10.14751/SZIE.2017.052

Szent Istvan University

Doctoral School of Management and Business Administration Sciences

Ph.D. Dissertation

THE COMPETITIVENESS OF GAMBIA'S AGRICULTURAL PRODUCTS IN INTERNATIONAL TRADE: AN INCENTIVE FOR ECONOMIC PROGRESS

By

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Gödöllő - HUNGARY

2017

10.14751/SZIE.2017.052

Szent István University

Doctoral School of Management and Business Administration Sciences

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DEDICATION

This Ph.D. Dissertation is sincerely dedicated to my beloved parents, and wife (Ummu Hussayn). Also, to my beloved son and two daughters, Hussayn Alieu Gibba, Fatima Alieu Gibba, and Maryam Alieu Gibba, respectively, and to my present and late beloved brothers Abdullaah Gibba and Ibrahim Gibba, respectively.

ABBREVIATIONS

ADF: *Augmented Dickey-Fuller*

CRR: *Central River Region*

CRR-S: *Central River Region – South*

DF: *Dickey-Fuller*

FACS: *Farmers' Association Cooperative Society*

FDI: *Foreign Direct Investment*

GCI: *Global Competitive Index*

IMD: *International institute for Management Development*

LRR: *Lower River Region*

MDGs: *Millennium Development Goals*

MOA: *Ministry of Agriculture*

NASS: *National Agricultural Sample Survey*

NBR: *North Bank Region*

OECD: *Organisation of Economic Cooperation and Development*

R&D: *Research and Development*

URR: *Upper River Region*

WCR: *West Coast Region*

LIST OF CLASSIFICATIONS

The list below contains the codes of The Gambia's top 10 exported agricultural products.

120220: *Shelled groundnuts, not roasted or otherwise*

150810: *Crude groundnut oil*

080130: *Cashew nuts, fresh or dried*

120210: *Groundnuts in shell, not roasted or otherwise*

030613: *Frozen shrimps and prawns*

230500: *Oil cake and other solid residues of groundnuts*

080450: *Guavas, mangoes, and mangosteens, fresh or dried*

030333: *Frozen sole*

030379: *Frozen fish*

071339: *Dried beans, shelled*

The list below contains the codes of The Gambia's top 10 imported agricultural products

100640: *Broken rice*

170199: *Cane or beet sugar, in solid form*

151519: *Linseed oil (excl. crude) and fractions*

110100: *Wheat or Meslin flour*

240220: *Cigarettes containing tobacco*

200290: *Tomatoes (preserved)*

100610: *Rice in the husk (paddy or rough)*

100620: *Husked (brown) rice*

100190: *Spelt, common wheat and meslin*

090210: *Green tea in immediate packings*

1. INTRODUCTION

1.1. Introduction

Food insecurity and hunger remains an everyday challenge for over 795 million people worldwide, including 780 million in the developing regions (FAO 2015). The fundamental challenge the world faces is to ensure that the hundreds of millions of families living in poverty have access to enough food to maintain a healthy life (FAO, IFAD and WFP, 2015). Global agriculture and food security faces increasing challenges, with almost half of the population living in extreme poverty (less than $2 US dollars per person per day). Population growth and rising incomes in much of the developing world have pushed demand for food and other agricultural products to unprecedented levels. Thus, Food and Agriculture Organization (FAO) assumptions “In order to meet the demand for food in 2050, annual world production of crops and livestock will need to be 60 percent higher than it was in 2006 (FAO, 2016, p.1).

According to FAO (2015), despite some significant gains in meeting the Millennium Development Goals (MDGs) on poverty and fight against hunger in 2015, yet an unacceptably large number of people and households still lack the food they need for an active and healthy life. It is worth underscoring that the 1996 World Food Summit held in Rome committed about 182 state governments who all pledged to eradicate hunger with an immediate view of scaling down the number of undernourished people to half by not later than 2015. However, there appears to be continuity of an unprecedented increase in hunger and malnutrition prevalence globally with an estimated number of nearly 1 in every 9 people experience chronic hunger, and 1 in every 6 people in developing countries being underweight (FAO, 2015).

Though it may not be an exhaustive condition, eliminating hunger and reducing poverty requires fostering growth of national and global food supplies. Whilst the term Food security is defined as

the state in which people at all times have physical, social and economic access to sufficient and nutritious food that meets their dietary needs for a healthy and active life. This framework is based on the internationally accepted definition established at the 1996 World Food Summit. However, today, even in the midst of sufficient global food supplies, an estimated 800 million people are considered hungry because they cannot afford to buy the food they need for a healthy life (FAO, IFAD and WFP, 2015).

The Gambia like in many other African countries, farming systems exhibit a high degree of heterogeneity, livelihood strategies, population pressures, access to markets, institutions, and agro-ecological conditions. Despite The Gambia's ratifications and commitments to numerous agricultural supportive instruments, the country and its regions continue to be challenged and failed to reach the international hunger targets. This, according to FAO are largely attributable to several natural and human-induced disasters resulting in protracted crises with increased vulnerability and food insecurity of large parts of the rural population. In such contexts, measures to protect vulnerable population groups and improve livelihoods have been difficult to implement (FAO, IFAD and WFP, 2015).

In general, farmers in The Gambia produce for home consumption and sell any surpluses at disappointing prices to either local markets or to the middlemen from the neighboring Senegal. Smallholder farmers are caught in a vicious cycle of risks, limited use of inputs, low productivity, and low income. The sector is predominantly subsistence, rain fed with very little irrigation or use of improved seeds and fertilizers. In regions where population growth is rapid and rural population density is high, the size of the average household's farming system has been rapidly declining. Thus exposing The Gambia to be considered as a country where food

insecurity has become endemic owing to repeated incidence of crop failure, incidence of animal disease outbreak, rising food prices and the lack of adequate support mechanisms to victims.

Moreover, agriculture is the most important sector in The Gambian economy given its contribution to employment, foreign exchange, food, and its linkages with other sectors of the economy. Indeed, the sector's performance directly mirrors that of the overall economy. However, in the last ten years or so, the performance of the sector has been steadily declining, culminating in a negative growth rate in 2011. With over 80 per cent of The Gambian population (the majority of whom are poor) living in the rural areas, the poor performance of the sector has had serious implications on poverty and living standards of the people. The Gambia, like other countries continues to face unprecedented environmental and climate change related challenges altering and limiting productivity capacities of its agricultural sectors. Thus, posing immense protracted food insecurity and income threats to the agricultural producers in the rural farming communities of The Gambia. Therefore, there is need for robust and efficient climate smart agricultural practices to ameliorate the increasing challenges faced by farmers.

Climate-smart agriculture (CSA) is a strategy that helps to guide actions required to "transform and reorient" agricultural systems in order to support development and ensure food security under climate change. CSA aims to tackle sustainable agricultural productivity and incomes; building resilience to climate change; and eradicating greenhouse gas emissions, where possible. It provides the means to support stakeholders from local to international levels to adopt agricultural strategies suitable to their conditions. Most smallholder farmers in the world and The Gambia in particular, are concentrated in the rural areas whose source of livelihoods are directly and indirectly dependent on agriculture. Thus, effective growth in agriculture is greatly dependent on equitable strategies in reducing poverty, increasing incomes, and food security.

Declining agricultural growth has been identified as a major determinant of poverty in The Gambia. Reversing this trend is no doubt an immediate development challenge for The Gambia. Addressing this challenge requires knowledge of what drives agricultural growth and productivity as well as export expansion and diversification. The poor performance of the agricultural sector, and particularly its declining productivity, has been identified as an important determinant of poverty in The Gambia. The key relevant questions are:

1. What are the sources / determinants of agricultural export competitiveness in The Gambia?
2. What kind of relationship exists between competitiveness and comparative advantage in the case of Gambia's agricultural products?
3. What policies can be implemented to enhance the efficiency in the production and export competitiveness of Gambia's agricultural products?

This research is an attempt to answer these timely questions.

1.2. Background and Motivation

The Gambia's unusual geographic location makes cooperation with Senegal imperative, for trade and a variety of other economic issues. Although divided by colonial history, the two countries have much in common in terms of culture, economic structures and even language. The Gambia's economy is undiversified and limited by a tiny internal market, and poverty is omnipresent. For decades, The Gambia has served as a regional repository using the river as a transportation link to the hinterland. Relatively low import taxes, well-functioning port, and customs services, and limited administrative barriers reinforced The Gambia's position as a trading center. About 80 percent of Gambian merchandise exports consist of re-exports to the sub-region - goods imported into The Gambia and transported unofficially into Senegal and

beyond. The Gambia's economy and especially its public finances are highly dependent on this trade because imported goods destined for re-export pay the normal import duties. Recently, however, re-exports have declined due to a combination of harmonization of import and sales taxes in the region, and improved port and customs operations in Senegal and other neighbouring countries. The current re-export trade is unlikely to be sustainable, calling for a strategy to build growth on a more secure foundation.

In The Gambia, the current food crisis is the fundamental economic issue, providing the rationale for plans to develop The Gambia River Basin. Through the implementation of irrigation programs at the Central River Region (CRR) of the country where groundnut and rice are largely cultivated all the year round, there is high hope and optimism that the output from this region especially, will lead to the achievement of food self-sufficiency and foreign exchange earnings through export. Furthermore, "economic progress" is broadly defined as a change over time typically involving growth and expansion. In other words, economic development involves changes in people's standard of living.

The export growth and development in The Gambia is paramount because of its effect on domestic and international trade and economic stability. Lower exports mean low foreign exchange and lower foreign exchange in turn means a small purchasing capacity of a nation in the international market. Fluctuations in export earnings introduce uncertainties in an economy. These uncertainties influence economic behaviour by adversely affecting the expected return of investment and in turn have a negative effect on economic advancement. Export fluctuations, on an average, act as a hindrance to the stability and growth of the under developed countries. A high degree of export instability may be expected to deter investment on a number of grounds in The Gambia. It is also expected to raise borrowing costs, because it tends to cause trade balance

complexities. This ultimately leads to low confidence of people in the process of maintenance of the exchange rate.

In a nutshell, what actually motivated this study is the bottleneck of The Gambia's export industry. The results of this research are expected to assist assessment of the current knowledgebase, to reform and expand export competitiveness of agricultural products, to identify misconceptions and knowledge gaps and to indicate direction for further research on the significance of export revenues on economic performance and on issues related to export expansion, competitiveness, and development.

1.3. Research Objectives and Importance of the Topic

The general research objectives are three folds: First, to identify the factors behind The Gambia's slower agricultural export growth. Second, to see whether revenues derived from the primary exports sector could lead to a positive and significant economic progress in The Gambia. Third, to recommend possible policy measures to effectively address these factors. In particular, the research has set the following specific objectives:

1. To empirically test the agricultural export competitiveness, its stability, and effects on Gambia's economic advancement.
2. To effectively analyze the problems hindering the competitiveness of Gambia's agricultural products.
3. To propose solutions to the analyzed problems and development strategies as sound and effective policy implications.

As for the significance of the topic, export performance and competitiveness has been found to have a positive impact on economic growth in The Gambia and other countries by creating

employment, bringing in foreign exchange, capital, technology and other important resources such as market knowledge. The research is conducted in line with the topic for agricultural policy makers to implement policies that aim at increasing the value, revenue, efficiency, and growth rate of agricultural exports in The Gambia.

1.4. Research Hypotheses

The research has set the following hypotheses:

1. The contribution of agriculture is low and decreasing in Gambia's economy.
2. The Gambia's agricultural products are diverse and differentiated on global markets.
3. The competitiveness of Gambia's agricultural products is unstable on global markets.
4. There is a positive correlation between The Gambia's agricultural export competitiveness and economic advancement.

The structure of the dissertation is divided into six main sections. Following the Introduction, chapter 2 addresses the Literature Review. Chapter 3 presents the General Overview of The Gambia Agriculture, while Chapter 4 reveals the Research Methodology. Chapter 5 presents the Results and Discussion, while Chapter 6 presents the Conclusions and Policy Recommendations. The Summary is provided in Chapter 7.

2. LITERATURE REVIEW

Over the last three decades, the determinants of economic growth and export competitiveness have attracted increasing attention in both theoretical and applied research. Yet, the process underlying economic performance is inadequately conceptualized and poorly understood, something, which can be partly attributed to the lack of a generalized or unifying theory, and the myopic way conventional economics approach the issue (PETRAKOS, et al., 2007). Evidence from Newly Industrialized Economies (NIEs) shows that the export of non-traditional products, semi-manufactured and manufactured goods are behind the success of such countries like South Korea, Taiwan, Singapore, Hong Kong, Thailand, Brazil and Turkey.

In spite, the recognized importance of export of manufactured goods in achieving economic growth, The Gambia like many other African countries still depends heavily on the export of primary goods. This menace coupled with its heavy reliance on the importation of manufactured consumer and capital goods to satisfy its rising consumption aspirations of the increasing population, and raw materials as well as machineries for its local industries results in Balance of Payment problem in the country, whereby, the payment made on imports is increasing as compared to the export receipts for goods and services. Being net export (Export less Import) one of the determinants of National Income, this tragedy of higher import with fluctuations in the volume of export affects income (GDP) adversely. There is a large part of economic theory analysing the causal relationship between export competitiveness and economic growth and development. Certainly, since export competitiveness consist one of the main determinants of economic progress, an increase of exports contributes to an increase of economic growth. However, there are also some other indirect factors, which affect the causal relationship between exports and economic progress.

2.1. Trade-Based Competitiveness: Concepts, Theories, and Measurement

Competitiveness is the foundation of modern economies. Company leaders and decision makers constantly explore different ways to increase the competitiveness of their firms, industries or nations. Understanding whether an industry like agriculture uses its resources efficiently and whether it can be expected to do so in the future, is a central question for policymakers. Effective decision making involves a full understanding of what factors determine competitiveness at different levels (micro and macro), and how they can improve their performance and efficiency. In order to answer these questions, it is paramount to understand how competitiveness is defined, understood, implemented, and measured at different levels.

2.1.1. Descriptions of Competitiveness

JAMBOR and BABU (2016) reveal a number of considerable research that has been conducted towards improving the understanding of competitiveness in economics and other related fields. A simple google search of the term "competitiveness" generates more than 30 million results. Originating from the Latin word *competer*, the roots of competitiveness lies in international economic theories of the 18th century. As the evolution of the concept suggests, it has different meanings in different locations and times. Contrary to food security, competitiveness does not have a universally accepted definition. It is a dynamic concept which can be determined at various levels. One of the greatest gaps in research on competitiveness, therefore, lies in the synthesis of theoretical literature on the topic, including its definitions and measurement issues.

At the micro-economic (firm) level, the understanding of competitiveness is simply illustrated as "the ability of firms to consistently and profitably produce products that meet the requirements of an open market in terms of price and quality" (DOMAZET, 2012: 294-295). According to

YAP (2004), competitiveness at the firm level is closely related to the long-run profit performance of the firm and higher return on investment for owners. Correspondingly, WIJNANDS et al. (2008: 3), defines firm competitiveness as the "ability to produce products / services that people will purchase over those of competitors".

SHARPLES and MILHAM (1990: 6) took a different view and interpreted competitiveness as the "ability to deliver goods and services at the time, place and form sought by overseas buyers at prices as good or better than those of other potential suppliers whilst earning at least opportunity costs returns on resources employed". The authors further argue that this definition includes two types of competition. One interpretation is of a single sector on international markets, and the other is of competition between sectors for domestic markets. Similarly, KIM and MARION (1995: 5) describe international competitiveness of firms as "the sustained ability of a nation's industries or firms to compete with foreign counterparts in foreign markets as well as in domestic markets under conditions of free trade". Nonetheless, they also argue that competitiveness of firms is closely related to industry characteristics and trade barriers. This approach links well with the seminal work of PORTER (2004), identifying comparative advantage as a source of competitiveness. WIJNANDS et al. (2008) took a step further and stress that firms can achieve sustainable comparative advantage by positioning themselves within an attractive industry or market.

In contrast, *at the macro-economic level*, competitiveness is much more poorly defined. GARELLI (2012) establishes a link between the two levels by suggesting that firms are responsible for creating economic value, while nations create an environment to encourage firms to achieve this value.

One of the earliest definitions for competitiveness is in the Report of the President's Commission on Competitiveness written in 1984. According to its definition, "A nation's competitiveness is the degree to which it can, under free and fair market conditions, produce goods and services that meet the test of international markets while simultaneously expanding the real incomes of its citizens. Competitiveness at the national level is based on superior productivity performance and the economy's ability to shift output to high productivity activities which in turn can generate high levels of real wages. Competitiveness is associated with rising living standards, expanding employment opportunities, and the ability of a nation to maintain its international obligations. It is not just a measure of the nation's ability to sell abroad, and to maintain a trade equilibrium".

Equivalently, the OECD (1992) describes competitiveness "as the degree to which, under open market conditions, a country can produce goods and services that meet the test of foreign competition while simultaneously maintaining and expanding domestic real income". The most widely cited definition says that the "Competitiveness of Nations is a field of Economic theory, which analyses the facts and policies that shape the ability of a nation to create and maintain an environment that sustains more value creation for its enterprises and more prosperity for its people" IMD (2015).

The most widely accepted definition, today is the one given by the World Economic Forum (WEF, 2015: 4.), defining national competitiveness as "set of institutions, policies, and factors that determine the level of productivity of a country". It is interesting, however, that an earlier WEF report identified competitiveness as "the ability of a country to achieve sustained high rates of growth in GDP per capita" (WEF, 1996). This old definition reflects the early thinking on competitiveness, though GDP per capita is used even today as an index of measuring competitiveness in WEF's reports.

As noticeable from above, national competitiveness is the ability of a nation to create and maintain a conducive environment for its firms to prosper (BHAWSAR and CHATTOPADHYAY, 2015). Competitiveness is measured on the open market, against other nations. Further, one can also say that competitive nations are economically successful, and have rising incomes or living standards.

2.1.2. The Concept of Mezo-Level Competitiveness

Mezo-level competitiveness is a debated concept in the scientific literature. One part of the study argues that mezo-level competitiveness concentrates on industries, and deals with the performance of different industries to define a competitiveness of a nation. Another strand of literature talks about mezo-level competitiveness being related to regional competitiveness. MEYER-STAMER (2008), for instance, define regional competitiveness "as the ability of a locality or region to generate high and rising incomes and improve the livelihoods of the people living there." In this sense, regional competitiveness is derived from macroeconomic competitiveness, using nationally disaggregated statistics. There are also studies referring to mezo-level competitiveness as a phenomenon related to clusters of firms.

2.1.3. Theories on Competitiveness

The development of micro- and macro-level competitiveness theories has been presented below to improve the understanding of difference and areas of potential synergy between the two levels.

2.1.3.1. Micro Level Theories

Firm level economic analysis of competitiveness focuses on the behavior and performance of firms. Theoretically, there are two main views on the origin of a firm's competitive advantage: *the industrial organization view and the resource-based view. The Industrial organization schools* focus on industry-related determinants of competitiveness of firms. Classical industrial organization theory recognizes the interdependence among firms and identifies market (or industry) structure as the major determinant of a firm's performance. These theories generally recognize the importance of factors, such as, economies of scale; concentration; product differentiation; and entry, exit, and trade barriers in achieving firm level competitiveness (MARTIN, 2003).

Economies of scale refers to the per unit cost advantage obtained by firms due to size, output or scale of operation. When economies of scale are high, costs per unit of output generally decreases. Concentration reflects the number of firms and their respective market share in total production. BAIN (1951) found that industries with higher concentration ended up with higher profits at the firm level. Product differentiation, distinguishing products and services from each other, also play an important role in determining a firm's competitive advantage by making the product more attractive on a market. Entry and exit barriers, representing various obstacles for other firms to enter or leave markets, also play an important role in determining firm level competitiveness.

Classical industrial organization theories suggest that a firm cannot influence industry conditions or performance, therefore competitive advantage originates from external sources (BAIN, 1951). However, new industrial organization scholars recognize that firms have some influence on industries (HANSEN and WERNERFELT, 1989).

According to the seminal work of PORTER (2004), the competitiveness of a firm within an industry is not just affected by the structure of the market, but also by the strategic decisions made by the firm. In his famous model, PORTER (2004) defines five forces determining the intensity of competition in an industry, namely: entry, threat of substitution, bargaining power of buyers, bargaining power of suppliers, and rivalry among competitors (see figure 2.1).

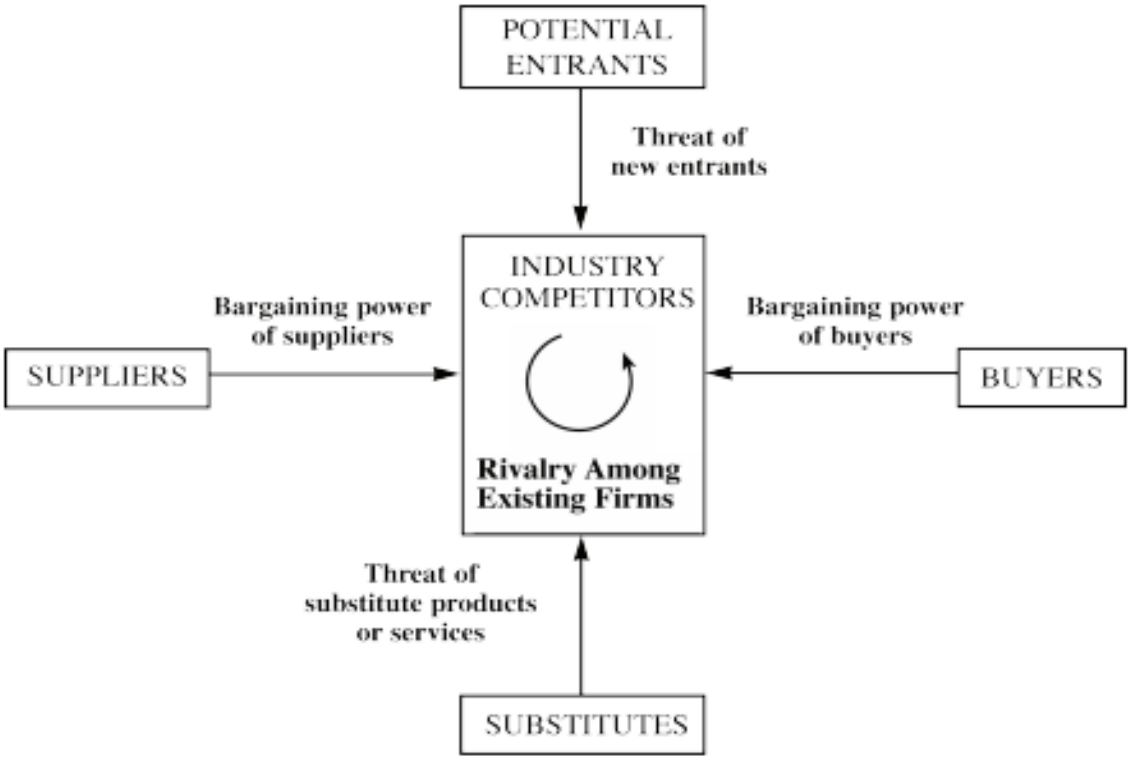


Figure 2.1. Porter's five forces model – factors driving industry competition

Source: PORTER (2004)

As for entry, the model suggests that, new entrants to an industry increase competition and decrease profits. When yields are expected to be high, an industry generally attracts new firms. PORTER (2004) argues that the threat of entrants depends on entry barriers and the competitors' reaction to the new entrant. The higher the barriers and / or reaction of competitors, the lower the

threat to entry. PORTER (2004) identifies seven major sources of barriers to entry, namely: supply side economies of scale, demand side benefits of scale, customer switching costs, capital requirements, size-independent advantages of incumbents, unequal access to distribution channels, and restrictive government policy.

By the same token, suppliers can also influence the profitability of an industry by threatening to increase prices, limit quality or shift costs to other participants. According to PORTER (2004), a supplier group is powerful if (1) it is more concentrated than the industry it sells to, (2) it is not dependent on the industry for its revenues, (3) industry participants face switching costs in changing suppliers, (4) it offers differentiated products, (5) there are no substitute for the group's good, and/or (6) it threatens other participants with forward integration.

Furthermore, buyers have a huge impact on the competitiveness of the industry through their role in price-determination. Contrary to suppliers, they can threaten the industry to reduce prices by demanding better quality or quantity of goods / services. According to PORTER (2004), buyers are powerful if their number is low, industry products are standardized, they face few costs in changing vendors, and / or if they threaten to integrate backward.

Substitutes, performing the same or similar functions as the product in question, also has an important role in influencing industry competition. By affecting the industry's overall demand elasticity, companies producing substitutes put high pressure on firms. The more attractive the price of a substitute, the lower is the industry's profit potential. PORTER (2004) argues that the threat of substitutes is high if an attractive price-performance trade-off is offered and the switching costs to the substitute is low.

Lastly, rivalry can also take place between one or more competitors taking to actions, such as price discounting, introduction of new products, advertising campaigns, and service improvements (PORTER, 2004). Based on the intensity and the basis of rivalry, industry profitability reduces as rivalry reduces. The intensity of rivalry is the greatest when competitors are numerous and approximately equal in size and number; industry growth is slow; exit barriers are high; rivals are committed and have leadership aspirations; and the signals on each other's market position are not clear.

The other prospect on a firm's competitive advantage is *resource-based*, and was instituted in the mid-1980s by WERNERFELT (1984) and BARNEY (1986). According to this approach, firms compete on the basis of their resources and capabilities. Contrary to industrial organization theories, the resource-based view looks inward and not outside the firm to identify competitive potentials. A useful tool for analyzing a firm's competitive potential based on their resources is part of the VRIO framework, which identifies four elements as possible determinants of competition. These include value, rarity, imitability and organization.

A more dynamic view of competition is represented by a capability-based perspective, derived from a firm's capabilities / competences. This perspective encompasses research dealing with distinctive capabilities (SNOW and HREBINIAK, 1980), organizational capabilities (COLLIS, 1994), dynamic capabilities (EISENHARDT and MARTIN, 2000) and core competences (PRAHALAD and HAMEL, 1990). Further, there are knowledge-based perspectives, claiming that knowledge is the most relevant resource in achieving a firm's competitive advantage. Recent economic theories also recognize the co-creation perspective when suppliers and customers interact with each other for the development of new business opportunities and for increasing their competitiveness (CHIKAN and GELEI, 2010). This summarizes the two theoretical views

on competitiveness at the micro level. The theories at macro level are described in the subsequent sub-chapter.

2.1.3.2. Macro Level Theories

The development of the concept of competitiveness *at the macro-level* is inseparable from international trade theories. Competitiveness at this level deals with the analysis of the conditions under which two countries trade with each other. According to classical economic theory, with industrial revolution and specialization of labor, countries started global trade and became net exporters and importers. According to Adam Smith (SMITH, 1776), such distinctions exist as countries produce a product in which they have an absolute advantage, and will exchange it for products in which they do not possess such advantage. In other words, all countries produce and export goods using fewer inputs in production and import goods that others can produce using fewer inputs, reflecting absolute differences in productivity.

Moving beyond Smith's concept, RICARDO (1817) argued that international trade between nations is not based on absolute but *comparative advantage*. In the Ricardian model, production technology differences are the basis of comparative advantage and therefore production and trade is not driven by low cost, but by the most effective use of resources. Ricardo suggests, even if a country is more productive in absolute terms, it should just specialize in those products which it has a comparative advantage in (or in which they are relatively more productive). It follows that technological superiority (that is, high labour productivity) is not a guarantee for competitiveness – it just works together with comparative advantages.

On the whole, classical economic theories suggest that division of labor drives technological (productivity) differences across countries. Trade is assumed to be based on absolute [and later

comparative] advantage and labor is thought to be perfectly mobile. Hence, investment in technology fosters the division of labor and enhances productivity, and trade provides an engine for growth.

However, neoclassical economic theories extend the assumptions of these traditional models. HECKSCHER (1919) and OHLIN (1933), for instance, suggested that the source of comparative advantage was not technology but differential "resource-endowment". The Heckscher-Ohlin (H-O) model, also referred to as the "factor-proportions model", assumes that technologies are the same across countries and comparative advantage is due to differences in factor endowments. According to the model, countries specialize in the production of goods that use the factors in which they are relatively well endowed, more intensively. *Capital-rich countries thereby export capital-intensive products while labor-rich countries export labor-intensive products*. This relationship assumes that (1) resource-endowment determine resource prices, (2) factor prices move together if trade is based on differences in factor endowments, and (3) an increase in factor endowment will lead to an increase in output for goods using that factor more intensively. The neo-classical theory also assumes perfect competition and constant returns to scale, suggesting that trade is based on different factor endowments.

Another well-known neoclassical economic model, the STOLPER-SAMUELSON (1941) theorem argues that, under positive production and zero profit assumptions, a rise in a relative price of a good is associated with a rise in the return of the factor which is used more intensively in line with the H-O theory. The Rybczynski theorem goes further and states that at constant relative prices of goods, a rise in the endowment of one factor leads to a more than proportional expansion of the output using that factor intensively, and an absolute decline in case of the other good. However, theories based on the H-O framework failed on the test created by LEONTIEF (1953). He found the US economy to be capital intensive while exporting labor intensive

products. The so-called Leontief-paradox was originally not created against the Heckscher-Ohlin (H-O), but it drew attention to its defects.

Endogenous (or new) growth theories emerged as a response to the gaps in explanations offered by neoclassical economic growth theories, particularly in managing technological change and innovation as a driver of economic growth. For a long time, technological change and innovation was assumed to be exogenous, though it became clear by the 1980s that these factors could also be managed by countries. Hence the term endogenous growth was created. Much of the emphasis of these "new" theories were on the way in which, technological and innovative processes affect competitiveness of nations (LUCAS 1988, ROMER 1990).

While the theory of comparative advantages was widely accepted for more than a century, two observations made serious challenges to the concept. On one hand, new trade theories emerged, suggesting that countries with similar factor endowments trade with each other, and pose serious challenges to traditional (specialization-based) theories. On the other hand, it was also observed that countries such as, Hong Kong or Singapore, that lack natural resources are still able to have an exceptional performance on international trade (BHAWSAR and CHATTOPADHYAY, 2015). These observations gave birth to a new concept of competitive advantages.

Although comparative and competitive advantages are sometimes used interchangeably, they are distinct concepts. Comparative advantage is based on labor and capital differences and can be considered as a micro-economic concept with a focus on industry-specific trade. However, various other factors (such as, infrastructure, technology, and conducive environment) determine the competitiveness of a nation. In other words, competitive advantage is based on comparative advantage but many other factors are needed for a nation to become competitive (BHAWSAR and CHATTOPADHYAY, 2015).

One of the most influential contemporary theories of national competitive advantages is *Porter's diamond model*. PORTER (1998) argues that four country-specific and two external factors shape the business environment of a nation, resulting in competitive positions (see figure 2.2). The four endogenous factors are: factor conditions, demand conditions, related and supporting industries, and firm strategy, structure and rivalry. The two exogenous factors are the role of chance and government. It can be clearly seen from figure 2.2 that strong relationships exist among the factors and changes in one factor cause the others also to change.

