UNIVERSITY OF CO-OPERATIVE AND MANAGEMENT, SAGAING

DEPARTMENT OF ECONOMICS

MASTER OF REGIONAL DEVELOPMENT

ANALYSIS ON THE EFFECTS OF AGRICULTURAL PRODUCTION ON ECONOMIC GROWTH IN MYANMAR (1987-2021)

ZAR CHI WIN

SEPTEMBER, 2023

UNIVERSITY OF CO-OPERATIVE AND MANAGEMENT, SAGAING

DEPARTMENT OF ECONOMICS

MASTER OF REGIONAL DEVELOPMENT

ANALYSIS ON THE EFFECTS OF AGRICULTURAL PRODUCTION ON ECONOMIC GROWTH IN MYANMAR (1987-2021)

ZAR CHI WIN

2MRD-1

SEPTEMBER, 2023

ANALYSIS ON THE EFFECTS OF AGRICULTURAL PRODUCTION ON ECONOMIC GROWTH IN MYANMAR (1987-2021)

This thesis is submitted to the Board of Examiners in partial fulfillment of the requirement for the degree of Master of Regional Development

Supervised by:

Daw Zin Nwe Htwe

Associate Professor

Department of Economics

University of Co-operative and Management, Sagaing

Submitted by:

Ma Zar Chi Win

2MRD-1

Master of Regional Development

University of Co-operative and Management, Sagaing

ACCEPTANCE

This is to certify that this paper entitled "**Analysis on the Effects of Agricultural Production on Economic Growth in Myanmar (1987-2021)**" submitted as a partial fulfillment towards the degree of Master of Regional Development has been accepted by Board of Examiners.

BOARD OF EXAMINERS

(Chairman)

Prof. Dr. Moe Moe Yee
Rector
University of Co-operative and Management, Sagaing

(External Examiner)
Prof. Dr. Daw Yi Aye
Rector (Retired) and Visiting Professor
University of Co-operative and Management, Sagaing

(External Examiner)
Prof. Daw Khin Aye Myint
Head of Department of Statistics (Retired)
University of Co-operative and Management, Sagaing

(Examiner)

Prof. Dr. Kyi Kyi Win
Head of Department of Co-operative Studies
University of Co-operative and Management, Sagaing

(Examiner)

Prof. U Kyaw Thura
Head of Department of Economics
University of Co-operative and Management, Sagaing

(Supervisor)

Associate Prof. Daw Zin Nwe Htwe
Department of Economics
University of Co-operative and Management, Sagaing

SEPTEMBER, 2023

ABSTRACT

The aim of the study is to analyze the relationship between agricultural production and economic growth of Myanmar from the period of 1987 to 2021. The study uses time series data by using Augmented Dickey-Fuller (ADF) unit root test to determine whether the variables are stationary or not. Johansen cointegration test is used to test the cointegration relationship between the variables. In this study the variables are cointegrated and then Vector Error Correction Model (VECM) was used. VECM is applied to determine the relationship between GDP, agricultural production and inflation rate. According to VECM results, agricultural production and GDP have positively relationship and are significant in the country's economy. When agricultural production increases, country's peoples can receive more income and profits from which country's GDP can also increase. GDP and inflation rate have negatively relationship. When the inflation rate rises, the purchasing power can decrease and lower income generated by producers. It causes the slower economic growth. In the short-run result, GDP has unidirectional causal relationship on agricultural production in the economy. GDP and agricultural production have unidirectional causal relationship on inflation rate in the short-run economy. Agricultural production is the most influential factor to economic growth because it is significant at 1% level. Myanmar agricultural sector has been facing many problems such as low technological improvements, lack of good quality agricultural inputs, low quality machinery, less knowledge about modern farming method, undeveloped rural financial market and insufficient agricultural loans and so on. The government should attempt to improve agricultural sector by solving the problems in agricultural sector, by giving other subsidies and by controlling reasonable inflation rate.

ACKNOWLEDGEMENTS

Firstly, I would like to express my deepest gratitude and heartfelt appreciation thanks to Dr. Moe Moe Yee, Rector, University of Co-operative and Management, Sagaing for her kind permission to submit the study and for taking responsibilities of the Chairman of Master of Regional Development Steering Committee.

Furthermore, I would like to express my appreciation to Dr. Daw Yi Aye, Rector (Retired) and Visiting Professor, University of Co-operative and Management, Sagaing for her valuable comments and kind suggestions. She has been devoting much of her time from her busy schedule for giving me consultation.

I would like to express my grateful thanks to Professor Daw Khin Aye Myint, Head of Department of Statistics (Retired), University of Co-operative and Management, Sagaing for her kind and generous support and also technical assistance to finish this thesis.

I am very grateful to U Kyaw Thura, Professor and Head of Department of Economics, University of Co-operative and Management, Sagaing for giving comments and recommendations during the title rationalization and providing extensive and constructive suggestions in writing this thesis.

I would like to express my sincere thanks to Dr. Kyi Kyi Win, Professor and Head of Department of Co-operative Studies, University of Co-operative and Management, Sagaing for her valuable suggestions and comments to complete my thesis.

In particular, I would like to express my special thanks to my supervisor Daw Zin Nwe Htwe, Associate Professor, Department of Economics, University of Co-operative and Management, Sagaing for her wholehearted and unreserved comments, useful advice, stimulating guidance and cheering me up.

Furthermore, I would like to express my appreciation to Board of Examiners, Master of Regional Development program for verification of this thesis. Finally, I am also glad to record my gratitude to my teachers, my parents, my family and my friends for their support and encouragement upon me through the preparation of my work. I offer deep gratitude and gratefulness to all the people who contributed in different ways to my paper.

Ma Zar Chi Win

2 MRD-1

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ADB	Asian Development Bank
ADF	Augmented Dickey-Fuller
AGP	Agricultural Production
ASEAN	Association of Southeast Asian Nations
BSPP	Burma Socialist Program Party
FAO	Food and Agriculture Organization
GAHP	Good Animal Husbandry Practices
GAP	Good Agriculture Practices
GAqP	Good Aquaculture Practices
GDP	Gross Domestic Product
GNP	Gross National Product
IMF	International Monetary Fund
JB	Jarque-Bera
LCU	Local Currency Units
MICC-2	Myanmar International Convention Center II
MOALI	Ministry of Agriculture, Livestock and Irrigation
MRSDS	Myanmar Rice Sector Development Strategy
MSDP	Myanmar Sustainable Development Plan
NGOs	Non-governmental Organization
NLD	National League for Democracy
NSA	Net Sown Area
ODA	Official Development Assistance
PPP	Purchasing Power Parity
PPP	Public Private Partnership
PT	Portmanteau Test
SITC	Standardised International Trade Classification
SLORC	State Law and Order Restoration Council
UN	United Nations
VAR	Vector Autoregression
VECM	Vector Error Correction Model
WB	World Bank
WTO	World Trade Organization

CHAPTER 1
INTRODUCTION

Over the world, agriculture is developing. Agriculture is the art and science of cultivating the soil, producing the crops, raising livestock and marketing of the resulting products. The world population was 8 billion on 15 November 2022. World's population is increasing steadily year on year. Increasing world's population has caused increasing in food production demand and facing many problems. Basically, agriculture can solve food shortage. So, agriculture is one of the most powerful tools around the world and employs the greatest portion of the population. In developing countries, agriculture continues to be the important source of employment, living standard, livelihood, nutrition and income for the population. Agricultural production is also crucial to economic growth, poverty alleviation and food security in developing countries. Agriculture is particularly important because it is the main source of food supply. Over the past centuries, before agricultural sector became widespread, people spent most of their time searching for food their lives.

The Republic of the Union of Myanmar is not only a member the Association of Southeast Asian Nations countries (ASEAN) since 1997 but also a member of World Trade Organization (WTO) since 1995. Myanmar possess many natural resources, such as cultivable land, available water resource and favourable climate condition for living. The fact that natural and human resources are abundant in Myanmar can give the country a high advantage if these resources are used efficiently.

Myanmar's economic sector can be divided into three sectors such as; agricultural sector, industrial sector and service sector. Agricultural sector includes crop production, livestock, fisheries and forestry sectors. Industrial sector includes mining, processing and manufacturing, energy, electrical power and construction sectors. Finally, services sector include transportation, communication, finance, social and administration, rents and services and trade sectors. The economy of Myanmar also depends on these sector performances for its economic growth and development. Among these, agriculture sector is the most important sector of country's economy because Myanmar is an agricultural country.

Nowadays, Myanmar is developing country and its economy mainly depends on agricultural production. The population of Myanmar is over 54 million and 68.55% of population lives in rural area depending on agriculture and other related economic

activities. The people of Myanmar directly or indirectly depend on agricultural production sector for their livelihood. It is an activity to support daily needs for foods and other nutrition. In Myanmar, rice is the major cultivated crop. Corn, Pulses, Onions, Groundnuts, Niger Seeds, Sesame, Spices, Sugarcane and Lumber etc. are also cultivated in Myanmar for country's people consumption and exported.

Myanmar possess total area of 167186 thousand acres. In 2020-2021, Myanmar has net sown area of 29615 thousand acres for cultivation. Myanmar received total agricultural export value of US $17681 million in 2019-2020 financial year. This factor indicates that Myanmar's economic growth is still much depending on agricultural sector. Myanmar has the potential to cultivate food not only feeding country's population but also one of the main food producers of the neighbour regions.

Most of rural people are employed in agricultural production that generate raising incomes (and reducing poverty) in rural areas and received job opportunities. Besides providing food for farm families and other consumers, employment and job opportunities, and income for people's survival, agriculture also provides inputs and raw materials to other sectors of the country's economy. Thus, agricultural production sector is the key to the success of Myanmar's economic growth.

Nowadays, the government is trying out rural development program and country's economic growth. It can be recognized that when there is improvement of living standard in rural area there will be country economic growth. Therefore, agriculture is the father of all other economic activities if it is well maintained.[1]Traditionally in economic growth, agricultural sector has been assumed to play an important, supportive and vital role. Economic growth occurs when there is a rise in the production of goods and services for a certain period as compared with a previous one (Gordon,1999). It is generally measured in terms of GDP and is an indicator of the economic health of a country. Agricultural production sector is still playing a significant role in economic growth and development in Myanmar's economy.

1.1 Rationale of the Study

Over the world, most economists seem to perceive that the country's economic growth must rely on its own resources, especially agriculture. Myanmar is the

[1] Deininger, K., and Okidi, J (2003) Growth and poverty reduction in Somalia.

Southeast Asia country and agriculture is the backbone of the country's economy. Agricultural productivity growth is one of the most essential drivers of poverty reduction, reducing food shortage, raising income, boost share prosperity and a foundation of growth for national economies.

Myanmar's economic growth begins with the agricultural sector. Most of Myanmar's rural people (68.55%) relies on agricultural production sector. When agricultural production sector improves, it can also provide income for rural population. In 2021, the share of GDP contribution from the total agricultural sector was approximately 30.36% and decreases about 0.29% comparing with 2020 (30.65%) because of COVID-19 pandemic effects.

According to the above data, agricultural input use is also considered as a vital role for agricultural production. The agricultural input includes land, labour, seeds, fertilizers, machineries, financial, technology etc. The output is the final product of production. When the farmers use good quality input, the production will increase with good quality output. When any production increases, it can lead to economic growth as measured by GDP. Myanmar's agricultural production can be sufficient country's people consumption and the surplus can export to foreign countries. Agricultural sector also plays a vital role in international business in import and export activities. Myanmar's economy is mostly reliant on the agricultural sector for industrial development as it serves as the source of raw material for industrial production, for transforming industrialise economies through the agricultural sector.

Myanmar's agricultural sector has vast areas of cultivable land and abundant success of water. But Myanmar's agricultural sector has been facing problems such as low-quality inputs, insufficient farm credit, low quality machinery, organic fertilizers are not yet widely available in the market etc. And then, farmers in Myanmar are less educated and less knowledge about modern agricultural farming methods and techniques. So, Myanmar agricultural productivity and output are lower than the neighbouring countries.

Inflation rate also effects on economic growth of a country. If inflation becomes too high, the economic growth of a country's can slow down; conversely, if inflation is controlled at reasonable levels, the economic growth may thrive. So, inflation rate is one of the consideration facts for economic growth of a country. Thus, country's economic growth depends on the production of agricultural sector and inflation rate.

As a result of the above study, it is clear that agricultural production is a necessary mechanism for economic growth. Agriculture plays a significant role in the Myanmar economy. And then, agricultural production is also a package of other economic benefits such as employment opportunities, export market expansion, foreign earning and reducing poverty etc. Thus, this study was focused on the effects of agricultural production on economic growth in Myanmar.

1.2 Objectives of the Study

The objectives of the study are as follow;

(1) To analyze the relationship between agricultural production and economic growth in Myanmar

(2) To explore the direction of causality between agricultural production, inflation rate and economic growth in Myanmar

1.3 Methods of Study

Annual time-series data on GDP, agricultural production and inflation rate in Myanmar for the year 1987 to 2021 are collected from World Bank (WB) and Myanmar Agricultural Statistics published by Ministry of Planning and Finance in Myanmar. Augmented Dickey-Fuller (ADF) unit root test is used to determine whether time series are stationary or non-stationary. Then the study is used Johansen cointegration test to examine the cointegration between the variables (GDP, agricultural production and inflation rate). Vector Autoregression (VAR) is used to analyze the short-run dynamic. Moreover, Vector Error Correction Model (VECM) is used to analyze cointegrated variables or cointegrations relationships. It also provides a mechanism to understand the long-run as well as short-run behaviour of the variables in the study. Diagnostic test is used to determine the quality of the model.

1.4 Scope and Limitations of the Study

This research is focused on the effects of agricultural production on economic growth in Myanmar. The study employs secondary time series data source of Myanmar from World Bank and Myanmar Agricultural Statistics published by Ministry of Planning and Finance starting from 1987 up to 2021. In fact, there are many factors in effecting the economic growth. However, for this study, the scope of the study is limited

to GDP, agricultural production and inflation rate. Real GDP is used as a proxy variable of economic growth.

1.5 Organization of the Study

This paper is organized into five chapters. In Chapter 1, it includes introduction, rationale of the study, objectives of the study, methods of study, scope and limitations of the study and also organization of the study. Chapter 2 contains literature review on the role of agricultural productivity in the economic growth process and theories of economic growth, including empirical researches and findings. Chapter 3 is about the background history of agricultural production in the Myanmar economy. Chapter 4 shows data analysis and interpretation of results. The last chapter 5 presents the conclusion of the study.

