclusive Growth Framework Indicators

PILLARS	S/N	INDICATORS
Economy (Pillar One 1)	1.1	GDP per capita PPP (constant 2017 international US dollars)
	1.2	Adjusted net national income per capita (constant 2015 USD)
	1.3	Labour productivity, USD/person (GDP per person employed (constant 2017 PPP USD))
	1.4	Employment to population ratio, 15+, total (%) (modeled ILO estimate)
	1.5	Electricity consumption/population (kWh per capita)
	1.6	Exports of goods and services (% of GDP)
Living Condition (Pillar Two 2)	2.1	Logistics performance index: Overall (1=low to 5=high)
	2.2	Fixed Internet broadband subscriptions per 100 people, units
	2.3	Under-five mortality rate (deaths per 1.000 live births)
	2.4	People using safely managed drinking water services (% of population)/Basic drinking water services
	2.5	School enrollment, secondary (% gross)
	2.6	Coverage of essential health services
	2.7	Proportion of adults (15 years and older) with an account at a bank or other financial institution or with a mobile-money-service provider
Equality (Pillar 3)	3.1	Income concentration ratio (Gini index), units
	3.2	Poverty headcount ratio at 5.50 USD a day (2011 PPP) (% of population)
	3.3	School enrollment, secondary (gross), gender parity index (GPI)
	3.4	Ratio of female to male employment rate (modeled ILO estimate)
	3.5	Ratio of youth to adult employment rate (modeled ILO estimate)
	3.6	Gender parity in the number of seats held by women and men in national parliament
	3.7	Ratio of female to male labour force participation rate (%) (ILO modeled estimate)
	3.8	Ratio of female age of first marriage to male age of first marriage
	3.9	Ratio of the share of wage and salaried workers in women's employment to men's employment

	3.10	Share of women's service employment to total employment, raised to the power of the inverse of the Palma ratio
Environment (Pillar 4)	4.1	CO2 emissions (kg per PPP USD of GDP)
	4.2	Energy intensity level of primary energy (MJ/\$2017 PPP GDP)
	4.3	Efficiency of water use (water productivity)
	4.4	Terrestrial protected areas (% of total land area)

