

**UNIVERSITY OF GHANA**

**ASSESSING THE IMPACT OF EXPORT PROCESSING ZONES ON  
ECONOMIC GROWTH IN GHANA**

**BY**

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## DECLARATION

I do hereby declare that this work is the result of my own research and has not been presented by anyone for any academic award in this or any other university. All references used in the work have been fully acknowledged. Nevertheless, I bear sole responsibility for all errors and omissions inherent in the study.

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## CERTIFICATION

We hereby certify that this thesis was supervised in accordance with the procedures laid down by the University of Ghana.

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## DEDICATION

This work is dedicated to my mother for her support all these years especially in my academic pursuit.

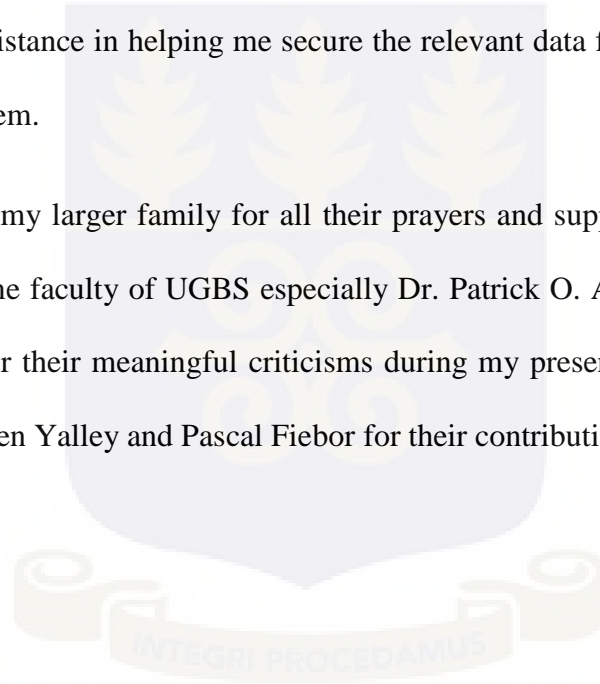


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## ABSTRACT

The study sought to examine the impact of free zones exports and free zones investments on economic growth in Ghana. The quarterly time series data used for this study covered the period 1998 to 2015. Having identified unit roots in our endogenous variables, the Johansen cointegration test was conducted and it came out clear that our three endogenous variables of GDP, free zones exports and free zones investments were cointegrated and this enabled us to use the vector error correction model to ascertain the impact of the free zones programme on economic growth in Ghana with trade openness being used as our control variable.

Results based on the empirical work suggest that both free zones exports and free zones investments have significant negative relationship with our main dependent variable which is the GDP. Trade openness also has a significant negative relationship with economic growth but insignificant positive relationship with our two free zones variables.

On the whole, based on the results of this study, it can be concluded that the free zones programme has not benefitted the country or it has not served its purpose of promoting national economic growth in Ghana. It is therefore suggested that since the free zones concept is actually universally recognised as a second best optimum not meant to be an everlasting policy for economic growth but only play an initiating role in the economic growth agenda, the Government of Ghana should scrap the programme and possibly look at opening up the whole country especially in terms of infrastructure and other incentive provision for all firms so that production or economic activity can freely take place in every corner of the country to realise balanced and more sustainable growth of the economy.

## TABLE OF CONTENTS

DECLARATION .....	i
CERTIFICATION .....	ii
DEDICATION .....	iii
ACKNOWLEDGEMENT .....	iv
ABSTRACT.....	v
TABLE OF CONTENTS.....	vi
LIST OF TABLES .....	x
LIST OF FIGURES .....	xi
CHAPTER ONE .....	1
INTRODUCTION .....	1
1.1 Background of study .....	1
1.2 Problem statement.....	5
1.3 Research purpose.....	9
1.4 Research objectives .....	9
1.5 Research questions .....	10
1.6 Significance of the study.....	10
1.7 Chapter outline .....	11
CHAPTER TWO .....	12
LITERATURE REVIEW .....	12

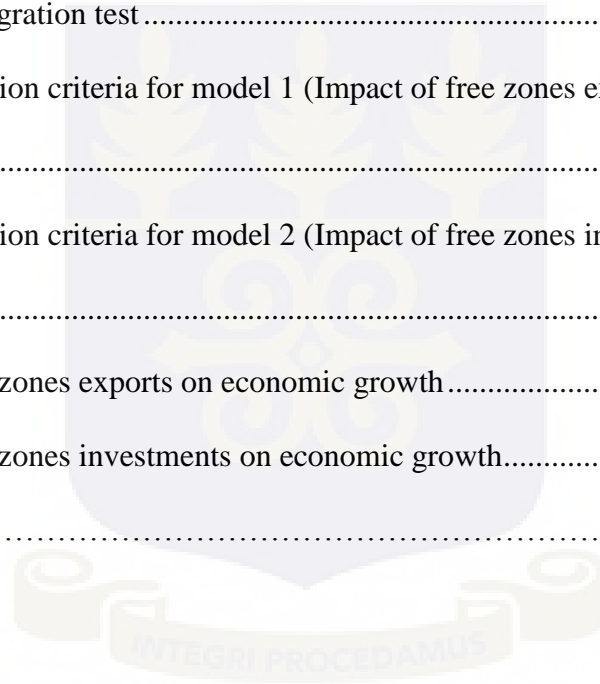
2.1 Introduction .....	12
2.2 Theoretical literature .....	12
2.2.1 The Neo-classical theory .....	12
2.2.2 The cost-benefit analysis .....	13
2.2.3 The New Growth theory .....	14
2.3 Another theory for EPZs - The export-led growth hypothesis (ELG) .....	15
2.4 Empirical literature.....	18
2.5 Conclusion.....	29
CHAPTER THREE .....	30
CONTEXT OF STUDY .....	30
3.1 Introduction .....	30
3.2 A quick overview of Sub-Saharan Africa's economy .....	30
3.3 The Ghanaian economy in perspective .....	32
3.4 Trade liberalisation in Ghana .....	35
3.5 Definition, nature and history of EPZs.....	38
3.6 EPZs in the eyes of international trade rules.....	41
3.7 Worldview on EPZs .....	44
3.8 EPZs in the light of preferential trade (AGOA).....	46
3.9 The Ghana Free Zones Programme in perspective .....	48
3.9.1 Establishment of the Ghana Free Zones Board (GFZB) .....	48

3.9.2 The free zones concept and the zones in Ghana .....	49
3.9.3 The Tema Export Processing Zone .....	50
3.9.4 General incentives offered firms under the Ghana Free Zones Programme .....	50
3.9.5 Investment opportunities and the free zones firms in Ghana .....	51
3.10 Conclusion.....	53
CHAPTER FOUR.....	54
RESEARCH METHODOLOGY.....	54
4.1 Introduction .....	54
4.2 Model specification and definition of variables .....	54
4.3 An overview of simultaneity.....	58
4.4 Testing for unit root.....	60
4.5 Estimating a VAR model .....	62
4.6 Variables and their justifications.....	63
4.7 Sample and data sources .....	65
4.8 Conclusion.....	66
CHAPTER FIVE .....	67
ANALYSIS AND DISCUSSION OF RESULTS .....	67
5.1 Introduction .....	67
5.2 Pre-estimation check - unit root test.....	70
5.3 Johansen cointegration test.....	71

5.4 Lag order selection for the two models .....	73
5.5 Estimation of the vector error correction models (VECM).....	74
5.5.1 Model 1: Impact of free zones exports on economic growth in Ghana.....	74
5.5.2 Model 2: Impact of free zones investments on economic growth in Ghana .....	78
5.6 Robustness check after VECM estimation.....	82
5.6.1 Normality test .....	82
5.6.2 Model stability test .....	83
5.7 Conclusion.....	84
CHAPTER SIX.....	85
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	85
6.1 Introduction .....	85
6.2 Summary of findings.....	85
6.3 Conclusion of study.....	88
6.4 Limitations of the study.....	89
6.5 Recommendations for policy, practice and future research .....	89
REFERENCES .....	92

## LIST OF TABLES

Table 1: Average annual rates of selected indicators (in %) .....	34
Table 2: Global EPZ statistics.....	40
Table 3: Summary statistics .....	67
Table 4: Correlation matrix.....	68
Table 5: Augmented Dickey Fuller test for unit root (for each of the four variables).....	70
Table 6: Lag order selection for Johansen cointegration test .....	72
Table 7: Johansen cointegration test.....	72
Table 8: Lag order selection criteria for model 1 (Impact of free zones exports on economic growth).....	73
Table 9: Lag order selection criteria for model 2 (Impact of free zones investments on economic growth).....	74
Table 10: Impact of free zones exports on economic growth.....	75
Table 11: Impact of free zones investments on economic growth.....	79
Table 12: Normality test.....	83



## LIST OF FIGURES

Figure 1: A graph of free zones exports in relation to national exports .....	52
Figure 2: A graph of free zones investments in relation to total FDI in Ghana.....	52
Figure 3: Graphs of both endogenous and control variables .....	69
Figure 4: Model 1 stability test.....	83
Figure 5: Model 2 stability test.....	83



## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of study

Export Processing Zones (EPZs) have become a key policy tool among developing countries as a means of capitalising on the benefits of globalisation through trade. Following the inefficiencies in the import-substitution policy pursued by most developing countries especially in Sub-Saharan Africa (SSA) in the 1970s, governments of these developing countries saw the need to open up their nations to the world based on export promotion strategy to engender economic growth (Kinunda-Rutashobya, 2003). Import substitution is viewed as a policy that created the incentive structure which was biased against the export sector (Aggarwal, 2005). The introduction of EPZs is therefore seen by the World Bank as a signal of a country's departure from import substitution towards an export-oriented economy. EPZs are also seen as a means of overcoming economy-wide barriers to exports or trade (Cook, 2000). Sub-Saharan Africa's share in world's total exports stood at about 3.74% in the early 1980s and this has declined consistently over the years, reaching a paltry 1.49% in the year 2003 although there was a marginal improvement in the year 2004 (Babatunde, 2009). The paper attributes the situation to the low elasticity of SSA exports to changes in world income.

The EPZ phenomenon is linked to the growing acceptance of globalisation and neo-liberal policies across the developing world (Jauch, 2002). The liberal approach adopted by Sub-Saharan African countries towards EPZs was also an obvious recognition of their manufacturing sector's failure to contribute meaningfully to economic development. On the whole, Africa has

seen declining fortunes in its manufacturing, with the manufacturing sector's contribution to GDP falling from 15% in 1990 to 10% in 2008 (Taylor & Smith, 2007; Vastveit, 2013).

As a typical developing country, Ghana is no exception when it comes to the issue of Export Processing Zones as the nation is faced with rampant unemployment, balance of trade challenges and in dire need of private capital. Not surprisingly therefore, in late 1995, the nation passed a law establishing the Ghana Free Zones Board (GFZB) to facilitate the establishment and promotion of EPZs. The reasons were to see to the generation of employment and foreign exchange, promotion of export, attraction of Foreign Direct Investment and the transfer of technology to promote national economic development. This is mainly due to the fact that a well-designed EPZs programme can bring about many desired benefits for the host country including increases in employment, larger inflow of Foreign Direct Investment (FDI), foreign exchange earnings, technology transfer and international exposure (Chaudhuri & Yabuuchi, 2010; Sargent & Matthews, 2009). EPZs are seen as a first step in the trade liberalisation process in the hope that ultimately, the whole country will operate like a free zone (Jauch, 2002). In the words of DeRosa and Roningen (2003), adopting an economy-wide Free Trade Zone produces far superior economic benefits than with the enclave EPZ.

In economic theory however, EPZs are described as a second best optimum which consists in offsetting the removal of one distortion (a customs duty) with the introduction of another (a subsidy) which undermines their impact on well-being in the host country (Wignaraja, 2002). But according to the World Bank, where countrywide reforms are difficult to implement, EPZs can be a useful weapon in the development arsenal (Watson, 2001). Also, according to Aggarwal (2005), EPZs play a crucial initiating role in the development of industrial capacity of a nation to promote investment and exports.

EPZs have seen massive expansion in the developing world during the past three decades and have been rising since the 1980s (Cling & Letilly, 2001). Globally, the number of zones stood at 3,500 in 2006 with worldwide employment reaching 66 million in 130 countries, with the vast majority of these being in developing countries (Boyenge, 2007). This accounted for 2% of global employment during that year. Locally, as at 2014, over 30,000 people were employed in the zones in Ghana (GFZB, 2015).

Inasmuch as EPZs have existed in various forms over the centuries, the first recognised modern EPZ was established at Shannon in Ireland in the mid-1950s (UNCTAD, 1993). In the developing world, the first zone was set up in Kandla, India in the mid-1960s, and in Sub-Saharan Africa, the first zone was set up in Mauritius in the 1970s (Kinunda-Rutashobya, 2003).

Export Processing Zones are special industrial enclaves that provide duty free relief to export-oriented firms that operate in the zones within a country where goods are stored, distributed, combined with other products, or used in manufacturing operations (Jenkins, 2005). These firms could be wholly foreign owned or domestic, or jointly owned. In Ghana, 30% of the EPZ firms are owned by Ghanaians, 33% are jointly owned with the remaining firms being owned by foreigners (GFZB, 2015).

In the literature, EPZs are variously termed as industrial free zones in countries such as Ghana, Colombia and Madagascar, or Special Economic Zones in China, whereas in countries such as Mexico, Panama and Costa Rica they are called maquiladoras. The programme is thus called Free Zones programme in Ghana simply as a result of the fact that firms operating in the zones enjoy some incentives, although they are globally better known as Export Processing Zones. For this reason, this work makes use of the term Export Processing Zones (EPZs).

EPZs are specifically defined duty free zones which are considered to be "foreign territory" for the purposes of trade operations and duties and tariffs (Yuan & Eden, 1992). The zones are characterised by labour-intensive manufacturing to diversify a country's exports, and generate employment and foreign exchange earnings by attracting foreign capital (Vastveit, 2013).

Also, according to the World Bank, in De Armas and Jallab (2002, p. 6), "An export processing zone is a territorial or economic enclave in which goods may be imported, stored, repacked, manufactured, and reshipped with a reduction in duties and/or minimal intervention by customs officials", and this is the adopted working definition for this research work.