CHAPTER 2
LITERATURE REVIEW

This chapter presents theoretical background and review on the previous studies in order to understand what is already known about the problems in the study. These literatures have been collected from reliable websites, internet, books, journals and previous studies.

2.1 The Relationship between Agricultural Production and Economic Growth

Agriculture is the oldest industry and one of the most significant economic activities in the world because it provides human being and the largest activity even today. Agriculture is a primary activity for economic growth. Economic growth is an increase in the production of goods and services in one period of time compared with a previous period. It can be measured in nominal or real (adjusted to remove inflation) terms. Traditionally, aggregate economic growth is measured in terms of gross national product (GNP) or gross domestic product (GDP), although alternative metrics are sometimes used.[2] Economic growth of a country can be measured by GDP.

GDP is the total monetary or market value of all the finished goods and services produced within a country's borders in a specific time period.[3] It can be measured by three methods, namely, output method, expenditure method and income method. There are five types of GDP. They are nominal GDP, real GDP, GDP per capita, GDP growth rate and GDP purchasing power parity (PPP). Unlike nominal GDP, real GDP accounts for more accurate reflection of the output of an economy and provides a more accurate figure of economic growth of a country.

Real GDP is an inflation-adjusted measure that reflects the value of goods and services produced by an economy in a given period. Real GDP is expressed in base-year prices. It is often referred to as inflation-corrected GDP, constant-dollar GDP or constant-price GDP. But simply, real GDP measures the total economic output of a country and is adjusted for changes in price.[4]

Agricultural production may be defined as the "ratio of index of local agricultural output to the index of total input used in farm production" (Shafi, 1984).

[2] https://www.investopedia.com/terms/e/economicgrowth.asp
[3] https://www.investopedia.com/terms/g/gdp.asp
[4] https://www.investopedia.com/terms/r/realgdp.asp

Singh and Dhillon (2000) suggested that the "yield per unit" should be considered to indicate agricultural production. Many scholars have criticized this suggestion pointing out that it considered only land as a factor of production, with no other factors of production. Agricultural production is relatively associated with the attitude towards thrift, work, industriousness and aspirations for a high standard of living, etc., (Singh & Dhillion, 2000).

The agricultural sector is important to any economies in the world, it permits the growth and development of economy, increase country's profits and revenues and satisfaction of food demand. The agriculture sector meets a portion of the basic human needs by giving food and other needs. Its contribution to economic growth and development of a country is significant. An increase in the net output of agriculture represents a rise in country's GNP.

Nowadays, in most of the developing countries, agriculture is one of the activities for economic growth and development. Most of these countries have to depend much upon the development of agricultural sector for their countries economic development in order to meet the demand for food, to access employment opportunities and reduce unemployment rate, to earn foreign income and expansion of secondary industries to raise more income for country's rural people. And then agriculture also supports the industrial sector by supplying raw materials. Agriculture's contribution to economic development may be measured in terms of its share in gross domestic product (GDP), employment generation and exports etc. Agriculture also impacts economic growth and development by contributing to GDP, directly or indirectly. The higher contribution of agriculture to GDP is a factor that positively effects economic growth of a country.

Role of agriculture for the development of an economy may be stated as: contribution to GDP, contribution to employment, contribution to export, source of food supply, pre-requisite for raw materials, creation of infrastructure, relief from shortage of capital, helpful to reduce inequality, improving rural welfare, create effective demand, contribution to capital formation and extension of market size.

2.2 Inflation Rate and Economic Growth

There are many factors that affect the economy of a country. Inflation is one of the important factors for consideration. Inflation affects all aspects of the economy and can be caused by many factors. Inflation is one of the monetary tools and can impact

on the people by rising of the prices of goods and services. As an economy grows, businesses and consumers spend more money on goods and services. In the growth stage of an economic cycle, demand typically outstrips the supply of goods, and producers can raise their prices. As a result, the rate of inflation increases.[5] Inflation refers to a broad rise in the prices of goods and services across the economy over time, reducing purchasing power for both businesses and consumers. In other words, the purchasing power of goods or services will reduce. To understand the effects of inflation, take a commonly consumed item and compare its price from one period with another.[6] In general, there are two types of inflation. They are demand-pull inflation and cost-push inflation.

Inflation is a general rise in the price of goods in an economy. Demand-pull inflation causes upward pressure on prices due to shortages in supply, a condition that economists describe as "too many dollars chasing too few goods." An increase in aggregate demand can also lead to this type of inflation (Chen, 2023). Cost-push inflation (also known as wage-push inflation) occurs when overall prices increase (inflation) due to increases in the cost of wages and raw materials. Higher costs of production can decrease the aggregate supply (the amount of total production) in the economy (Kenton, 2022).

Inflation affects all activities of the economy, from consumer spending, business investment etc. Inflation rate is the percentage change of the price level over time. Inflation rate is one of the variables which measures the macro-economic stability of the country. Macroeconomic stabilization can support country's economic growth and development. And then inflation rate is one of the important considerations for economic growth of a country. When the inflation rate rises, the price of basic food will also rise. So, the people's purchasing power will also decline and living standard will also change. Unexpected increases in inflation tends to have adversely effects on economy and can lead to financial instability. To control the inflation rate, Central Bank plays a significant role by keeping low and steadily. When the country has a reasonable inflation rate, the country's people have more money to buy goods and services for daily uses and the economy benefits and grows.

[5] https://www.pimco.com/gbl/en/resources/education/understanding-inflation
[6] https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-inflation

2.3 Agriculture's Importance in ASEAN Economies

Agriculture has continued to play an important role in the ASEAN region. It is an important driver for social, inclusive growth; an important source of export earnings; a guarantor of food availability to its citizens; and a source of employment directly and through agriculture-related, value adding activities. Some ASEAN member countries have also chosen to focus their development policies on more "export-oriented" agriculture (e.g., palm oil and rubber in Indonesia and Malaysia, high value beverages like cacao and coffee in Vietnam) while others have recognised the importance of both export and food security needs (e.g., Thailand and Vietnam).

Moreover, ASEAN agriculture remains a powerhouse for the production and supply of important food items. It is home to two of the world's largest rice exporters (Thailand and Vietnam) and has amongst it the top three exporting countries for pineapples, bananas, mango, sugar crops, coffee, cashew nuts and cassava. It is the top producer and exporter of palm oil, coconut and rubber and a major producer and exporter of seafood.

The ASEAN region collectively has about 69 million hectares under arable agriculture and 44 million hectares under semi-permanent crops like palm oil and rubber but overall, the ASEAN per capita arable land area is 0.12 hectare, among the smallest in the world. However, small farmers often lack knowledge about modern farming practices or struggle to finance farm operations. Productivity growth is key and the need for more efficient agriculture has never been greater if farming is to be sustained.[7]

There are ten important reasons for agriculture. They are the main source of raw materials, important to international trade, play a big source in a nation's revenue, provides employment, crucial to a country's development, can help the environment, goes hand-in-hand with war, the source of food supply, drives innovation in technology and the state of agriculture reflects future economic growth.

2.4 The Endogenous Growth Theory

This study is based on endogenous growth theory. The endogenous growth theory is the concept that economic growth is due to factors that are internal to the

[7] https://www.rsis.edu.sg/wp-content/uploads/2016/05/CO16127.pdf

economy and not because of external ones. The theory is built on the idea that improvements in innovation, knowledge, and human capital lead to increased productivity, positively affecting the economic outlook.

The endogenous growth theory was first created due to deficiencies and dissatisfaction with the idea that exogenous factors determined long-term economic growth. In particular, the theory was established to refute the neoclassical exogenous growth models, as it made predictions about economic growth without factoring in technological change.

The endogenous growth theory challenges such an idea by placing importance on the role of technological advancements. Since long-term economic growth is derived from the growth rate of economic output per person, it would depend on productivity levels. In turn, productivity would depend on the progress of technological change, which relies on innovation and human capital; these factors are considered internal to an economy, not external.

Assumptions in the Endogenous Growth Theory

1. Economists who believe in the theory emphasize the need for the government to provide incentives and subsidies for businesses in the private sector. It motivates businesses to invest in research and development so they can continue to drive innovation.
2. There are increasing returns to scale by investing in human capital through education or training programs. Doing so can improve the quality of labour, which increases productivity.
3. The government should enact policies that help entrepreneurs, which creates new businesses and new jobs.
4. Investments should also be made to improve infrastructure and manufacturing processes in order to achieve innovation in production.
5. Intellectual property rights, such as copyrights and patents, are incentives for businesses to expand their operations.

The endogenous growth models have been developed by Arrow, Lucas and Romer among other economists. The following are the example of Endogenous growth model by three authors.

1. Arrow Model

Also known as the AK model of economic growth, the arrow model is used to explain economic changes as a result of innovation and technology. The “learning by

doing" model is also used in the arrow model to explain how self-practice and innovation result in productivity and improved human capital. It is because learning by doing leads to a decrease in labour required to create a unit of output.

2. Uzawa–Lucas Model

The Uzawa-Lucas model explains how economic growth, in the long term, is attributed to the accumulation of human capital. In order to produce human capital, education should be used.

Therefore, the model assumes that human capital is the only input element in the education sector. It also assumes that economic output is developed by using physical capital and human capital. As a result, the ratio of physical capital to human capital is the measurement used to determine the total capital in an economy.

3. Romer Model

The Romer model considers changes to technology to be endogenous. Therefore, technological advancements lead to economic improvements. Additionally, the model also assumes that innovative ideas are a very important part of economic growth. Combining improvements to human capital and existing knowledge can create innovative ideas to enhance the production of goods in an economy.[8]

2.5 Dual-Sector Model or Two-Sector Model (Lewis Model)

The "Dual Sector Model" is a theory of development in which surplus labour from traditional agricultural sector is transferred to the modern industrial sector whose growth over time absorbs the surplus labour, promotes industrialization and stimulates sustained development.

In the model, the traditional agricultural sector is typically characterized by low wages, an abundance of labour, and low productivity through a labour intensive production process. In contrast, the modern manufacturing sector is defined by higher wage rates than the agricultural sector, higher marginal productivity, and a demand for more workers initially. Also, the manufacturing sector is assumed to use a production process that is capital intensive, so investment and capital formation in the manufacturing sector are possible over time as capitalists' profits are reinvested in the capital stock.

[8]https://corporatefinanceinstitute.com/resources/economics/endogenous-growth-theory/

Since the agricultural sector has a limited amount of land to cultivate, the marginal product of an additional farmer is assumed to be zero as the law of diminishing marginal returns has run its course due to the fixed input, land. Real wages are paid according to:

$$\frac{TP_A}{L_A} = W_A$$

Where;

TP_A = total product in the agricultural sector

L_A = the quantity of labour in the agricultural sector

W_A = real wage in the agricultural sector

Therefore, due to the wage differential between the agricultural and manufacturing sectors, workers will tend to transition from the agricultural to the manufacturing sector over time to reap the reward of higher wages. If a quantity of workers moves from the agricultural to the manufacturing sector equal to the quantity of surplus labour in the agricultural sector. Total agricultural product will remain unchanged while total industrial product increases due to the addition of labour, but the additional labour also drives down marginal productivity and wages in the manufacturing sector. Over time as this transition continues to take place and investment results in increases in the capital stock, the marginal productivity of workers in the manufacturing will be driven up by capital formation and driven down by additional workers entering the manufacturing sector. Eventually, the wage rates of the agricultural and manufacturing sectors will equalise as workers leave the agriculture sector for the manufacturing sector, increasing marginal productivity and wages in agriculture whilst driving down productivity and wages in manufacturing.

The end result of this transition process is that the agricultural wage equals the manufacturing wage, the agricultural marginal product of labour equals the manufacturing marginal product of labour, and no further manufacturing sector enlargement takes place as workers no longer have a monetary incentive to transition.[9]

2.6 Review on Previous Studies

Soe, N. Z. (1999) explained the role of agriculture in the development of Myanmar economy. The aim of this study is to present the recent achievement of

[9] Todaro, Micheal (12 February 2020). *Economic Development*.

agriculture sector. Descriptive method is used in the study. The dependent variable is GDP. The independent variables are land, labour, capital, fertilizers, age, experience, education and off-farm. The study also found that agricultural sector contributed to the Myanmar economy by providing not only security for Myanmar citizens but also exports as primary products or raw materials for foreign earning. The result also found that agriculture provides both food and raw materials to the rest of the economy; a growing agricultural sector provides an enlarged market.

Fujita, K., & Okamoto, I. (2006) studied the agricultural policies and development of Myanmar's agricultural sector. The objectives of the study are to review the development of the agricultural sector in Myanmar after the transition to an open economy in 1988 and to analyze the nature and the performance of the agricultural sector. Descriptive method is also used in the study. The dependent variable is GDP. The independent variables are export, import, domestic market and state-owned enterprise. The study found that production of crops for the domestic market has increased in response to the expansion of the domestic market.

Gökmen, A., & Temiz, D. (2010) determined an analysis of the export and economic growth in Turkey over the period of 1950-2009. The objective of the study is to investigate the relationship of real export with economic growth. The dependent variable is GDP. The independent variable is real export. The methods of the study are ADF unit root test, Johansen cointegration test, Vector Error Correction Model (VECM) and Granger Causality test. The result found that all the variables are stationary in the first difference. Moreover, the Johansen cointegration test shows the two variables have long-run relationship. Granger Causality test shows one way causality from economic growth to real net export. There is a long run and short-run causality relationship between real export and economic growth.

Oyakhilomen, O., & Zibah, R. G. (2014) analyzed agricultural production and economic growth in Nigeria; implication for rural poverty alleviation. The objective of the study is to provide empirical information on the relationship between agricultural production and the growth of Nigerian economy. The dependent variable is GDP. The independent variables are agricultural production, interest rate, exchange rate and inflation rate. The methods of the study are unit root test, autoregressive distributed lag (ARDL) bounds test and Diagnostic test. The study found that agricultural production was significant in influencing the favourable trend of economic growth. Despite, growth of the economy, poverty is still on the increase and this call for a shift from

monolithic oil-based economy to a more plural one with agriculture being the lead sector.