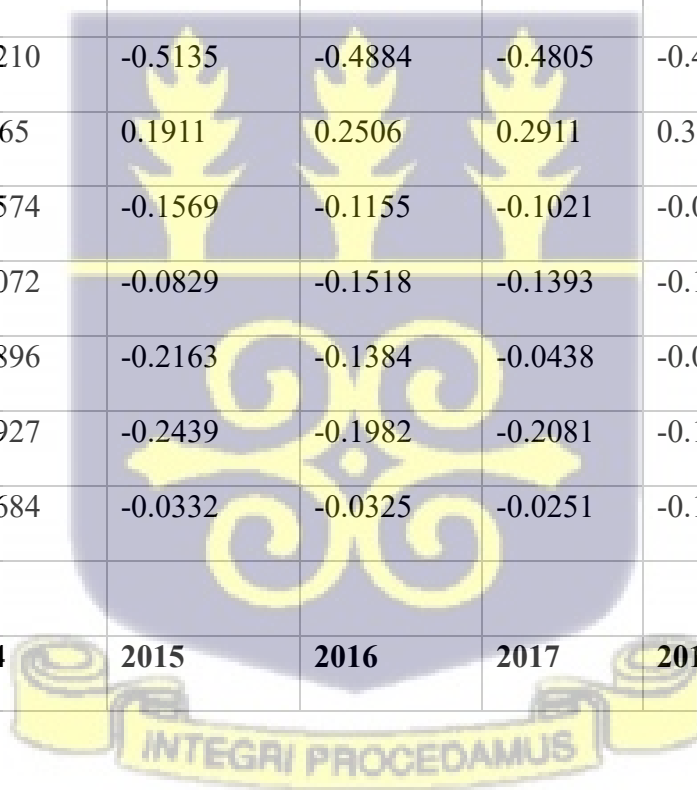


APPENDIX 2

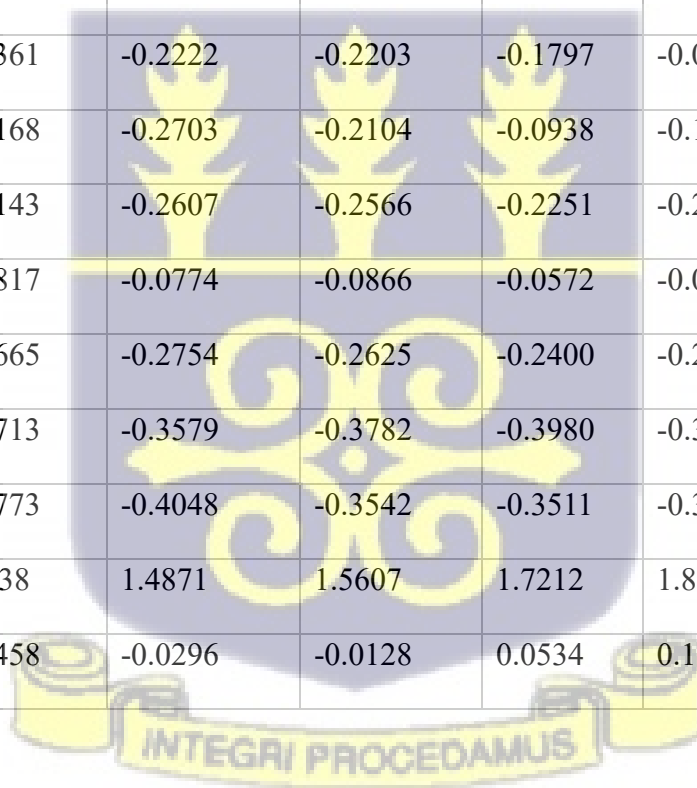
Annex 2.1 Inclusive Growth Figures

		2004	2005	2006	2007	2008	2009	2010	2011	2012
1	Benin	-0.2690	-0.2574	-0.2669	-0.2250	-0.1786	-0.1783	-0.1423	-0.1272	-0.1051
2	Botswana	0.5344	0.5792	0.6511	0.7192	0.6821	0.4942	0.6436	0.7375	0.7990
3	Burkina F	-0.4944	-0.4994	-0.4848	-0.4776	-0.4436	-0.3515	-0.2781	-0.2147	-0.1930
4	Burundi	-0.4259	-0.4025	-0.3016	-0.2959	-0.2431	-0.2591	-0.2246	-0.2192	-0.2093
5	Comoros	-0.2469	-0.2490	-0.2613	-0.2580	-0.2625	-0.2637	-0.2686	-0.2544	-0.2543
6	Eswatini	-0.1079	-0.1842	-0.1427	-0.0840	-0.1403	-0.1098	-0.0524	-0.0086	0.0582
7	Gabon	0.7453	0.8076	0.7816	0.8376	0.8386	0.7549	0.8271	0.9369	0.9870
8	Gambia, The	-0.3848	-0.3821	-0.3660	-0.3881	-0.3926	-0.3659	-0.3620	-0.3493	-0.3086
9	Guinea	-0.1770	-0.1025	-0.1937	-0.1982	-0.2216	-0.2369	-0.1942	-0.1796	-0.1743
10	Guinea Bis	-0.6911	-0.6614	-0.6742	-0.5394	-0.5075	-0.5093	-0.5083	-0.4011	-0.4715
11	Kenya	-0.1918	-0.1603	-0.1789	-0.1683	-0.1607	-0.1750	-0.1472	-0.1204	-0.1186
12	Madagascar	-0.5163	-0.4527	-0.4087	-0.3895	-0.3702	-0.4156	-0.3984	-0.3711	-0.3549
13	Mali	-0.4910	-0.4726	-0.4163	-0.4345	-0.4142	-0.4299	-0.4056	-0.3940	-0.3524