There are a total of four zones in Ghana located in Tema in the Greater Accra Region, Shama and Sekondi both in the Western Region and Boankra in the Ashanti Region, and a firm does not necessarily have to be sited in one of these zones before it can enjoy the status of a free zones enterprise in Ghana. Thus, we have export processing firms (EPFs) which operate outside a delineated enclave but are allowed to enjoy the incentives of a free zones company based on their ability to meet certain requirements.

EPZ firms in Ghana aside benefitting from relatively superior infrastructure, also enjoy fiscal and non-fiscal incentives. These incentives are offered the free zones firms with the aim of reducing the cost of doing business and encouraging investors to increase production while improving the quality of their products to meet international standards (Angko, 2014). And the zones are expected to contribute to national economic development through employment creation, export diversification, foreign exchange generation, attraction of FDI and also stimulate the transfer of needed technology to enhance production. Thus, the main objective of EPZs is to lure export-oriented enterprises to such zones to help promote economic development of especially poor

countries through increase in exports, increase in investments, technology transfer, employment creation among others (Johansson & Nilsson, 1997). But the question is, have the zones been successful in achieving this objective in Ghana, by particularly boosting the nation's exports and investments?

## **1.2 Problem statement**

Although it is generally believed that EPZs have great potential to spur a country on in its quest to develop economically, this is a research area that has received very little attention by scholars especially those in Africa (Kinunda-Rutashobya, 2003). A paper by Farole (2010, p. 4) asserts that "there is lack of systematic data-driven analysis on the performance of economic zones around the world and that, for African policymakers there is virtually no research on the performance of zone programmes in the region". This situation can largely be attributed to the unavailability of data on the subject to conduct any serious research as well as the lack of success in the operations of most zones on the African continent (Angko, 2014).

However, a cursory glance through the literature shows that some few pioneering researches have been conducted on the subject matter with the vast majority of their quantitative works focusing on the neo-classical welfare analysis or cost-benefit approaches e.g. (Beladi & Marjit, 1992; Bhagwati, 1987; Hamada, 1974; Warr, 1987; Yabuuchi, 2000; Young & Miyagiwa, 1987). The trail blazing neo-classical works were by Hamada (1974), and Hamilton and Svensson (1982). The neo-classicals argue that EPZs will not attract domestic investment since they provide a lower return (with all prices assumed to be international) than the protected segment of the economy (Stein, 2012). The neo-classicals again argue that EPZs create distortions and are welfare reducing because the inflows into the zones attract labour from the labour-intensive

sectors of the economy to comparatively more capital-intensive sectors in the zones. The cost-benefit analysis on the other hand sought to quantify the more qualitative evaluations of the zones by arriving at a bottom-line net present value or internal rate of return (Stein, 2012).

According to Tahir (1998), the unavailability of data has led to a situation where expert opinion is used in assessing the impact of EPZs, and this continues to be the situation even up to date. Also this has led to a situation where the few available papers on the subject matter are dominated by case studies (Peter Gibbon, Jones, & Thomsen, 2008). However, on the whole, in spite of these challenges characterising most zone programmes across the developing world, there have been quite some considerable amount of work done on EPZs in Asia, Latin America and the Caribbean although the same cannot be said of Africa (Stein, 2012).

Some economists have very little hope in the ability of EPZs to promote economic development as a result of the fact that only the firms in the zones are offered the largely preferential treatment or incentives whilst the larger economy is most often ignored or at worst closed (Kinunda-Rutashobya, 2003). Thus the zones are treated as an economy within an economy which Aggarwal (2005) argues that it must not be the case because the zones cannot be insulated from the broader economic context of the country. The zones are mostly offered the special treatment simply because most governments have the firm belief that EPZ firms perform better than non-EPZ firms in terms of investment, employment and exports (De Armas & Jallab, 2002). In the case of China for example, Graham (2004) posits that the success of the Special Economic Zones (SEZs) would have been achieved much earlier if the special privileges accorded the SEZ firms were accorded the entire economy earlier.

In some developing countries especially those in Sub-Saharan Africa, the implementation of the programme since the 1970s has had very little impact on economic development. In fact, in countries such as Senegal, Togo, Namibia and Nigeria the EPZ programme has been a complete failure with some of them even unable to repay their expensive initial set up cost (Jauch, 2002; Stein, 2012). Mauritius is the only special case of a successful zones programme as the island nation has succeeded in maximising the returns from the operations of its zones necessitating its perfect description by Wignaraja (2002) as an outlier. Also to some extent, zones in Madagascar, and to a far lesser extent those in Kenya and Lesotho have been relatively successful (Farole, 2010). Mauritius for example saw its Export Processing Zones' exports grow from 3 per cent of total export earnings in 1971 to 52.6 per cent in 1986 and 68.7 per cent in 1994 (De Armas & Jallab, 2002).

However, elsewhere in the developing world, particularly in Asia and Latin America, the zones have contributed significantly towards economic development notably in China (which is the leader in the global EPZs industry), South Korea, Malaysia, Sri Lanka, Indonesia, Bangladesh, Taiwan, Costa Rica and Mexico (De Armas & Jallab, 2002; Islam & Mukhtar, 2011; Jayanthakumaran, 2003; Jenkins, 2005; Sargent & Matthews, 2009; Wang, 2013; Yuan & Eden, 1992), although the same cannot be said of the Philippines Bataan EPZ. Indeed, in the case of China, its Foreign Direct Investment grew substantially in the 1980s as a result of its adoption of the SEZs programme (Graham, 2004). Throwing a bit more light on the Chinese example, in using a unique dataset of Chinese municipalities from the period 1978 to 2007 Wang (2013), found that the creation of the SEZs in that country helped to increase per capita FDI by 58% mainly through foreign-invested and export-oriented industrial enterprises, and also, it saw the growth of Chinese total factor productivity by some 0.6% over the period.

The fate of Ghana with respect to the activities in its EPZs is however not known as there is very little work done on its zones. In fact, the only known published works on Ghana are by Lisa Cook (2000) and William Angko (2014) of the Harvard University and the University for Development Studies respectively. Angko (2014) used the mixed methods of both quantitative and qualitative approaches to conduct his research, employing the use of interviews and questionnaires in which he sampled 100 free zones companies out of a total of 176 based on the Ghana Free Zones Board Annual Report for the year 2007. The main motivation for his paper was to analyse the export performance of free zones firms in Ghana for the period 2003 to 2008, in which the paper sought to find out how well the Ghanaian free zones companies had performed in terms of their contribution to total national exports. Based on statistical inferences, the paper concluded that the free zones exports had been inconsistent and declining over time, accounting for less than 10 per cent of national exports which are largely propelled by the exportation of primary traditional goods. So by and large, the two Ghanaian papers have so far mainly centred on the export performances of the zones in Ghana ignoring the other static or quantifiable benefits of the zones' operations which serve as the objectives for their establishment. The two papers are also generally descriptive or qualitative, with Cook admitting in her discussion paper that it was too early to draw any meaningful conclusions on the success or otherwise of Ghana's zone programme, obviously as a result of the fact that the programme just got underway in 1996. Also, the research data used by Angko spanned the period 2003-2008 although the zones have been in operation since 1996. Aside these, the only best treatment Ghana gets elsewhere is only a mention or at best a description in some few cross-country researches such as Kinunda-Rutashobya (2003), Milberg (2007) and Vastveit (2013) with no precise conclusion on the effectiveness or impact of its zones programme on economic growth.

The current study is therefore relevant because EPZs the world over have received very little attention by the research community, and the case of Ghana is even more pathetic, with the few works done on Ghana so far being generally descriptive or qualitative. The Ghanaian studies so far have also mainly focused on the export performances of the zones, ignoring their contributions in terms of investment generation and other quantifiable benefits, with inconclusive or imprecise findings concerning their total contribution to national economic growth. Also, considering the fact that the few Ghanaian studies have suffered from data limitations, this paper uses a more recent dataset on Ghana's zones and also with a longer time frame.

### **1.3 Research purpose**

Export Processing Zones are viewed by international organisations such as UNIDO and the World Bank and also governments of third world countries as a panacea to solving the myriad of economic challenges facing those countries. The potential of EPZs to fulfil this vision has however produced mixed results with different countries posting different results on their efficacy. In Sub-Saharan Africa, with the exception of a few countries such as Mauritius and Madagascar, the picture for the rest of the countries is gloomy. The case of Ghana is however inconspicuous as very little work has been done on its zones although these zones are set up to contribute to the total economic growth of the country in terms of generation of exports, investment, employment, foreign exchange and technology transfer. The purpose of this paper is therefore to evaluate the success or otherwise of the Ghanaian zones in terms of their impact on national economic growth through their export and investment generation capabilities.

### **1.4 Research objectives**

The specific objectives of this study are:

1. To examine the impact of free zones exports on economic growth in Ghana.
2. To investigate whether investments in the free zones in Ghana cause economic growth.

### **1.5 Research questions**

1. Do exports from Ghana's free zones cause economic growth?
2. Do free zones investments cause economic growth in Ghana?

### **1.6 Significance of the study**

As mentioned earlier, the subject of Export Processing Zones as a research area has received very little attention particularly in Ghana. This work therefore serves as a first-hand document detailing the full contributions of Ghana's Export Processing Zones to the national economic growth agenda in terms of their exports and investments. It therefore comes in handy as a source of reference to the research community and society as a whole complementing the few existing papers.

Since Export Processing Zones require various fiscal and non-fiscal incentives including superior infrastructure and also sound macroeconomic environment to ensure success in their operations, this paper therefore offers policy makers the opportunity to know how much attention and treatment they should accord the zones taking into consideration their contributions to the overall economic growth of the country. Thus the paper helps government to know whether the zones are living up to expectation in fulfilling the objectives for their establishment, while at the same time proffering some relevant suggestions on the right measures to put in place on the macroeconomic front to help EPZ firms in their operations.

In terms of Export Processing Zone practitioners, this piece of research helps them to also know how much contribution they are making towards Ghana's economic growth. It affords industry players the opportunity to know where they are lagging behind in order to take the necessary steps to enhance their operations aimed at fulfilling their mandate.

### **1.7 Chapter outline**

This thesis is made up of six chapters. Chapter one introduces the work, giving a background of the concept of EPZs, stating the research problem, research objectives, research questions, significance of the study and limitations of the study. Chapter two deals with a review of the relevant theoretical and empirical literature on the subject matter. Chapter three throws more light on the free zones programme in Ghana. Chapter four is the research methodology which discusses the data and data sources used in the study and also the appropriate scientific method used in answering the research questions. In chapter five, the findings of the study are analysed scientifically to make them more meaningful and understandable. Lastly, in chapter six, the work is summarised and appropriate conclusions drawn while proffering the right recommendations to industry players as well as the general public.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter highlights the theoretical underpinnings of the study and also gives an empirical review of the Export Processing Zones literature. The theoretical literature throws light on the various theories of EPZs in terms of their impact on economies of emerging nations. The empirical literature on the other hand describes various empirical researches that have been objectively and systematically carried out that are of significance to the topic under review.

#### **2.2 Theoretical literature**

In order for host governments of EPZs to benefit from their perceived advantages, they bear certain costs which could actually be substantial, such as infrastructure expenses and subsidies in public services. Therefore, in order to evaluate the net contribution of zones on a host country as a trade policy tool, all the relevant factors must be considered. Thus in the literature, EPZs are said to incorporate neo-classical, cost-benefit and new growth theories, and these according to Madani (1999) are effectively the methodologies used to assess the merits or failings of this trade policy tool.

##### **2.2.1 The Neo-classical theory**

The neo-classical theory which is based on the Heckscher-Ohlin two goods - two factors - two countries framework and assessed on the Rybczynski effect suggests that EPZs have a negative welfare effect on a country and that the creation of zones increases inefficiency by distorting production away from a country's comparative advantage (Hamada, 1974). The theory argues that the FDI that flows into the zones means that capital is imported while labour is withdrawn

from the domestic sector to work on it, and as the production of capital-intensive good increases, that of the labour-intensive domestic good decreases and this distorts production away from its factor-based comparative efficiency (Madani, 1999).

However, Devereux (1995) expanded on Hamada's analysis by adding volume of trade as well as factor terms of trade effects, and came up with a conclusion that EPZs are likely to be welfare increasing under a much broader spectrum of situations than previously thought, arguing that EPZs will most likely enhance the liberalisation in tariff regime.

Meanwhile, Warr (1987) who emphasises the footloose nature of EPZ firms dismisses the neo-classical theory on the grounds that the theory is based on the Hecksher-Ohlin model of production which fails to capture the international mobility of capital goods - which is central to the functioning of EPZs. He thus argues that the main conclusion that EPZs necessarily reduce the welfare of countries is thus largely irrelevant for EPZs as they actually operate.

Again, the neo-classical theory suffers criticism for the fact that it is based on the assumption of full employment whereas most developing countries grapple with the problem of unemployment or underemployment (Madani, 1999). Johansson (1994) also argues that the approach fails to recognise the spillovers from FDI into the economy. Lastly, the theory is criticised on the grounds that the Hecksher-Ohlin analysis is based on final goods whereas most of the EPZ goods are intermediate in nature (Madani, 1999).

### **2.2.2 The cost-benefit analysis**

The cost-benefit approach which is the second commonly used tool to assess the performance of EPZs calls for calculations of all costs and benefits associated with the zones (Warr, 1987). It

thus involves the discounting and calculation of net present values of streams of all revenues and costs for the government, the workers and the society as a whole (Madani, 1999).

This painstaking process offers an opportunity to think carefully about the costs and benefits incurred by or accrued to a nation in adopting an EPZ programme. Pioneering papers such as Warr (1987) which employed the use of the cost-benefit methodology advocated the use of EPZs as a development policy tool, although later papers in the 1980s and 1990s described EPZs as good but limited tools to use in export promotion policies.

This process is however bedevilled with problems such as inadequate data for the analysis, and poor or inaccurate assumptions concerning rate of returns to capital, social discount rate, and social benefits due to the fact that costs are more readily observable than benefits and this could affect the outcome of the cost-benefit analysis (Madani, 1999).

### **2.2.3 The New Growth theory**

Finally, the new growth approach to EPZ analysis which highlights the spillovers from FDI and zone activities on the host economy such as labour and management on-the-job training and learning by doing, copying, demonstration effects and catalyst factor seeks to address the shortcomings in the neo-classical approach (Madani, 1999).

