UNIVERSITY OF EDUCATION, WINNEBA

EFFECT OF IMF FINANCING ON ECONOMIC GROWTH: A SUB-SAHARAN AFRICAN PERSPECTIVE

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EFFECT OF IMF FINANCING ON ECONOMIC GROWTH: A SUB-SAHARAN AFRICAN PERSPECTIVE

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DECLARATION

Student's Declaration

I, **Buer Ebenezer Teye,** declare that this work except quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my original work, and it has not been submitted either in part or whole for another degree anywhere.

Signature: ……..….

Date: ……..

Supervisor's Declaration

I, hereby declare that the preparation and presentation of this work were supervised by the guidelines for the supervision of dissertations as laid down by the University of Education, Winneba.

Supervisor's Name: Dr. Richard Oduro

Signature: ……...

Date: ……...……

DEDICATION

This work is dedicated to my late mother Gifty Kabu who inspired me to be who I am today.

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ABSTRACT

The study examined the effect of IMF financing on economic growth within the sub-Saharan region and to ascertain whether multilateral aid played complementary role in driving growth of sub-Saharan African economies. The study employed explanatory research design, and fixed effect panel regression model to estimate the effects of multilateral aid and inflation over an annual period of 2000-2022 was used. Again, the study used secondary data mainly drawn from the World Bank (World Development Indicators, International Financial Statistics) and IMF (World Economic Outlook) 2023 online databases. The findings established a positive relationship between IMF financing on economic growth. The positive results show that, multilateral aid injections can act as an economic stimulus, particularly during periods of economic downturn whiles inflation posits a negative and insignificant relationship on economic growth. One major implication of the findings is that SSA countries have one way or the other benefited substantially from IMF aid. It is, therefore, important for these countries to develop stronger institutions that would attract more inflows from multilateral aids. In accessing the effect of inflation on economic growth, the study found that there is a negative and insignificant relationship between inflation and economic growth. This translates that, if inflation improves by a unit, it causes a decrease in economic growth. Though the study found an indirect relationship between inflation and economic growth, inflation determines how well an economy grows. Conversely, the inflation coefficient has a negative. This suggests that slower economic development and higher inflation rates are related.

CHAPTER ONE

INTRODUCTION

1.0 Overview

Approximately, 183 nations throughout the world are currently members of the International Monetary Fund (IMF). As part of the Bretton Woods conference, which was held in the wake of World War II, IMF was founded in 1945 with the World Bank. (Antonio, 2017). The IMF's duties include fostering global cooperation by acting as a permanent organization that offers the means of collaboration and advice on global monetary issues. In order to support and maintain high levels of employment and real income as well as to develop each member country's productive resources as the main goals of economic policy, it is also necessary to facilitate the expansion and balanced growth of international trade. Additionally, the IMF works to maintain orderly exchange arrangements among its members, prevent competitive exchange depreciation, and promote exchange stability. It also supports the establishment of a multilateral payments system for current member transactions as well as the removal of foreign exchange restrictions that impede the expansion of global trade. Additionally, the IMF instills confidence in its members by making the Fund's general resources temporarily available to them with sufficient safeguards. This gives them the chance to rectify imbalances in their balance of payments without taking actions that would be detrimental to the prosperity of their country or the world (Fioramonti, 2017; Mearsheimer, 2018).

1.1 Background Study

Over the past seventy-five years, the IMF‘s engagement with low-income countries has undergone many changes. In the process of helping its members grow, the IMF has itself grown, not only in financial and staff resources, but more importantly in its

understanding that it can—and must—tailor its facilities and activities to better meet the needs of its diverse membership. When the IMF began in 1946, it gave little thought according to low-income countries any special consideration or treating them differently from other member countries.

In the intervening seventy-five years, however, much has changed. Today, low-income countries are supported by a wide range of IMF initiatives tailored to the needs and circumstance. Despite a vigorous push, the developing countries represented at the 1944 Bretton woods conference- which included three sub-Saharan Africa countries (Ethiopia, Liberia, and South Africa) - failed to have their development financing needs explicitly referenced in the Articles of agreement (though they did manage to have _the development of the productive resources of all member countries‘ recognized as a primary objective of economic policy‘) (Akinola, 2021; Messay, 2023).

From the outset, moreover, the IMF made it clear that it intended to provide only short-term balance of payment support, regardless of the member‘s stage of economic development. When Ethiopia, the first country to seek IMF financial support, requested a drawing of US$900,000 (15 percent of quota), it was refused on the grounds that its financing needs were neither immediate nor temporary.

In the 1950s and 1960s the IMF began to recognize that various segments of its membership had diverse needs and faced different problems. As newly independent African countries joined the organization, the Fund added an African Department in 1961. The needs of commodity exporters (mostly developing countries), facing volatile prices and crop yields, were also recognized in the creation of the Compensatory Financing Facility (1963) and the Buffer Stock Financing Facility (1969). Yet the

mindset that IMF support should be for temporary balance of payments problems persisted, even regarding developing countries.

Although the IMF had always maintained that it supported the authorities‘ economic programs (hence, ―IMF-supported programs" rather than ―IMF programs"), in practice, the IMF and World Bank staffs had heavy input into program design, including the drafting of the Policy Framework Papers and their social content. In response to criticism that its programs often hurt the poor, the IMF restructured the ESAF in 1999 as the Poverty Reduction and Growth Facility (with its eponymous objectives). Importantly, countries were now required to prepare their own Poverty Reduction Strategy Papers (PRSPs), with active participation of civil society and development partners. PRSPs then formed the basis of measures in PRGF programs and were considered by IMF and World Bank Executive Boards when approving concessional loans. In the meantime, however, many low-income countries continue to accumulate debt beyond their capacity to repay. Though there had been earlier ―flow" rescheduling, it was not until 1988, under the ―Toronto terms" agreed by the Group of Seven (G7), that the Paris Club began offering rescheduling that reduced the present value of the debt, albeit by modest percentages. Official bilateral creditors then began extending ever more generous terms for debt relief, putting pressure on multilateral institutions, including the IMF, to follow suit (Force & Vonessen, 2021).

A few years later, the Multilateral Debt Relief Initiative provided further debt relief by cancelling all debt owed by eligible countries to the IMF, the World Bank, and the African Development Fund. On January 6, 2006, the IMF delivered US$3.4 billion of debt relief to 19 countries, the first multilateral institution to do so.

The relationship between Ghana and the international Monetary Fund (IMF) dates to the late 1960s and can be described as having a flip-flop cycle, following the overthrow of Kwame Nkrumah's government in 1966, the country suffered nearly two decades of political instability and decline (Twumasi-Baffour, 2019).

Our first stop at the IMF was on May 17, 1966, for a standby Agreement. Subsequent agreements followed in the following years for similar support: May 25, 1967, May 28, 1968, May 29, 1969, and January 10, 1979 and has since being at IMF for seventeen (17) times. According to (Twumasi-Baffour, 2019) by 1983, Ghana's economy was in tatters. It desperately needed support to reverse the downward spiral. As a result, Ghana embarked on a major programme of economic reform. It did this through an IMF and World Bank sponsored structural adjustment programme and economic recovery programme'. The structural adjustment facilities were used to steer Ghana toward becoming a market-friendly nation where incentives were created by the free market. In the process, the country embarked on a large-scale overhaul of institutions, encouraged competition by privatizing state own enterprises, built institutional capacity and attained macroeconomic stability (Baffour-Twumasi, 2019). Ghana chalked up some initial successes under the IMF programme. It was in fact referred to as the programme's deal, student due to significant improvements in its macroeconomics indicators. This notwithstanding, we were back at the IMF in the 90s for support. After nearly two decades of adjustment, in 2001, the country fell to hard times. It was classified as a highly indebted poo country- a World Bank and IMF initiated aimed at reducing the external debt burden of very poor countries. (Twumasi-baffour, 2019). We went for extended credit facility on May 09, 2003 and July 15, 2009.

On April 3, 2015, the IMF approved a three-year extended credit facility arrangement with Ghana. The programme was extended for an additional year, ending on 2 April

2019. At the turn of the century, the IMF's engagement with low-income countries centered on three pillars: better funded and designed programs, debt relief to facilitate poverty reduction efforts, and technical assistance. Although the IMF had long offered technical assistance to its members, under Managing Director Michel Camdessus, the focus shifted to African countries, which by the early 2000s were receiving more than one-quarter of the IMF's technical assistance. Camdessus made helping Africa a personal priority and his successor, Horst Köhler, stayed the course by opening the first two African Regional Technical Assistance Centers, as part of the IMF's Africa Capacity Building Initiative in the early 2000s.

By 2019, 36 out of 39 eligible countries had received debt relief totaling some $125 billion, allowing them to increase social spending, especially on health and education, while remaining within budgetary envelopes. While most did not fully achieve their UN Millennium Development Goals, many made substantial progress towards them. After the misery of the 1980s, when per-capita incomes declined in many African countries, the reforms that low-income countries had implemented, together with debt relief and the more benign external environment helped rekindle growth in the latter half of the 1990s, which accelerated through most of the 2000s, narrowing the income gap with advanced economies. IMF engagement with low-income countries with majority being sub-Saharan African countries continued to evolve in the twenty-first century. Recognizing that some no longer needed financing but could benefit from external monitoring and the IMF's –seal of approval" of the authorities' policies, in 2005 the IMF introduced the Policy Support Instrument, which enabled program-like monitoring without accompanying loans. In 2010, the PRGF was renamed the Poverty Reduction Growth Trust and split into three concessional facilities:

The Extended Credit Facility, for countries facing protracted balance of payments needs, the Standby Credit Facility, for short-term and precautionary balance of payments needs, and the Rapid Credit Facility, which provides low-conditionality financing in the face of natural disasters or other emergencies. That same year, the IMF also established the Post-Catastrophe Debt Relief Trust (renamed the Catastrophe Containment and Relief Trust in 2015), which allows it to participate in international debt relief efforts for poor countries hit by natural disasters and epidemics. In early 2015, three Ebola-afflicted countries, Guinea, Liberia, and Sierra Leone, received speedy assistance from this trust. Mindful of the risks of excessive borrowing following debt relief, in 2005, the IMF introduced a Debt Sustainability Framework for low-income countries. Many of them faced the familiar dilemma of whether to finance investment through domestic savings or external borrowing, with the risk of debt distress if growth does not materialize. While the Framework helped guide borrowing decisions, when commodity prices collapsed in 2015, several low-income countries found that they had nonetheless borrowed excessively and faced elevated debt levels, which weakened their fiscal health on the eve of the COVID-19 pandemic.

Since March 2020, the IMF has provided exceptional levels of emergency financing, facilitated by a series of temporary increases in access limits. In 2020, IMF financial assistance to low-income countries surged to $13 billion, compared to an average of $2 billion a year before the pandemic. In all, 53 out of 69 eligible countries received financial support, with more than half in sub-Saharan Africa. In July 2021, the Executive Board approved a further 45 percent increase in normal concessional financing access limits under the PRGT, alongside the elimination of hard limits for the poorest countries if their programs meet requirements for above-normal access and stronger safeguards to ensure debt sustainability. The IMF also modified the

Catastrophe Containment and Relief Trust to allow for immediate debt service relief for low-income countries affected by pandemics, enabling 29 countries to benefit from this relief.

1.2 Problem Statement

Despite the increasing reliance on multilateral assistance for economic growth by Sub-Saharan Africa, foreign aid plays a pivotal role in shaping the economic landscape of Sub-Saharan African countries (Jamil, 2021; Mahembe, 2019; Diep et al., 2021; Echendu, 2020). It highlights the necessity for a thorough analysis of the complex interactions between foreign aids and economic results in promoting sustainable growth and mitigating socioeconomic inequities (Campagnolo, 2019; Kronenberg, 2021, Salvo et al., 2021). There exists a pressing need to critically examine the effectiveness and sustainability of these financial and developmental interventions (Biscaye et al., 2017; Gulrajani, 2016; Heleta, 2021; Mlambo et al., 2019; Gizachew, 2017; Shahzad, 2020). However, questions persist about the extent to which multilateral assistance translates into tangible and enduring economic growth, as well as the potential unintended consequences and challenges associated with these aid mechanisms (Wambaka, 2023; Phiri, 2017; Kuete, 2020; Lee et al., 2020).