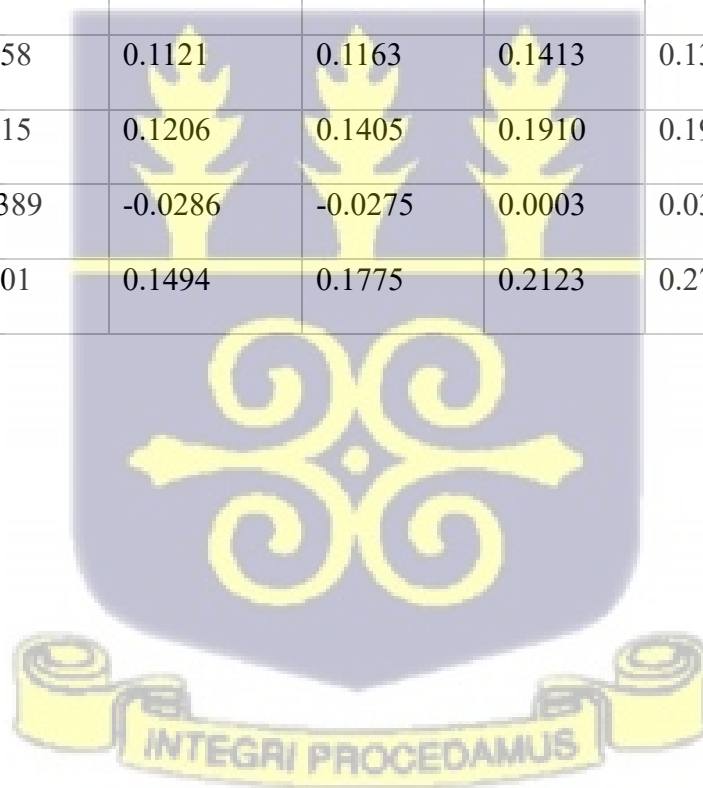
14	Mauritania	-0.7627	-0.6971	-0.5244	-0.4766	-0.4470	-0.4673	-0.3928	-0.3358	-0.3427
15	Mauritius	0.3205	0.3888	0.5819	0.6352	0.6940	0.7708	0.9057	1.0634	1.1773
16	Mozambique	-0.5048	-0.4138	-0.3754	-0.3342	-0.2975	-0.2617	-0.1717	-0.1343	-0.0961
17	Namibia	0.3485	0.3639	0.4914	0.5715	0.6616	0.7634	0.8446	0.8550	0.8535
18	Niger	-1.0007	-0.8525	-0.8327	-0.8233	-0.8040	-0.7857	-0.7827	-0.7813	-0.7676
19	Rwanda	-0.2671	-0.1810	-0.1326	-0.0781	-0.0641	-0.1302	-0.1051	-0.0661	-0.0531
20	Senegal	-0.5963	-0.5643	-0.5381	-0.5023	-0.4532	-0.4312	-0.3911	-0.3599	-0.3171
21	Sierra Leone	-0.5294	-0.5210	-0.5135	-0.4884	-0.4805	-0.4576	-0.3572	-0.3395	-0.1611
22	South Africa	-0.1502	0.1065	0.1911	0.2506	0.2911	0.3136	0.4923	0.5789	0.5680
23	Tanzania	-0.2751	-0.2574	-0.1569	-0.1155	-0.1021	-0.0932	-0.0765	-0.0125	-0.0091
24	Togo	-0.1032	-0.1072	-0.0829	-0.1518	-0.1393	-0.1744	-0.1062	-0.0354	0.0076
25	Uganda	-0.3011	-0.2896	-0.2163	-0.1384	-0.0438	-0.0539	-0.0442	-0.0223	0.0485
26	Zambia	-0.3204	-0.2927	-0.2439	-0.1982	-0.2081	-0.1750	-0.0942	-0.0558	-0.0613
27	Zimbabwe	-0.0180	-0.0684	-0.0332	-0.0325	-0.0251	-0.1441	-0.0540	-0.0003	0.0023
		2013	2014	2015	2016	2017	2018	2019	2020	2021