Aye, M. H. (2016) determined Pigeon pea export industry in Myanmar. The objectives of the study are to study how export and pigeon pea production are contributing to the economic growth of Myanmar and to analyze the effect of exchange rate, export, pigeon pea production, agricultural land, and rural population on the real GDP growth rate of Myanmar. The dependent variable is GDP. The independent variables are exchange rate, export values, pigeon pea production, agricultural land % and rural population. The methods of the study are ADF test, and ARDL bound test to cointegration. The result suggested that the exchange rate has relationships with economic growth. Last year real economic growth rate and exchange rate of pigeon pea exports provided significant both short-run and long-run.

Essa, M. A. (2017) examined export of coffee and economic growth in Uganda (1985-2014). The objective of the study is to establish the effect of coffee exports on economic growth in Uganda. The dependent variable is GDP. The independent variables are coffee export, FDI, interest rate, inflation rate and industry. The methods of the study are ADF test, Engle-Granger causality test and Diagnostic test. The study found that the variables were non stationary at level become stationary after first differencing. Engle-Granger causality test result indicates that there is a long-run relationship between coffee export and GDP understudy. Coffee export has a positive significant effect on economic growth and that GDP and coffee export earnings have a long run relationship.

Pattanayak, U., & Mallick, M. (2017) analyzed agricultural production and economic growth in India. The objective of the study is to examine how agricultural production contributes to the economic growth in India during 1991-2012. The dependent variable is GDP. The independent variables are five major crops (i.e cereals, tobacco, tea, coffee, sugarcane). The methods of the study are ADF test, Johansen cointegration test and E-views-7. The result found that the production of tea, cereals and tobacco are positively affecting the GDP growth. Coffee and sugarcane production are having inverse relationship with economic growth though not insignificant. Therefore, decline in agricultural production has been accompanied by declines in GDP growth.

Olabanji, E., et al., (2017) examined agricultural output and economic growth in Nigeria by using time series data. The objective of the study is to examine the long-

run relationship between agricultural output and economic growth in Nigeria. The dependent variable is real GDP. The independent variables are agricultural output interest rate, exchange rate and inflation rate. The methods of the study are Phillip Perron (PP) unit root results, Johansen cointegration test and Vector Error Correction Model (VECM). The study found that all the variables were not stationary at level. All the variables achieved a stationary trend process after the first differencing. Granger causality test also confirms the cointegration results indicating the existence of causality between agricultural output and economic growth in Nigeria.

Yusuf, I. A. (2018) determined agricultural production and economic growth in Somalia from 1986 to 2016. The objective of the study is to investigate the effect of agriculture production on economic growth of Somalia from 1986 to 2016. The dependent variable is GDP. The independent variables are interest rate, agricultural production, exchange rate and inflation rate. The methods of the study are ADF test, Granger causality test and Diagnostic test. The result indicated that there is a significantly positive effect of agricultural production and growth at 5% level, interest rate, inflation rate and exchange rate effects were positively insignificant. The study concluded that there is no causality between economic growth and agricultural production. However, agricultural production has a significantly positive effect on economic growth.

Etea, I., & Obodoechi, D. (2018) analyzed agricultural output and economic growth: the Nigerian case for the period 1990-2017. The objectives of the study are to examine the impact of agricultural output and economic growth and to determine the response to shocks in the variable under the study. The dependent variable is real GDP. The independent variables are agricultural output (AGRIC), gross capital formation (GCF), exchange rate (EXC) and interest rate (INT.RATE). The methods of the study are the Augmented Dickey-Fuller (ADF) stationarity test, Cointegration test, Vector Error Correction Model (VECM) and variance decomposition test were utilized in the analysis. The result indicated that all the variables were stationary at first difference and second difference. The cointegration result showed long run equilibrium relationship among the variables under the study. The VECM result showed that value of agricultural output has positive and insignificant contribution to GDP.

Awan, D. A., & Mukhtiar, A. (2020) studied agriculture productivity and economic growth: a case of Pakistan. The objective of this research paper is to study the agriculture productivity and its impact on economic growth of Pakistan. The

dependent variable is GDP. The independent variables are inflation rate, employed labor force, gross capital formation, fertilizer and agriculture. The ADF test was used to check the stationarity among variables. Using secondary data from 1994 to 2017, ARDL model was applied to determine long-run and short-run relationship between agriculture productivity and economic growth. Empirical results show that gross capital formation and inflation rate have negative relationship with economic growth while all other variables have positive relationship with economic growth in short-run and long-run.

Runganga, R., & Mhaka, S. (2021) examined the impact of agricultural production on economic growth in Zimbabwe. The objective of the study is to ascertain the impact of agriculture on economic growth in Zimbabwe. The dependent variable is GDP. The independent variables are inflation rate, agricultural production index, gross fixed capital formation, government expenditure and population. The methods of the study are ADF test and ARDL bound test. The study found that in both the short-run and long-run, inflation, government expenditure, and gross fixed capital formation have a positive impact on economic growth. In the short-run, agricultural production has a positive impact on economic growth, and no impact on economic growth was found in the long-run. Thus, the agricultural sector plays an important role in the early stages of economic development, and when the economy has developed, agriculture plays as a minimal role.

Kabini, D. M. (2022) analyzed the impact of the agricultural sector on economic growth and development in South Africa. The objective of the study is to analyse the impact of the agricultural sector on economic growth and development in South Africa. The dependent variable is GDP per capita and economic development index (EDI). The independent variables are agricultural employment, agricultural gross value added, agricultural export and inflation. The methods of the study are Descriptive statistics, Pearson correlation, unit root and stationarity tests by using ARDL model, Error Correction Model (ECM)and the Toda-Yamamoto causality tests. The study found that there is long-run relationship between dependent and independent variables. In other words, economic growth and development will respond positively to improvement in agricultural performance. In the short-run, the impact of agricultural performance is limited since changes that occur in the South African agricultural sector in the short-run do not have an impact on economic growth.

Burodo, M. S., et al., (2022) studied an empirical investigation of agricultural productivity and its effect on economic growth: Evidence from Kebbi state, Nigeria. The objective of the study is to investigate the effect of agricultural productivity on economic growth in Kebbi State, Nigeria. The dependent variable is economic growth (GDP). The independent variables are provision of credit facilities, provision of modern equipment, supply of quality inputs and improve in crop breeding. Out of 384 copies of questionnaires for respondents in Kebbi stated only 376 copies were validly returned by the respondents. The convenience sampling technique and purposive sampling technique methods were used in selecting farmers for the study. Both descriptive and inferential statistics were used to analyse the data for this study. And then, multiple regression model was employed to establish the relationship between agricultural productivity components and economic growth. The study found that agricultural productivity influences economic growth positively and significantly.

CHAPTER 3
BACKGROUND HISTORY OF AGRICULTURAL PRODUCTION IN MYANMAR ECONOMY

This chapter presents about agricultural production in Myanmar's economy, land utilization of Myanmar, gross domestic product in Myanmar, gross domestic product and inflation rate, gross domestic product and agricultural production from 1987 to 2021 with relevant tables and figures and share of agricultural contribution to gross domestic product of Myanmar.

3.1 Agricultural Policies, Objectives and Laws of Myanmar

A major intention of agriculture policy is to take advantage of the comparative advantage that Myanmar has in the production of these high value products that are in increasing demand for both domestic and international markets.

3.1.1 Socialist Period (1962-1988)

The economic policy of Myanmar during the socialist period (1962-1988), especially up to the early 1970s, was essentially a policy of agricultural exploitation, with heavy emphasis on rice production. Agriculture was adversely affected by the 1982-1987 policy framework under which the centrally planned economic system laid down the types and areas of crops to be grown and the inputs to be used by individual farmers, with public sector agencies procuring crops at fixed, low prices. Farmers responded quickly to the relaxation of controls in 1987-1988 with the result that cropping was expanded and diversified. As a result, exports have been increased during the last two decades. The liberalization of external trade, coupled with decontrol of domestic trade for all major crops, has resulted in a noticeable improvement in terms of trade for agriculture as well as changes in crop prices. With farmers now free to grow crops of their choice, there has been a shift away from staple food crops to high-value cash crops such as beans, pulses and oilseeds. Since 1992-93, integrated development strategy has been applied to agricultural development by the Ministry of Agriculture and Irrigation (MOAI), with specific sector objectives and policies, as follows:

Policies

The policies in Myanmar included strategies to allow freedom of choice in agricultural production, expand agricultural land and safeguard the rights of farmers, encourage the participation of private sector in the commercial production of seasonal

and perennial crops, distribution of farm machineries and other inputs, encouraging research and development activities for improving the quality and increasing the production of agricultural crops.

Objectives

The objectives of the agricultural policies of Myanmar are primarily to fulfil the needs of local consumption, export of the surplus of agricultural products to increase earnings from foreign countries and ensure rural development through agricultural development. The implementation of the agricultural policies is mainly the responsibility of Ministry of Agriculture and Irrigation (MOAI). The main objective of MOAI is to increase crop production in the country. Efforts are made to increase the income of farmers by developing the crop production.

Strategies

The strategies for Myanmar's agricultural development included development of new agricultural land, provision of sufficient irrigation water, provision and support for agricultural mechanization, application of modern agro-technologies, and development and utilization of modern varieties. Under the former centrally planned socialist economy, a 20-year long-term plan and a series of four-year short-term plans were implemented during which various economic policies restricted investment in infrastructure and production, and resulted in low productivity and income, poor technology, inadequate management and chronic foreign exchange difficulties. The economy achieved a little more than maintaining self-sufficiency in food. Manufacturing, mainly to substitute for inputs, was limited in scope and low in productivity, and the service sector developed very slowly.

3.1.2 State Law and Order Restoration Council (SLORC) Period

When the State Law and Order Restoration Council (SLORC) took over governing the country, it announced the adoption of a free market economy in 1988 and has since taken further steps to pursue liberalization including: enacting a new foreign investment law (November 1988), which gave greater incentives and guarantees to foreign investors; the legalization of border trade (late 1988) to encourage trade with neighbouring countries; a clearer definition (March1988) of the role of the State economic enterprises and the restriction of the number of activities to which they had exclusive rights; and the introduction in 1988 of new trading mechanisms to allow the private sector to enter the export sector and retain foreign exchange earnings.

The agricultural policies of the Myanmar government include:

(a) The right to till land: Since the State is the ultimate owner of land, under the present land policy a farmer is given the right to till the land so long as he and his family utilize it and it remains inheritable. However, the land user cannot sell or sublet the land to tenants. This policy protects a farm family from becoming landless. Also, by giving the right to till the land to the actual tiller, the number of farmers with large holdings has been substantially decreased, while the number of farmers working on smaller holdings has increased correspondingly.

(b) The freedom of farmers to choose crops, fix price and arrange marketing: With the adoption of an open market economy, farmers are free to choose any crop and area they like, transport and store the produce, and sell to anybody at any price they choose. This policy was welcomed by the farmers and there was an abrupt increase in the volume of cash crop production, mainly peas and beans. For the national economy, the government should provide a guided control over the farmers to a certain degree as practiced even in some developed countries. The impracticability of overzealous and abrupt increases in areas sown with various crops on the same land and during the same season should be reconsidered.

(c) The right to cultivate or utilize land: With notification No. 44/91 of November 13th 1991, the government prescribed the duties and rights of the Central Committee for the Management of Cultivable Land, Fallow Land and Waste Land. The Committee has the authority to grant the right to cultivate Land, the right of State-owned organizations, joint ventures, other organizations and private individuals to utilize commercially viable land, fallow land and wasteland for the purpose of carrying out agriculture, livestock breeding, aqua-cultural enterprises or other affiliated economic development enterprises. In accordance with the existing land laws, the Committee has the right to grant 5,000 acres of such land for a maximum period of 30 years, with the possibility of extension. Many national and international investors approached the government for permission to expand the area and the extension of the grant period. The government eventually agreed to expand the grant area up to 50,000 acres but it retained the 30-year period.

(d) Land-use planning and management: The government would like to develop the present 9,510,000 ha of fallow land and cultivable wasteland into cultivable land through forest clearing, reclamation etc. Initially, such types of land should be identified; for example, priority areas should be analysand maps prepared using satellite imagery, geographical information systems and field surveys. An educational program should be carried out to foster understanding and responsibility for the use and conservation of land. Land-use plans would be developed with the participation of line ministries.

3.1.3 Democracy Period (from 2011 to 2017)

Myanmar has initiated a series of political and economic reforms the way for democracy. Therefore, Myanmar stands at a critical juncture amid a wave of political, social, and economic reforms. Democracy Period is divided into two-part; first period is from 2011 to 2015 and second period is 2016 to now.

First Democracy Period

The civilian-led President U Thein Sein government took power in March 2011. Since the return of civilian rule in 2011, the new government has launched impressive reforms, focused initially on the political system to restore peace and achieve national unity and moving quickly to an economic and social reform program.

In his inaugural address, President U Thein Sein rightfully identified a raft of challenges.The government has announced its commitment to continuing reform, sustainable growth, and poverty reduction in the Framework for Economic and Social Reforms 2012–2015 and in other economic plans. For investment in physical and social infrastructure is one of the urgent needs. Another is the need for strong, growth-oriented development, led initially by agriculture and natural resources, and followed by manufacturing for domestic and export markets. The President also emphasized the importance of transparency, accountability, good governance and the rule of law, resolute action against corruption, and addressing the widening income gap between rich and poor. From 2011 onwards, these reforms also created an opening for Western States to lift or suspend sanctions and engage in state capacity building, and for UN agencies and international NGOs to strengthen their engagement with Myanmar.

Policies for the improvement of agricultural sector leading to the uplift of the national economy are as follows;

(a) Production of food crops and industrial crops with no restrictions

(b) To permit commercially viable production of industrial and plantation

crops

(c) To allow private investors and farmers to expand cultivable waste land foragriculture production

(d) To encourage participation of private sector in the distribution of farmmachineries and other farm inputs

(e) To utilize agriculturally unproductive land for other production programs

Underlying the agricultural development policies, the three objectives are being prioritized without jeopardizing the production of other crops in the country. The three main objectives are;

(a) to achieve surplus in paddy production

(b) to achieve self-sufficiency in edible oil and

(c) to step up the production of exportable pulses and industrial crops

Myanmar Rice Sector Development Strategy (MRSDS) has ten key themes to guide for developing the rice sector;

(a) Sustainable increase in rice productivity

(b) Increased farm mechanization

(c) Adaptation to climate change

(d) Efficient and sustainable management of natural resources

(e) Postharvest loss reduction

(f) Increased access to credit

(g) Capacity building

(h) Increased investment in agriculture

(i) Quality control and safety in rice production and marketing

(j) Enhanced rice research and development

Vision of the Ministry of Agriculture and Irrigation is “Achieving per capita income and standards of living of the rural population that rely on agriculture higher than the neighboring countries and keep abreast with developed nations”. Under Ministry of Agriculture and Irrigationhas eleven Departments. These are:

(a) Minister’s Office

(b) Department of Agricultural Planning

(c) Department of Agriculture

(d) Irrigation Department

(e) Agricultural Mechanization Department

(f) Settlement and Land Records Department

(g) Water Resources Utilization Department

(h) Myanmar Agricultural Development Bank

(i) Department of Agricultural Research

(j) Yezin Agricultural University

(k) Department of Industrial Crops Development

The department of agriculture has three main functions. These are production of good quality seed varieties for main crops, organizing training on advanced agricultural technologies and cultural practices of above-mentioned crops in order to facilitate for application and innovation.