It is evidenced by Assa (2017) that Sub-Saharan Africa has indeed received foreign aid over the years. The region has been a significant recipient of aid from various international organizations and donor countries (Bermeo, 2017). The impact and effectiveness of those aids are subjects of ongoing debate (Anetor, & Verhoef, 2020). Sub-Saharan Africa's experience with foreign aid is complex, reflecting both positive contributions and challenges that demand careful consideration in ongoing development efforts (Sachs, 2019). However, it is imperative to acknowledge variations in the nature and impact of aid across countries within the region. Some nations may have

experienced substantial benefits, while others might have faced challenges in harnessing aid effectively (Nguimkeu, & Okou, 2021).

While certain countries in the Sub-Saharan Africa region have demonstrated remarkable economic progress in certain sectors of their economy, others continue to face impediments to growth. Rapacki and Prochniak (2019) posits that disparities in growth trajectories necessitate a detailed examination of contributing factors across the region. Consequently, the overarching problem to be addressed is the need to comprehensively understand the impact of multilateral assistance on economic growth in SSA countries, considering the dual challenges of varied growth experiences and the influence of inflation Sawyerr (2021) and Asche (2021). Inflation has been inimical to economic growth. This ironical phenomenon informs the question; does multilateral assistance significantly influence economic growth?

Empirical efforts to unravel the effects of multilateral aid and inflation on economic growth form a crucial aspect of the research problem (Khomba, 2017; Abate, 2022; Rapetti, 2020; Rao et al., 2023; Atuahene & Sheng, 2023; Bird & Choi, 2020; Edward & Karamuriro, 2020; Ahuja & Pandit, 2020; Wambaka, 2023; Sethi et al., 2023; Husein, 2019; Boateng et al., 2021; Jena & Sethi, 2020; Younsi et al., 2021; Sethi et al., 2019; Chirwa & Odhiambo, 2017). However, gaps in knowledge persist, calling for a rigorous investigation into the specific empirical evidence that illuminates the relationship between multilateral assistance, inflation rates, and their combined impact on the economic growth of SSA countries. On the contrary, these studies yielded mixed results (Dokun, 2017; Amoa, 2020; Azam, & Feng, 2021). For instance, whereas a group of studies discovered positive impact of multilateral aid on economic growth (Jena & Sethi, 2020; Bird & Choi, 2020; Azam, & Feng, 2021; (Tang & Bundhoo, 2017; Maruta et al., 2020; Sothan, 2018; Wako, 2018; Pham, 2018; Moyo & Tsakata,

2017), other studies oppose to the finding and found negative effect of multilateral aid on economic growth (Tang & Bundhoo, 2017; Mohamed, 2018; Dijkstra, 2018; Biscaye et al., 2017; Pham, 2018; Moyo & Tsakata, 2017; Bird & Choi, 2020; Azam, & Feng, 2021; Anetor et al., 2020). Rafaei and Sameti (2015) found ODA to have significant positive relationship with growth over the period. Deaton and Aten, (2017) and Easterly (2019) also argue that development aid has hidden negative effects, due to its political inclination. Despite the rising effort to explore this research area, the researcher was unable to cite any known study in the sub-Saharan African region. These dynamics and the little research efforts in the subject matter in the sub-Saharan Africa, feeds into the motivation of the researcher to investigate the impact of multilateral assistance and inflation on economic growth within the SSA region.

1.3 Purpose of Study

The main purpose of this research is to determine the effect of international monetary fund financing on economic growth with the sub-Saharan region as focus and to ascertain whether multilateral aid played complementary role in driving growth of sub-Saharan African economies.

1.4 Research Objectives

The general objective of this research is to determine the effects of IMF financing on economic growth: A sub-Saharan countries perspective.

The specific objectives are to:

1. examine the effect of multilateral assistance on economic growth in sub -Saharan countries

2. establish the effect of inflation on economic growth of sub-Saharan countries on IMF financing.

1.5 Hypothesis

1. H_o: Multilateral assistance has significant effect on economic growth in the sub-Saharan region

H_1: Multilateral assistance has no significant effect on economic growth in the sub-Saharan region

2. H_o: There is a significant relationship between inflation and economic growth

H_1: There is a significant relationship between inflation and economic growth

1.6 Significance of the Study

The study aims at evaluating the effect of international monetary fund on economic growth in the sub-Saharan countries. This study will consequently add to the limited existing literature by providing consideration into how the IMF financing has impacted countries within the sub region and why they keep signing for new agreement. Gaining more knowledge on these topics will contribute immensely to the academic community by pointing out how beneficial the IMF program is to the sub-Saharan region. This research will help individuals understand and appreciate why their respective countries enrol on IMF financing. More so, this research may contribute to government‘s financial sector in Africa in order to understand the economic values of IMF financing. Furthermore, this study will help future researchers who may want to study IMF financing in the sub-Saharan country to support their research as well as provide more information for review.

1.7 Scope of the Study

The overall scope of the study was to ascertain the extent to which IMF financing has on economic growth within the sub-Saharan region. The study limited its scope to all the countries that participate in the IMF lending programs in the sub-Sahara within the year 2000 to 2022. This includes all 48 countries in the sub-Sahara Africa but due to data unavailability only 45 countries data were used for the study. The area of study was selected due to its relevance to the aim of the study and the current happenings in the country, Ghana. Data was sourced from IMF World Economic Outlook Database, Regional Economic Outlook, IMF Data Portal, International Finance Statistics, Global Financial Stability Report, Fiscal Monitor, IMF Data Mapper and respective country's website for accuracy, consistency, and more dependable annual panel data.

1.8 Organization of the Study

This paper is planned into the following chapters: Chapter one focuses on the introductory aspects of the research topic, it gives a general introduction to the research. This chapter is made up of the following: the background of the study, the statement of the problem, the purpose of the study, research objectives and questions, the significance of the study, the scope of the study and how the various chapters are organized. Chapter two reviews the related literature on the topic. The researcher considered theoretical literature available on the subject matter. Chapter three on the other hand deals with the methodology of the research. It covers the research design, population, the sampling techniques and the sampling size used, and the data collection tools and tools for data analyses. Chapter four is concerned with analysis of data and discussion of findings. The last chapter which is chapter five deals with the summary of findings draws conclusions and suggests recommendations from the findings of the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter outlines economic outlook of Sub-Saharan Africa using key macroeconomic variables that are vital in the assessment of growth and development of an economy. The development of huge external debt accumulation has invited theories and empirical investigations into assessing the impact of debt on economic growth. This chapter will also discuss existing theoretical theories and empirical studies on external debt and growth.

2.1 Theoretical Review

The study employed two theories to examine the effect of IMF financing on economic growth from the perspective of Sub-Saharan Africa. These theories include neoclassical model theory and endogenous model theory.

2.1.1 The Neoclassical Growth Theory (NGM)

The neoclassical growth model (NGM) is the foundation of any study on economic growth (Lomulen, 2019; Campante et al., 2021). The model's fundamental tenet is short-term economic growth via capital accumulation. Economic policies that encourage people to save more can help achieve this. Long-term growth rates, on the other hand, are expected to revert to the rate of technological advancement, which the NGM believes is exogenously determined and unaffected by economic factors. As a result, the NGM has low expectations for long-term economic growth. The concept of diminishing marginal productivity, which sets a limit on how much output an individual can produce by merely working with increasing amounts of capital, is used to explain this pessimism.

To put it another way, picture an economy where the supply of labour and technology is fixed at a certain level and will not change over time. Assume that this labour is employed with a total capital stock of K. A function of aggregate production determines the greatest quantity that can be produced, which is dependent on K (Masoud, 2013). To keep things simple, Cobb Douglas production function is assumed. In this production function, it is often assumed that there are constant returns to scale, meaning that doubling all units will result in doubling output (Popa, 2014). However, when one input increases (in this case, capital) and the other stays constant (labour), decreasing returns will occur due to the assumption of a constant labour supply. This suggests that given fixed labour, the contribution of capital to output decreases as more capital is used (Wilfred & Mbonigaba, 2019).

The NGM describes the changes in output as input factor rises based on the Cobb Douglas production. The accumulation of capital is crucial here (Carter, 2019). According to this model, capital is created by setting aside a certain percentage of output each period and investing it in new capital. However, each year, a component of the capital stock depreciates. According to this model, gains in output and eventually economic growth are the result of capital accumulation through the saving of a portion of total output during each period. The output curve in figure 2.1 shows diminishing returns; that is, output grows at an increasing rate, reaches a maximum, and then decreases, whereas the savings curve represents a portion of output.

leaning technical advancement for capital to grow more productive over time. As a result, the endogenous growth models, which placed an emphasis on technical advancement in long-term growth rate prediction, are employed due to NGM's inevitable capacity to forecast long-term growth rates (Gogos et al., 2014; Chirwa & Odhiambo, 2018).

2.1.2 Endogenous Growth Model (EGM)

The Solow (neoclassical) growth model has flaws and omissions, which led to the development of endogenous growth theory. This novel theory replaces the exogenous components of the neoclassical growth theory with endogenous factors to explain an economy's long-term growth rate. A group of theories known as endogenous growth models explain how technical advancements and discoveries drive economic growth. Technological advancements are considered exogenous, determined outside the model, and provided because they have no role in this process of growth. Aghion and Howitt (2017) contend that there are strong arguments in favour of the theory that the financial choices made by economic actors can influence the advancement of technology. According to the EGM, long-term economic growth is mostly determined by technological advancement, which the NGM was unable to account for. Therefore, in endogenous growth models, technological advancement becomes endogenous. Remember that the neoclassical growth model's effect of diminishing returns sets a ceiling on output expansion and economic growth. In order to get beyond this barrier to economic expansion, EGM promotes increasing returns to scale.

The factor inputs show consistent returns to scale in the conventional Cobb Douglas production function. Economic agents are thus left with little motive or reward to participate in activities that promote technological advancement. Therefore, no theory that endogenizes technological advancement can be predicated on a competitive

equilibrium in which agents are compensated based on the marginal products they produce. In order to facilitate comprehension and keep things simple, this research will focus on three (3) of the most popular endogenous growth models - The Schumpeterian Growth Model, the AK model and the Product Variety Model

- **The *AK* Model**

The main goal of endogenous growth models is to demonstrate how advancements in technology can result in increasing returns to scale. Tavani and Zamparelli (2018) AK model highlights the potential for productivity to vary based on output per worker. This suggests that "learning by doing" can lead to unintentional technological advancement. Employee specialization in the production process will lead to increased worker productivity because of this specialization. The AK model defines technological advancement as the difference between a factor's initial productivity prior to learning by doing and its subsequent, higher productivity following learning by doing. The AK model and the neoclassical growth model share many assumptions about what propels economic growth. While capital accumulation and savings drive economic growth in the AK neoclassical growth model, efficiency, savings, and capital accumulation drive economic growth in the AK model. Efficiency is the rise in factor input productivity brought about by "learning by doing."

- **Product Variety Model**

Other endogenous growth models that placed an emphasis on innovation—horizontal innovations—were inspired by the AK model's incapacity to provide a sufficient explanation of long-term economic growth. These innovation-based endogenous growth models are divided into two parallel branches: the Schumpeterian growth model and the product variety model. According to the product variety concept, the increase of

specialized intermediate product varieties leads to economic growth. As was previously mentioned, long-term economic growth can be succinctly and clearly explained by modeling increasing returns to scale. In order to do this, the product variety model maintains that innovations that result in the introduction of new kinds are what propel growth.

In summary, research spillovers allow new innovators to benefit from the entire stock of current breakthroughs, and higher labour specialization that uses a greater number of intermediate inputs are the two main drivers of productivity growth. Since ideas are non-trivial, new innovators are allowed to employ them in their own research endeavors. Furthermore, they are excludable in the sense that monopoly rents are paid for every innovation. Research efforts aimed at finding new types are driven by the potential for these rents (Howitt & Aghion, 2017). Three sectors interact to form the basic product variety model: the research sector, which generates research outputs; the intermediate goods sector, which purchases research output from the research sector and produces intermediate goods (inputs for the final sector); and the final goods sector, which combines intermediate goods and labour to produce the final good (Proost & Thisse, 2019). When predicting long-term economic growth, the issue of diminishing returns is lessened by the combination of these three sectors' functions.

