THE IMPACT OF FOREIGN DIRECT INVESTMENT ON THE AGRICULTURAL SECTOR: THE CASE OF MALAWI (1990-2023)

MASTER OF ARTS (ECONOMICS) THESIS

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THE IMPACT OF FOREIGN DIRECT INVESTMENT ON THE AGRICULTURAL SECTOR: THE CASE OF MALAWI (1990-2023)

MA (Economics) Thesis

By

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DECLARATION

I, NORIA UNYOLO, hereby declare that this thesis is my own original work which has not been submitted to any other institution for similar purposes. Where other people's work has been used acknowledgements have been made.

NORIA UNYOLO

Full Legal Name

Signature

20th February, 2025.

Date

CERTIFICATE OF APPROVAL

The undersigned certify that this thesis represents the student's own work and effort and has been submitted with our approval.

Signature: _____ Date: _____

Farai Chigaru, PhD (Lecturer)

Supervisor

DEDICATION

In loving memory of my Aunt, my Mum, Denia Kambauwa Lamya,
and Dr. Dyton Duncan Maliro.

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ABSTRACT

This study investigates the impact of Agricultural Foreign Direct Investment (AFDI) on Agricultural Gross Domestic Product (AGDP) in Malawi, utilizing an Autoregressive Distributed Lag (ARDL) model for analysis. The research spans the period from 1990 to 2023 and examines six key variables: AFDI, Agriculture Gross Fixed Capital Formation (GFCF), trade openness, population growth rate, inflation, and AGDP. The findings reveal that AFDI demonstrates a negative influence in the long run at the 10% significance level, with a 1% increase in AFDI associated with a decrease of 0.0419% in AGDP growth. Additionally, AGFCF is found to have a significant positive impact on AGDP, while trade openness shows a positive relationship in the long run. Population growth is positively correlated with AGDP growth, indicating potential market and labour supply expansion. Conversely, inflation negatively affects AGDP, highlighting the importance of macroeconomic stability. The study employs the Bounds test for co-integration to confirm long-term relationships among the variables, providing insights into their interconnectedness. The results underscore the need for targeted policies to enhance infrastructure, improve absorptive capacity, and stabilize inflation to maximize the benefits of AFDI on AGDP that foster sustainable agricultural sector growth in Malawi.

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ABBREVIATIONS

ADF	Augmented Dickey Fuller
AFDI	Agricultural Foreign Direct Investment
AGDP	Agriculture Gross Domestic Product
AGFCF	Agriculture Gross Fixed Capital Formation
ARDL	Autoregressive Distributed Lag
FAO	Food and Agriculture Organization
FAOSTAT	Food and Agriculture Organization Statistical Database.
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
INF	Inflation
LM	Lagrange Multiplier
MITC	Malawi Investment Trade Centre
MoAF	Ministry of Agriculture and Food security
NSO	Malawi National Statistical Office
OLS	Ordinary Least Squares
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
VAR	Vector Autoregressive Model

CHAPTER ONE

INTRODUCTION

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1.1 Background of the study

Agriculture Foreign Direct Investment (AFDI) is popularly recognized to provide a package of external resources that can contribute to economic development in developing countries (Liu, 2014). Investments in the agricultural sector can enhance growth opportunities in poor and developing economies, where the contribution of agriculture to the economy tends to be relatively large and sustains a disproportionately large share of the population (Nyiwul & Koirala, 2022).

AFDI influences Agricultural sector growth in developing countries through various channels. One of these channels include technological diffusion from developed to developing countries where high-technological agricultural products are imported and adopted (Borensztein et al., 1997). It also helps in integrating developing countries into the global market place and increasing the capital available for investment, which results in the needed growth to reduce poverty and raise living standards in the agricultural sector (Rutihinda, 2007).

Statistics show that there has been a significant increase in both the flow and stock of FDI in the world economy (UNCTAD, 2019; OECD, 2024). The Global FDI flows have shown significant volatility, characterized by periods of rapid growth, sharp declines, and subsequent recoveries. From a starting point of $204.8 billion in 1990, FDI flows peaked at $2.05 trillion in 2015, with notable disruptions during the dot-com bust, the 2008 financial crisis, and the COVID-19 pandemic in 2020 (OECD, 2024). Despite these challenges, the overall trend has been generally upward, with the most recent data showing

a recovery to $1.33 trillion in 2023, demonstrating the resilience of global investment flows in the face of economic and geopolitical uncertainties (World Bank, 2024).

African countries, including Malawi, have not been exceptional, experiencing increases and significant fluctuations in foreign direct investment (FDI) inflows since the 1980s, with notable increases during the 2000s and 2010s, though growth patterns have varied considerably across regions and countries (UNCTAD, 2023).

Africa's FDI flows have shown a general upward trend growing from $2.8 billion in 1990 to a peak of $82.2 billion in 2021, despite experiencing significant volatility. While Africa's share of global FDI remains relatively small, it has grown from about 1.4% in 1990 to approximately 4% in 2023, indicating the continent's increasing importance in the global investment landscape (UNCTAD, 2023). The reasons for the increase include the reduction in protectionism and economic liberalization in the developing countries.

FDI has contributed to increasing percentage of the agricultural sector GDP and trade in developing countries such as Brazil, Cambodia, Ghana, Tanzania, Malawi and Thailand between 2000-2017 (FAO, 2018).

Different countries have had different experiences with FDI inflows to the country as well as specific sectors. Malawi's FDI flows from 1990 to 2023 exhibit significant volatility in both total FDI and agricultural sector FDI, characterized by periods of growth, decline, and occasional negative flows (divestment). Despite this volatility, there's a general upward trend in total FDI, rising from $23.3 million in 1990 to $208.3 million in 2023, with a notable peak of $812.8 million in 2011. Agricultural FDI has been particularly unpredictable, reaching $262 million in 2015, but experiencing dramatic fluctuations including a substantial negative flow of -$126.5 million in 2010 and -$41.2 million in 2021. This is due many factors including. According to Reserve Bank of Malawi (2020), these fluctuations stem from multiple interlinked factors: i.e. the Malawian Kwacha's instability eroding investor returns, global economic shocks like the 2008-2010 financial crisis and COVID-19 pandemic triggering capital flight, commodity price volatility affecting

agricultural exports, and domestic challenges including high inflation and foreign exchange shortages that complicate operations for international investors.

1.1.1. Agricultural sector in Malawi

According to FAO (2002), the agricultural sector encompasses a wide range of activities essential for producing food and raw materials, driving economic development, and managing environmental resources. It includes crop cultivation, livestock production, forestry, and fishing. Agricultural sector growth measures the annual increase in output, productivity and overall performance within this sector, indicating its growth over time. Growth rates are typically calculated based on the change in gross value added over a specified period, usually on an annual basis. This growth can be measured through various indicators, including output levels, productivity efficiency, capital investment, employment. Ibid

As an output measure, Agriculture Gross Domestic Product (AGDP) represents the total monetary value added from agricultural activities within a country. It includes outputs from crop cultivation, livestock production, forestry, hunting, and fishing, calculated by subtracting the cost of intermediate inputs. Ibid.

In Malawi, agriculture remains the country's single most important sector. Approximately 85% of the population of almost 20 million are highly dependent on it, and a labor participation rate as high as 55% (World Bank, 2022).

According to Malawi's current development strategy, the Malawi Vision 2063 (MW2063), agricultural sector growth is essential for achieving sustainable economic growth and poverty reduction in the country (National Planning Commission, 2021). Thus, in Malawi, economic development is both directly and indirectly linked to agriculture as it is the back bone of the economy. Many international studies have found that Agriculture foreign investment fills the deficit between required agricultural investments and domestically mobilized savings (e.g., Blomstrˆm & Kokko, 2003; Chen & Demurger, 2002; FAO, 2001). Other positive affects in the agricultural sector include increase in tax revenue, creation of

jobs, improvement in management and labor skills in host countries (Borensztein et al., 1997; Hayami, 2001).

Effective AFDI management enables host countries to stimulate and sustain agriculture sector growth, which results in increased economic growth (Bende-Nabende, 2002). Therefore, any efforts to attract such foreign investment in Agriculture, are important initiatives for economic development and poverty eradication.

With notable increasing flow of FDI in Malawi, it is crucial to assess whether efforts should be made to enhance AFDI to boost agricultural production and agriculture international trade. However, establishing the positive multiplier effects of AFDI on agricultural sector growth and its subsequent impact on economic growth and poverty alleviation remains challenging.

It is also unclear whether the anticipated spillover benefits of AFDI on domestic firms, as proposed by Borensztein et al., (1997), have been realized. Therefore, understanding both the short-term and long-term impacts of AFDI on Malawi's agricultural sector growth is essential for effective policy formulation. This research will specifically examine the significance of the relationship between AFDI inflows and agricultural sector growth. In this study, agriculture sector growth is evaluated using AGDP to capture the economic contributions of agriculture, forestry, and fishing.

Malawi, like many developing countries, has implemented various strategies to attract FDI across multiple sectors. These include establishing the Malawi Investment and Trade Centre (MITC) to promote and facilitate investment (MITC, 2024). Other efforts involve protection of investments regardless of nationality, granting foreign investors the same treatment as nationals, streamlining procedures for obtaining permits and licenses, and reducing the time and cost of starting a business (Standard Bank, 2024). Malawi's efforts to attract FDI also include economic liberalization, fiscal incentives, and the easing of restrictions on foreign investment, including allowing profit repatriation (United States Department of State [USDS], 2018).

Additionally, Malawi has periodically devalued its currency, the Kwacha, to restore macroeconomic stability. While AFDI has shown volatility in recent years, there is an overall upward trend. Nonetheless, it remains uncertain whether the expected spillover effects of AFDI on domestic firms have materialized.

Thus, for effective policy development, it is crucial to understand both the short-term and long-term impacts of AFDI on Malawi's agricultural sector growth.

1.2 Problem statement

The MW2063 aims to transform Malawi into a productive, competitive, and resilient nation, with a focus on sustainable agriculture and economic growth. As agriculture is central to the country's economy, it is considered crucial for industrial development and poverty reduction. According to the World Bank (2017), in poorest countries like Malawi, agricultural sector growth, economic growth and sustained poverty reduction are unlikely to be achieved without initially stimulating sustained agricultural sector growth as poverty reduction tool through agriculture-led economic growth. Malawi faces a significant resource gap, with more spending and private external investment than revenue, leading to trade imbalances and foreign exchange issues (RBM, 2022). Domestic savings have been declining, making it difficult to achieve growth without external investment. For example, it was 14.2% in 1990, then -1.8% in 2016 and 4.5% in 2017. Then, it moved from 9.9% in 2022 to 4.7% in 2023 making it almost impossible to attain growth with domestic savings alone (IMF, 2024). Agricultural foreign aid has also played a pivotal role in bridging this resource gap, providing crucial funding for agricultural development, infrastructure projects, and poverty reduction programs. This aid has helped sustain the sector despite Malawi's declining domestic savings and limited access to private foreign investment. However, the reliance on foreign aid also creates long-term dependency, and as external funding fluctuates, it compounds the challenge of achieving sustainable agricultural sector and economic growth without broadening the base of domestic (Pump Aid Impact Report, 2018).

To address this, Malawi has implemented various policies to attract FDI, particularly in agriculture. These include the Structural Adjustment Programs (SAPs) and liberalization measures aimed at improving the investment environment (GOM, 2002). As a result, foreign capital inflows have increased over the past 30 years, with an average growth of 2.3% (World Bank, 2019). In theory, this should boost key economic indicators like AGDP and exports as stressed by Brooks & Sumulong (2003).