The government's strategic direction is clear in the Framework for Economic and Social Reforms (FESR), which identifies a number of concrete short-term results, while laying the foundation for sustainable and equitable long-term development. Published in January 2013, the framework also lays out reform priorities for long-term goals, and action has already been taken on many of them. Despite the short span of 2012–2015, the FESR aims to cover multiple areas including fiscal and tax reforms, monetary and finance sector reforms, trade and investment liberalization, private sector and small and medium-sized enterprise development, health and education, food security and agriculture development, governance and transparency, infrastructure development including telecommunications, and improvement in the effectiveness and efficiency of government. The government has demonstrated a strong commitment to economic development through the rapid development of innovative policies.

Second Democracy Period

State Counsellor Daw Aung San Suu Kyi and President U Htin Kyaw government, the ruling National League for Democracy took power in March 2016. In 2nd August 2016, five months after took up the reins of power, the national league for democracy has unveiled its long- awaited 12-point national economic policy at the MICC-2 in Nay Pyi Taw. To attend the event, only state-owned Sky Net and selected media groups were invited by the Ministry of Planning and Finance.

Launched in July of 2016, the Economic Policy of the Union of Myanmar encapsulates the overall framework that guides Myanmar's social and economic development. This MSDP has been developed to ensure full alignment with this Policy framework.

Vision

The economic policy of the Union of Myanmar is people-centered and aims to achieve inclusive and continuous development. It aims to establish an economic framework that supports national reconciliation, based on the just balancing of sustainable natural resource mobilization and allocation across the States and Regions.

Objectives

1. To support national reconciliation and the emergence of a united democraticfederal Union.
2. To achieve balanced economic development across the States and Regions.
3. To create opportunities for the emergence of capable and skilled new generations for the benefit of the country.
4. To establish an economic system that can achieve and maintain positive development outcomes through the participation, innovation and efforts of all citizens.

Economic Policies of the Country

1. Expanding our financial resources through transparent and effective public financial management.
2. Improving the operations of State-owned enterprises and privatizing those State- owned enterprises that have the potential to be reformed, while promoting and assisting small and medium enterprises as generators of employment and growth.
3. Fostering the human capital that will be needed for the emergence of a modern developed economy and improving and expanding vocational education and training.
4. Prioritizing the rapid development of fundamental economic infrastructure, such as electricity generation, roads and ports, and establishing a data ID card system, adigital government strategy, and an e-government system.
5. Creating employment opportunities for all citizens including those returning from abroad and giving greater priority in the short term to economic enterprises that create many job opportunities.
6. Establishing an economic model that balances agriculture and industry and supports the holistic development of the agriculture, livestock and

industrial sectors, so as to enable rounded development, food security and increased exports.

7. Asserting the right of individuals to freely pursue the economic opportunities they choose, so as to enable private sector growth in line with a market economy system; formulating specific policies to increase foreign investment; and strengthening property rights and the rule of law.
8. Achieving financial stability through a finance system that can support the sustainable long-term development of households, farmers and businesses.
9. Building environmentally sustainable cities, upgrading public services and utilities, expanding public spaces, and making greater efforts to protect andconserve our cultural heritage.
10. Establishing a fair and efficient tax system in order to increase the governmentrevenues and protecting individual rights and property rights through enacting laws and regulations.
11. Establishing technical systems and procedures to support intellectual property rights that can encourage innovation and the development of advanced technology.
12. Identifying the changing and developing business environment both in ASEAN and beyond, so as to enable our own businesses to situate themselves to take the advantage of potential opportunities.

The policy said it aimed to foster long- term conservation and the fair allocation ofnatural resources among regions and states to promote national reconciliation. Its four objectives were to help support the emergence of a federal, democratic union for national reconciliation; ensure better economic conditions for equitable regional development; help produce qualified youth workforce and set up an inclusive economic system that fostered innovation. The economic brief promises support for agriculture, industry and infrastructure development. Government is focusing on accelerating agricultural productivity and landreforms, modernizing and opening the financial sector, and developing transportation and electricity infrastructure.

Maung Maung Win, deputy minister of finance and planning, told Reuters the policy document was an "overview", and that more detailed plans on specific areas of

the economy would be released in future. However, he said he did not know when. "I cannot say the specific date," he said. "It will come, it will come." The business community has been questioning the government's commitment to the economy. Many observers are reportedly disappointed by the lack of financial specifics; given the importance, the new government had said they placed in helping to improve the economy. The private sector has increasingly questioned the NLD's commitment to business, the country's leader; Daw Aung San Su Kyi has focused her efforts on the country's complex peace process. Peace process is ongoing process.

In August 2018, the Government of the Republic of the Union of Myanmar, Ministry of Planning and Finance introduced "Myanmar Sustainable Development Plan (2018–2030)". H.E. Daw Aung San Suu Kyi said that the Myanmar Sustainable Development Plan (MSDP) is the expression of our national development vision – a vision that finds resonance in the global sustainable development agenda. Currently, Myanmar has myriad sectoral, ministerial and sub- national plans. Genuine development will only come to Myanmar if, and only if, all these plans move harmoniously and coherently under the aegis of a single national strategy. The MSDP delivers this strategy, providing an overall framework for coordination and cooperation across all ministries, and all States and Regions to forge a common path towards the emergence of a prosperous, peaceful and democratic Myanmar.

Peace and stability constitute one of the Plan's three pillars and they are fundamental to the sustainment of peace. At the same time, sustainable and equitable development promotes peace and cements stability. Under the guidance light of the MSDP, we will be able to balance our development across many dimensions. In accordance with this new approach, major project proposals from all line ministries and States and Regions shall be reviewed based upon their strategic alignment with the MSDP. A Project Bank shall also be created to facilitate the effective, coordinated and transparent implementation of these projects.

Project selection at present is largely based on budgetary considerations. Although budgetary concerns are important, it is far more important to select and prioritize projects that are truly needed for the country. We should select and implement projects that bring maximum benefits to our people. In short, national projects should be designed with a holistic view, and with the welfare of the nation in mind. Moving forward, national planning, including the implementation of existing projects, shall place a special focus on development sustainabilityand harmonious coordination.

We, all of us, must be strategic in both thought and action if we realize our own needs as well as the needs of the nation.

This MSDP is structured around 3 Pillars, 5 Goals, 28 Strategies and 251 Action Plans. All are firmly aligned with the SDGs, the 12-Point Economic Policy of the Union of Myanmar, and various regional commitments, which Myanmar has made as part of the Greater MekongSub region (GMS) Strategic Framework, the ASEAN Economic Community (AEC) and many others.

Table 1: The Myanmar Sustainable Development Plan Summary Framework A Peaceful, Prosperous and Democratic Myanmar

<table>
<tr><td>Goal 1: Peace, National Reconciliation, Security & Good Governance</td><td>Goal 2: Economic Stability & Strengthened Macroeconomic Management</td><td>Goal 3: Job Creation & Private Sector Led Growth</td><td>Goal 4: Human Resources& Social Development for a 21st Century Society</td><td>Goal 5: Natural Resources & the Environme-nt for Posterity of the Nation</td></tr>
<tr><td colspan="2">PILLAR 1: PEACE & STABILITY</td><td>PILLAR 2: PROSPE-RITY & PARTN-ERSHIP</td><td colspan="2">PILLAR 3: PEOPLE & PLANET</td></tr>
</table>

For each of the 5 Goals, clear strategies have been developed. For each strategy, Action Plans have been identified. Action Plans are intended to be multidimensional, with successful implementation requiring the involvement of a broad range of stakeholders, including multiple ministries and departments.

Progress toward the Action Plans will typically require multiple programs, projects and activities. Hence, each Action Plan will require strong coordination amongst responsible stakeholders to ensure progress toward successful accomplishment. To the greatest extent possible, Action Plans have also been designed to encompass existing plans and strategies. Taken together, these Pillars, Goals, Strategies and Action Plans combine to form the MSDP Implementation Matrix.

This MSDP provides an integrated set of goals, strategies and Action Plans to be pursued by the Government of Myanmar over the medium-to long term. In doing so, it will contribute in no small way to the achievement of genuine, inclusive and transformational economic growth.

Under this government period, the Ministry of Agriculture and Irrigation, the Ministry of Livestock and Rural Development and Ministry of Co-operative are combined as the Ministry of Agriculture Livestock and Irrigation. In November 2017, vision, mission and policy of the Ministry of Agriculture Livestock and Irrigation are as followed.

Vision

An inclusive, competitive, food and nutrition secured and sustainable agricultural system contributing to the socio-economic well-being of farmers and rural people and further development of the national economy.

Mission

To enable rural population and agribusiness enterprises to get benefit from the production and trade of diverse, safe and nutritious foods and agricultural products using innovative and sustainable production, processing, packaging, logistics and marketing technologies to meet the growing domestic and global demands.

Policy

1. Land Use and Management Policy
2. Water Use and Management Policy
3. Agricultural Financing Policy
4. Agricultural Mechanization and Input Sector Policy
5. Cooperative Enterprise and Cooperative System Development Policy
6. Rural Infrastructure Development Policy
7. Research, Development and Extension Policy
8. Marketing and Value-added Processing and Export Policy
9. Governance, Institutional and Human Resource Development Policy
10. Environmental Conservation and Climate Change Resilience Policy

Objective

Objectives and goals of the Ministry of 1918 are as follows;

(1) To ensure food and nutrition security and food safety.

(2) To safeguard the rights of the farmers and to enhance their welfare and livelihood.

(3) To advance and upgrade the agricultural sector by organizing farmers' associations and cooperative inclusive of small holders and subsistence farmers with promotion of gender role.

(4) To attain sustainable rural development and to upgrade socio-economic conditions of rural people and farmers by improving rural infrastructure, accessing to markets, establishing small scale enterprises and designing participatory land use plans and management.

(5) To seek technical assistance and mobilize the financial resources from local and international agencies in support of crops, livestock, fisheries and rural development in the agriculture sector.

(6) To promote domestic and foreign direct investment in agriculture sector.

(7) To promote competitiveness and value-added production of exportable commodity complex.

(8) To encourage the development of agro-based industry, small scale enterprises, cottage industries and other income generation activities including ten traditional arts and crafts.

(9) To improve the livelihood and income generation of the rural people through the development of cooperative enterprises and system.

(10) To develop effective linkages of production, trading processing, services and consumer segments along the value chains of agricultural commodities.

(11) To improve the coordination mechanism of inter-governmental agencies, to faster public-private partnership and to establish collaboration and connectivity among all stakeholder including public agencies, academia, farmer's associations, civil societies, and private sector with a view to enhancing rural development and reducing poverty.

Goals

(1) Improve food security and nutritional status of food and food safety of the people.

(2) Enhance agricultural diversification programs in compliance with the changingmarketing and the prevailing Agri-climatic condition.

(3) Satisfy specified quality and standard of agriculture, livestock and fishery productsof market.

(4) Improve dissemination of markets and prices information.

(5) Conduct sanitary and phytosanitary (SPS) measures Develop and adopt Good Agriculture Practices-(GAP), Good Animal Husbandry Practices-(GAHP) and Good Aquaculture Practices-(GAqP).

(6) Emerge crops, livestock and fisheries producer groups and cooperative societiesaiming at sustaining the development of agriculture sector.

(7) Develop seed industry and highly performing pure animal breeds and fish speciesand conserve native breeds/species.

(8) Develop and enhance agro-based industries, small scale industries, traditional weaving, handicraft including 10 traditional artworks and crafts, vocational education, and rural infrastructure. Improve and enhance research and extensionservice and human resource programs.

Farm Land Law

The Pyidaungsu Hluttaw hereby enacts the Farm Land Law in 30th March, 2012. This Law number is No.11/2012.

In Section 3, the following expressions contained in this Law shall have the meanings given hereunder:

(a) **Farm Land** means land considered as low land, upland, silty land, high elevation upland, perennial crops land, nipa palm land, garden land or horticultural crops land or alluvial land. In these expressions, housings, religious buildings and precinct within town boundary and village boundary and communal land which are not used for agriculture are not included;

(b) **Low land** means land on which paddy is mainly cultivated and carried out so as to maintain water after obtaining the irrigation water by naturally or artificially;

(c) **Alluvial land** means unstable land submerged under water and altered soil texture and structure by annual water current;

(d) **Right to carry out the farm land** means allowing to cultivate and use by keeping in hand in accord with this Law and rules, regulations, by-laws issued under this Law in order to improve agricultural production of the farm land for the State is the ultimate owner of all land. However, the extraction of natural resources such as gems, minerals, petroleum and gas above and below the ground are not included.

(e) **Peasant** means a person who corresponds with any of the following:

(i) a person who carries out by himself or a person who has been carried out continuously by himself the agriculture or livestock breeding or both by using the land as his main living;

(ii) a person who supervises by himself the agriculture or livestock breeding or both by using the land in respective year as his main living throughout the business;

(iii) a person who carries out by himself or who supervises throughout the business by capitalizing the investment in order to produce seasonal crops, horticultural crops, perennial crops or commercial livestock breeding by using the land;

(iv) a person who participates in businesses relating to agriculture and livestock breeding by using the land;

(v) a person who produces and sells seedlings, seeds, breeds and offspring by himself by using the land for agriculture, livestock breeding and the production connecting to them;

In Section 4, the person who has the right to use the farm land shall apply the right to carry out the farm land to the Township Department through the relevant ward or village tract Administrative Body of the Farm Land in accord with the stipulations.