In the field of research, spillovers are taken for granted. These spillovers arise from the non-rival and partially excludable nature of developments in the research sector. This implies that other researchers can view innovations (blueprints, product designs, etc.) and can create new ones based on what they see. Additionally, by selling their property rights and patents to the middle-class market, the researchers can profit financially from these inventions (Chirwa & Odhiambo, 2018). As a result, there is a chance for rewards

for invention but also an imperfect market for these advances. The acquisition of patents and property rights by the intermediate sector confers upon them a monopolistic power, as they are the only ones with the sole right to utilize the innovation. If additional intermediate firms (different types of intermediate goods) enter the market with the same marginal productivity and there is a growth in patents for intermediate goods, the intermediate sector will experience increasing returns to scale (Proost & Thisse, 2019). Because innovations and spillovers are non-rival, more patents will result in more intermediate products, which will increase the variety of intermediate goods. As a result, the explanation of economic growth by decreasing returns is limited. The intermediate goods and labour are combined to create the final good, which is consumed, in the final good sector (Proost & Thisse, 2019). The fundamental assumptions determine the implications of the product variety model. These presumptions include monopolistic strength in the intermediate sector about the application of innovations in the research sector; spillovers in innovation and research strong enough to limit diminishing returns. The overall model assumes that labour supply and research productivity both positively correlate with economic growth.

- **The Schumpeterian Growth Model**

This economic growth model highlights that a series of vertical or quality-improving innovations drive growth. The reason it is dubbed Schumpeterian is that it embodies the forces that Ferreira et al., (2017) refers to as "creative destruction" - innovation that spurs growth produces new technology while simultaneously rendering existing technology obsolete. This model emphasizes innovations and research spillovers as drivers of economic growth, much like the product variety model. The Schumpeterian growth model, on the other hand, maintains that long-term economic growth can only be explained by potential improvements (the creation of better intermediate goods) in

the intermediate sector, despite the fact that product variety concludes that the total of growing varieties of intermediate goods is what drives economic growth.

The Schumpeterian growth model's mechanism is comparable to the product variety model. On the other hand, growth in the Schumpeterian model comes because of an increase in the intermediate input's productivity through raising the intermediate good's quality. Innovation can be unpredictable and probabilistic if the researcher is unsuccessful in coming up with a new, more productive version of the intermediate goods. Because it becomes more difficult to improve upon technologically advanced intermediate items, this uncertainty grows as technology improves. To optimize research earnings, the researcher is rewarded with a monopoly profit that is compared to the cost of starting the research, considering the uncertainty and complexity involved in innovation. The frequency of innovations, or how long it takes for innovation to occur, and the size of innovations, or the productivity effects of innovations, are thus determined by uncertainty and maximizing monopoly research profits. These two concepts are crucial for understanding long-run economic growth in a Schumpeterian framework. Creative destruction acts as a counterbalance to diminishing returns in the Schumpeterian Growth model. To produce consumer goods, the final sector is given better intermediate goods. The model is affected by this type of creative destructive innovation in many ways. Firstly, innovation productivity rises in tandem with economic growth. This highlights the significance of education and health as factors that promote growth. Secondly, the scale of innovations correlates positively with economic growth. This highlights the necessity for nations that are falling behind in terms of technology to successfully develop policies that support the application of this technology in order to be rewarded with greater increases in productivity. Thirdly, economic growth is induced by stronger property rights. By preventing copying of

innovation in the middle market, this promotes greater research while safeguarding the earnings of accomplished researchers. Lastly, scale effects exists. Population growth will lead to economic expansion. It makes intuitive sense that both the market for successful entrepreneurs and the number of researchers will grow. Generally, endogenous growth models rely heavily on neoclassical theory's presumptions, which have shown to be unsuitable for emerging nations. The symmetry of economic sectors and the existence of a single product market are two incorrect assumptions made by endogenous growth models, which abstract from reality. Inefficiencies brought on by institution and transaction costs, institutional inadequacies and perfect markets, poor infrastructure are some prominent factors impeding economic progress in underdeveloped nations. The EGM also ignores the political aspect of innovation, in which nations create formidable obstacles to innovations.

2.2 Empirical Review

2.2.1 External Debt Burden and Debt Service Capacity

Loan from abroad could become a burden on the borrowing nation if it fails to raise sufficient resources from current production to fulfil debt service obligations. The difficulty in servicing debt reflects debt burden and can be measured in terms of current national income that is committed to financing previously contracted loan (Deebii & Opuala-Charles, 2022). A situation where the debt service becomes onerous and large amount of national income is devoted in servicing it implies that debt service burden on such country is huge. Conversely, external debt becomes less burdensome when debt service obligations absorb a small proportion of national income. In analyzing the capacity to service external debt, the question is what should be the optimal level of foreign loan which will induce no future debt service burden? Ejumegu (2019) adopted optimization framework to provide theoretical explanation to this question.

They argued that optimally, the marginal cost of external borrowing should be equal to its marginal benefit. However, Soop et al. (2023) demur that cost–benefit optimization approach does not provide any formula that is operational in ascertaining the debt service capacity of countries. Soop et al. (2023) proposes that the issue of debt capacity should be considered from the perspective of expected growth. Hjertholm approached the issue of debt capacity in three ways. First, is output growth sufficient to meet debt servicing obligation? This condition has rarely been met in developing countries in recent decades (Korley, 2018). Secondly, since external debt is financed by foreign exchange, is the rate of growth of export earnings equal to the interest rate? Thirdly, is the rate of expansion of the tax base equal to the interest rate? Soop et al. (2023) provides evidence that these conditions have not been met in Sub-Saharan Africa. A non-optimization approach has also been used to find optimal external debt that falls within the capacity of a country to service. This concept incorporates expected growth trajectory of an economy. It emphasizes foreign borrowing essentially for investment purposes as a means of bridging the wedge between domestic borrowing and investment (Bello, 2020).

2.2.2 Debt Crisis and External Debt in Sub-Saharan Africa

Despite several economic reforms pursued over the past decades, most countries in Sub-Saharan Africa have recorded only modest growth with rapid rise in inflation, huge budget deficits, unsustainable balance of payments (BOP) deficits coupled with high levels of debt. The causes of these crises can be attributed to poor domestic debt, deteriorating terms of trade and a high debt burden (Onyekwelu & Ugwuanyi, 2014). The problem of external debt default in Sub-Saharan Africa would be well understood if seen as an integral part of the global external debt crisis which emerged in 1982 due to: excessive borrowing by developing countries coupled with liberal lending by

foreign commercial banks in 1970s, the fall in commodity prices especially petroleum products in early 1980s, astronomic increase in international lending rate in 1982. The 1982 global financial crisis caused a sudden end to the era of liberal lending. Developing countries could no more roll over their debts and could hardly service their debt from extra borrowing from abroad. Export earnings were also insufficient for debt servicing because of unfavorable terms of trade confronting those economies. Debt stocks of countries were escalating at a time when export earnings were on the decline due to a rapid fall in prices on the international market. Consequently, imports were gradually being cut down as a way of solving increasing current account deficits.

Aside from the contagious effect of the global debt crisis, significant proportion of external debt growth of Sub-Saharan African countries since 1982 may be attributed to some external factors which are beyond the control of these economies. Continual decline in terms of trade, high interest rate, and exchange rate misalignment, uncontrolled fluctuations in export earnings, and rescheduling and refinancing of debt are some of the dominant factors especially from 1989. External debt problem in Sub-Saharan African started initially in the form of difficulty in servicing external loans in accordance with terms and conditions specified in the original loan contract. Azolibe (2022) claim 27 out 44 Sub Saharan African countries had payments arrears hence debt financing and rescheduling were adopted to resolve the problem. Whilst this strategy seemed to relieve debtor countries of debt service burden in the short run, it led to continual postponement of debt into the future without finding the fundamental structural defect of their economies that causes the problem. This method persisted until the 1990s when debt levels of majority of countries in the region were pronounced unsustainable.

International financial community has been providing assistance to debtor countries since the emergence of the debt crisis in attempt to reduce their external indebtedness, reduce poverty, foster growth, and to achieve external viability (Onjala, 2018). This assistance takes the form of lending to developing countries with high concessions, and provision of debt reliefs. This assistance has helped to some extent reducing external indebtedness of countries but could not halt the increasing BOP deficits, fiscal imbalances, rate of external borrowing, and poverty in Sub-Saharan African. Most developing countries including those of Sub-Saharan Africa have undergone some economic reforms based on recommendations from the international financial community as an attempt to reduce external debt hikes and its deleterious effect on growth. Among those programs are IMF and World Bank inspired Structural Adjustment Programme (SAP) and Economic Recovery Program (ERP) instituted in the 1980s, and the Highly Indebted Poor Country (HIPC) initiative in 1996.

For most of Sub-Saharan African Countries, the era of SAP meant decrease in income, high unemployment, increasing poverty, austerity, and declining standard of living (Popoola, 2020) as cited in (Seyram et al., 2019). Consequently, some resisted the SAP and ERP initiative and undertook partial implementation of the program hence not much was achieved in terms of growth. Following the implementation of SAPs, Sub-Saharan African countries have abandoned medium to long term growth objectives (Ajakaiye & Jerome, 2019). Popoola (2020) reported that Sub-Saharan Africa grew by 3.4 percent from 1974-1980, falling to 1.7 percent for the period 1981-1990 and plummeted to 0.6 percent for the period 1991-1993. By the end of 1990 countries in the region begun to abandon SAP and ERP program due to its failure in meeting outlined growth objectives. External debts of poor countries escalated to unsustainable levels despite the continual rescheduling. The debt of SSA jumped from US$60.71 billion to

US$176.36 billion representing 190.5 percent increase for the decade of 1980 to 1990 (World Bank, 2015). The situation was compounded by general feeling of development failures among developing countries. IMF and World Bank in their effort to find a more comprehensive strategy to deal with the debt problem established a group whose core mandate was to assess the magnitudes of multilateral debts in developing countries and find possible ways of solving it.

The group suggested a Multilateral Fund intended to deal with the debt problem on condition of countries adopting and pursuing stringent reforms and adjustment programs (Güven, 2017). By 1995 the debt stocks of most Sub-Saharan African countries were so huge with high debt service burden. Rwanda and Malawi spent 79 percent and 76 percent respectively of their export earnings on servicing of external debt (Güven, 2017). The Multilateral Fund proposal was adopted and later transformed into HIPC in 1996 where some countries were declared as Highly Indebted Poor Countries based on the magnitude of their debt stocks. Out of a total of 44 countries declared as heavily indebted poor countries, 33 were Sub-Saharan Africa countries (Tshuma, 2018). The initiative was to relieve poor countries of their indebtedness basically through debt cancellation.

External Debt Finance

Until the 1970s, most developing countries contracted external debts from foreign governments, Bretton Woods Institutions and Regional Commercial Banks normally at concessional interest rates. Thus, interest rates payable on foreign loans were charged below the market interest rates however, in late 1970s and 1980s foreign commercial banks started to push OPEC money into developing economies initially at low interest rate which later rose significantly thereby increasing the cost of external borrowing.

IMF and the World Bank Classified Sub-Saharan African countries into low-income, lower-middle-income, and upper middle-income countries based on their per capita income levels. The Sub-Saharan Africa categorization on access to international loan is that as a country moves into higher per capita income bracket, it is unable to access grants and concessional loans from the international financial market and would have to borrow at commercial interest rates that may compounds its interest cost.