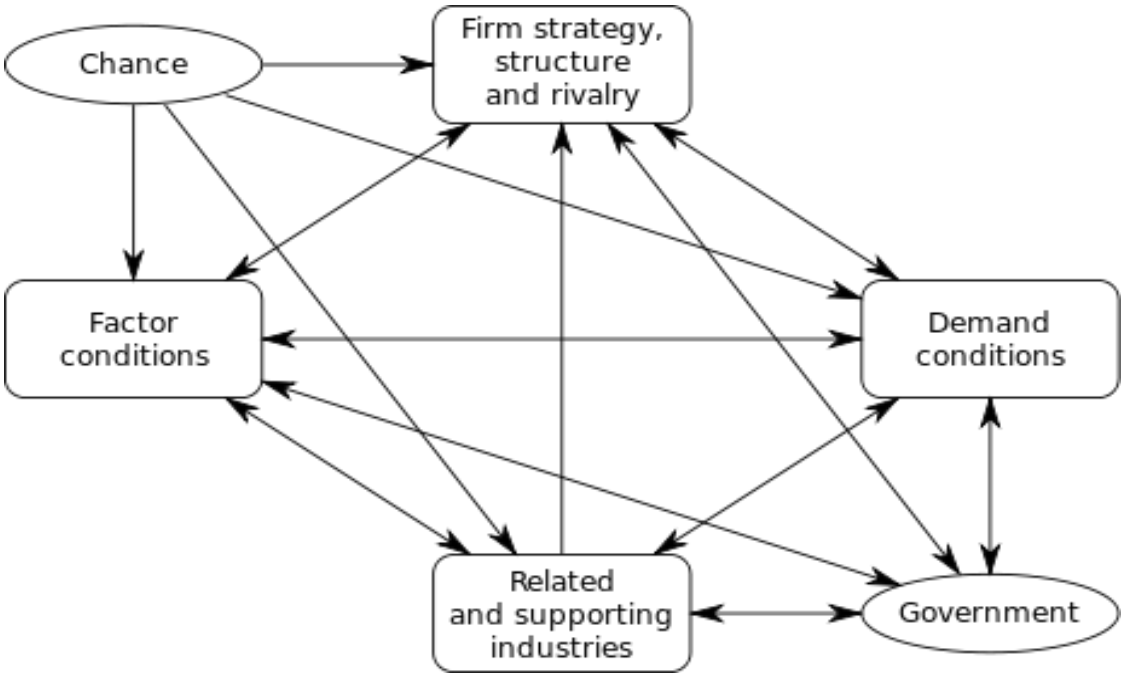


Figure 2.2. Porter's diamond model – the determinants of national advantage
Source: PORTER (1998)

Factor conditions are associated with the inputs of industries, divided into five categories: land, labor, capital, knowledge, and infrastructure. Factor conditions are further subdivided into basic and advanced factors which can be general or specialized. Basic factors (such as, unskilled labor, and raw materials) are inherited and require little investment, if at all, to be utilized. However, advanced factors come from investment and innovation, creating the basis for a nation's competitive advantage.

Demand conditions are also assumed to be a source of competitive advantage by PORTER (1998). In line with new trade theories, countries with similar per capita income are assumed to have similar demand patterns, ending up in intra-industry trade. However, PORTER (1998) argues that it is not only the size of demand that matters, but also the sophistication of buyers and the composition of demand. Home country firms, therefore, continuously innovate their competitive positions to better serve the needs of buyers.

According to PORTER (1998), the third determinant of national competitive advantage is firm strategy, structure and rivalry. Strategies and structures of firms heavily depends on the business environment offered by countries, determining the chances and ways of competition possible. PORTER (1998) identifies rivalry as the most critical component here. According to him, domestic rivalry is the primary tension pushing companies to innovate and improve quality at all times. According to the model, it is the firms that compete in the global market, but their competitive advantage is shaped by the international competitiveness of the country. In other words, *comparative advantage shows whether a firm or a country has the potential to be competitive,* while *competitiveness shows whether this potential is realized or not*. The assumption here is that countries, like firms, compete internationally and both play a negative sum game. This is where firm and country level competitiveness is linked. Moreover, the diamond model provides the basis for the "framework" of the five forces model.

The last country-specific component of national competitive advantage comes from related and supporting industry clusters - one of the most important contributions of the diamond model. According to PORTER (1998), the external environment (including common learning, relationships, and innovation) of related and supportive industry clusters can be a real source of competitive advantage, from the local level. Therefore, clusters play a very important role in Porter's model of competitive advantages. Consequently, the two exogenous factors, namely:

chance and government intervention, also determine a country's competitive advantage. However, according to PORTER (1998), these factors are treated as external shocks, and do not create lasting competitive advantage for the long run.

According to JAMBOR and BABU (2016), many professionals criticized Porter's original model, and a review of these criticisms can be found in GORTON et al. (2013). However, the most fundamental challenge to Porter comes from KRUGMAN (1994: 44) who argues that "competitiveness is a meaningless word applied to national economies" for three reasons: (1) a nation would never "go out of business" as uncompetitive firms would do, (2) trade is not a zero-sum game globally, hence win-win situation can also happen unlike in business and (3) economic policies based on competitiveness tend to be protectionist and generally make wasteful public expenditures". However, despite these criticisms, the Diamond model has influenced economic thinking on the sources of global competitiveness to a great extent. Table 2.1 summarizes the main characteristics of theories illustrated above. Since the aim of this work is to examine competitiveness of Gambia's agriculture, macro level approaches and concepts for the analysis is used.

Table 2.1. Summary of selected theories related to competitiveness

Theory Name	*Major contributors*	*Idea behind*
Micro level theories		
Classical industrial organization theories	Bain (1951), Bork (1978)	Firms cannot influence industry conditions or performance, therefore competitive advantage originates from external sources
New industrial organization theories	Hansen and Wernerfelt (1989), Porter (2004)	Competitiveness of a firm is also based on internal strategic decisions
Resource-based Theories	Wernerfelt (1984) and Barney (1986)	Firms compete on the basis of their resources and capabilities
Macro level theories		
Classical economic theories	Smith (1776)	Countries produce and trade with products in which they have an absolute advantage
	Ricardo (1817)	Countries produce and trade with products in which they have a comparative advantage
Neoclassical economic theories	Heckscher (1919) and Ohlin (1933)	Comparative advantages are based on resource-endowments
Endogenous (new) growth theories	Lucas (1988) Romer (1990)	Technological change and innovation are internal drivers of economic growth
New trade theories	Falvey (1981) Falvey-Kierzkowski (1987)	Countries with similar factor endowments trade with each other – quality is a source of competitive advantage
Theory of competitive advantages	Porter (1998)	Factor and conditions as well as related and supporting industries together with firm strategy, structure and rivalry shape a country's competitive positions

Source: JAMBOR & BABU (2016)

2.1.4. Measurement of Competitiveness

Similar to the problems in definition, measurement of competitiveness is also convoluted. As competitiveness involves many different approaches, the measurement technique varies with the unit of analysis. There is a whole range of indicators designed to measure competitiveness, nonetheless, their categorization is a serious challenge. On one hand, these indicators show past development, while on the other hand, they can also be used to analyze future potentials. This section explores deeper into the various micro and macro level indicators for measuring competitiveness.

2.1.4.1. Micro Level Measures

The easiest way to measure competitiveness of a firm is based on *traditional financial indicators* such as, profitability growth, return on assets (ROA), return on equity (ROE), earnings before interest, taxes, and depreciation and amortization (EBITDA). The comparison of these widely known and accepted indicators gives a comprehensive picture of the competitive positions of selected firms.

In line with the concept of micro (or firm) level competitiveness, another popular group of measures is related to *production costs*. The domestic resource cost (DRC) ratio, for instance, compares the opportunity costs of domestic production with its associated value added (GORTON and DAVIDOVA, 2001). In other words, the DRC compares the value of domestic resources used to produce one unit of good with, the value of the good if exported. It is defined as follows:

$$DRC_j = \frac{\sum_{l=k+1}^{n} a_{jl} P_l^D}{P_j^B - \sum_{l=1}^{k} a_{jl} P_l^B} \quad (1)$$

where, a_{jl} is the quantity of the l-th traded input, if l = 1 to k, or non-traded input, if l = k+1 to n, used to produce one unit of the j-th commodity, P_l^D is the domestic price of the l-th input, P_j^B is the border price of the j-th commodity and P_l^B is the border price of the l-th input (LATRUFFE, 2010). If 0 < DRC < 1, it means production of that commodity is internationally competitive. In other words, the opportunity cost of domestic production is less than the value added of output at world prices. Some researchers also suggested the use of Bilateral Resource Cost (BRC), Private Cost Ratio (PCR), and Social Cost-Benefit Ratio (SCB) indices to measure firm level competitiveness. More on this can be found in MASTERS and WINTER-NELSON (1995). Unit labor costs (ULC) are also widely used in the literature, and are defined as the cost of labor required to produce one unit of output (FELIPE and KUMAR, 2011). On the whole, cost ratios assess cost differentials amongst firms and they depend on the structure and strategy of the firm (LATRUFFE, 2010).

Another group of measures that captures firm level competitiveness relates to *profitability.* Although the ways profitability is defined varies study by study, HARRISON and KENNEDY (1997) suggest that profitability and competitiveness are closely related due to market shares. *Productivity and efficiency* are also cited often as indicators of firm level competitiveness in the literature, although no explicit reference in the papers is made to competitiveness. The most comprehensive measure used in this regard is the Total Factor Productivity (TFP), defined as an index of total outputs over total inputs. As its definition suggests, the TFP is used to measure how efficiently a firm uses total inputs to produce its outputs. LATRUFFE (2010) provides an

excellent overview on the various methods measuring productivity and efficiency related to firm level competitiveness.

2.1.4.2. Macro Level Measures

In line with the definitions presented above, *macro level competitiveness is usually measured using international trade indices.* There exist various basic measures capturing simple export and import values and trade balance such as, terms of trade, unit values, trade concentration, net export index, and so on.

However, the most well-known competitiveness indices at the macro level come from *world competitiveness reports*. On the one hand, global competitiveness has been analyzed in IMD's *World Competitiveness Yearbook (WCYB).* Published annually since 1989, the WCYB ranks and investigates the ability of nations to create and sustain a competitive economic environment. IMD groups its 250 measures into eight categories (domestic economy, internationalization, government, finance, infrastructure, management, science and technology, and people) and measures country performance on each dimension. Around 50 determinants of competitiveness, sub-divided by the above categories, are identified by the report and considered as the most important ones for a competitive environment. Given that it was the 25th anniversary of publishing the first WCYB in 2014, these reports are also useful in comparing global competitive performances in the long run.

Another well-known source of global competitive positions is the World Economic Forum's *Global Competitiveness Report (GCR).* It assesses the competitiveness of 144 economies, across different aspects captured in its 12 pillars (indicators), relating to: institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training,

goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication, and innovation. The first four pillars are essential for factor driven economies, pillars 5-10 are important for efficiency-driven economies, while the rest are the engines of innovation-driven economies.

WEF assumes that economic development of developing countries is factor driven where well-functioning institutions, infrastructure, macroeconomic environment, and health and primary education (pillars 1-4) are key for future growth. In the next stage when incomes and prices rise, quality and efficiency become engines of growth, so factors such as higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, and market size matter (pillars 5-10). In the final phase, differentiation and innovation helps in keeping standards of living high, so factors such as, business sophistication and innovation (pillars 11-12) prove to be central to economic development.

Although IMD's and WEF's approaches provide identical results, various differences exist between them. These differences arise primarily due to the methodology used, the number of countries, and number of indicators observed. More than 330 criteria are used by IMD in evaluating 61 countries, comparatively less than 120 by the WEF, which analyzes 144 economies. Moreover, IMD is mainly focuses on hard statistics, while the WEF puts more emphasis on survey data. An overview on the comparison between the two reports is given by LOO (2012). More details on Macro level of measuring competitiveness can be found on Chapter 4.

2.2. The Most Competitive Nations in The World

Based on the IMD's World Competitiveness Yearbook 2015, USA, Hong Kong, and Singapore were the most competitive nations globally. Other nations in the top 10 were from Western Europe, with the exception of Canada. The IMD suggests that USA's rank one, is a result of its robust financial sector, business efficiency, effective infrastructure, and its highly innovative environment. In this report, Asian and Eastern-European countries demonstrate mixed results, while some downturn can be noticed for Latin America (JAMBOR & BABU, 2016).

Table 2.2. Top 10 Country Ranks by IMD in 2015

Country	Rank of 2015 (out of 61)	Score (1-100)	Rank of 2014
USA	1	100.000	1
Hong Kong (SAR)	2	96.037	4
Singapore	3	94.950	3
Switzerland	4	91.916	2
Canada	5	90.410	7
Luxembourg	6	89.411	11
Norway	7	87.915	10
Denmark	8	87.077	9
Sweden	9	85.921	5
Germany	10	85.637	6
The Gambia	123	3.48 (score 1-7)	125

Source: JAMBOR & BABU (2016)

Nonetheless, the World Economic Forum's GCI index 2014-2015, Switzerland, Singapore and the United States were the most competitive nations in 2014-2015. The highly developed Western economies and several Asian countries dominated the top 10 list for decades. The main determinants of success of these nations are due to highly innovative and business-oriented environment in connection with a high share of GDP usually dedicated on research and development. In general, the latest report identified significant advancements in smart investing, public-private collaboration, and structural reforms as the main determinants of competitiveness of nations (JAMBOR & BABU, 2016).

Table 2.3. Top 10 Countries GCI Scores for 2014-2015

Country	Rank (out of 144)	Score (1-7)	GCI 2013-14 rank (out of 148)
Switzerland	1	5.70	1
Singapore	2	5.65	2
USA	3	5.54	5
Finland	4	5.50	3
Germany	5	5.49	4
Japan	6	5.47	9
Hong Kong (SAR)	7	5.46	7
Netherlands	8	5.45	8
United Kingdom	9	5.41	10
Sweden	10	5.41	6

Source: JAMBOR & BABU (2016)

2.2.1. Conceptual Framework

It is evident from the above examination and determination that competitiveness can be measured and interpreted basically at the micro and macro levels. Micro level competitiveness focuses on firms' performance and resources, while macro level competitiveness is related to performance in international trade.

On the other hand, the concepts of comparative and competitive advantage are sometimes used interchangeably in the economic literature, even though they are not the same. Comparative advantage focuses on the sectoral composition of trade between countries and draws on naturally 'endowed' factors, while competitive advantage concentrates on firm-based resources and strategies (BHAWSAR and CHATTOPADHYAY, 2015). Consequently, the two concepts do not necessarily go together. The existence of comparative advantages does not necessarily imply the existence of competitive advantages. This holds true if we consider comparative advantage to be a static concept, while competitive advantage as dynamic. In other words, competitive advantages are based on the smart use of comparative advantages.

In order to link the two levels (micro and macro) and the two interrelated concepts (comparative and competitive advantages), GUPTA (2007) proposes a useful approach, providing an appropriate conceptual framework for the analysis (see figure 2.3).

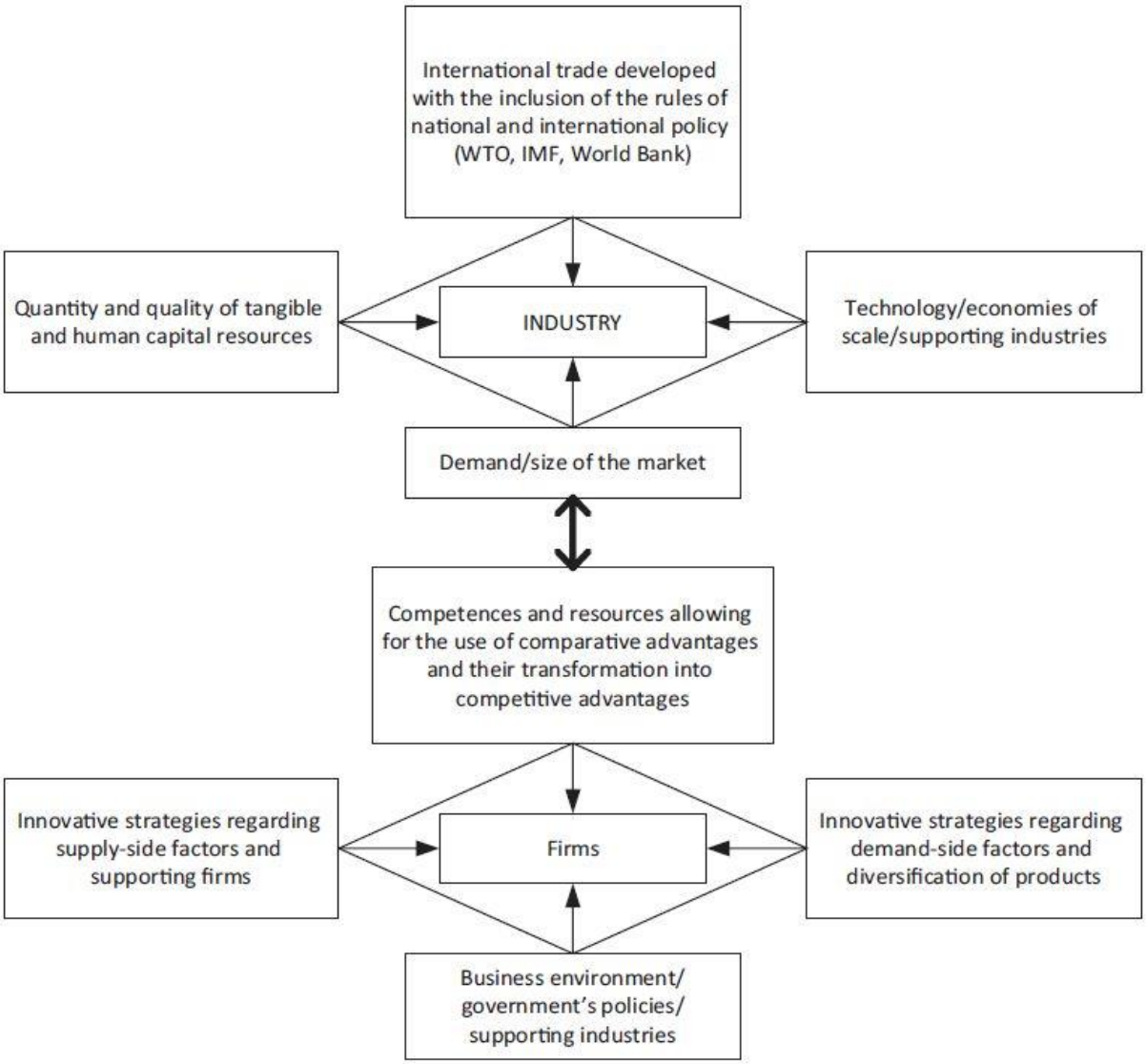


Figure 2.3. Conceptual framework linking comparative and competitive advantages

Source: GUPTA (2007: 34).

In his model described above, GUPTA (2007) takes PORTER's (2004) diamond framework and identifies the factors that influence comparative and competitive advantages, and link the two.

He suggests that factors shaping the comparative advantage in one diamond influences the factors shaping competitive advantage in the other diamond and vice versa. It is the strategies on supply and demand side factors, the business environment / government policies, basic competences, and resource endowments, that together drive a nation's competitive advantage (based on firm level). However, the quantity and quality of physical and human resources, the demand and size of market, technology / scale economies, and international trade-related policies shape comparative advantages (based on industry level).

In Gupta's view, forces in the comparative advantage diamond influence forces in the competitive advantage diamond and vice versa. In an ideal world, comparative advantage offers the basis for competitive advantage. However, in the "double diamond" framework, it is also possible for forces of competitive advantage to strengthen the operation of the forces of comparative advantage. In general, competitive advantages and comparative advantages are supplements rather than substitutes in determining and sustaining a nation's advantage in international trade (GUPTA, 2007)

2.3. Theoretical Evidence on Economic Growth and Export Competitiveness

The export expansion of agricultural products, competitiveness, and openness to foreign markets is viewed by many studies as a key determinant of economic development because of the positive externalities it provides. According to HELPMAN and KRUGMAN (1985) firms in a thriving export sector can enjoy the following benefits: efficient resource allocation, greater capacity utilization, exploitation of economies of scale, and increased technological innovation stimulated by foreign market competition. Some analysts argue that causality flows from export to economic development and denotes this as the export-led growth (ELG) hypothesis (BALASSA, 1978; BHAGWATI, 1978; WYNNE-EDWARDS, 1998). Several studies have also

shown that it is possible to have growth-led export (GLE) which has the reverse causal flow of economic development to export growth. The studies of BHAGWATI (1988) reveal that export expansion could be stimulated by productivity gains caused by increasing in domestic levels of skilled-labor and technology.

MEDINA-SMITH (2001) tested the ELG hypothesis for Costa Rica for the period 1950-1997 using a Cobb-Douglas production function. The variables included in the 19 analysis were real GDP, real exports, real gross domestic investment, gross fixed capital formation (a proxy of investment) and population (proxy of labor force). The following tests were conducted: unit roots (DF and ADF tests), co-integration tests using Co-Integration Regression Durbin-Watson (CRDW), Engle-Granger methods, and Johansen's Maximum-likelihood approach. The author found evidence supporting the ELG hypothesis, implying that exports can explain both the short-run and long-run economic changes in Costa Rica.

SENTSHO (2001) tested the causal relationship between export competitiveness and economic growth in the mining sector in Botswana for the period 1976-1997. The objective of the study was to see whether revenues derived from the primary exports sector (i.e., mining) could lead to positive and meaningful economic growth in Botswana. The author based the study on evidence from statistical data and an econometric analysis of Botswana's economy. To investigate the contribution of exports to Botswana's economic growth, the author used two aggregate production function models (APFM). These models assume that along with the conventional inputs used in the neoclassical production function, unconventional inputs may be added into the model to identify their contribution to economic growth.

NJIKAM (2003) tested the ELG hypothesis in 21 Sub-Saharan African countries: The study has brought several objectives which were: (1) to test the causal relationship between export

competitiveness (agricultural and manufactured) and economic advancement (GDP), (2) to determine if there is evidence of such relationships, determine the direction of causality, and (3) to examine whether the direction of causation is reversed when countries change from import substitution strategies (ISS) to exports promotion (EP) strategies. The author developed autoregressive models to determine whether agriculture and manufactured exports affect economic growth or vice versa in all countries. The author found unidirectional causation from real GDP to manufactured exports in six countries (Côte D'Ivoire, Ghana, Madagascar, Gabon, Benin, and Togo), implying that total export growth depends on the economic growth in these countries. A similar study was conducted by GIBBA (2016) to test the significance and causal relationship of export expansion and competitiveness to economic growth in Sub-Saharan Africa using Angola, Côte D'Ivoire, Nigeria, and South Africa as case studies. A positive correlation was found between the two.

Endogenous growth models showed that imports can be a channel for long-run economic development because it provides domestic firms with access to the needed intermediate factors and foreign technologies (COE and HELPMAN, 1995). Growth in the import can serve as a way for the transfer of growth-enhancing foreign R&D knowledge from developed countries to developing countries (LAWRENCE and WEINSTEIN, 1999). That is urgently important to need it for developing countries to prepare before economic development will hold and further positive changes. TYLER (1981) examination of a sample of 55 developing countries resulted that exports and investments are the main determinants of economic growth. New growth theories stress the importance of investments, human and physical capital in the long-run economic growth. The policies, which affect the level of growth and the investment efficiency determine the long-run economic growth.

Moreover, the studies of LEVINE and RENELT (1992) explained that gross capital formation affects the economic growth either increasing the physical capital stock in domestic economy directly, or promoting the technology indirectly. GIBBA and MOLNAR (2016) examine the sources of rapid economic growth using The Gambia as a case study. The study adopts the application of Augmented Dickey-Fuller (ADF) and Granger causality tests to evaluate the positive effects of export expansion, agricultural development, government spending on education, and foreign direct investment (FDI), using the Vector Auto-regression (VAR) model. Findings reveal that development and efficiency in Gambia's agriculture and competitiveness in her exports, as two of the main determinants of economic advancement.

Recently, many empirical studies emphasized in diversified role of private and public investments in growth process. The public investments on infrastructure, in extent in which are proven to be complementary to the private investments, can increase the marginal product of the private capital, augmenting the growth rate of a domestic economy. KHAN and KUMAR (1997) supported that the effects of private and public investments on economic growth differ significantly, with private investment to be more efficient and productive than public one. Moreover, KNIGHT, et al. (1993) confirmed that public investments on infrastructure have an important positive effect on economic growth over the period 1980-1990. Also, EASTERLY and REBELO (1993) analyzed that public investments on transportation and communications are positively correlated to economic growth, while there were negative effects of public investments of state-owned businesses on economic growth.

The effect of foreign direct investment on economic growth is dependent on the level of technological advance of a host economy, the economic stability, the state investment policy and the degree of openness to foreign markets. FDI inflows can affect capital formation because they are a source of financing and capital formation is one of the prime determinants of economic

advancement. Inward FDI may increase a host's country total productivity and change its comparative advantage. If productivity growth were export biased, then FDI would affect both growth and exports. A host's country institutional characteristics such as its legal system, enforcement of property rights, could influence simultaneously the extent of FDI and inflows and capital formation in that country.

In Asia, ZHANG and SONG (2002) assessed the causal relationship between foreign direct investment and economic growth with Granger causality analysis for 10 Asian countries. The results of this study suggested that there is a unidirectional causality between foreign direct investment and economic growth with direction from FDI to GDP in Hong Kong, Japan, Singapore, Taiwan, a unidirectional causality between exports and economic growth with direction from economic growth to exports for Malaysia and Thailand, also there is a bilateral causal relationship between FDI and GDP for Kina and Indonesia, while there is no causality for Korea and Philippines.

Although several studies have outlined the theoretical relationship between export competitiveness and economic growth, disagreements still persist and the causal dynamics between agricultural export and economic growth is an empirical question worthy of further investigation, as described by (AWOKUSE, 2009). TSAKOK and GARDNER (2007), in a critique of previous empirical analysis on the role of agriculture in economic growth, argued that previous works based on econometric study of cross-sectional data for a panel of countries, or possibly regions within a country, have significant limitations and have not provided definitive results. In particular, given the presence of non-stationarity, conventional regression techniques may yield spurious regressions and significance tests. Also, the results are limited to showing only that agriculture and GDP growth are correlated, but could not provide information on the direction of causality.

GARDNER (2005), in a cross-sectional panel of 52 developing countries, discovered no significant evidence of export leading to overall economic growth and development. Nonetheless, TIFFIN and IRZ (2006) using cointegration framework and Granger-causality tests on data for 85 countries, found statistical evidences that support the conclusion that agricultural value added is the causal variable in developing countries, while the direction of causality in developed countries is ambiguous. FOSU (1996) analyze the role of export as an "engine of growth" by examining data for 15 developing and transition economies in Africa, Asia, and Latin America with the application of the autoregressive distributed lag model. His statistical findings provide strong evidence indicating that export is an engine of sustainable economic growth.

A study using rank correlation was conducted by NASREEN (2011). In this task, the authors tested the ELG hypothesis for four Asian countries commonly known as "the four tigers of Asia" (Hong Kong, Singapore, South Korea, and Taiwan) using time series annual data for the period 1960-1982. The authors concluded that economic growth in all four countries was driven by the countries' export promotion. It was also concluded that higher exports caused economic growth in all countries. Some limitations of this study included failure to base conclusions on econometric testing and failure to consider the possibility that simple correlations may not be appropriate to test for causality since high correlation between the variables can also be the result of GDP growth resulting in exports.

YAO (2000), in his country-specific study, demonstrated how export has contributed to China's economic progress and development using both empirical data and a cointegration analysis. Two important conclusions were identified by this author. First, although agriculture's share in GDP declined sharply over time, it is still an important force for the growth of other sectors. Second, the growth of non-agricultural sectors had little effect on agricultural growth. This was largely

due to government policies biased against agriculture and restriction on rural-urban migration. In his study of Indian agriculture, KANWAR (2000) investigated the cointegration of the different sectors of the Indian economy (specifically: agriculture, manufacturing industry, construction, infrastructure, and services) in a vector autoregressive (VAR) framework to avoid problems of spurious regressions given the presence of non-stationarity data.

2.4. Fundamental Theories on Determinants of Economic Growth, Productivity, and Trade

Most, if not all, international trade and development theories illustrate a positive relationship between the volume of trade and economic growth, right from classical comparative advantage model of David Ricardo, the neoclassical model of Heckscher and Ohlin, to the contemporary endogenous growth models. Although the various models assumed that different factors cause the trade, but the end result describes improvement in the output and welfare.

The starting point of conventional economic growth theorization is the neoclassical model of SOLOW (1956). The basic assumptions of the model are: constant returns to scale, diminishing marginal productivity of capital, exogenously determined technical progress and substitutability between capital and labour. As a result, the model identifies the savings or investment ratio as an important determinant of short-run economic growth. Technological progress, though important in the long-run, is regarded as exogenous to the economic system and therefore, it is not adequately examined by this model. Turning to the issue of convergence / divergence, the model predicts convergence in growth rates on the basis that poor economies will grow faster compared to rich ones.

The role of technological progress as a key driver of long–run economic growth, export competitiveness, and productivity has been put in scrutiny from more recent studies, which accept constant and increasing returns to capital. These theories, known as endogenous growth theories, proposed that the introduction of new accumulation factors, such as knowledge, innovation, institutions, etc., will induce self-maintained economic growth and development. Brought about by ROMER (1986) and LUCAS JR (1988) seminal studies, work within this framework highlighted three significant sources of growth: new knowledge, innovation and public infrastructure. As a result, and in contrast to the neoclassic counterpart, policies are deemed to play a substantial role in advancing growth on a long-run basis. Turning to the convergence / divergence debate, the endogenous growth models suggest that convergence would not occur at all (mainly due to the fact that there are increasing returns to scale).

From a more macroeconomic viewpoint, other theoretical approaches have emphasized the significant role non-economic factors play on economic performance. Thus, institutional economics has underlined the substantial role of institutions (JUTTING, 2003; NORTH, 1992), economic sociology stressed the importance of socio-cultural factors (GRANOVETTE, 1985; KEEFER and KNACK, 2005) political science focused its explanation on political determinants; (BRUNETTI, 1997; LIPSET, 1959) and others shed light on role played by geography (GALLUP, et al., 1999) and demography (DOWRICK, 1994).

2.5. Trade and Economic Performance

Several studies have evaluated the factors underlying economic growth and performance. Using differing conceptual and methodological perspectives, these studies have placed emphasis on a different set of explanatory parameters and offered various insights to the sources of economic progress and development. Investment is the most elemental determinant of economic growth

and development identified by both neoclassical and endogenous growth models. However, in the neoclassical model investment has impact on the transitional period, while the endogenous growth models argue for more permanent effects. The importance attached to investment by these theories has led to an enormous amount of empirical studies evaluating the relationship between investment (including foreign direct investment) and economic growth (GIBBA and MOLNAR, 2016; KORMENDI and MEGUIRE, 1985).

Human capital is the main source of growth in several endogenous growth models as well as one of the key extensions of the neoclassical growth model. Since the term "human capital" refers principally to workers' acquisition of skills and know-how through education and training, the majority of studies have measured the quality of human capital using agents related to education (e.g. school-enrolment rates, tests of mathematics and scientific skills, etc.). A large number of studies have found evidences suggesting that a well informed and educated population is a key determinant of economic growth and development. Innovation and R&D activities can play a major role in economic progress increasing productivity and growth. This is due to increasing use of technology that enables introduction of new and superior products and processes. This role has been stressed by various endogenous growth models, and the strong correlation between innovation / R&D and economic growth has been empirically affirmed by many studies (FAGERBERG, 1987).

Economic policies and macroeconomic conditions have also attracted much attention as determinants of economic performance (GRIER and TULLOCK, 1989) since they can set the framework within which economic growth takes place. Sound and effective economic policies can influence several aspects of an economy through investment in human capital and infrastructure, improvement of political and legal institutions and so on. According to FISCHER (1993), macroeconomic conditions are regarded as necessary but not sufficient conditions for

economic growth. In general, a stable macroeconomic environment may favour growth, especially, through reduction of uncertainty, whereas macroeconomic instability may have a negative impact on growth through its effects on productivity and investment by incurring higher risks.