In Section 5, Township Department shall scrutinize the application of the right to carry out the farm land under section 4 in accord with the stipulations and submit it to the relevant Township Administrative Body of the Farm Land.

In Section 6, relating to farm lands existed on the date on which this Law come into force, Township Administrative Body of the Farm Land shall, with the approval of the relevant District Administrative Body of the Farm Land, issue the certificate to carry out the farm land to the following person or organization after registration by paying registration fees to the Township Department in accord with the stipulations:

(a) if it is a person,

(i) the household which has the right to use the farm land shall be the household of the peasant or the member of the household;

(ii) the head of this household who has the right to use the farm land or the one included in that household or the guardian shall be the one who legally carrying out at present in accord with the existing land laws before this Law is enacted;

(iii) he shall enjoy the benefit legally in accord with this Law or in accord with the provisions of the rule carried out under this Law after enacting this, Law;

(iv) he shall attain the age of 18 years;

(v) he shall be a citizen, an associate citizen or the person permitted to be a citizen;

(b) if it is an organization, it shall be the government department, government organization, non-government organization, company or association which has the right to use the farm land.

In Section 7, Township Administrative Body of the Farm Land shall, with the approval of the District Administrative Body of the Farm Land, issue the certificate to carry out the farm land to the following person or organization after registration by paying the registration fees to the Township Department in accord with the stipulations relating to the farm land which right to carry out is confiscated and the farm land reclaimed by the State from time to time:

(a) if it is a person:

(i) he shall carry out the agriculture by using the farm land;

(ii) he shall reside in the relevant ward or village tract if there is no special reason;

(iii) he shall attain the age of 18 years;

(iv) he shall be a citizen, an associate citizen or the person permitted to be a citizen;

(b) if it is an organization, it shall be the government department, government organization, non-government organization, company or association which is actually desirous to carry out agriculture in the farm land.

In Section 8, Township Administrative Body of the Farm Land shall issue the certificate to carry out the farm land to the person who purchase, transfer or accept the gift of the right to carry out the farm land or the person who has the right to carry out the farm land by inheritance or the person who applies the right to carry out the farm land in accord with this Law after reclaiming as cultivated land by having the right to carry out and use vacant, fallow and virgin land after registration by paying the registration fees to the Township Department in accord with the stipulations.

In Section 9, the person who has the right to carry out the farm land shall have the following rights:

(a) right to have the farm land in hand, right to carry out the farm land, right to enjoy the benefit arises from this right;

(b) right to sell, mortgage, lease, exchange and gift the whole or part of the farm land in accord with the stipulated terms and conditions of the right to carry out;

(c) right to accept the decision of the relevant court in accord with the existing law if the dispute is arisen relating to the inheritance of the right to carry out the farm land;

(d) right to carry out the farm land so far as the stipulated terms and conditions are not violated;

(e) right to carry out common interest with the investment of village co-operative or with the private investors for the development of agriculture in the farm land;

(f) right to carry out common interest in the farm land in accord with the Foreign Investment Law of the Republic of the Union of Myanmar by cooperating with the foreigner or the organization in which the foreigner is included.

In Section 10, the provisions contained in sections 4, 5, 6, 7, 8 and 9 of this Law shall not apply with the granting of alluvial land.

In Section 11, the matters for granting alluvial lands shall be prescribed in the rule carried out under this Law.

In Section 12, the person who has the right to carry out the farm land:

(a) shall carry out the farm land as prescribed in this Law;

(b) shall pay land revenue and other taxes levied by the Ministry relating to the farm land;

(c) shall register in the relevant Township Department by paying the stamp duty and registration fees for the contract stipulated by the Department in carrying out sale, mortgage, lease, exchange and gift of the right to carry out the farm land;

(d) shall register in the relevant Township Department in accord with the stipulations when the right to carry out the farm land is obtained by inheritance in accord with the existing law;

(e) the right to carry out the farm land shall be mortgaged only for the investment of cultivation and shall mortgage in the Government Bank or the Bank recognized by the Government;

(f) shall not trespass and carry out without granting legally by the relevant Administrative Body of the Farm Land;

(g) shall not carry out the farm land by other means without permission;

(h) shall not cultivate the category of crop which is cultivated originally to other category of crop without permission;

(i) shall not be fallow the farm land without sufficient reason;

(j) shall not sell, mortgage, lease, exchange or gift the farm land during the period before having the right to carry out the farm land or during the period the dispute is arisen relating to the right to carry out the farm land.

In Section 13, if the dispute relating to the right to carry out the farm land is arisen after this Law has come into force, the right to settle legally be done only after registration in the Department.

In Section 14, the person who has the right to carry out the farm land shall not sell, mortgage, lease, exchange or gift the whole or part of the right to carry out the farm land without permission of the Government to any foreigner or any organization in which the foreigner is included.

3.2 Agricultural Production in Myanmar's Economy

Myanmar had pursued country's economic growth and development by means of socialist economic planning system for about a quarter of a century. In the later years of 1980s, Myanmar experienced a negative growth rate for three consecutive years due to low productivity in key productive sectors. During this period, the people in Myanmar have little faith in the currency or banks and choose to keep savings in gold, jewellery or real estate because black market trader who withheld large amounts of currency outside the banking system. To restructure the economy and then socialist planning system was replaced by market-oriented system and farmer were allowed freedom of choice on crop cultivation and production. The market-oriented economic policy was officially adopted only in March 1989 when State Law and Order Restoration Council (SLORC) revoked the 1965 Law of Establishment of the Socialist Economic System.

Before the end of 2010, an election will be held that is more about transferring power to a new generation of military officers than making a transition to civilian rule.[10] The Myanmar government has initiated notable economic reforms since parliament elections were held in November 2010 and U Thein Sein was named president of Myanmar in March 2011, including new policies on anti-corruption, currency exchange rate, foreign investment laws and taxation.[11] After forming the new government in 2011, the Government undertook some relaxation on the export tax for agricultural products and tax exemption on the import of agricultural inputs and machineries in order to support agricultural production growth. After assuming power in March 2011, President U Thein Sein launched a series of political, economic, social and administrative reforms. "First Democracy Government" has also tried to promote economic development and growth. Nowadays, Myanmar is a developing country and its economy is steadily improved.

Myanmar has the most favourable agricultural conditions in all of Asia. Almost anything can be grown in the country, from fruits to vegetables, from rice to pulses.[12] Agricultural sector is not only fundamental for ending hunger, but also the main source of income for country's economic growth and social development. From historical perspective, agriculture is the backbone of Myanmar economy not only contributing to the overall economic growth but also sustaining living standard for Myanmar's population. Most people who live in rural area are poor, where the poor rely on agriculture and other casual employment for their lives. So, Myanmar agricultural sector plays an important role in reducing poverty and future sustainable growth.

The agricultural sector encompasses crop production, livestock breeding, fisheries and agro-forestry. Myanmar not only produce high volumes of crops; it also produces livestock – for food and other benefits. All of these sectors provide Myanmar economic growth and have always traditionally contribute Myanmar's main industry, employing over half of the labour force.

Myanmar's politicians laid down agricultural policies for economic growth. A major agriculture policy is to take advantage that Myanmar has in the production of

[10]https://www.usip.org/publications/2010/05/economy-burmamyanmar.eve-2010-elections

[11] https://factsanddetails.com/southeast-asia/Myanmar/sub5_5g/entry-3127.html

[12]https://blogs.worldbank.org/eastasiapacific/unleashing-myanmar-agricultural-potential

high value products that are in increasing demand in both domestic market and international market from which country will receive profits and other income. Agriculture plays a vital role in the Myanmar economy and contributes around 23.44% of the total GDP in 2021 and it is a source of employment for rural population of the country. Myanmar's agriculture sector provides basic goods for daily use and consumption because agriculture sector relates with production of basic food crops.

Agricultural products are Myanmar's second largest export commodity. Rice is the country's primary agricultural product. In the pre-world war period, Myanmar was the world's largest exporter of rice according to the historical experience. Taking this into consideration, it does not seem too surprising because rice is Myanmar's main agricultural commodity. Myanmar is ricing surplus country for which it can enough for country's people consumption and export for foreign countries, such as Japan, EU countries, Indonesia, China, African and Middle East countries etc. Rice is continuing to play a central role in Myanmar's food consumption. So, Myanmar agricultural production is one of the most important sources for economic activity. Thus, the performance of Myanmar's agricultural sector has had the large impact on the changes of country's economic growth.

Nowadays, Southeast Asia becomes more technologically developed and Myanmar recovers from its past economic struggles, Myanmar should attempt to transit from agriculture to industry. If the abundant agricultural resources can transfer to other sectors, the country actually led to economic growth. In the future, if the country is to continue relying on agriculture and other relates sector as a country's crucial economic sector, then it may have to address the problems within the sector by upgrading its agricultural techniques and methods.

3.2.1 Agriculture in Myanmar

The Republic of the Union of Myanmar is an agricultural country, and its economy has traditionally been based on agriculture. That is because Myanmar has vast areas of fertile land for cultivation and irrigation system, favourable climate condition which are the principal ingredients of an Agro-based economy. Myanmar's agriculture is heavily dependent on the monsoon rains for cultivating and growing. Agriculture sector contributes many factors and it is one of economic activity in the country.

Myanmar agricultural production sector includes agriculture (crop production), livestock, fishery and forestry sectors. Crop production includes cereals, oilseeds, pulses, spices and condiments, tobacco and betel, beverage, vegetables and fruits, fibre

and miscellaneous etc. Cereal includes paddy, wheat, maize, barley, oats, rye, millet, dry beans etc. The following table shows three major items production from 2010-2011 to 2020-2021 fiscal year.

Table 3.1 Three Major Items Production

Year	Paddy (Ton)	Wheat (Ton)	Maize (Ton)
2010-2011	32065	181	1354
2011-2012	28552	170	1462
2012-2013	26217	178	1502
2013-2014	26372	183	1601
2014-2015	26423	182	1693
2015-2016	26210319	179307	1748547
2016-2017	25672833	160648	1830631
2017-2018	25624492	123252	1909295
2018-2019	27573589	115996	1984136
2019-2020	26269814	110663	1985765
2020-2021	25982696	105457	2072482

Source: Myanmar Statistical Yearbook (from 2010-2011 to 2020-2021)

According to table 3.1, paddy, wheat and maize production gradually increases from 2010-2011 to 2020-2021. Paddy production is the highest because rice is the major cultivation crops in Myanmar because of the country's staple food. Rice is sufficient for country's people consumption and the surplus can be exported to neighbouring countries. Wheat is used for making bread, noodles, cakes, pasta and snack food etc. Maize is also used for corn ethanol, animal feed and other maize product. Paddy, wheat and maize can be exported to neighbouring countries from which country can receive income and profits. Agriculture and the processing of agricultural products provides a majority of job employment and income for the citizens. Agriculture impacts society in many ways; such as food, providing raw materials for food and other products. So, agriculture in Myanmar plays an essential role in sustaining and driving the country's economy.

3.2.2 Livestock and Fishery in Myanmar

Livestock and fishery production have been central components in rural people's livelihoods and consumption in Myanmar for a thousand year and remain important today. Livestock plays an important part for society, local and global

economy etc. Livestock includes cattle, buffalo, sheep, goats, oxen, chicken, duck and pigs etc. Livestock plays a key role in the sector, not only as a source of food, but cattle and buffalo are used for draught power, and pigs, chicken and ducks are the main cash income for many rural communities.[13]Livestock provide sources of meat, milk, fertilizer and it can use for pulling plows. Farmers in Myanmar raise livestock to support food and to use as labour. Most of livestock products such as leather, wool and other raw materials can transport from which country can receive foreign income.

Livestock and fishery production include meat, milk, egg, fish and prawns etc. Fish can reduce the number of harmful insects, such as paddy stem borers, whose larvae are eaten by fish. Fish is one of the essential parts of the Myanmar diet and contributes a large part of daily protein intake. Fishing occurs in both salt and freshwater. Fisheries may be classified into various categories: marine, coastal, river, inland and aquaculture etc. Freshwater fisheries include rivers, streams, lakes and other bodies of water. Fish is one of the essential parts of the Myanmar diet and it provides the human's health. Better health is increasing agricultural and other related production.

Nowadays, livestock and fishery sector increase steadily because most people interest in them. From exporting these products, people can receive income. So, Livestock and Fishery in Myanmar is also essential for country's economic growth.

3.2.3 Forestry in Myanmar

Myanmar is rich in natural resources like various types of forests. Forestry in Myanmar are socially and economically significant to the country's economy and plays a vital role in sustainable development. Forests have provided livelihoods and wealth for many years. The country's rural people rely on forest resources for construction, food, fodder, shelter, and fuel etc. Forestry sector can provide living standard for people. Particularly, forestry sector significantly contributes not only the country's economy through the export of forest products but also the livelihood improvement of the rural communities.

Reserved forest (RF), protected public forest (PPF) and protected area (PA) are three types of forest in Myanmar. Myanmar is well known for Teak (*Tectona grandis*) forests. Myanmar's teak can be used for furniture-making and shipbuilding etc.

[13]https://admin.cacac.com.cn/profile/2022/04/20/603d2741-c01b-4283-8b20-a7a6fce2342e.pdf

Myanmar's economy depends on these sector performances for its economic growth. Forestry products include firewood, charcoal, bamboo and lac etc.

Nowadays, forest in Myanmar gradually decreases due to deforestation and degradation. Land use for agriculture as a major driver of deforestation and timber harvesting, both legal and illegal, is a driver of degradation. But Myanmar's economy is still depending on forestry sector production. The following table shows agricultural sub-sector contribution to agricultural production.

Table 3.2 Agricultural Sub-Sector Contribution to Agricultural Production (2000-2020)

(Kyats in Million)

Year	Agriculture	Livestock and Fishery	Forestry	Total Agricultural Production
2000	33659	8310	867	42836
2001	1346030	226802	15436	1588268
2002	1409041	258620	16395	1684056
2003	1539697	324082	17446	1881224
2004	1697100	374298	16414	2087812
2005	1878319	444564	17074	2339957
2006	5151262	1055870	83216	6290347
2007	5535774	1170634	83487	6789895
2008	5799789	1288796	81581	7170165
2009	6043622	1447155	79063	7569840
2010	11108404	3392103	158454	14658961
2011	10750197	3641799	170117	14562113
2012	10724797	3900919	181337	14807052
2013	10959271	4217589	169246	15346106
2014	11113012	4529326	126433	15768771
2015	11357413	4820335	128429	16306177
2016	11261661	4917638	51634	16230932
2017	11272922	5099502	66833	16439257
2018	12892194	6908242	71914	19872350
2019	12936166	7193025	67894	20197085
2020	12945536	7409503	51629	20406668

Source: Myanmar Agricultural Statistics (from 2000 to 2020)

According to table 3.2, the share of agriculture (crop production) contribution was the highest because Myanmar has the most favourable climate condition for cultivating crops and most of rural people participate in agriculture. And then, the share of forestry contribution was the lowest because of deforestation and forest degradation. One of the most important drivers of deforestation has been clearing for farming and the reason for forest degradation was human activities or immediate actions. But, all of these sectors provide country's economic growth and development.