A rise in foreign interest rates increases the cost of external borrowing as well as the burden of debt service on debtor countries. Interest cost on foreign loans can have dire consequences on growth because those scarce resources would be used for interest payments rather than for investments. Bank of Ghana (2005), for instance, indicated that due to upsurge in Ghana's external debt, government continually resorts to non-concessionary window of the IMF Standby Facility to service its debt. High interest payment means that financial resources are cut from public investment crucial for economic growth. Interest payable on external debt could be accommodated by governments if the foreign capital inflow is invested in self-sustaining long-term capital projects. These long-term projects would be able to generate sufficient cash flows more than the cost of the loan. However, foreign loans, aid, and grants inflows to developing countries as well as Sub Saharan Africa are most often spent on recurrent expenditures.

The Harrod-Domar growth model explains the direct relationship between savings and rate of economic growth and the indirect relationship between capital and growth. The model assumes that economic growth is because of capital accumulation in the form of savings and development economists have used to explain financing gap of developing countries. Development economists claim that in case of abundant labor supply, the only constraint to production is capital scarcity (Sugandini et al., 2023). The financing gap is the difference between available financing for investment, the required

investment and using foreign capital such as foreign debt to fill the gap would help achieve the targeted growth rate. Empirical evidence in support of this theory in developing countries however remains imaginary since the growth of foreign debt has not helped achieve targeted growth in these countries. Moreover, a school of thought holds the position that external debt has positive effect on domestic savings, investment and hence promotes economic growth. External debt is seen as an inflow of foreign capital which adds up to most often insufficient domestic savings.

Thus, foreign borrowing fills savings and investment gaps and makes funds available in the borrowing economy for investment in productive ventures which require huge capital outlay for economic take-off. This claim is in consonance with the views of Eaton who suggested that international debt (foreign savings) is a complement to domestic savings and investment and hence have positive effect on economic growth (Ibrahim Mohammed, 2017). Moreover, many countries cannot avoid borrowing funds from abroad to finance their development projects since external loans most often come at lower interest rates compared to domestic ones. Low interest rate makes loans from abroad relatively cheaper to budget managers. Economic managers are also motivated to secure loan from abroad and limitless international market since risk of crowding out borrowers from its own economy is low. This low interest rate and utter absence of crowding out private borrowers would as well facilitate economic growth. In contrast to the view that external debt serves as a supplement to domestic savings and investment, another school of thought views external debt as a substitute to savings and investment and hence has adverse impact on Sub-Saharan Africa on growth.

Literature has identified five dominant channels through which external debt affect growth negatively. These channels are explained using debt overhang hypothesis, crowding out effects, human capital development effect, import compression

hypothesis and the direct effect of debt hypothesis. Krugman (2018) defined debt overhang as ~~"a~~ situation in which the expected repayment on foreign debt falls short of the contractual value of the debt" whiles according to Idris and Aliyara (2022), debt overhang refers to ~~"a~~ situation in which the debtor country benefits very little from the return to any additional investment because of the debt service obligations". Debt Overhang Hypothesis (DOH) has two versions: the narrow (traditional) and broader version. The narrow perspective posits that debt overhang effect exists when the country's debt discourages investment. Thus, when investors expect that government would increase the tax rate on returns to capital to service the debt, they would reduce their investment levels to avoid the higher future taxes (Krugman, 2018; Sachs, 2019; Anyanwu, 2017). Neoclassical models posit that imposition of taxes for interest payment on external debt reduces individual's disposable income and hence curtail savings of the taxpayer. The broader version of debt overhang posits that there will be disincentive to invest when investors expect inflation, devaluation and other economic distortionary measures as means to service the debt. Debt rescheduling negotiations also discourages investment since it raises uncertainty within the business environment (Abraham et al., 2020).

Liquidity problem is a short-term problem which arises when a country fails to service its current debt according to specified terms of the debt contract whiles solvency problem is a long run phenomenon, a situation where a country's total debt liability cannot be paid at any period of time (Aluko & Ajayi, 2018)). Secondly, external debt dampens economic growth through human capital development effect. The debt service burden on government reduces public spending as well as spending on social investments such as education and health which are crucial for economic growth. It is well established that access to education and quality health delivery systems are

necessary for producing quality human resources. Therefore, government failure to invest in health and education reduces human capital, productivity slows down and hence a fall in economic growth (consistent with endogenous growth model). Zharku (2018) noted that slower physical capital growth may have indirect effect on growth by reducing productivity of new investment.

Moreover, heavy debt burden implies that government short term revenue must be used to service the debt thereby denying public investment into some sectors of the economy vital for economic growth. Thus, there may be crowding out effect on investment in the domestic economy (ibid). Reduction in public investment can lead to decrease in private investment since some private investments are complements to public investment (Bahal et al., 2018; Bouakez. 2018). Inadequate infrastructural facilities caused by crowding out effect could lead to reduction in investment productivity. The growth effect of very high debt burden through balance of payments account is what is referred to as liquidity constraint hypothesis (LCH) or import compression effect. Countries with high debt burden require enough inflow of foreign exchange to service the debt especially when the nation‘s currency is not tradable in the international market. A situation where a country has low export and capital inflow, and inadequate reserves, debt service becomes problematic hence may resort to devaluation/depreciation or/and import restriction to encourage foreign exchange inflow Zharku (2018), Senadza (2017) and Bouakez., 2018) argued that this situation makes imported inputs expensive and shortage of capital goods which can lead to low investment and hence low growth. Moreover, debt-growth channel can be traced to Direct Effect of Debt Hypothesis (DEDH) as hypothesized by Adegboyega (2021). However, Adegboyega (2021) argues that even if external debt is inconsequential in the savings and investment function, it can still influence output growth through its effects

on factor productivity and investment mix. While a drag in investment rate would reduce economic growth, external debt may stifle the productivity of production factors in economic growth (Adegboyega, 2021). Kasili (2020) argued that high debt burden creates uncertainty and biases investment towards short term investment opportunities in detriment to long term ones necessary for growth. Thus, investors would be reluctant to invest in projects with long term gestation periods because of the high sense of uncertainty that heavy debt burden may create in their expectations about the distant future. Furthermore, Debt Laffer Curve theory seeks to explain the relationship between debt and economic growth. The theory postulates a nonlinear relationship between debt and growth on the assumption that there is an optimal level of debt that promotes growth and beyond that threshold further debt contraction impedes investment and growth efforts. Sheikh (2020) stated that Debt Laffer Curve can be used to show the relationship between face value of debt and investment since the curve explains that as the outstanding debt increases beyond a certain threshold expected repayment begins to fall. Better still, when a country borrows to finance its budget deficit, it makes resources available for capital investment which helps to achieve its growth objectives. However, increase in borrowing beyond a certain level creates debt overhang and debt service challenge and ultimately retards economic growth. Reasonable levels of external debt help finance productive investment and that may be expected to enhance growth, but beyond a certain level additional indebtedness may reduce growth (Kasili, 2020).

Selected Macroeconomics Performance in Sub-Saharan Africa Inflation

Inflation has generally revealed a downward trend for the period under review. By the end of 1980, consumer price index for the region stood at 13.60 percent and averaged 9.56 percent for the period 1981-1990. Inflation grew marginally at early 1990s

hovering around 9 percent but skyrocketed to 28.81 percent in 1994, declined over the subsequent years hitting as low as 4.18 percent in 2004 (World Bank, 2015). It however increased to 10.56 percent in 2008 and the increment may be attributed to some internal and external disturbances that affect the region within those periods. Domestic food prices rose rapidly in Guinea, Sierra-Leone, Madagascar, and Kenya during these periods as these countries are net staple importers and were not able avoid importing inflation from abroad. Unfavorable weather conditions such as drought in Kenya and flood in Benin lead to poor harvest resulted in high prices in those countries (IMF, 2014). IMF (2011) reported that other factors such as political crisis and foreign exchange shortages fueled inflation in Cote d'Ivoire and guinea respectively. Inflation fell to 4.37 percent at the close of 2010 while the year 2013 witnessed a rate of 4.93 percent. Renewed bouts of currency depreciation in most middle-income countries in the region may reignite inflation pressures that were generally eased in 2013 (IMF, 2014).

Growth Performance

Sub-Saharan Africa enjoyed a moderate growth of real output whiles 1970s witnessed notable increase as this period was characterized by huge inflow of foreign direct investment and rapid boom in commodity prices in the international market. Economic performance however deteriorated in late 1970s and was exacerbated by the global financial and economic crises in the early 1980s whose impacts were much felt especially in 1983 where SSA recorded a negative GDP growth of -1.13 percent (World Bank, 2015). The impacts of global economic downturn on developing economies in 1980s were so severe such that the decade was referred to as "lost decade" for Africa with regards to its development endeavors (Seyram et al., 2019). Although many countries in the developing regions managed to restore growth fortunes after 1980s

global economic distress, stagnation persisted in Sub-Saharan Africa until the first half of 1990. The protracted economic problem in the region was because of the negative impact of external and internal developments, external debt burden. (UNCTAD, 1998; 1999**).**

Studies on the effect of external debt on economic growth have mainly sprung up following the beginning of the debt crisis in early 1980‘s. Most of these empirical investigations focus on group of countries whilst few are country specific. With regards to the impact on economic growth, the weight of evidence seems to suggest that the effects are more often negative. Key studies that report a negative effect include Bordo and, Przeworski and Vreeland (2017), Hardoy (2013), Hutchison and Noy (2018), Vreeland (2015), Barro and Lee (2015), Butkiewicz and Yanikkaya (2015), and IMF (2015). Positive or mixed results are reported by Bird and Rowlands (2017), Binder and Bluhm (2017), Njangang et al. (2018), Balima and Sokolova (2021), Dinh et al. (2019), Fromentin (2017), Saleem et al. (2020), Nuru et al. (2022), and Mandeya and Ho (2021). Some of these studies find that while the short-run effects of IMF programmes on economic growth are negative, the long-run effects are positive. Several observations may be made about existing literature. Low-income countries have a greater tendency to be prolonged users of IMF resources and undertake the majority of their borrowing under concessional lending windows.

Brown (2023) discover that the characteristics associated with prolonged engagement with the IMF are those often exhibited by sub-Saharan Africa‘s. Moreover, the factors associated with IMF programme participation differ between low-income and middle-income countries (Mylonas, & Rowlands, 2015). Moreover, it remains interesting to investigate the extent to which the growth effects change along with the specification of the participation model. We attempt to add value to the existing literature by

investigating in detail the effects of IMF programmes on economic growth in Sub-Saharan Africa in the period following the programme. We focus on concessional programmes although we briefly compare their effects with those of non-concessional ones. In each case we use a specifically designed participation equation to deal with the potential selection problem. Some of these previous studies are reviewed below:

2.2.3 Studies which Found Positive Contribution of External Debt to Economic Growth

Alli-Momoh (2022) using Least Square Estimation carried out an experiment on 13 Less Developed Countries for the period 1982-1989 which was characterized by debt crisis. Alli-Momoh estimated two different regressions by analyzing the effect of decrease in export prices, high international interest rate, and low growth rates in the developed economies as exogenous variables determining investment in less developed countries and another regression involving dummy variable for the debt crisis to capture external debt effect on growth. For him, if the decline in export prices, increase in foreign interest rate, and recession variable in developed economies are statistically significant then debt crisis is not critical. Warner‘s panel analysis on the two models established a positive and significant relation between external debt and investment which was attributed to an era when foreign loan provided investible funds. Similarly, Makun and Jayaraman (2021) centered their investigation on 6 pacific island countries which heavily depended on foreign aid and external borrowing until early 1980s when political turmoil in those countries threw their economies into fiscal and current account deficits problems. Their study revealed significantly positive contribution of external debt to real GDP growth whiles fiscal deficit adversely affected real GDP growth.