The new growth approach according to Johansson (1994) provides three key additions to the neo-classical analysis by pointing out that domestic firms with their limited internal and external resources available to them lack the "capacity to package" technical, marketing and managerial know-how, and this packaging is provided by FDI, and in the zones. Secondly, domestic firms hardly have access to international distribution channels on their own and this is where international or joint venture firms come in to help and show the way to domestic exporters.

Lastly, entry into international markets would be difficult without inroads already created by connection with an established multinational corporation. Johansson (1994) asserts that once these elements are added to the traditional analytical approach, EPZs may be beneficial to the host country due to their spillovers and other catalytic impact.

### **2.3 Another theory for EPZs - The export-led growth hypothesis (ELG)**

The concept of EPZ is also firmly grounded in the export-led growth (ELG) hypothesis which postulates that producing for the export market can serve as an effective engine of economic growth (Balassa, 1978; Kavoussi, 1984; Krueger, 1978; Olson, Pilcher, & Whitman, 2014; Ram, 1987). This is mainly because the EPZ concept seeks to woo investors, especially foreign investors to site in the zones or elsewhere in the economy to take advantage of favourable investment climate coupled with vastly generous trade incentives in order to produce mainly for export in the firm belief that by producing for the limitless world market, the domestic economy will benefit greatly. Abou-Stait (2005) posits that an ELG strategy seeks to provide producers with incentives to export their goods through various policies. African countries have a great potential to benefit from export-oriented growth based on the development and use of EPZs.

Many reasons account for the popularity of the export-led growth hypothesis among policy makers and academics who argue that exports are a key factor in promoting economic growth particularly in developing countries. From a demand-side perspective, because of the limited size of domestic markets, they cannot maintain sustained growth unlike the limitless export markets which can serve as a catalyst for output growth through an expansion of aggregate demand because they do not involve restrictions on the demand side (Siliverstovs & Herzer, 2007). In its crude form the ELG hypothesis predicts that exports have an indirect growth impact that goes

beyond the mere change in export volume to impact on output through productivity (Dreger & Herzer, 2013).

Exports are a key source of foreign exchange which can reduce the pressure on a country's balance of payments. The foreign exchange is also used in the importation of needed capital goods used in the production of goods and services. The ELG strategy also enhances the capability of a country through the use of advanced technology to produce quality goods that can compete in the world market to help integrate the economy into the world economy in order to reduce the impact of external shocks on the domestic economy (Jordaan & Eita, 2009). Exports have an accelerating impact on the domestic economy through technological spillovers and other externalities which allow domestic production to achieve economies of scale and all these help to contribute to the general development of the domestic economy, and this is attested to by the examples of the East Asian economies (Jordaan & Eita, 2009). Also, Konya (2004) argues that an outward oriented trade policy through the use of the ELG strategy brings many positives such as technological change, capital efficiency, labour productivity and capital efficiency to the domestic economy which promote economic growth in the long run.

In fact, there are countless number of papers that have looked at the effect of exports on economic growth in the light of the ELG hypothesis in different countries which have actually concluded that exports have positive impact on growth such as those by Giles and Williams (2000), Jordaan and Eita (2009) and Olson et al. (2014). On the other hand, works such as Afzal and Hussain (2010) and Dreger and Herzer (2013) hold an opposing view to the one above concerning the potency of exports to promote economic growth.

The positive productivity effects associated with ELG strategy do not necessarily occur in many contexts or settings especially in the developing countries where the vast majority of Export Processing Zones are sited. This is because most of these countries are heavily dependent on primary commodity exports which mostly makes them shift from the highly competitive manufacturing sectors which generate many externalities required for the sustainable growth of the economy unlike the primary exports sector (Herzer, 2007). The minerals that form the chunk of the primary exports of most poor countries are mined in enclaves which makes the leading export sector have few linkages with the rest of the economy and this reduces the impact of the main sector as stimulus on the other sectors of the economy (Di John, 2011). These primary exports also tend to have unstable prices which may cause macroeconomic uncertainties which can affect proper economic planning and reduce the efficiency of domestic investment (Dreger & Herzer, 2013).

One thing that makes the use of the ELG strategy effective is the ability of the non-export sector to absorb potential knowledge spillovers from the export sector and this is highly dependent on the absorptive capacity of the domestic economy. However, in most developing countries where there are many low-skilled workers and firms are domestically oriented and use backward production technology, knowledge spillovers are not effectively utilised and this reduces the effectiveness of the ELG strategy (Dreger & Herzer, 2013). Also, the over-regulation of the business environment in most developing countries makes the mobility of the various factors of production between the various sectors a challenge for which reason an increase in exports may actually be associated with underemployment, and this leads to losses in productivity.

## 2.4 Empirical literature

Export Processing Zones have been used as a trade policy tool in many developing countries over the last four decades with host governments giving vastly generous trade incentives or subsidies to export-oriented firms in the hope that some benefits from the operation of the zones will accrue to the country to promote economic growth. However, over the years, the use of EPZs has produced varied economic results for different transitional countries in terms of associated benefits such as increased exports, foreign exchange earnings, employment creation, attraction of FDI, transfer of technology among others.

Although governments have different objectives for the establishment of EPZs, the ultimate aim is that zones will serve as a laboratory whereby if they are successfully deployed, the conditions in the zones will be replicated elsewhere in the domestic economy in order to liberalise it so as to promote the economic development of the host country. And as the name implies, the main goal for the adoption of the programme is to increase particularly the non-traditional exports of the domestic economy in order to make needed foreign exchange available. The foreign exchange earnings from the zones allow low income economies to slacken the foreign exchange constraints regarding their import needs for the rest of the economy and also make critical development funds available to governments (Madani, 1999). It is generally believed that EPZs can make great impact in terms of the net contribution to the balance of payments account of a poor country (Tahir, 1998).

Empirically, many researchers have sought to look at the various aspects of EPZs in terms of their contribution to the host economy. One such key paper was a World Bank paper by Madani (1999) who reviewed the role and impact of EPZs on host economies across the developing world with special emphasis on the two contrasting programmes in Mauritius and Senegal.

Madani concluded in his paper that EPZs did not generally fulfil the role of engines of industrialisation and growth as it had been anticipated. The zones had however been successful in contributing to job creation and income generation with their lasting legacy being their contribution to the building of human capital, and through their demonstration and catalyst effects on the host country's entrepreneur pool. The paper asserts that the zones had been an engine when they had been given their proper place as a policy tool. Meanwhile, the paper concedes that it was limited by the unavailability of data on zones especially in Sub-Saharan Africa.

Madani however offers some practical suggestions or lessons for the operation of zones. The first is that governments must perform a careful analysis of the incentives they offer vis-à-vis their costs to the country, and the type of industries and investments they attract into their respective countries. Second, subsidies need to be in agreement with WTO rules and time-lines on export promotion instruments. Third, governments need to permit locationally diverse zones and export processing firms (EPFs) while ensuring the adequate provision of infrastructure in the form of roads, electricity, water and sewage disposal. Fourth, governments must encourage the establishment of privately owned and run zones, or if interested in establishing and running public zones, governments must ensure minimal bureaucratic red tape by providing zones with autonomy from the central government. Lastly, governments must make maximum use of preferential trade arrangements including multilateral trade agreements because they enlarge a country's potential market size and also influence the country's attractiveness.

De Armas and Jallab (2002) also looked at the role and impact of EPZs on host countries' economies in world trade with special focus on their foreign exchange earnings potential, FDI, technology transfer and employment effects. The researchers chose to focus mainly on the

Mexican maquiladoras because of the abundance and quality of available data, and because of its proximity to the US market, which makes it a good example of the international division of labour. The available data used for the study spanned the period 1988-2000. The paper found out that the maquiladoras in Mexico had been successful in creating employment for those at the end of the skill and income distribution in the Mexican society and had been crucial in reducing the impact of the 1994-95 economic crisis. According to the paper however, the maquila industry had not been successful in generating foreign exchange for the economy due to its high import composition, and had been overall disappointing in its role as an engine for the modernisation and growth of the industrial sector in Mexico.

In a study of eleven economies across the developing world from 1980-1992, Johansson and Nilsson (1997) looked at the catalytic effects of EPZs on economic development. The paper found that EPZs had increased total exports of several poor countries, and those countries with an outward-looking trade strategy were more likely to benefit more positively in terms of their exports. The paper which used the log linear version of the gravity equation however concedes that due to data limitations, the existence of catalyst effect could only be ascertained for Malaysia whose export-generating effect from its EPZs is larger than the exports from the zones, indicating the presence of catalyst effect consistent with the idea gap concept propounded by Romer (1993). This shows that EPZs may contribute to economic growth by bringing export know-how to the host country which reduces the presence of idea gap found in many emerging countries.

Cling, Razafindrakoto, and Roubaud (2005) using first-hand data from 1991-2003 also studied the impact of the Madagasy EPZs or the Zone Franche on the economic development of that country. The paper found out that the EPZs in Madagascar have had massive impact on that

country's economy in terms of exports and jobs with average wages in the zones being equivalent to the other formal activity sectors in the economy and with higher than average labour standards. The paper which used Ordinary Least Squares (OLS) method also admitted that the Zone Franche had benefitted greatly from the African Growth and Opportunity Act (AGOA).

Sargent and Matthews (2009) also studied the two biggest EPZs nations in the world - China and Mexico - in terms of their FDI quality and plant mortality. They examined the characteristics of surviving and non-surviving plants to determine whether maquila losses occasioned by the massive increase in Chinese exports to the US market (which caused the loss of more than 800 zones and nearly 300,000 jobs) concentrated in low, medium or high quality segments. The study found that larger maquilas and plants producing auto parts experienced lower mortality rates based on a unique firm-level dataset consisting of 101 plants in five major industrial centres. The OLS-driven study also found no significant relationship between the use of technology-intensive production systems, just-in-time inventory practices, total quality management, attractive human resource management practices, and maquila survival. On the whole, the increase in Chinese exports has contributed to relatively high rates of maquila mortality in low, medium and high quality segments of the Mexican EPZs.

For his part, Kinunda-Rutashobya (2003) explored the potentiality of EPZs as a development strategy for Sub-Saharan African countries using Mauritius as a case in point. It was put forward by the paper based on the very successful Mauritian EPZ example, that EPZs can play a critical role in the economic and social development of a country and that even they could be more successful if employed as an overall trade-oriented reform programme aimed at opening up the whole economy rather than being treated as enclaves. In the case of Mauritius, the paper claimed that that country's dramatic economic miracle was largely propelled by its adoption of the EPZ

programme as part of a concerted effort to liberalise the whole economy and this has led to a situation where it is now categorised by the World Bank as a solid middle-income country with an annual growth rate of 6 per cent and a GNP per capita of \$3,700 which is the highest in the sub-region (Kinunda-Rutashobya, 2003). Kinunda-Rutashobya (2003) assigns a lot of reasons to the success of the Mauritian EPZ programme chief among which is the country's ability to monitor the incentives offered the free zones firms from time to time in order to make the necessary changes as and when it becomes necessary. Secondly, EPZ firms have been well diversified to include high value-added goods such as electronics, and lastly, periodic macroeconomic adjustments such as the devaluation of the Mauritian rupee are made to encourage the growth of EPZs.

Using Generalised Least Square (GLS) estimation technique, Aggarwal (2005) examined the factors that are crucial for the successful operation of EPZs. He used the three nations of India, Sri Lanka and Bangladesh in South East Asia for his study. The paper found out that the location of the zone, incentives offered, infrastructure and governance are the key determinants of the success of zones. However, zone size does not play a significant role in determining the performance of the zones in terms of exports and investment inflows. This paper also laments the unavailability of quality data for the study.

In a later study on the impact of SEZs on the Indian economy, Aggarwal (2007) discovered that the zones in India had contributed greatly to remunerative female employment albeit at the regional level. The paper which used both primary and secondary data from the three big SEZs in India posits that employment generation is the most significant channel through which the Indian zones lend themselves to human development concerns. The paper however finds a limited impact in terms of the role of the SEZs in human capital formation and the upgrading of

technology, adding that the full impact of the zones in India could not be determined because of the limited success of the zones in attracting investment and promoting exports.

In his paper, Graham (2004) sought to find out if EPZs attract FDI and its associated benefits based on the Chinese experience. The paper came up with a finding that suggests that the success of the Special Economic Zones in China helped that country enormously in attracting huge Foreign Direct Investments into that country. This finding gives credence to the assertion by the World Bank that where country-wide reforms are difficult to implement, SEZs/EPZs can serve as a useful weapon in the development arsenal of a country. The paper admonishes that although EPZs might achieve catalytic effects in other nations that want to learn from China, they should not draw overly optimistic conclusions from the Chinese experience because the desired effects will obtain only if the necessary elements are put into place.

The Sub-Saharan nation of Rwanda was also studied as a free trade zone (FTZ) by DeRosa and Roningen (2003). Their paper investigated the potential economic impact of establishing the whole of Rwanda as a FTZ based on the review of economic theory and experiences from the use of EPZs by other poor countries. The paper which used the trade simulation model confirms the superiority of adopting an economy-wide FTZ for economic welfare, exports and employment, particularly in agriculture.

Stein (2012) studied Sub-Saharan Africa's industrial policy and EPZs, drawing on lessons from Asia. The paper outlined the significance of industrial policy to the successful management of industrial zones, claiming that there are difficulties that confront Africa in zone implementation, such as the potential fallacy of composition problem which occurs when too many nations produce the same types of labour-intensive goods. The paper which recommends an industrial

policy approach that uses better sequencing and incentives to use local inputs and the encouragement of joint venture formation between FDI and local capital, however concludes by saying that zones should not be seen as a panacea for solving the myriad of complex economic challenges facing the African continent, although well designed zones can enhance Africa's developmental competitiveness.

Cling and Letilly (2001) in an examination of the impact of EPZs on economic development of the host country, surveying the experiences of several emerging countries concluded that the hopes pinned on EPZs by poor countries are often excessive as aspects of globalisation and WTO regulations prevent EPZs from realising their full potential. The paper however agreed in its findings with Boyenge (2007) that zones in Asia and Latin America had been the most successful. The paper also decried the poor quality of statistical information concerning the size, structure of sectoral activities and the fiscal regimes used in the management of zones, adding that the only global level data available to the World Export Processing Zone Association (WEPZA) is not published.