Openness to trade has been used extensively in the economic growth literature as a major determinant of growth performance. There are sound theoretical reasons for believing that there is a strong and positive link between openness and growth. Openness affects economic growth through several channels such as exploitation of comparative advantage, technology transfer and diffusion of knowledge, increasing scale economies and exposure to competition. According to DOWRICK, (1994), openness to trade is usually measured by the ratio of exports to GDP

Foreign Direct Investment (FDI) has recently played a crucial role of internationalizing economic activity and it is a primary source of technology transfer and economic growth and development. This fundamental role has been emphasized in several models of endogenous growth theory. The empirical literature examining the impact of FDI on growth has provided more-or-less consistent findings affirming a significant positive link between the two (LENSINK, et al., 2000; GIBBA and MOLNAR, 2016). Another important source of growth highlighted in the literature is the institutional framework. Although the important role institutions play in shaping economic performance has been acknowledged long time ago (AYRES, 1973), it is not until recently that such factors have been evaluated empirically in a more consistent way.

The connection between political factors and economic growth and development has come to the fore by the work of LIPSET (1959) who assessed how economic development affects the political regime. Since then, research on the issues has multiplied making clear that the political

environment plays an important role in economic growth (SCULLY, 1988). At the most basic form, political instability would increase uncertainty, discouraging investment and eventually hindering economic growth.

The important role of geography on economic growth and development has been long admitted. Though, over the last 20 years or so, there has been an increased interest on these factors since they have been properly formalized and entered into models. There have been a number of recent empirical and theoretical studies (SACHS and WARNER, 1997; MASTERS and McMILLAN, 2001) affirming that natural resources, climate, and topography have a direct impact on economic growth affecting [agricultural] productivity, economic structure, transport costs, and export competitiveness.

The relationship between demographic trends and economic growth and development has captivated a lot of interest particularly over the last years, yet many demographic aspects remain today unexplored. Of those evaluated: population growth, population density, migration and age distribution, seem to play the major role in economic advancement (KELLEY and SCHMIDT, 1995). High population growth, for example, could have a negative impact on economic growth influencing the dependency ratio, investment and saving behaviour and quality of human capital.

However, the composition of the population has also important implications for growth. A large working-age population is deemed to be conductive to growth, whereas population with many young and elderly dependents is seen as a bottleneck. Population density, in turn, may be positively linked with economic growth as a result of increased specialization, knowledge diffusion and so on. Migration would affect growth potential of both the sending and receiving countries. Findings again are not conclusive since there have been studies reporting no [solid] correlation between economic growth and demographic trends (PRITCHETT, 2001).

2.6. Competitiveness and Comparative Advantage

"Why do nations trade?" and "How should a nation conducts its trade policy?" are the two most central questions in International and Agricultural Economics. One of the most influential answers to the former question is the theory of comparative advantage and competitiveness. Its connection with economic progress and integration was extensively examined by BALASSA (1971, 1978, 1988). It is an economic theory about the work gains from trade for individuals, firms, or nations that arise from differences in their factor endowments or technological progress. COSTINOT (2009) reveals that the main tool of neoclassical trade theory is centred on comparative advantage driven by both sources of factor endowment or technological advancement. The author further emphasizes that in practice, factor endowment coexists with institutional differences and technological progress.

The theory of comparative advantage provides an explanation of gains from trade and specialization, which is usually considered as a positive theory about the predictions of the directions and the terms of trade. GOLDIN (1990) evaluates the measurement and theory of comparative advantage with a view to understanding trends in trade and agricultural production in OECD and developing countries. His study attempts to review the indicators of comparative advantage such as those connected with "direct resource cost", "revealed comparative advantage", "production cost", and "trade liberalization". SABONIENE (2015) estimates export competitiveness and the analysis changing export specialization and economic conditions of Lithuania in the context of "economic integration" to the European Union (EU) and "globalization" in 2000 - 2007. The analysis of the export competitiveness, specialization, and pattern reveals that the total export of Lithuania largely depends on the export commodities of traditional industries due to the raw material resources and the level of technology.

PRASAD (2004) measures the export competitiveness of Fiji from 1998 to 2002 with "trade-based indices" of the Revealed Comparative Symmetric Advantage (RSCA), Net Trade Revealed Comparative Advantage (NTRCA) index, and Revealed Comparative Advantage (RCA). His results of the RSCA and RCA reveal "competitive advantage" in some commodities. Moreover, the Net RCA index of his research reveals a weak specialisation in most of Fiji's export commodities. "Since exports are a primary source of foreign exchange for small and vulnerable economies, its long-term survival is dependent upon its ability to compete with exports of similar products from other countries in the international market" (PRASAD, 2004: 4).

In consideration of traditional RCA measures along with dynamic comparative advantage, BANO and SCRIMGEOUR (2012) evaluates the determinants of Kiwifruit export growth in New Zealand by adopting the revealed comparative advantage constructed by BALASSA (1965). The outcome of their analysis reveals that New Zealand has a high level of comparative advantage and export enhancement in Kiwifruit during the last three decades. The size of the market, national and trading partners' incomes, and seasonality were the key determinants of this success.

On the basis of empirical evidence, BOJNEC and FERTO (2016) assess the export competitiveness of fruits and vegetable products of the European Union (EU-27) in the world market. They concluded that majority of the EU-27 member states with the comparative advantages in vegetable and fruit products specialized in a particular segment or niche fruit and vegetable products. Similarly, DASTAGIRI et, al. (2013) estimated production trends, export competitiveness and market efficiency of vegetables in India. The outcome of the study indicated an increase in the export quantity and that the Nominal Protection Coefficient (NPC) for all vegetables is less than 1; showing an impressive competitiveness in the global markets.

Trade in agricultural commodity has significantly played a vital role in world's economic growth and poverty eradication. Thus, Food and Agriculture Organization assumptions "In order to meet the demand for food in 2050, annual world production of crops and livestock will need to be 60 percent higher than it was in 2006" (FAO, 2016, p.1). Drawing its strength from the agricultural industry, such important roles include contribution to quality food production, job creation, foreign exchange earnings, and industrial inputs (NWACHUKWU et, al., 2014). BOANSI et, al. (2014) assessed the revitalization of pineapple export industry of Ghana following its decline in both volumes and value since 2004. The findings of their study disclosed that there was competitive advantage in Ghana's fresh pineapple export industry which is more price-driven than volume driven. A positive correlation exists for both value and volume of exports with production, the index of competitiveness and trade liberalization. The policy implications of their findings were mainly centred on high productivity, openness to trade, and improved quality products for global competitiveness.

ADEGBITE et, al. (2014) analyse the comparative advantage and competitiveness of pineapple production in Osun State, Nigeria. The authors applied a technique of Multistage Sampling in choosing 120 respondents within the study area, using both primary and desk-research data. The data were then examined using descriptive statistics and Policy Analysis Matrix (PAM). Their concluding results revealed that both techniques assessed were more profitable at individual and social level, and the system of pineapple production applying 'sucker technique' was more competitive and had a higher comparative advantage than that of 'crown technique'. MUHAMAD (2014) investigates Malaysian pineapple comparative advantage and competitiveness in the global market by applying the Concentration Ratio, Herfindahl Index, and Porter's Diamond Theory. The research findings reveal a production instability and comparative

disadvantage in the pineapple global market, unlike Costa Rica which was found to be the leading competitive country in exporting pineapple and many other tropical fruits.

SURESH & MATHUR (2016) evaluated the export tendency of agricultural commodities from India during the past decade and found a significant improvement in the share in total export of agricultural commodities constituted by a shift in commodity composition. Their study identifies that the share in total export has diminished in some commodities; fish and marine products, fruits and nuts and coffee and tea, and a significant increase was realized in the case of cotton, spices, guargum, sugar, and cereals (basmati rice and maize). However, there was an improvement in comparative advantage in certain fruits and vegetables but a decline in some plantation crops, wheat, and rice.

EL-HAG (2014) analyses the comparative advantage and export competitiveness of Sudanese mango exports and found that there was comparative advantage in the mango export industry. Additionally, the results further revealed an instability in exports caused by the direct and indirect taxes imposed on the mango exports which resulted to a reduction in financial profitability.

As to research on the revealed comparative advantages in agri-food sectors, NDAYITWAYEKO et al. (2014) analyzed the comparative advantage of the Eastern and Central African (EAC) coffee sector and revealed that EAC countries, though to a diminishing extent, had comparative advantage in global coffee exports from 2000 to 2012, with Uganda and Kenya leading the group. SERIN and CIVAN (2008) found that Turkish fruit juices and olive oils to be highly competitive in European markets. QINETI et al. (2009) analyze the competitiveness and comparative advantage of Slovak and EU agri-food trade in relation with Russia and Ukraine

and concluded that comparative advantage had been lost for a number of product groups over time.

TOROK and JAMBOR (2013) investigated the EU New Member States agri-food trade patterns and highlighted that almost all countries experienced a decrease in their comparative advantage after the EU accession, though it still remained at an acceptable level in most cases. BOJNEC and FERTO (2014) analyze the competitiveness of agri-food exports of European countries, and found majority of countries and products to have an advantage globally. The most successful nations in this regard were the Netherlands, France and Spain.

AKMAL et al. (2014) analyzes the competitiveness of Pakistan's basmati rice exports and found that the country is losing its positions on world markets in one of its biggest export products, which situation is calling for a strategy change from the decision makers. DISDIER et al. (2015) analyzes comparative advantages of agri-food products in the Asian and Pacific region and found that Australia and New Zealand had strong comparative advantages in fruit and vegetables, beverages and the dairy market. JAMBOR and BABU (2016) analyzed the comparative advantages and specialization of agri-food sectors at the global level and found the Netherlands, Spain and Denmark to be the most competitive nations.

Regarding the comparative advantages of peanuts trade, WU (2010) analyzed Chinese export structure and competitiveness of peanut and peanut products and found high competitive potentials on world markets. In contrast, ZHANG and LIU (2008) identified declining comparative advantages in Chinese peanut trade, though on a different timeframe. A global evidence on the competitiveness of peanut trade, at least to my knowledge, is missing from the current literature.

One of the main drivers of global economic growth is known to be East Asia's economy. The success of this particular region has been influenced by its exceptional growth and development in exports. The region's future success will be channelled closely to continued strong external demand. But the global economic resumption is a mixed picture with plenty of ambiguity. Designing policies and adopting strategies that expand trade and promote trade competitiveness served as key drivers of growth in East Asian countries that have been prosperous in realizing economic progress over the past three decades between early 1960s and 1990s such as Taiwan, Hong Kong, Singapore, and South Korea (HOPPE and NEWFARMER, 2008). These countries usually classified as "the four tigers of Asia", underwent rapid industrialization and maintained exceptionally high growth rates (in excess of 7 percent a year). They have developed into advanced and high-income economies, specializing in areas of competitive advantage.

"Globalisation creates an integrated market and a system of global production" (ZHANG et al., 2012: 203). Moreover, export development and openness in trade play an important role in an economy, influencing the level of economic advancement, employment, and the balance of payments. Competitiveness, quality and value added of exports, exchange rates, long run productivity, economic growth in other countries, etc., are known to be the key determinants of the level of exports. Growth in export creates employment, increases aggregate demand by causing higher economic growth, and determines current account deficit. ARIFIN (2013) adopted the revealed comparative advantage approach to assess the competitiveness and sustainability of major agricultural commodities in Indonesia. The findings of the study reveal a higher level of competitiveness in natural rubber followed by cocoa. The revealed comparative advantage of mango was 0.12, indicating a low level of competitiveness.

The sufficient distribution of income and wealth in a country are closely related to export expansion and development. Growth in this sector is paramount because of its effects on domestic trade and economic stability. SHEPHERD and WAGNER (2013) analyse the export growth trends in Hungarian agri-food sector over the past decade by applying constant market share analysis. The main outcome from the research revealed that there was less transformation to changes in demand in the Hungarian export industry as far as the target export markets are concerned. NAYYAR (1976) outlines that a country's export performance largely depends upon several factors such as competitiveness of exports, commodity composition of exports, changes in world trade, market distribution of exports, etc.

Recently, export competitiveness has captivated a lot of attention, because of the multiplying volume of world trade. The theory of trade competitiveness covers a broad spectrum, from production costs to exchange rates, but reasonably can be best interpreted as: "The degree to which a country can, under free and fair market conditions, produce goods and services which meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its people over the long term" (OECD, 2002). Export competitiveness is fundamental for promoting economic development and wellbeing in this globalised world. With the progressive reduction in trade barriers influenced by the process of globalization, more insistence is being placed on stimulating export competitiveness (PRASAD, 2004).

2.7. Summary of The Literature Review

There are contradicting views on the relationship between export competitiveness and economic advancement. Some argued that export expansion increases foreign competition, and this may have detrimental effect on growth of GDP, as it may lead to marginalization or even closure of factories (HARDING and RATTSO, 2005). On the other hand, some argued that growth of

export brings about higher growth of GDP through educative process. For example, higher contact with foreign competitors as a result of export growth can motivate rapid technological changes and managerial know-how, and enhance efficiency. For instance, the studies YUHN and KWON (2000), accepted the hypothesis that export growth causes productivity growth in Japan, Turkey, Yugoslavia, and South Korea. They concluded that the larger the share of output that goes into exports, the higher the productivity and economic growth. Since there is no unanimity in the empirical and theoretical literature on the causal relationship between export competitiveness and economic progress, hence, this research aims to investigate empirically how export competitiveness in Gambia's agricultural products determines and sustains her economic wellbeing.

3. A GENERAL OUTLOOK OF THE GAMBIA'S AGRICULTURE

3.1. Country's Background and Overview of Agriculture

The Gambia is a small country surrounded by the Republic of Senegal on all sides except along the Atlantic Ocean. The width of the country varies from 24 to 28 kilometers. It has a total land surface area of 10,689 square kilometers of which 4,300 square kilometers are regarded as arable agricultural land and related activities. The government of The Gambia in line with its development blueprints; GNAIP, ANR policy, etc., is transforming the agricultural sector and establishing peri-urban and urban agricultural enterprises as well as transforming the subsistence farming system to a commercial market-oriented farming system. A surplus producing system will eradicate extreme poverty and hunger while ensuring economic and environmental sustainability. To attain sustainable economic growth, food and nutrition security, agriculture offers a great potential. The Gambia is endowed with a huge expanse of arable land that is being used for the cultivation of a wide variety of crops. However, poor cultural practices and other forms of human interference have resulted in soil degradation and plant nutrients depletion resulting in low crop yields and natural resources degradation.

Meanwhile, agriculture is the most important sector in The Gambian economy given its contribution to employment, foreign exchange, food, and its linkages with other sectors of the economy. Indeed, the sector's performance directly mirrors that of the overall economy. Traditionally, agriculture in The Gambia is characterized by subsistence food crop cultivation, livestock rearing and semi-commercial cash crop production. The main crops grown in the country are groundnuts (known as peanuts), which is the main cash crop, rice (main staple food), millet, sorghum and maize. However, crop cultivation is not limited to the main crops only. Other complementary crops such as hungry rice (findi), cassava, sesame, vegetables, water

melon, pumpkin, and beans are also grown. Usually, agriculture in The Gambia currently supported by rain-fed, although small areas of irrigation exist for rice and horticultural crops. The country rainfall average as at 31st October 2016 stood at 768.4mm**,** which is 22% below last year's amount (991.7mm) and 8% below the long term mean (30-year average) of 834.4mm (NASS, 2016). Although the country average is slightly below the normal, the 2016 cropping season was marred more so by an erratic rainfall distribution pattern, than the amount of precipitation. 50% of the total country rainfall was received in the month of August alone. A total of 2 dry dekads were recorded in June and in October, 2016.

Effective start of the ploughing and sowing period is usually in July, extending into August. Effective rainfall to support plant growth and development is usually 90 days on average. Where sowing is delayed, crops were predisposed to a terminal drought resulting in yield loss. Excessive rainfall during the month of August 2016 caused flooding of low lying fields including tidal and pump irrigated rice fields in CRR-S and URR. It also caused erosion of top soils and leaching of plant nutrients. The total estimated area cultivated in the 2016 cropping season is 317,959 ha (NASS, 2016). This compared to 2015 cropping season has increased by 3%. This slight increase in cultivated area is attributed to adequate availability of planting material. On the contrary however, in comparison to the 5-year average, cereal production (millet, maize, sorghum, rice) reduced by 11%, and groundnuts, the main cash crop reduced by 12% (NASS, 2016). The natural rangelands continue to serve as the major source of forage in the country. Recently, incidence of encroachments into rangelands has been reported. The quality of rangelands is reportedly deteriorating due to infestation of non-palatable grass species. For the year 2016, groundnut hay was expected to be in abundance, and serve as supplementary feed for livestock. Natural water bodies and depressions serve as a source of water for livestock due to the inadequacy of watering points.

3.2. Crop Situation

Crops production in The Gambia is guided annually by a farming calendar; all farming activities are based on this calendar. Farming activities usually start in April – May. The major activities during this period were field clearing operations, acquisition and preparation of planting material and repair of farming implements. According to NASS (2016), crop situation as at the end of October 2016 depicted varying crop performance scenarios depending on the crop type, variety and planting time. Crop performance is similar in all regions of the country. The rainy season generally starts around July. This is when most farmers sowed their crops. This was followed by a dry spell enough to warrant re-sowing of many fields in the country.

Most importantly, the rains were not well distributed and a terminal dry spell was experienced in 2016. Most of the crops were planted late despite being crop varieties that required either ninety days (90) or more to mature. Consequently, as a result of the early cessation of the rainy season, these crops were affected as they did not reach full maturity. These include almost all major crops grown in the country with the exception of early millet. Moreover, fishing, horticulture, sesame and cashew nuts are promising areas of export diversification but so far progress has been limited, or even negative. Tourism has been the one bright spot and has become easily the country's most significant foreign exchange earner.

Groundnut (also known as peanuts) is another traditional pillar of The Gambian economy which plays an important role in the earnings of total agricultural export, but the sector now confronts severe domestic and international challenges, and exports have dropped sharply in recent decades, aggravated by the failed privatization of the mid-1990s. Peanuts remain the country's main cash crop engaging directly or indirectly over 80 percent of the population, but exports have declined drastically since the 1980s due to a combination of low world prices, inconsistent

sector management, and excessive government intervention. Farm-input credits were often forgiven and prices to producers subsidized, undermining efforts to involve private firms and operate the sector on a sound commercial basis. In 1993, the industrial assets were privatized but only until 1999, when the government took over once again. This episode revealed the advantages of privatization: adequate crop finance, reliable cash purchases of farmers' crops without default or delay, maintenance and investment of industrial assets, contributions to research funding, and credibility on the international market. But it also exposed some inadequacies: the weak capacity of the producers' associations, the importance of sensitizing farmers, government and other stakeholders to commercial rather than patronage relationships, and the need for an appropriate regulatory framework.

The underlying problems in the groundnut sub-sector are numerous: The cooperative movement has consistently shown poor financial and operational management to the point where farmers have lost faith in their institutions; subsidized fertilizer application is value subtracting; international standards for edible groundnuts and groundnut oil are not widely known or enforced; transport and storage are poor; the industrial processing facilities and river barges suffer from chronic lack of investment and maintenance; and prices do not reflect quality differences. Low quality, especially manifested by high levels of pesticide residues, has excluded Gambian nuts from the lucrative European market in edibles, relegating them to the birdfeed market. The volatility of the groundnut sector's contribution to export earnings—between 10 percent and 30 percent in recent years—reflects the harvest's high sensitivity to climatic conditions. The lack of irrigation facilities—exacerbated by the high saline content in The Gambian waters—means that the prospects of mitigating the impact of weather on output and exports will be limited in the near term. Improvements in irrigation are further hampered by the inadequacies of the electricity generation and distribution system.

One major issue in the sector has been the supply of high-quality seeds. The impact of the government's role as the primary provider of seeds, fertilizer, and credit to farmers on production efficiency is ambiguous. While it addresses the inability of many small farmers to save and store safely groundnut seeds (due to unavailability of storage space, transport facilities, and liquidity) it may also work towards distorting the incentive structure. Farmers have, in practice, often sold their seeds to the informal domestic or foreign (primarily Senegalese) markets, instead of engaging in effective seed management and storage, expecting that the government will provide seeds to them. This in turn has had a negative impact on export earnings because of the reduced availability of groundnuts for processing into higher-value-added exportable items.

Another issue is the availability of credit, both at the beginning of the groundnut season to farmers (for the purchase of fertilizers, seeds, etc.); and to cooperatives, during the final stages of the season (for the purchase of nuts from the farmers to sell on to the processing operators). In past years, the biggest society of cooperatives, FACS, has been observed to buy unshelled groundnuts from farmers on credit but then to have difficulty paying on time, thus forcing cash-constrained farmers to sell their seeds to Senegal rather than to Gambian depots for onward processing. Notwithstanding the urgent need to improve the availability of credit, it is not clear whether the government's contribution in this area has so far been optimal. Government loans in the past to farmers have often been soft in nature, fostering further the informal seed / groundnut market by encouraging farmers to default and sell their seeds at a higher price at home or abroad. Meanwhile, the government is taking measures to:

- ✓ reduce dependence on groundnuts by encouraging diversification in crop production, and
- ✓ restore sustained growth in the sector by increasing efficiency and competition at all levels of the value chain through new entries and private sector investments.

3.3. Pasture and Livestock Situation

The natural rangelands continued to serve as the major source of forage in the country. Recently there has been a lot of encroachments on rangelands. During the rainy season, there is abundance of feed to serve for both the rainy season and most part of the dry season. Although the rainy season started a little late in 2016, livestock feed availability is generally similar to that of 2015. In 2016, groundnut hay used as feed for livestock was expected to be of good quality and in abundance. The hay is usually kept through the dry season and use as animal feed when grasses are minimal.

Water constitutes about 75% of the body fluid of an animal and the quality of water is important in reproductive cycle of livestock in The Gambia. It is usually available in abundance for the livestock during the rainy season. The government through projects under the Department of Agriculture (DOA) have also constructed and continues to construct livestock watering points throughout the country. The natural water bodies and depressions created during road construction along the major road and in the bush also serve as a source of water for livestock. Natural watering points may dry out much earlier in the dry season. This warrants the construction of artificial watering points.

3.4. Cereal Production Estimates

Presented below are the estimates of total area cultivated and total production at national levels.

Table 3.1. Comparison of the 2015 and 2016 cropping season area cultivated (ha) and the five-year average

Crop	2015	2016	% Change (2016 Over 2015)	5 Year Ave	% Change (2016 Over 5-Year Average)
Early Millet	69,440.30	74501	7.29	83,020	-10.26
Late Millet	21,709.10	21802	0.43	21,995	-0.88
Sorghum	25,146.00	25220	0.29	28,354	-11.05
Maize	36,803.50	34573	-6.06	32,044	7.89
Findi	1,239.10	1256	1.36	654	92.16
Rice	67,651.60	69561	2.82	65,187	6.71
Total Cereal	***221,990***	***226,913***	***2.22***	***231,254***	***-1.88***
Groundnuts	82,161	85009	3.47	98,385	-13.6
Sesame	3,180.40	3254	2.31	4,521	-28.02
Cowpea	2,662.30	2783	4.53	0	0
Total Cash Crop	***88,004***	***91,046***	***3.46***	***103,533***	***-12.06***
National Total	***309,993***	***317,959***	***2.57***	***334,787***	***-5.03***

Source: NASS (2016)

The total estimated area cultivated in the 2016 cropping season was 317,959 ha (Table 3.1). This compared to 2015 cropping season has increased by 3%. This slight increase in cultivated area has been attributed to the intervention of projects in the provision of seeds to farmers and other inputs such as fertilizer. However, the change in area cultivated is not very significant as the country is now trying to practice intensification rather than continuously clearing new forest areas as farmlands. Nonetheless, compared to the five-year average, total cultivated area for the 2016 cropping season has decreased by 5% i.e. from 334,787 ha to 317,959 ha. Cereal cultivation has recorded an increase of 2% i.e. from 221,990 ha in 2015 to 226,913 ha in 2016 (Table 3.1). Rice which is the main staple food for the country has also registered a 3% increase of area cultivated over 2015 cropping season as can be seen in (Table 3.1). Total cash crop cultivation is estimated at 91,046 ha which represents a 3% increase over the 2015 season, but marked a decline of 12% compared to the five-year average.

Table 3.2. Comparison between the 2015 and 2016 cropping season production (mt) and the five-year average

Crop	2015	2016	% Change	5 yr. Ave.	Change Over 5yr Ave.
Early Millet	55968.88	55225	-1.3	71,204	-22
Late Millet	18300.77	17881	-2.3	18,438	-3
Sorghum	21625.56	21203	-2	23,201	-9
Maize	32019.05	30761	-3.9	29,583	4
Findi	672.83	798	18.6	434	84
Rice	53309.46	50326	-5.6	55,008	-9
Total Cereal	***181896.55***	***176194***	***-3.1***	***197,869***	***-11***
Groundnuts	82653.97	80742	-2.3	92,128	-12
Sesame	2232.64	2389	7	2,022	18
Cowpea	1759.78	2197	24.8	-	-
Total Cash Crop	***86646.39***	***85328***	***-1.5***	***94502***	***-10***
National Total	***268542.94***	***261522***	***-2.6***	***292,371***	***-11***

Source: NASS (2016)

Generally, the 2016 season started in the month of July in which most farmers started to sow their crops. This was followed by a dry spell enough to cause re-sowing by many farmers of the country. In addition, the rains were not well distributed. Most of the crops planted late were varieties that required either ninety days (90) or more to mature. Consequently, with the early cessation of the rainy season, these crops were affected as they can't reach full maturity and these include almost all the major crops grown in the country except early millet.

The total production for the 2016 cropping season was estimated at 261,522 metric tons (Table 3.2). Compared to 2015 cropping season (268,543 mt), this represent 2.6% decline. Total cereal production for the 2016 cropping season was estimated at 176,194 metric tons. This represents a decline of 3% when compared to the 2015 cropping season. The fall in production for cereals was mainly by the delay in planting due to late beginning of rains, and also the early cessation of the rains. The production of the main staple food, rice, has also declined by 5.6% i.e. from 53,309 metric tons to 50,326 metric tons. It was seriously affected by flooding in the central

River and Upper River Regions. This situation resulted to submerges and delay the transplanting of the lowland rice and the irrigated areas. Some upland rice fields which were lately planted did not reach full maturity.

Moreover, total cash crop production has also gone down by 1.5% over the 2015 cropping season. Groundnut which is the main cash crop in The Gambia also recorded a downward trend of 2.3% in terms of production. Groundnut was planted at two different periods this season. The first planted ones, after which there was a dry spell, reach maturity while the second planting which was done after the dry spell did not fully mature. This has not only resulted to a drop-in production, but also poor quality nuts.

3.5. The Legal Context

Until 1991, landholding in The Gambia was governed by the Lands (Banjul and Kombo St. Mary) Act (1935 as amended) and the Lands (Provinces) Act (1935 as amended), the former applying in and near the national capital and the latter applying everywhere else. Under the Lands (Provinces) Act, tenure on rural land has been governed according to the traditional land tenure system and administered by district authorities each of which is headed by a district Chief or Seyfo. In this system, rights to cropland are inheritable and relatively secured. However, neither individuals nor households have rights to specific parcels of grazing land. There are many Gambian villages that have grazing areas where they have already established more or less exclusive customary [communal] rights through many years of continuous use. Generally, however, Gambian pastures are an open access resource. Land that is not a part of the village-proper or is not under crops is open for any Gambian to graze any number of livestock therein.

The government of The Gambia has been investigating existing land tenure systems and contemplating changes. One profound change has already occurred, even if only on paper. In 1990 The Gambian legislature passed the State Lands Act which calls for the establishment of Land Administration Boards for the greater Banjul area and for each of Gambia's five regions. The main purpose of the State Lands Act is to provide a unitary title system of land, initially in certain designated areas (such as the urban area). The Act gives the Minister of Local Government and Lands the authority to supersede traditional tenure for any area of land that he or she designates, and declare it to be state land. Land holdings on that state land would take the form of ninety-nine year leases to be administered at the division level by the Land Administration Boards. There seems to be nothing in the Act that would prevent groups such as co-operatives, livestock owners' associations, or villages from being granted leases.

3.6. Land for Labour

Although rice is the preferred staple food in The Gambia, only modest quantities are grown locally. Most of the domestic demand is met by imports, principally from South East Asia – which is a strategy not without its problems, especially in view of the recent food price volatility. Are there strategies for growing more rice locally, particularly when the full costs of production can be higher than import costs? “Land for labour” offers one solution to the problem. Early in the 1980s, The Gambia entered a phase, common to many developing countries, of investing in lowland rice irrigation schemes to increase local production of staple foods. The strategy was to build capital-intensive production systems using high-input technology. However, it did not function well. Although it temporarily increased rice output, it was not sustainable.

The strategy relied on imported technology, substantial foreign technical assistance and scarce foreign exchange, and it was implemented in an environment in which agricultural support institutions were weak. In the mid-1990s, the search continued for other ways of increasing rice production, especially in poor households with a food deficit and little or no cash for buying imports. It was thought that rice could still be produced competitively – even with falling world prices and increasing costs of production – by working directly with disadvantaged people and using the right technologies. But there proved to be no quick solution. A long-term strategy was needed – set within a strong policy and institutional framework – that would engage poor rural communities in the planning and implementation process.

Moreover, women are the traditional rice growers in The Gambia, but to grow more rice they needed access to more land. Most of the lowland areas suitable for rice growing were owned and controlled by a small number of influential farmers – the original founder-settlers. Not having access to enough labour to exploit the land, they allowed some poor landless farmers, most of

whom were women, to borrow and work the land seasonally. However, incentives for borrowing land to improve productivity were few. Once the season was over, the founder-settlers took the land back, including land that had been improved for the season. Through discussions with communities, a plan was formulated to devolve land ownership from the founder-settlers to those landless poor farmers willing to participate in its reclamation. This would ensure that the investments made by individuals would be retained by them. It would give people a clear incentive to contribute labour for reclamation in return for a secure landholding, and to assume responsibility for infrastructure operation and management after the end of the program.

The founder-settlers also gained by the agreement. They had "idle lands" with difficult physical access that hindered cultivation. Once landholders and the women agreed to this new arrangement, the Lowlands Agricultural Development Program (LADEP) invested in infrastructure that opened up the land for use. The women farmers also agreed to provide labour, as a group, to the founder-settlers. Combining 'a labour force of women without land' with 'landowners without labour' produced a win-win situation. In The Gambia, when such an agreement is made at the community level, it gains legal value under traditional law. From 1997 to 2005, LADEP worked as a catalyst to bring about this change in the traditional land-tenure system. Individually owned land was first devolved to the community, which distributed it equitably among those individuals, mainly women, participating in land reclamation. This was done irrespective of lineage. Women participants – some 22,000 – now own land definitively, and their children will be able to inherit it.

One risk of encouraging women farmers to participate in the program was an increase in their workloads. They already provide most of the labour for rice growing. So, would additional reclamation work, availability of more land and processing of increased rice yields just add to their burden? Interestingly, surveys found that only five of the eleven impact assessment sites

reported an increase. At the others, women actually said their workload had decreased. Workload increased in areas where the area under cultivation increased. However, this tended to be in areas where people were not so heavily involved in rice growing before the program began. Workload decreased where the investment in flood control dikes reduced land preparation time by as much as one third, where LADEP constructed swamp access bridges to reduce travel time (as much as an hour in each direction) and where farmers used tractors for ploughing. Workloads may also have been reduced because the work is now shared among a larger number of people. The number of rice growers has increased significantly – men, co-wives and daughters are taking up rice farming on their own account. For that being the case, some households now have as many as five rice farmers, and some of the new land is being farmed by these new entrants.

Furthermore, a conscious effort was made throughout LADEP to ensure that the program did not undermine women's traditional access to and control of rice and the resources needed to grow it, as had occurred in earlier projects. Assessments suggest that program inputs have caused little change in the division of labour. Women traditionally have responsibility for rice growing and harvesting, hoes, seed, small ruminants, vegetables and, now, also for the reclaimed swamp rice land. Men continue to take responsibility for "male pride" issues (e.g. cattle and upland crops) and money. In three villages, however, the program has enabled the entry of men with no previous tradition of rice cultivation. Although women still managed these items, they no longer had exclusive access.