3.3 Land Utilization of Myanmar

Myanmar possess a huge land area, wide variety of growing conditions and favourable weather condition for cultivating. The people cultivate various crops for consumption. The land type of Myanmar used by the Settlements and Land Records Department (SLRD) includes Le-land (Paddy Land), Ya-land (Dry Land), Kaing (Alluvial Land), Garden Land (Planted with perennial trees), Dhani (a land along the mouth of the river within reach of salt water), Rubber (land stable for rubber trees) and other land types.

Land utilization of Myanmar includes net sown area, reserved forest, current fallows land, waste land, other wood land and other type of land. The net sown area (NSA) represents total cultivated area during the reference year without considering the number of times it has been cultivated in a year (Agricultural Census Division). And then net sown area is the land on which crops are sown and cultivated during the agricultural year. In this section, net sown area is exclusive of squatter. A squatter is a person who settles in or occupies a piece of property with no legal claim to the property. A squatter lives on a property to which they have no title, right, or lease (James Chen).

Reserved forest has the best quality and high commercial value but grants no harvesting rights to the public.[14] Current fallow land is the type of land which is left uncultivated for one or less than one agricultural year. Waste land includes rocky, arid and desert areas etc. Other wood land has many plants and trees. Other type of land includes pastureland, residential land, recreational land, commercial land, industrial land and transportation etc. The following table shows land utilization of Myanmar from 2010 to 2020.

[14]https://afocosec.org/knowledge/country-information hub/myanmar/#:~:text=The%20collective%20constitution%20of%20RF,but%20has%20lower%20commercial%20value.

Table 3.3 Land Utilization of Myanmar (2010-2020)

(Thousand Acres)

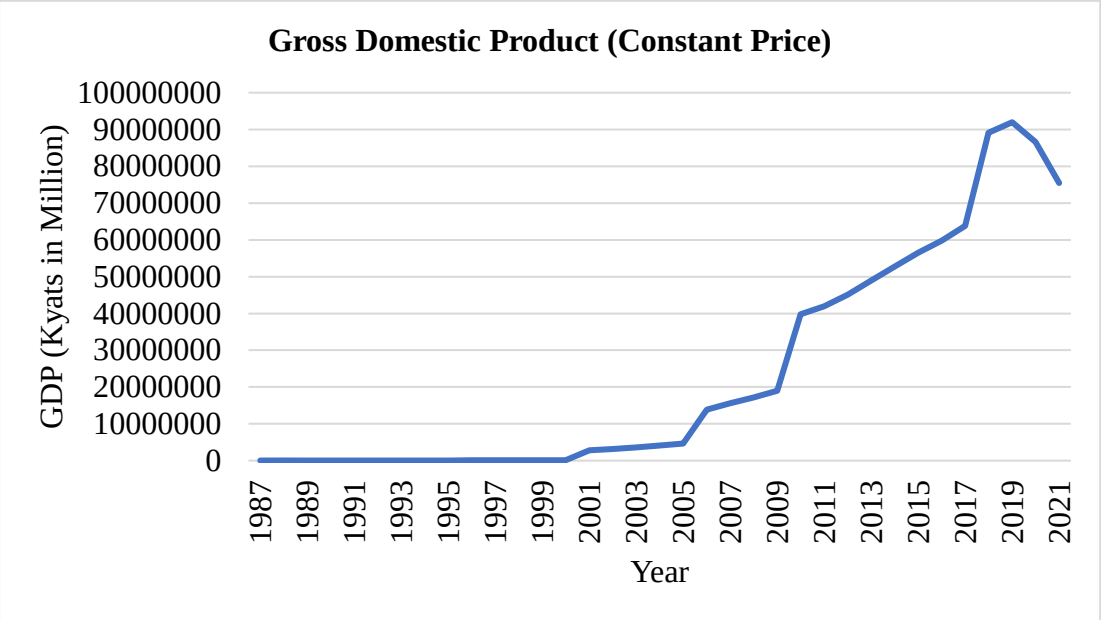
Year	Net Sown Area	Reserved Forest	Current Fallows	Waste Land	Other Wood Land	Other	Total Area
2010	29703	44271	569	13333	38621	40689	167186
2011	29454	45058	795	13279	37926	40674	167186
2012	29258	45232	1086	13246	37577	40787	167186
2013	29328	45950	1129	13058	36675	41046	167186
2014	29617	45896	1094	13014	36409	41156	167186
2015	29672	45849	1111	12964	36427	41163	167186
2016	29746	46100	1165	12946	36107	41122	167186
2017	29792	46649	1149	13695	35853	40048	167186
2018	29674	47241	1214	14243	35507	39307	167186
2019	29593	47790	1241	16489	35405	36668	167186
2020	29615	47894	1254	16470	35290	36663	167186

Source: Myanmar Agricultural Statistics (from 2010 to 2020)

According to the table 3.3, Myanmar has total land area of 167186 thousand acres. Current fallow land is the lowest in land utilization because people can't leave without cultivation. If the land being left out of cultivation, the people had no financial return. Reserved forest, other types of land and net sown area are the highest in land utilization. Reserve forest provides climate condition, rainfall, soil and the habitat of wildlife. The good climates condition is better for growing crops and others from which country can receive many incomes. Thus, reserve forest plays an important role in country's economy. Country can also receive many social and economy benefits from other types of land. If land is used for pastureland, it can provide livestock feed, build soil tilth and fertility and reduce erosion. The agricultural output is based on net sown area. If net sown area increases, the agricultural output also increases. It is sufficient for country's people consumption and the surplus can be exported to other countries from which country can receive profits. So, reserved forest, other types of land and net sown area are essential drivers for country's economic growth.

3.4 Gross Domestic Product in Myanmar

Gross domestic product is the most important indicator to measure economic growth of a country. GDP is important because it gives information about the situation of economy. There are five types of GDP. All of these, real GDP is the inflation adjusted GDP of a country and an increase in real GDP is interpreted as a sign that the economy is doing well. The following figure shows gross domestic product by using Myanmar Agricultural Statistics Data published by Ministry of Planning and Finance from 1987 to 2021 in Myanmar.



Source: Myanmar Agricultural Statistics (from 1987 to 2021)

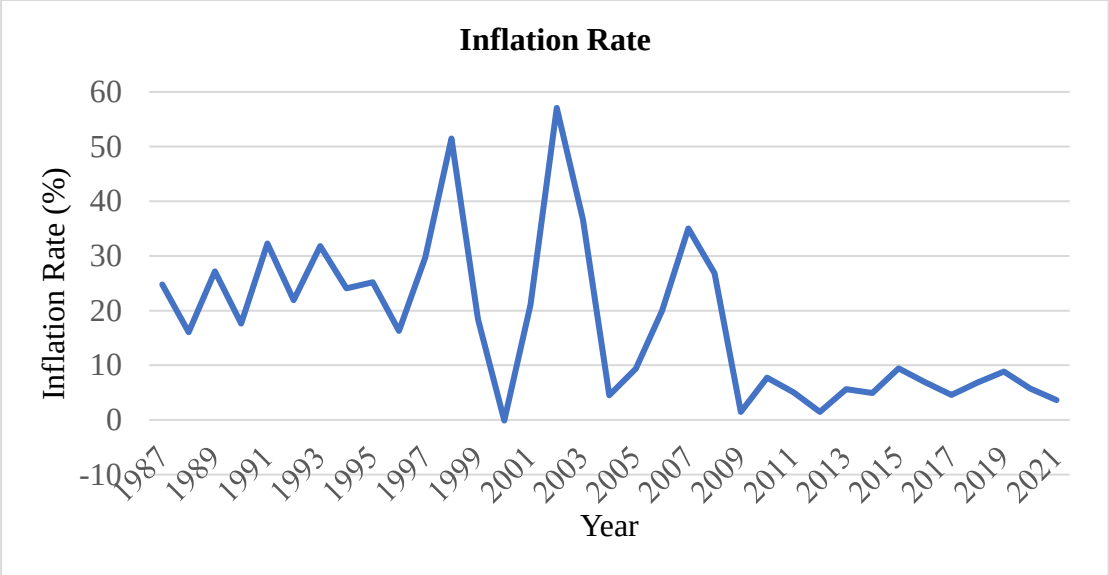
Figure 3.1 Gross Domestic Product (constant price) in Myanmar (1987-2021)

According to Figure 3.1, in the later year of 2005, GDP of Myanmar was steadily boost according to the historical data. In 2006, Myanmar expanded relations with China and India from which country's received foreign earnings and other social profits. But, in 2020 and 2021, GDP of Myanmar was a little drop due to COVID-19 pandemic effect, labour migration to foreign countries and other unpredictable conditions. At the same time, the share of agricultural production to GDP also decreased. But, an increase in real GDP is interpreted as a sign that the country's economy is doing well and steadily boost. GDP has been considered the best indicator of a country's economic growth and health. So, the country's GDP is one of the main indicators used to measure the performance of the economy because it accounts for the entire output, including goods and services sold both domestically and internationally. A rising GDP is a sign of a growing country's economy and a lower GDP indicates a

shrinking country's economy. Economic growth is one of the most powerful tools to end extreme poverty, boost shared prosperity and foreign income.

3.4.1 Gross Domestic Product and Inflation Rate in Myanmar

Inflation is a situation where prices tend to rise. When the inflation rate rises, it effects on gross domestic product. Many economists say higher inflation rate actually decreases GDP of a country. High inflation is generally considered harmful for economy. Inflation rate is one of the important consideration points for country's economic growth. The following figure shows inflation rate by using World Bank Data from 1987 to 2021 in Myanmar.



Source: World Bank Data (from 1987 to 2021)

Figure 3.2 Inflation Rate in Myanmar (1987-2021)

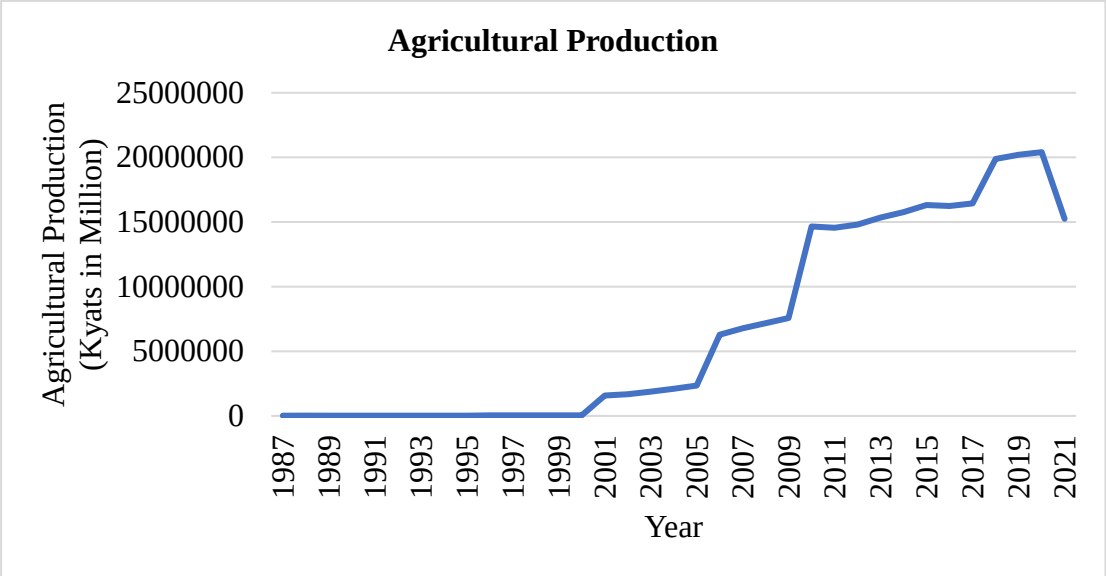
According to the Figure 3.2, the inflation rate of Myanmar has been fluctuating during the period of 1987 to 2021 due to the change in economic system. The highest rate of inflation was found as 57.07% in 2002. At the end of December 2002, the inflation rate of Myanmar rose due to increasing salaries of public sector employees and the people withdraw money from the banks. The lowest inflation rate was -0.11% in 2000. At that time, the interest rate of Myanmar was 6.97%. When the interest rate rises, people deposit more money in the bank. Thus, the inflation rate of Myanmar falls due to consumer spending decrease. In 2001, the inflation rate increases due to the financial instability. From 2009 to 2021, the inflation rate of Myanmar was between annual percent of 1 percent to 10 percent.

The fluctuation of inflation rate is generally considered harmful for the economy. The depreciating Myanmar kyats can cause import costs to rise sharply. So,

inflation declines the purchasing power of a nation's currency. It has a major effect on country's whole economy. When inflation rate rises, the economy can put upward pressure on farm input commodity prices and reduce the agricultural production. And then higher inflation is bad for consumers because high inflation rate reduces the purchasing power of some consumers due to rise in prices for goods and services and that it is bad for the entire economy, including agriculture.

3.4.2 Gross Domestic Product and Agricultural Production

Agricultural production is the Myanmar's economic backbone. Agricultural production sector is the basic one in the national economy of Myanmar, most of people live in rural area and basically engaged in agricultural production sector for their earnings. Agricultural production sector is still important for economic growth, providing job, income and profits. The following figure shows agricultural production by using Myanmar Agricultural Statistics Data from 1987 to 2021 in Myanmar.