1	Benin	-0.0716	-0.0428	-0.0835	-0.1215	-0.1280	-0.1444	-0.1023	-0.1550	-0.1342
2	Botswana	0.9514	1.0130	0.9069	1.0147	0.8950	0.9312	0.9348	0.8915	1.0454
3	Burkina F	-0.1717	-0.1301	-0.1577	-0.1481	-0.1212	-0.0874	-0.0444	-0.0157	-0.0212
4	Burundi	-0.2046	-0.1923	-0.1895	-0.1269	-0.1151	-0.1098	-0.0984	-0.0822	-0.0698
5	Comoros	-0.2531	-0.2423	-0.2300	-0.2191	-0.1922	-0.1735	-0.1694	-0.2122	-0.1198
6	Eswatini	0.1594	0.1708	0.1928	0.2213	0.2607	0.2879	0.3545	0.3838	0.4622
7	Gabon	1.0201	0.9729	1.0033	0.9891	1.0551	1.1498	1.1735	1.1439	1.2546
8	Gambia, The	-0.2867	-0.2361	-0.2222	-0.2203	-0.1797	-0.0962	-0.1003	-0.1678	-0.1719
9	Guinea	-0.2227	-0.2168	-0.2703	-0.2104	-0.0938	-0.1258	-0.1608	-0.0583	-0.1060
10	Guinea Biss	-0.4219	-0.4143	-0.2607	-0.2566	-0.2251	-0.2331	-0.2588	-0.2908	-0.2396
11	Kenya	-0.1286	-0.0817	-0.0774	-0.0866	-0.0572	-0.0076	0.0099	0.0121	0.0537
12	Madagascar	-0.3420	-0.2665	-0.2754	-0.2625	-0.2400	-0.2257	-0.2516	-0.3322	-0.2966
13	Mali	-0.3685	-0.3713	-0.3579	-0.3782	-0.3980	-0.3792	-0.3919	-0.3329	-0.2745
14	Mauritania	-0.3351	-0.3773	-0.4048	-0.3542	-0.3511	-0.3149	-0.2922	-0.2848	-0.2925
15	Mauritius	1.3049	1.4138	1.4871	1.5607	1.7212	1.8739	2.0203	1.9143	2.0054
16	Mozambique	-0.0931	-0.0458	-0.0296	-0.0128	0.0534	0.1129	0.0636	0.0675	0.1431



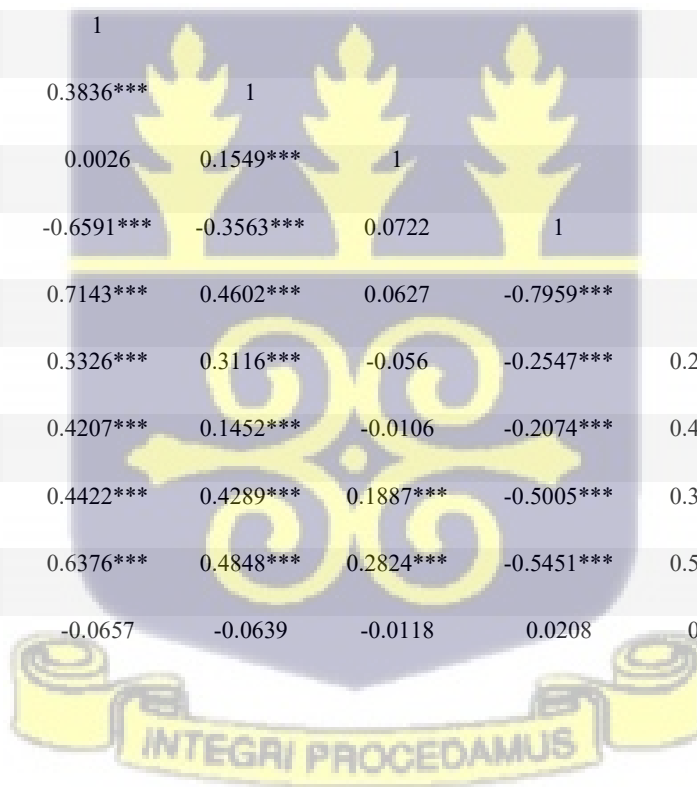
17	Namibia	0.9331	0.9878	1.1646	1.1326	1.1442	1.2336	1.2411	1.1478	1.1886
18	Niger	-0.7520	-0.7473	-0.7494	-0.7596	-0.5982	-0.6013	-0.5601	-0.5621	-0.5067
19	Rwanda	-0.0290	-0.1768	-0.1334	-0.1038	0.0059	0.0194	0.0295	0.0389	0.0501
20	Senegal	-0.1316	-0.0985	-0.0708	-0.0488	0.0040	-0.0326	-0.0122	-0.0093	0.0474
21	Sierra Leone	-0.1568	-0.1385	-0.2579	-0.1882	-0.1581	-0.2121	-0.1755	-0.1858	-0.1487
22	South Africa	0.6453	0.6784	0.6280	0.6158	0.6298	0.6446	0.6744	0.6964	0.8024
23	Tanzania	-0.0210	-0.0059	0.0014	0.0398	0.0854	0.1070	0.1647	0.1693	0.1922
24	Togo	0.0316	0.0558	0.1121	0.1163	0.1413	0.1367	0.1531	0.1829	0.2084
25	Uganda	0.0696	0.1015	0.1206	0.1405	0.1910	0.1971	0.2390	0.2421	0.2654
26	Zambia	-0.0401	-0.0389	-0.0286	-0.0275	0.0003	0.0382	0.0097	0.1163	0.1786
27	Zimbabwe	0.0321	0.1501	0.1494	0.1775	0.2123	0.2754	0.2604	0.1954	0.2054