Lastly, the LADEP approach to land tenure is now widely accepted in the country and is ready for scaling up to the national level. A new project – the Participatory Integrated Watershed Management Project (PIWAMP) – was begun in 2005 and will follow the LADEP principles:

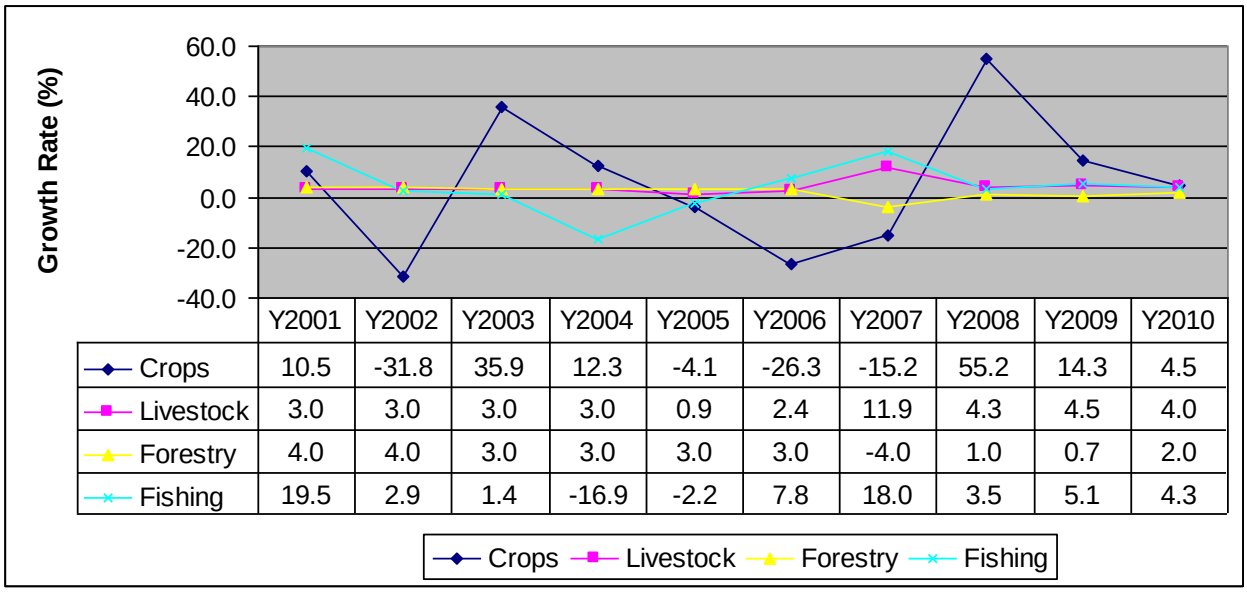
- ✓ Poverty can effectively be reduced when rice land is equitably distributed between poor women farmers and founder-settlers.
- ✓ Household food security can be improved if the landless are assisted in permanently acquiring productive land.

Land reforms must be initiated by the participants and agreed on in mutually binding arrangements (under traditional or other law) before infrastructure measures are put in place.

3.7. Agricultural Development and Descriptions

The Gambia's agricultural sector is the prime sector to raise income of the people, improve food security, and mitigate poverty. It is the most important sector to meet the MDG targets "*to halve the proportion of poor and those who suffer from hunger by 2015."* According to The Gambia Ministry of Agriculture (MOA, 2011), the agricultural sector alone employs 68 percent of the labour force, and presently accounts for 26 percent of GDP of The Gambia, the second largest sector in the economy, after services. Agriculture and allied sectors employ 75 percent of the labour force and also the sole means of income generation for the majority of rural households below the poverty line. According to the latest poverty survey, about 91 percent of the extremely poor and 72 percent of the poor in The Gambia are in the agriculture sector (MOA, 2011).

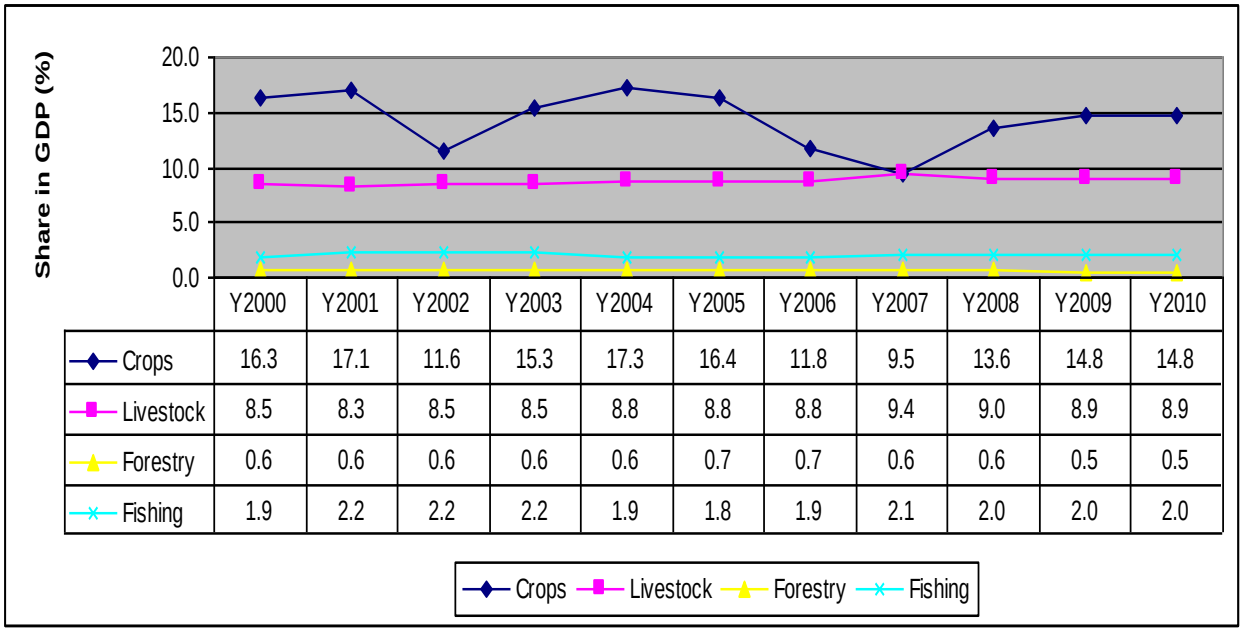
Under the United Nations System of National Accounts (UN-SNA), the agriculture comprises crops and animal husbandry, and agriculture and allied sectors include four sub-sectors viz. crops, animal husbandry, forestry and fishing. The trends of growth rates of value added in these sub-sectors since 2000 and their shares in total GDP at constant prices are provided in Figures 3.1 and 3.2.



	Y2001	Y2002	Y2003	Y2004	Y2005	Y2006	Y2007	Y2008	Y2009	Y2010
Crops	10.5	-31.8	35.9	12.3	-4.1	-26.3	-15.2	55.2	14.3	4.5
Livestock	3.0	3.0	3.0	3.0	0.9	2.4	11.9	4.3	4.5	4.0
Forestry	4.0	4.0	3.0	3.0	3.0	3.0	-4.0	1.0	0.7	2.0
Fishing	19.5	2.9	1.4	-16.9	-2.2	7.8	18.0	3.5	5.1	4.3

Figure 3.1. Trends of annual growth rates of agricultural value added, percentage

Source: Ministry of Agriculture (2011)



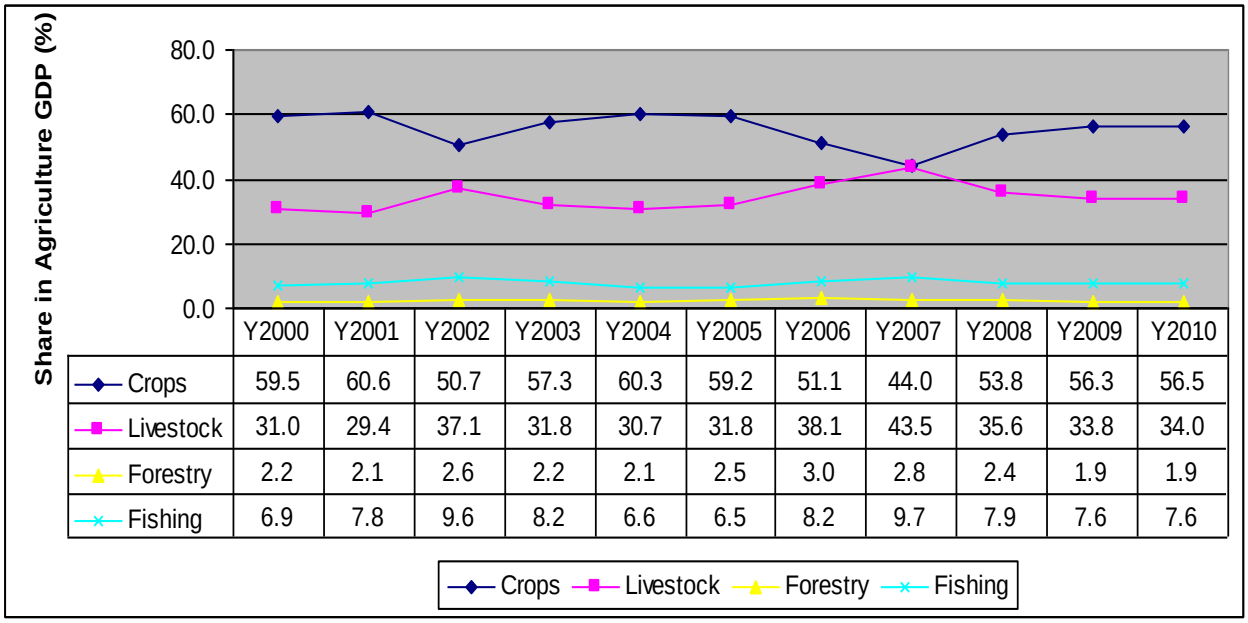
	Y2000	Y2001	Y2002	Y2003	Y2004	Y2005	Y2006	Y2007	Y2008	Y2009	Y2010
Crops	16.3	17.1	11.6	15.3	17.3	16.4	11.8	9.5	13.6	14.8	14.8
Livestock	8.5	8.3	8.5	8.5	8.8	8.8	8.8	9.4	9.0	8.9	8.9
Forestry	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.6	0.5	0.5
Fishing	1.9	2.2	2.2	2.2	1.9	1.8	1.9	2.1	2.0	2.0	2.0

Figure 3.2. Shares of agriculture sub-sectors in overall GDP, percentage

Source: Ministry of Agriculture (2011)

It is observed from Figure 3.2 that among the agriculture sub-sectors, crops have the largest share in overall GDP followed by livestock, fishing and forestry in the order mentioned. Figure 3.3 indicate the shares of crops, livestock, forestry and fishing within agriculture value added. As

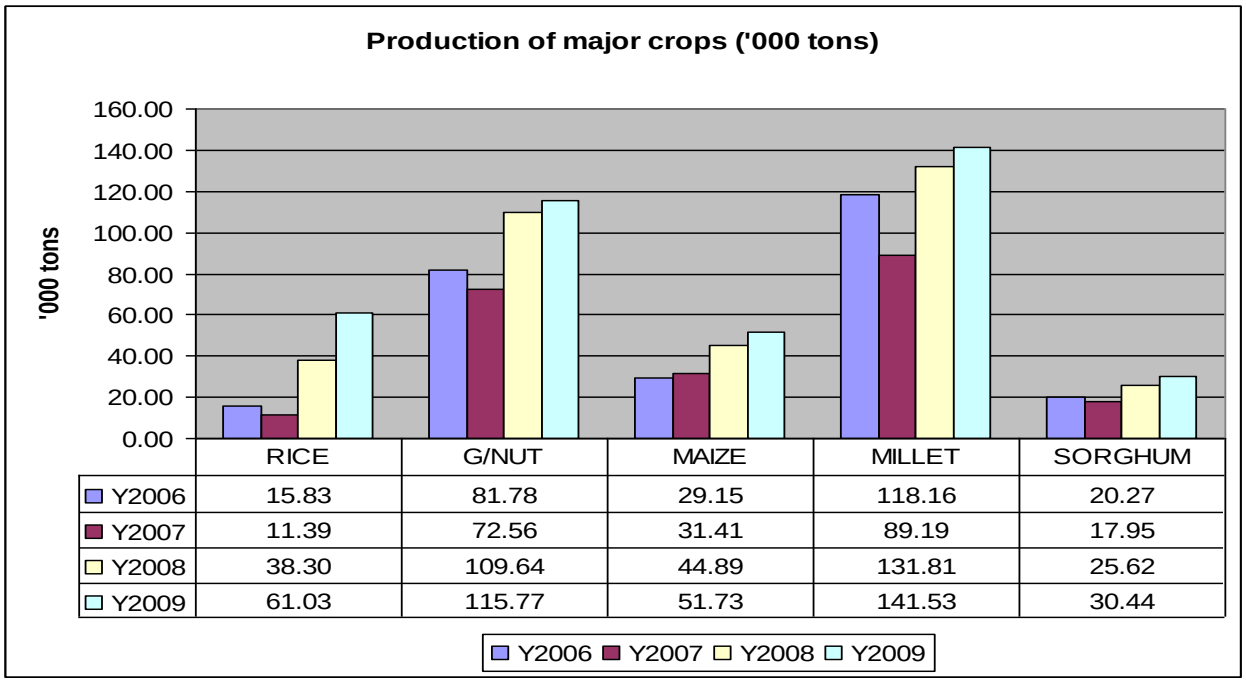
expected, crops have the dominant share (around 56%) followed by livestock (around 34%), fishing (10%) and forestry (only 2%) in agricultural value added.



	Y2000	Y2001	Y2002	Y2003	Y2004	Y2005	Y2006	Y2007	Y2008	Y2009	Y2010
Crops	59.5	60.6	50.7	57.3	60.3	59.2	51.1	44.0	53.8	56.3	56.5
Livestock	31.0	29.4	37.1	31.8	30.7	31.8	38.1	43.5	35.6	33.8	34.0
Forestry	2.2	2.1	2.6	2.2	2.1	2.5	3.0	2.8	2.4	1.9	1.9
Fishing	6.9	7.8	9.6	8.2	6.6	6.5	8.2	9.7	7.9	7.6	7.6

Figure 3.3. Shares of sub-sectors within agriculture GDP, percentage

Source: Ministry of Agriculture (2011)



	RICE	G/NUT	MAIZE	MILLET	SORGHUM
Y2006	15.83	81.78	29.15	118.16	20.27
Y2007	11.39	72.56	31.41	89.19	17.95
Y2008	38.30	109.64	44.89	131.81	25.62
Y2009	61.03	115.77	51.73	141.53	30.44

Figure 3.4. Production of major crops (in 1000 tons)

Source: Ministry of Agriculture (2010)

Cereal production which comprises principal food crops such as rice, maize, millet and sorghum increased by 18.3 percent from 240,632 tons in 2008 to 284,728 tons in 2009. Total area under cultivation increased by 17.4 percent (MOA, 2010). Rice production increased substantially from 11,394 metric tons in 2007 to 38,300 tons in 2008 and further to 61,025 due to government's thrust on rice cultivation. Total output of upland rice increased by 108.3 percent with increased area under cultivation by 5.2 percent, while output of swap rice declined significantly by 19 percent to 850 tons due to floods in some parts of the country in 2009. Total area under rice cultivation increased by 15 percent to 11,500 hectares in 2009 and average yields increased by 28.5 percent (MOA, 2010).

Groundnuts (also known as peanuts) remain the country's main cash crop engaging directly or indirectly over 80 percent of the population (MOA, 2011). The groundnut sub-sector continues to involve the largest number of the poor. As mentioned elsewhere, exports have declined drastically since the 1980s, hitting an all-time low in the 2006-2007 seasons. The groundnut problem is not related to the country's comparative advantage for groundnuts, the shortcomings of farmers, or international market conditions, but rather to a combination of low world prices, inconsistent sector management, and excessive government intervention. The underlying problems in the groundnut sub-sector are numerous: The cooperative movement has consistently shown poor financial and operational management to the point where farmers have lost faith in their institutions; subsidized fertilizer application is value subtracting; international standards for edible groundnuts and groundnut oil are not widely known or enforced; transport and storage are poor; the industrial processing facilities and river barges suffer from chronic lack of investment and maintenance; and prices do not reflect quality differences. Low quality, especially manifested by high levels of aflatoxin and pesticide residues, has excluded Gambian nuts from the lucrative European market in edibles, relegating them to the birdfeed market unlike in the

case of her neighbouring country, Senegal, which is ranked as the 8th among the top 10 global exporters of peanut products (JAMBOR and GIBBA, 2017).

The performance of the field crop sub-sector during 2005-2009 has been mixed with cultivated area, production, and productivity (yields) fluctuating. Out of a total arable land of 558,000 ha, an average of 300,000 ha is cultivated annually, thus accounting for about 54 percent of total area (MOA, 2011). Cereals as a group constitute the largest area and account for about 56 percent of total area followed by groundnuts. Generally, there is a down trend in the area allocated to coarse grain cultivation in all regions. Given the low yields obtained, most increases in output can be largely attributed to area expansion, with variable rainfall, changes in the crop mix, a rise in the cost of production (particularly for fertilizers) accounting for fluctuations. Other important structural changes include the wider adoption of animal traction, the diversification into sesame production, and the availability of short-cycled varieties of rice; New Rice Initiative for Africa (NERICA), groundnut and millet. Clearly, the agriculture policy needs to target the problem of low yields, which calls for improved inputs and extension services.

Horticulture seems a promising area of agricultural diversification that could reduce dependence on groundnuts. In the 20 years of its evolution, The Gambian horticultural export industry has made slow progress. A number of entrepreneurs have tried horticulture, and all but two have failed or withdrawn. However, there is room for growth in this sub-sector given the potential in the European and regional markets. With good management and minimal government support, horticultural firms can provide competitive business environment. In addition, there is good potential for linking the agricultural sector to the hotel and tourist trade, and there is scope for processing of fruits and vegetables in connection with the newly created

free zones. The sub-sector can contribute to poverty reduction through increased employment in rural areas.

Meanwhile, **cashew** is another promising area of diversification. There is significant opportunity for cashew in The Gambia given the intrinsic quality of the nut, the cost structure of collection and export, and the likely growth in the global market. It is critical that these advantages be maintained by providing the best environment in which the industry can develop without intervention. Cashew is an excellent smallholder crop and the impact of a successful development of cashew exports can have a positive effect on incomes in a producing area. Rough estimates suggest that feasible growth in cashew exports over the next ten years could offer income to some 30,000 households, generating annual revenues almost twice as high as for groundnut farmers (MOA, 2011). This would be more than all those engaged in tourism-related activities – and significantly more of the poor – even if tourism should double in size.

Livestock rearing in The Gambia is carried out for local consumption and is an important farming activity in The Gambia in fostering food security. However, there is scope for expanding supplies to the local tourist industry and for creating positive linkages with an impact on revenues.

The **fishery** sector in The Gambia is unique in its geographical configuration. Marine fisheries' processing and exports are intertwined with the situation in The Senegalese fishing sector, and the crisis there has contributed to a crisis in The Gambia. None of the industrial catch is being processed locally, which is where some of the potential lies for local value-added. Rebuilding a modest industrial fishery sub-sector and expansion of artisanal fisheries appear feasible. Key challenges include the situation of fish resources, international competitiveness, infrastructure, and sector policies.

The Fisheries Department continues to undertake activities aimed at poverty reduction in fisheries communities. This is done through identification, planning and implementation of development projects and programs through bilateral and regional cooperation programs and Gambia Local Fund. All such activities are participatory with the involvement of stakeholders. Community projects are implemented with the involvement of fisher-folk along the marine coast and inland with facilities for fish processing and storage. Youths are trained in fishing and constructing fish ponds. Training workshops are held for fishermen, fish processors and fish mongers. Extension staff and credit facilities are provided to fisher-folk through micro finance institutions.

The activities are carried out with the participation of stakeholders and partner institutions. This approach helps to establish effectively a robust communication and feedback mechanism between all the stakeholders. These measures have also a positive impact on the livelihoods of fisher-folk communities in strengthening their management capacities, introduction of improved fish processing techniques, higher quality of products and reduction of post-harvest losses in fisheries.

3.8. Policy Objectives and Strategies for The Agricultural Sector

There is an urgent need to transform agriculture from subsistence to a commercially-oriented agriculture but this is constrained by the absence of an adequate sector policy framework; low agricultural investment, insufficient human and social capital development; limited capacity and inefficiency of extension services, poor agricultural practices, declining soil fertility, increasing soil erosion, low farmer productivity, inefficient agricultural marketing systems, especially for groundnuts and food products, lack of access to short and long term financial capital, and

inappropriate land tenure arrangements, and among others. Among the strategies and objectives of the fishing and marine sector are to:

- Increase the productivity of the sub-sector through the use of improved and sustainable fishing equipment for increased domestic supply and export;
- Increase Gambian participation in the sub-sector, targeting unemployed youths through the Fisherman Training Program;
- Develop community fisheries centers and provide managerial, financial and technical advice to their management committees; and
- Create opportunities in aquaculture by assisting in the establishment of fishponds in tidal rice fields.

3.9. Problems of the Agricultural Sector

SYLLA (2010) attempted to evaluate the strategies for the revitalisation of groundnut sectors in West Africa, particularly for The Gambia, Guinea Bissau, and Senegal. The author highlighted several problems in the peanut sectors of these countries which could also be found in the case of The Gambia's agricultural sector which continues to face several problems related to crop production and animal husbandry for global export competitiveness. Among them are: low seed quality, inadequate quantity of high yielding seeds, lack of access to inputs on adequate time, low yields, low capacity of agricultural processing companies, insufficient extension capacity and agricultural input, lack of adequate incentives to farmers, difficulty to develop the agricultural sector, little or no value added to attract high prices in global markets.

4. MATERIALS AND METHODS

One of the main focuses in this research is to estimate the empirical models for causality tests and explain their applications to different sets of data. Probably the most well-known index for analyzing trade-based competitiveness of nations is the *Revealed Comparative Advantage* (RCA), calculating the proportion of a country's share of exports for a single commodity to the exports of all commodities and the similar share for a group of selected countries, expressed by BALASSA (1965) as follows:

$$\mathrm{RCA_{ij}} = \left(\frac{X_{ij}}{X_{it}} \right) \Big/ \left(\frac{X_{nj}}{X_{nt}} \right) \tag{1}$$

where, X means export, i indicates a given country, j is a given product, t is a group of products and n is the group of selected countries. Hence, a revealed comparative advantage (or disadvantage) index of exports can be calculated by comparing a given country's export share by its total exports, with the export share by total exports of a reference group of countries. If RCA>1, a given country has an export comparative advantage compared to the reference countries, or in contrast, a revealed export comparative disadvantage if RCA<1.

The Balassa (RCA)-index is criticized because it neglects the different effects of agricultural policies and exhibits asymmetric values. Trade structure is distorted by different state interventions and trade limitations. While the asymmetric value of the RCA index ranges from one to infinity if a country enjoys comparative advantage, but for countries with a comparative disadvantage, it varies between zero and one, hence overestimating the sector's relative weight. In order to tackle problems above, VOLLRATH (1991) suggested three different specifications of revealed comparative advantages namely: the index of relative import advantage (RMA), the

index of relative trade advantage (RTA) and the index of revealed competitiveness (RC). The RMA index is similar to the RCA taking imports rather than exports into account:

$$\mathrm{RMA_{ij}} = \left(\frac{M_{ij}}{M_{it}}\right) \Big/ \left(\frac{M_{nj}}{M_{nt}}\right) \tag{2}$$

Contrary to RCA, the index of RMA less than 1 indicates revealed import comparative advantage and, thus higher competitiveness. The second index proposed by VOLLRATH (1991) takes the difference between (1) and (2), giving a more complex view:

$$\mathrm{RTA_{ij}} = \mathrm{RCA_{ij}} - \mathrm{RMA_{ij}} \tag{3}$$

A positive value for RTA shows revealed comparative advantage. As a third index, VOLLRATH (1991) proposed to take the logarithm of RCA and RMA and then take their difference, resulting in the index of revealed competitiveness (RC):

$$\mathrm{RC_{ij}} = \ln \mathrm{RCA_{ij}} - \ln \mathrm{RMA_{ij}} \tag{4}$$

A positive value for RC means revealed competitiveness and this indicator, compared to other indices of VOLLRATH (1991), is symmetric to the pole. Another way of treating the asymmetric value problem of the RCA index is developed by DALUM et al. (1998), transforming the original index as follows, thereby creating the Revealed Symmetric Comparative Advantage (RSCA) index:

$$RSCA_{ij} = \left(RCA_{ij} - 1\right) / \left(RCA_{ij} + 1\right) \tag{5}$$

The RSCA takes values between -1 and 1, with values between 0 and 1 indicating a comparative export advantage and values between −1 and 0 a comparative export disadvantage. Since the RSCA distribution is symmetric around zero, potential bias is avoided (DALUM et al, 1998).

PROUDMAN and REDDING (1998) propose a weighted version of the RCA index (WRCA) for an individual product by taking the arithmetic mean of a country's RCA scores:

$$WRCA_{ij} = \frac{RCA_{ij}}{\frac{1}{N}\sum_{j=1}^{N} RCA_{ij}} \tag{6}$$

where, N is the total number of products. For a product, if its RCA value is greater than the average RCA value across all products, we would say country $_j$ has a comparative advantage in product $_i$.

HOEN and OOSTERHAVENs (2006) suggest another transformation of the original index as follows:

$$ARCA_{ij} = \frac{1}{\sum_{i} X_{ij}}(X_{ij} - \sum(X_{ij})) \tag{7}$$

where, ARCA is the additive revealed comparative advantage index. If ARCA>1, the country has a comparative advantage in the product concerned, and if ATCA<1 then it will have a comparative disadvantage.

YU et al. (2009) adopted an alternative measure to assess the dynamics of comparative advantage – the Normalised Revealed Comparative Advantage (NRCA) index, defined as follows:

$$NRCA_{ij} = \frac{X_{ij}}{\sum_{ij} X_{ij}} - \frac{\left(\sum_{i} X_{ij}\right)\left(\sum_{j} X_{ij}\right)}{\left(\sum_{ij} X_{ij}\right)^2} \quad (8)$$

where, X_{ij} represents actual exports and $\left(\sum_{i} X_{ij}\right)\left(\sum_{j} X_{ij}\right)$ stands for the comparative-average-neutral level in exports of commodity j for country i. If NRCA>0, then a country is said to have a comparative advantage on the world market. The distribution of NRCA values is symmetrical, ranging from −1/4 to +1/4 with 0 being the comparative-advantage-neutral point. It is also worth mentioning, that some economic literature interlinks the model of revealed comparative advantages with new streams of trade theories. This approach distinguishes price and quality competition in two-way trade, by taking the difference between export and import unit values.

The theory of *constant market shares (CMS)* also provides indices to measure competitiveness at the macro level. The CMS model was first used in the 1950s for trade in industrial products. The method investigates trade trends in order to determine factors affecting a country's export performance. The basic presumption underlying the CMS model is that a country's export share in a market remains constant at the same level of competitiveness (AHMADI-ESFAHANI, 2006). Consequently, any change in a country's exports can be traced back to changes in the composition of competitors and / or competitiveness. The traditional CMS model explains changes in exports with scale effect, competitive effect and second-order effect (AHMADI-ESFAHANI, 2006).

Another strand of literature focuses on *prices related to international competitiveness*. Some of these indices (like the well-known producer or consumer price indices, inflation rates, purchasing power parities) do not directly measure competitiveness but have an influence on it. The most cited index here is real exchange rate (RER), is defined as follows:

$$\text{RER} = \frac{p^T}{p^{NT}} \tag{9}$$

where, p^T is the price index of tradable commodities and p^{NT} is the same for non-tradable ones. BRINKMAN (1987) argues that if the demand for currency of the competitive country is high, it strengthens that currency's exchange rate. However, some literature talks about the use of the real effective exchange rate (REER), which is, the nominal effective exchange rate divided by a price deflator or index of costs. If REER increases, exports (imports) become more expensive (cheaper), indicating a loss in competitiveness (LATRUFFE, 2010).

The chapter also uses the Trade Balance Index (TBI) for making further calculations of export specialization, defined as follows:

$$TBI = (X_i - M_i)/(X_i + M_i) \tag{10}$$

where, *X* means export, *M* means import and *i* indicates a given country. By using the method of WIDODO (2009), Balassa indices and trade balances of each and every product at the six-digit level can be matched. This can be used to create a product map based on a simple matrix Using these maps in time also allows for the analysis of trade patterns in a dynamic context.

Besides calculating revealed comparative advantages, the literature suggests that its stability and duration should be measured by estimating a survival function S(t). This can be done by using the non-parametric Kaplan–Meier product limit estimator, pertaining to the product level distribution analysis of the RSCA index. Following BOJNEC and FERTO (2014), a sample contains n independent observations denoted (ti; ci), where i = 1, 2 , . . . , n, and ti is the survival time, while ci is the censoring indicator variable C (taking on a value of 1 if failure occurred, and 0 otherwise) of observation i. It is assumed that there are m < n recorded times of failure. We denote the rank-ordered survival times as t(1) < t(2) < … < t(m). For the purpose of our analysis let nj indicate the number of subjects at risk of failing at t(j) and let dj denote the number of observed failures. The Kaplan–Meier estimator of the survival function is then (with the convention that ˆS(t) = 1 if t < t(1)) as follows:

$$\hat{S}(t) = \prod_{t(i)<t} \frac{n_j - d_j}{n_j} \tag{11}$$

In order to calculate indices above, the chapter uses the World Bank (WITS) software based on COMTRADE, an international trade database developed by the United Nations at the HS six-digit level as a source of raw data. Agri-food trade is defined as trade in product groups HS 1 to 24, resulting in 739 products using the six-digit breakdown. The chapter works with trade data for the period of 1995 to 2014.

However, the author is aware that the methodology above has a number of limitations. First, trade data is not fully reliable due to various reasons. These include the following: trade values may not necessarily sum up to the total trade value for a given country dataset; countries may not necessarily report their trade values for each and every year; trade data may differ by the selection of classification; and imports reported by one country may not coincide with exports

reported by its trading partner. Second, Balassa-based indices are sensitive to zero values (see equation 1, for instance). Third, outliers in results get omitted, dropping inconsistent indices and some useful data (BEGUIN and HULLINGER, 2008). Fourth, the chapter concentrates on the original RCA index due to the high level of correlation among indices. Finally, the research also encounters the unavailability of 2015, 2016, and 2017 data for more recent empirical analysis, as one of the major setbacks. However, based on the literature review and previous empirical work, the results are generally in line with initial expectations.

The first part of the research analysis examines the factors identified as the main determinants of economic progress and development in The Gambia using time series data from the United Nations Statistics Database (UNSD) for a period of 43 years (1970 – 2012), while the second part employs Gambia's agricultural products trade data of World Bank (2017) World Integrated Trade Solution (WITS) database at HS-6 level between 1995 and 2014 with the following product codes included: 120220, 150810, 080130, 120210, 030613, 230500, 080450, 030333, 030379, and 071339. It focuses more on the export side of the revealed comparative advantage index (B or RCA index) to exclude imports analysis, which is more likely to be influenced by agricultural policy interventions. Thirdly, due to econometric and policy reasons, having in mind the high concentration from the top 10 exported products, the author still wants to know in which products The Gambia has a comparative advantage in, possibly in the future from a policy perspective.