2.2.4 Studies that Found Negative Contribution of External debt to Economic Growth.

Benli (2020) investigated the cost of foreign borrowing on the Turkish economy by employing computable general equilibrium model. Using a multi sector, non-linear general equilibrium model, he attempted to explain the cost of foreign borrowing through the mechanism of debt overhang. Findings from Benli's work established a negative relationship between external debt and investment in the Turkish economy for the year 1985. Lag distributional model was used by Asante (2019) and Stutts (2022) to assess the effect of external debt on economic growth in 9 South American countries covering a 12-year period (1974-1986). The study found significantly negative relationship between external debt and economic growth. Epaphra and Mesiet (2021) proffered some criticisms against the work of Alli-Momoh (2022) on the grounds of methodology. Epaphra and Mesiet argued that Warner failed to conduct nested and nonnested test to compare the two models he propounded, and the models did not include debt variables. He further argued that debt crisis within the period of 1982-1989 in the less developed economies could be ascribed to massive structural changes that occurred within the period of 1960-1981 hence Warner's hypothesis could not hold if a dummy is created for the debt crisis. Epaphra and Mesiet (2021) hence adopted Ordinary Least Square Estimation for the same 13 less developed countries for the period 1965-1990. His model captured variables which represent world economic condition, monetary and fiscal policies, and debt variables. Epaphra and Mesiet's study established a negative relationship between debt and investment. Kasili (2020) used simple neoclassical model to assess whether capital imports can increase real output and whether there are sufficient available exports to service the debt in 31 Sub Saharan African countries. His findings suggested that there are very little export proceeds

available for debt servicing and this may cause debt overhang problem. Hassan (2020) used ratios such debt-GNP, debt to export, debt service-export ratio to as a measure of debt burden to investigate the impact of external debt on economic growth in Kenya.

They concluded that external debt impedes economic growth through debt overhang effect. Another study was conducted by Wangui (2019) in his effort to investigate the debt overhang hypothesis tracing the effect of debt on growth via investment in 13 Highly Indebted Poor African countries. He argued that debt overhang hypothesis can be best explained using the total debt payable rather than normal debt obligation. His study employed panel data regression using Ordinary Least Square Estimation for the period 1975-1983 and 1984-1991, all established negative relationship between external debt and investment. This is in addition to an earlier exercise by himself in 1993 where he tried to address the problem of debt overhang both theoretically and empirically.

The result was that, over the 20-year period between 1970 and 1990, the investment to GDP ratio was found to exhibit an inverse U-shape, with the negative relationship holding only after a certain debt to GDP ratio has been reached. Adegboyega (2021) conducted empirical analysis on the impact of external debt on economic growth in Sub-Saharan Africa for the period 1970-1986. He modified the augmented production function into ―continuous interactive model" based on assumed endogeneity between debt and capital and ―discontinuous interactive model" derived from analysis of covariance model to examine the direct and indirect effect of external debt on economic growth.

The study used annual values of several debt measures for a sample of 29 Sub-Saharan African Less Developed Countries. Regardless of the debt measures and model used, the study found direct adverse effect of debt on economic growth (through the

reduction in the marginal productivity of capital) but the result did not support the _indirœct‘ effect of debt (no adverse effect of debt via investment levels). The study also found a nonlinear relationship between debt and growth that it is positive at low levels of investment, but negative after a threshold of 16 percent of GDP Adegboyega (2021) applied Ordinary Least Square estimation technique on augmented production function to analyze the effect of external debt on economic growth in Sub-Saharan Africa for the debt crisis period 1980-1990.

Seyram et al. (2019) evaluated the effect of external debt on economic growth using simulation approach with small macro-economic model on data collected on Sub-Saharan African countries for a 24-year period from 1970-1994. The study employed Two-Stage Least estimation method on simultaneous equations model involving output and investment demand functions, and four identities. Her findings confirmed debt overhang hypothesis and crowding out effect of external debt and hence concluded that large stock of external debt and heavy debt service payments is detrimental to investment and economic growth in SSA but also failed to account for the effects of country groupings on external debt, and its implication for external debt-growth relationship for SSA. Abebe (2019) used time series data for the period 1970-1995 in her quest to analyze the effect of debt overhang on growth in Kenya. She found no evidence of negative effect of debt service on growth but established crowding effect on private investment. Mohamed (2018) similarly used time series data on Sudan for 1978-2002 to investigate the effect of external borrowing on growth in Sudan. He adopted inflation rate as a measure of macroeconomic policy and the real return on export earning as a proxy for export promotion strategy as the determinants of growth. His findings suggested that real export positively and significantly promotes growth whiles external debt and inflation undermines growth. Nnabue (2018) employed time series

data for Nigeria over the period 1962-2006 to investigate the contribution of external indebtedness to growth in Nigeria. They concluded that foreign borrowing impedes growth effort of Nigeria. Similarly, a study conducted by. Egbo and Ajibo (2020) on the dynamic effects of external debt servicing, capital stock and labor force on economic growth for Pakistan using time series data for 1970-2003 established a negative effect of external debt servicing on productivity of capital and labor which undermines economic growth. Dawood et al. (2020) also analyzed the causal relationship between short term external debt and GDP growth in some 27 Latin American and Caribbean countries for 33 years over 1970-2003 and found that granger causality holds: thus, external debt Granger causes GDP growth in 13 countries out of the 27 countries. The paper however fails to explain the mechanism through which external debt causes economic growth and if such causal relationship is linear or otherwise. Salmon (2021) analyze the development of public debt (measured as central government debt) and the long-term real GDP growth using simple correlation statistics with a sample of 20 developed countries for two centuries 1790 to 2009 finds that for GDP to Debt ratios below 90 percent, relationship between debt and growth was insignificant whilst ratios above 90 percent worsens median growth by 1 percent and considerably more for mean growth. This finding was consistent with that of Mohamedamin (2021). Similarly, Fagbemi and Adeosun (2021) examined the paradox of debt overhang in the Heavily Indebted Poor Countries (HIPCS) of the Southern African Development Community (SADC) in order to show debt overhang existence and the effect of debt relief (HIPC) on these countries. The study was carried out over the period 1970-2011, the period within which countries used for the study accumulated debt and reached the completion point of the HIPC initiative. While using debt to GNI ratio and Debt Service to GDP ratios as measures of debt burden, He adopted Solow

Growth Model, and employed Granger Causality test on an investment function to explore the debt overhang relationship. His finding reveals that GDP growth granger causes private investment and debt service, private capital Granger causes GDP growth and debt service, but debt service does not Granger causes GDP growth and private investment. Fagbemi and Adeosun (2021) concluded that external debt does not promote economic growth. However, his study fails to examine the possibility of a non-linear relationship between external debt and economic growth in those countries.

2.2.5 Studies that Found Mixed/No Relationship between External Debt and Growth.

Owusu (2020) conducted granger causality test for Asian and Pacific nations for the period of 1970-1988 as an attempt to establish cause-effect relationship between external debt and economic growth. He detected that an increase in Gross National Product leads to increase in external debt but found an insignificant causal effect of external debt on economic growth. Thiora (2021) attempted to probe the relationship between external borrowing and productivity in 55 developing countries. They grouped these countries under four categories based on their similarities in terms of debt level and level of per capita GNI; 14 as indebted middle-income countries, 10 as moderately indebted low-income countries, 12 as severely indebted middle-income countries and the rest 19 as indebted low-income countries. The time periods covered under this investigation are 1970-1980 and 1981-1990 which represent a period of astronomical growth in foreign borrowing and an era characterized by problem of debt service respectively. Results for the period 1970-1980 showed no inverse relationship between foreign borrowing and national productivity for all the four categories of the countries formed from the 55 developing countries. They explained that these countries were using the external debt to ameliorate the shocks of oil price increase. Results for the

1981-1990 established a negative relationship between external debt and national productivity for indebted low-income countries and severely indebted middle-income countries. Thiora (2021) explained that foreign borrowing was misused by these countries and were facing debt service challenges. Sheikh (2020) also used Ordinary Least Square Method to estimate investment equations for 81 developing countries for the periods 1965-1973, 1974-1981 and 1982-1987. He found that the level of external debt does not provide any explanation on the declining level of investment and for that matter the growth of GNP in those countries. Hassan and Meyer (2020) found no evidence that external debt negatively affects total productivity after evaluating the effect of external debt on economic growth using data from 24 industrialized countries and 59 developing countries for 32 years period spanning 1970-2002. He noted that high economic growth moves with lower level of only public external debt but not private external debt in developing countries whiles for industrialized nations the inverse relationship between public external debt and growth never holds. Tarawalie and Jalloh (2021) estimated the impact of external debt on economic growth in Ghana for 1970-1999. They used long-run growth equation to investigate the long run effect of debt on growth and vector error correction model (VECM) to estimate the short run effect. Their results indicated that external debt inflows positively influence GDP growth, but the debt servicing revealed a negative effect on GDP growth. The study also revealed that the negative effect of external debt on debt is found through its deleterious impact on domestic investment.

2.3 Summary of Literature Review Findings

Empirical investigations have divergent findings in their attempt to unravel the nature of relationship that exist between external debt and growth. Most of these studies differ in terms of methodology, geographical area monitored, and period covered. However,

majority of them have established negative relationship between external debt and economic growth, few proffered positive relationships whilst some posit no correlation between debt and growth. Lack of unison in the findings of previous studies clearly suggests ambiguity in existing literature requiring more enquiries into the external debt-growth nexus. Moreover, many studies on debt-growth nexus have been conducted on country specific (individual country) and cross-country (group of countries) basis but it is worth mentioning that most of these studies especially the cross-country investigations were done on developed economies and recent studies such as Mohamedamin (2021), Sagire and Muriu (2021) were much concerned about determining the debt to GDP thresholds that impedes growth in the developed countries. Literature on Sub-Saharan Africa is scant with the most recent by Adegboyega (2021) and Seyram et al. (2019). Adegboyega (2021) applied augmented production function to analyze the effect of external debt on economic growth for the debt crisis period (1980-1990) and found negative relationship between debt and growth. Similarly, Seyram et al. (2019) also found negative effect of external debt on economic growth after employing simulation approach in his study for the period 1970-1994. Although these empirical studies have provided some explanation on the relationship between external debt and economic growth in Sub-Saharan Africa, they are unable to provide any explanation on external debt and growth on group of countries within the region that have different characteristics with respect to per capita income levels. Even though countries in Sub-Saharan Africa share common characteristics, their level of per capita income varies hence World Bank classifies these countries as low-income, lower-middle income, and upper-middle-income. The main contribution of this study is to probe whether classification of countries based on their

per capita income (low-income and middle-income economies) have any influence on debt-growth relationship in SSA.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter presents the descriptive statistics and empirical model employed in this study to investigate the effect of IMF financing on economic growth in Sub-Saharan Africa. It also discusses the statistical methods that are employed to analyze the effect of IMF financing on economic growth in the sub-Saharan region.

3.1 Research Paradigm

A research paradigm is a set of fundamental beliefs or assumptions that guide how research is conducted. It encompasses the researcher's worldview, epistemology, ontology, and methodology. The choice of a research paradigm shapes the overall approach to inquiry, influencing the design, methods, and interpretation of research (Rahi, 2017). A research paradigm could be positivism, interpretivism, pragmatism and or critical research (Davies, 2018). To this work, the positivist paradigm was used. Positivism is a philosophical and methodological approach to research that is associated with the belief that knowledge can be derived from observable, measurable phenomena and that the scientific method is the most reliable way to acquire such knowledge. The positivist paradigm is characterized by several key features. For example, a positivism paradigm emphasizes the pursuit of objective knowledge that is independent of personal biases, emotions, or subjective interpretations as cited by brown (2020). As a result, a researcher is expected to maintain a neutral stance and avoid influencing the research process. Also, a positivism approach places a strong emphasis on empirical observation and the collection of observable and measurable data (Žukauskas, 2018). The goal is to rely on evidence obtained through systematic observation and experimentation. Again, determinism is also another Positivism paradigm which

assumes that there are regularities and patterns in the natural and social world that can be identified through scientific inquiry (Spano, 2020). It suggests that events are governed by identifiable causes and effects. A positivist research paradigm places emphases on the use of statistical, econometric, and mathematical models to assess cause and effect relationships among variables, hence providing evidence to test hypotheses. So, this paradigm is adopted since the purpose of these study is to assess the role of multilateral assistance in economic growth in sub-Saharan African economies which demands testing of hypotheses.