Source: Myanmar Agricultural Statistics (from 1987 to 2021)

Figure 3.3 Agricultural Production in Myanmar (1987-2021)

Figure 3.3 shows that Myanmar's agricultural production was steadily boost in the later year of 2009. Before the end of 2010, "First Democracy Government" undertook some relaxation on export and import tax for agricultural products. So, the farmer received more incentive for cultivation. In the later year of 2019, Myanmar agricultural production was slow down due to increased prices of agricultural inputs, rising production costs, lack of agricultural technology innovation and agricultural mechanization, migration of labour etc. Rural farm workers migrate to urban areas and foreign countries are the main reasons for agricultural production decrease. And then

the outbreak of COVID-19 pandemic was also affected on agricultural production. Due to COVID-19 pandemic, farm worker suffers illness so low level of agricultural production, grief and financial instability.

The country should attempt to transfer traditional agriculture sector to modern industrial base economy for more economic growth. If the growing of industries within an economy by using new technologies, the economy leads to an increase in a business' output and an increase in profits and can help more economic growth. Like other sectors, Myanmar agriculture sector is one of the components for international isolation. Myanmar economic growth and improvement is not impossible without agricultural production sector. Thus, agriculture is a key to the success of Myanmar economy.

3.4.3 Share of Agricultural Contribution to Gross Domestic Product in Myanmar

Agriculture is important and plays a significant role in country's economic growth, food security, employment generation and poverty alleviation. This section demonstrates share of agricultural contribution to GDP of Myanmar. The following table shows agricultural contribution to GDP from 2000 to 2021.

According to the table 3.4, GDP of Myanmar is 100274.8 million kyats, 28423148 million kyats and 31841178 million kyats in 2000, 2001 and 2002 respectively. Therefore, GDP of Myanmar remarkably increased from 2000 to 2021. Myanmar GDP was the highest in 2019 with 91971633 million kyats. According to the table, the share of agricultural contribution to GDP of Myanmar was the highest in 2001 with 55.9%. According to the historical data, in 2001, the weather is good for cultivation and increase in cultivated areas. Thus, agricultural production is rising and share contribution to gross domestic product also rises.

The share of agricultural contribution to gross domestic product (GDP) of Myanmar was gradually decreased 2012 to 2021. In 2021, the contribution to gross domestic product (GDP) was the lowest with 20.21% because of COVID-19 pandemic affect and other unpredictable conditions. The gross domestic product (GDP) of Myanmar gradually increased but the share of agricultural contribution to gross domestic product (GDP) decreased because Myanmar attempt to transfer traditional agriculture sector to modern industrial sector. Myanmar attempt to transfer modern industrial sector because it increases crop yield by using modern farming methods and techniques, lowers consumer costs, technological development and innovation and increase food availability etc.

Table 3.4 Share of Agricultural Contribution to Gross Domestic Product (2000-2021)

Year	GDP (Kyats in Million)	Agricultural Contribution to GDP (Kyats in Million)	Share of Agricultural Contribution to GDP (%)
2000	100275	42836	42.70
2001	2842314	1588268	55.90
2002	3184117	1684056	52.90
2003	3624926	1881224	51.90
2004	4116635	2087812	50.70
2005	4675220	2339957	50.10
2006	13893395	6290347	45.30
2007	15559413	6789895	43.60
2008	17155078	7170165	41.80
2009	18964940	7569840	39.90
2010	39776765	14658961	36.90
2011	42000876	14562114	34.70
2012	45080662	14807052	32.90
2013	48879159	15346106	31.40
2014	52785051	15768771	29.90
2015	56476225	16306178	28.90
2016	59787129	16230932	27.20
2017	63827919	16439257	25.80
2018	89147341	19872350	22.30
2019	91971633	20197085	22.00
2020	86561825	20406668	23.60
2021	75500945	15256767	20.21

Source: Myanmar Agricultural Statistics (from 2000 to 2021)

CHAPTER 4
ANALYSIS ON THE EFFECTS OF AGRICULTURAL PRODUCTION ON ECONOMIC GROWTH IN MYANMAR

This chapter deals with data analysis with the specific objectives. Agricultural production is the main function of economic growth in Myanmar. The study is focused on the effects of agricultural production on economic growth in Myanmar from 1987 to 2021.The study used three variables gross domestic product (GDP), agricultural production and inflation rate in Myanmar. This section presents descriptive statistics of the variables, Augmented Dickey-Fuller (ADF) unit root test, interpretation of Johansen cointegration test, interpretation of Vector Error Correction Model (VECM) and Diagnostic test.

4.1 Research Methodology

This study analyzes the effects of agricultural production on economic growth in Myanmar by using secondary time series data for the period of 1987 to 2021. GDP is the dependent variable and agricultural production and inflation rate are independent variables. GDP and agricultural production data are obtained from Myanmar Agricultural Statistics (Published by Ministry of Planning and Finance) and inflation rate data is obtained from World Bank data. These data sources are the key data sources for this study. To obtain adequate about the effects of agricultural production on economic growth in Myanmar, the researcher uses several sources like text books, international thesis, international journals, reliable internet websites etc.

The model intended to establish the effects of agricultural production on economic growth. This study used endogenous growth theory by highlighting the importance of agricultural production which is necessary to achieve country's economic growth. Endogenous growth theory assumes that economic growth can be achieved a desired rate by agricultural production and inflation rate. These variables are macroeconomic variables that determine economic growth of a country.

The relationship between GDP, agricultural production and inflation rate are expressed as follow;

$$Ln\text{GDP}_t = \text{f}\ (Ln\text{AGP}_t, \text{Infla}_t)$$

This study was used these variables but it may increase variables, if it necessary for further studies. In this study economic growth can be measured by gross domestic product (GDP).

The above equation can be expanded with the following regression equation;

$$LnGDP_t = \beta_0 + \beta_1 LnAGP_t + \beta_2 Infla_t + e_i$$

Where;

Dependent Variable;

$LnGDP_t$ = Natural log of Gross Domestic Product (GDP constant local currency unit) in time period

Independent Variables;

$LnAGP_t$ = Natural log of Agricultural Production (local currency unit) in time period

$Infla_t$ = Inflation Rate (Consumer prices (annual %)) in time period

e_i = Error term

(a) GDP: GDP at constant purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.

(b) AGP: Agricultural production corresponds to livestock, fisheries and forestry production as well as cultivation of crops. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources.

(c) Inflation rate: Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.

4.2 Descriptive Statistics of the Variables

This section shows descriptive statistics of the variables of the study variables from 1987 to 2021. Table 4.1 presents the distribution of each variable with respect to mean, median, standard deviation, minimum and maximum values of the variables.

Table 4.1 Descriptive Statistics of the Variables

Variable	Mean	Median	Maximum	Minimum	Std.Dev.
LnGDP	28.43	29.05	32.15	24.58	3.10
LnAGP	27.49	28.37	30.65	23.84	2.91
Infla	17.70	16.28	57.07	-0.11	14.16

Source: World Bank and Myanmar Agricultural Statistics (from 1987 to 2021)

In the above table, the mean GDP in the study period was 28.43 percent, maximum value was 32.15 percent and minimum value was 24.58 percent. The standard deviation of GDP was 3.10 percent. In 1988, Myanmar's GDP was the least with 24.58 percent due to recession, as high interest rate and the share of agricultural production sector to GDP also decreased. The growth rate of agricultural production was 27.49 percent on average with the maximum estimate at 30.65 percent and the minimum at 23.84 percent due to lack of knowledge about modern farming methods and insufficient agricultural inputs etc. The standard deviation of agricultural production growth rate was 2.91 percent. The average inflation rate was 17.70 percent with maximum level being 57.07 percent and the minimum -0.11 percent. The standard deviation from the mean inflation rate was 14.16 percent. The standard deviation of inflation was the highest because inflation rate of Myanmar fluctuated year by year. Inflation rate fluctuated due to unstable exchange rate, interest rate etc.

4.3 Augmented Dickey-Fuller (ADF) Unit Root Test

Augmented Dickey-Fuller (ADF) unit root test was applied to each data series in order to check whether each series was stationary or non-stationary.[15] This study was applied ADF unit root test to check the stationary or non-stationary of time series variables. In order to confirm the stationary level of both dependent and independent variables of the data, the researcher checked the p-value of the test result of the data, test statistics, and critical values of the data. If the 5% critical value is larger than test statistics, the null hypothesis is failed to reject. This means that the time series of the data is not stationary. If the 5% critical value is smaller than test statistics, the null hypothesis is rejected. This means that the time series of the data is stationary, there is no changing in over time.

[15] M.Wooldridge J.M (2013) Introductory Economics 5th edition

Table 4.2 Augmented Dickey-Fuller (ADF) Unit Root Test Results

Variables	Level	P-value	Result
LnGDP	Level	-1.4344 (0.7927)	Non-Stationary
	1st Difference	-10.99*** (0.01)	Stationary
LnAGP	Level	-1.2779 (0.8535)	Non-Stationary
	1st Difference	-11.248*** (0.01)	Stationary
Infla	Level	-2.8008 (0.2621)	Non-Stationary
	1st Difference	-5.3268*** (0.01)	Stationary

Source: World Bank and Myanmar Agricultural Statistics (from 1987 to 2021)

Note: ***, **, * represents 1%, 5% and 10% significant levels

According to the above table, the ADF unit test results show that the variables are non-stationary at the level. If the variables are non-stationary, the data of the variables include trend, seasonal fluctuations, cyclical movements, sudden shocks, or structural change etc and can affect the validity and accuracy. But GDP, agricultural production and inflation rate are stationary at first difference. If the variables are stationary, the data of the variables are not dependent on the time that is the mean, variance and autocorrelation structure do not change over time.

4.4 Johansen Cointegration Test

If all the variables are stationary, the study can use Johansen cointegration test. The Johansen cointegration test is used to test cointegrating relationships between the variables. Johansen cointegration test can check whether the variables are cointegrated in the long-run or not. If the variables have no cointegration, Vector Autoregression (VAR) can be used. If two or more variables are cointegrated each other, the variables have long-run association and Vector Error Correction Model (VECM) can be used for the study.

Table 4.3 Johansen Cointegration Test Results

Cointegration Rank Test (Trace Value)			
Hypothesized No. of CE(s)	Eigen Value	Trace Statistics & Max-Eigen Statistics	Critical Value (0.05)
None*	0.67	65.73	34.91
At most 1*	0.55	29.24	19.96
At most 2	0.09	3.24	9.24
Cointegration Rank Test (Maximum Eigen Value)			
None*	0.67	36.49	22.00
At most 1*	0.55	26.00	15.67
At most 2	0.09	3.24	9.24

Source: World Bank and Myanmar Agricultural Statistics (from 1987 to 2021)

Note: Trace value and max-eigenvalue test indicate two cointegrations at the 0.05 level

* Denotes rejection of the hypothesis at the 0.05 level

In the above table, the trace statistics of rank 0 and rank 1 are greater than the critical value. Therefore, there are two cointegrated in the study. When the variables are cointegrated, VECM can be run. In the max-eigen statistics of rank 0 and rank 1 are also greater than the critical value. Therefore, there are two cointegration in the study. In this study, both trace statistics and max-eigen statistics are cointegrated in rank 0 and rank 1.

When the variables are cointegrated, the study can run the VECM because the variables have long-run association. When the variables are cointegrated, the variables have long-run relationship from agricultural production and inflation rate to economic growth in Myanmar.

4.5 Vector Error Correction Model

If two or more variables are cointegrated each other, they have long-run relationship in generally and can use the Vector Error Correction Model (VECM) by calculating the error correction term. The error correction term must be negative and significant coefficient that means short-run and long-run relationship between the variables.

Table 4.4 VECM Long-run Estimation Results

Error Correction	D(LnGDP)	D(LnAGP)	D(Infla)
CointEq1	0.3756	0.5228	-15.8556
	(0.4007)	(0.4309)	(6.4740) *
CointEq2	-0.4387	-0.6116	12.5021
	(0.4310)	(0.4635) ***	(6.9637)
Constant	1.3733	1.8350	129.2878
	(1.8490)	(1.9885)	(29.8752) ***

Source: World Bank and Myanmar Agricultural Statistics (from 1987 to 2021)

Note: ***, **, * represents 1%, 5% and 10% significant levels

( ) denotes the p-value

According to VECM results in table 4.4, gross domestic product (GDP) and agricultural production are positively relationship and significant at 1% level in the economy. This means that agricultural production can increase country's agricultural export which result directly increases foreign earning, employment opportunities, helps reduce poverty, and improves country's food security. Most of rural households depend directly or indirectly on agriculture for their food and income. Agricultural production will also lead to a lower unemployment rate and raise income for country's people. Increase income led to higher demand for goods and services. For the economy this means more economic activity and higher economic growth. So, economic growth begins with the development of agricultural production and increase in agricultural productivity should have major effects on economic growth. In addition, agricultural production sector is one of the major contributors to GDP from which beneficial for the economy. Therefore, agricultural production is one of the important components of country's economic growth and it tends to fluctuate over time.

GDP and inflation rate have negatively relationship. Inflation causes a decrease in the value of country's currency and higher agricultural import price. When the inflation increases, the prices of agricultural products and other commodities unevenly gradual rises. And the purchasing power of some consumers also reduces and lower income generated by producers. Moreover, the future profits reduce due to this effect. And then when an increase in inflation rate, there is a decline in the purchasing power of money that reduces consumption and therefore country's GDP growth rate decreases. Inflation also increases the cost of living for country's people. This means that higher

inflation rate causes the demand of agricultural inputs was decreased. So, agricultural production was decreased and slower economic growth. So, inflation can lead to a lot of impacts to the economic growth and one of the important considerations for economic growth.

Table 4.5 VECM Short-run Estimation Results

Error Correction	D(LnGDP)	D(LnAGP)	D(Infla)
D(LnGDP(-1))	0.9586 (2.4317)	1.3927 (2.6152)	17.5070 (39.2910)
D(LnGDP(-2))	0.7918 (2.8685)	1.4219 (3.0850)	19.2587 (46.3486)
D(LnAGP(-1))	-0.8545 (2.2337) **	-1.2311 (2.4022)	-7.2130 (36.0914)
D(LnAGP(-2))	-0.3562 (2.6185)	-0.8913 (2.8160)	-13.3869 (42.3082)
D(Infla(-1))	-0.0207 (0.0123)	-0.0234 (0.0132)	0.5214 (0.1989) *
D(Infla(-2))	-0.0270 (0.0108) *	-0.0291 (0.0116) *	0.1503 (0.1742)

Source: World Bank and Myanmar Agricultural Statistics (from 1987 to 2021)

Note: ***, **, * represents 1%, 5% and 10% significant levels

( ) denotes the p-value

According to the table 4.5, in the short-run result, there are unidirectional causal relationship between the variables. According to the results, GDP has unidirectional causal relationship on agricultural production. When agricultural production rises, country's GDP can also rise. Thus, the country's economic growth starts with the agricultural production sector.