5. RESULTS AND DISCUSSION

5.1. Analysis of Determinants of Economic Growth in The Gambia

Most of Gambia's agricultural practices are still largely based on the traditional system of shifting cultivation using very small independent farming units. Yields are generally low. Post-independence agricultural policy focused on institution building and hence encouraged the creation of agricultural institutions, kept producer prices low and highly subsidized agricultural inputs. The Gambia's agriculture has been unable to respond greatly to these inducements and other initiatives as yields remain practically stagnant and production revolves around a declining trend. According to AKINBOADE (1994), the faulty implementation of subsidized credit program resulted in regressive income transfer to a small group of influential Gambians who defaulted on large loans. The result was a weakening of the financial system and the collapse of development banks. There was a policy turn-around during the economic recovery programme and the subsequent programme for sustained development. Agricultural input subsidies are being progressively removed to assure long term policy sustainability though producer prices which are still lower than the free market levels.

Since the 1990s, The Gambia government has been committed to sustainable human development and improved living standards of the people of the country. During this period, the Government has established a number of strategies to achieve these objectives, including: Millennium Development Goals, Poverty Reduction Strategies, etc. This section examines and evaluates the sources of rapid economic growth in The Gambia. It adopts the application of Augmented Dickey-Fuller (ADF) and Granger causality tests to determine the positive effects of export expansion, agricultural development, government spending on education, and foreign direct investment (FDI), using the Vector Autoregression (VAR) model. The empirical results

reveal that the examined [independent] variables positively determine Gambia's economic progress at a rate of 72.09%. The purpose of the analysis was to explore and analyse the main factors leading to economic growth and development which when achieve increases consumption and savings, thereby reducing poverty and inequality in The Gambia, as well as in other Sub-Saharan African countries through the sound policy implications.

Despite the widespread poverty and slow economic advancement in Sub-Saharan Africa, The Gambia is still committed in recording a satisfactory economic progress in the medium to long term to ensure improvement in the wellbeing of her population, through the development of agriculture and industrial sectors. It however, made effective policy analysis, planning, programming, and monitoring for the economic sector to receive appropriate support. Moreover, it has been theoretically and empirically proven that quality education and skills acquisition have direct positive impact on economic advancement (PRIYA *et al*., 2015; MERCAN & SEZER, 2014; AHIAKPOR, 2013). Likewise investment and exports for economic growth (MAH, 2015; GUI-DIBY, 2014) and finally, agricultural development for higher productivity, income distribution, and poverty alleviation (TOMSIK et al., 2015).

Spending on education is another determinant and important factor of economic progress in Sub-Saharan Africa, specifically for The Gambia. This part of the fiscal policy of the government immensely develops the human resources to increase the innovative capacity of the economy and knowledge base on latest technologies, hence, promotes sustainable growth (LUCAS, 1988; ROMER, 1990). Using structural equation modelling, PRIYA et al. (2015) investigate the causal relationship among education, economic growth, and fiscal policy in India at the aggregate level. Their study was aimed at analyzing the effects of spending in education for economic progress. The outcome of the study suggests that government spending on education is a key determinant of higher productivity.

The promotion of FDI in The Gambia and in the rest of the Sub-Saharan African countries will bring in the much-needed foreign exchange that can improve the countries' balance of payments position. Moreover, many researchers investigate the positive role and outcome of FDI geared towards economic development and efficiency (ZEB et al., 2014; SULIMAN & ELIAN, 2014; HARADA, 2015; and VOLOS et al., 2015).

In order to reveal what can be used to explain the determinants of economic growth in The Gambia - foreign direct investment (FDI), gross capital investment, total exports of goods and services, and agricultural development are envisage as inevitable factors that may affect her economic progress and development. The following VAR model is therefore considered for the estimation techniques:

$$\text{GDP (t)} = a_0 + a_1\text{FDI}(t) + a_2\text{CAPINVEST}(t) + a_3\text{EXP}(t) + a_4\text{AGRI}(t) + e(t)$$

Where, GDP denotes the gross domestic product. FDI, CAPINVEST, EXP, and AGRI, represent foreign direct investment, gross capital investment, total exports of goods and services, and the amount of agricultural activities. GDP is the dependent variable while FDI, Capital Investment, Exports, and Agriculture, are considered to be the independent factors. If the level of a valid independent variable in the model would increase for instance, in 2020 with a certain amount, this would have a direct positive effect on the overall economic growth (GDP). Likewise, if there is a decrease in amount among the [independent] variables, there might be an economic shock which could result to scarcity, higher prices of goods and services, inequality, and crowding out of investments, which will eventually lead to low income per capita and GDP per worker.

Table 5.1. Results for simple time series VAR model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXPGOOD	0.712369	0.121021	5.886346	**0.0000**
FDI	3.656347	2.408332	1.518207	0.1372
CAPITAL INVEST	1.612683	1.376568	1.171524	0.2487
AGRI	1.706182	0.225925	7.551994	**0.0000**
C	6.602690	6.046768	1.091937	0.2817
R-squared	0.747487	Mean dependent var		18.76744
Adjusted R-squared	**0.720907**	S.D. dependent var		70.94426
S.E. of regression	37.47931	Akaike info criterion		10.19440
Sum squared resid	53378.54	Schwarz criterion		10.39919
Log likelihood	-214.1796	Hannan-Quinn criter.		10.26992
F-statistic	28.12190	Durbin-Watson stat		1.573368
Prob(F-statistic)	**0.000000**			

Source: Own composition based on the data from UNSD

From table 5.1, it could be observed that the variables are stable [with positive coefficients] and due to this stability, the Vector Autoregression (VAR) model was established because the p-value = 0.0000. The coefficient is reasonable because the examined variables can explain GDP at a rate of 72.09%. Total export and agriculture are significant but the other two variables are insignificant since their p-values are greater than 5% level of significance. A structural change in the economy might render these results obsolete 5 - 10 years later, but right at this point, this is the situation.

Table 5.2. Results for the augmented Dicky-Fuller (ADF) test (variable measurement with different lags)

Variable name	Level	Lag							
		0	1	2	3	4	5	6	7
GDP	0	0.3427	0.3427	0.3427	0.3427	0.3427	0.3427	0.3427	0.3427
	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FDI	0	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	1	0.0007	0.0697	0.0697	0.0697	0.0007	0.0000	0.0000	0.0000
INVESTMENT	0	0.2735	0.2735	0.2735	0.2735	0.2735	0.2735	0.2735	0.2735
	1	0	0	0	0	0	0	0	0
EXPORT	0	0.446	0.446	0.446	0.446	0.446	0.446	0.446	0.446
	1	0	0	0	0	0	0	0	0
AGRICULTURE	0	0.1631	0.1631	0.1631	0.1631	0.1631	0.1631	0.1631	0.1631
	1	0	0	0	0	0	0	0	0

Source: Own composition based on the data from UNSD

The variables are calculated using the ADF test, and they are found to be stable with difference.

Therefore, the variables with lag=0 were used to build VAR model.

Table 5.3. The vector error correction model's results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXPGOOD*(-2)	-0.356185	0.060510	-5.886346	**0.0000**
FDI*(-2)	-1.828173	1.204166	-1.518207	0.1372
INVEST*(-2)	-0.806341	0.688284	-1.171524	0.2487
AGRI*(-1)	-1.706182	0.225925	-7.551994	**0.0000**
C	6.602690	6.046768	1.091937	0.2817

R-squared	0.747487	Mean dependent var	18.76744
Adjusted R-squared	**0.720907**	S.D. dependent var	70.94426
S.E. of regression	37.47931	Akaike info criterion	10.19440
Sum squared resid	53378.54	Schwarz criterion	10.39919
Log likelihood	-214.1796	Hannan-Quinn criter.	10.26992
F-statistic	28.12190	Durbin-Watson stat	1.573368
Prob (F-statistic)	0.000000		

Source: Own composition based on the data from UNSD

After comparing the simple VAR model and Vector Error Correction (VECM) model, the VAR model was preferred to VECM model because the model's coefficients are positive. It is related to The Gambia's economic environment which is a good factor in determining its future economic performance. Generally speaking, Gambia's economic situation is observed to be progressing based on the results. Although the world economy decreased in 2003 due to the Severe Acute Respiratory Syndrome (SARS) and in 2008 due to the European financial crisis, Gambia's export and agricultural development were increasing slowly and stably, and this could continue if progressive policies are implemented by the authorities.

Table 5.4. 10-year forecasting results (in 000's US$)

Year	GDP	EXP	FDI (% of GDP)	AGRI	INVESTM (% of GDP)
2014	774899325	158415313	2.74	195122551	30.28
2015	752509984	140836848	2.31	191003459	33.97
2016	730120643	123258383	1.88	186884367	37.66
2017	707731301	105679918	1.45	182765275	41.35
2018	685341960	88101453	1.02	178646183	45.04
2019	662952619	70522988	0.59	174527091	48.73
2020	640563278	52944523	0.16	170407999	52.42
2021	618173937	35366058	-0.27	166288907	56.11
2022	595784596	17787593	-0.7	162169815	59.8
2023	573395255	209128	-1.13	158050723	63.49

Source: Own composition based on the data from UNSD

As previously observed that total exports of goods and services and agricultural development could serve as the main determinants of economic progress in The Gambia, but base on the forecasting results, a drastic decline in total export of good and services is expected in 2023 (table 5.4). Due this unfavorable situation regarding the GDP's main components, The Gambia government should revitalize the sector and take preventive measures in order to ensure efficiency in export promotion, expansion, and development. FDI as percent of GDP is also expected to decline drastically. In contradiction to this declension, the capital investment (both physical and human) is expected to earn a share of 63.5% of GDP in 2023 (table 5.4).

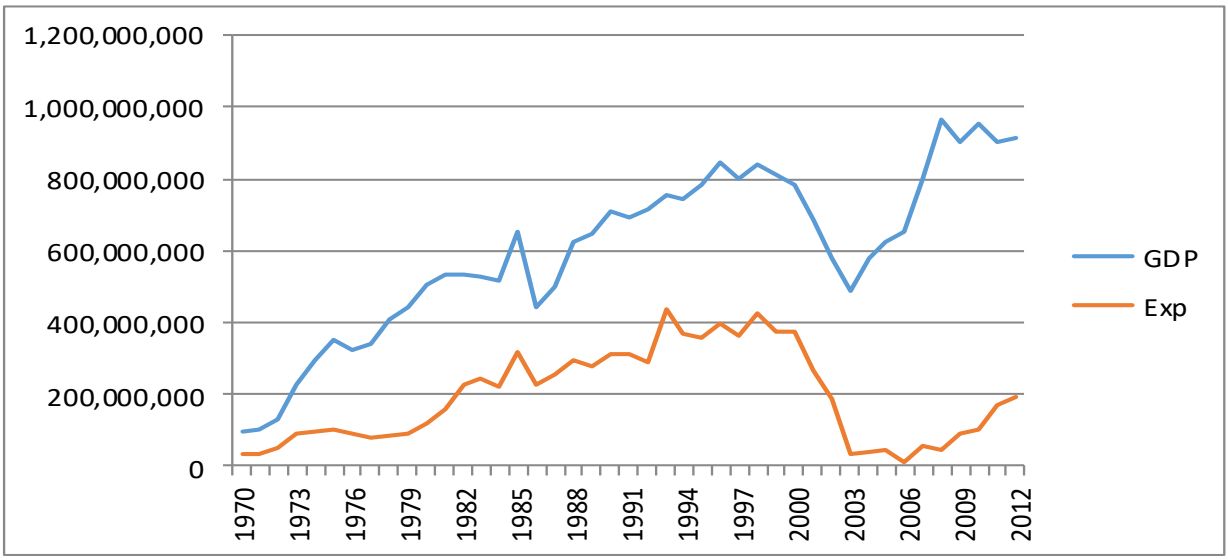


Figure 5.1. Graphical representation of the relationship between GDP and exports (in US$)

Source: Own construction based on the data from UNSD

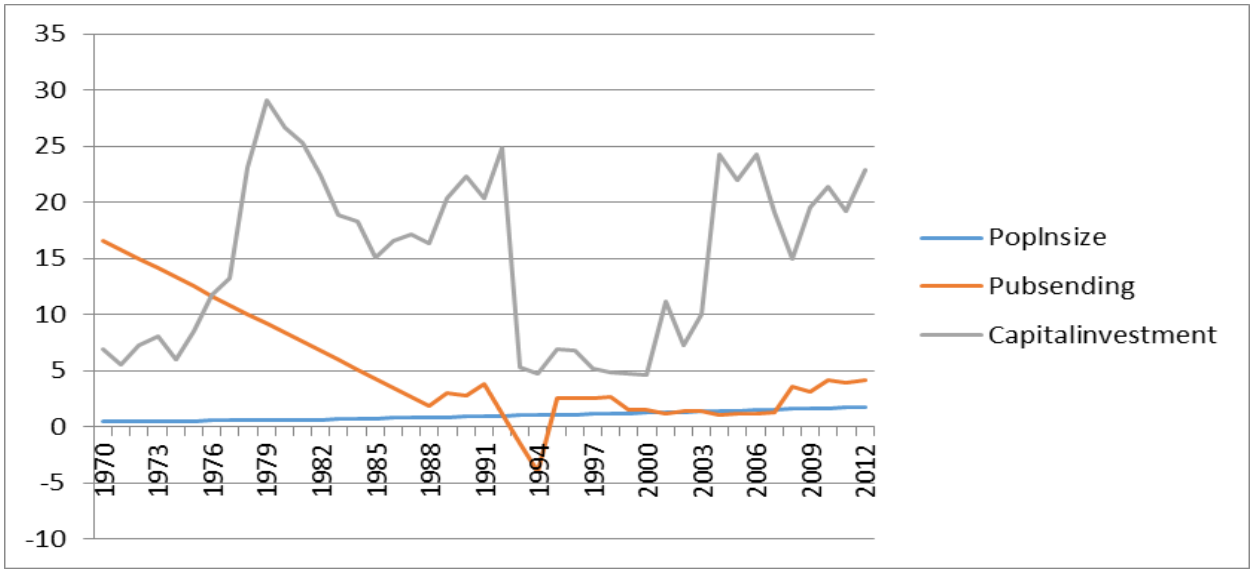


Figure 5.2. Graphical representation of the relationship between population size, public spending on education (as % of GDP), and capital investment.

Source: Own construction based on the data from UNSD

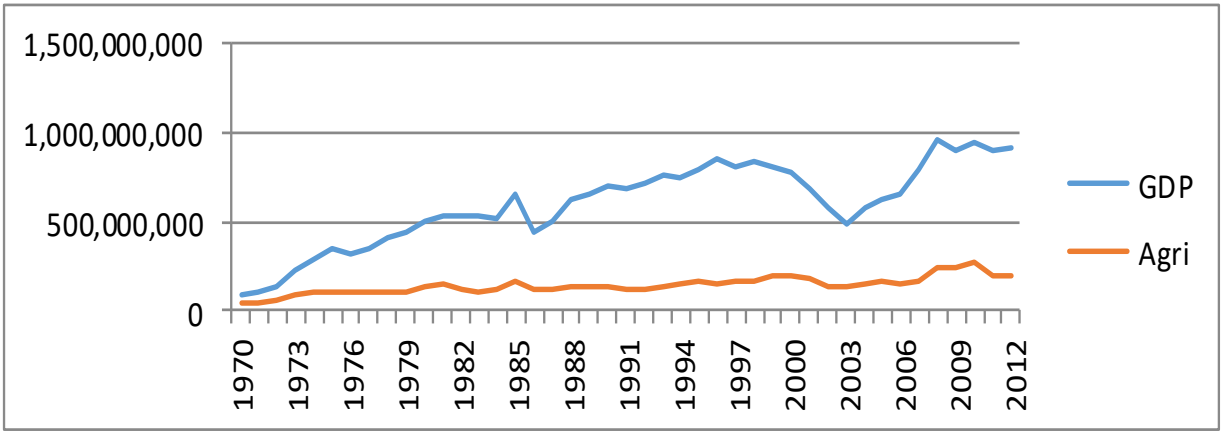


Figure 5.3. Graphical representation of the relationship between GDP and agriculture (in US$)

Source: Own construction based on the data from UNSD

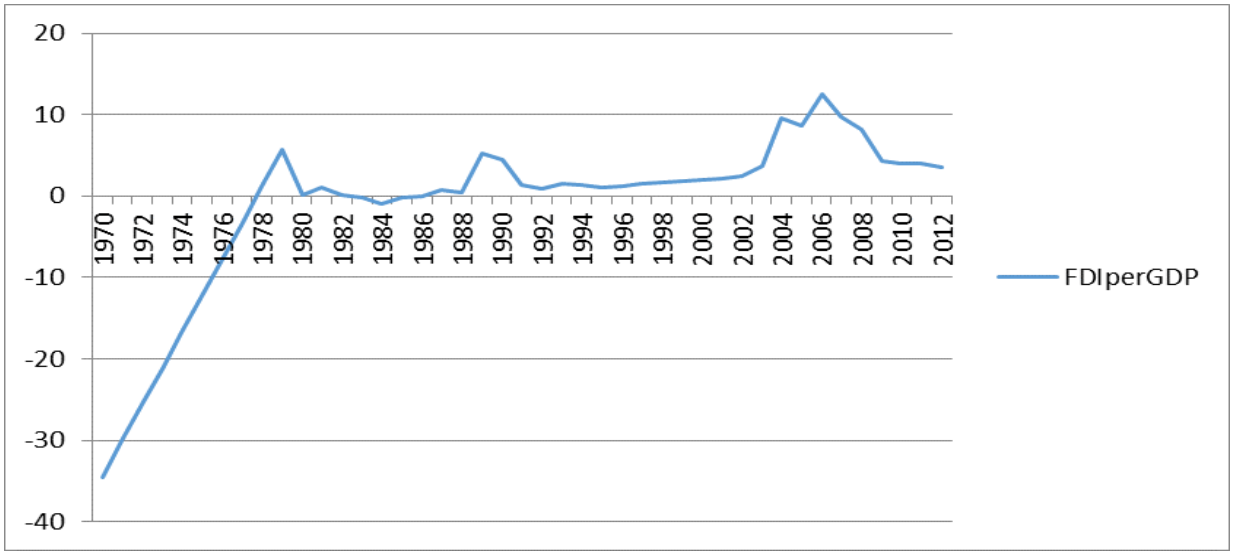


Figure 5.4. Graphical representation of FDI (% of GDP)

Source: Own study based on the data from UNSD

5.2. Descriptive Analysis

As mentioned in the previous chapter, this section describes The Gambia's most exported agricultural products in global markets. It aims to examine the top 10 exported agricultural products and analyse the top 10 major importers of these products from The Gambia and from whom does she imports them. Gambia's agricultural products trade data of World Bank (2017) World Integrated Trade Solution (WITS) database at HS-6 level between 1995 and 2014 was employed with the following product codes included: 120220, 150810, 080130, 120210, 030613, 230500, 080450, 030333, 030379, 071339, 100640, 170199, 151519, 110100, 240220, 200290, 100610, 100620, 100190, and 090210.

Considering the export competitiveness in agricultural products, it could be observed that shelled groundnuts, crude groundnut oil, and cashew nuts are the three major exported products, amounting for 50% of all the exported products from 1995-2014 (Table 5.6). Moreover, the top 10 products revealed a concentration of 76% from 1995–2014 (Table 5.5). Furthermore, between the periods 1995-1999, 2000–2004, 2005–2009, and 2010–2014, shelled groundnuts, crude groundnut oil, cashew nuts, groundnuts in shell, frozen shrimps and prawns, oil cake [and other residues of groundnuts], guavas, mangoes, and mangosteen, frozen sole, frozen fish, and dried beans, constituted 74%, 86%, 72%, and 74% of global exports of agricultural products, respectively.

Table 5.5. Top 10 agricultural exported products, 1995-2014, by Gambia (in 1000 US$)

Product	1995-1999	2000-2004	2005-2009	2010-2014	1995-2014
Shelled groundnuts	3619	859	2535	2528	2385
Crude groundnut oil	0	3587	1936	2634	2039
Fresh / dried cashew nuts	166	19	1085	3670	1235
Groundnuts in shell	905	1548	20	341	703
Frozen shrimps & prawns	1699	404	180	31	578
Oil cake /solid residues of GN	0	850	594	256	425
Guavas & mangoes' products	368	212	739	30	337
Frozen sole	274	412	280	109	269
Frozen fish	86	60	494	342	246
Shelled dried beans	797	129	0	0	231
Concentration	***74%***	***86%***	***72%***	***74%***	***76%***

Note: Products are listed in decreasing order based on their 1995-2014 averages. *GN: groundnut*

Source: Own calculations based on WITS (2017) data

Table 5.6. Top 10 agricultural exported products, 1995-2014, by Gambia, percentage

Product	1995-1999	2000-2004	2005-2009	2010-2014	1995-2014
Shelled groundnuts	34%	9%	23%	19%	21%
Crude groundnut oil	0%	38%	18%	20%	18%
Fresh / dried cashew nuts	2%	0%	10%	27%	11%
Groundnuts in shell	8%	16%	0%	3%	6%
Frozen shrimps & prawns	16%	4%	2%	0%	5%
Oil cake /solid residues of GN	0%	9%	5%	2%	4%
Guavas & mangoes' products	3%	2%	7%	0%	3%
Frozen sole	3%	4%	3%	1%	2%
Frozen fish	1%	1%	5%	3%	2%
Shelled dried beans	7%	1%	0%	0%	2%
Concentration	***74%***	***86%***	***72%***	***74%***	***76%***

Source: Own calculations based on WITS (2017) data

As for import of agricultural products, it is important to note that the concentration of the 10 major imported products were 67%, 71%, 72% and 79% in the sub-periods estimated, respectively (Table 5.7). Meanwhile, broken rice (100640), cane or beet sugar in solid form (170199), and linseed oil (excl. crude) and fractions (151519) were the main imported products in the examined periods, amounting for 50% of all the agricultural products imported from 1995-2014 (Table 5.8).

Table 5.7. Top 10 agricultural imported products, 1995-2014, by Gambia (in 1000 US$)

Product	1995-1999	2000-2004	2005-2009	2010-2014	1995-2014
Broken rice	25165	10371	13562	34088	20797
Solid cane or beet sugar	12546	14137	13413	20065	15040
Linseed oil (excl. crude) and fractions	3897	7295	16487	19181	11715
Wheat or Meslin flour	5502	5697	7011	11345	7389
Cigarettes containing tobacco	4879	5051	4065	3658	4413
Tomatoes (preserved)	6419	1963	4052	2681	3779
Rice in the husk (paddy or rough)	130	2067	3393	625	1554
Husked (brown) rice	57	591	5480	2	1533
Spelt, common wheat and meslin	1	0	106	5555	1415
Green tea in immediate packings	669	776	1289	2160	1223
Concentration	***67%***	***71%***	***72%***	***79%***	***73%***

Note: Products are listed in decreasing order based on their 1995-2014 averages.

Source: Own calculations based on WITS (2017) data

Table 5.8. Top 10 agricultural imported products, 1995-2014, by Gambia, percentage

Product	1995-1999	2000-2004	2005-2009	2010-2014	1995-2014
Broken rice	29%	15%	14%	27%	22%
Solid cane or beet sugar	14%	21%	14%	16%	16%
Linseed oil (excl. crude) and fractions	4%	11%	17%	15%	12%
Wheat or Meslin flour	6%	8%	7%	9%	8%
Cigarettes containing tobacco	6%	7%	4%	3%	5%
Tomatoes (preserved)	7%	3%	4%	2%	4%
Rice in the husk (paddy or rough)	0%	3%	4%	0%	2%
Husked (brown) rice	0%	1%	6%	0%	2%
Spelt, common wheat and meslin	0%	0%	0%	4%	1%
Green tea in immediate packings	1%	1%	1%	2%	1%
Concentration	***67%***	***71%***	***72%***	***79%***	***73%***

Source: Own calculations based on WITS (2017) data

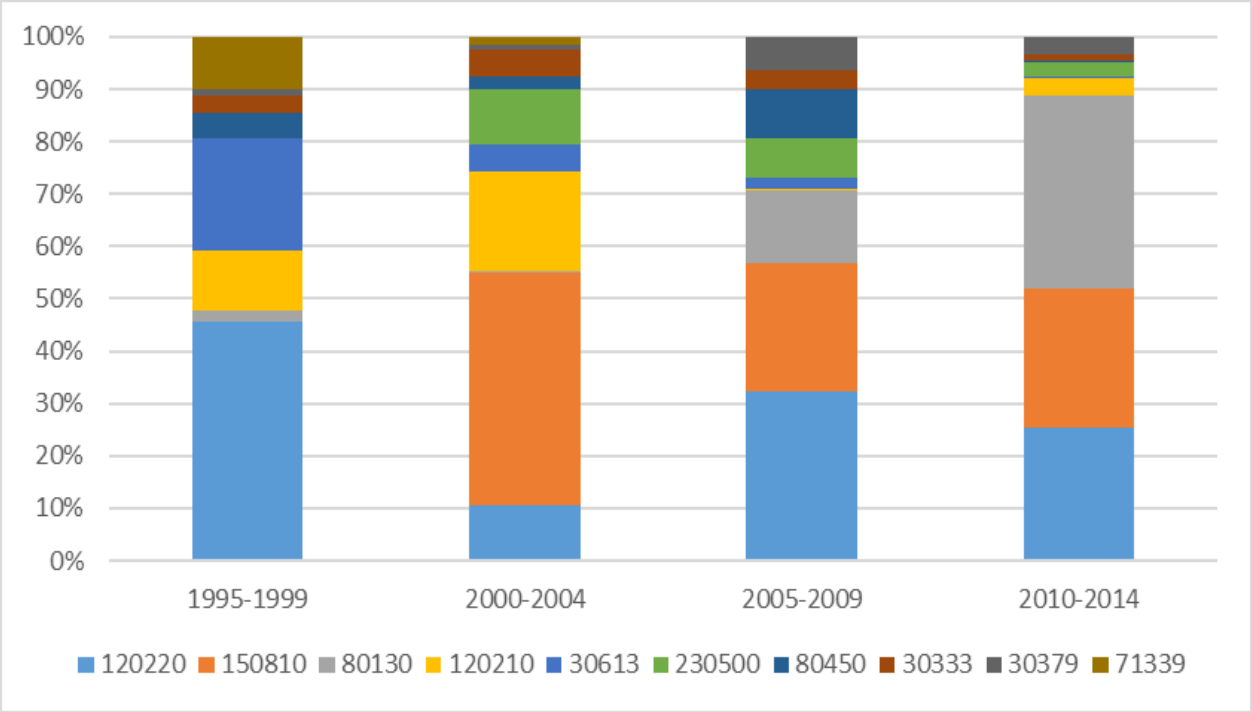


Figure 5.5. Top 10 agricultural exported products, 1995-2014, by Gambia, percentage

Source: Own composition based on WITS (2017) data

Note: 120220 - Shelled groundnuts, not roasted or otherwise; 150810 - Crude groundnut oil; 080130 - Cashew nuts, fresh or dried; 120210 - Groundnuts in shell, not roasted or otherwise; 030613 - Frozen shrimps and prawns; 230500 - Oil cake and other solid residues of groundnuts; 080450 - Guavas, mangoes, and mangosteens, fresh or dried; 030333 - Frozen sole; 030379 - Frozen fish; 071339 - Dried beans, shelled

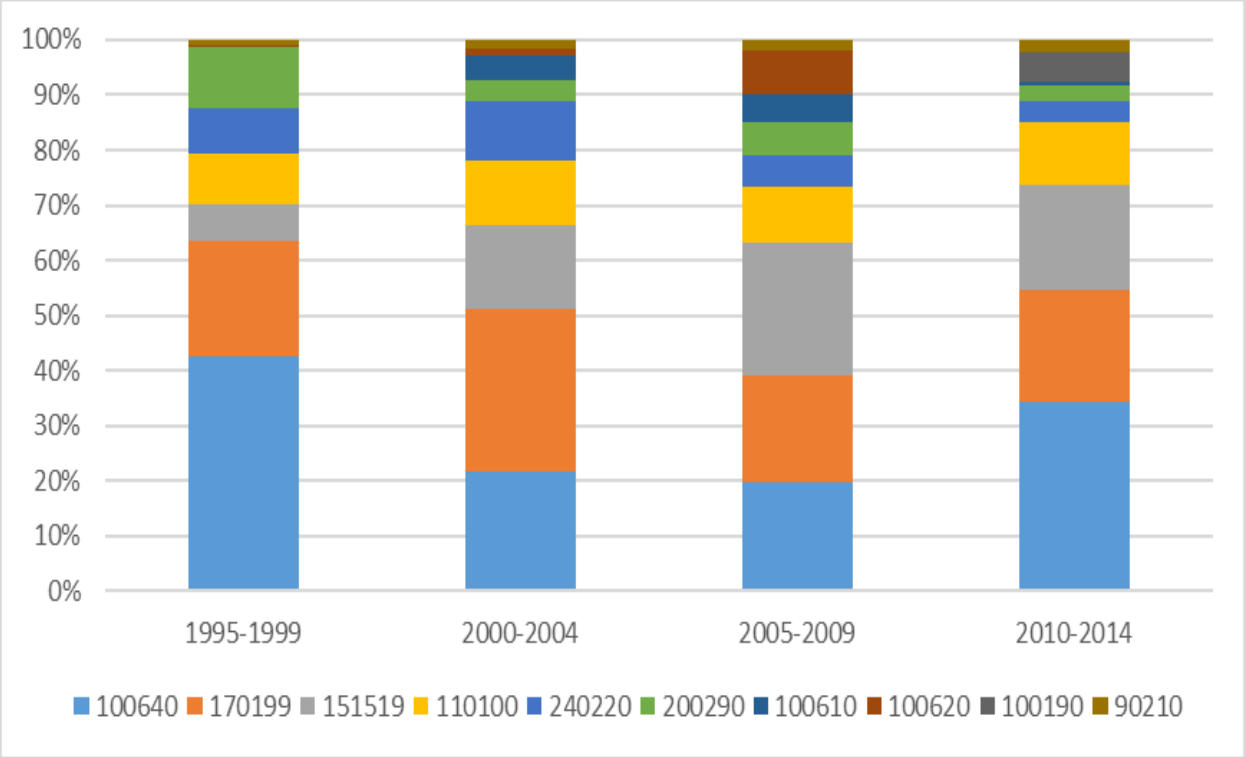


Figure 5.6. Top 10 agricultural imported products, 1995-2014, by Gambia, percentage

Source: Own composition based on WITS (2017) data

Note: 100640 - Broken rice; 170199 - Cane or beet sugar, in solid form; 151519 - Linseed oil (excl. crude) and fractions; 110100 - Wheat or Meslin flour; 240220 - Cigarettes containing tobacco; 200290 - Tomatoes (preserved); 100610 - Rice in the husk (paddy or rough); 100620 - Husked (brown) rice; 100190 - Spelt, common wheat and meslin; 090210 - Green tea in immediate packings

Since The Gambia is a small open economy, her trade openness in the global market is therefore minimal. The United Kingdom, France, India, and Senegal, were the major importing countries of the top 10 exported agricultural products, amounting to 80% of the total agricultural exports between 1995-2014 (Table 5.10). Effective policies must be implemented by The Gambian authorities to expand and diversify the scope of the global markets. Failure to do so will eventually affect the export industry. Also, any political or bilateral impasse that may occur

between The Gambia and these four major importing countries can result in serious economic consequences.

Table 5.9. Top 10 importing countries, 1995-2014 (in 1000 US$)

Country	1995-1999	2000-2004	2005-2009	2010-2014	1995-2014
United Kingdom	1797	2899	2650	3116	2615
France	3140	1904	1966	1622	2158
India	93	17	901	3386	1099
Senegal	872	1211	1559	426	1017
Italy	21	736	2	10	192
Germany	185	428	99	0	178
Mauritania	6	314	369	4	173
Guinea	179	1	460	4	161
Vietnam	0	0	0	572	143
United States	39	92	42	396	142
Concentration	***81%***	***93%***	***95%***	***94%***	***91%***

Note: Countries are listed in decreasing order based on their 1995-2014 averages.