However, despite these efforts, agricultural sector growth remains sluggish, and the economic benefits of FDI in the agricultural sector are unclear. There is no empirical evidence on the impact of AFDI on Malawi's agricultural sector growth. Thus, studies examining the impact of FDI on Malawi's agricultural sector use economy-wide FDI data rather than FDI specific to agriculture. The empirical evidence available is from regional studies using general FDI and are not exclusively centred on Malawi but instead incorporate data from multiple African countries focusing on a short period like 3 years studied (Nkuna, 2009). This results in a lack of longitudinal data, which prevents an understanding of the long-term impacts of AFDI on agricultural growth over extended periods (Chirwa, 2003; Bwalya, 2006). Without such long-term analysis and using general aggregate FDI, it remains challenging to gauge the sustained effects of AFDI on the agricultural sector in Malawi (Brooks & Sumulong, 2003). Furthermore, a few studies often have a narrow focus, concentrating solely on specific groups such as smallholder farmers, large-scale commercial investments, or select value chains, thereby overlooking the broader agricultural sector as a whole. This limited focus restricts the ability to comprehensively assess how AFDI influences the overall agricultural sector in Malawi. The studies above suggest positive effects of AFDI, while others show weak or negative relationships.

This study aims to fill the knowledge gap by investigating the impact of AFDI on Malawi’s agricultural sector growth, focusing on AGDP and agriculture trade (import and exports).

1.3 Objectives of the study

The primary objective of this study is to analyse the impact of AFDI on the performance of Malawi's agricultural sector using ARDL model with the following specific study objectives:

i. To assess the impact of AFDI on Agricultural Gross Domestic Product (AGDP) in Malawi
ii. To investigate other factors that possibly influence growth in the agricultural sector besides AFDI.
iii. To provide key recommendations based on the empirical findings to be adopted by Malawi government to attract FDI.

1.4 Hypothesis Significance of the study

The hypotheses to be tested to achieve the stated objectives for this study is formulated as follows:

1. **H0**: AFDI does not have a significant impact on the agricultural sector GDP in Malawi.
2. **H1**: AFDI has significant impact on agricultural sector GDP in Malawi.
   These hypotheses, aligning with neoclassical growth theory, are tested to determine the role of AFDI in influencing agricultural sector growth in Malawi.

1.5 Significance of the study

Following the MW 2063, the government has recognized private sector investment as key in achieving agricultural sector and country economic growth. This is evidenced by many policy formulations, incentives, and resources invested in attracting foreign as well as domestic investment. As a result, Malawi has received significant capital inflow including AFDI, and as an agriculture economy, the impact of AFDI on Agricultural sector development and economic growth needs to be assessed for policy purposes.

The study results provide a clear picture of AFDI and Agricultural sector growth relationship. Furthermore, the study identifies the policy levers that may be engineered to

maximize both inflows and gains of AFDI into the agricultural sector while addressing poverty challenges.

This study is also significant as it adds to knowledge in the empirical literature, as no research has been conducted on the impact of AFDI on agricultural sector growth in Malawi and very little has been done in Africa.

1.6. Organization of the study

The paper has six chapters; the first chapter is the introduction. Chapter two, which is the contextual analysis, outlines the profile of FDI and AFDI flow and the Malawi.

Agricultural sector. Then, chapter three presents literature review which discusses both the theoretical and empirical impact of FDI and AFDI. Chapter four, defines the data and methodology used for the analysis while chapter five shows the empirical results found and discusses the results about the impact of AFDI and finally Chapter six consists of conclusion and recommendation.

CHAPTER TWO

OVERVIEW OF GLOBAL AND LOCAL FDI AND THE MALAWI AGRICULTURAL SECTOR TRENDS

2.1 Introduction

This chapter briefly present an overview of what FDI is all about and explains the global, regional and narrow down to Malawi country trends of FDI inflows. It also discusses Malawi's economic performance in relation to the AFDI trend and agricultural sector growth.

2.2 FDI General Overview

FDI, according to the World Bank (2019), is defined as the net inflows of investment to acquire a lasting management interest (10 Percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. Dunning (1977) describes FDI as having three features: first, the acquisition of at least 10% of assets abroad **(ownership);** second, the choice of host country, which is dependent on the host country conditions **(location);** and third, the decision on which activities the enterprise will do (**internalization)**. The most common nature of FDI is in the form of mergers, takeovers, acquisitions and startups (Adewumi, 2006).

There are three main motives for FDI, as outlined by Narula & Dunning (1993): market-seeking, resource/asset-seeking, and efficiency-seeking. Market-seeking FDI focuses on supplying the host country with goods and services, based on factors like market size and growth potential. Resource/asset-seeking FDI targets countries rich in natural resources

such as minerals, oil, or agricultural products. Efficiency-seeking FDI aims to diversify exports, boost productivity, and enhance value.

FDI provides learning advantages by exposing stakeholders to new business practices, management techniques, and technologies, fostering local business and industry development (Kumar, 2014). It also integrates developing countries into the global marketplace and increases capital for investment, promoting growth in sectors like agriculture (Rutihinda, 2007).

FDI contributes to economic and agricultural growth through the transfer of technology from developed to developing nations, the import of high-tech products, the adoption of foreign technologies, and research and development by multinational corporations (Borensztein et al., 1997). However, social economic environment factors such as government inefficiency, unreliable utilities, poor infrastructure, high crime, and political instability can discourage FDI (UNCTAD, 2005).

Developing countries are seeing increasing FDI inflows, which supplement local capital and promote growth through technology and knowledge transfer (Singh & Zammit, 2009). FDI fills investment and technological gaps, supporting economic and social growth, technological advancement, and employment creation (Loungani & Razin, 2001). Studies show that FDI is crucial for developing economies, with UNCTAD (2002) noting that of all developing countries and economies in transition, the fastest growing economies are those that receive most FDI inflows. Empirical evidence provided by Bergsman et al., (2000) shows that 1 percent point increase in FDI measured as a proportion of GDP, brings about, ceteris paribus, an extra 0.8 percentage point increase in per capita income.

2.3 Global FDI Growth Trend

Statistics show that there has been a significant increase in both the flow and stock of FDI in the world economy. According to World Bank (2023), FDI inflows increased highly in the 1980s and 1990s. The global FDI flows trend from 1990 to 2023 as depicted in Figure 1, shows that FDI inflows have been fluctuating. With steady growth, i.e. $204.8 billion in

1990 and reaching $1.36 trillion by 2000, a more than 6-fold increase, it was followed by decline and recovery i.e. a drop to $773.1 billion in 2001 (dot-com bubble burst) then recovery from 2003 to 2007. Global financial crisis led to FDI decline then to increase during recovery period between 2007 to 2016. During the Covid 19 pandemic, FDI experienced a significant drop to $984.2 billion in 2020 followed by strong recovery to $1.62 trillion in 2021. Despite these challenges, the overall trend has been generally upward, with the most recent data showing a recovery to $1.33 trillion in 2023, demonstrating the resilience of global investment flows in the face of economic and geopolitical uncertainties. The trend is presented in Figure 1.

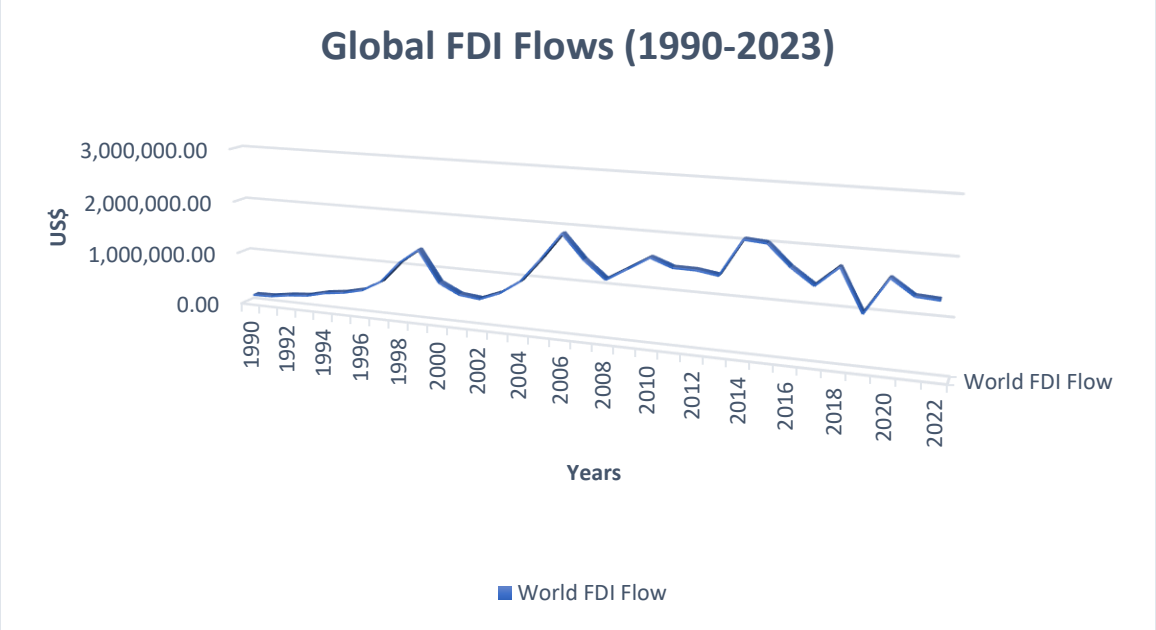

Figure 1: World FDI Trend

Source -World Bank, 2024

Developing countries including Malawi have not been exceptional, as they also experienced a sharp increase in FDI inflow in the last two decades since 1980s (Aykut & Ratha, 2003).

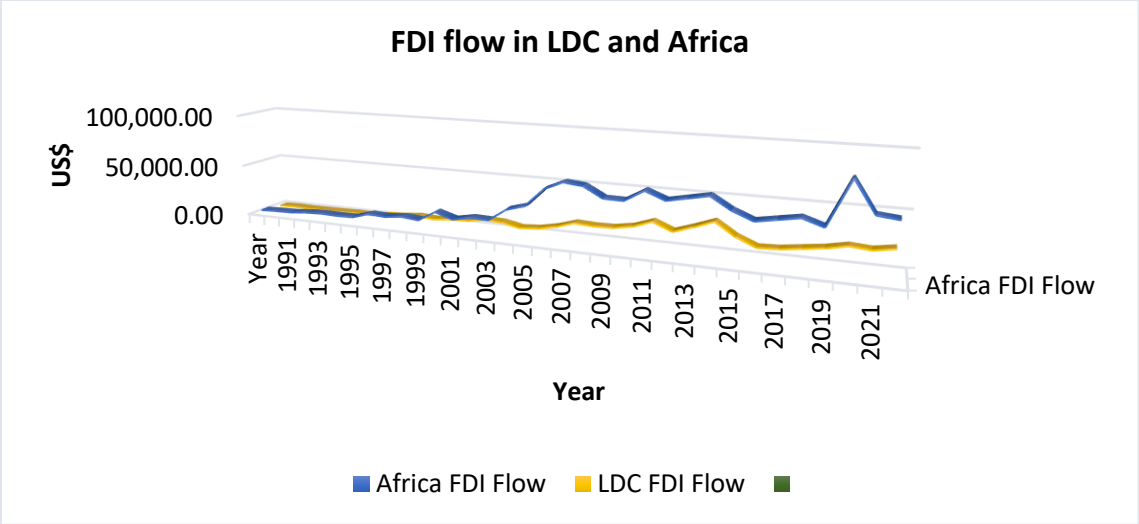

Figure 2: Africa, LDCs and SSA countries FDI Trend

Source - UNCTAD, 2019

As shown in Figure 2, Africa's FDI flows have shown a general upward trend since 1990, growing from $2.8 billion to a peak of $82.2 billion in 2021, despite experiencing significant volatility. The continent's FDI flows have been more resilient during global crises compared to global trends, with notable increases during periods when global FDI declined, such as in 2008 and 2021. While Africa's share of global FDI remains relatively small, it has grown from about 1.4% in 1990 to approximately 4% in 2023, indicating the continent's increasing importance in the global investment landscape.