Using a unique dataset from Chinese municipalities from 1978-2007, Wang (2013) assessed the impact of SEZs on economic development in terms of FDI attraction. His results indicated that adopting SEZs does not only bring needed capital, but also more advanced technology, and provide important implications in terms of policy formulation for poor nations. Specifically, the study which employed the use of panel regression found that the use of the SEZ programme in China increased per capita FDI by 58 per cent in the form of foreign-invested and export-oriented industrial enterprises and also increased total factor productivity at a growth rate of 0.6 per cent while ensuring that there was no crowding out of domestic investment. The paper

among other things however could not offer any precise conclusions on whether or not SEZs raised municipal welfare during the period.

Jayanthakumaran (2003) conducted a study on the performance of EPZs, using a cost-benefit analytical framework through a survey of the available literature. The paper focused on some six key Asian countries using the enclave model. The study found that zones in South Korea, China, Malaysia, Sri Lanka and Indonesia had been economically efficient, generating returns well above estimated opportunity costs. Zones in the Philippines however generated negative net present value (NPV) due to the huge infrastructure costs incurred in setting up the zones in that country. Also, zones in all countries had been a key source of employment creation, although as industrialisation takes place, the gap between the market and opportunity costs of labour narrows and the interest in the EPZ policy reduces, although this may hold only if zones generate private profit to domestic shareholders.

Using annual GDP growth rate as the dependent variable in a regression analysis, Islam and Mukhtar (2011) also explored the contribution of EPZs on economic development in Bangladesh in terms of employment, exports and investment. The writers used time series data from the period 1983 to 2008 and found that EPZs played a significant role in the economic development of Bangladesh over the period. For example the EPZ programme contributed more than 17 per cent to gross exports and generated nearly 22 per cent of national employment with females accounting for more than 64 per cent of the employment.

Engman, Onodera, and Pinali (2007) also reviewed EPZs from an economic and trade rule perspective for the Organisation for Economic Co-operation and Development. Their study focused on three BRICS nations of Russia, India and China. The study came up with a

compelling conclusion that EPZs are a sub-optimal policy from economic point of view because the policy benefits a few and distorts the allocation of scarce resources, although it may serve as a useful stepping stone in the trade liberalisation agenda especially for poor countries. The paper, while advising governments to thoroughly consider all available policy options and also to do a proper cost-benefit analysis before the implementation of an EPZ programme, also advises that the policy should not be viewed as a substitute for an overall national economic reform.

Milberg (2007) for his part surveyed recent evidence on EPZs in terms of their size and scope, recent changes in strategy of EPZs and regulation as well as the impact of EPZs on economic development across the developing world from 2002 to 2007. The most important finding from the study was that, EPZs had grown greatly over the study period in terms of number of zones, employment created and their share of world exports. This was mainly brought about by the expansion of the scope of the zones into higher value sectors of production especially in IT-enabled services. This growth was particularly profound in China, India and some other transition economies of Central and Eastern Europe.

In his study of the economic and social impact of EPZs in Costa Rica, Jenkins (2005) found out that EPZs can play an important role in the industrial diversification of the host country's exports composition, and also serve as an effective policy instrument for attracting FDI. The regression-based study however also discovered that EPZs played a limited role in the development of backward regions of the host country.

In his qualitative study, Vastveit (2013) examined the textile and apparel exports from the EPZs in Kenya and Lesotho. Although the paper found out that the zones in the two Sub-Saharan African countries had been moderately successful in comparison to other SSA zone programmes,

in creating employment and generating foreign exchange mainly through the textile and garment industry, these had been made possible largely through the African Growth and Opportunity Act (AGOA) preferential trade agreement. The paper however admits that the uncertainty surrounding the continuation of the AGOA framework is a significant source of vulnerability in the operation of the zones in those two countries leading to fluctuations in investments and also the low level of backward linkages with the other sectors of the economy particularly in Lesotho.

In terms of the domestic Ghanaian EPZ/free zones programme, the only relatively detailed papers, although generally descriptive or qualitative till date are by Cook (2000) and Angko (2014) who both looked at the export performances of the free zones programme in Ghana, with Cook admitting in her paper that it was too early to draw any meaningful conclusion from the programme. Angko (2014) for his part who looked at the impact of the zones on the Ghanaian economy in terms of their export performance from the period 2003 to 2008, only surveyed 100 free zones firms out of 176, and based on statistical inferences, concluded that the free zones exports had been inconsistent and declining over time accounting for less than 10 per cent of national exports which are largely propelled by the exportation of primary traditional goods. The paper however concedes suffering from the lack of quality data, recommending a more sophisticated analysis of the phenomenon.

Generally, in the literature, there is consensus that the adoption of EPZs helps the host country to attract more FDI (Chaudhuri & Yabuuchi, 2010; Graham, 2004; Wang, 2013). It is however crucial to state here that a myriad of other factors account for the attraction of FDI into many countries, as the FDI literature is replete with some of these factors key among which include location, incentives, infrastructure and governance. In the case of the incentives, most governments strive to attract foreign firms by providing these firms with tax holidays, import and

export duties exemptions, subsidised infrastructure and limits on the rights of workers, and these of late to a large extent are achieved through the EPZ platform especially in the developing world (Mwilima, 2003). The rationale behind the incentive scheme is to make the host country an attractive investment destination compared to other countries and also to make the cost of doing business less expensive. Also, on the issue of location, traditional FDI papers such as Krugman (1990), Porter (1994) and Dunning (1998) have consistently argued that location is a crucial determining factor in the choices multinational firms consider before settling on a particular country. And according to Majocchi and Strange (2007), the factors in the location choice range from the availability of raw materials to cheap labour, and market or technological know-how. Embedded in the location choice is also the issue of infrastructure as well as the level of economic development, as history has shown that countries with relatively advanced levels of development on these two fronts generally attract more FDI than those with less or poor development in the two. Last but not least but of equally great importance in the success or otherwise of FDI attraction has to do with the issue of governance as captured by political, institutional and legal environment. Key papers such as Globerman and Shapiro (2002) and Gani (2007) have concluded that indeed the governance infrastructure plays a critical role in the attraction of FDI inflows.

On the whole, inasmuch as there is no single recognisable worldwide definition of EPZs for which reason there is no particular international body that regulates them (Almeida, 2014), EPZs are generally characterised by some common features key among which is the fact that they are primarily adopted as a means of helping poor countries to promote their economic growth agenda through increased exports, increased investments, generation of employment among others. They however defer from country to country in terms of size of the zones, incentives

offered the firms in the zones, particular industry or industries of interest where production is focused and administrative mechanisms put in place that may or may not inhibit the activities of the firms in the zones. Also, the differences in the results from the implementation of the policy in the various countries are attributable to certain pertinent factors that include differences in infrastructure, availability of raw materials, proximity to port, tax exemptions, subsidies, and exemption from industrial law (Aggarwal, 2005).

## **2.5 Conclusion**

Chapter two so far has sought to look at the theories that underpin the EPZs concept and also various empirical papers on the subject matter from various contexts in the developing world. It is obvious from the surveyed literature that although some amount of work has been done on the free zones concept mainly in the relatively advanced regions of the developing world, they have looked at various components of the programme with generally divergent opinion on the potency of the free zones programme to promote economic growth. And since there is virtually no detailed empirical work on the programme in Ghana, there is therefore the need to look at that country in terms of its free zones programme from the point of view of its exports and investment generation capabilities. The next chapter contextualises the Ghana Free Zones Programme by throwing some more light on its activities since its inception and also broadly discusses the free zones concept in the light of international trade rules and preferential treatment.

## **CHAPTER THREE**

### **CONTEXT OF STUDY**

#### **3.1 Introduction**

This chapter attempts to throw more light on Export Processing Zones as a development policy tool as they have been applied so far in the Ghanaian context while shedding some more light on the economy of Sub-Saharan Africa in general and that of Ghana in particular. It also reviews how EPZs are viewed by international bodies and how the concept has fared in the light of preferential trade agreement (AGOA).

#### **3.2 A quick overview of Sub-Saharan Africa's economy**

The African continent, and to be more specific Sub-Saharan Africa has seen the most consistent slowest level of growth in the world economy over the last few centuries culminating in the situation where it is now the poorest region in the world in terms of economic growth. For instance, Africa started the nineteenth century at approximately one-third of the income levels of the richest region of the world (Western Europe) in terms of gross domestic product but ended the twentieth century at one-twentieth of the income levels of the same region (Maddison & Feinstein, 1996).

Economic growth here is defined as the increase in the capacity of an economy to produce goods and services compared from one period of time to another. It is basically an increase in the productive capacity of the economy which it is hoped will trickle down to the people in the country to enable them function well as economic agents in terms of meeting their day-to-day needs. Economic growth to a very large extent mainly takes place through the production of

goods and services by both nationals and foreigners alike. The poor level of economic development that has characterised the African continent has occurred notwithstanding the fact that it is undoubtedly the most endowed region of the world in terms of natural resources, accounting for nearly a third of the planet's mineral resources.

It is also an undeniable fact that Africa since the period after independence has grown more slowly in comparison with other developing regions most notably Asia and Latin America. This sad state of affairs is attributed to many factors. African governments most of whom have been despotic after the euphoric period of independence have attributed the situation to their deteriorating and volatile terms of trade (Collier & Gunning, 1999). Meanwhile, in a study entitled "Geography, demography and economic growth in Africa", Bloom, Sachs, Collier, and Udry (1998) attributed Africa's poor growth to non-economic factors such as tropical geography, demography and public health, adding that economists must lift their gaze above macroeconomic policies to deepen their understanding of Africa's growth challenge. Acemoglu and Robinson (2010) for their part argue that the very bad interlocking economic and political incentives account for Africa's poor state of affairs. In another study on the African region, Easterly and Levine (1997) also came up with a similar conclusion saying that ethno-linguistic diversity is the single most important cause of Africa's poor growth.

However, elsewhere in the literature, scholars of African economics assign import tariffs, export duties and other quantitative restrictions as well as the problem of Africa's infrastructural deficit and exchange rate over-valuation to Africa's poor growth especially in terms of their collective impact on exports (Kassim, 2013; Killick, 1992; Taiwo & Moyo, 2012).

On the whole, one major trade restriction that has been employed by developing economies over the years is most notably through the use of the import-substitution strategy especially in the

1970s. An import substitution strategy involves the use of tariffs, import quotas, etc to promote industrialisation of local production so as to substitute a country's needed imports to promote economic growth (Elbeydi, Hamuda, & Gazda, 2010). The import-substitution strategy succeeded in making production for import substitution more profitable relative to production for export through high tariffs, over-valued exchange rate and quantitative restrictions (Aggarwal, 2005). The import-substitution strategy was very much favoured by leaders of these countries in the period just after independence because it seemed to promote industrialisation which offered the possibility of realising faster growth and higher per capita income levels (Baldwin, 2004).

These restrictions however did not do much in helping these countries to overcome the varied economic challenges they were confronted with. What the restrictions actually succeeded in doing was to rather compound these economic challenges as seen in various distortions in the macroeconomic indicators of those countries. For example, according to the United Nations Conference on Trade and Development, coupled with the debt crisis and the global economic recession in the 1980s, this led to a situation where debt to GDP ratio rose to 70 per cent and the per capita income declined by 14 per cent with very high levels of inflation across the sub region (Willett, 2005).

### **3.3 The Ghanaian economy in perspective**

The West African state of Ghana is noted for being a relatively stable democracy since its independence in 1957 especially in the last quarter of a century, in a highly politically volatile sub-region. This relative stability has however not been matched by an equal development on the economic front as majority of the populace still wallow in poverty. The nation is well endowed with a lot of natural resources which have served as the cornerstone for most of its economic

activities over the decades. However, for more than half a century after independence, the country is still very much reliant on these natural resources chief among which are cocoa and gold and has failed to diversify its production base thus maintaining the colonial economic structure decades after independence.

At the dawn of Ghana's independence, the single cash crop of cocoa which Ghana led the rest of the world in its production, provided three-fifths of the nation's total exports with agriculture in general contributing to more than half of the nation's GDP (Issahaku, 2000). Coupled with low levels of inflation at the time, this made Ghana one of the most prosperous nations in Sub-Saharan Africa with the highest per capita income, positioning the country in a very healthy situation in terms of its foreign reserves (Issahaku, 2000).

In an attempt to reduce the nation's overdependence on the primary export products, the socialist government of Dr. Kwame Nkrumah decided to embark on massive industrialisation effort in the 1960s through the establishment of many state-owned enterprises (SOEs) and the building of massive social infrastructure such as schools, roads and hospitals all with the aim of achieving economic independence to complement the nation's political independence (Baah & Akorsu, 2007). With a shift in attention to the other sectors of the economy, the importance attached to cocoa as a mainstay of the economy reduced, resulting in lower export production and export earnings (Issahaku, 2000). The government also adopted an import-substitution strategy and implemented a series of restrictive policies such as increased tariffs and exchange rate controls which actually lasted until 1982 (Asiedu, 2013).

These factors together with plummeting commodity prices on the world market, lack of investment especially Foreign Direct Investment (FDI), shocks in oil prices and rise in domestic

inflation resulted in deterioration of the Ghanaian economy particularly between 1973 - 1983. Emigration of skilled labour, lack of private capital formation and deterioration of the national infrastructure also eroded the production base of the economy (Issahaku, 2000). These factors had major impact on almost all of Ghana's economic indicators. As revealed in table 1, it is clear that the Ghanaian economy was on the whole healthy in the decade after independence, but in the ensuing decade all the major indicators of the Ghanaian economy deteriorated. The figures in the table however show that the indicators have largely improved since the turn of the new millennium.