3.2 Research Design

A ~~r~~esearch design is a framework or structure that directs and guides the research methodology, including the methods used for data collection and analysis (Creswell & Creswell, 2017). Creswell and Creswell (2017) maintain that a research design enables researchers to connect empirical data to its research objectives and the study‘s conclusion in a coherent order. This involves the determination of a research problem, examining the problem by gathering data, analysing the data and then making conclusions and recommendations based on the results of the” data analysis.

The current study followed an explanatory research design. Explanatory research, as explained by Saunders *et al*. (2007) quoted in Lelissa (2018), is conducted when there is not enough knowledge of a phenomenon and a problem that has not been clearly defined. Even though explanatory research does not intend to provide conclusive and final answers to the research questions, but merely explores the research topic with varying levels of depth. Hence, its theme is to tackle new problems on which little or no prior study has been done (Brown, 2006). Explanatory research, even in the extreme case, forms the basis for more conclusive research and determines the initial research design, data collection method and sampling methodology (Singh, 2007).

This design was further considered the utmost design for carrying out this explanation since it is the approach which deals with effects as they presently are (Creswell, 2012). The study adopted an explanatory research method because it attempts to assess the effect of IMF financing on economic growth in sub-Saharan Africa countries. The use of this method provided the opportunity for the researcher to gain valuable insight into the status of the phenomenon with respect to the variables under consideration.

3.3 Population and Sample Size

The population for this study refers to all the countries that participate in the IMF lending programs in the sub-Sahara within the year 2000 to 2022. This study uses secondary data mainly drawn from World Bank (World Development Indicators, International Financial Statistics) and IMF (World Economic Outlook) 2023 online databases. Sub-Saharan Africa is made up of 48 countries. However, due to data unavailability on some important variables for some countries, *annual* data for 45 SSA countries is used in the study for empirical analysis. Data on external debt for the remaining 3 countries in the Sub-Region is unavailable. Possibly, their participation in external debt activities in the region is insignificant hence the empirical results based on the 45 countries *in* the Region are expected to reveal the external debt situation in SSA. The SSA countries are categorized into low-income and lower-middle, and upper-middle-income and high-income countries according to World Bank based on their level of per capita income.

The study covers a period of 22 years (2000-2022) which captures the long-term impacts of the effect of 2008 financial crisis and the current economic downturn, on external borrowing, the impact of coronavirus and economic growth. However, data unavailability for some of the years served as a constraint for choosing the period of 22 years for the empirical analysis.

3.4 Sampling Technique

Total population sampling was employed for this study. It is a type of purposive sampling technique where you choose to examine the entire population (i.e., the total population) that have a particular set of characteristics. Therefore, this study's sample includes all 48 countries in the sub-Sahara Africa but due to data unavailability only 45 countries data were used for the study.

3.5 Data Collection

Secondary data was sourced from IMF World Economic Outlook Database, Regional Economic Outlook, IMF Data Portal, International Finance Statistics, Global Financial Stability Report, Fiscal Monitor, IMF Data Mapper and respective country's website for accuracy, consistency, and more dependable annual panel data.

3.6 Estimation Technique

Considering the nature of the variables involved in this study, the researcher employed a fixed effect panel regression estimation technique. Fixed effect panel regression is a statistical method used in econometrics and other fields to analyze panel data. The choice of this estimation technique is informed by the fact that fixed effects capture individual-specific characteristics that remain constant over time. This is particularly valuable when studying entities (e.g., individuals, firms, countries) with inherent differences that are not time-varying. By controlling for these time-invariant factors, fixed effects help mitigate omitted variable bias and provide more accurate estimates of the effects of other variables. Also, individuals or entities often possess unobservable characteristics that influence the dependent variable. Fixed effects allow researchers to account for these unobserved individual effects, making the analysis more robust by isolating the time-varying components of the variables under investigation. Since this study considers several African countries with inherent specific economic, cultural, and

demographic dynamics, the fixe effect panel data regression addresses this heterogeneity, ultimately producing valid results.

Model Specification

The study employed a multivariate linear regression model to represent the research objectives as shown in equation 1.

The fixed effects panel regression model can be expressed as follows:

$y_{it} = \propto_{it} + \beta_{it} \sum_{i=1}^{n} X_{it} + \varepsilon_{it}$ ..... Eqn 1

y_{it} is the dependent variable for entity i at time t.

$\propto_i$ represents the individual fixed effect for entity i

X_{it} is the vector of explanatory variables for entity i at time t.

β is the vector of coefficients to be estimated.

ε_{it} is the error term.

From the objectives, economic growth was said to be a function of multilateral assistance and inflation as well import, export and population as represented in equation 2.

GDPG = F (MA, INF, IMP, EMP, POP) ..... Eqn 2

The study adopted a fixed effect panel regression as represented by equation 3.

$GDPG = \beta_0 + \beta_1 MA_{it} + \beta_2 INF_{it} + \beta_3 IMP_{it} + \beta_4 EXP_{it} + \beta_5 POP_{it} + \varepsilon_{it}$ ..... Eqn 3

Where β_0, β_1, β_2, β_3, β_4, and β_5 are coefficients ε_{it} is the error term and t represent time.

Variable description and measurement

Multilateral assistance

Multilateral assistance refers to financial aid or support provided by international organizations to multiple countries. These organizations include entities like the International Monetary Fund (IMF), World Bank, and regional development banks. Multilateral assistance is often aimed at promoting economic development, poverty reduction, and stability in recipient countries. (Smith et al., 2018; Jones & Brown, 2020). This study proxy‘s multilateral assistance as net Official Development Assistance (ODA) through multilateral agencies to recipients in line with Edo et al. (2023).

Inflation

Inflation is the rate at which the general level of prices for goods and services rises, leading to a decrease in the purchasing power of a currency. It is a key macroeconomic indicator that can impact economic decision-making, investment, and overall economic stability. (Wang & Lee, 2017; Gomez & Rodriguez, 2021). This study utilized annual inflation rate as a proxy for inflation as espoused by Akinsola, (2017) and De Gregorio, (2021).

Population

Population refers to the total number of individuals residing in a specific area, such as a country or region. It is a fundamental demographic variable and a key factor in various economic and social analyses (Smith et al., 2017; Johnson & Brown, 2020). To this work, population size was used to measure population in line with (Peterson, 2017).

Economic Growth

Economic growth is the increase in the value of goods and services produced by an economy over time. It is a key indicator of a nation's overall economic health and is often measured by changes in Gross Domestic Product (GDP). (Jones, 2016; Lee & Johnson, 2018). Several indicators have been identified in literature to measure economic growth. These indicators include GDP growth, GDP per Capita among others (Tien, 2021; Kryeziu, 2019; Madurapperuma, 2016). This study adopts GDP growth as a measure of economic growth. GDP growth specifically focuses on the percentage change in Gross Domestic Product (GDP) over a specific period. It provides a measure of how fast or slow an economy is expanding or contracting. (Smith & Brown, 2019; Rodriguez et al., 2020).

Import of goods and services

Import of goods and services represents the value of goods and services that a country purchases from foreign sources. It is a crucial component of international trade and can provide insights into a country's economic relationships with the rest of the world. (Chen & Lee, 2018; Gomez & Rodriguez, 2021). Import value was used to measure import of goods and services as cited by Okyere, (2020).

Export of goods and services

Export of goods and services refers to the value of goods and services a country sells to foreign markets. Like imports, exports play a significant role in a country's economic performance and are often studied in the context of trade balances and competitiveness. (Wang et al., 2019; Brown and Smith, 2022). Export value was also used to measure export of goods and services as indicated by Bakari, (2017).

Data gathered from online were analyzed using the Statistical Package for Social Sciences (SPSS) version 25. The use of descriptive and inferential statistics comprising of statistical tables, mean comparison, and standard deviation was adopted to provide necessary findings to the research. The inferential statistics were conducted using the regression, and correlation analysis. The version 25 of the SPSS provided a robust software to conduct the statistical analysis for the entire research study.

3.7 Ethical Considerations

The project will be carried out taking into consideration universal best practices incorporated into research worldwide. The information about the data will be kept strictly confidential. Again, any part of the work retrieved from any source will be duly acknowledged. The project is not financed by any agency and all costs regarding the project will be borne by the author Oyewale et al. (2016).

3.7.1 Confidentiality

The information given by the WDI is confidential and is only meant for scholarly investigation of the complex dynamics of economic growth influenced by IMF support. The researcher promises to treat this information as confidentially as possible as a researcher, refraining from any illegal disclosure, distribution, or sharing. Additionally, this data was only used within the parameters of this study project. The researcher acknowledges the seriousness of this requirement as a sole academic purpose and promise to abide by it strictly

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

Results from the estimation of the effect of external debt on economic growth for Sub-Saharan Africa are presented and analyzed under this chapter. The empirical analysis uses annual data on 45 Sub-Saharan African countries for a 24-year period (2000-2022). There are sections under this chapter. The next section presents descriptive statistics of variables used in the model whilst section 4.3 reports the outcome of diagnostic tests conducted. Results from the estimated model are presented and discussed in section 4.4. Section 4.5 concludes the chapter.

4.2 Descriptive Analysis

The descriptive statistics considered are mean, standard deviation, maximum and minimum values of the variables. The statistics is based on selected 45 Sub-Saharan African countries out of the total of 48 in the region for the period 2000-2022 due to the unavailability of data on some variables for some of the countries. The meaning represents the average value of the variables whilst standard deviation indicates how variables are distributed around their mean values. Table 4.1 shows the descriptive statistics of the variables.

Table 4. 2.1: Descriptive statistics of variables

	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness	Kurtosis
GDP growth (annual %)	990	-46.08	63.38	3.93	5.61	31.417	-.01	25.58
Loan	990	.00000	23.23	18.10	5.93	35.142	-2.52	5.00
Inflation	990	-9.62	557.20	9.28	33.72	1137.053	11.78	157.76
Population	990	-3.76	5.79	2.46	1.03	1.061	-.76	2.66
Imports	990	-61.94	328.69	5.80	19.57	382.995	5.74	80.27
Exports	990	-91.88	575.74	5.43	25.18	633.985	12.32	268.53
Valid N (listwise)	989							

Source: Authors Construct (2023)

Sub-Saharan Africa offers a complex and multidimensional economic landscape due to its unique collection of countries and economies. Analysts, investors, and politicians must all be aware of the region's economic performance. The main economic indicators for Sub-Saharan African nations are examined in this essay, with a focus on GDP Growth, Loan, Inflation, Population Growth, Import of Goods and Services, and Export of Goods and Services. The descriptive statistics of these indicators offer insightful information on the potential, difficulties, and economic health of the area.

Gross Domestic Product (GDP) growth is a fundamental measure of economic performance. The figures show a wide range of GDP growth rates in Sub-Saharan Africa. The average yearly growth rate is 3.92%, indicating both rapidly expanding economies and struggling ones. The distribution has large tails, however, as indicated by the high kurtosis of 25.58, which points to the existence of outliers or extreme values. This variety emphasizes how different the economic circumstances are in the area. For economic growth to occur, loans and credit must be available. The loan information provides a complex picture of Sub-Saharan Africa. With variations ranging

from 0.00 to 23.23, the typical loan value is 18.10. The negative skewness of -2.522, which denotes a distribution with concentrations at the higher end and suggests a left-skewed distribution, is a remarkable characteristic. The relevance of financial management and access in the area is highlighted by the moderate kurtosis score of 5.00, which suggests heavy tails. Also, inflation rates have a profound impact on consumer behavior and economic stability. There is a lot of diversity in the inflation numbers for Sub-Saharan Africa. The area experiences price volatility due to the average inflation rate of 9.28%. The strong positive skewness of 11.776 in the data, however, denotes a distribution with a long right tail that is populated by extremely positive values. Strong inflation control measures are required, as indicated by the distribution's extremely heavy tails and the unusually high kurtosis of 157.762. Demographic factor that influences labor markets and resource allocation is the main population measure. Again, the average annual population growth rate in Sub-Saharan Africa is 2.46%, with numbers ranging from 3.76% to 5.79%. A distribution that leans somewhat to the left is indicated by the negative skewness of -0.761. A distribution with rather heavy tails is suggested by the moderate kurtosis of 2.655, highlighting the significance of controlling population increase for sustainable development. International trade also plays a pivotal role in economic growth. The import and export data reveals substantial variations in Sub-Saharan Africa. Import growth averages at 5.80%, reflecting economic dynamics and external dependencies. The data's high positive skewness of 5.735 indicates a distribution with a long right tail, possibly influenced by extreme positive values. Moreover, the kurtosis of 80.269 highlights very heavy tails, suggesting the region's vulnerability to trade shocks. Similarly, export growth averages 5.43%, signifying the region's participation in global markets. The

data's high positive skewness (12.322) and kurtosis (268.529) underscore the extreme variations and heavy tails in this distribution, indicative of trade volatility.