With limited data, the most recent available data from FAOSTAT, 2023, shows that FDI in the global agricultural sector has varied trends and impacts across different regions and countries. Agriculture accounts for a small share of global FDI inflows, representing only about 2.8% of total FDI between 2010 and 2019. This is a slight increase compared to the previous decade, but it still indicates that agriculture remains a marginal sector in terms of attracting FDI compared to others like manufacturing and services.

From 2010 to 2019, global FDI inflows increased by 4%, while FDI inflows specifically to agriculture decreased by 7.6%, from USD 5.1 billion to USD 4.7 billion. This decline is notable, especially considering the overall increase in global FDI during the same period.

Recent key recipients of AFDI include, Indonesia, (palm oil production) averaging USD 3.1 billion per year from 2015 to 2019. Indonesia, Norway and Oman have also attracted significant FDI inflows in agriculture, with averages of USD 940 million and USD 816 million per year, respectively. Sub-Saharan Africa has historically attracted the smallest share of global agricultural FDI, although the value of FDI flows to this region doubled between 2010 and 2019 due to improved governmental approaches to agricultural development.

China has been the largest provider of FDI outflows to agriculture, averaging USD 2.77 billion annually from 2015 to 2019, India follows with USD 2.72 billion. This reflects the growing interest of these countries in securing agricultural resources and investments abroad. Overall, while FDI in agriculture has not reached the levels seen in other sectors, it plays a crucial role in specific regions and countries.

2.4 Malawi Economic overview

Malawi is one of the world's beautiful least developed countries in Africa and as of 2022, its population was approximately 20.41 million, growing at an annual rate of 2.6% (World Bank, 2024). Malawi faces significant economic challenges despite ongoing economic reforms aimed at facilitating growth and development (IMF, 2017). About 70% of the population lives on less than $2.15 a day, and this has remained stable despite population growth (World Bank, 2019). The country has one of the lowest per capita GNI (IMF, 2017). The economy is predominantly agricultural, with over 80% of the population engaged in subsistence farming. Agriculture contributes around one-third of the country's GDP and accounts for approximately 90% of export revenues. The most significant agricultural products include tobacco, which alone constitutes about 70% of total exports, along with tea, sugar, and coffee. Despite its agricultural foundation, Malawi's economy is vulnerable to external shocks, particularly climatic events such as droughts and floods, which can severely impact agricultural output. According to World bank, 2024, the economy is projected to grow by only 2.0% in 2024, which is insufficient to keep pace with a population growth rate of 2.6%, indicating a potential decline in per capita income.

Malawi's development strategy, Vision 2063, launched in 2021, aimed at transforming the country into a self-reliant, industrialized upper-middle-income nation. Agriculture and agriculture commercialization is one of the MW2063 priorities, supported by a ten-year implementation plan aligned with the World Bank's Country Partnership Framework (ibid). As of 2023, Malawi's GDP was valued at approximately $14.08 billion representing about 0.01% of the global economy. Malawi's economy is driven by agriculture, which contributes about $2.1 billion to GDP and employs over 80% of the population, with tobacco making up 70% of exports. The services sector adds $925 million, followed by manufacturing at $914 million, construction at $258 million, and utilities and transport at $211 million (Trading Economics, 2024).

Structural Adjustment Programs (SAPs) have been in place since 1981, aiming to improve the market environment and attract foreign investment by liberalizing the agricultural and financial sectors (GOM, 2002). Malawi offers several investment incentives, including duty-free importation of raw materials and heavy vehicles, and has passed legislation like the Investment Promotion Act of 1991 to create a conducive environment for investors. Malawi is a member of international organizations such as the World Trade Organization, the Southern African Development Community, and the African Union.

2.5 Malawi FDI Trend

Malawi's FDI inflows have fluctuated in recent years but remain low compared to neighboring countries. According to World Bank data, FDI increased from $23.3 million in 1990 to $208.3 million in 2023, despite significant volatility. Annual inflows rose steadily from $35.6 million in 2006 to $287.7 million in 2015, peaking at an all-time high of $812.8 million in 2011 (World Bank, 2023). Between 2020 and 2023, FDI showed relative stability, ranging from $129 million to $252 million. However, the country has also experienced disinvestment, with negative flows recorded in 1991, 1992, and 2012.

Several factors drove FDI volatility in Malawi throughout the study period and more especially between 2008-2014. The Global Financial Crisis (2008-2010) triggered sharp declines in 2007-2009 through reduced investment flows, capital flight, and falling

commodity prices (World Bank, 2012; IMF, 2011). The 2013 Cash gate scandal further eroded investor confidence (UNCTAD, 2014). Throughout this period, macroeconomic challenges including Kwacha depreciation, high inflation, and foreign exchange shortages constrained FDI (African Development Bank, 2015). However, FDI saw notable growth in some year especially around 2012 due to political stability and economic reforms aimed at attracting foreign investment (OECD, 2013; MITC, 2014).

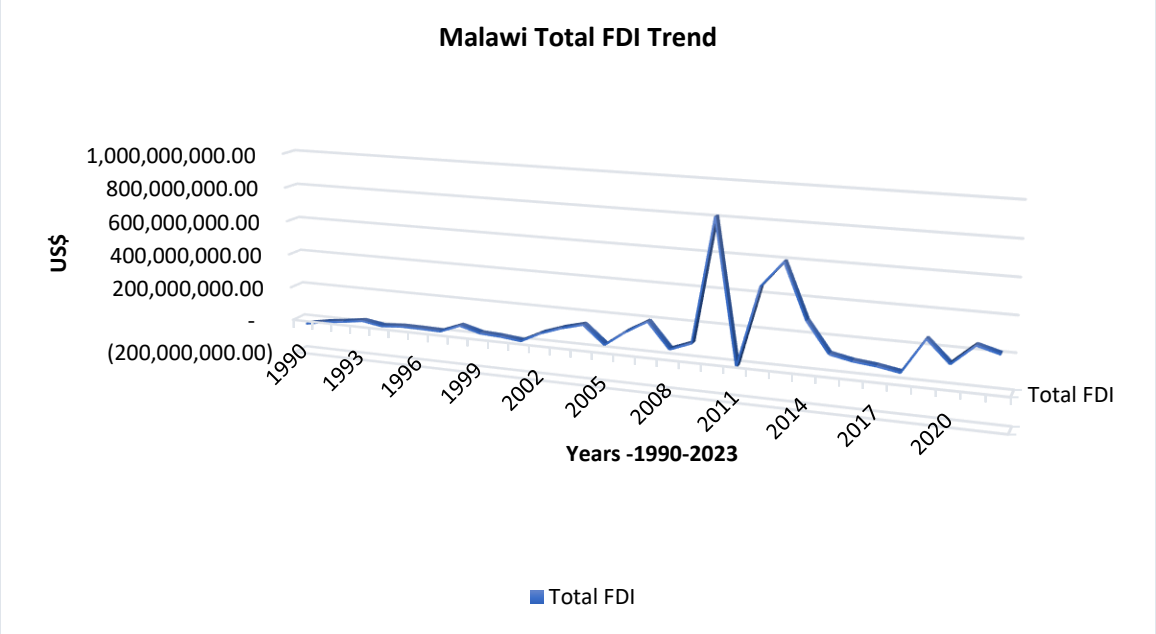

Figure 3: Malawi Total FDI trend

Source: World bank data 2023

As shown in the Figure 3 above, FDI trends reflect the complex nature of FDI in Malawi, depicting that the country faces challenges in maintaining consistent investment flows. Higher FDI into Malawi largely comes from South Africa, China, France, India, United Kingdom, Taiwan, United States of America, Germany, Italy, Kenya, Lebanon, Libya, United Arab Emirates and Zimbabwe, in their order of importance according to MITC (2019).

2.6 AFDI in Malawi

AFDI is crucial for achieving sustainable economic growth and reducing poverty, as agriculture employs the largest share of the labor force and contributes significantly to GDP. Consequently, Malawi is actively seeking strategies to diversify and commercialize its agricultural sector to enhance local and regional competitiveness. Therefore, increasing AFDI is a key option pursued by the government.

Malawi's agricultural sector remains a key sector that attracts the most FDI - primarily from South Africa, USA, UK and Indian (MITC, 2023). Since 2015, 32% of FDI has come from mergers and acquisitions, 50% from greenfield investments, and 18% from other sources (UNCTAD, 2022). However, the trend for agricultural investment, including AFDI as shown in Figure 4, has been unstable. Despite an upward trajectory, AFDI has not reached its full potential due to low performance, small-scale operations, and weak institutional arrangements (FAO, 2012). This instability has contributed to a poverty rate of 50.7%, with many rural farmers living below the poverty line, despite an annual economic growth rate of 6.4% in 2017 (IMF Country Report No. 17/184). Consequently, enhancing agricultural growth and productivity is essential for achieving sustainable economic development and significant poverty reduction in Malawi (FAO, 2023).

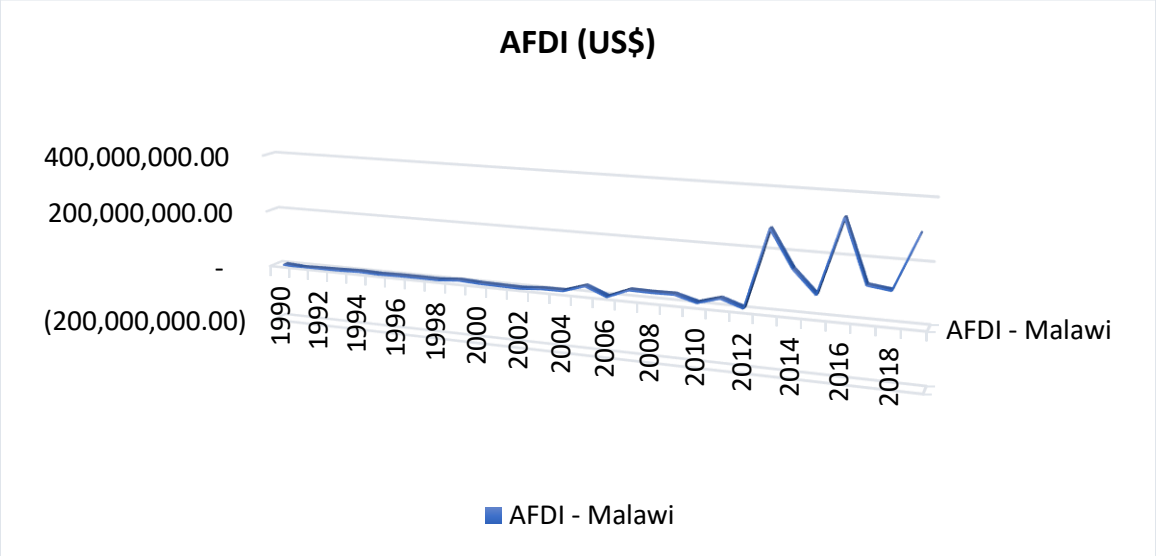

Figure 4: Malawi AFDI Trend

Source: NSO and MITC data 2023

2.7 The Agricultural sector in Malawi

Malawi's agricultural sector is a cornerstone of the national economy, encompassing crop production, livestock, fisheries, and forestry. In 2022, agriculture contributed approximately 22% to GDP, down from 39% in 2004 and 28.6% in 2017 (Malawi Economy Profile, 2023). Crop production is the largest contributor, particularly through cash crops like tobacco, tea, and sugarcane (World Bank, 2023). The sector features a dual structure: smallholder farmers contribute over 70% of agricultural GDP, while estates account for the remaining 30%.