**Table 1: Average annual rates of selected indicators (in %)**

Item	1965-1973	1974-1983	2004-2014
Population growth	2.2	3.1	2.5
Real GDP growth	3.4	-1.3	7.2
Real GDP/capita growth	1.2	-4.4	4.5
Agriculture	4.5	0	4.0
Industry	4.3	-7.0	11.6
Services	1.1	-0.3	45.2
Merchandise exports	3.5	-6.4	15.9
Merchandise imports	-3.3	-8.0	12.5
Inflation	6.3	49.9	12.8

**Source: Tabatabai (1986); Word Bank (2014)**

In the light of the worsening economic situation in most third world countries in the 1970s including Ghana, the World Bank together with the International Monetary Fund (IMF) introduced a number of strategies to correct the downward trajectory in the economic indicators of these countries. The most significant of these strategies was a framework called the Structural Adjustment Programme (SAP) which was introduced in the 1980s and lasted up until the late

90s. During this period, the IMF was heavily involved in setting the macroeconomic and development policy agenda while the World Bank concerned itself with the provision of the structural adjustment lending (Heidhues & Obare, 2011). The lending was to make finance available to these countries in return for reforms in trade protection and price incentives for the efficient utilisation of resources (Easterly, 2005). The effectiveness of this policy framework has however been questioned by economists such as Britwum, Jonah, and Tay (2001), McGregor (2005) and Easterly (2005) who argue that putting external conditions on the behaviour of government has not proven to be very effective in achieving widespread growth.

Following the persistent decline in the Ghanaian economy, the Government of Ghana opted for the SAP framework in 1983 which led to the relaxation of most of its restrictive investment policies and the privatisation of most state-owned enterprises (Oppong, 2013). The nation has as well undertaken some other economic policies initiated by the Bretton Woods Institutions such as the Poverty Reduction Strategy I and II. Although the cumulative impact of these policies has resulted in the current state of affairs where the nation is now classified as a lower-middle income country, their real effect is yet to be truly felt as the nation is still faced with many macroeconomic distortions and many Ghanaians still wallow in abject poverty.

### **3.4 Trade liberalisation in Ghana**

According to Boojihawon (2004), nations have a crucial role to play in performing a balancing act between regulation and free market to maximise the full potential of globalisation. Not surprising therefore, Ghana just like many other countries in Sub-Saharan Africa engaged in liberalisation of its trade as a reaction to the failure of the traditional import-substitution and other restrictive policies of the 1950s-1970s (Shafaeddin, 2005).

Trade liberalisation which is characterised by the reduction or removal of taxes on goods and services is the degree to which nationals and foreigners can transact business without governmentally imposed or artificial cost including delays and uncertainties (Armah, Brafo-Insaidoo, & Akapare, 2014). The nation embarked on trade liberalisation policy as a means of opening up the domestic economy in order to encourage competition so as to improve efficiency in Ghanaian industries in order to promote economic growth. According to Asiedu (2013) the trade liberalisation policy also aimed at bridging the gap between the official and unofficial exchange rates in order to provide foreign exchange to ease import restriction so as to increase output especially in the export sector. This corroborates empirical studies by Sachs and Warner (1997), Nugent (2002), Yanikkaya (2003) and Siddiqui and Iqbal (2005) who have argued that trade liberalisation affects output growth positively. Also, according to Quartey, Aidam, and Obeng (2013), trade liberalisation could reduce the incidence, depth and severity of poverty in poor countries, although over-liberalisation could be inimical to local production because well-established foreign products already compete with local ones.

Import liberalisation, foreign exchange liberalisation and export diversification formed part of the total trade liberalisation agenda pursued by the government. Quantitative import restrictions as well as import licences were abolished in 1989 and the tariff system was adjusted downward with reforms on the export side being implemented in 1991 so that non-traditional exporters did not have to surrender their foreign exchange receipt to the Bank of Ghana (Asiedu, 2013). It must be noted here that, the tariff schedules before 1982 were 35%, 60% and 100% compared to the period after 1982 which were 10%, 20% and 30%.

To further make investing in the country a bit more flexible and friendly and also to woo more foreign investors into the country, the government established the Ghana Investment Centre in

1985 which was later changed to the Ghana Investment Promotion Centre (GIPC) in 1994. The rationale for the establishment of the Ghana Investment Promotion Centre was to promote and facilitate investments in certain priority areas of the economy, provide reliable investment information to the investing public and to liaise with the Metropolitan, Municipal and District Assemblies in the country to create an enabling investment environment in the country (Konor, 2014). The Financial Sector Adjustment Programme (FINSAP) was also implemented in 1989 to liberalise the country's financial sector in order to make adequate credit facilities available for investment especially in the critical sectors of the economy (Konor, 2014). Again, the World Bank's Multilateral Investment Guarantee Agency's convention to provide an insurance facility for equity investment and other forms of Foreign Direct Investment was ratified by the government on 29th April, 1988.

Overall, according to the Ministry of Trade and Industry, Ghana's trade sector is governed by four main trade agreements and related protocols, namely the WTO Agreements and related protocols, ACP-EU Economic Partnership Agreements, ECOWAS Trade Treaty and Protocols which established the ECOWAS Trade Liberalisation Scheme (ETLS), and the African Growth and Opportunity Act (AGOA) (MoTI, 2010).

On the whole, Ghana's decision to liberalise its trade has been beneficial to the economy. For example, in terms of Foreign Direct Investment, according to the United Nations Conference on Trade and Development (UNCTAD), although it accounted for less than 1 per cent of GDP in the period just after the start of the country's trade reforms, it picked up, and during the period 1991-1995, Ghana was ranked among the top 10 investment destinations in Africa (UNCTAD, 2003). And in 2010, according to UNCTAD (2011), Ghana was the 7th largest recipient of FDI in Africa receiving an amount of \$2.5 billion which accounted for about 5% of total FDI inflows

to developing countries. Also with exports, the nation has seen a significant increase over the last three decades registering a growth of about 70% from \$773.4 million in 1986 to \$14,377 million in 2011 (WTO, 2012).

In further pursuance to the trade liberalisation goal, most developing countries in the last three to four decades have resorted to the use of Export Processing Zones (EPZs) as a means of promoting the growth of their economies through the reduction in their anti-export bias of their trade regimes in order to promote export (DeRosa & Roningen, 2003).

### **3.5 Definition, nature and history of EPZs**

Export Processing Zones are special industrial enclaves that provide duty-free relief to export-oriented firms that operate in the zones within a country where goods are stored, distributed, combined with other products, or used in manufacturing operations (Jenkins, 2005).

Also, according to the World Bank, Export Processing Zones are economic enclaves in which goods may be imported, stored, repacked, manufactured, and reshipped with a reduction in duties and/or minimal intervention by customs officials (De Armas & Jallab, 2002). This definition however caters for what we call Export Processing Firms (EPFs) which benefit from the same EPZ incentives without being fenced-in or being in the enclave.

EPZs offer vastly generous trade incentives and liberal regulatory environment for firms to manufacture essentially for export although sales of a certain percentage of output may be permitted. However, a few EPZs such as Manaus in Brazil allow the free sale of their products on the domestic market (Rodriguez, 1996). Also, for the purposes of trade operations and duties and tariffs, EPZs are considered as duty free zones which are foreign territories relative to the local economy (Yuan & Eden, 1992). In fact the World Customs Organisation's Revised Kyoto

Convention defines free zone "as a part of the territory of a Contracting Party where any goods introduced are generally regarded, insofar as import duties and taxes are concerned, as being outside the customs territory" (Creskoff & Walkenhorst, 2009, p. 14).

EPZs are traditionally associated with poor countries that desire to capitalise on some existing comparative advantage in order to promote economic growth (De Armas & Jallab, 2002). For this reason, according to Engman et al. (2007) nations with strong industrial base do not need EPZs. However, UNCTAD recognises the Shannon Export Processing Zone near Shannon Airport, County Clare in Ireland as the first EPZ to have been established in the world. The Shannon EPZ which operates up till now was established by the Irish Government in 1959 in an attempt to promote employment within a rural area and also to generate revenue for the government. The Kandla EPZ in India established in the mid-1960s is the first recognised zone to have been set up in the developing world, and in Sub-Saharan Africa, its first zone was established in Mauritius in the mid-1970s (Kinunda-Rutashobya, 2003).

Since 1975, the number of EPZs set up across the developing world has grown exponentially as reported by the International Labour Organisation (ILO) in Table 2. The use of EPZs has become very popular across the developing world in the last few decades because most third world governments recognise the fact that a well organised programme can generate a lot of benefits. Farole (2010) put these benefits into three categories, namely, static, dynamic and socio-economic benefits. He described the static economic benefits as the outcomes derived in the short-term in the use of EPZs as instruments of trade and investment policy which include investment, employment and exports.

**Table 2: Global EPZ statistics**

<b>Years</b>	<b>1975</b>	<b>1986</b>	<b>1997</b>	<b>2002</b>	<b>2006</b>
Number of countries with EPZs	25	47	93	116	130
Number of EPZs or similar types of Zones	79	176	845	3000	3500
Employment (millions)	n.a	n.a	22.5	43	66
- of which China	n.a	n.a	18	30	40
- of which other countries with figures available	0.8	1.9	4.5	13	26

**Source: Boyenge (2007)**

According to Farole (2010), the dynamic economic benefits include technology transfers, integration with the local economy and ultimately structural change; and the socio-economic benefits consider the quality of employment created and gender impact of the zones. Meanwhile, the vast majority of the available literature on EPZs only considers the first two types of benefits (i.e. static and dynamic benefits). Milberg (2007) however concedes that these two types of economic outcomes are intricately linked and it is difficult to draw a line between the two because for example, foreign exchange earnings are generally considered static outcome but the use to which they are put in easing the foreign exchange constraint of a country may have long term developmental impacts.

The bottom-line in the creation of any EPZ is to help in the economic development of a country. According to Milberg (2007) the ultimate aim of EPZs is to raise the standard of living of the people and to promote economic development. On the whole, countries traditionally go in for the EPZ programme because of the following perceived advantages:

- Non-traditional export promotion to generate foreign exchange earnings
- Employment creation
- Attraction of Foreign Direct Investment (FDI)
- Technology transfer to act as catalyst for local entrepreneurs to especially engage in the production of non-traditional products for export.

Meanwhile, in an attempt to attract the needed investment into their zones, governments generally offer investors the following incentives (Madani, 1999):

- Vastly generous and long-term tax holidays
- Duty-free import of needed input and export of output
- Less interference by government, including flexible labour laws
- Unlimited foreign ownership of firms, including the repatriation of profits
- Superior infrastructure relative to the rest of the domestic economy such as good roads, reliable power and water supply, etc.

### **3.6 EPZs in the eyes of international trade rules**

Export Processing Zones do not have any single recognisable international regulator and the law of the World Trade Organisation (WTO) does not regulate them chiefly because there is no standardised definition of EPZs, nor a standardised model (Almeida, 2014). Also, EPZs are not mentioned by name in any WTO agreement (Creskoff & Walkenhorst, 2009). But by virtue of the nature of their operations generally focused on export promotion and employment creation, they are somehow monitored chiefly by the WTO, UNCTAD and ILO. For example whilst the WTO ensures that EPZs operate within the confines of international trade laws to ensure

fairness, the ILO also seeks to maintain high labour standards in the zones to ensure that they meet internationally accepted requirements.

The most critical WTO agreement that borders on the operations of EPZs is the Act 3.1(a) of the Uruguay Round Agreement on Subsidies and Countervailing Measures (SCM Agreement) (WTO, 1994). The SCM focuses on the use of export subsidies. Export subsidies are subsidies contingent in law or in fact on export performance (Creskoff & Walkenhorst, 2009).

According to the SCM Act, a subsidy is a financial contribution of any form of income or price by a government or a public body that confers a benefit to a specific recipient. The SCM Act lists the following as some of the measures that constitute export subsidies:

- Direct subsidies to a firm or industry contingent on export performance
- Internal transport and freight charges for exports on terms more favourable than for domestic shipments
- Exemptions, remissions or deferrals of direct taxes or social welfare charges related to exports
- Exemption or remission of indirect taxes regarding the production and distribution of exports in excess of those levied on the production and distribution of like products sold for domestic consumption
- Allowance of special tax deductions related to exports above those granted regarding production for domestic consumption
- Currency retention or similar schemes involving a bonus on exports
- The provision of goods and services for the use in the production of exported goods on terms more favourable than for the production of like domestic goods, if the terms or

conditions are more favourable than those commercially available on the world markets to exporters.

It is clear that most of the subsidies offered the EPZs are in direct contravention of the WTO rules because most of these subsidies are conditioned on export performance which requires the free zones firms to export most or all of their output as a condition of receiving the incentives. Peter Gibbon et al. (2008) argue that some of these incentives are largely incompatible with WTO rules as they give some countries trade advantages over others. Hence, all WTO members that operate EPZs with fiscal incentives and de facto export requirements are in prima facie breach of WTO regulations (Waters, 2013). However, it is important to note that WTO disciplines apply mainly to WTO members (i.e. measures imposed by governments), and because most EPZs around the world are privately owned, developed and operated, the measures imposed by these private businesses are not subject to WTO disciplines (Creskoff & Walkenhorst, 2009).

However, Article 27 of the SCM Agreement grants certain developing countries identified as least-developed countries according to the United Nations, or nations with a gross national income (GNI) of less than \$1,000 in 1990 dollars exemptions (Waters, 2013). No wonder by these requirements, zones in advanced countries have not received the needed attention in the literature and are not recognised as such although according to Boyenge (2007) such countries as the United States, Australia, Italy and Spain do host EPZs. Also, developing countries that do not qualify for these exemptions are often granted ad hoc extensions to operate EPZs based on an assessment by the WTO Committee on Subsidies and Countervailing Measures.

However, in the year 2007, the SCM Committee agreed to phase out the practice of granting extensions to developing countries that do not meet either condition for exemption either due to the expiration of exemption or the per-capita income reaching the \$1,000 threshold, and set a final deadline date of December 31, 2015, and this requires that countries that operate EPZs need to reform (Creskoff & Walkenhorst, 2009).

### **3.7 Worldview on EPZs**

There is general consensus in the literature about the positive impact of EPZs on economic growth particularly in the developing world. This is because the zones are said to come with perceived benefits such as increased foreign exchange earnings through growth in exports and export diversification, employment creation and generation of income, Foreign Direct Investment, increase in government revenue, technological transfer among others (De Armas & Jallab, 2002; Madani, 1999).