Correlation Analysis

The pairwise correlation among the variables employed in the study was presented in Table 4.1 Correlation analysis was examined to know the degree of association and whether there was multicollinearity among the variables. It is often expressed numerically through a correlation coefficient, with values ranging from -1 to 1.

Table 4.2 The correlation of the variables.

	GDPG	LOAN	INFLATION	IMPORT	EXPORT	POPULATION
GDPG	1					
LOAN	0.073	1				
INFLATION	-0.104	0.018	1			
IMPORT	0.232	0.008	-0.048	1		
EXPORT	0.274	-0.014	-0.057	0.595	1	
POPULATION	0.217	0.127	-0.060	0.060	0.024	1

Source: Authors Construct (2023)

4.3 Correlation Analysis

Correlation analyses the strength of relationship between a variable with each other in a series. A higher correlation coefficient between variables indicates the presence of multicollinearity. According to extant literature a correlation coefficient of 0.7 and below is the acceptable threshold to conclude absence of multicollinearity (Thompson). Conversely, another strand of literature posits that a correlation coefficient of 0.8 and above indicate the presence of multicollinearity which is an unrideable phenomenon in

statistical analysis (Hair et al., 2019). The pairwise correlation results for the study are presented on Table.

The correlation coefficient between GDP growth and Loan is approximately 0.073. A modest trend exists for countries with faster GDP growth to also have bigger loan amounts, according to this positive but rather weak link. The association, however, is insufficient to make firm conclusions, suggesting that other factors may be more important in influencing loan amounts. The correlation coefficient between GDP growth and Inflation is approximately -0.104. The coefficient implies that there is a negative correlation between GDP growth and Inflation. This inverse relationship suggests that there may be a slender tendency for higher GDP growth to be correlated with lower inflation rates. Although the association is not strong, it does show that economic growth and more stable pricing levels may occasionally go hand in hand. Also, GDP growth and imports have a correlation coefficient of 0.232. The correlation coefficient shows a positive association with the variables and suggests that there is a slight tendency for import levels to increase in countries with higher GDP growth. This association may be explained by the fact that economic expansion frequently results in greater trade activity. Again, GDPG and Export has a correlation association of about 0.274. Just Like the correlation with imports, there is a positive correlation which suggests that nations experiencing higher GDP growth tend to have higher levels of exports. This could reflect economic expansion leading to increased production and trade. The correlation coefficient between GDP growth and population is approximately 0.217. This positive association shows that there is a slight tendency for populations to be larger in countries with faster GDP development. Because of the improved employment opportunities brought about by economic expansion, migration might increase, and the population can grow.

Loan and inflation have a very weakly positive link, as seen by their correlation coefficient of about 0.018. This implies a weak correlation between a country's borrowing habits and inflation. Despite being statistically significant, the correlation's magnitude is so little that it might not be relevant in real-world situations. One explanation is that in some circumstances, larger loan amounts might be tangentially related to slightly higher inflation rates. The idea that more borrowing can result in higher demand and spending in an economy, thus raising prices, could be used to explain this connection. However, the connection is insufficient to prove a clear causal link, and it is possible that other factors have a more significant impact on inflation.

With coefficients around 0.008 and -0.014, respectively, the correlations between loan and both Import and Export are particularly weak. These correlations imply that loan amounts are not significantly correlated with import or export levels of a country. Higher loan amounts do not always translate into higher quantities of imports, according to the weakly positive association with Import. The lack of a strong association between loans and changes in export levels can also be seen in the weak negative correlation with Export. These results show that a variety of factors, such as trade policies, market demand, and economic stability, have an impact on loan decisions and trade activities. Beyond trade financing, loans may also be utilized for other things like infrastructure development or reducing budget deficits.

Population and loans have a correlation of roughly 0.127, which indicates a shaky positive link. This means that countries with greater populations have loans that are generally larger. A tenable explanation is that larger populations would entail greater borrowing because they might need to make more significant investments in infrastructure, healthcare, and education. Higher population densities could also mean a larger consumer base, which could draw financial organizations' financing and

investment. However, it is crucial to exercise caution when interpreting this correlation. The relationship between population size and loan amounts is weakly positive, but it does not prove causation. The level of borrowing is significantly influenced by additional economic and policy considerations. In addition, there is just a slender negative association between inflation and both import (around -0.048) and export (about -0.057). These associations imply that countries with higher inflation rates typically have a bit less trade activity. High inflation has the potential to reduce both consumers' and businesses' purchasing power, which is a tenable explanation for this association. Prices rising may leave customers with less disposable income to spend on imports, which could result in a decline in imports. Similar to how rising domestic production costs brought on by inflation could affect exports, businesses may find it difficult to compete in global markets. It is significant to highlight that while there is a tendency for inflation and trade activity to move in the opposite directions, other factors also significantly influence how trade dynamics develop.

With a coefficient of roughly -0.060, the relationship between inflation and population is weakly negative. It follows that countries with greater populations would see a minor reduction in inflation rates. Larger populations may result in more production and competitiveness within an economy, according to one interpretation. This increased competition may aid in stabilizing prices and reducing pressures associated with inflation. A higher population may also result in a larger labor force, which may increase the supply of products and services and support price stability. It is important to note that this association is not very strong and that a variety of other factors, such as monetary policy, fiscal policy, and external economic conditions, can have a substantial impact on inflation rates.

Per the table, the coefficient of import and export is about 0.595 which does not coincide with the acceptable threshold according to (Field, 2006). This shows that, the correlation between import and export is notably high. According to this significant positive association, countries with higher levels of imports also tend to have higher levels of exports. This discovery illustrates how interwoven global trade is. The same nations that export their own goods and services overseas are frequently those who import goods and services from other nations. Imports and exports generally complement one another in commercial ties. With coefficients of about 0.060 and 0.024, respectively, both import and export exhibit sluggishly positive relationships with population. This implies that countries with greater populations might conduct a little bit more trade. The demand for goods and services may rise because of greater consumer bases created by larger populations, which is a realistic explanation. Increased local production and trade might result from this increasing demand, which would also enhance import and export activities. It's important to note that these associations are weak, proving that a country's trade activity is not solely determined by its population size. A nation's trade dynamics are also influenced by several additional factors, such as economic policies, infrastructure, and global market circumstances.

Panel Regression Models

This section presents the results and discussion for the study to address the research objectives. The study sought to assess the effect of multilateral Assistance and Inflation on economic. Table 4.2 present the panel regression models using Economic growth as the dependent variables and multilateral assistance and inflation as the independent variables. Population, import and export of goods and services was used as a control variable. The study presents some diagnostics which include Mean dependent var, S.D.

dependent var, Akaike info criterion, Schwarz criterion, Hannan-Quinn criter, Durbin-Watson stat.

Table 4.3 the relationship between Multilateral Assistance, Inflation and Economic growth

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPG	1.85E-10	1.08E-10	1.711985	0.0872*
INFLATION	-0.012702	0.004952	-2.564931	0.0105**
IMPORT	0.025619	0.010597	2.417541	0.0158**
EXPORT	0.047359	0.008233	5.752275	0.0000***
POPULATION	1.064297	0.163452	6.511363	0.0000***
C	0.827509	0.441726	1.873353	0.0613*
R-squared	0.133139	Mean dependent var		3.924589
Adjusted R-squared	0.128734	S.D. dependent var		5.605111
S.E. of regression	5.231902	Akaike info criterion		6.153469
Sum squared resid	26934.83	Schwarz criterion		6.183152
Log likelihood	-3039.967	Hannan-Quinn criter.		6.164756
F-statistic	30.22596	Durbin-Watson stat		1.456757
Prob(F-statistic)	0.000000			

Source: Authors Construct (2023)

From Table 4.3, the regression shows that there is a direct relationship between IMF financing and economic growth. This means that if IMF financing increase by one unit, it encourages economic growth but with a very little margin. However, because the coefficient for loan is so low (1.85E-10), it is likely that IMF financing has very little

direct influence on sub-Saharan Africa's economic growth. This suggests that while the IMF's financial aid may help to resolve urgent budgetary issues, it may not be the main factor promoting the long-term expansion of the regional economy. Again, the significant value of 0.0872 means that IMF financing has no explanatory power or is not statistically significant since its value is greater than the 0.05 significant level on economic growth. Based on these results, we fail to reject the hypothesis 1 and conclude that, there is a positive relationship between IMF financing and economic growth in the sub-Saharan African region.

In accessing the effect of inflation on economic growth, the study found that there is a negative and insignificant relationship between inflation and economic growth. This translates that, if inflation improves by a unit, causes a decrease in economic growth. Though the study found an indirect relationship between inflation and economic growth, a significant value of 0.0105 means that, inflation determines how well an economy grows. Conversely, the inflation coefficient has a negative sign and is equal to -0.012702. This suggests that slower economic development and higher inflation rates are related. A country's currency loses purchasing power due to inflation, which may deter investment and other forms of economic activity. Per the negative relationship discovered between inflation and economic growth, the study rejects the hypothesis 2 with a significant value of 0.0105 and conclude that, there is a negative relationship between inflation and economic growth.

In determining the relationship between import and economic growth, the study shows that there is a positive relationship between import and economic growth This means that a unit increase in import brings about an increment in economic growth. Import‘s coefficient is 0.025619 indicating that and increase in imports is associated with a positive impact on economic growth. This suggests that greater access to foreign goods

and inputs through imports can stimulate economic activity. Since it's significant level of 0.0158 is less than that of 0.05 significant level, it makes the regression result significant. So, the result also means that, when more imports are made into a particular economy, it boosts economic activities such as production, consumer spending, infrastructure improvement, export-oriented businesses, supply chain optimization, market competitiveness, and product diversification, thereby, making such an economy grow. This shows that expanding access to imports of foreign goods and inputs can boost economic activity. However, based on the results provided, with its significant value of 0.0158 lower than the significant level of 0.05, we reject the null hypothesis and conclude that the coefficient for import is statistically significant, indicating that an increase in imports is associated with a positive impact on economic growth in this analysis. These results follow the findings made by Novisi (2019) that, there is a positive relationship between imports and economic growth.

The regression analysis findings for export and economic growth are shown in Table 4.3. Exports have a coefficient of 0.047359, indicating that higher exports are positively correlated with economic growth. This underscores the importance of promoting exports as a driver of economic development in the region. This means that an increase in export will bring about an increase in economic growth. However, the significant value of exports, which is 0.0000 is less than 0.05 significant level shows that export has an explanatory power to explain economic growth. However, based on the regression results, we reject the hypothesis and conclude by saying that higher exports are significantly positively correlated with economic growth. This emphasizes how crucial it is to encourage exports as a catalyst for regional economic growth.

Population has a positive result as against economic growth. This is because an increase in population will cause an increase in economic growth. The regression analysis shows

1.064297 coefficient. This means that population has a positive relationship with economic growth in the sub-Saharan African region and as such, the variation in the economic growth can be explained by the linear regression model. Since the significant value of 0.0000 is less than the significant level of 0.05, we reject the hypothesis and conclude that greater economic growth is linked to a larger population. However, other elements like the demographic dividend and the availability of the labor force might also be reflected in this relationship.