The Agricultural sector is facing challenges of declining arable land per capita, poor technologies, high production costs and it is characterized by lack of domestic private and public investment resulting in low productivity growth rates and stagnant production (Heumesser & Schmid, 2012).

Significant improvements and investments are required in agricultural sector in order to increase agricultural output through technological innovations and efficiency. The flow of FDI into the agricultural sector in Malawi is important because growth in agriculture and its productivity are considered essential in achieving sustainable economic growth and significant reduction in poverty.

Despite the provision of subsidized inputs coupled with the ongoing construction and rehabilitation of infrastructure including roads, markets and irrigation schemes, the agricultural sector GDP has been decreasing. AGDP is defined by World Bank (2011) as country's GDP derived from agricultural sector and it provides an estimate of the relative importance of agriculture in the country's economy with regard to generating national income.

The vicious circle of poverty is also attributed to lack of investment as it has a negative effect on the capacity to produce in a country. Malawi's national income is low hence savings and investment are low. This translates to low capital stock, low productivity and low output as well as low income (poverty cycle**)** (Ogbanje, et.al., 2010). According to the

Keynesians, real investment refers to addition to capital (as a factor of production) which leads to increase in the levels of production and despite the large amount of inflows from FDI's, the level of agricultural development is not satisfactory. The resultant effect of imbalances consequently manifests in the country's weak balance of payment position, high level of unemployment, high levels of food insecurity and poverty and low capacity utilization. The contribution of agriculture to Malawi's economic growth in present times is very low as against what was obtainable in the past, as other non-agricultural sector s gain momentum. One reason for this is due to increasing investment in other non-agricultural sector s. For example, a 6-year average FDI (1999-2004) in the following sectors were as follows, Manufacturing, 45.57%, and Services 43.6%, compared to 9.7 % invested in agriculture in the same period. But Malawi continues to search for strategies that will diversify and commercialize the agricultural sector to and make it more locally and regionally competitive. Thus, FDI in Agriculture remain one of best options to pursue. For economic development to be achieved, major problems in agricultural sector needs to be addressed so as to increase Agricultural sector GDP.

Looking at the study period, the sector faces numerous challenges that hinder growth potential. Figure 5 shows that from 1990 to 2023, AGDP increased from $876 million to $3.11 billion but experienced considerable volatility. The 1990s and early 2000s saw substantial fluctuations, with lows in 1994 and 2001 followed by a rise in 2002. More consistent growth occurred from 2002 onward, peaking at $2.79 billion in 2011 before declining and recovering. Recent years (2019-2023) have shown robust performance, with values consistently exceeding $2.5 billion annually.

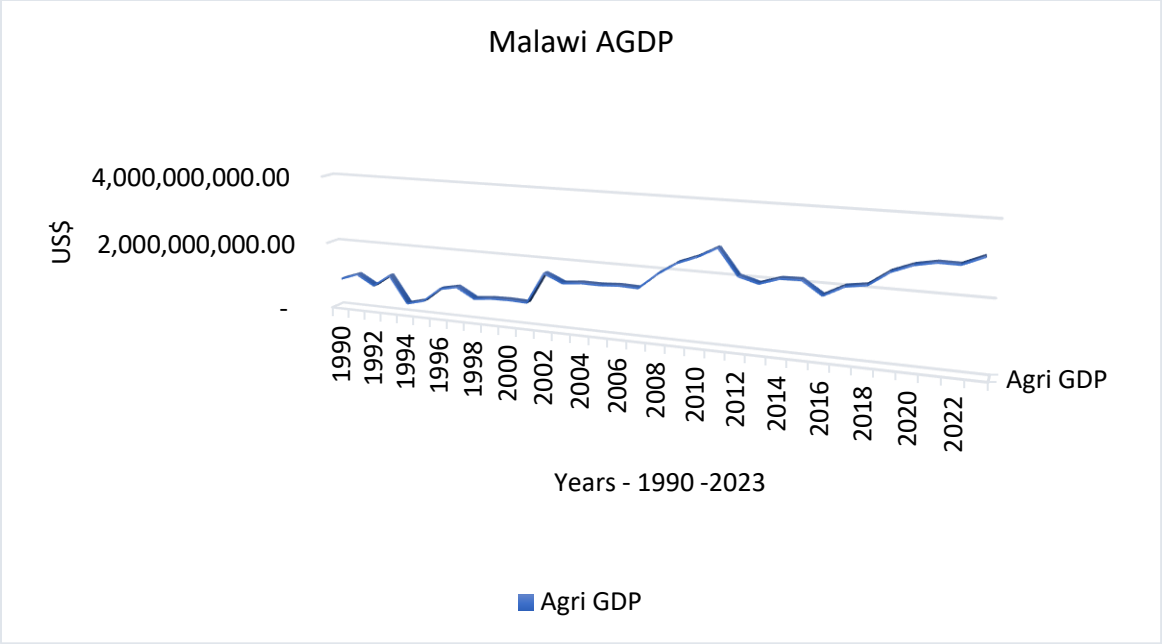

Figure 5: Malawi AGDP

Source: World bank data 2024

As shown in Figure 5, the trend in AGDP has generally been upward despite occasional decreases. However, the declining contribution of agriculture to real GDP growth has led to reduced reinvestment in the sector, raising questions about whether AFDI can improve the situation.

Figure 6 shows that Agricultural exports have also decreased. Given the increase in global and regional FDI, it is essential to explore whether efforts should be made to boost AFDI to enhance production and exports. International trade has shown a decreasing trend from 2009 to 2017, with imports outpacing exports.

Agricultural employment grew from 3.2 million in 1990 to 5.27 million in 2023, a modest increase of about 64% over 33 years as shown in Figure 6 again, but this is a slow rate of employment growth compared to the sector, indicating that the agricultural sector has not been creating many new jobs in terms of absolute numbers.

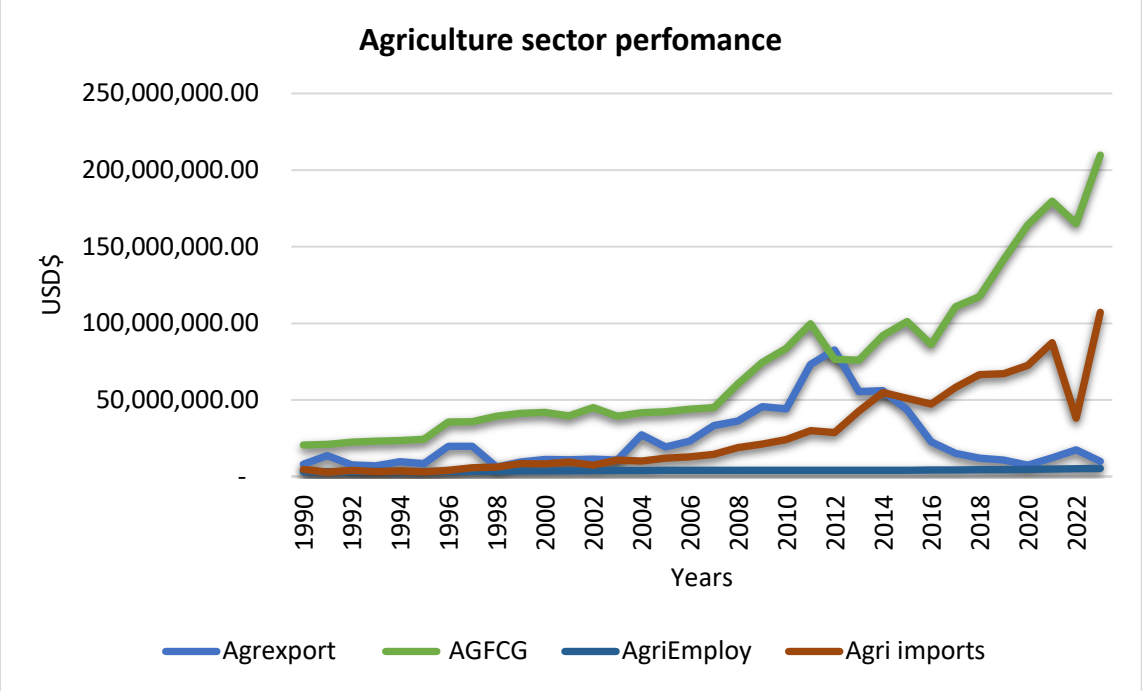

Figure 6: Agricultural sector performance

Source: World bank data 2024

The Figure 6 displays the following variables: Agricultural Exports (Agriexport), Agricultural Gross Fixed Capital Growth (AGFCG), Agricultural Employment (AgriEmploy), and Agricultural Imports (Agriimport)

This research will examine the significance of the relationship between AFDI inflows and agricultural GDP. Understanding this relationship is crucial because despite increased general FDI inflows, the agricultural sector continues to experience lower inflows, resulting in diminished impacts on agricultural performance and economic growth.

2.8 The Agricultural sector opportunities in Malawi

Malawi's agricultural products benefit from preferential access to various regional and international markets through trade agreements. These include SADC, COMESA, and AfCFTA at the regional level, and international arrangements such as the EU's Everything but Arms (EBA), African Growth and Opportunity Act (AGOA), China General Tariff Preferential Treatment, India Preferential Trade Arrangement, and Japan Preferential Trade Arrangement.

Investment opportunities in Malawi's agricultural sector are diverse and promising. In crop production and processing, potential lies in cash crops like tobacco, tea, sugarcane, and cotton, as well as food crops such as soybeans, cowpeas, cassava, and mushrooms. The horticulture subsector offers possibilities in vegetables, fruits, and flowers. Livestock and aquaculture present openings in dairy, beef, and pork production, alongside fish farming. Value addition and agro-processing opportunities span food processing, cotton ginning, textile manufacturing, and leather processing.

Irrigation development represents another crucial area for investment, with potential for surface, gravity, pump, river diversion, drip, and sprinkler systems, particularly focusing on high-value crops like vegetables, flowers, fruits, and rice. The sector also calls for investments in agricultural technology and innovation, including modern farming equipment, climate-smart technologies, and ICT solutions for data management. Local fertilizer production presents a significant opportunity, given that Malawi currently imports 90% of its needs, approximately 430,000 metric tons annually. Emerging markets such as medicinal cannabis and industrial hemp production also offer new avenues for investment.

2.9 Conclusion

This chapter provided an overview of FDI trends globally, regionally, and in Malawi, highlighting its impact on agricultural sector growth. Despite fluctuations in FDI inflows, agriculture remains a key driver of Malawi's economy. The sector offers diverse investment opportunities in crop production, agro-processing, livestock, irrigation, and agricultural technology. Boosting AFDI in these areas could significantly enhance productivity, exports, and economic growth, helping to alleviate poverty and food insecurity. Targeted policies and strategic investments are crucial for Malawi’s sustainable economic transformation.