Source: Own calculations based on WITS (2017) data

Table 5.10. Top 10 importing countries, 1995-2014, percentage

Country	1995-1999	2000-2004	2005-2009	2010-2014	1995-2014
United Kingdom	23%	36%	31%	31%	30%
France	40%	23%	23%	16%	25%
India	1%	0%	11%	34%	13%
Senegal	11%	15%	18%	4%	12%
Italy	0%	9%	0%	0%	2%
Germany	2%	5%	1%	0%	2%
Mauritania	0%	4%	4%	0%	2%
Guinea	2%	0%	5%	0%	2%
Vietnam	0%	0%	0%	6%	2%
United States	0%	1%	0%	4%	2%
Concentration	***81%***	***93%***	***95%***	***94%***	***91%***

Source: Own calculations based on WITS (2017) data

The top 10 exported agricultural products by The Gambia are usually imported from the following countries shown in Table 5.11. A total of 38% [of the total agricultural imported products] was mainly imported from Brazil, Germany, Netherlands, and The United States, between 1995-2014 (Table 5.11).

Table 5.11. Top 10 exporting countries, 1995-2014, percentage

Country	1995-1999	2000-2004	2005-2009	2010-2014	1995-2014
Brazil	7%	11%	12%	27%	16%
Germany	5%	31%	7%	1%	9%
Netherlands	7%	9%	6%	5%	7%
United States	6%	3%	12%	2%	6%
France	8%	6%	1%	5%	5%
Denmark	1%	4%	15%	0%	5%
India	6%	3%	3%	5%	4%
China	1%	6%	7%	4%	4%
Italy	12%	2%	2%	1%	4%
Malaysia	0%	0%	5%	7%	4%
Concentration	***52%***	***74%***	***70%***	***58%***	***63%***

Note: Products are listed in decreasing order based on their 1995-2014 averages.

Source: Own calculations based on WITS (2017) data

5.3. Calculations for Analysing Agricultural Products Competitiveness

The theory of comparative advantage is an economic theory about the work gains from trade for individuals, firms, or nations that arise from differences in their factor endowments or technological progress (MANESCHI, 1998). In an economic model, agents have a comparative advantage over others in producing a particular good if they can produce that good at a lower relative opportunity cost or autarky price, i.e. at a lower relative marginal cost prior to trade. Meanwhile, one does not compare the monetary costs of production or even the resource costs (labour needed per unit of output) of production. Instead, one must compare the opportunity costs of producing goods across countries. The closely related law or principle of comparative advantage holds that under free trade, an agent will produce more of and consume less of a good for which they have a comparative advantage.

As mentioned elsewhere, David Ricardo developed the classical theory of comparative advantage in 1817 to explain why countries engage in international trade even when one country's workers are more efficient at producing every single good than workers in other

countries. He demonstrated that if two countries capable of producing two commodities engage in the free market, then each country will increase its overall consumption by exporting the good for which it has a comparative advantage while importing the other good, provided that there exist differences in labour productivity between both countries. Widely regarded as one of the most powerful yet counter-intuitive insights in economics, Ricardo's theory implies that comparative advantage rather than absolute advantage is responsible for much of international trade.

5.3.1. Product Classifications

The agricultural product groups from HS1 – HS24 used in this study are further sub-categorised as: **1 –** live animals, **2 –** meat and edible meat offal, **3 –** fish and crustaceans, molluscs, and other aquatic invertebrates, **4 –** diary produce (bird's eggs, natural honey, edible products of animal origin, not elsewhere specified or included), **5 –** animal originated products, **6 –** live trees and other plants; bulbs, roots, and the like; cut flowers, and ornamental foliage, **7 –** edible vegetables and certain roots and tubers, **8 –** edible fruits and nuts; peel of citrus fruit or melon, **9 –** coffee, tea, mate, and spices, **10 –** cereals, **11 –** products of the milling industry; malt, starches, inulin, wheat gluten, **12 –** oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit, industrial or medicinal plants; straw and fodder, **13 –** lac; gums, resins, and other vegetable saps and extracts, **14 –** vegetable plaiting materials; vegetable products, not elsewhere specified or included, **15 –** animal or vegetable fats and oil and their cleavage products; prepared animal fats, animal or vegetable waxes, **16 –** meat, fish, or crustaceans, molluscs or other aquatic invertebrate; preparations thereof, **17 –** sugars and sugar confectionery, **18 –** cocoa and cocoa preparations, **19 –** preparations of cereals, flour, starch or milk; pastrycooks' products, **20 –** preparations of vegetables, fruit, nuts, or other parts of plants, **21 –** miscellaneous edible

preparations, **22 –** beverages, spirits, and vinegar, **23 –** food industries, residues and wastes thereof; prepared animal fodder, **24 –** tobacco and manufactured tobacco substitutes.

Table 5.12 illustrates the revealed comparative advantages and disadvantages in the exports of Gambia's total agricultural products. Product groups greater than 1 shows an export comparative advantage and those with figures less than 1 indicate an export comparative disadvantage. The country has experienced a comparative advantage in the exports of fish products and other aquatic invertebrates; edible vegetables and certain roots and tubers (but a comparative disadvantage between 2010 – 2014); edible fruits and nuts; vegetable products; animal or vegetable fats and oil; prepared meat, fish, or crustaceans, molluscs or other aquatic invertebrate; prepared food industries, residues and wastes (but a comparative disadvantage between 1995 – 1999).

However, an export comparative disadvantage was recorded for the following agricultural products: live animals; meat and edible meat offal; live trees and other plants; cereals (but an export comparative advantage between 2010 – 2014); and for cocoa and cocoa preparations.

Table 5.12. Revealed comparative advantage (RCA) of total agricultural products

Product Codes	1995-1999	2000-2004	2005-2009	2010-2014	1995-2014
1	0.09	0.27	0.00	0.00	0.10
2	0.38	0.00	3.19	0.10	0.92
3	84.97	108.29	133.09	232.04	139.60
4	4.55	1.26	0.09	0.00	1.48
5	6.02	0.48	97.08	3.64	23.11
6	0.39	0.00	0.95	0.01	0.34
7	109.69	145.62	198.37	0.47	113.54
8	59.97	34.62	9302.33	173.89	2392.70
9	15.03	0.36	4.02	0.16	4.89
10	42.64	0.02	0.02	0.22	11.29
11	57.95	2.00	0.19	268.72	82.22
12	932.34	1263.92	1227.89	1434.64	1214.70
13	0.00	0.00	0.00	4.32	1.14
14	839.04	611.69	688.99	1.74	563.45
15	26.39	3967.97	1202.04	665.62	1465.51
16	17.19	10.57	8.68	31.39	16.96
17	12.90	1.17	0.00	0.00	3.52
18	0.00	0.00	0.32	0.00	0.08
19	2.68	0.02	0.24	0.00	0.74
20	3.25	0.41	4.16	0.52	2.08
21	1.71	0.24	1.66	0.07	0.92
22	3.23	0.98	27.50	0.87	8.15
23	0.31	3707.01	7499.58	676.66	2970.89
24	5.20	0.50	0.00	0.00	1.42

Source: Own calculations based on (WITS) 2017

On the other hand, it is important to note that a country cannot produce all that it needs. Therefore, there must be a trade balance where total imports are subtracted from total exports to determine a country's trade surplus or deficit. The Gambia is not spared in global trade liberalisation, where a country opens its markets for both imports and exports. Table 5.13 depicts the revealed import advantages and disadvantages of Gambia's total agricultural imports. If RMA > 0, this indicates that a certain product group has an import comparative advantage, or in contrast, a revealed import comparative disadvantage. There is an import comparative advantage for: diary produce; edible vegetables and certain roots and tubers; coffee, tea, mate, and spices; cereals; products of the milling industry (malt, starches, inulin, and wheat gluten); oil seeds and

oleaginous fruits (miscellaneous grains, seeds and fruit, industrial or medicinal plants; and straw and fodder); lac (gums, resins, and other vegetable saps and extracts); animal or vegetable fats and oil and their cleavage products (prepared animal fats, animal or vegetable waxes); prepared meat, fish, or crustaceans, molluscs or other aquatic invertebrate; sugars and sugar confectionery; prepared cereals, flour, starch or milk; pastrycooks' products; prepared vegetables, fruit, nuts, or other parts of plants; food industries, residues and wastes thereof, prepared animal fodder; and tobacco and manufactured tobacco substitutes.

Table 5.13. Relative import advantage index (RMA) of total agricultural products

Product Codes	1995-1999	2000-2004	2005-2009	2010-2014	1995-2014
1	1.14	0.60	0.82	0.57	0.78
2	0.84	1.97	74.60	2.18	19.90
3	1.31	6.70	1.47	0.88	2.59
4	5.80	8.42	9.65	5.64	7.38
5	0.21	0.91	66.41	0.85	17.09
6	0.11	9.14	0.22	0.67	2.53
7	12.65	164.02	387.54	2.36	141.64
8	2.30	0.98	0.42	0.52	1.06
9	13.38	19.79	15.52	11.48	15.04
10	101.64	63.95	85.53	77.30	82.10
11	81.42	26.81	23.56	42.67	43.62
12	3.38	3.82	516.54	0.93	131.17
13	2.73	1.79	5.24	1.44	2.80
14	0.19	0.14	100.37	4.41	26.28
15	73.53	107.92	156.27	133.51	117.81
16	1.71	4.94	5.59	7.08	4.83
17	27.33	26.17	10.62	6.60	17.68
18	0.57	1.71	0.62	0.67	0.89
19	3.17	2.18	2.93	2.07	2.59
20	9.36	3.89	5.27	48.97	16.87
21	2.73	5.47	4.26	3.65	4.03
22	1.18	1.43	0.93	1.21	1.19
23	2.21	0.50	162.62	0.24	41.39
24	4.60	13.28	3.69	1.53	5.78

Source: Own calculations based on (WITS) 2017

As for tables 5.14 and 5.15, positive lnRCA and RC indices indicate a comparative advantage and a competitive advantage, respectively, while negative values indicate comparative and

competitive disadvantage. All values for the lnRCA are symmetric to zero (0). Comparing it with RCA findings in table 5.12, it was revealed that there was a higher comparative advantage for fish and other aquatic invertebrates from 1995 to 2014, and a comparative advantage for all the periods except for 2000-2004, where a very low comparative advantage was gained, as in the case of lnRCA (Table 5.14). As for the edible fruits and nuts and oil seeds and oleaginous fruits, a comparative advantage was realized for all the periods for both RCA and lnRCA.

Table 5.14. Natural logarithm for revealed comparative advantage of total agricultural products (lnRCA)

Product Codes	1995-1999	2000-2004	2005-2009	2010-2014	1995-2014
1	-0.68	0.06	0.00	0.00	-0.17
2	0.13	0.00	-0.56	-0.43	-0.21
3	1.67	0.21	2.25	3.41	1.88
4	-1.12	-1.31	-0.67	0.00	-0.82
5	0.29	0.18	0.57	0.69	0.43
6	-0.29	0.00	-0.47	-0.79	-0.36
7	1.61	2.12	2.03	-0.63	1.28
8	1.53	1.14	4.16	3.26	2.52
9	0.50	-0.09	0.11	0.37	0.22
10	1.00	-1.60	-0.50	-0.81	-0.48
11	0.56	0.58	0.09	1.28	0.66
12	2.76	4.59	4.06	4.18	3.90
13	0.00	0.00	0.00	0.61	0.16
14	4.29	5.22	4.29	0.49	3.73
15	-0.01	5.12	5.30	4.23	3.66
16	0.83	0.97	1.51	3.33	1.66
17	1.04	0.96	0.00	0.00	0.56
18	0.00	0.00	-0.09	-0.57	-0.17
19	-0.33	-0.28	-0.99	-0.46	-0.49
20	0.50	-0.21	1.33	-0.10	0.38
21	-1.53	-1.49	-1.10	-3.26	-1.85
22	0.09	-1.02	-0.65	0.08	-0.37
23	0.08	4.98	6.99	3.14	3.80
24	0.43	0.32	0.00	0.00	0.21

Source: Own calculations based on (WITS) 2017

Revealed competitiveness (RC) takes into consideration for both import and export sides for better prices and quality. The values are symmetric to zero (0) between minus infinity and

positive infinity. All positive values indicate a competitive advantage, while negative values reveal a competitive disadvantage, as illustrated in table 5.15.

Table 5.15. Revealed competitiveness (RC) of Gambia's total agricultural products

Product Codes	1995-1999	2000-2004	2005-2009	2010-2014	1995-2014
1	1.09	0.00	0.00	0.00	0.30
2	0.00	0.00	-0.07	0.51	0.11
3	3.78	3.65	5.09	7.12	4.91
4	-2.28	-1.87	-2.01	0.00	-1.60
5	0.83	0.00	0.94	0.00	0.47
6	0.00	0.00	1.81	0.00	0.40
7	2.41	3.02	2.98	1.32	2.43
8	3.27	2.57	5.17	6.00	4.25
9	-1.66	-0.51	-0.35	0.63	-0.47
10	-0.73	-0.47	-0.45	-1.51	-0.81
11	-2.86	0.94	0.20	1.67	-0.02
12	2.39	3.43	6.77	4.58	4.16
13	0.00	0.00	0.00	0.73	0.19
14	0.00	2.53	0.00	0.66	0.85
15	-1.07	2.91	-0.68	1.23	0.67
16	0.56	3.47	3.21	6.49	3.43
17	-0.63	0.50	0.00	0.00	-0.04
18	0.00	0.00	-0.07	-0.21	-0.07
19	0.23	-0.48	-0.48	-0.32	-0.25
20	-1.84	0.02	1.78	3.67	0.91
21	-2.31	-2.58	-2.45	-2.90	-2.56
22	-0.47	-1.20	-0.47	-0.10	-0.56
23	0.40	1.96	0.00	3.22	1.37
24	-1.29	-0.90	-1.03	-1.09	0.03

Source: Own calculations based on (WITS) 2017

The Revealed Symmetric Comparative Advantage (RSCA) at HS2 level are all symmetric to zero (0) between -1 and +1. Positive values [between 0 and 1] reveal an export comparative advantage while negative values [between -1 and 0] indicate an export comparative disadvantage for all the agricultural exported products (see Table 5.16).

Table 5.16. Revealed symmetric comparative advantage (RSCA – HS2 level)

Product Codes	1995-1999	2000-2004	2005-2009	2010-2014	1995-2014
1	-0.26	0.03	0.00	-0.25	-0.12
2	0.06	0.00	-0.12	-0.45	-0.13
3	0.37	0.10	0.53	0.76	0.44
4	-0.27	-0.47	-0.89	-1.00	-0.66
5	0.04	0.08	-0.06	-0.42	-0.09
6	-0.14	0.00	-0.19	-0.58	-0.23
7	0.31	0.47	0.39	-0.55	0.15
8	0.34	0.26	0.74	0.49	0.46
9	0.00	-0.87	-0.76	-0.96	-0.65
10	0.05	-0.77	-0.22	-0.86	-0.46
11	-0.15	-0.13	-0.30	-0.57	-0.29
12	0.46	0.83	0.56	0.48	0.58
13	-0.20	0.00	0.00	-0.02	-0.06
14	0.60	0.91	0.75	0.19	0.63
15	-0.29	-0.23	-0.31	-0.75	-0.40
16	0.15	0.25	0.06	-0.56	-0.03
17	0.14	-0.61	-0.75	-1.00	-0.54
18	-0.20	0.00	-0.05	-0.99	-0.31
19	-0.13	-0.76	-0.54	-1.00	-0.61
20	0.09	-0.41	-0.10	-0.83	-0.31
21	-0.39	-0.47	-0.40	-0.93	-0.55
22	0.17	-0.32	-0.28	-0.43	-0.21
23	0.04	0.66	0.64	0.11	0.36
24	0.06	-0.23	-1.00	-0.60	-0.44

Source: Own calculations based on (WITS) 2017

The table below illustrates the correlation between variables. The lowest correlation exists between RC and RMA (-0.16) and the highest exist between RSCA and lnRCA (0.92). The 1 values portrayed a self-correlation between the same variables.

Table 5.17. Correlation coefficients of indices between 1995 and 2014 for Gambia's agricultural products

Indicators	RCA	RMA	lnRCA	RC	RSCA
RCA	1				
RMA	0.09	1			
lnRCA	0.36	0.11	1		
RC	0.20	-0.16	0.70	1	
RSCA	0.18	0.06	0.92	0.65	1

Source: Own calculations based on (WITS) 2017

The competitiveness of Gambia's agricultural products in the global market improved significantly between 1995 and 1997 and between 2007 and 2008, however, temporal fluctuations have been experienced (Figure 5.7). These products were most competitive in 2007 and 2008, despite the 2008 world food and economic crisis, and least competitive in 2009.

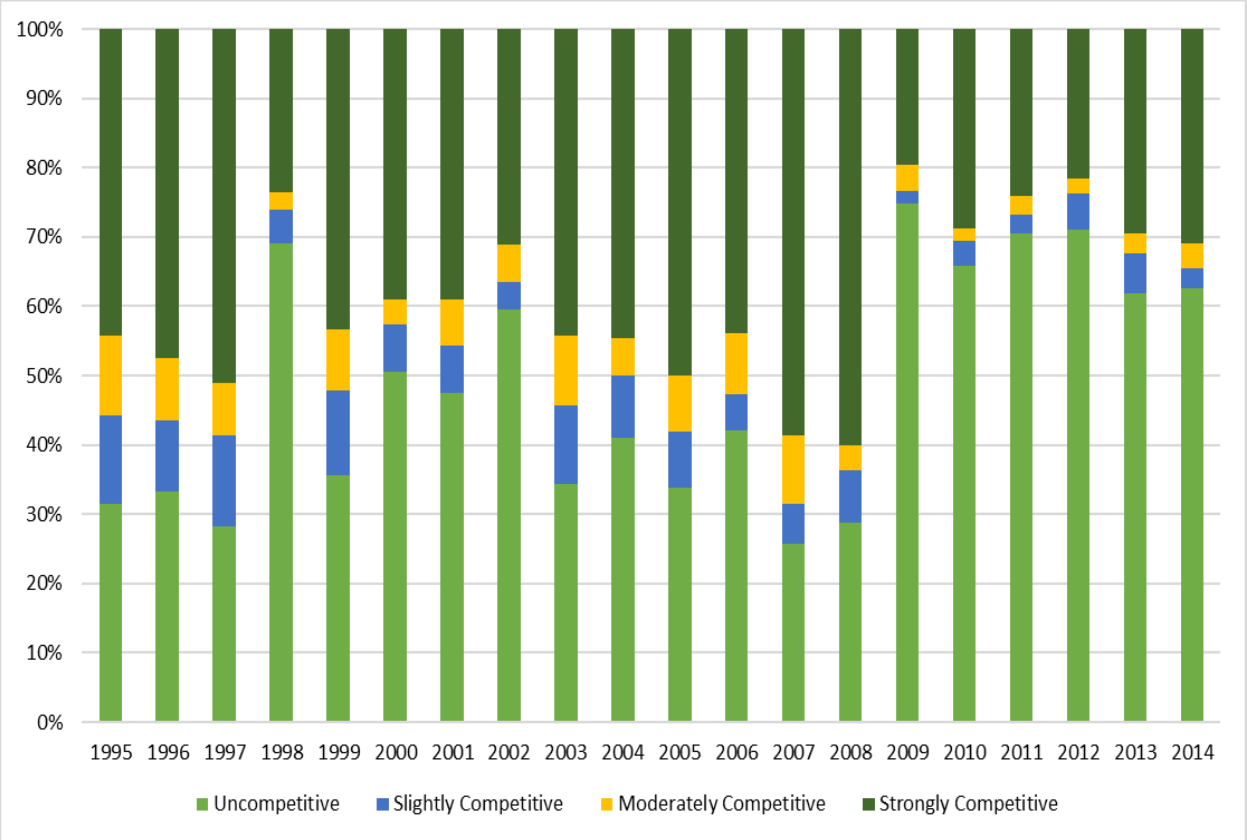


Figure 5.7. Changes of B-index in time by categories in Gambia's agricultural products

Source: Own composition based on (WITS) 2017

Table 5.18. Kaplan-Meier survival rates for Balassa indices and tests for equality of survival functions for Gambia's agricultural products, 1995-2014 (HS1 – HS12)

Years	Survivor function	HS1	HS2	HS3	HS4	HS5	HS6	HS7	HS8	HS9	HS10	HS11	HS12
1995	0.9969	0.9821	1	0.9904	1	1	1	0.9972	0.9954	1	0.9948	1	0.9963
1996	0.9931	0.9821	1	0.9739	0.995	1	1	0.9882	0.993	0.9969	0.9948	0.9974	0.9923
1997	0.9891	0.9821	1	0.9669	0.9871	1	0.9891	0.985	0.9903	0.9871	0.989	0.992	0.9923
1998	0.9752	0.9717	1	0.9523	0.9732	1	0.9779	0.9715	0.9816	0.9701	0.959	0.9723	0.979
1999	0.9698	0.9717	1	0.9408	0.9644	0.9833	0.966	0.9626	0.9785	0.9559	0.9529	0.9723	0.979
2000	0.9618	0.9717	1	0.9123	0.9553	0.9833	0.966	0.9551	0.972	0.9411	0.9398	0.9602	0.979
2001	0.9565	0.9717	1	0.8885	0.9489	0.9833	0.966	0.9491	0.9685	0.9296	0.9329	0.9602	0.9738
2002	0.9475	0.9717	1	0.8615	0.9386	0.9833	0.966	0.9427	0.9611	0.9174	0.9112	0.9602	0.9738
2003	0.9423	0.9717	1	0.8498	0.935	0.9833	0.966	0.9382	0.9571	0.9131	0.8957	0.9565	0.9738
2004	0.9369	0.9717	1	0.8274	0.935	0.9833	0.966	0.9307	0.9529	0.9083	0.8957	0.9565	0.9738
2005	0.9316	0.9717	0.9961	0.8142	0.9306	0.961	0.966	0.9252	0.9483	0.9032	0.8957	0.9565	0.9738
2006	0.9248	0.9717	0.9961	0.794	0.9207	0.9375	0.966	0.9129	0.9483	0.8975	0.8957	0.9565	0.9738
2007	0.9191	0.9717	0.9914	0.7876	0.9152	0.9375	0.966	0.9059	0.9426	0.8911	0.8957	0.9565	0.9656
2008	0.911	0.9717	0.9862	0.7766	0.9027	0.9375	0.9177	0.9059	0.9362	0.8838	0.8957	0.9503	0.9656
2009	0.8781	0.9717	0.9862	0.7429	0.8521	0.9375	0.8603	0.863	0.9362	0.8066	0.8612	0.9282	0.9434
2010	0.8439	0.9403	0.9713	0.719	0.7866	0.9063	0.8272	0.8264	0.9278	0.7409	0.8238	0.9108	0.9175
2011	0.8	0.9403	0.9713	0.7131	0.7002	0.8338	0.8272	0.7832	0.9278	0.6429	0.7804	0.8904	0.8879
2012	0.7535	0.9403	0.9713	0.7131	0.6053	0.8338	0.7721	0.7679	0.9024	0.542	0.6968	0.8765	0.8879
2013	0.6886	0.9403	0.9152	0.7131	0.5256	0.8338	0.7721	0.7324	0.884	0.3915	0.5807	0.8561	0.8879
2014	0.5697	0.9403	0.8474	0.6723	0.3597	0.4169	0.6618	0.6592	0.8486	0.2472	0.4645	0.8133	0.8357
Log-rank test	0.0000												
Wilcoxon test	0.0000												

Source: Own calculations based on (WITS) 2017

Table 5.19. Kaplan-Meier survival rates for Balassa indices and tests for equality of survival functions for Gambia's agricultural products, 1995-2014 (HS13 - HS24)

Years	Survivor function	HS13	HS14	HS15	HS16	HS17	HS18	HS19	HS20	HS21	HS22	HS23	HS24
1995	0.9969	1	1	0.9956	1	0.9957	1	0.9967	1	1	0.9968	1	0.9773
1996	0.9931	1	1	0.9909	1	0.9957	1	0.9967	1	0.9962	0.9934	1	0.9773
1997	0.9891	1	1	0.9835	1	0.986	1	0.9967	0.9981	0.9921	0.9934	1	0.9606
1998	0.9752	0.9808	1	0.9708	0.9918	0.9709	0.9828	0.9696	0.9841	0.9664	0.9857	1	0.9256
1999	0.9698	0.9808	1	0.9655	0.9831	0.9657	0.9828	0.9577	0.9841	0.9576	0.9857	1	0.9256
2000	0.9618	0.9808	1	0.9573	0.9831	0.9547	0.9828	0.9494	0.9819	0.9484	0.9813	1	0.9256
2001	0.9565	0.9808	1	0.9544	0.9783	0.9432	0.9828	0.9494	0.9795	0.9484	0.9766	1	0.9256
2002	0.9475	0.9808	1	0.9451	0.9783	0.9192	0.9828	0.9447	0.9694	0.9379	0.9565	1	0.9256
2003	0.9423	0.9808	1	0.9353	0.9729	0.9066	0.9828	0.9396	0.9694	0.9323	0.9565	1	0.8914
2004	0.9369	0.9808	1	0.9317	0.9671	0.9066	0.9828	0.9284	0.9694	0.9262	0.945	0.9901	0.8793
2005	0.9316	0.9808	1	0.9279	0.948	0.899	0.9828	0.9284	0.9694	0.9262	0.9324	0.9901	0.8527
2006	0.9248	0.9808	1	0.9238	0.9271	0.899	0.9828	0.9219	0.9694	0.9114	0.9324	0.9785	0.8377
2007	0.9191	0.9808	1	0.9146	0.9271	0.899	0.9649	0.9147	0.9618	0.9033	0.9244	0.9785	0.821
2008	0.911	0.9808	1	0.9095	0.9271	0.8773	0.9448	0.8983	0.9576	0.8848	0.9154	0.9785	0.7819
2009	0.8781	0.9808	1	0.8865	0.8653	0.8279	0.9448	0.8328	0.9228	0.8328	0.8838	0.9638	0.7595
2010	0.8439	0.9808	1	0.8474	0.8068	0.7858	0.9185	0.7808	0.9053	0.7634	0.8599	0.9478	0.7071
2011	0.8	0.9195	1	0.7934	0.7512	0.7203	0.8201	0.7198	0.8329	0.6581	0.8308	0.9296	0.7071
2012	0.7535	0.9195	1	0.7354	0.6813	0.6586	0.6561	0.6148	0.7803	0.5663	0.7516	0.9074	0.7071
2013	0.6886	0.9195	1	0.6685	0.5596	0.4868	0.5047	0.4611	0.7193	0.4854	0.7238	0.875	0.6429
2014	0.5697	0.9195	1	0.619	0.3358	0.337	0.2163	0.2306	0.6321	0.3236	0.5308	0.875	0.5357
Log-rank test	0.0000												
Wilcoxon test	0.0000												

Source: Own calculations based on (WITS) 2017

Survival chances of 100% at the beginning of the period reduced to 57% by the end of the period, illustrating that there exists flexible competition in Gambia's agricultural products trade. Results of survival functions of the analysed agricultural products differed, proposing that the highest survival periods exist for HS-14 product group (vegetable products and plaiting materials), giving the broad majority of Gambia's agricultural products trade (Table 5.19), while the lowest exist for HS-18 product group (cocoa and cocoa preparations), followed by product groups HS-19 (preparations of cereals, flour, starch or milk; pastrycooks' products), as depicted in Table 5.19. The equality of the survival functions across the agricultural products was estimated using two non-parametric tests (Wilcoxon and Log-rank tests). Findings of the tests reveal that the hypothesis of equality across survivor functions can be rejected at the 1% level of significance, meaning that similarities in the duration of comparative advantage across Gambia's agricultural exports are absent.

5.4. Verification of The Hypotheses

The following hypotheses developed on the onset of the research were found to be true and acceptable:

1. The contribution of Gambia's agriculture in the economy was discovered to be diminishing, as in compliance with the first hypothesis. Effective and efficient policy measures should be implemented in order to increase higher productivity for domestic consumption and export competitiveness.
2. The diversity and differentiation of Gambia's agricultural products on global markets were positively investigated and found to be true, as illustrated elsewhere in the dissertation. This should be noted and well maintained by the concern authorities.

3. The Gambia's agricultural export competitiveness was found to be fluctuating on global markets, specifically between 2009 and 2014, as depicted in Figure 5.7. Agricultural policies and measures for higher export and stability should implemented.

4. Lastly, there exist a positive correlation between agricultural export competitiveness and economic progress in The Gambia, as illustrated in table 5.1. The high comparative advantages in most of the exported products have also served as one of the determinants for the correlation. This is in line with export-led growth (ELG) theories, as illustrated in chapter 2.

5.5. New and Novel Scientific Achievements

Based on the calculations of The Balassa Indices and data trend, the following new scientific results were explored.

1. The categories of Uncompetitive, Slightly Competitive, Moderately Competitive, and Strongly Competitive in Gambia's agricultural products in time were newly examined and discovered by the author using Balassa Indices.

2. It was freshly discovered by the author that The United Kingdom, France, India, and Senegal, were the major importing countries of The Gambia's top 10 exported agricultural products, amounting to 80% of the total agricultural exports between 1995-2014. The country's export dependency is strongest in these countries.

3. Survival chances of Gambia's agricultural products in the international market were also evaluated and there exist a flexible competition in the products' trade. According to the

author’s new findings, the highest survival periods exist for vegetable products and the lowest exist for cocoa products.

4. High comparative advantages in the exports of fish products and other aquatic invertebrates; edible fruits, vegetables, and nuts; animal and vegetable fats and oil; prepared food industries, residues and wastes, were among the new and novel discoveries in this research. However, an export comparative disadvantage was recorded for the following agricultural products: live animals; meat and edible meat offal; live trees and other plants; cereals and for cocoa products.

5. Finally, the author has developed and outlined some key policy implications and development strategies that could lead for the improvement and maximization of the export competitiveness of Gambia’s agricultural products in global markets. More details can be found on chapter 6.

6. CONCLUSIONS AND POLICY IMPLICATIONS

6.1. Concluding Remarks

Competitiveness is a central topic in modern economics with various definitions, interpretations and measurement methods. The WEF (2015), conceptualized competitiveness "as the set of institutions, policies, and factors that determine the level of productivity of a country". According to them, the level of productivity, in turn, sets the level of prosperity that can be reached by an economy. The productivity level also determines the rates of return obtained by investments in an economy, which in turn are the fundamental drivers of its growth rates. In other words, a more competitive economy is one that is likely to grow faster over time.

There are basically two levels at which competitiveness can be interpreted – micro and macro. At the micro-economic level, the understanding of competitiveness is pretty straightforward – it is "the ability of firms to consistently and profitably produce products that meet the requirements of an open market in terms of price and quality" (DOMAZET, 2012: 294-295). In comparison, at the macro-economic level, competitiveness is much more purely defined. The most widely accepted definition nowadays is the one given by the World Economic Forum (WEF), defining national competitiveness as "set of institutions, policies and factors that determine the level of productivity of a country" (WFP, 2015: 4).

The development of the concept of competitiveness at the macro-level is inseparable from international trade theories, seeking to answer the question why nations trade with each other. One of the most influential answers to this question is the theory of comparative advantage, originating from the seminal work of RICARDO (1817). In the Ricardian model, production technology differences are the basis of comparative advantage and therefore production and

trade is not driven by low cost, but by the most effective use of resources. Ricardo suggests, even if a country is more productive in absolute terms, it should just specialize in those products which it has a comparative advantage in (or in which they are relatively more productive). It follows that technological superiority (that is, high labor productivity) is not a guarantee for competitiveness – it just works together with comparative advantages.