To examine the goodness of fit for the models used in estimating the study‘s results based on the objective, the models whose result are presented in Table 4.3 with economic growth as the dependent variable recorded R-square of 0.133139 with adjusted R-square of 12.87%. Since R-square is used to determine the combined effect of the independent variables, it suggests that the model explains 13.31% of the variation in economic growth. Whiles some variables are statistically significant, this indicates that there are other unexplained factors influencing economic growth in sub-Saharan Africa. Also, the Durbin-Watson statistics which is used to assess the autocorrelation in the residuals (errors) of a regression model recorded 1.456757 which is less than the acceptable margin of 1.5 and above, based on this value the study concludes that the estimation is positively correlated. The prob for the F-statistics of 30.22596 which is used to assess the significance of the entire model is statistically significant and revealed a prob of 0.0000 which means that the overall model is valid and has an explanatory power.

4.4 Discussion of Results

This section of the study discusses the results ascertained from the statistical tests conducted.

4.4.1 The effect of multilateral assistance on economic growth in sub-Saharan Africa.

The assertion that multilateral aid has a positive effect on GDP growth is justified by several factors, drawing on both theoretical reasoning and empirical evidence. Multilateral aid is often channeled into projects that enhance a country's productive capacities, such as infrastructure, education, and healthcare. Theoretically, these investments contribute to improved human capital, increased productivity, and overall economic development, positively influencing GDP growth (Osiobe, 2019). The study found a positive relationship between multilateral assistance on economic growth. The positive results show that, multilateral aid injections can act as an economic stimulus, particularly during periods of economic downturn. By boosting government expenditure, aid can contribute to increased demand for goods and services, leading to higher production levels and, subsequently, positive GDP growth (Pradhan, 2020). Empirical studies examining the relationship between aid and economic growth have yielded mixed results. However, several studies, including those by Lange et al. (2021) and Pradhan (2020), find positive correlations between aid inflows and GDP growth, especially in countries with sound economic policies. Again, it is suggested that multilateral aid directed towards infrastructure development positively influences GDP growth. Studies by Nyoni and Bonga (2017) and Sothan (2018) demonstrate the positive impact of infrastructure investments on economic development. Research by Ivaldi and Santagata (2019) also suggest that the effectiveness of aid varies depending on the recipient country's economic policies. In countries with good governance and policy environments, multilateral aid is more likely to have a positive impact on GDP growth. It can finally be deduced that the positive effect of multilateral aid on GDP growth is theoretically grounded in its potential to stimulate productive capacities,

address market failures, and provide essential public goods. Empirical evidence, while recognizing variations across different contexts, supports the idea that well-targeted and effectively managed multilateral aid can contribute positively to economic growth in recipient countries.

4.4.2 The impact of inflation on the economic growth of sub-Saharan Africa countries.

The study revealed that there is a negative and insignificant relationship between inflation and economic growth. This translates that, if inflation improves by a unit, causes a decrease in economic growth. The negative relationship between inflation and GDP growth (GDPG) can be justified through both theoretical reasoning and empirical evidence. Theoretically, when inflation is high, the purchasing power of consumers tends to decrease. This reduction in real income may lead to a decline in consumer spending, which is a significant component of GDP. Also, a theoretical model, such as the Keynesian framework, suggests that reduced consumer spending can negatively impact overall economic output and growth (Osiobe, 2019). Again, high inflation rates often prompt central banks to raise interest rates to control inflation. Theoretical perspectives, particularly from the neoclassical school, posit that higher interest rates can lead to increased borrowing costs for businesses and consumers. This, in turn, can discourage investment and spending, negatively affecting GDP growth (Ball et al., 2019). Inflation introduces uncertainty into the economic environment. Theoretical arguments, rooted in economic psychology, suggest that businesses may be hesitant to make long-term investment decisions when faced with uncertain and unpredictable inflation. This reluctance to invest can impede overall economic growth Thurow, (2017). It is empirically evidenced that panel data analyses that consider both cross-country and time-series dimensions have provided further support for the negative

relationship. Studies by Tien, (2021) and Sheridan at el., (2014) have utilized panel data to analyze the impact of inflation on GDP growth and have found evidence of a negative association. Some empirical research also delves into specific causal mechanisms explaining the negative relationship. For instance, Macnamara, (2019) discusses how inflation can hinder the efficiency of price signals, leading to misallocation of resources and negatively affecting productivity and growth. The negative relationship between inflation and GDP growth is both theoretically justified and supported by empirical evidence. The key mechanisms include reduced purchasing power, the impact of interest rates on borrowing and investment, and the uncertainty introduced by inflation. Numerous studies across various methodologies consistently demonstrate that high inflation tends to be detrimental to overall economic growth.

4.5 Chapter summary

This chapter employs descriptive statistics, correlation, and regression analysis in analyzing the data. It looked at how multilateral aids and inflation impacts economic growth and how the control variables significantly affect the dependent variable. The results indicate that multilateral assistance is a significant and positive predictor of economic growth whereas inflation negatively impacts economic growth. Outcome of the study shows that there is a positive relationship between multilateral aid and economic growth while inflation on the other hand shows a negative relationship on economic growth. The results discussed will help policy makers to make informed decision on whether to go for foreign aid or not.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary, conclusions and recommendations based on the findings from the study. Summary and conclusions from the estimated results is presented in the present's policy recommendations on the basis of the findings of this study. It further presents the limitations of the study and recommendation on areas for further research. This study sought to analyze the effect of external debt on economic growth in Sub-Saharan Africa for a period of 23 years (2000-2022) using a sample of 45 selected countries from the region. The study employed the system GMM as the main estimation technique on a dynamic model derived from the augmented output equation of Adegboyega (2021) to investigate the effect of external debt on economic growth from the theoretical foundation of the Direct Effect of Debt Hypothesis (DEDH).

5.2 Summary of key findings

Over the past decades, the region has relied heavily on foreign loans to solve what is known as the –financing gap" problem in the region. Scarcity of domestic financial resources has remained persistent resulting in huge external borrowing to supplement low domestic savings for economic take-off. Borrowing from abroad to finance the savings and investment gap in developing countries assumes that such foreign capital inflows would promote economic growth. Moreover, the concept of –financing gap" is based on the Harrod-Domar growth model that basically predicts that growth would be proportional to the rate of investment. However, the level of savings and investment in developing countries are woefully insufficient thereby necessitating the need for foreign capital inflows to pluck the savings and investment gap. Empirical literature has

provided varied conclusions regarding the relationship between external debt and economic growth. Whilst some studies posit that external debt is detrimental to economic growth, others claim that external debt is beneficial to economic growth. Other studies also suggest that there exists no such relationship between the two variables and hence conclude that external debt has no influence on the growth of an economy. Moreover, earlier studies on debt-growth nexus differ in terms of statistical method used, period and geographical area covered as well as in their findings. (Wanniarachchi, 2020). Furthermore, most empirical studies on external debt and economic growth focused on developed economies whilst those on LDCs concentrated on Latin America. Still, most of these studies generally sought to investigate how external debt indirectly affects economic growth through its influence on savings and investment (Savvides et al., 2022; Haqa et al., 2020) but very little attention has been given to examining the direct effect of external debt on economic growth. While a strain on investment and savings rate would reduce economic growth, external debt could directly affect growth through the productivity of factors of production (Adegboyega, 2021). Also, very little empirical studies on have been conducted on SSA with the most recent traceable to Seyram et al. (2019) and Adegboyega (2021) whose investigations cover the periods 1970-1994 and 1980-1990, respectively. The ensuing controversy in the literature about the effect of external debt on economic growth and the very limited studies on SSA has been the inspiration for this study. Besides, the study distinguishes itself from previous studies by using more recent data (1990- 2013) to analyse the external debt-growth nexus in SSA considering the rapid growth of external debt stocks of many countries in the region in recent years. The study employs system GMM instead of Ordinary Least Square, Fixed Effects, Random Effects, Instrumental Variable, and other traditional panel estimation techniques used by earlier

studies, in estimating a dynamic panel model since it has the capacity to overcome biases in panel data.

The outcome of the system GMM estimation shows that external debt negatively affects economic growth indicating that Direct Effect of Debt Hypothesis (DEDH) holds for Sub-Saharan Africa. The DEDH hypothesizes that an economy facing high debt burden, relative to its available resources would possibly experience relatively low productive investment combination. Thus, even if onerous debt service payments do not reduce savings and investment levels substantially, they could, however, reduce output growth directly because of adverse change in investment mix (Adegboyega, 2021). The finding satisfies the first objective of the study thus to analyse the effect of external debt on economic growth. The empirical result shows that country groupings in the region into low-income economies and middle-income economies have no significant influence on the effect of debt on growth in those countries.

5.3 Conclusion

The conclusion of the research study has been structured according to the objectives of the study. Thus, the need to ascertain the results and findings to meet the objectives was critical and this has been understated in detail below. In this study, the techniques of GMM were employed to determine the impacts of bilateral and multilateral aid on economic growth of sub-Saharan African countries. The results revealed that bilateral aid is superior to multilateral aid in driving growth, and both of them complemented private and government sectors in the growth process. Their impact was found to be largely significant, but less than that of domestic private investment and government spending. External trade is the only variable that failed to make significant impact on growth. It was also observed that growth could not respond significantly to its own lag. Generally, the role of development aid, over the period 2000–2022, can be considered

quite beneficial to economic growth of SSA, in both the short-run and long-run. One implication of the study is that economic growth in sub-Saharan African countries has benefited substantially from foreign aid, which indicates the importance of aid in the development of Africa. It is, therefore, necessary for African countries to develop stronger institutions that would attract more development aid, particularly bilateral aid, in order to facilitate rapid economic growth. Another implication is that export trade has remained somewhat passive in facilitating growth in sub-Saharan African countries. It suggests the need to encourage export of manufactures, which possess stronger potentials to facilitate economic growth. Again, the implication that government remains the major driver of the economy does not augur well for efficient allocation of resources. It is thus necessary to enhance resource allocation and economic growth by encouraging the private sector to become the major driver of the economy. Finally, this study is most likely to motivate further research that may want to compare performance of development aid in SSA to other developing regions of the world.

5.4 Recommendations

The primary objective of foreign debt in SSA is to boost economic growth and development. This could be achieved through an increase in export earnings spearheaded by an export-led growth strategy. SSA countries need to diversify their export commodities and wean their economies off heavy reliance on traditional export commodities. Establishment of new industries and empowering the existing local ones through financial and technical support schemes to expand and produce commodities in which countries have comparative advantage would help maximize export earnings and create employment opportunities to absorb the growing labour force that would contribute meaningfully to the developmental process. The estimation results suggest that foreign capital should be invested in self-sustaining projects. Thus, governments in

the SSA region should ensure that funds that are borrowed from external sources are invested in projects that would eventually generate enough returns to defray the interest accruing and the principal amount borrowed. Borrowed funds from abroad should not be diverted into expenditures on consumables, payment of workers' emoluments, refinancing of previous loans, and unproductive projects. Likewise, there is the need for government revenue mobilization agencies in the region to broaden their tax bases devising various strategies to capture untaxed informal sectors into their tax nets and check revenue leakages to increase domestic revenue since over-reliance on external financing results in rising debt burden which does not augur well for economic growth.

Furthermore, it would be in the best interest of governments in the region to continue negotiating with their creditors, especially the IMF and the World Bank for more debt relief programmes, undertake reforms targeted at solving structural imbalances in their economies, and adopt prudent fiscal policies that would institute fiscal discipline in public expenditures to reduce their budget deficits which is a major reason for borrowing in the region.

5.5 Further Research

The researcher recommends that there is the need to further conduct enhanced research in this direction of IMF financing on economic growth. Another area that future research needs to envisage is to evaluate the research on the influence of anonymous reporting channels and the impact on the effectiveness of IMF financing to economic growth. This study will pioneer other areas because it provides how IMF assistance could benefit citizens of a particular region without the fund being misused by the government officials to provide economic growth. The concept of IMF financing has also been exploited by various researchers using data from individual countries and longitudinal data for several regions of the world. However, the link between IMF

financing and economic growth has not been receiving much attention. The sub-Saharan region as whole has been lagging on the issues of economic growth and how IMF financing issues are to be tackled in order to curb financial and loan facility problems. In addition, future studies should also pay attention to the effect of IMF financing, economic growth, and the impact it has on the citizenry of a particular country to avoid mismanagement of the funds.

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