CHAPTER THREE

LITERATURE REVIEW

3.1 Introduction

A lot has been written on the impact of general FDI on economic growth but not much on AFDI and its impact on Agricultural sector growth. This chapter discusses some the theoretical as well as empirical literature to ascertain the relationship between AFDI and Agricultural sector growth.

3.2 Theoretical Review

In order to effectively analyse the developmental impacts of Malawi's AFDI, we must first examine broader FDI and economic growth theories. This approach is crucial because AFDI is a subset of general FDI, while agricultural sector GDP contributes to overall GDP which is one of the measures of economic growth. Understanding these interconnected theoretical frameworks allows for a more precise assessment of AFDI's role in Malawi's economic development.

According to Rakhmatullayeva et al., (2020), major theoretical studies analysing the impact of FDI on the economic growth of the host country are categorized into two groups - the economic modernization theory (based on neoclassical growth theory by Solow, 1956 and endogenous growth theories by Romer, 1986); secondly, the dependence theory of the economy from FDI by Cardoso & Faletto (1979) as added in Figure 7.

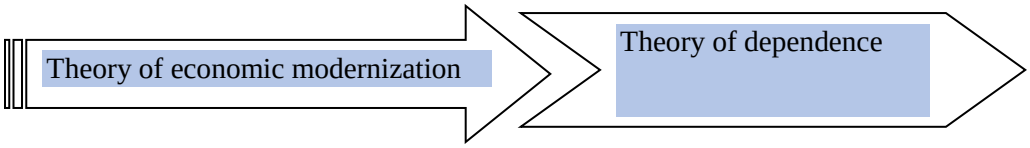

Figure 7: categories of theoretical studies analyzing the impact of FDI on the economic growth

Source: Rakhmatullayeva et al., (2020)

These two groups highlight the contrasting perspectives on FDI's impact on economic growth: one views FDI as a driver of modernization and growth, while the other sees it as a source of dependency that could constrain the host country's development potential. This categorization helps organize the diverse viewpoints and provides a clearer understanding of the various theoretical frameworks through which FDI's effects on economic growth are analysed.

According to O'Keef & Li (2011), the economic modernization theory holds that agricultural FDI can stimulate growth in the host country's agricultural sector through various channels. These channels include inflows of financial resources and increased investment in fixed capital and infrastructure. There is also job creation, transfer technology, knowledge, and managerial skills integration into global value chains also increase productivity.

In contrast to this, the dependency theory suggests that agricultural FDI can have negative effects on the host country's agricultural sector (Prebisch, 1959). Below, we discuss further these theories in detail.

3.2.1 Neoclassical theory of economic growth

Neoclassical theory of economic growth developed by Solow (1956) and Rostow (1956), considers FDI an important growth factor for developing countries. In the Rostow model, FDI is presented as a source of capital and technological transfers to the country necessary for economic transformation. Solow emphasizes the increase in foreign capital and technological progress as important variables in the growth of production, sector growth

and, consequently, economic development. Thus, saying that an increase in physical capital enables workers to produce more goods and services.

3.2.2 Solowian exogenous growth theory

The Solowian exogenous growth theory (1957) included capital (K) and labour (L) and total factor productivity or technology (A) which explain long run growth. Thus, growth is a result of a certain production function which relates proportional growth in output to proportional growth in input. Thus, the contribution to GDP growth is composed of growth rates of inputs such as technology, capital, labour, FDI, AFDI or other variables that can be added into the equation like imports, exports etc. (ibid).

Thus, the Solow growth model represents how inputs are combined to produce output with a given technology.

$$Y = A\ \alpha\ (K, L) \tag{3.1}$$

This model is based on the assumption of marginal changes in output and factor inputs which means that the equation follows a Cobb-Douglas production function of the form:

$$g_Y = g_A + \alpha g_K + \beta g_L \tag{3.2}$$

Where g_y =rate of growth of output which is equal to the sum of growth rate of A, K, L, (the subscripts are defined in per capita terms), and α = the elasticities of output with respect to physical capital, β = labour, and γ = the ancillary variables.

Solow (1957) found that the impact of Foreign Direct Investment (FDI) on the growth rate of output was limited by diminishing returns to physical capital and the assumption that savings are a constant fraction of income. This framework leads to a steady state where the growth of output per capita becomes independent of investment. As a result, FDI can only have a level effect on output per capita, rather than a sustained impact on the growth rate.

In simpler terms, FDI can raise the level of output per capita but cannot alter the long-term growth rate of output (Odongo, 2012).

Thus, under this model, FDI cannot be regarded as a primary driver of long-term economic growth. However, this conclusion holds true only in the steady-state. Starting from a steady state, an increase in investment, such as FDI inflows, can initially boost aggregate output growth. During this period, output per capita will grow until the economy returns to a new steady-state equilibrium. At this point, growth is no longer driven by investment, but the economy is still better off as per capita income is higher, although its growth rate has returned to zero in line with the steady-state framework.

Mankiw, et al., (1992) expanded on Solow's model by incorporating human capital in the form of knowledge and skills accumulated over time. They argued that excluding human capital and assuming constant returns to scale, as in Solow's original model, would lead to biased and inconsistent estimates of the effects of saving or investment and population growth. Their modified model suggests that cross-country variations in output-per-capita are influenced by differences in the rate of saving or investment, the rate of population growth, and the level of labour productivity.

In general, this research agrees that FDI can have serious consequences, on growth, export, technology, transfer of know-how, etc. However, these effects vary from country to country and depend on many factors, such as institutional development, human capital development, government policy, the sector, investment motives.

3.2.3 FDI as a source of physical capital inflow (Neoclassical)

According to Jonson (2005), FDI is considered as a source of physical capital within a host country. Jonson described the host country's capital stock as being composed of foreign owned multinationals and also domestic capital. Thus:

$$K_t = K_d + K_f \tag{3.3}$$

Where K_t is total capital stock for host country, K_d is domestic owned physical capital and K_f is foreign owned physical capital.

Thus, FDI inflow as depicted by K_f can cause an increase in a country's capital stock. Similarly, an increase in domestic investment K_d Kd, will also lead to increase in a country's capital stock. As K_t increases, it triggers also an increase in production in other sectors/industries like agriculture through increase in demand for intermediate goods. In order to meet the increased demand for intermediate goods, domestic industries and sectors will also increase domestic investment (Johnson, 2005). This result in an increase in domestic capital investment.

3.2.4 FDI as a source of technology spill over (endogenous)

Endogenous growth theories stipulate positive impact of FDI on the country's economic growth through the expansion of knowledge and the acquisition of new skills, the introduction of alternative management methods and organizational mechanisms. As a result, there is rapid spread of technology and increased efficiency for local companies (De Mello, 1999; Borensztein, 1998). According to Romer (1990), who is considered as one of the main contributors to Endogenous growth theories, the theory is based on the fact that technological change, just as human capital, is crucial in achieving economic growth. He added that, international trade is the major source of fast growth rate. He suggests that knowledge spill over is gained through investment, in other words, the role of investment is not bounded with its capital stock increasing, but also it is one of the main factor of technology transfer.

Endogenous technological progress is the main engine of economic growth (Romer, 1990; Grossman & Helpman, 1991). Thus, FDI accelerates sector and general economic growth through strengthening human capital, the most essential factor in research and development effort, while Grossman & Helpman (1991) emphasize that an increase in competition and innovation will result in technological progress and increase productivity and, thus, promote growth in long run. Thus, the expectation is the investment increase coming from

AFDI will not only increase agriculture production but also to boost the production efficiency of other sectors which surround it.

As a result, endogenous growth theories claims that FDI helps poor countries to expand economically, absorb large amounts of labour, and generate large positive externalities that potentially improves productivity (Hodrab et al., 2015; Sredojevic et al., 2016).

In addition, the spill over effects theory (side effects) of FDI in the host country is very common as FDI is associated with stimulating economic growth. Thus, spill over effects theory explains that FDI contributes to growth and development in a number of ways including increasing productivity and economic development in recipient countries; imitation; skill acquisition; competition and export. In general, modernization theory researchers also argue that FDI increases income and provides employment opportunities for the host country, thereby stimulating overall economic growth (Hodrab et al., 2015). Thus, to say, endogenous growth economist believes that improvements in productivity can be closely linked to innovation and extra investment in human capital. They also predict positive externalities and spill over effects from development of a high value added knowledge economy which is capable of developing competitive advantage in growth industries (Findlay, 1978).

In this theory, FDI, may affect long term economic growth and sector growth if it brings about technological progress through increased productivity of local firms as they advance in management techniques (Findlay, 1978). Therefore, FDI is considered as a source of technological spill over. This argument is based on the point that foreign multinationals investors coming from developed countries mostly, are assumed to have technological advantages resulting in spill over to local firms who adopts the high technology (Ford et al., 2008).

Javorcik (2004) discussed that at micro level, there is backward and forward linkages. On backward linkage, he mentioned that foreign companies buy intermediate goods from domestic local companies thus incentivizing the locals' companies to voluntarily improve

their quality. On forward linkage, multinational foreign companies sell intermediate inputs to local companies in host country and the local firms benefit from accessing high quality intermediate goods which in turn makes them more productive (Javorcik, 2004).

3.2.5 The dependency theory of FDI

Researchers within the framework of dependency theory argue that FDI and foreign investors can inhibit economic development by displacing local entrepreneurs, exacerbating income inequality, diminishing consumer welfare, and introducing consumption patterns unsuitable for the host country (Hansen & Kuada, 2006; Rugraff & Hansen, 2011). It is important to note that the positive impact of FDI is not a given; it often depends on favourable conditions within the host country, including political and macroeconomic stability, institutional capacity, infrastructure, and educational systems (Rugraff & Hansen, 2011).

In the context of agricultural FDI, dependency theory suggests potentially harmful effects on the host country's agricultural sector. Other scholars agree, asserting that developing countries often experience negative consequences from FDI, including profit repatriation (Mihalache-O'Keef & Li, 2011), resource depletion (Prebisch, 1959), the crowding-out effect (Rakhmatullayeva et al., 2020a, 2020b), and worsening income inequality due to labour exploitation (Chase-Dunn, 1975; Emmanuel, 1972). Additional consequences may include the creation of dual economies (Santos, 1970) and heightened unemployment (Hein, 1992).

Thus, while FDI often benefits foreign investors, particularly multinational corporations, it may provide limited advantages to the host country, serving instead as a potential source of economic stagnation rather than growth. This theory suggests that FDI can trap economies in subordinate roles within the global economy, often due to unfavourable terms of trade and unequal power dynamics. Additionally, the adoption of inappropriate, capital-intensive technologies can limit employment opportunities (O'Keef & Li, 2011).

3.3 Empirical Review

Many empirical studies have examined the impact of AFDI, with findings showing mixed results. On the positive side, several studies suggest that AFDI is crucial as it provides a source of capital and complements domestic private investment, potentially driving growth in the agricultural sector and broader economy. However, other studies present conflicting results, indicating that AFDI may not have a direct impact on agricultural or economic growth without certain preconditions, such as adequate infrastructure, stable institutions, and skilled labour. Due to these contrasting findings, there is no consensus yet on whether AFDI independently drives agricultural sector growth.