BALASSA (1965) was one of the early promoters of this theory, elaborating his famous index of revealed comparative advantages. Since his seminal work, a vast amount of literature is dedicated to the analyses of revealed comparative advantages of global trade. Despite the apparent importance of the topic, however, the majority of studies are focused on industrial products, while agri-food sectors are usually neglected in empirical works.

Consequently, the stability of The Gambia's agricultural export competitiveness is of great significance to her economic wellbeing. Growth is this sector creates employment, helps to increase aggregate demand which influences higher economic growth, plays an import role in determining current account deficit, and so on. Moreover, the level of exports can be determined by competitiveness, quality, and value-added products, exchange rates, long run productivity, and economic growth from other countries. Meanwhile, findings in this research reveal that The Gambia's competitiveness in agricultural export has a promising and positive relationship with economic growth and development. This is due to the high concentration of the top 10 exported products from the total agricultural exports in global markets.

Meanwhile, the export competitiveness of the agricultural products in the international market notably improved between 1995 and 1997 and between 2007 and 2008. However, temporal fluctuations have been realized as depicted in figure 5.3. According to the findings, the products

were most competitive in 2007 and 2008, despite the 2008 world food crisis, and least competitive in 2009.

Findings of survival functions of the selected agricultural products varied, proposing that the highest survival periods exist for HS-14 product group (vegetable products and plaiting materials), giving the broad majority of Gambia's agricultural products trade (see Table 5.15), while the lowest exist for HS-18 product group (cocoa and cocoa preparations), followed by product groups HS-19 (preparations of cereals, flour, starch or milk; pastrycooks' products), as shown in Table 5.15. Survival chances of 100% at the beginning of the period diminished to 57% by the end of the period, highlighting that there exists moderate trade competition in Gambia's agricultural products.

6.2. Policy Implications

Agricultural policy describes a set of laws relating to domestic agriculture and imports of foreign agricultural products. Government authorities usually implement agricultural policies with the objective of accomplishing a specific outcome in the domestic agricultural product markets. Outcomes can involve, for example, a guaranteed supply level, price stability, product quality, product selection, land use or employment. Based on the findings of the study and data trends, some key implications and development strategies that could lead for improvement and maximizing the export competitiveness of Gambia's agricultural products based on the applied approach were developed in a bid to accelerate competitiveness and progress to end low productivity both within The Gambia and in the sub-region. As such, coherent sound and effective policy implementation shall inform partners on emerging research and innovation, developments in global, regional, and national policies and programs for market competitiveness.

First and foremost, the 12 pillars (indicators) of World Economic Forum's Global Competitiveness Report relating to: institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication, and innovation, should be well noted by The Gambia' export industry. The first four pillar are essential for factor driven economies, pillars 5-10 are important for efficiency-driven economies, while the rest are the engines of innovation-driven economies.

Any agricultural policy that seek to drive down production costs with little concern of what the impact on consumer value could be doing may harm the competitiveness of the value chain. Modernization plans should be implemented within the context of maximizing value - driving down production costs and increasing export quantity should not be the only index or indicator of competitiveness as is typically affiliated with traditional economic approaches (MARSDEN et al., 2001). The availability of market information to farmers, technicians, packers, and exporters could positively contribute towards the competitiveness of the agricultural export sector. Also, as emphasized by ASEM-BANSAH et al., (2012), the creation of information networks can be an important component of value chain competitiveness.

A comprehensive project on Nutrition Sensitive Agriculture (NSA) is recommendable to encourage diversified food and animal production aimed at improving the nutritional quality of the products to be exported in global markets. Agricultural extension actions should include adequate training programs on irrigation methods to improve the products' quality. Better market linkages that will help producers secure better prices for their commodities and to access local and global markets should be instituted. Youth participation in the agricultural value change including value addition should be motivated. In addition to the above recommendations,

farmers' access to production inputs, meteorological data and early warning information should be enhanced.

Considering the unpredictable nature of the rainfall pattern in The Gambia which is mainly attributed to climate change, it is highly recommended for the country to be involve in Climate-Smart Agriculture (CSA). Strategically located water harvesting facilities should be constructed to increase water-use efficiency and prevent loss of water through runoff during the rainy season. This would reduce the impact of climate variations on crop production and provide water for supplementary irrigation. Timely availability of productive resources is a key for enhance productivity. Government expenditure in research and extension and infrastructural development would have a positive and direct impact on higher productivity for higher competitiveness. Studies in Asia have significantly demonstrated this fact.

Moreover, production represents a successful area for policy analysts. Nonetheless, post-harvest operations should be noted, including post-harvest disease control techniques that are paramount for improving quality of sea products, crops, and livestock and negating perishability. Some of the techniques for Gambia's better export competitiveness are illustrated below:

- Adoption of quality control technology;
- Exercising preservation treatments;
- Ratification of controlled environment storage technology;
- Adopting incentives for purchasing quality cold-controlled transportation; and
- Improvement of quality and safety systems.

Lastly, Foreign Direct Investment Flow (FDIF) has been established to have a positive impact on export performance in different countries. The Gambia must try to attract more foreign direct investment not only to improve its export competitiveness, but also to earn foreign exchange, and to bring in capital, technology, and other important resources such as market knowledge.

7. SUMMARY

The Gambia like several other countries in the sub-region continues to increasingly identify climate change, environmental deterioration, water management, and food security as key concerns for development and agricultural governance. Despite some minimal progress in recent years, agricultural productivity and competitiveness is still burdened with widespread and persistent rural poverty, particularly among women and young people. Key among the challenges characterizing the sector includes; low and decreasing soil fertility, low agricultural and labour productivity, poor access to productive assets (land and water), and inefficient management of available agricultural water from rainfall and river flooding. The development of agricultural production and agricultural products can be a key issue in Gambia's economic development, especially in the rural areas.

Admittedly, the increasingly urbanizing population growth has failed to match equivalent increments in yields of the major crops, with increased production resulting rather from agricultural area expansion, very often at the expense of the natural resource base, such as bio-diverse forest land. As such, poses unprecedented challenges resulting to the depreciation of revenues derived from the primary exports sector.

Through some major smart policy dialogue initiatives and financial support, the potentials of the country to be assisted in liberalizing prices of farm commodities and inputs, reforming public enterprises, liberalizing agricultural trade, and changing foreign exchange and taxation regimes which discriminate against agriculture. This to a larger degree enhances multiplier effects essential for agricultural and income growth that translates to long term large impact on rural poverty and food security enhancement. Also, state and partners requires prioritizing intervention that affects the socio-economic relations of agriculture that directly or indirectly affect

dimensions of ensuring supply of food and raw material, environmental conservation, maintaining rural areas, provision of appropriate income and standard of living for both direct agricultural dependent producers and end users, enhance competitiveness and market stabilities.

The main objective of the dissertation was to reveal and examine the sources and determinants of rapid economic growth and higher productivity for export competitiveness. The empirical analysis of the research activities was divided into two parts: the first part adopts the application of ADF, unit root, and Granger causality tests to determine the positive effects of export expansion, agricultural development, government spending on education, and foreign direct investment (FDI), using the Vector Autoregression (VAR) model. The empirical results indicate that the analysed [independent] variables determine Gambia's economic progress at a rate of 72.09%. The second part calculates the Balassa indices for Gambia's agricultural export competitiveness for the period 1995-2014. The findings were impressive as most of the products recorded higher comparative advantages over those of other competitive nations.

Total exports and agricultural development stand as the most outstanding factors of economic performance, which quite conforms with the studies of MAH (2015) and TOMSIK et al. (2015), respectively. Presently, neither FDI nor gross capital investment is revealed to be the source or determinant of economic growth in The Gambia. Based on the forecasting results, the gross capital investment (both physical and human) and FDI are expected to earn a share of 63.5% and -1.13% of GDP in 2023 respectively. There should be progressive measures by the government for the attraction of foreign investors. The provision of tax holidays for the new foreign investors is one of the available options.

Moreover, the main constraint of the research was the unavailability of complete data. An interpolation technique was applied in order to generate the missing data on all variables. In light

of the experience of The Gambia on export and agricultural development in realizing economic advancement, it would be vital for other developing countries in Africa to embark on export expansion and agricultural development policies such as goods market efficiency, export finance, good and durable infrastructure, labour market efficiency, innovation, technological readiness, market size, financial market development, and business sophistication, as outlined by WEF (2015).

BIBLIOGRAPHY

[1]. ADEGBITE, O., ONI, O. & ADEPOYE, I. (2014). *Competitiveness of pineapple production in Osun State, Nigeria*. LAP LAMBERT Academic Publishing.

[2]. AFRICAN DEVELOPMENT BANK & AFRICAN DEVELOPMENT FUND (2008): *The Gambia: Joint African development bank/ World Bank Assistance Strategy 2008-2011,* ADD/BD/WP/2008/40, ADF/BD/WP/2008/21, 10 March 2008.

[3]. AHIAKPOR, F. (2013). *Role of Human Capital in Economic Growth in Ghana*. International Journal of Economics & Business Studies, 3(2), 30–41.

[4]. AHMADI-ESFAHANI, F.Z. (2006): *Constant market shares analysis: uses, limitations and prospects.* The Australian Journal of Agricultural and Resource Economics, 50(4): 510-526.

[5]. AKINBOADE, O.A. (1994). *Agricultural policies and performance in The Gambia*. Journal of Asian and African Studies, 29 (1-2), 36-64.

[6]. AKMAL, N., AKHTAR, W., SHAH, H., NIAZI, M.A. & SALEEM, T. (2014): *The Structure and Competitiveness of Pakistan's Basmati Rice Exports*. Asian Journal of Agriculture and Rural Development, 4(4): 304-312.

[7]. ARIFIN, B. (2013*). On the competitiveness and sustainability of the Indonesian agricultural export commodities.* ASEAN Journal of Economics, Management and Accounting, 1 (1), 81-100.

[8]. ASEM-BANSAH, C. K., SAKYI-DAWSON, O., ACKAH-NYAMIKE, E. E., COLECRAFT, E. K. & MARQUIS, G. S. (2012). *Enhancing Backyard Poultry Enterprise Performance in the Techiman Area: A Value Chain Analysis*. African Journal of Food, Agriculture, Nutrition & Development, 12, 5759-5775.

[9]. AWOKUSE, T. O. (2009). *Does Agriculture really matter for Economic Growth in Developing Countries?* Proceedings of American Agricultural Economics Association Annual Meeting. Milwaukee, WI, July (pp. 26-28).

[10]. AYRES, R. L. (1973). *Political History, Institutional Structure, and Prospects for Socialism in Chile.* Comparative Politics, 5(4): 497-522.

[11]. BAIN, J. S. (1951): *Relation of profit rate to industry concentration: American manufacturing, 1936–1940.* Quarterly Journal of Economics, 65(3), 293-324.

[12]. BALASSA, B. (1988). *The lessons of East Asian development: An overview*. Economic Development and Cultural Change 36(3), S273-S290.

[13]. BALASSA, B. (1978). Exports and Economic Growth: further evidence. Journal of development Economics, 5(2): 181-189.

[14]. BALASSA, B. (1971). *Trade policies in developing countries*. The American Economic Review 61(2), 178-187.

[15]. BALASSA, B. (1975). *European economic integration*. Vol. 89. North-Holland.

[16]. BALASSA, B. (1965). *Trade liberalisation and revealed comparative advantage*. The Manchester School, 33(2), 99-123.

[17]. BANO, S. & SCRIMGEOUR, F. (2012). *The export growth and revealed comparative advantage of the New Zealand kiwifruit industry*. International Business Research, 5(2), 73.

[18]. BARNEY, J. (1986): *Strategic factor markets: expectations, luck, and business strategy.* Management Science, 32(10): 1231-1241.

[19]. BEGUIN, C. & HULLINGER, B. (2008): *The BACON-EEM algorithm for multivariate outlier detection in incomplete survey data*. Survey Methodology, 34(1): 91-103.

[20]. BHAGWATI, J. N. (1978). *Anatomy and Consequences of Exchange Control Regimes.* NBER Books. p.211-231

[21]. BHAWSAR, P. & CHATTOPADHYAY, U. (2015): *Competitiveness: Review, Reflections and Directions*. Global Business Review, 16(4): 665-679.

[22]. BOANSI, D., ODILONKOUNAAGBELOKONON, B. & APPAH, J. (2014). *Determinants of Agricultural Export Trade: Case of Fresh Pineapple Exports from Ghana*. British Journal of Economics, Management & Trade, 4(11), 1736-1754.

[23]. BOJNEC, Š. & FERTO, I. (2016). *Export Competitiveness of the European Union in Fruit and Vegetable Products on Global Markets*. Agr. Econ. –Czech.

[24]. BOJNEC, Š. & FERTO, I. (2014): *Agri-Food Export Competitiveness in European Union Countries*. Journal of Common Market Studies, no. 3: 476–492

[25]. BRINKMAN, G. (1987): *The competitive position of Canadian agriculture.* Canadian Journal of Agricultural Economics, 35(2): 263-288

[26]. BRUNETTI, A. (1997). *Political Variables in Cross-country Growth Analysis.* Journal of Economic Surveys, 11(2): 163-190.

[27]. CHIKAN, A. & GELEI, A. (2010): *New Insight into the Competitiveness of Supplier Firms: Aligning Competences and Customer Expectations. Supply Chain Forum* – An International Journal, 11(2): 30-44.

[28]. COE, D. T., & HELPMAN, E. (1995). *International R&D Spillovers*. European economic review, 39(5), 859-887.

[29]. COLLIS, D.J. (1994): *How Valuable are Organizational Capabilities?* Strategic Management Journal, 15, 143-152.

[30]. COSTINOT, A. (2009). *An elementary theory of comparative advantage* (No. w14645). National Bureau of Economic Research.

[31]. DALUM, B., LAURSEN, K., & VILLUMSEN G. (1998): *Structural change in OECD export specialisation patterns: De-specialisation and 'stickiness*. International Review of Applied Economics, no. 2: 423–443.

[32]. DASTAGIRI, M. B., CHAND, R., IMMANUELRAJ, T. K., HANUMANTHAIAH, C. V., PARAMSIVAM, P., SIDHU, R. S. & KUMAR, B. G. (2013). *Indian vegetables: production trends, marketing efficiency and export competitiveness*. American Journal of Agriculture and Forestry, 1(1), 1-11.

[33]. DISDIER, A-C., EMLINGER, C. & FOURE, J. (2015): *Atlantic versus Pacific Agreement in Agri-food Sectors: Does the Winner Take it All?* Selected Paper prepared for presentation at the 2015 Agricultural & Applied Economics Association and Western Agricultural Economics Association Annual Meeting, San Francisco, CA, July 26-28.

[34]. DOMAZET, T. (2012): *Regional cooperation striving for competitiveness and finance.* Ekonomika preduzeća, 60(5-6): 290-300.

[35]. DOWRICK, S. (1994). *Openness and growth*. International Integration of the Australian Economy, Reserve Bank of Australia, Sydney, 8(21): 9-41.

[36]. EASTERLY, W. & S. REBELO (1993). *Fiscal Policy and Economic Growth*. Journal of Monetary Economics, 32(3): 417-458.

[37]. EISENHARDT, K.M. & MARTIN, J.A. (2000): *Dynamic Capabilities: What Are They?* Strategic Management Journal, 21(10-11): 1105-1121.

[38]. EL HAG, S. E. H. A. (2014). *Estimation of Competitiveness of Sudanese Mango Fruits* (Doctoral dissertation, Sudan University of Science and Technology).

[39]. FAGERBERG, J. (1987). *A Technology Gap Approach to Why Growth Rates Differ.* Research policy, 16(2): 87-99.

[40]. FAO, IFAD & WFP, (2015). *The State of Food Insecurity in the World 2015. Meeting the 2015 international hunger targets: taking stock of uneven progress.* Rome, FAO.

[41]. FELIPE, J. & KUMAR, U. (2011): *Unit Labor Costs in the Eurozone: The Competitiveness Debate Again.* Asian Development Bank, Manila, Philippines, Working Paper No. 651.

[42]. FISCHER, S. (1993). *The Role of Macroeconomic Factors in Growth.* Journal of monetary economics, 32(3): 485-512.

[43]. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, (2016). *Increasing the resilience of agricultural livelihoods.* Retrieved from http://www.fao.org/3/a-i5615e.pdf [2016 /11 / 11].

[44]. FOSU, A. K. (1996). *Primary Exports and Economic Growth in Developing Countries*. The World Economy, 19(4): 465-475.

[45]. GALLUP, J. L, J. D. SACH & D. MELLINGER (1999). *Geography and Economic Development*. International Regional Science Review, 22(2): 179-232.

[46]. GARDNER, B. L. (2005). *Causes of Rural Economic Development.* Agricultural Economics, 32(s1): 21-41.

[47]. GARELLI, S. (2012): *The Fundamentals and History of Competitiveness, p. 499* in: IMD World Competitiveness Yearbook 2012.

[48]. GIBBA, A. (2016). *Evaluation of Export Expansion Impact on Economic Growth in Sub-Saharan Africa*. Vadym, 2(29), 57-61.

[49]. GIBBA, A. & MOLNAR, M. (2016). *An Empirical Study on Factors of Economic Growth in The Gambia: Lessons from Agriculture and Exports*. Vadym, 2(29), 63-69.

[50]. GOLDIN, I. (1990). *Comparative advantage: Theory and application to developing country agriculture*. OECD.

[51]. GORTON, M., HUBBARD, C. & FERTO, I. (2013): *Theoretical background and conceptual framework*, 2nd Working Paper of COMPETE Research Project.

[52]. GORTON, M. & DAVIDOVA, S. (2001): *The international competitiveness of CEEC agriculture*. World Economy, 24(2), 185-200.

[53]. GRANOVETTE, M. (1985). *Economic Action and Social Structure: The Problem of Embeddedness.* American Journal of Sociology, 31(5): 481-510.

[54]. GRIER, K. B. & G. TULLOCK (1989). *An Empirical Analysis of Cross-National Economic Growth, 1951-1980.* Journal of Monetary Economics, 24(2): 259-276.

[55]. GUI-DIBY, S. L. (2014). *Impact of foreign direct investments on economic growth in Africa: Evidence from three decades of panel data analyses*. Research in Economics, 68(3), 248–256. http://doi.org/10.1016/j.rie.2014.04.003.

[56]. GUPTA, S.D. (2007): *Comparative advantage and competitive advantage: An economic perspective and synthesis*. In S. S. LODHA, B. P. BHATNAGER & N. SHARMA (Eds.): *Global competitive advantage. Concepts, approaches and perspectives*. Delhi: Abhijeet Publications.

[57]. HANSEN, G.S. & WERNERFELT, B. 1989. *Determinants of firm performance: the relative importance of economic and organizational factors.* Strategic Management Journal, 10: 399-411.

[58]. HARADA, T. (2015). *Structural Change and Economic Growth with Relation-Specific Investment.* Structural Change and Economic Dynamics, *32*,1–10. http://doi.org/http://www.sciencedirect.com/science/journal/0954349X.

[59]. HARDING, T. & RATTSO, J. (2005). *The barrier model of productivity growth in South Africa.*

[60]. HARRISON, R. & KENNEDY, L. (1997): *A neoclassical economic and strategic management approach to evaluating global agribusiness competitiveness.* Competitiveness Review, 7(1): 14-25.

[61]. HECKSCHER, E. (1919): *The Effect of Foreign Trade on the Distribution of Income.* Ekonomisk Tidskrift, 21: 497–512.

[62]. HELPMAN, E. & P. R. KRUGMAN (1985). *Market Structure and Foreign Trade: Increasing Returns, Imperfect Competition, and The International Economy*: The MIT press.

[63]. HOEN, A. R. & OOSTERHAVEN, J. (2006): *On the Measurement of Comparative Advantage.* Annals of Regional Science. 40(3): 677-691.

[64]. HOPPE, M., & NEWFARMER, R. (2008). *Economic partnership agreements and the export competitiveness of Africa (Vol. 4627).* World Bank Publications.

[65]. IMD (2015): *The World Competitiveness Yearbook*, Lausanne, Switzerland

[66]. INTERNATIONAL MONETARY FUND (2008): *The Gambia: Selected Issues and Statistical Appendix*, IMF Country Report No. 08/325.

[67]. INTERNATIONAL MONETARY FUND (2009): *The Gambia: Poverty Reduction Strategy Paper—Annual Progress Report*, IMF Country Report No. 09/75.

[68]. JAMBOR, A. & BABU, S. (2016). *The Competitiveness of Global Agriculture*. In: *Competitiveness of Global Agriculture* (pp. 99-129). Springer International Publishing.

[69]. JAMBOR, A. & BABU, S. (2016). *Competitiveness of Global Agriculture. Policy Lessons for Food Security.* Springer, Switzerland, p199.

[70]. JAMBOR, A. & A. GIBBA. (2017). *Competitiveness in Global Agri-food Trade: The Case of Peanuts*. Bulg. J. Agric. Sci., 23 (2), 177-182.

[71]. JUTTING, J. (2003). *Institutions and development: A critical review* (Vol. 11): OECD.

[72]. KANWAR, S. (2000). *Does the Dog Wag the Tail or The Tail Wag the Dog? Cointegration of Indian agriculture with nonagriculture*. Journal of Policy Modeling, 22(5): 533-556.

[73]. KEEFER, P. & S. KNACK (2005). *Social Capital, Social Norms and The New Institutional Economics.* Handbook of New Institutional Economics, 29(3): 701-725.

[74]. KELLEY, A. C, & R. M. SCHMIDT (1995). *Aggregate Population and Economic Growth Correlations: The Role of The Components of Demographic Change.* Demography, 32(4): 543-555.

[75]. KHAN, M. S, & M. S. KUMAR (1997). *Public and Private Investment and The Growth Process in Developing Countries.* Oxford Bulletin of Economics and Statistics, 59(1): 69-88.

[76]. KIM, D., & MARION, B. W. (1995): *Domestic market structure and performance in global markets: theory and empirical evidence from US food manufacturing industries*. Madison: University of Wisconsin-Madison.

[77]. KNIGHT, L. M. N, & D. VILLANUEVA (1993). *Testing The Neoclassical Theory of Economic Growth: A Oanel Data Approach*. Staff Papers-International Monetary Fund, 32(4): 512-541.

[78]. KORMENDI, R. C, & P.G. MEGUIRE (1985). *Macroeconomic Determinants of Growth: Cross-Country Evidence.* Journal of Monetary Economics, 16(2): 141-163.

[79]. KRUGMAN, P. (1994): *Competitiveness - a Dangerous Obsession*. Foreign Affairs, 73(2): 28-44.

[80]. LATRUFFE, L. (2010): *Competitiveness, Productivity and Efficiency in the Agricultural and Agri-Food Sectors*. OECD Food, Agriculture and Fisheries Papers, No. 30, OECD Publishing.

[81]. LAWRENCE, R. Z, & D. E. WEINSTEIN (1999). *Trade and Growth: Import-Led or Export-Led? Evidence from Japan and Korea*. Journal of Economic Development, 21(9): 321-329.

[82]. LEONTIEF, W. (1953): *Domestic production and foreign trade: The American capital position re-examined.* Proceedings of the American Philosophical Society, 97, 331–349.

[83]. LENSINK, R. H. N, & V. MURINDE (2000). *Capital Flight and Political Risk*. Journal of International Money and Finance, 12(2): 73-92.

[84]. LEVCHENKO, A. A. & ZHANG, J. (2016). *The evolution of comparative advantage: Measurement and welfare implications.* Journal of Monetary Economics, 78, 96-111.

[85]. LEVINE, R. & D. RENELT (1992). *A Sensitivity Analysis of Cross-Country Growth Regressions*. The American economic review, 12(8): 942-963.

[86]. LIPSET, S. M (1959). *Some Social Requisites of Democracy: Economic Development and Political Legitimacy*. The American political science review, 53(1): 69-105.

[87]. LOO, MKL. (2012): *Competitiveness: top five nations last decade and next decade.* International Journal of Business and Management Studies, 1(3): 391-412.

[88]. LUCAS Jr, R. E (1988). *On the Mechanics of Economic Development*. Journal of monetary economics, 22(1): 3-42.

[89]. MAH, J. S. (2015). *Export Expansion and Economic Growth in Tanzania.* Global Economy Journal, 15(1), 173–185. http://doi.org/10.1515/gej-2014-0047.

[90] MANESCHI, A. (1998). *Comparative Advantage in International Trade: A Historical Perspective*. Cheltenham: Elgar. p. 1.

[91]. MARSDEN, T., BANKS, J., RENTING, H. & VAN DER PLOEG, J. D. (2001). *The road towards sustainable rural development: issues of theory, policy and research practice*. Journal of Environmental Policy and Planning, 3, 75-83

[92]. MARTIN, R. (2003): *A Study on the Factors of Regional Competitiveness*. Retrieved fromhttp://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/3cr/competitiveness.pdf [2017 / 01 / 07].

[93]. MASTERS. W. A, & M. S. McMILLAN (2001). *Climate and Scale in Economic Growth*. Journal of Economic Growth, 6(3): 167-186.

[94]. MASTERS, W.A. & WINTER-NELSON, A. (1995): *Measuring the Comparative Advantage of Agricultural Activities: Domestic Resource Costs and the Social Cost-Benefit Ratio.* American Journal of Agricultural Economics, 77(2): 243-250.

[95]. MEDINA-SMITH, E. J. (2001). *Is the Export-Led Growth Hypothesis Valid for Developing Countries? A Case Study of Costa Rica*: NBER Books, p.233-237.

[96]. MERCAN, M., & SEZER, S. (2014). *The Effect of Education Expenditure on Economic Growth: The Case of Turkey*. Procedia - Social and Behavioral Sciences, 109, 925–930. http://doi.org/10.1016/j.sbspro.2013.12.565.

[97]. MEYER-STAMER, J. (2008): *Systematic Competitiveness and Local Economic Development. IN Bodhanya, S. (eds.) Large Scale Systemic Change: Theories, Modelling and Practices.* Nova Science Publishers.

[98]. MUHAMAD, Z. (2014). *The Competitiveness of Malaysian Pineapple in the Global Market.* The 6th International Conference on Postgraduate Education (ICPE-6 2014), At UTEM Melaka

[99]. NATIONAL AGRICULTURAL SAMPLE SURVEY (2016). *The Joint FAO/CILSS/FEWS_NET AND WFP Preharvest Assessment of the 2016/2017 Cropping Season in The Gambia*

[100]. NASREEN, S. (2011). *Export-Growth Linkages in Selected Asian Developing Countries: Evidence from Panel Data Analysis*. Asian Journal of Empirical Research, 1(1): 1-13.

[101]. NAYYAR, D (1976): *India's Export and Export Policies in the 1960s.* Cambridge University Press, Cambridge.

[102]. NDAYITWAYEKO, W.M., ODHIAMBO, M.O., KORIR, M., NYANGWESO, P.M. & CHEPNG'ENO, W. (2014). *Comparative Advantage of the Eastern and Central Africa in the Coffee Export Sector: The Case of Burundi.* African Crop Science Journal, 22(4): 987-995.

[103]. NJIKAM, O. (2003). *Exports and Economic Growth in Sub-Saharan Africa: Is There a Connection*. Faculty of Economics & Management. University of Yaoundé II, Yaoundé.

[104]. NORTH, D. C. (1992). *Institutions and Economic Theory*. The American Economist, 36(1): 3-6.

[105]. NWACHUKWU, I. N., ONYENWEAKU, C. E., NWARU, J. C., MBANASOR, J. A., & DARAMOLA, A. (2014). *Competitiveness in the export demand for Nigerian rubber*. Journal of Agricultural Sciences, 9(1).

[106]. OHLIN, B. (1933): *Interregional and International Trade.* Harvard University Press, Cambridge, USA.

[107]. PETRAKOS, G. A. P, & S. SOTIRIS (2007): *Determinants of Economic Growth: The Experts' View.* Paper Presented at The 2nd Workshop of DYNREG in Athens.

[108]. PORTER, M. E. (2004): *Competitive Advantage: creating and sustaining superior performance*. New York: Free Press.

[109]. PORTER, M. E. (1998): *The Competitive Advantage of Nations.* New York: Free Press.

[110]. PRAHALAD, C.K. & HAMEL, G. (1990): *The core competence of the corporation.* Harvard Business Review, 68, 79-91.

[111]. PRASAD, R. N. (2004). *Fiji's export competitiveness: a comparison with selected small island developing states*. Economics Department, Reserve Bank of Fiji.

[112]. PRITCHETT, L. (2001). *Where Has All the Education Gone?* The World Bank Economic Review, 15(3): 367-391.

[113]. PRIYA, K., Devi, M. K. K., & NAGARAJAN, S. (2015). *Spending on Education Determinant of Economic Growth Using Using Structural Equation Modeling*. International Journal of Applied Engineering Research, 10(7), 17991–18005.

[114]. PROUDMAN, J. & REDDING, S., 1998. *Openness and growth*. London: The Bank of England.

[115]. QINETI, A., RAJCANIOVA, M., & MATEJKOVA, E. (2009). *The competitiveness and comparative advantage of the Slovak and the EU agri-food trade with Russia and Ukraine*. Agricultural Economics (Czech), no. 8: 375–383.

[116]. RICARDO, D. (1817): *On the Principles of Political Economy and Taxation*. John Murray, London, United Kingdom.

[117]. ROMER, P. (1990): *Endogenous technological change*. Journal of Political Economy, 98: 71-102.

[118]. ROMER, PAUL M. (1990). *Endogenous Technological Change*. Journal of Political Economy, University of Chicago Press, 98(5), 71-102.

[119]. ROMER, P. M. (1986). *Increasing Returns and Long-Run Growth.* The Journal of Political Economy, 14(6): 1002-1037.

[120]. SABONIENE, A. (2015). *Lithuanian export competitiveness: comparison with other Baltic States.* Engineering Economics, 62(2).

[121]. SACHS, J. D, & M. WARNER (1997). *Fundamental Sources of Long-Run Growth.* The American Economic Review, 87(2): 184-188.

[122]. SCULLY, G. W. (1988). *The Institutional Framework and Economic Development.* The Journal of Political Economy, 9(32): 652-662.

[123]. SENTSHO, J. (2001). *Export Revenues as Determinants of Economic Growth: Evidence from Botswana*. Journal of Economic Growth, 12*(5)*: 211 - 230.

[124]. SERIN, V., & CIVAN, A. (2008). *Revealed Comparative Advantage and Competitiveness: A Case Study for Turkey towards the EU.* Journal of Economic and Social Research, no: 10:25-41.

[125]. SHARPLES, J., & MILHAM, N. (1990): *Long-run Competitiveness of Australian Agriculture.* Washington D.C.: USDA Economic Research Service.

[126]. SHEPHERD, A., & WAGNER, H. (2013). *An analysis of Hungarian agri-food export competitiveness.* Studies in Agricultural Economics, 115 (3), 150-156.

[127]. SMITH, A. (1776): *An Inquiry into the Nature and Causes of The Wealth of Nations.* Methuen & Co., London, United Kingdom.

[128]. SNOW, C.C. & HREBINIAK, L.G. (1980): *Strategy, Distinctive Competence, and Organizational Performance.* Administrative Science Quarterly, 25(2): 317-336.

[129]. SOLOW, R. M. (1956). *A contribution to The Theory of Economic Growth*. The Quarterly Journal of Economics, 70(1): 65-94.

[130]. STOLPER, W. F. & SAMUELSON, P. A. (1941): *Protection and Real Wages.* Review of Economic Studies 9(1): 58–73.

[131]. SULIMAN, A. H., & ELIAN, M. I. (2014). *Foreign Direct Investment, Financial Development, and Economic Growth: A Cointegration Model.* Journal of Developing Areas, 48(3), 219–243. http://doi.org/10.1353/jda.2014.0041.