Before these benefits can be realised by a given country, the necessary incentives must be put in place to attract the needed investments into the zones. Generally, zones across the globe offer such incentives as duty free import of input and export of output, tax holidays for a specified number of years, unlimited foreign ownership, superior infrastructure relative to the domestic economy among others. These incentives however serve as the source of the contrasting opinions about the potency or otherwise of EPZs to promote economic growth. Most papers that have argued against the use of EPZs as a means of promoting national economic growth have centred on the neo-classical welfare analysis or cost-benefit approaches of the zones such as the pioneering works of Hamada (1974) and Warr (1989) who have stressed on the limited role played by EPZs as an export promotion policy. Tahir (1998) however admits that although these

generous incentives are similar across nations, the results emanating from the operation of these zones have differed from country to country. Zee, Stotsky, and Ley (2002) also argued in their paper that investment promotion through generous tax incentives is not cost-effective unless the incentives are well targeted, hence advising against the widespread adoption of EPZs.

Also, some economists have very little hope in the ability of EPZs to promote economic development as a result of the fact that only the firms in the zones are offered the largely preferential treatment or incentives while the larger economy is most often ignored or at worst closed (Kinunda-Rutashobya, 2003). According to Engman et al. (2007), EPZs are sub-optimal policy from economic point of view because they benefit the few and distort resource allocation. Thus the zones are treated as an economy within an economy which Aggarwal (2005) argues that it must not be the case because the zones cannot be insulated from the broader economic context of the country. It is worthy to note that zones are mostly offered the special treatment simply because most governments have the firm belief that EPZ firms perform better than non-EPZ firms in terms of investment, employment and exports (De Armas & Jallab, 2002).

Most of the employment in EPZs across the globe is taken by females with some EPZs recording as high as 70% of female employment leading to what is termed as feminisation of employment (Milberg, 2007). This situation can be attributed to the fact that female workers are willing to accept lower wages compared to male workers and are more disciplined and exhibit more dexterity for assembly-type production which is generally the case with EPZs (Johansson & Nilsson, 1997). But as production evolves towards more technologically advanced sectors, the proportion of female workers in total labour force declines (Madani, 1999). Meanwhile according to the Organisation for Economic Cooperation and Development (OECD), most free

zones have relatively high rate of labour turnover which ranges from 5 to 10 per cent per month mainly because of the reserves of labour (Basile & Germidis, 1984).

It must be pointed out here that EPZs have poor image in terms of labour issues as the prevailing national labour laws may not apply to EPZ firms with even the formation of unions in the zones frowned upon in some countries. For this reason, EPZ firms have very often been criticised by labour unions and civil society organisations because the firms use that privilege to derogate on minimum wages or use their bargaining power to pay lower wages than they would pay outside the zones (Cirera, Lakshman, & Spratt, 2013). Research on the whole has however found that wages in the zones are almost the same as those offered by similar jobs elsewhere in the economy (Cling & Letilly, 2001).

### **3.8 EPZs in the light of preferential trade (AGOA)**

For the past one and half decades, one very important trade policy that has benefitted the African continent greatly is the African Growth and Opportunity Act (AGOA). AGOA which was passed by the U.S. Congress on 18th May, 2000, is a non-reciprocal trade preference programme that offers some eligible Sub-Saharan African (SSA) countries duty-free export of certain products onto the U.S. market. AGOA was authorised by the United States Congress in the year 2000 with the aim of encouraging export-led growth and economic development in SSA and improve economic relations between the U.S. and the sub-region. According to the U.S. Congressional Research Service, currently out of 49 candidate SSA countries, 39 of them are eligible for the AGOA preference benefits (Williams, 2014).

AGOA is similar to the Generalised System of Preferences (GSP) in terms of benefits and general eligibility criteria. The GSP is also a U.S. trade preference programme for over 120

developing countries including SSA countries. AGOA therefore builds on the GSP by covering more products and includes more eligibility criteria beyond those in the GSP. AGOA also includes trade and development provisions beyond the duty-free preferences. In fact, whereas GSP covers some 4600 products, AGOA covers over 6400 products and for the first time includes textiles and clothing.

Since its inception, AGOA has seen exports from SSA grow from \$8.15 billion in 2001 to 53.8 billion in 2011, which represents an increase of more than 500 per cent (Schneidman & Lewis, 2012). Although U.S. imports from AGOA beneficiary nations account for just about 1 per cent of total U.S. imports and are largely concentrated in energy-related products, it can be said that AGOA has helped a great deal in creating jobs and building a stronger commercial ties between SSA and the richest nation on the planet. Meanwhile, apparel remains the top non-energy export for many AGOA countries with countries such as Mauritius, Lesotho and Kenya (all very important EPZ host countries) making maximum use of this trade platform (Williams, 2014). Although U.S. apparel imports mostly face relatively high import tariffs and are excluded from the GSP, they are included in the AGOA preferences, giving AGOA beneficiaries a competitive advantage over other apparel producers, and this accounts for the relative success of the sector under the AGOA protocol (Williams, 2014).

When it comes to the specific policy of EPZs in the light of AGOA, it can be said that the policy has benefitted greatly from the AGOA platform. For example, according to Cling et al. (2005), apparel exports from Madagascar to the U.S. have actually grown significantly since Madagascar signed onto the AGOA platform and this has driven growth in the Madagasy Zone Franche. In the words of Peter. Gibbon (2003), investments in the Zone Franche were actually made just before the year 2000 in full anticipation of AGOA.

Also, according to Adala (2007), a total of 66.9 per cent of all exports from Kenya's EPZs were made to the U.S. in 2005 bringing a total of \$207 million to the Kenyan economy, made possible mainly through the AGOA platform. About 97.2 per cent of these exports comprised of garment products. Moreover, as already alluded to, by making use of AGOA, Kenya and Lesotho have seen massive growth in their employment creation and foreign exchange generation in their EPZs through growth in the textile and apparel sector (Vastveit, 2013).

On the whole, although AGOA can be said to have had a positive impact on SSA by increasing and diversifying its exports to the U.S., a number of criticisms are levelled against the policy. The first criticism relates to the non-reciprocal nature of the preferences, with some observers calling for two-way trade agreements with the sub-region especially with its more advanced countries (Williams, 2014). Second, although AGOA allows duty-free access to the U.S. for the products it covers, it imposes restrictive conditions in terms of inputs which must either come from the U.S. or other countries benefitting from the agreement (Cling et al., 2005). Also, studies such as (Williams, 2014) have suggested that the lower-skill garment production spurred by AGOA has not led to the production of higher-skill manufactured products.

### **3.9 The Ghana Free Zones Programme in perspective**

#### **3.9.1 Establishment of the Ghana Free Zones Board (GFZB)**

The Ghana Free Zones Board which is a non-subvented organisation is a government agency established on 31st August, 1995 by an Act of Parliament (The Free Zone Act 1995 (Act 504)) to see to the promotion and setting up of free zones in Ghana with the aim of promoting economic development, although the actual implementation of the programme began in September 1996. The establishment of the GFZB followed a recognition by the Government of Ghana of the effort

that had been made at economic reforms which had brought an improvement on the macroeconomic front and created a business-friendly environment leading to a reduction in the cost of doing business in the country. Due to the country's relatively strategic location in the West African sub-region and the view of the government as a preferred investment destination, the GFZB was thus set up as a deliberate government ploy to market the country as an ideal investment destination in Africa through which the export-led development policy of the country is achieved. The Ghana Free Zones Programme was also conceived as an ideal platform to take advantage of the West African market with a total population of about 350 million people. This privilege has also been boosted by the country's enjoyment of the African Growth and Opportunity Act (AGOA) initiative which allows for an easy access to the USA market on duty free basis especially with garments.

### **3.9.2 The free zones concept and the zones in Ghana**

The Ghana Free Zones Programme was designed as a concept of promoting processing and manufacturing of goods through the zones, and also to encourage the development of commercial service activities around Ghana's sea and air port areas. The programme is run on two schemes, namely the enclave and the Single-Factory Location (SFL) schemes. With the SFL scheme, the whole Ghana is viewed as a free zone in which potential investors have unhindered access to every part of the country to set up a free zones firm based on their ability to meet certain basic requirements with the key one being the ability to convince the regulators of their capacity to export the chunk of their output to a reliable foreign or export market. With this scheme, a firm therefore does not necessarily have to be located in a particular delineated enclave before it enjoys the status of a free zones company.

With the enclave scheme, a total of four zones exist, namely Sekondi, Shama, Boankra and Tema. However, these zones exist on paper with only the Tema one existing in practice as investors are still being sought for the other three.

### **3.9.3 The Tema Export Processing Zone**

The Tema Export Processing Zone is a flagship scheme of the Ghana Free Zones Programme located in the Ghanaian industrial city of Tema which boasts of the largest seaport in Ghana and is also only 24 kilometres from the international airport in the national capital of Accra accessed by a first class road network. The city of Tema aside having the highest concentration of industries in Ghana is also a residential locality with a large pool of skilled labour and with a well-developed infrastructure.

The Tema EPZ which was a World Bank funded programme, has a total area of 1,200 acres, offering a conducive environment for manufacturing, service and commercial export activities in which business is actually facilitated by the deliberate convergence of institutions such as the Customs Excise Preventive Service, Immigration, the Police, Environmental Protection Agency, Internal Revenue Service among others. The EPZ in Tema is also serviced with facilities such as a dedicated electrical power grid, telecommunication services, a large reservoir of water, central sewage system among others, all aimed at making doing business convenient and less expensive.

### **3.9.4 General incentives offered firms under the Ghana Free Zones Programme**

The Free Zones Act of 1995 offers among others, the following incentives to free zones investors in Ghana:

- 100% exemption from payment of duties and levies on all imports needed for production as well as exports from the zones.

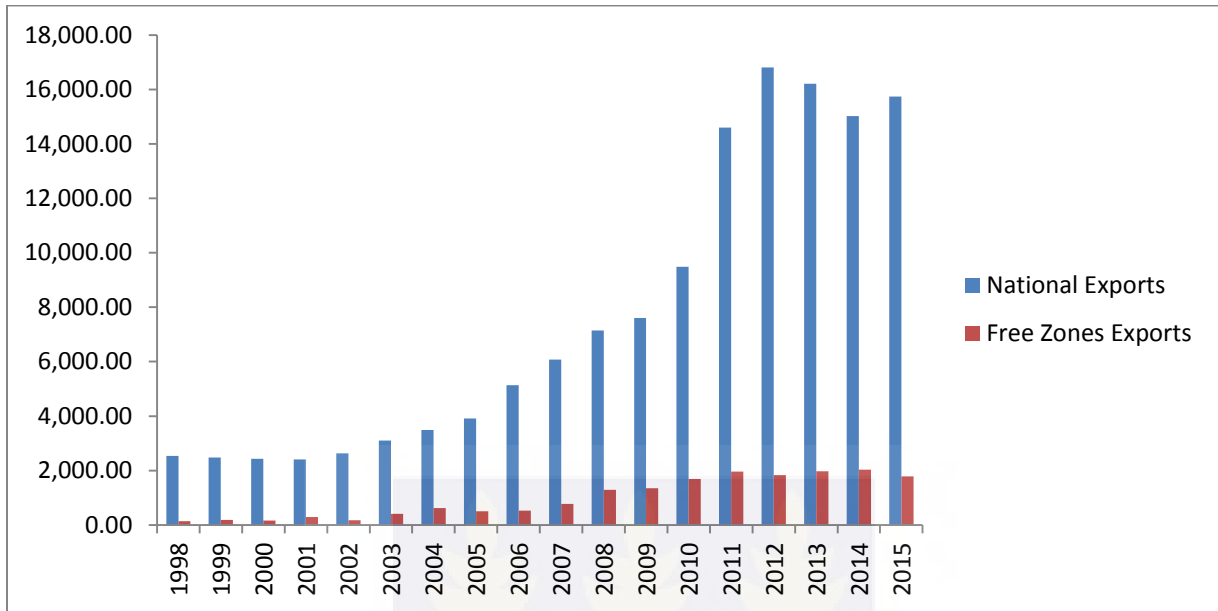
- 100% tax exemption on profits for a period of ten years which shall subsequently not exceed 8% thereafter.
- Complete exemption from the payment of withholding taxes from dividends arising from investments.
- No import licencing requirements.
- 100% share ownership by investors whether foreign or local.
- Freedom to operate a foreign currency account with banks in Ghana.
- Guarantee of free zones investments against nationalisation and expropriation.

### **3.9.5 Investment opportunities and the free zones firms in Ghana**

There are four major sectors of production currently receiving attention in the Ghanaian zones and they include manufacturing, services, agro-processing and energy. These production sectors are identified as priority areas in which the country has comparative advantage for which it wants to take advantage and attract Foreign Direct Investment into the country.

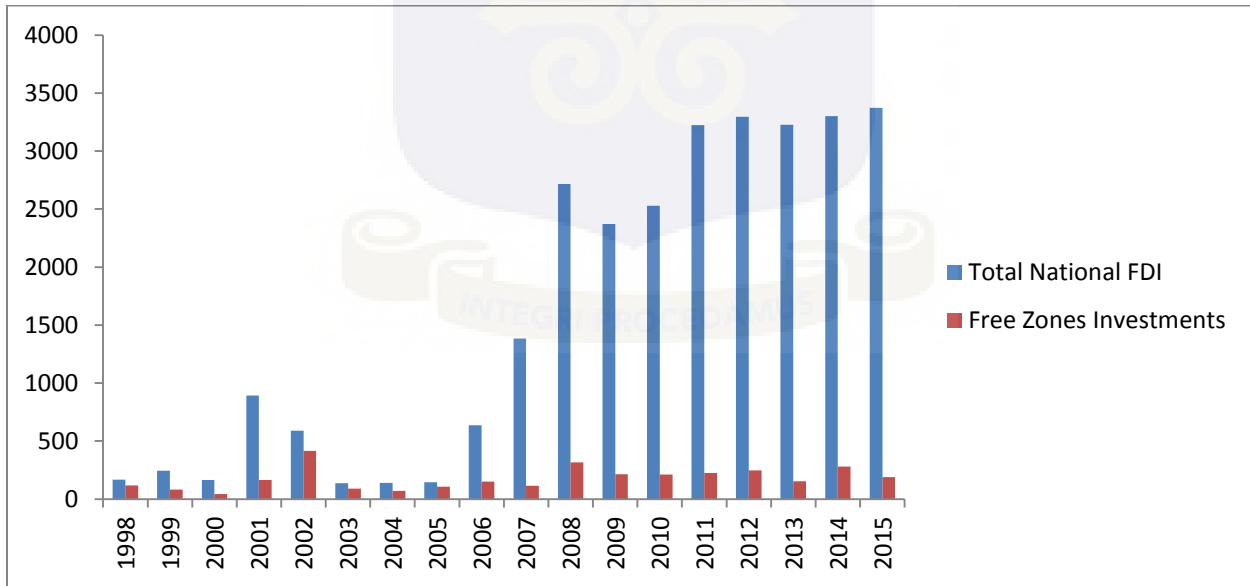
Starting with 8 firms in 1997, there are now a total of 352 enterprises operating under the Ghana Free Zones Programme according to the Ghana Free Zones Board (GFZB, 2015). These enterprises include free zones firms and what we call the developers. The developers numbering only two as at 2015, lease land from the Ghana Free Zones Board, develop it and lease it to the free zones firms. Whereas the developers get their revenue from the lease to the free zones firms, they also pay ground rent to the GFZB. The free zones firms are mandated by the Act 504 to export at least 70% of their yearly output and they are free to sell the remaining 30% which attract taxes as they prevail in the domestic economy, on the local market.