APPENDIX 3

Annex 3.1 Pairwise Correlation Matrix for Variables in Model 2 And Model 3.

	igi	exp/gdp	trade/gdp	dcredit	m3gdp	dcreditm3	dsavgdp	popugrowth~e	secschenrol	gexpengdp	polityindex	controlofc~n	RQ	CPI
igi	1													
exp/gdp	0.6214***	1												
trade/gdp	0.4933***	0.8921***	1											
dcredit	0.6262***	0.2898***	0.2436***	1										
m3gdp	0.6823***	0.3588***	0.3897***	0.6042***	1									
dcreditm3	0.3567***	0.1504***	0.0616	0.8012***	0.3836***	1								
dsavgdp	0.3273***	0.5418***	0.2214***	0.0722	0.0026	0.1549***	1							
ppn	-0.6040***	-0.4109***	-0.4075***	-0.6305***	-0.6591***	-0.3563***	0.0722	1						
secschenrol	0.6821***	0.3796***	0.2476***	0.7307***	0.7143***	0.4602***	0.0627	-0.7959***	1					
gexpengdp	0.3412***	0.3038***	0.3887***	0.3060***	0.3326***	0.3116***	-0.056	-0.2547***	0.2536***	1				
polityindex	0.2483***	0.058	0.0599	0.4173***	0.4207***	0.1452***	-0.0106	-0.2074***	0.4625***	0.1804***	1			
controlofc~n	0.5076***	0.371***	0.3703***	0.4713***	0.4422***	0.4289***	0.1887***	-0.5005***	0.3779***	0.3744***	0.2313***	1		
regulatory~y	0.5989***	0.3892***	0.3374***	0.6414***	0.6376***	0.4848***	0.2824***	-0.5451***	0.5191***	0.3130***	0.3176***	0.8113***	1	
cpiinflation	0.0324	-0.0221	-0.0412	-0.0549	-0.0657	-0.0639	-0.0118	0.0208	0.0151	-0.0287	-0.0197	-0.0996	-0.1204	1



Annex 3.2 Pairwise Correlation Matrix for Variables in Model 1.

	exp/gdp	trade/gdp	dcredit	m3gdp	dcreditm3	dsavgdp	gexpengdp	polityindex	controlofc~n	RQ	CPI	netfdigdp	loggdp	adppn
exp/gdp	1													
trade/gdp	0.8921***	1												
dcredit	0.2898***	0.2436***	1											
m3gdp	0.3588***	0.3897***	0.6042***	1										
dcreditm3	0.1504***	0.0616	0.8012***	0.3836***	1									
dsavgdp	0.5418***	0.2214***	0.0722	0.0026	0.1549***	1								
gexpengdp	0.3038***	0.3887***	0.3060***	0.3326***	0.3116***	-0.056	1							
polityindex	0.058	0.0599	0.4173***	0.4207***	0.1452***	-0.0106	0.1804***	1						
controlofc~n	0.371***	0.3703***	0.4713***	0.4422***	0.4289***	0.1887***	0.3744***	0.2313***	1					
regulatory~y	0.3892***	0.3374***	0.6414***	0.6376***	0.4848***	0.2824***	0.3130***	0.3176***	0.8113***	1				
cpiinflation	-0.0221	-0.0412	-0.0549	-0.0657	-0.0639	-0.0118	-0.0287	-0.0197	-0.0996	-0.1204	1			
netfdigdp	0.1669***	0.3682***	-0.1092	-0.0117	-0.1925***	0.0529	0.0289	-0.0164	-0.0454	-0.0449	-0.0411	1		
loggdp	0.1526***	0.0272	0.5364***	0.2181***	0.6264***	0.3962***	0.0666	0.2625***	0.2307***	0.4025***	0.0603	0.0055	1	
adultptotalp	0.5425***	0.4629***	0.7602***	0.7449***	0.4508***	0.1432***	0.2946***	0.3760***	0.5554***	0.6107***	0.0104	-0.146***	0.2479***	1