On the positive side, research by Blomström & Kokko (2003) across various developing countries assessed the impact of FDI on economic development, particularly in agriculture and manufacturing. Their study, published in 2003, concludes that AFDI significantly enhances agricultural productivity and income growth beyond what domestic investment alone can achieve. This is highly relevant to Malawi, where agriculture is a key driver of economic growth, suggesting that AFDI could play a critical role in boosting productivity. Similarly, Chen & Demurger (2002) focused on China to analyse the effects of AFDI on agricultural growth and efficiency. Their findings show that AFDI fosters technological adoption and improved farming practices, insights that are applicable to Malawi's agricultural sector, where similar investments could enhance productivity and market access.

The FAO (2001) conducted a global analysis on the role of AFDI in agricultural development across developing countries. The report highlights benefits such as job creation, technology transfer, and improved access to capital and markets, while also emphasizing AFDI's role in addressing challenges like irrigation and infrastructure development. This is particularly relevant for Malawi, where such investments could address key constraints in agriculture. Lastly, Oloyede (2014) examined the relationship between AFDI and agricultural productivity in African economies, focusing on short-term impacts. The study finds a positive relationship between AFDI and immediate productivity improvements, which aligns with Malawi's current efforts to attract FDI to enhance

agricultural performance through investments in irrigation, infrastructure, and market linkages.

These studies collectively underscore the importance of AFDI as a catalyst for agricultural development. They provide valuable insights into how foreign investment can stimulate productivity, income growth, and food security—offering a strong foundation for analysing its potential impact on Malawi's agricultural sector.

Similar positive effects are found in Adamassie and Matambalya's (2002) study in Tanzania, where a Cobb-Douglas production function reveals that AFDI inflows have a significant impact, with each unit increase in AFDI associated with a 13% rise in agricultural output. Sattaphon's (2006) research on East Asian countries also supports these results, finding that while AFDI has a positive influence on agricultural growth, its impact varies across countries. In Taiwan and Korea, for instance, FDI not only stimulates agricultural growth but also leverages land use as a key driver for development. Likewise, Nyiwul & Koirala's (2022) study, using a panel VAR model, reveals a bidirectional relationship between FDI and value-added in agriculture, forestry, and fishing, suggesting a cyclical effect where FDI drives agricultural growth, which in turn attracts further FDI inflows. Lastly, research by Epaphra & Mwakalasya (2017) in Tanzania suggests that FDI plays a critical role in enhancing agricultural productivity, with a direct positive effect on economic development.

In contrast, some empirical studies report a negative or negligible impact of AFDI on agricultural growth. Studies by UNCTAD (2001) and Alfaro (2003) argue that the benefits associated with FDI, such as technology transfer and management know-how, tend to concentrate in the manufacturing sector rather than agriculture. Alfaro (2003) specifically suggests that FDI in the primary sectors, including agriculture, may even have a negative impact on growth. Massoud's (2008) study on Egypt further reinforces this view, finding that AFDI does not exert a significant positive influence on agricultural growth. The study, which extends the traditional production function by introducing FDI as a capital source, concludes that FDI's contribution to agriculture remains limited.

Djokoto's (2011) Granger causality analysis in Ghana finds that agricultural growth and AFDI do not have a reciprocal relationship, indicating that growth in agriculture may require drivers other than FDI. Similarly, Akande & Biam's (2011) research on Nigeria finds no long-term relationship between FDI and agricultural output, suggesting that FDI's effects on the agricultural sector may be limited. Supporting these findings, Kentor (1998) posits that countries heavily reliant on foreign investment experience slower growth, challenging Borensztein et al., (1998), who had suggested that FDI typically spurs more growth than domestic investment.

Further research by Carkovic & Levine (2002) involving data from 72 countries over 35 years also concludes that FDI does not independently boost growth. They find FDI's effects to be ambiguous, though they suggest that sound economic policies can enhance both FDI inflows and growth. Epaphra & Mwakalasya's (2017) analysis of data from 1990 to 2015 similarly finds no effect of FDI on agricultural value added, while Iddrisu et al., (2015) report that FDI in Ghana positively affects agricultural productivity only in the short run but has a negative impact in the long term. They add that factors like trade openness positively influence agricultural growth over time, though currency depreciation has an adverse effect.

Research has also shown that the relationship between AFDI and agricultural growth is dynamic. For instance, a study in China on nexus of foreign direct investment and agricultural productivity by Owutuamor & Arene (2024) found that agricultural output can attract more FDI, indicating a reverse causality. This highlights the importance of understanding the feedback mechanisms between AFDI and agricultural performance when formulating policies aimed at boosting the agricultural sector.

Conclusively, the empirical literature on the linkage between AFDI, agricultural sector does not provide a consensus. Some studies document positive effect of AFDI on growth of agricultural sector while others either report negative relationship or report weak

relationship as presented above. This lack of consensus suggests that the effectiveness of AFDI in stimulating agricultural growth varies across different contexts.

3.4 Conclusion

This chapter examined the relationship between AFDI and agricultural sector growth, drawing on both theoretical and empirical literature. Theoretical models, including neoclassical and endogenous growth theories, highlight AFDI's potential to drive economic development, though contrasting views, such as dependency theory, caution against its possible negative effects. Empirical studies show mixed results. While some research supports AFDI's role in enhancing agricultural productivity through capital inflow and technology transfer, other studies suggest its effectiveness depends on factors like governance, infrastructure, and skilled labour. In conclusion, AFDI can stimulate agricultural growth, but its impact is context-dependent, requiring tailored policies to maximize its benefits, especially in Malawi’s agricultural sector.

CHAPTER FOUR

METHODOLOGY

4.1 Introduction

This chapter introduces the model specification and methodology employed to investigate the impact of Foreign Direct Investment (FDI) on agricultural sector growth and why the model has been selected. Section 4.3 outlines the variables utilized in the study. In Section 4.4, we detail the estimation techniques applied, along with the appropriate tests relevant to the nature of the data used, specifically focusing on time series data. Diagnostic tests will also be presented to ensure the robustness of the findings, along with a discussion of data sources to support the analysis.

4.2 The Model Specification

This study employs an Autoregressive Distributed Lag (ARDL) approach (Pesaran & Smith, 1998); Pesaran & Shin, 1999; Pesaran et al., (2001). The ARDL model is chosen for two main reasons: it is well-suited for estimating long-term relationships in small samples, and it allows for modeling relationships between variables with different levels of integration (I (0) or I (1)). The study utilizes multiple regression analysis in the Cobb-Douglas log-linear form, applying a log transformation to the general model to make it linear for data analysis. This study approach aligns with methods used in similar studies, such as those by Iddrisu et al., (2015) and also Epaphra & Mwakalasya (2017).

Other notable studies employing similar models include Zakia & Nazmus (2023), who examined the relationship between FDI and Bangladesh's agricultural sector using an ARDL model and F-Bound test on time series data from 1972 to 2021. Additionally, Bouchoucha & Ali (2019) adopted an ARDL approach to study the impact of FDI on economic growth in Tunisia.

The analytical process begins with unit root tests to assess the stationarity of variables and descriptive statistics to understand their basic properties. This lays the groundwork for further analyses, including cointegration tests, ARDL bound tests, ARDL modeling, and Error Correction Model (ECM) analysis. To ensure robustness, we conducted tests for serial correlation, normality, and heteroscedasticity.

According to Pesaran et al., (2001), the Autoregressive Distributed Lag (ARDL) Model is a linear time series model that captures both short-run and long-run relationships between variables. It incorporates lagged values of both the dependent and independent variables, allowing for analysis of how past values influence current outcomes.

The ARDL (p, q, r) model expression is:

$$y_t = \propto + \sum_{i=1}^{p} \beta_i y_{t-1} + \sum_{i=0}^{q} \gamma_i x_{t-1} + \sum_{i=0}^{r} \delta_i z_{t-1} + \epsilon_t \qquad (4.1)$$

- y_t is the dependent variable at time *t*,
- x_t and z_t are the independent variables at time *t*,
- Then p represents the lag of the dependent variable while q and r represent the lags of the independent variables
- $\propto$ is the intercept term
- β_i, γ_i and δ_i are coefficients of the lagged terms
- ϵ_t is the error term (residuals).

In our model, agricultural sector growth serves as the dependent variable, with FDI as the primary independent variable. Based on relevant literature, we include several control variables that influence agricultural sector growth: trade openness (imports and exports), agricultural gross fixed capital formation (AGFCF), population growth rate and inflation. We anticipate that FDI inflows will positively affect agricultural sector growth.

In conclusion, we estimate a six-variable ARDL model incorporating agricultural FDI, agricultural GDP, agricultural trade, population growth and inflation to comprehensively analyze the relationship between AFDI and agricultural productivity in Malawi.

4.3 The empirical strategy

This study utilized the ARDL (Autoregressive Distributed Lag) model, following the approach of Iddrisu et al., (2015) and Epaphra & Mwakalasya (2017), who investigated the relationship between Agricultural Foreign Direct Investment (AFDI) and agricultural output in developing countries. The research examined both long-run and short-run causal relationships among several variables: Agricultural Gross Domestic Product (AGDP), AFDI, trade openness, Agricultural Gross Fixed Capital Formation (AGFCF), inflation, and population growth rate. Consequently, the regression models were formulated as follows:

$$\begin{aligned} D1(\ln(AGDP_t)) = {} & \alpha_0 + \beta_1 \ln AGDP_{t-1} + \beta_2 \ln AFDI_{t-1} + \beta_3 \ln PopgrowthR_{t-1} + \beta_4 \\ & \ln ATrade_{t-1} + \beta_5 \ln agfc_{t-1} + \beta_6 \ln infl_{t-1} + \sum_{i=1}^{p} \propto_{1i} D(\ln(AGDP_{t-1})) + \\ & \sum_{i=1}^{q1} \propto_{2i} D(\ln(AFDI_{t-1})) + \sum_{i=1}^{q2} \propto_{3i} D(\ln(PopgrowthR_{t-1})) + \sum_{i=1}^{q3} \propto_{4i} D(\\ & \ln(ATrade_{t-1})) + \sum_{i=1}^{q4} \propto_{5i} D(\ln(agfc_{t-1})) + \sum_{i=1}^{q5} \propto_{6i} D(\ln(infl_{t-1})) + \varepsilon_t \end{aligned} \quad (4.2)$$

4.4 The Description of Variables

This section provides a clear and comprehensive explanation of each variable used in this study. All variables are measured annually and have been log-transformed to address potential non-linearity and to interpret results in terms of elasticities. The time series properties for each variable are presented in the Table 1:

Table 1: Variables List and Description

Variable	Description and expected sign
Agricultural GDP (AGDP) – Value Added	This is the natural logarithm of the agricultural sector's value-added GDP, reflecting its net contribution to the national economy, measured in USD. It accounts for the total agricultural output minus intermediate inputs. Growth in AGDP indicates higher agricultural productivity, which also signals improved capital utilization and efficiency of production factors. In theory, increased foreign investment should further boost agricultural output by enhancing the capital stock, leading to both sectoral and national economic growth.
Agriculture Foreign Direct Investment (AFDI)	This variable is the natural logarithm of the net nominal inflows of Foreign Direct Investment (FDI) into Malawi's agricultural sector, expressed in USD. AFDI is expected to enhance agricultural GDP by promoting productivity, exports, and market openness. Through technological transfer and managerial improvements, AFDI can facilitate growth in agricultural output and overall GDP (Loungani & Razin, 2001). However, some studies suggest that FDI in primary sectors, including agriculture, may not always yield expected spillover benefits due to limited absorptive capacity (Alfaro, 2003;, 1999; UNCTAD, 2001). Therefore, the coefficient for this variable could be either positive or negative, depending on the interaction between FDI and the agricultural sector's existing capacities.
Agriculture Gross Fixed Capital Formation (AGFCF)	AGFCF measures the total value of fixed asset acquisitions (such as machinery, infrastructure, and equipment) minus disposals during the accounting period. It also includes improvements in non-produced assets (e.g., land quality and industrial buildings). Capital investment is essential for research, development, and infrastructure, which are key constraints for Malawi's agricultural sector. An increase in AGFCF is expected to positively impact agricultural growth by improving productivity and expanding production capacity.
Agricultural Trade Openness	This variable captures the natural logarithm of the total value of agricultural exports and imports, expressed in USD. It measures the degree of integration between Malawi's agricultural sector and global markets. Trade openness stimulates demand for agricultural exports, attracting investment into the sector and improving production efficiency (Shan, 2002). The variable is included to explore how agricultural trade influences sectoral output and AGDP growth. According to the World Bank (2010), it encompasses various agricultural goods such as tobacco, coffee, tea, and cocoa, excluding non-agricultural raw materials and energy products.