**Figure 1: A graph of free zones exports in relation to national exports**



**Source: World Bank (2014) and GFZB (2015)**

**Figure 2: A graph of free zones investments in relation to total FDI in Ghana**



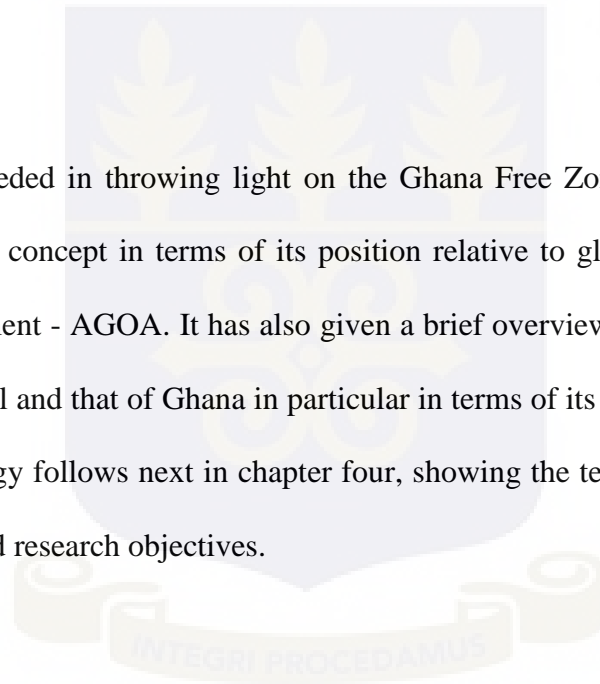
**Source: World Bank (2014) and GFZB (2015)**

Figures 1 and 2 are the graphs plotting free zones exports against total national exports and free zones investments against total national FDI respectively for Ghana from 1998 to 2015. The

exports and investments values in the two graphs are in millions of nominal dollars. The total exports for Ghana from 1998 to 2015 amounted to \$136,796.59 and exports from Ghana's free zones over the same period totalled \$17,719.30. This means free zones exports accounted for nearly 13% of total national exports for the country. Total national FDI on the other hand amounted to \$28,532.31 whereas total investments over the same 1998-2015 period in the free zones also amounted to \$3,190.93, and this accounted for a little over 11% of total FDI into the country.

### **3.10 Conclusion**

Chapter three has succeeded in throwing light on the Ghana Free Zones Programme and also looked at the free zones concept in terms of its position relative to global trade rules and also preferential trade agreement - AGOA. It has also given a brief overview of the economy of Sub-Saharan Africa in general and that of Ghana in particular in terms of its history and performance. The research methodology follows next in chapter four, showing the techniques and approaches used to achieve the stated research objectives.



## CHAPTER FOUR

### RESEARCH METHODOLOGY

#### 4.1 Introduction

The technique and systematic order in which a study or investigation is carried out constitutes the research methodology. This chapter therefore focuses on the research techniques adopted for this study with the aim of achieving the stated objectives of this research. It elaborates the method adopted for the work as well as the data used in achieving the objectives.

#### 4.2 Model specification and definition of variables

The study hopes to measure two key static outcomes of the free zones programme in Ghana namely exports and investments in terms of their contributions to overall GDP growth in Ghana. In order to test the causal relationship between national economic growth represented by nominal dollar GDP (*GDP*), free zones exports (*FZEXP*) and free zones investments (*FZINV*), the study uses vector autoregressive (VAR) model.

A VAR model is a general framework that is used to describe the dynamic interrelationship among stationary variables, and it is one of the most reliable, flexible and easy to use models in analysing multivariate time series. VAR models are a natural extension of the univariate autoregressive models to dynamic multivariate time series.

VAR as a popular time series modelling technique was introduced by Sims (1980) as a framework that could be used to characterise the joint dynamic behaviour of a collection of variables without any need for strong restrictions of the kind needed to identify underlying

structural parameters. A VAR system is made up of  $m$  variables, each of which is expressed as a linear function of  $p$  lags of itself and of all of the other  $m - 1$  variables, plus an error term. The VAR model therefore treats each variable of the system as potentially endogenous and relates variables to their own past values and to past values of all other variables in the model (Dritsakis, 2004).

Aside all variables in the system being treated as potentially endogenous, VAR models are also preferred due to the fact that they capture more features of the data, thus offering a very rich structure as the value of a variable depends on more than just its own lags or combinations of white noise terms, making them more flexible than univariate models (Brooks, 2008). Sims, (1980) also argues that VAR-generated forecasts are usually better than those of the traditional structural models because the latter perform badly in terms of their out-of -sample forecast accuracy, probably as a result of the ad hoc nature of the restrictions we place on structural models to ensure identification. Also, Brooks (2008) posits that if there are no contemporaneous terms on the right hand side (RHS) of the equations, we can simply use the ordinary least squares (OLS) regressions separately on each equation since all RHS variables are predetermined at time  $t$ , implying that there is no possibility for feedback from any of the left hand side (LHS) variables to any of the RHS variables.

To empirically determine the relationship between our GDP and free zones variables, we specify a three-variable unrestricted VAR model with a vector  $U$  as follows:

$$U = (GDP, FZEXP, FZINV) \quad (1)$$

The unrestricted VAR with a deterministic term could be written as:

$$U_t = A_0 + A(L)U_t + e_t \quad (2)$$

where

$A(L) = [a_{ij}(L)]$  is a  $3 \times 3$  matrix of the polynomial

$$a_{ij}(L) = \sum a_{ij1} L^1$$

$m_{ij}$  is the degree of the polynomial

$A_0 = (a_{10} \ a_{20} \ a_{30})$  is a constant

$e_t = 3 \times 1$  vector of random errors.

To estimate and empirically determine the impact of free zones exports and free zones investments on economic growth, we formulate the following VAR models in the presence of trade openness as our control variable:

$$\Delta LGDP_t = a_{10} + \sum_{j=1}^k a_{11j} \Delta LGDP_{t-j} + \sum_{t=1}^k a_{12j} \Delta LFZEXP_{t-j} + a_{13} OPEN_t + e_{t1} \quad 3$$

$$\Delta LGDP_t = a_{20} + \sum_{j=1}^k a_{21j} \Delta LGDP_{t-j} + \sum_{t=1}^k a_{22j} \Delta LFZINV_{t-j} + a_{23} OPEN_t + e_{t2} \quad 4$$

where  $GDP$  is the nominal gross domestic product of Ghana,  $FZEXP$  is the total exports from Ghana's free zones,  $FZINV$  is the total investments in Ghana's free zones all in nominal dollar terms.  $OPEN$  is our trade openness variable which is a ratio of total national imports and exports over GDP, and  $t$  and  $j$  are our time dimension and lag length respectively with  $j$  running from 1

to  $k$  which is the maximum lag term for each of our variables.  $L$  is the log to suppress the proliferative effect of time series and  $e_t$  is the error term and the  $a$ 's are our coefficients.

There is the need to modify the VAR framework to allow for consistent estimation of the relationship among the series if the series are not stationary. This modification to the traditional VAR model can be done through the use of what is known as the vector error correction/ equilibrium correction model (VECM). The VECM is a special case of VAR for variables that are stationary in their differences (i.e.  $I(1)$ ), and it considers any cointegrating relationships among the variables under consideration.

A set of variables is said to be cointegrated if a linear combination of them is stationary. Cointegrated variables therefore have a constant long run linear relationship among them. Johansen gives some two popular approaches to testing for cointegration, namely the trace statistic and the maximum eigenvalue statistic.

The trace statistic is a joint test where the null hypothesis is that the number of cointegrating vectors is less than or equal to  $r$  against an unspecified or general alternative that there are more than  $r$ . The maximum eigenvalue statistic on the other hand conducts separate tests on each eigenvalue, and has as its null hypothesis that  $r$  is the number of cointegrating vectors against an alternative of  $r + 1$ . We reject the null hypothesis that there are  $r$  cointegrating vectors in favour of the alternative that there are  $r + 1$  (for trace) or more than  $r$  (for maximum eigenvalue static) if the test statistic is more than the critical value from Johansen's tables.

Therefore, with the existence of at least one cointegrating vector, the models above can be written as vector error correction models (VECM). Also, since VAR or VECM is a system of equations, which means that each of the models above comprises two equations based on the

number of endogenous variables in each of them, we expand the two models and include a mechanism for error correction to give us our VECM as follows:

#### Model 1

$$\Delta LGDP_t = \alpha_{10} + \sum_{j=1}^k \alpha_{11j} \Delta LGDP_{t-j} + \sum_{j=1}^k \alpha_{12j} \Delta LFZEXP_{t-j} + \alpha_{13} OPEN_t + \delta EC_{t-1} + e_{t1} \quad (5)$$

$$\Delta LFZEXP_t = \alpha_{20} + \sum_{j=1}^k \alpha_{21j} \Delta LGDP_{t-j} + \sum_{j=1}^k \alpha_{22j} \Delta LFZEXP_{t-j} + \alpha_{23} OPEN_t + \delta EC_{t-1} + e_{t2} \quad (6)$$

#### Model 2

$$\Delta LGDP_t = \alpha_{10} + \sum_{j=1}^k \alpha_{11j} \Delta LGDP_{t-j} + \sum_{j=1}^k \alpha_{12j} \Delta LFZINV_{t-j} + \alpha_{13} OPEN_t + \delta EC_{t-1} + e_{t1} \quad (7)$$

$$\Delta LFZINV_t = \alpha_{20} + \sum_{j=1}^k \alpha_{21j} \Delta LGDP_{t-j} + \sum_{j=1}^k \alpha_{22j} \Delta LFZINV_{t-j} + \alpha_{23} OPEN_t + \delta EC_{t-1} + e_{t2} \quad (8)$$

where

$EC_{t-1}$  shows the deviation from equilibrium in period t and  $\delta$  represents the response of the dependent variable in each period to departures from equilibrium (Dritsakis, 2004).

### 4.3 An overview of simultaneity

A review of extant literature both from theoretical and empirical perspectives points to the fact that exports and investments have an effect on economic growth. From the theoretical point of view, papers such as Jordaan and Eita (2009), Olson et al. (2014) and Williams (2014) have looked at the impact of exports on economic growth in the light of the famous export-led growth hypothesis and have all concluded that exports have positive effect on economic growth. This is

because exports are said to come with many positive externalities to the local economy including technological spillovers. Empirically, in a study of the Namibian economy in terms of the causality between exports and GDP from 1970 to 2005, and using Granger causality and cointegration techniques, Jordaan et al. (2009) found out that export causes growth.

On the other hand, empirical works by Mulherji Ronit (2014) and Shihab, Soufan, and Shatha Abdul-Khaliq (2014) which looked at the relationship between export growth and GDP growth in India and Jordan respectively concluded that economic growth rather causes growth in exports which invariably backs the theory of growth-led exports. This means that as GDP increases, the demand for goods increases and this in turn leads to a rise in the export demand.

In the case of investments, an empirical study by Rahaman and Chakraborty (2015) on Bangladesh which looked at the relationship between Foreign Direct Investment (FDI) and economic growth in that country found out that there is a unidirectional relationship between the two which runs from FDI to GDP. The paper came out with this finding because FDI is said to have a positive impact on productivity to generate the necessary resources needed to finance government-led programmes that improve social safety nets and provide basic social services. On the other hand, a paper such as Chowdhury and Mavrotas (2005) argues that GDP rather causes investment.

Considering all these revelations from these sources, real GDP which is the economic growth variable, free zones investments and free zones exports are thus endogenous to the specified model, meaning that they are determined within the model. A reverse causality bias is therefore committed in such a case when an ordinary least squares (OLS) regression is used. Verbeek (2008) describes this situation as when the dependent variable and one or more independent

variables in the model are simultaneously determined, meaning there is the likelihood of not only the independent variable having an effect on the dependent variable, but also the dependent variable having a causal effect on the independent variable. Having such a situation therefore does not permit the use of the OLS estimator since one or more of the independent variables are jointly determined with the dependent variable. In such a case, if the OLS estimator is used, inconsistent and biased parameter estimates will be generated. It is in an effort to avoid all these problems, that this study makes use of the vector autoregressive framework with an error correction mechanism to examine the relationship or impact of Ghana's free zones investments and exports on economic growth.

#### **4.4 Testing for unit root**

In order to avoid spurious regression, there is the need to check for unit root in each of the variables under consideration before the estimation of the vector autoregressive model can be done (Engle & Granger, 1987; Granger, 1988). The objective here is to test for the stationarity or otherwise of the series. A series is said to be stationary if it has a constant mean, a constant variance and a constant covariance for each given lag. This exercise is critical in the sense that most economic time series exhibit unit root or non-stationarity (Nelson & Plosser, 1982). This pre-estimation diagnostics check is therefore of prime importance because if the variables in the regression are non-stationary then according to Brooks (2008), it can be said that the standard assumptions for the asymptotic analysis will not be valid, meaning for example, the usual '*t*-ratios' will not follow a *t*-distribution, and the *F*-statistic will not follow an *F*-distribution, etc.