[132]. SUPONGPAN K. K., DAWSON, P. J., & LINGARD, J. (2013). *The export competitiveness of the tuna industry in Thailand*. British Food Journal, 115(3), 328-341.

[133]. SURESH, A., & MATHUR, V. C. (2016). *Export of agricultural commodities from India: Performance and prospects.* The Indian Journal of Agricultural Sciences, 86(7).

[134]. SYLLA, F. (2010). *Revitalization of the Groundnut Sector in West Africa (Gambia, Guinea Bissau and Senegal)*. GAIN Report.

[135]. TIFFIN, R. & IRZ, X. (2006). *Is Agriculture the Engine of Growth?* Agricultural Economics, 35(1): 79-89.

[136]. TOMSIK, K., SMUTKA, L., LUBANDA, J.-P. E., & ROHN, H. (2015). *Position of Agriculture in Sub-Saharan GDP Structure and Economic Performance.* Agris On-Line Papers in Economics & Informatics, 7(1), 69–80.

[137]. TOROK, Á., & JAMBOR, A. (2013): *Agri-Food Trade of the New Member States since EU Accession*. Agricultural Economics (Czech), no. 3: 101–112.

[138]. TSAKOK, I. & GARDNER, B. (2007). *Agriculture in Economic Development: Primary Engine of Growth or Chicken and Egg?* American Journal of Agricultural Economics, 89(5): 1145-1151.

[139]. TYLER, W. G. (1981). *Growth and Export Expansion in Developing Countries: Some Empirical Evidence*. Journal of Development Economics, 9(1): 121-130.

[140]. UNITED NATIONS STATISTICAL DIVISION (UNSD). COMMODITY TRADE (COMTRADE) Database (2017), available through World Bank's World Integrated Trade Solution (WITS): Retrieved from: www.wits.worldbank.org [2017 / 02 / 05].

[141]. UNITED NATIONS STATISTICAL DIVISION (UNSD) - NATIONAL ACCOUNTS (2016): Retrieved from: http://unstats.un.org/unsd/snaama/dnlList.asp/Gambia [2016 / 01 / 10].

[142]. VOLLRATH, T. L. (1991): *A Theoretical Evaluation of Alternative Trade Intensity Measures of Revealed Comparative Advantage.* Weltwirtschaftliches Archiv, 130, no. 2: 265–279.

[143]. VOLOS, C. K., KYPRIANIDIS, I. M., & STOUBOULOS, I. N. (2015). *The Effect of Foreign Direct Investment in Economic Growth from the Perspective of Nonlinear Dynamics.* Journal of Engineering Science & Technology Review, 8(1), 1–7.

[144]. WERNERFELT, B. (1984): *A Resource-Based View of the Firm.* Strategic Management Journal, 5(2): 171-180.

[145]. WIDODO, T. (2009): *Comparative Advantage: Theory, Empirical Measures and Case Studies.* Review of Economic and Business Studies, 4(2): 57–82.

[146]. WIJNANDS, J. H. M., BREMMERS, H. J., VAN DER MEULEN, B. M. J., & POPPE, K. J. (2008): *An economic and legal assessment of the EU food industry's competitiveness.* Agribusiness, 24(4): 417-439.

[147]. WORLD ECONOMIC FORUM (2015): *The Global Competitiveness Report 2014-2015*. Geneva, Switzerland.

[148]. WORLD ECONOMIC FORUM (1996): *The Global Competitiveness Report 1995-1996.* Geneva, Switzerland.

[149]. WU, XUE-JUN (2010). *Analysis on Chinese export structure and competitiveness of peanut and peanut products: based on the import and export data from 1997 to 2007.* Chinese Journal of Oil Crop Sciences, 2010/2.

[150]. WYNNE-E. & KATHERINE, E. (1998). *Evolution of Parental Care in Phodopus: Conflict Between Adaptations for Survival and Adaptations for Rapid Reproduction*. American Zoologist, 38(1): 238-250.

[151]. YAO, S. (2000). *How Important is Agriculture in China's Economic Growth?* Oxford Development Studies, 28(1): 33-49.

[155]. YAP, J.T. (2004): *A Note on the Competitiveness Debate.* Philippine Journal of Development, 57(1): 1-23.

[153]. YU, R., CAI, J., & LEUNG, P.S. (2009): *The normalized revealed comparative advantage index*. Annals of Regional Science, 43(1): 267–282.

[154]. YUHN, KY-H & KWON, J. K. (2000). *Economic Growth and Productivity: A Case Study of South Korea*. Applied Economics, 32(1): 13-23.

[155]. ZEB, N., QIANG, F., & RAUF, S. (2014). *Role of Foreign Direct Investment in Economic Growth of Pakistan.* International Journal of Economics and Finance, 6(1), 32–38. http://doi.org/http://ccsenet.org/journal/index.php/ijef/issue/archive.

[156]. ZHANG, K. H & SONG, S. (2002). *Promoting Exports: The Role of Inward FDI in China*. China Economic Review, 11(4): 385-396.

[157]. ZHANG, J., EBBERS, H., & MULDER, R. (2012). *Competitiveness of Chinese Industries in comparison with the EU*. Review of European Studies, 4 (1), the 203rd.

[158]. ZHANG, XIU-LING & LIU, M. (2008). *Experimental Study on the International Competition Power of China's Peanut Industry*. Journal of Henan Agricultural Sciences, 2008/11.

10.14751/SZIE.2017.052

APPENDIX 1: Supplementary Data on Gambia's Agriculture

Table 1. Summary of area (HA) of major field crops from 2011 to 2015 and the percentage change between 2015 and 2016 cropping season

Crop	2011	2012	2013	2014	2015	2016	% Change (2016 over 2015)	5yrs Ave	% Change (2016 over 5-Year Average)
Early Millet	89,499	95127	82,566	78,469.05	69,440.30	74501	7.29	83,020	-10.26
Late Millet	20,986	21693	23,226	22,360.54	21,709.10	21802	0.43	21,995	-0.88
Sorghum	29,576	31091	28,720	27235.18	25,146.00	25220	0.29	28,354	-11.05
Maize	25,256	28288	33,170	36,703.80	36,803.50	34573	-6.06	32,044	7.89
Findi	507	521	491	510.05	1,239.10	1256	1.36	654	92.16
Rice	62,026	63,592	66,380	66286.49	67,651.60	69561	2.82	65,187	6.71
Total Cereal	***227,850***	***240,312***	***234,553***	***231,565***	***221,990***	***226,913***	***2.22***	***231,254***	***-1.88***
Groundnuts	111,924	116,507	100,305	81026.53	82,161	85009	3.47	98,385	-13.6
Sesame	7,778	7,988	1,582	2074.58	3,180.40	3254	2.31	4,521	-28.02
Cowpea	0	0	0	475.46	2,662.30	2783	4.53	0	0
Total Cash Crop	***119,702***	***124,495***	***101,887***	***83,577***	***88,004***	***91,046***	***3.46***	***103,533***	***-12.06***
National Total	***347,552***	***364,807***	***336,440***	***315,142***	***309,993***	***317,959***	***2.57***	***334,787***	***-5.03***

Source: NASS (2016)

Table 2. Summary of production (Mt) of major field crops from 2011 to 2015 and the percentage change between 2015 and 2016 cropping season

Crop	2011	2012	2013	2014	2015	2016	% Change (2016 over 2015)	5yrs Ave	% Change (2016 over 5-Year Average)
Early Millet	72,941	96,467	71527	59,116.33	55968.88	55225	-1.3	71,204	-22
Late Millet	14,293	19,622	22272	17,700.72	18300.77	17881	-2.3	18,438	-3
Sorghum	20,556	23,146	30390	20,289	21625.56	21203	-2	23,201	-9
Maize	23,613	28,934	33060	30,289.39	32019.05	30761	-3.9	29,583	4
Findi	319	367	416	396.33	672.83	798	18.6	434	84
Rice	51,136	54,219	69,704	46,674	53309.46	50326	-5.6	55,008	-9
Total Cereal	***182,858***	***222,755***	***227,369***	***174,466***	***181,897***	***176194***	***-3.1***	***197,869***	***-11***
Groundnuts	83,858	119,614	93,862	80,653	82653.97	80742	-2.3	92,128	-12
Sesame	2,659	2,928	509	1779.41	2232.64	2389	7	2,022	18
Cowpea	-	-	-	-	1759.78	2197	24.8	-	
Total Cash Crop	***86,517***	***122,542***	***94,371***	***82,432***	***86,646***	***85328***	***-1.5***	***94502***	***-10***
National Total	***269,375***	***345,297***	***321,740***	***256,898***	***268,543***	***261522***	***-2.6***	***292,371***	***-11***

Source: NASS (2016)

Table 3. Distribution of area cultivated (Ha) by region 2015

Regions	Maize	Early Millet	Late Millet	Sorghum	Rice	Groundnut	Sesame	*Findo	Cowpea	Total	Percent of total area cultivated
WCR	6,112.50	2,153.80	7,106.20	306.7	15,009.30	11,086.30	624.9	61.2	2,398.00	44,858.90	14.5
LRR	4,447.60	9,194.60	468	1,046.70	11,309.70	9,172.50	638.4	341.7	197	36,816.20	11.9
NBR	4,245.80	18,576.10	758.7	1,035.50	14,212.20	20,510.10	535.2	0	2.5	59,876.10	19.3
CRR / North	5,677.50	15,075.50	2,027.20	2,133.60	9,262.30	11,089.90	751.6	226.9	0	46,244.50	14.9
CRR / South	7,675.10	15,128.70	1,858.30	2,491.80	8,559.70	13,688.50	573.4	437.4	17.2	50,430.10	16.3
URR	8,645.00	9,311.70	9,490.80	18,131.80	9,298.50	16,613.70	56.9	171.8	47.7	71,767.90	23.2
Total Gambia	***36,803.50***	***69,440.30***	***21,709.10***	***25,146.00***	***67,651.60***	***82,161***	***3,180.40***	***1,239.10***	***2,662.30***	***309,993.30***	
Percent of total area cultivated	***11.9***	***22.4***	***7***	***8.1***	***21.8***	***26.5***	***1***	***0.4***	***0.9***		

*Note: ***Findo*** / ***Findi*** is the crop name locally used by Gambians. The global scientific name of the crop is ***Digitaria exilis***.

Source: Planning Services Unit Regional Data, 2015-2016

Table 4. Distribution of crop production (Mt) by region 2015

Region	Maize	Early Millet	Late Millet	Sorghum	Rice	Groundnut	Sesame	*Findo	Cowpea	Total	Percent of total production
West Coast Region	5311.76	1270.74	6153.97	261.92	12637.83	11330.2	506.17	43.08	1911.21	39426.88	14
Lower River Region	3077.74	6804	365.98	928.42	9036.45	9264.23	267.49	128.14	147.75	30020.2	11
North Bank Region	3961.33	21251.06	744.28	960.94	9294.78	20387.04	359.12		2.23	56960.78	21
CRR / North	5643.44	12482.51	1419.04	1973.58	7094.92	10524.32	556.18	156.9		39850.89	15
CRR / South	6132.4	10590.09	1564.69	1846.42	7078.87	13975.96	444.96	307.05	14.67	41955.11	15
Upper River Region	8091.72	7784.58	8408.85	14976.87	7801.44	17294.86	45.35	135.55	32.34	64571.56	24
Total Gambia	***32019.05***	***55968.88***	***18300.77***	***21625.56***	***53309.46***	***82653.97***	***2232.64***	***672.83***	***1759.78***	***268542.9***	
Percent of total production	***11.9***	***20.8***	***6.8***	***8.1***	***19.9***	***30.8***	***0.8***	***0.3***	***0.7***		

*Note: ***Findo*** / ***Findi*** is the crop name locally used by Gambians. The global scientific name of the crop is ***Digitaria exilis***.

Source: Planning Services Unit Regional Data, 2015-2016

APPENDIX 2. Relationship Between GDP and Other Economic Components

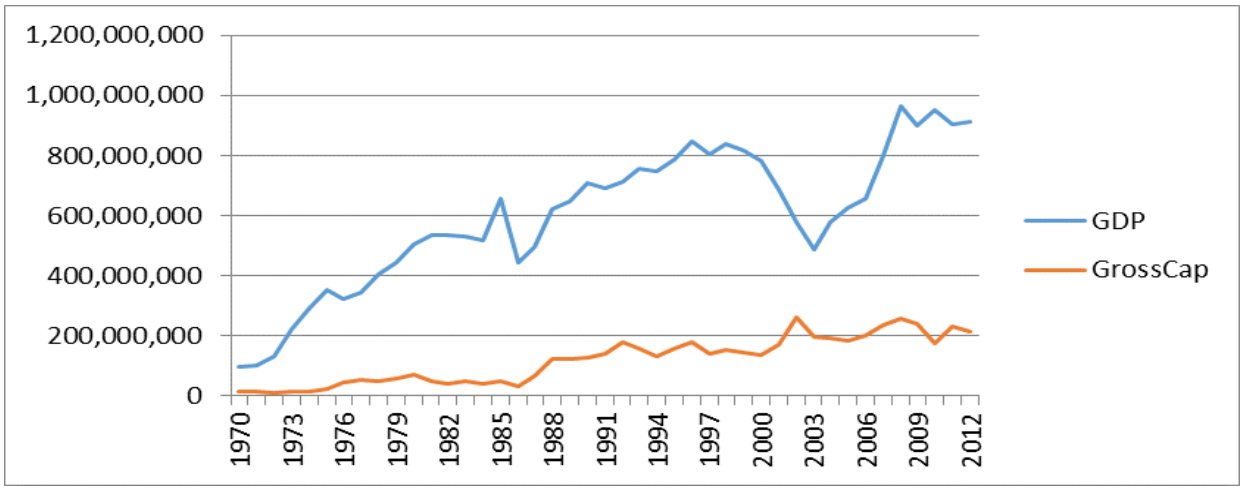


Figure 2.1. Graphical representation of the relationship between GDP and gross capital (in US$) formation

Source: Own composition based on UNSD (2015)

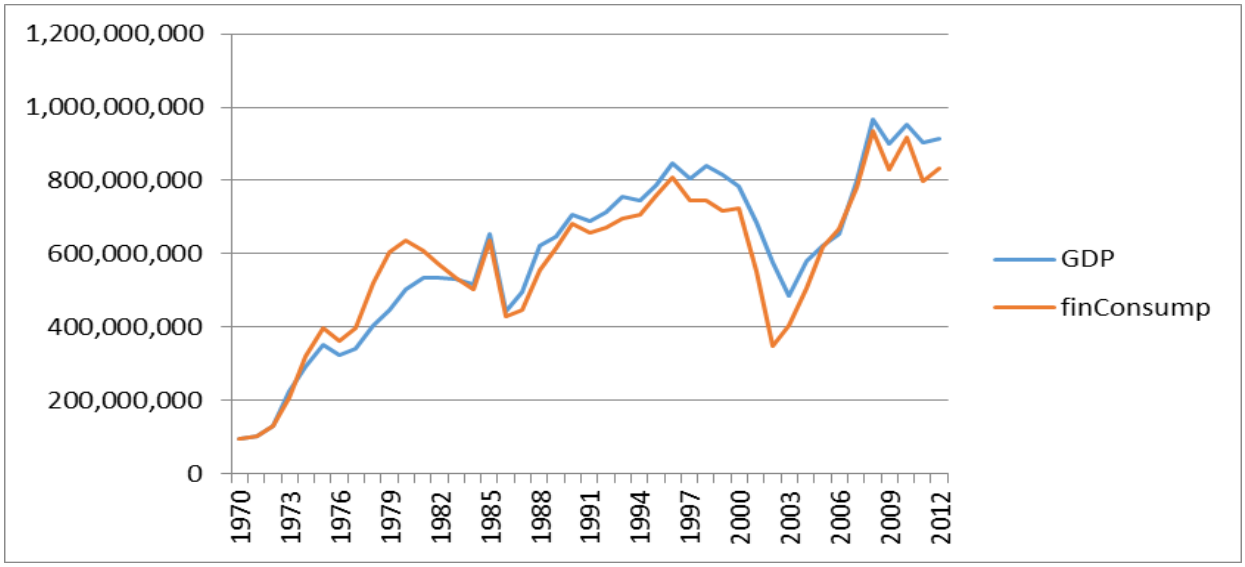


Figure 2.2. Graphical representation of the relationship between GDP and final consumption (in US$)

Source: Own composition based on UNSD (2015)

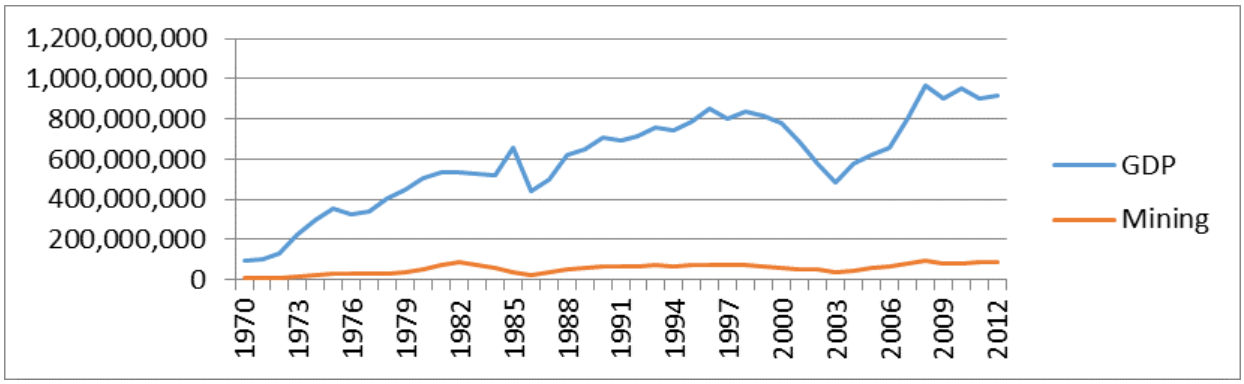


Figure 2.3. Graphical representation of the relationship between GDP and mining (in US$)

Source: Own composition based on UNSD (2015)

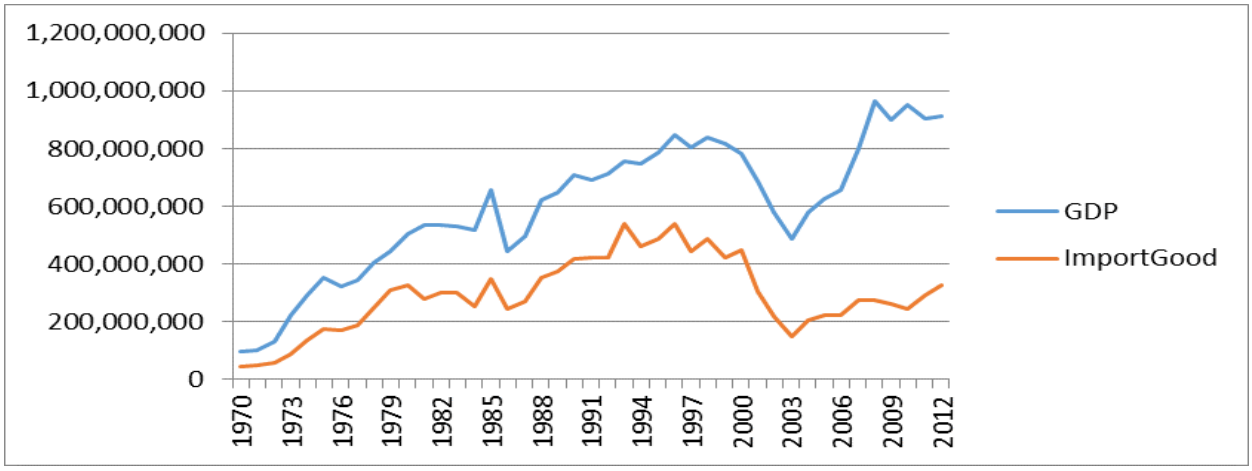


Figure 2.4. Graphical representation of the relationship between GDP and imported goods (in US$)

Source: Own composition based on UNSD (2015)

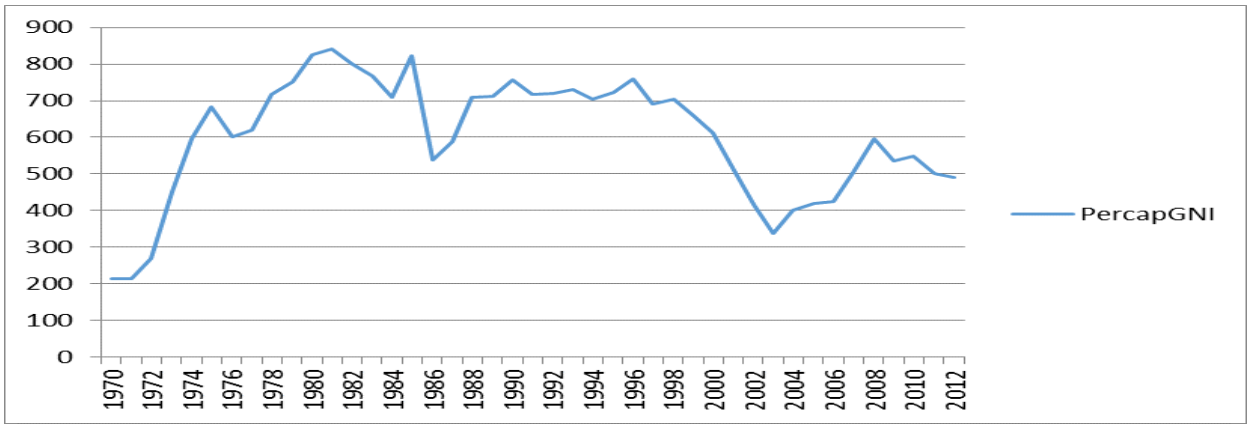


Figure 2.5. Graphical representation of the relationship between GDP and per capita GNI

Source: Own composition based on UNSD (2015)

APPENDIX 3. Causality Tests

Table 3.1. Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
CAPITALINVESTMENT does not Granger Cause AGRI	43	0.01537	0.9020
AGRI does not Granger Cause CAPITALINVESTMENT		0.42855	0.5164
EXPGOOD does not Granger Cause AGRI	43	0.29268	0.5915
AGRI does not Granger Cause EXPGOOD		0.00235	0.9616
FDIPERGDP does not Granger Cause AGRI	43	3.10130	0.0859
AGRI does not Granger Cause FDIPERGDP		0.33826	0.5641
GDP does not Granger Cause AGRI	43	5.02945	0.0305
AGRI does not Granger Cause GDP		2.07358	0.1577
EXPGOOD does not Granger Cause CAPITALINVESTMENT	43	3.15195	0.0834
CAPITALINVESTMENT does not Granger Cause EXPGOOD		5.94609	0.0193
FDIPERGDP does not Granger Cause CAPITALINVESTMENT	43	0.68995	0.4111
CAPITALINVESTMENT does not Granger Cause FDIPERGDP		1.28814	0.2631
GDP does not Granger Cause CAPITALINVESTMENT	43	0.11141	0.7403
CAPITALINVESTMENT does not Granger Cause GDP		3.12684	0.0846
FDIPERGDP does not Granger Cause EXPGOOD	43	0.02660	0.8713
EXPGOOD does not Granger Cause FDIPERGDP		1.21989	0.2760
GDP does not Granger Cause EXPGOOD	43	0.13947	0.7108
EXPGOOD does not Granger Cause GDP		3.34896	0.0747
GDP does not Granger Cause FDIPERGDP	43	3.25881	0.0786
FDIPERGDP does not Granger Cause GDP		3.90179	0.0552

Source: Own calculations based on UNSD (2015)

Table 3.2. Pairwise Granger Causality Tests (cont.)

Null Hypothesis:	Obs	F-Statistic	Prob.
CAPITALINVESTMENT does not Granger Cause AGRI	42	0.02650	0.9739
AGRI does not Granger Cause CAPITALINVESTMENT		0.18211	0.8343
EXPGOOD does not Granger Cause AGRI	42	0.41778	0.6616
AGRI does not Granger Cause EXPGOOD		0.31024	0.7352
FDIPERGDP does not Granger Cause AGRI	42	1.53242	0.2294
AGRI does not Granger Cause FDIPERGDP		0.08406	0.9196
GDP does not Granger Cause AGRI	42	2.18137	0.1272
AGRI does not Granger Cause GDP		1.26094	0.2953
EXPGOOD does not Granger Cause CAPITALINVESTMENT	42	2.07813	0.1395
CAPITALINVESTMENT does not Granger Cause EXPGOOD		3.09175	0.0573
FDIPERGDP does not Granger Cause CAPITALINVESTMENT	42	0.39216	0.6784
CAPITALINVESTMENT does not Granger Cause FDIPERGDP		0.98603	0.3826
GDP does not Granger Cause CAPITALINVESTMENT	42	0.25354	0.7774
CAPITALINVESTMENT does not Granger Cause GDP		1.30027	0.2846
FDIPERGDP does not Granger Cause EXPGOOD	42	0.09881	0.9062
EXPGOOD does not Granger Cause FDIPERGDP		1.77466	0.1837
GDP does not Granger Cause EXPGOOD	42	0.27885	0.7582
EXPGOOD does not Granger Cause GDP		1.71540	0.1939
GDP does not Granger Cause FDIPERGDP	42	1.37400	0.2657
FDIPERGDP does not Granger Cause GDP		1.50810	0.2346

Source: Own calculations based on UNSD (2015)

Table 3.3. GDP has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on SIC, MAXLAG=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.870399	0.3427
Test critical values:	1% level	-3.592462	
	5% level	-2.931404	
	10% level	-2.603944	

**MacKinnon (1996) one-sided p-values.*
Source: Own calculations based on UNSD (2015)

Table 3.4. Augmented Dickey-Fuller Test Equation

Dependent Variable: D(GDP)

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP(-1)	-0.085867	0.045908	-1.870399	0.0686
C	70135863	29420237	2.383933	0.0218
R-squared	0.078618	Mean dependent var		18733568
Adjusted R-squared	0.056146	S.D. dependent var		70884411
S.E. of regression	68865739	Akaike info criterion		38.97861
Sum squared resid	1.94E+17	Schwarz criterion		39.06053
Log likelihood	-836.0401	Hannan-Quinn criter.		39.00882
F-statistic	3.498393	Durbin-Watson stat		1.965481
Prob(F-statistic)	0.068579			

Source: Own calculations based on UNSD (2015)

Table 3.5. FDIPERGDP has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on SIC, MAXLAG=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.258899	0.0001
Test critical values:	1% level	-3.592462	
	5% level	-2.931404	
	10% level	-2.603944	

**MacKinnon (1996) one-sided p-values*
Source: Own calculations based on UNSD (2015)

Table 3.6. Augmented Dickey-Fuller Test Equation

Dependent Variable: D(FDIPERGDP)

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDIPERGDP(-1)	-0.164782	0.031334	-5.258899	0.0000
C	0.697722	0.316538	2.204229	0.0332

R-squared	0.402820	Mean dependent var	0.878140
Adjusted R-squared	0.388255	S.D. dependent var	2.638208
S.E. of regression	2.063452	Akaike info criterion	4.332033
Sum squared resid	174.5712	Schwarz criterion	4.413949
Log likelihood	-91.13870	Hannan-Quinn criter.	4.362241
F-statistic	27.65602	Durbin-Watson stat	1.822594
Prob(F-statistic)	0.000005		

Source: Own calculations based on UNSD (2015)

Table 3.7. CAPITALINVESTMENT has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on SIC, MAXLAG=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.029817	0.2735
Test critical values:	1% level	-3.592462	
	5% level	-2.931404	
	10% level	-2.603944	

**MacKinnon (1996) one-sided p-values*

Source: Own calculations based on UNSD (2015)

Table 3.8. Augmented Dickey-Fuller Test Equation

Dependent Variable: D(CAPITALINVESTMENT)

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CAPITALINVESTMENT(-1)	-0.194401	0.095773	-2.029817	0.0489
C	3.367508	1.603939	2.099524	0.0420

R-squared	0.091315	Mean dependent var	0.458140
Adjusted R-squared	0.069152	S.D. dependent var	4.892769
S.E. of regression	4.720566	Akaike info criterion	5.987130
Sum squared resid	913.6334	Schwarz criterion	6.069046
Log likelihood	-126.7233	Hannan-Quinn criter.	6.017338
F-statistic	4.120157	Durbin-Watson stat	1.886573
Prob(F-statistic)	0.048898		

Source: Own calculations based on UNSD (2015)

Table 3.9. EXPGOOD has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on SIC, MAXLAG=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.655780	0.4460
Test critical values:	1% level	-3.592462	
	5% level	-2.931404	
	10% level	-2.603944	

**MacKinnon (1996) one-sided p-values*
Source: Own calculations based on UNSD (2015)

Table 3.10. Augmented Dickey-Fuller Test Equation

Dependent Variable: D(EXPGOOD)

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXPGOOD(-1)	-0.102859	0.062121	-1.655780	0.1054
C	23293472	14463709	1.610477	0.1150
R-squared	0.062677	Mean dependent var		3347831.
Adjusted R-squared	0.039816	S.D. dependent var		53574168
S.E. of regression	52496787	Akaike info criterion		38.43580
Sum squared resid	1.13E+17	Schwarz criterion		38.51771
Log likelihood	-824.3696	Hannan-Quinn criter.		38.46601
F-statistic	2.741606	Durbin-Watson stat		2.047718
Prob(F-statistic)	0.105402			

Source: Own calculations based on UNSD (2015)

Table 3.11. AGRI has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on SIC, MAXLAG=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.345182	0.1631
Test critical values:	1% level	-3.592462	
	5% level	-2.931404	
	10% level	-2.603944	

**MacKinnon (1996) one-sided p-values*
Source: Own calculations based on UNSD (2015)

Table 3.12. Augmented Dickey-Fuller Test Equation

Dependent Variable: D(AGRI)

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGRI(-1)	-0.187715	0.080043	-2.345182	0.0239
C	30446995	12036343	2.529588	0.0154

R-squared	0.118277	Mean dependent var	3636447.
Adjusted R-squared	0.096772	S.D. dependent var	25980919
S.E. of regression	24691829	Akaike info criterion	36.92724
Sum squared resid	2.50E+16	Schwarz criterion	37.00915
Log likelihood	-791.9356	Hannan-Quinn criter.	36.95745
F-statistic	5.499878	Durbin-Watson stat	2.141806
Prob(F-statistic)	0.023938		

Source: Own calculations based on UNSD (2015)

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ACKNOWLEDGEMENT

Successfully completing a dissertation is one of the greatest achievements in the academic ladder. My gratitude goes to Allah, The Almighty, The Sole Creator of everything and The Only One deserved to be worshipped, for granting me the patience, serenity, wisdom, and knowledge I needed to make this work fruitful. May Allah's peace and blessings be upon the last and final Prophet and Messenger, Muhammad Ibn Abdillaah, his family, noble companions, and all those who follow their path of guidance until The Day of Resurrection.

This work was completed through the unconditional love, prayers, and moral support of my parents, wife, brother, and children. My special appreciativeness is extended to the Doctoral School of Management and Business Administration Sciences for accepting me into the program. Without the sincere support of my main Supervisor, Dr. hc. Prof. Molnar Jozsef, this work would not have been completed; therefore, my gratitude goes to him for his efforts in making this dissertation a reality and a success.

Moreover, I also want to recognize the collaboration and support I received from my Instructors at Corvinus University of Budapest, for supporting the preparation of my dissertation and the successful completion of my studies. Special acknowledgement is extended to Dr. Zsuzsanna Tarr, the head of International Relations at Szent Istvan University, for her benevolence and humanity.

Last but not the least, an exceptional gratitude is extended to my colleague, Nuha Nyassi, for his timely contribution in editing and proofreading the entire dissertation. Thanks to everyone who has directly or indirectly contributed to the success of the doctoral degree.