4.5 Estimation technique and the Diagnostic test with reference to time series data

4.5.1. Unit Root test for Stationarity

For meaningful results to be obtained from Ordinary Least Square (OLS) techniques, the data must be stationary this is because data which is not stationery gives spurious results (Maddala, 1977). To test for stationarity, the study used Dickey-Fuller and Phillips-Peron test.

4.5.2 The Bound (Cointegration) test

The presence of a long-term relationship between variables indicates cointegration. In this study, the Bound test approach (Pesaran et al., 2001) is employed to determine whether such cointegration exists among the variables. This method is suitable for small sample sizes and provides robust results regardless of whether the variables are integrated of order I (0), I (1), or a mix of both.

4.5.3 The Serial Correlation Test

When a variable is regressed on one or more regressors, if the residuals are correlated then the regression is said to be suffering from serial correlation. When serial correlation is present, the estimated coefficients of the regression, despite being linear, unbiased, consistent and asymptotically normally distributed, they are not efficient. This means that they end up not having a minimum variance. This study used the Breusch & Godfrey (1978) test to detect and correct for serial correlation in the model.

4.5.4 Data sources

Relevant data for the variables included in the estimation was obtained from the, National statistical Office (NSO), FAOStat and World Bank, World Development Indicators for the period 1990-2023. All data values are denominated in US dollars.

4.6 Conclusion

This section concludes the chapter. Chapter Four has outlined the models used in the current study, detailing the estimation techniques and diagnostic tests that ensure the

accuracy of the results. The following chapter will present the findings of the study, based on the regression procedures discussed earlier.

CHAPTER FIVE

RESULTS AND INTERPRETATION

5.1 Introduction

This chapter presents econometric results analyzing the impact of Agricultural Foreign Direct Investment (AFDI) on the growth of the agricultural sector in Malawi. The data spans from 1990 to 2023, encompassing various dynamics between these two variables. The chapter includes results from several preliminary tests necessary for conducting an Autoregressive Distributed Lag (ARDL) model. The ARDL modeling is employed to determine the association and effect of FDI on the agricultural sector. The analysis was conducted using STATA software, i.e. regression analysis, as well as tests for stationarity and cointegration. Finally, diagnostic tests were also performed to ensure the robustness of the model.

5.2 Summary of Time Series

Table 2 : Results of Descriptive Statistics

Variable	Mean	Median	Minimum	Maximum	Std. Dev.
AGDP	1.65E+09	1.57E+09	3.20E+08	3.11E+09	7.89E+08
AFDI	2.49E+07	8577860	-1.27E+08	2.62E+08	6.23E+07
AgriTradeOpen	5.13E+07	4.25E+07	1.02E+07	1.17E+08	3.57E+07
Inflation	14.617	12.7917	7.3833	28.6816	6.8689
AGFCF	7.25E+07	4.50E+07	2.05E+07	2.10E+08	5.08E+07
Pop growthR	2.4259	2.6842	-1.2304	3.8987	0.9028

Source: Author's computation from Stata

Definition of label names: Agricultural Gross Domestic Product (AGDP), Agriculture Foreign Direct Investment (AFDI), Population growth Rate (Pop growthR), Agricultural Gross Fixed Capital Formation (AGFCF), Agricultural Trade Openness (AgriTradeOpen), Inflation Rate (Inflation)

In Table 2, the descriptive statistics reveal a complex picture of agricultural economic indicators, characterized by both stability and volatility across different measures. While AGDP and Trade Openness show relatively stable distributions with moderate variability, AFDI and AGFCF display high variability and positive skewness, suggesting irregular but significant investment patterns. Inflation demonstrates moderate central tendency but with occasional spikes, while Population Growth exhibits periods of extremely low or negative growth. This mixed pattern suggests a sector with a stable core but subject to significant fluctuations in investment flows and demographic changes, highlighting potential challenges for agricultural policy planning and implementation, particularly in areas of capital formation, trade relations, and workforce availability.

5.3 Testing for stationarity using Augmented Dickey Fuller (ADF) unit root test

Econometric analysis with time series requires testing the stationarity of variables. The Augmented Dickey-Fuller (ADF) test was used for this purpose, incorporating lagged terms to eliminate serial correlation in the residuals. Ensuring the stationarity of the various series is crucial, as it confirms that none of them is integrated of order I (2) or higher. Indeed, the bounds test for cointegration becomes invalid if any variable is integrated of order two or more.

5.3.1 ADF unit root test results

According to Pesaran et al., (2001) the ARDL approach, specifically the cointegration test (or bounds test) is based on the assumption that the variables must be integrated of order I (0) or I (1). In the case, where an integration is of order 2 or more this test becomes irrelevant. The ADF test that has been done is based on the null hypothesis H_0 of nonstationary. The principle of the ADF test is that if the T-statistic of a series is greater (in absolute term) than the critical value at the 5% significant level, we fail to reject the null hypothesis of a unit root. This implies that the series are non-stationary. The results in Table 4 below are for the ADF unit root test.

Table 3: ADF Results

	Log levels I(0)		First difference I(1)	
Variable	T-statistic	P-Value	T-Statistic	P-Value
D1AGDP	-0.969	0.7644	-7.425	0.0000**
D1AFDI	-1.863	0.3497	-7.309	0.0000**
D1AgriTradeopen	-0.774	0.8266	-7.511	0.0002**
D1AGFCF	0.064	0.9635	-6.29	0.0000**
D1Inflation	-3.644	0.0050**.	-4.088	0.0010**
D1Pop growthR	-3.35	0.0128**	-4.383	0.0003**

*Note: ** Indicate stationarity of variable at the 5%, level. Source: Author's computation from Stata*

From the results of Table 3, we cannot reject the null hypothesis of unit root in several cases. The results of the unit root tests obtained show that according to the Dickey-Fuller Augmented Test (ADF), the Inflation (In) and Population growth rate are stationary in level. While the AGDP, AFDI, Agriculture Gross Fixed Capital Formation and trade openness variable are stationary in first differences. This authorizes us to perform the Co integration tests between the AGDP and the explanatory variables.

5.4 The ARDL bounds test

The Bound (Cointegration) test determines whether the variables have a long run relationship or converge at the equilibrium. Looking at the nature of the variables under review, (a mix of I (0) and I (1) variables) the ARDL model and the ARDL bounds test approach to cointegration is used. The ARDL procedure classifies all model ‘s variables as endogenous variables.

According to Pesaran et al., (2001), the "Bounds" cointegration test is based on 3 conditions, comparing the Fisher test statistic with critical bounds:

1. If the F-statistic is greater than the upper bound, we reject the null hypothesis (H0) and conclude that there is a long-term relationship between the variables considered.

2. If the F-statistic is lower than the lower bound, we fail to reject H0 and conclude the absence of a long-term relationship between the variables considered.
3. An F-statistic between the bounds is inconclusive.

The results of the bounds test are as shown below:

Table 4: Bound test results

Critical Value bound	**I0 bound**	**I1 bound**
Significance		
10%	2.26	3.35
5%	2.62	3.79
3%	2.96	4.18
1%	3.41	4.68
F-statistic	12.635	
T-statistic	-7.638	

Source: Author's computation from Stata

From table 4 the F-statistic of 12.635 is greater than the I (1) bounds at all significant levels implying the existence of a long run association between the variables in the model. As such, the long and short run relationship between the variables and their coefficients are estimated using the ARDL approach. The selected lag models are ARDL (1, 1, 0, 1, 1, 1).

5.5 ARDL Model Estimation

The long run and short run relationships between the variables in the model with their respective coefficients are generated through the ARDL approach.

5.5.1 Long run results

Table 5: Results for the long-term coefficient

Variable	Coefficient	T-statistic	Prob
ADJ D1AGDP	-1.314958	-7.64	0.001***
D1AFDI	-0.041853	-1.91	0.08*
D1Pop growthR	0.1189421	2.84	0.015**
D1AgriTradeopen	0.441763	3.82	0.002**
D1AGFCF	0.8751627	3.77	0.003**
D1Inflation	0.0090922	1.77	0.102

*Notes: indicate **, * significance at 5%, 10% level Source: Author's computation from Stata*

The results in Table 5 shows that the Adjustment Term of the first differenced Agricultural Gross Domestic Product, D1AGDP (L1.) is -1.31 with a p-value of 0.001, indicating that the error correction mechanism is statistically significant. A significant and negative coefficient confirms the existence of a long run relationship, as the adjustment term helps the system correct deviations from the long-run equilibrium.

The long-term estimates result show that three coefficients are statistically significant at the 5% level while one coefficient is significant at 10%. Thus, AFDI has no significance at 5% but has negative and significance influence on the AGDP at 10% level. Thus, the 1% increase in the AFDI growth leads to a decrease in the GDP growth of (0.0419%) at 10% significance level. In addition, we find that the coefficient of trade openness is positive and statistically significant, so 1% increase in the trade openness increases the AGDP by 0.441%. In addition, the Agriculture gross fixed capital formation has a positive and statistically significant impact, so the increase in the AGFCF of 1% leads to an increase in AGDP of 0.875. The population growth rate has a positive and significant impact on the AGDP with an increase in the population growth rate of 1% leads to an increase in AGDP growth rate of 0.119. In other words, a 1% increase in population growth rate increases the

AGDP growth rate by 12%. Inflation estimate did not give a significant relationship in the long run.

5.5.2 Short run results

The short-term coefficient estimates are shown in Table 6:

Table 6: Results of Estimation of short-term coefficient

Variable	Coefficient	T-statistic	Probe
D1AFDI	0.0275339	1.66	0.123
D1AgriTradeOpen	-0.223372	-1.9	0.082
D1AGFCF	-0.547145	-2.18	0.05
D1Inflation	-0.0136162	-2.84	0.015
R-Squared	0.9391		
Adjusted R-Squared	0.8884		

Source: Author's computation from Stata

From Table 6, the short run results revealed that AFDI established a positive yet insignificant effect on AGDP. Trade also had negative yet insignificant effects on AGDP. Inflation and Agriculture Gross Fixed Capital Formation both had negative and significant effects on AGDP at 5% level. Thus, the 1% increase in inflation results in a decrease in AGDP of 0.0136% and the 1% increase in Agriculture Gross Fixed Capital Formation results in a decrease in AGDP of 0.547%.