According to VECM results, GDP has unidirectional causal relationship on inflation rate in the short-run of the economy. GDP and inflation rate are both important indicators for economic growth. When the inflation rises, there is a decline in the purchasing power of money, which reduces people's consumption and decreases country's GDP. In another ways, when inflation rises, people will spend more money

because people expect that it will be less valuable in the future. In the short-run, this cause further increases in country's GDP.

Agricultural production has unidirectional causal relationship on inflation rate in the short-run of the economy. As a variety of agricultural inputs, such as machinery, fertilizer, pesticides and good quality seeds etc. are imported, inflation will affect. When inflation rises, the agricultural input prices will also rise from which higher cost of production. Inflation will also affect domestic and foreign consumers' ability to purchase agricultural product. Higher inflation reduces purchasing power for agricultural products. Therefore, agricultural production and inflation are also relationship in the short-run.

4.6 Diagnostic Tests

Diagnostic tests determine the goodness of the model. To validate the model, the diagnostic test statistics are presented in the following table. Portmanteau Test (PT) is used for check serial correlation and ARCH Test for check heteroscedasticity. Jarque-Bera (JB) Test is a test for normality. It is used for determining whether a given dataset has skewness and kurtosis that matches normality.[16]

Table 4.6 Diagnostic Tests Results

Diagnostic Tests	Chi-square	p-value
Serial Correlation (PT) Test	29.91	0.4703
Heteroscedasticity Arch Test	168	0.7296
Normality Test:		
Jarque-Bera (JB) Test	373.21	0.00000000000000022
Skewness	69.351	0.000000000000005884
Kurtosis	303.86	0.00000000000000022

Source: World Bank and Myanmar Agricultural Statistics (from 1987 to 2021)

According to table 4.6, the PT serial test indicates that the value of p-value = 0.4703 and the Arch Test of p-value = 0.7296 is greater than 0.05 which mean that the absence of serial correlation and heteroscedasticity. So that the relationship between agricultural production and economic growth of the model is good. And the normality test of Jarque-Bera (JB) test, Skewness and Kurtosis tests show that p-value is very small which confirm the model is normally distributed.

[16] https://www.projectpro.io/recipes/what-is-jarque-bera-test-perform-it-r

CHAPTER 5
CONCLUSION

This chapter express the conclusion of the thesis related to findings, suggestions and needs for further study. The finding includes the situation of Myanmar's agricultural production, economic growth and the results of each data analysis. And then the suggestion for government and country's policy makers based on the data analysis results. The last section is need for further researchers in the future.

5.1 Findings and Discussions

The study analyzed the relationship between agricultural production and economic growth in Myanmar using time series data for the period 1987 to 2021. According to the study, Myanmar agricultural production sector is one of the important sources for economic growth. In this study, GDP is dependent variable and agricultural production and inflation rate are independent variables. Most of the studies in the literature found that agricultural production has had positive effect on economic growth, while relatively few studies found that agricultural production has had negative effects on economic growth.

In this paper, it can be found that Myanmar agricultural production sector includes agriculture, livestock and fishery and forestry. All of these sectors provide economic growth but agriculture is the most contribution to GDP. Agricultural production in Myanmar was gradually increased from 1987 to 2021. But the amount of agricultural production was decreased in 2021 due to COVID-19 pandemic affects and other unpredictable conditions. The real gross domestic product of Myanmar remarkably has been increased from 1987 to 2021. In the study, the highest inflation rate was found in 2002 with 57.07% and lowest inflation rate in 2000 was -0.11%. Finally, in 2009-2021, Myanmar's inflation rate was between annual percent of 1 percent and 10 percent.

In Myanmar, agricultural production plays a significant role for employment creation, value-added production, export, wages and income and so on. Myanmar is now on a steady growth to pursuit other neighbouring countries. In Myanmar, the success of agricultural production is important for economic growth.

In the study, ADF unit root test was used to check the stationary levels or non-stationary of time series variables. As the finding of study, when analysed the ADF unit

root test, GDP, agricultural production and inflation rate are stationary at first difference. Johansen cointegration test was used to test the cointegration of the variables. In the study the variables are cointegrated. So, Vector Error Correction Model (VECM) was used to test the cointegration of the variables.

Vector Error Correction Model (VECM) was used to examine the long-run equilibrium relationship between the variables in the model. According to VECM result, there was long-run relationship among economic growth and agricultural production. According to the objective (1), it can be found that agricultural production has a positive impact on economic growth and significant at 1% level in the long-run. When agricultural production increases, the people can receive more income and profits. Thus, agricultural production is one of the important parts for economic growth in Myanmar.

GDP has unidirectional causal relationship on agricultural production in the short-run of the economy. If agricultural production rises, country's GDP can also rise. GDP and agricultural production have unidirectional causal relationship on inflation rate. When the inflation rate rises, the country's GDP will decrease. If the inflation rate of the country increases, the purchasing power of agricultural product will decrease and cause the slower economic growth. In this study, objective (2) found that agricultural production, inflation rate and economic growth have causality relationship in the short-run economy.

Diagnostic Test was used to examine the goodness of fit. The study found that there is absence of serial correlation and heteroscedasticity. This means that the model is good and normally distributed. Thus, the finding outlines the macroeconomic variables are very important in country's economic growth. In the study, agricultural production is the most influential factor to economic growth because it is significant at 1% level.

5.2 Suggestions

Agriculture is the backbone of Myanmar's economy. In Myanmar, the agricultural sector provides employment and income to the majority of Myanmar's population. Myanmar agricultural sector has been facing problems such as low technological improvements, unpredictable weather condition, lack of agricultural inputs, low quality machinery, undeveloped rural financial market ect. So, the government should involve not only in major agricultural production but also heavily

should solve problems that occur in agriculture. The government should control to become reasonable inflation rate because higher inflation rate can cause higher agricultural input costs. The government should attract rural people by giving subsidies to play in crop production, livestock, fisheries and forestry sector.

The government should attempt to improve agricultural sector by giving fertilizers, equipment, proper income and profits, agricultural knowledge and effective modern farming methods and techniques for farmers. The government should lend more money for agricultural production with low interest rate and encourage private investor to invest in credit society to offer credit to farmers at reasonable rate. Agro-based industries together with increased production of agricultural products have been one of the top priorities for the government.

To boost future agricultural productivity, the government manages the supply of agricultural commodities and value-added products for export. The government should attract private players by giving incentives to play a major role in agricultural research and development. If the government is willing to save the future of farmers, major policy have to be made at the earliest time.

5.3 Needs for Further Study

The study analyzes the effects of agricultural production on economic growth in Myanmar using time series data from 1987 to 2021. Therefore, further research can be done the effects of agricultural production on economic growth including other relevant variables like FDI, interest rate, exchange rate, employment rate etc. among others that easily effect economic growth. In addition, the researchers should study agricultural export and economic growth in Myanmar.

REFERENCES

Alston, J. M., & Pardey, P. G. (2014). Agriculture in the global economy. *Journal of Economic Perspectives*, 28(1), 121-146.

Arjun, K. M. (2013). Indian agriculture-status, importance and role in Indian economy. *International Journal of Agriculture and Food Science Technology*, 4(4), 343-346.

Awan, D. G., & Mukhtiar, A. (2020). Agriculture productivity and economic growth: A case of Pakistan. *Glob J Manag Soc Sci Humanit*, 6(2), 492-516.

Aye, M. H. (2016). PIGEON PEA EXPORT INDUSTRY IN MYANMAR.

Burodo, M. S., Babangida, M. A., & Jobe, A. A. (2022). An empirical investigation of agricultural productivity and its effect on economic growth: Evidence from Kebbi state, Nigeria.

D.M.Kabini. (2022). The impact of the agricultural sector on economic growth and development in South Africa.

Essa, M. A. (2017). Export of coffee and economic growth in Uganda (1985-2014) (Doctoral dissertation, Kampala International University).

Fujita, K., & Okamoto, I. (2006). Agricultural policies and development of Myanmar's agricultural sector: an overview. *Discussion Papere*, 63.

Htoo, T. (2021). Macro Analysis of Climate Change and Agricultural Production in Myanmar. In The Nature, Causes, Effects and Mitigation of Climate Change on the Environment. IntechOpen.

Ibe, E., Obodoechi, & Ndubuisi, D. (2018). Agricultural Output and Economic Growth: The Nigeria Case. *Journal of Economic and Sustainable Growth 3*.

Jhingan, M. (2012). The Economics of Development and Planning, 40th.

Khan, M. (2014). The effects of inflation on economic growth and on its macroeconomic determinants (Doctoral dissertation, Université d'Orléans).

Lwin, T. (2018). RELATIONSHIP BETWEEN INFLATION AND BUDGET DEFICIT IN MYANMAR (1986-2016) (Doctoral dissertation, MERAL Portal).

Mallik, G., & Chowdhury, A. (2001). Inflation and economic growth: evidence from four south Asian countries. *Asia-Pacific development journal*, 8(1), 123-135.

Olabanji, E., Adebisi, F., Ese, U., & Emmanuel, O. (2017). Agricultural output and economic growth in Nigeria. *Journal of African Research in Business & Technology*, 516093.

Oyakhilomen, O., & Zibah, R. G. (2014). Agricultural production and economic growth in Nigeria: Implication for rural poverty alleviation. *Quarterly Journal of International Agriculture*, 53(3), 207-223.

Pattanayak, U., & Mallick, M. (2017). Agricultural production and economic growth in India: an econometric analysis. *Asian Journal of Multidisciplinary Studies*, 5(3), 62-66.

Runganga, Raynold, Mhaka, & Simbarashe. (2021). Impact of agricultural production on economic growth in Zimbabwe.

Ryang, K. K., & Abafita, J. (2012). Agricultural Development in Myanmar: Lessons from Korean Experience. *The Journal of the Korean Society of International Agriculture*.

Sakuyama, T. (2007). The Roles of Agriculture in Development: Findings, Lessons and Policy Implications from A FAO Project. *Roles of Agriculture Project Brief, (2)*.

Sertoglu, K., Ugural, S., & Bekun, F. V. (2017). The contribution of agricultural sector on economic growth of Nigeria. *International Journal of Economics and Financial Issues*, 7(1), 547-552.

Soe, N. Z. (2000). The role of agriculture in the development of Myanmar economy (Doctoral dissertation, KDI School).

Susilastuti, D. (2018). Agricultural production and its implications on economic growth and poverty reduction.

Tahamipour, M., & Mahmoudi, M. (2018). The role of agricultural sector productivity in economic growth: The case of Iran's economic development plan.

Temiz, D., & Gokmen, A. (2010). An analysis of the export and economic growth in Turkey over the period of 1950-2009. *Uluslararasi Iktisadive Idari Incelemeler Dergisi*, (5).

Teng, P., & McConville, A. (2016). Agriculture and ASEAN economies: Still key for growth. Nanyang Technology University, RSIS Commentary.

Thein, M. (2004). Economic development of Myanmar. Institute of Southeast Asian Studies.

Todaro, M. P., & Smith, S. C. (2020). Economic development 12th edition.

Tun, T., Kennedy, A., & Nischan, U. (2015). Promoting agricultural growth in Myanmar: A review of policies and an assessment of knowledge gaps.

Yee, M. N. (2017). Effects of Agricultural Policies on Rice Industry in Myanmar. Doctorate Dissertation. Thammasat University.

Yusuf, I. A. (2018). Aricultural production and economic growth in Somalia. 1986 to 2016.

WEBSITES

http://www.Iscollege.ac.in/sites/default/files/ECONOMICS%2CBA-II.pdf

https: www.trade.gov/country-commercial-guides/burma-agriculture

https://www.rsis.edu.sg/wp-content/uploads/2016/05/CO16127.pdf

https://corporatefinanceinstitute.com/resources/economics/endogenous-growth-theory/

The Economic Times
https://economictimes.indiatimes.com/definition/gross-domestic-product

Farm Land Law
https://mlis.gov.mm/mLsView.do?lawordSn=183

Ministry of Agriculture, Livestock and Irrigation (Myanmar)
https://myanmar.gov.mm/ministry-of-agriculture-livestock-irrigation

ASEAN Statistical Yearbook
https://www.aseanstats.org

Myanmar Agricultural Statistics
https://www.csostat.gov.mm/PublicationAndRelease/MyanAgriculture

World Bank
https://www.worldbank.org/

APPENDIX

Data Set

Table 1 GDP, Agricultural Production (AGP) and Inflation Rate (from 1987 to 2021)

Year	GDP (Constant) Kyats in Million	Agricultural Production (Agriculture, Livestock and Fishery, Forestry) Kyats in Million	Inflation Rate (Annual%)
1987	53177.80	25819.10	24.76
1988	47141.10	22595.20	16.04
1989	48883.10	23589.10	27.20
1991	50259.50	24022.20	17.63
1991	49933.30	23451.00	32.27
1992	54756.60	25914.40	21.91
1993	58063.90	27095.20	31.83
1994	62406.10	28693.50	24.10
1995	66741.60	30072.10	25.19
1996	71042.40	31562.10	16.28
1997	75123.10	32729.40	29.70
1998	79460.20	34202.80	51.49
1999	88157.00	38124.30	18.40
2000	100274.80	42835.70	-0.11
2001	2842314.00	1588268.00	21.10
2002	3184117.00	1684056.00	57.07
2003	3624926.00	1881224.00	36.59
2004	4116635.00	2087812.00	4.53
2005	4675220.00	2339957.00	9.37
2006	13893395.00	6290347.00	20.00
2007	15559413.00	6789895.00	35.02
2008	17155078.00	7170165.00	26.80
2009	18964940.00	7569840.00	1.47
2010	39776765.00	14658961.00	7.72
2011	42000876.00	14562114.00	5.02
2012	45080662.00	14807052.00	1.47
2013	48879159.00	15346106.00	5.64
2014	52785051.00	15768771.00	4.95
2015	56476225.00	16306178.00	9.45
2016	59787129.00	16230932.00	6.93
2017	63827919.00	16439257.00	4.57
2018	89147341.00	19872350.00	6.87
2019	91971633.00	20197085.00	8.83
2020	86561825.00	20406668.00	5.73
2021	75500945.00	15256767.00	3.64

Source: World Bank and Myanmar Agricultural Statistics