Overall, the results indicate that Agricultural Foreign Direct Investment (AFDI) has varying impacts on AGDP in the short and long term. In the short run, AFDI may yield a slight positive effect. Conversely, the long-term impact appears to be significantly negative.

This suggests that over a long period, AFDI causes a decrease in AGDP. These findings align with the research of Epaphra & Mwakalasya (2017); Uwubanmwen & Ogiemudia (2016); Iddrisu etal. (2015); Ogbonna et al., (2023).

The negative long-term impact of AFDI could be attributed to several factors. Firstly, foreign investments may not be effectively integrated into local agricultural practices, leading to inefficiencies. Additionally, there may be a lack of adequate infrastructure, skilled labor, or supportive policies that can hinder the productive use of these investments. The positive and significant Trade Openness in the long run suggests that greater integration into global markets positively influences agricultural growth. In contrast, the negative yet insignificant effect may imply that while trade can enhance growth over time, immediate impacts may be less favorable, potentially due to adjustment costs or external market conditions.

The long run positive and statistically significant impact AGFCF on AGDP, underscores the critical role of investment in physical capital for enhancing agricultural productivity. Though there may be some initially disruption on existing production processes due to heavy investment, it may require time to yield positive outcomes hence foregoing short run negative effects.

The population growth rate has a positive and significant impact on AGDP indicating that a growing population can drive demand, increase labor supply and potentially stimulate agricultural production.

Lastly, the short run negative effect of inflation results indicates, that rising inflation can have immediate adverse effects on agricultural productivity, possibly through increased costs of inputs or reduced purchasing power.

5.6 The Model Diagnostics

The models used in this study are free from issues that could compromise the accuracy of estimations and the robustness of econometric results, such as serial correlation, heteroscedasticity, non-normality, and instability. This is demonstrated in the Tables 7 and 8 below. Additionally, the probability statistics confirm that the models are suitable for analysis and provide reliable insights for policy implications.

Table 7: Results of Model Diagnostics

Diagnostic Test	T statistic	Probability
BG LM test for autocorrelation - chi2	0.395	0.5295
Breusch–Pagan test for heteroscedasticity -chi2	0.01	0.9273
Skewness and kurtosis tests for normality	0.79	0.6728
Ramsey RESET test for omission- F(3, 9)	0.63	0.615

Source: Author's computation from Stata

5.7 Results Interpretation

Overall, these diagnostic tests in Table 7 suggest that the regression model is well-specified: there is no serial correlation or heteroscedasticity present, the residuals are normally distributed, and there are no omitted variables affecting the model's validity as detailed below:

5.7.1 Breusch-Godfrey Serial Correlation LM Test

The test results indicate no serial autocorrelation, as the p-value (0.5295) is greater than the 5% significance level. Therefore, we fail to reject the null hypothesis, suggesting that the residuals are not serially correlated.

5.7.2 Heteroscedasticity Test

The p-value for heteroscedasticity is 0.6728, which exceeds the 0.05 threshold. Consequently, we fail to reject the null hypothesis, indicating that there is no evidence of heteroscedasticity. This suggests that the residuals of the model exhibit constant variance (homoscedasticity).

5.7.3 Normality of Residuals

With a p-value of 0.6728, which is greater than the 5% significance level, we again fail to reject the null hypothesis of normality in the residuals. This implies that the residuals are normally distributed.

5.7.4 Omitted Variables Test:

The p-value for the omitted variables test is 0.615, which is greater than the 5% significance level. Therefore, we fail to reject the null hypothesis, concluding that there are no omitted variables in the model.

5.8 The correlation matrix results

The correlation analysis was conducted to detect multicollinearity among the explanatory variables in the system of equations. Table 3 presents the correlation matrix, which highlights the relationships between the variables.

Table 8: Results of Correlation Matrix

	AGDP	**AgrFDI**	**Pop. growthR**	**Agri.Trad**	**AGFCF**	**Inflation**
AGDP	1					
AFDI	-0.27	1				
Pop growthR	0.6132	-0.007	1			
AgriTradeOpen	0.417	0.1398	0.125	1		
AGFCF	0.6052	-0.2621	0.2895	0.3504	1	
Inflation	-0.347	0.1141	-0.2575	-0.0756	-0.4081	1

Source: Author's computation from Stata

There is a weak negative correlation of -0.2700 between Agricultural FDI and AGDP, suggesting that increases in AFDI might slightly decrease agricultural output in the short term. A moderately strong positive correlation of 0.6132 is observed between the population growth rate and AGDP, indicating that population growth may drive agricultural production increases. The correlation between agricultural fixed capital (AGFC) and AGDP is the strongest at 0.6052, showing that capital investment in

agriculture is strongly associated with productivity improvements. Additionally, there is a moderate positive correlation of 0.4170 between agricultural trade openness and AGDP, suggesting that trade openness benefits the sector. Finally, inflation shows a weak to moderate negative correlation of -0.3470 with AGDP, implying that inflation may slightly hinder agricultural productivity. Overall, the weak correlations between AGDP and AFDI and other independent variables suggest no multicollinearity, which is favorable for regression analysis.

5.9 Conclusion

This chapter has presented the estimation results derived from the empirical models specified in Chapter Four, along with their detailed interpretations. It has provided valuable insights into the relationships and patterns observed in the data. The following chapter will wrap up the study by offering a comprehensive summary of the findings, drawing key conclusions, and discussing the policy implications for future practice and development.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS OF THE STUDY

6.1 Introduction

This chapter concludes the research by summarizing the key findings and discussing their implications. It offers recommendations based on the study's outcomes and suggests directions for future research to address the limitations encountered in this study.

6.2 Summary

The objective of this study was to assess the impact of agriculture foreign direct investment on AGDP. ARDL model was employed in the study.

The variables were tested for stationary using the unit root tests and proved to be stationary in levels and at first difference. The result from the ARDL model estimation indicated AFDI having a significant positive impact on AGDP, which agrees with studies from other authors.

An ADF test were conducted to ascertain the stationarity of all variables. Results showed that the variables were stationary in levels and at first difference. The bounds test was applied to check for co-integration for the model under review. The existence of a long run relationship between the variables made it suitable to use an ARDL model with an error correction term to determine the long and short run relationship for the model. Regression results from the model was free from issues of serial correlation, heteroscedasticity and variable omission. They were normally distributed, and the parameters were determined to be stable.

The results of the short-run relationship from the ARDL model estimates indicate that Agricultural Foreign Direct Investment (AFDI) has a positive but statistically insignificant effect on Agricultural Gross Domestic Product (AGDP). This suggests that while there may be potential benefits from AFDI, these effects are not strong enough to be confidently asserted within the short time frame analyzed. In the long run, AFDI demonstrates a negative influence on AGDP at the 10% significance level. Specifically, a 1% increase in AFDI growth is associated with a decrease in GDP growth of 0.0419%. This finding implies that despite the inflow of foreign investment, structural or operational inefficiencies may hinder its positive impact on agricultural growth. Consequently, the null hypothesis of this research study cannot be rejected. The counterintuitive results showing AFDI's negative effect on the growth of the agricultural sector could be attributed to the underdeveloped state of the sector in Malawi. This finding is consistent with established literature, including Alfaro (2003) who suggests that FDI in primary sectors, including agriculture, may have a negative impact on growth. The study added that a country with underdeveloped agricultural support systems (extension services, storage, transportation) experienced negative spillovers from agricultural FDI and then concluded that below certain development thresholds, foreign investment created "enclave economies" that failed to integrate with local systems. Masood's (2008) study on Egypt found that AFDI does not exert a significant positive influence on agricultural growth. Similarly, Aminol's (2004) research in Nigeria revealed that FDI directed into agricultural sectors produced negligible or negative growth effects when basic infrastructure and human capital were inadequate. These parallel findings suggest that a minimum threshold of development is necessary for countries to effectively absorb and benefit from agricultural foreign direct investment. Thus, in underdeveloped agricultural contexts, foreign investment may fail to generate the expected growth benefits without adequate supporting infrastructure and human capital. Most stakeholders in Malawi sector are smallholders located in areas lacking the necessary infrastructure to connect them to markets (Mat Chaya et al., 2013).

In addition, according to FAO (2021) the negative relationship can also rise due to nature of these investments which primarily involves large-scale land acquisitions for export-oriented cash crops, which operate independently from local agricultural systems. This model emphasizes mechanization that replaces Malawi's abundant unskilled labor and

focuses on high-value exports instead of essential food staples necessary for broader agricultural development. There is a disconnect, capital-intensive AFDI creates few jobs despite a surplus labor force, often displacing smallholder farmers; foreign investors tend to import specialized inputs, limiting local input demand and knowledge transfer; and AFDI diverts vital resources like land and water away from smallholder systems, which are crucial to Malawi's agricultural economy. This mismatch between the incoming investments and Malawi's agricultural needs explains why traditional FDI theories, which predict positive growth outcomes, do not hold true in this context.

6.3 Recommendations

Based on the findings from this study, the following are recommendations for the government and stakeholders to consider and for further studies regarding FDI and the growth of the agricultural sector.

First, improving infrastructure is essential, as poor infrastructure may hinder the connection between smallholders and markets. Prioritizing investments in rural roads, storage facilities, and market access points can foster smoother market integration and better economic outcomes. This will be complimenting the existing government efforts in promoting agriculture exports to attract more foreign investors.

Second, targeted AFDI policies are crucial. Policymakers should design strategies that channel foreign investments toward addressing structural inefficiencies, focusing on areas such as technology transfer and value chain development. Additionally, integrating smallholder farmers into larger agricultural value chains supported by AFDI will ensure they benefit directly from foreign investments and broader market opportunities.

Regular review and monitoring of AFDI's impact are necessary to confirm that foreign investments align with Malawi's national development goals. Thus, NSO, RBM, MITC and government ministry should jointly and consistently have uniform indicators and measurement on AFDI going further to monitor data on disaggregated agricultural sub-sectors such as livestock, fisheries, and cash crops. This process will help identify any

emerging challenges and allow for timely policy adjustments. Thus, to say, Malawi needs also to consider allocation of FDIs by sector with much effort and investment directed to agricultural sector because of its greater multiplier effects in generating economic growth. Aligning AFDI policies with the country's agricultural and economic development strategies is equally important to create synergies and prevent conflicting outcomes that could undermine growth.

6.4 Suggestions for further studies

To build on the findings of this study, further researches are recommended. First, longitudinal studies examining the dynamics of AFDI over an extended period could offer a clearer understanding of how its effects evolve over time. Such studies could help differentiate between short-term and long-term impacts more effectively.

It would also be beneficial to conduct comparative studies across countries or regions to identify best practices in leveraging AFDI for agricultural growth. These studies could highlight lessons from countries with similar economic and agricultural profiles to Malawi. Lastly, further research could assess the social and environmental dimensions of AFDI, such as its effects on rural livelihoods, gender equity, and climate resilience. This broader perspective would ensure that AFDI contributes not only to economic growth but also to sustainable and inclusive development.

6.5 Conclusion

Despite the limitations of the study, it offers valuable insights into the complex relationship between Agricultural Foreign Direct Investment (AFDI) and agricultural sector growth in Malawi. While AFDI holds theoretical potential for enhancing AGDP, empirical evidence suggests that structural challenges within Malawi's agricultural landscape may limit its effectiveness in practice. The recommendations provided aim to address these challenges. Ultimately, the study emphasizes the role of FDI in the agricultural sector, offering key insights that can inform future policy planning in Malawi.

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