Also, as already noted, the use of non-stationary variables will lead to spurious regression. Spurious regression is the situation where two variables are related through their correlation with

a third variable, meaning that the end result of the regression may look good under the standard measures but in actual fact it is worthless (Wooldridge, 2015).

This study therefore adopts the Augmented-Dickey Fuller (ADF) test to ascertain the stationarity or otherwise of our series (Dickey & Fuller, 1979). The ADF is preferred here due to the stability of its critical values. The ADF consists of running a regression of the first difference of the series against the series lagged once, lagged difference terms and possibly, a constant and a time trend (Mishra, 2011). This is expressed as follows:

$$\Delta X_t = \delta_0 + \delta_1 t + \delta_2 X_{t-1} + \sum_{i=1}^k \alpha_i \Delta X_{t-i} + \mu_t \quad (9)$$

where

$\Delta X_{t-1}$  expresses the first differences of the variable under consideration

$k$  is the number of lags or lag length

$\mu_t$  is the stochastic error term

$\delta_0, \delta_1, \delta_2, \alpha_i$  are the coefficients being estimated.

We add the additional lags to make sure that the errors are not correlated, and the unit root test is conducted on the coefficient of  $X_{t-1}$  in the regression. The null hypothesis is that the series contains a unit root as against the alternative hypothesis that it does not, as expressed below:

$$H_0: \delta_2 = 0$$

$$H_A: \delta_2 < 0$$

If the coefficient of interest is significantly different from zero (i.e.  $\delta_2$  is significantly negative) then the hypothesis that  $X_t$  contains a unit root is rejected, meaning that the series is stationary. Alternatively, if the calculated value of the ADF statistic is higher than the McKinnon critical value, then the null hypothesis is not rejected, meaning that the series is non-stationary or not of order zero,  $I(0)$ . Non rejection of the null hypothesis will imply conducting the test on the difference of the series, which means further differencing is conducted until stationarity is reached for the null hypothesis to be rejected. This is made possible because if the variables are non-stationary in their levels, they can be integrated with order one,  $I(1)$ , when their first differences are stationary.

#### **4.5 Estimating a VAR model**

A vector autoregressive model basically regresses each endogenous variable, in this case economic growth, free zones investments and free zones exports, simultaneously on the past values of itself and those of all related endogenous variables. VAR estimation comprises of choosing which variables to include in the model and also to settle on the appropriate lag length, and these two choices are key in determining the strength or otherwise of the resulting parameter estimates. With the issue of lag selection, Verbeek (2008) posits that it is normally determined by statistical criteria and economic theory on the other hand informs the variable selection for the system.

VAR models do not make any prior assumptions about the number of lag terms to be included in the system. Based on theory, the model specified above assumes an infinite number of lags for the endogenous variables although in reality, this assumption does not hold because the lags do not have to go to infinity (Mensah, 2014). In determining the appropriate number of lag terms

that will generate the most reliable and maximum amount of information from the data without consuming too many degrees of freedom, many criteria such as the Akaike Information Criterion (AIC), the Hannan-Quinn Information Criterion (HQIC), the Schwarz Bayesian Information Criterion (SBIC) and the Final Prediction Error (FPE) are used. According to Tang (2008), in practical terms, the number of lag terms that generates the minimal value of the AIC, HQIC, SBIC or FPE or any other information criteria statistics is chosen, and the selected lag length is said to be the optimal which has the capacity to capture the dynamics of the model.

VAR models are good at depicting the causal relationship between two variables and also the historical dynamics of the relationship between the variables under consideration. With these, standard statistical inferences can be drawn and causal statements between the variables under review can also be made.

#### **4.6 Variables and their justifications**

The implementation of the free zones programme comes with two key types of benefits, namely static and dynamic benefits (Milberg, 2007). The static benefits are the easily quantifiable outcomes that a country derives in the short-term from the use of EPZs such as investments, employment and exports. The dynamic benefits on the other hand are the long-term not-so-easily quantifiable outcomes from the implementation of EPZs as a trade policy tool such as technology transfer, integration with the domestic economy and ultimately structural change.

Given the fact that there are no readily available records on the dynamic aspects of the Ghana Free Zones Programme, and also considering the relatively short period of time within which this research must be conducted, the study focuses mainly on the static outcomes. And even with the static outcomes, only data on the export and investment performances of the Ghana Free Zones

firms could be accessed so the decision to concentrate mainly on those two variables. Investments in and exports from the free zones in Ghana, as well as gross domestic product (GDP) thus constitute the endogenous variables for this research work.

The ultimate goal in the use of the EPZ policy by most governments is to spur their respective countries on in terms of national economic growth. This study therefore wishes to examine the impact of the free zones programme on Ghana's economic growth. Therefore, the main variable of interest (dependent variable) is economic growth, proxied by the nominal dollar GDP of the Ghanaian economy.

Aside the obvious justification given by governments especially those in the developing world for their use of EPZs as a tool to develop their countries, these three variables (i.e. economic growth, investments and exports) have been chosen because in the literature, investments and exports are said to promote economic growth and/or vice versa (Giles & Williams, 2000; GuechHeang & Moolio, 2013; Iqbal, Ahmad, Haider, & Anwar, 2014; Jordaan & Eita, 2009; Konya, 2004; Mehrara & Firouzjaee, 2011; Olson et al., 2014; Quddus, Saeed, & Asghar, 2005; Sultan & Haque, 2011). Also, on the specific case of the free zones as a trade policy tool, papers such as Jenkins (2005), Islam and Mukhtar (2011) and Angko (2014) have sought variously to look at the impact or relationship of EPZs in terms of their exports and investment capabilities on economic growth. These reasons therefore account for the choice of these three key economic variables in this study.

We include trade openness as our control variable in our models. Since EPZs have come into existence mainly through the process of trade reforms for which reason they could be said to be a

product of liberalisation, trade openness is thus included as a proxy for trade policy which is one of the key determinants of exports and FDI.

#### **4.7 Sample and data sources**

The Ghana Free Zones Board (GFZB) is the body set up by the Government of Ghana to see to the facilitation and promotion of EPZs in Ghana to help engender economic growth. As part of its mandate, the Board has the task of keeping relevant records including the collation of data on the various firms operating in the Ghanaian zones. As mentioned earlier, there are four EPZs/free zones in Ghana namely Tema, Sekondi, Shama and Boankra, although in actual fact, only the one in Tema is fully functioning. And as already noted elsewhere again, a firm does not necessarily have to site in one of the zones before it enjoys the status of a free zones company in Ghana. For this reason, there are so many non-zone EPZ companies in Ghana, and the total number of firms was three hundred and fifty two (352) at the end of 2014. All the EPZ firms in Ghana are thus included in the study.

The study therefore obtained quarterly secondary data from the GFZB covering aggregate investments in the free zones and total exports from the zones. It must be pointed out here that all investments in the free zones including domestic investments are treated as Foreign Direct Investments (FDI) because free zones are considered to be "foreign" relative to the rest of the domestic economy. Also the study period is from the first quarter of 1998 to the fourth quarter of 2015. This period has been chosen for the simple reason that the free zones programme in Ghana started in late 1996, a year after the passage of the Free Zones Act (Act 504) . Available balanced data on the variables of interest start from 1998 and hence the choice of that period. And to march the data availability period from the GFZB, the study obtained quarterly nominal

GDP figures for the same period as above from the Ghana Statistical Service (GSS) and also, trade openness from the World Development Indicators (WDI).

#### **4.8 Conclusion**

The chapter has sought to look at the relevant methods followed in an effort to achieve the stated objectives of the study, laying special emphasis on the model for the study, chosen variables and justification for their selection and also the sample and a disclosure of the data sources. The following chapter presents the analysis and discussion of the findings.



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## CHAPTER FIVE

### ANALYSIS AND DISCUSSION OF RESULTS

#### 5.1 Introduction

This chapter follows on from the methodology of the study and analyses the results and discusses the findings of the study. It thus presents a detailed analysis and discussion of findings based on the employed methodology.

A recap of the research objectives indicates that the first is to examine the impact of free zones exports on Ghana's economic growth. Similarly, the second objective is to investigate whether investments in the free zones cause economic growth in Ghana.

Specifically, the chapter throws light on the pre-estimation check, namely the unit root test to ascertain the stationarity or otherwise of the series, gives insight into the approaches used to select the optimal lags for the specified models, and also carefully analyses the estimated models. It also sheds light on the post-estimation robustness checks conducted to achieve normality and the non-misspecification of the series as well as a test of stability on the residuals.

**Table 3: Summary statistics**

Sample: 1998Q1 2015Q4

	GDP	FZEXP	FZINV	OPEN
Mean	5.47E+09	2.46E+08	42045952	21.85621
Median	5.52E+09	1.61E+08	38695007	22.32518
Maximum	1.31E+10	5.76E+08	1.66E+08	30.02538
Minimum	1.16E+09	32561364	8292313.	15.18989
Observations	72	72	72	72

**Source: Computations from research data 2016**

Table 3 above displays the summary statistics of Ghana's GDP which is our proxy for economic growth, free zones exports, and free zones investments, as well as trade openness. All the variables above are in quarters starting from the first quarter of 1998 to the fourth quarter of 2015, giving us a total of seventy-two observations.

The table shows that Ghana's quarterly GDP over the period under study in nominal dollar terms has averaged around \$5.5 billion per quarter with the fourth quarter of 2000 posting the least amount of a little over \$1.16 billion, and the maximum coming at the end of the fourth quarter of 2013 of an amount of a little over \$13 billion. In the case of free zones exports, the quarterly average over the period stood at \$246 million with the minimum and maximum being \$32.6 million and \$576 million recorded at the end of first quarter of 1998 and third quarter of 2014 respectively. Free zones investments have however averaged around \$42 million over the period with the fourth quarter of 2014 recording the highest value of \$82 million whereas the first quarter of the year 2000 recoded the least figure of \$8.3 million. For trade openness which is our control variable, it has averaged around 21.85% over the period, with a maximum of 30.03% being recorded during the fourth quarter of 2000 and also the minimum figure of 15.20% coming at the end of the fourth quarter of 2006.

**Table 4: Correlation matrix**

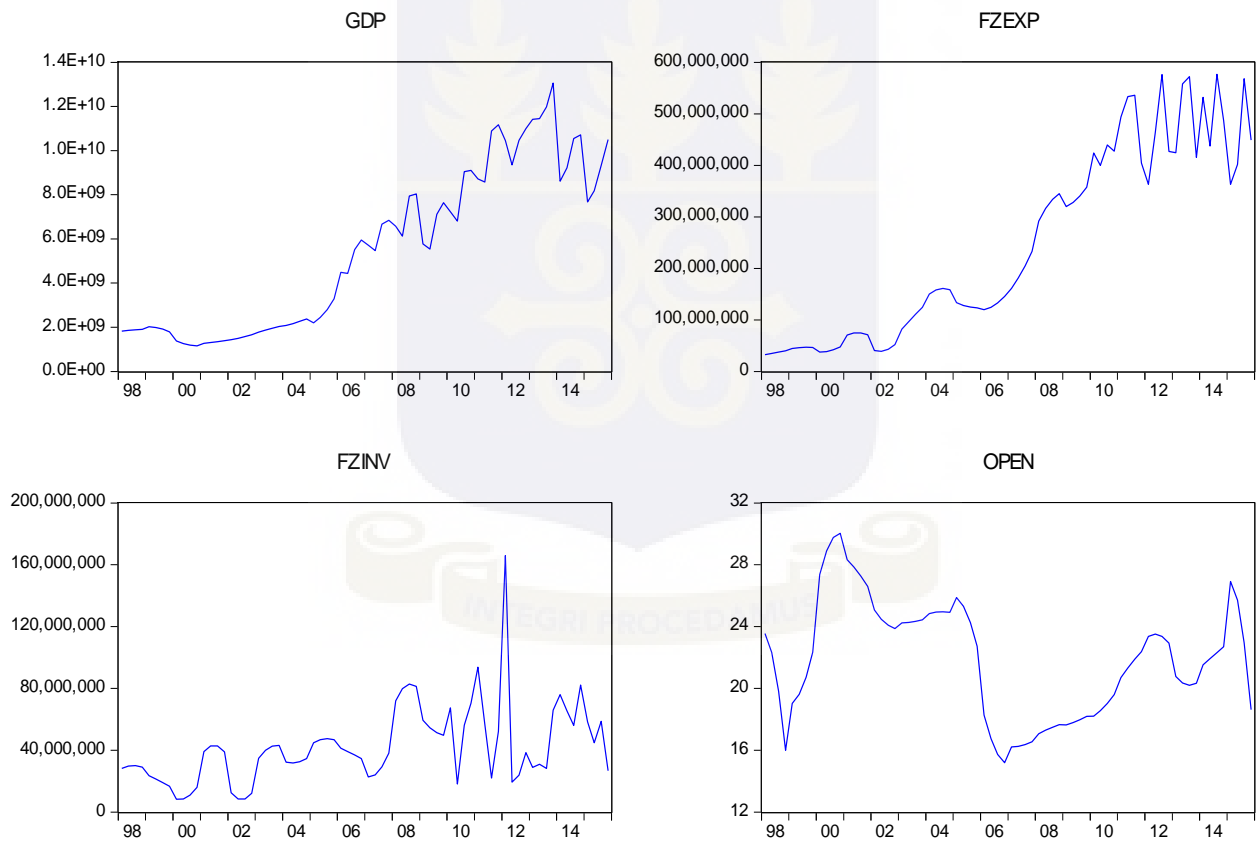
	GDP	FZEXP	FZINV	OPEN
GDP	1.000000	0.934054	0.469997	-0.408264
FZEXP	0.934054	1.000000	0.468889	-0.283492
FZINV	0.469997	0.468889	1.000000	-0.210268
OPEN	-0.408264	-0.283492	-0.210268	1.000000

**Source: Computations from research data 2016**

Table 4 amply displays our correlation matrix. The coefficients in the correlation matrix mainly quantify the relationship between the variables and also describe the strength and direction of

those relationships. From the table, it is pretty obvious that there exists a strong and positive correlation between GDP and our two other endogenous variables, namely free zones exports and investments. This comes as no surprise as we actually have components of the two in the calculation of the GDP. There however exists a negative relationship between GDP and trade openness. In fact, our control variable has a negative relationship with each of our other endogenous variables. Our free zones variables (exports and investments) also have a strong positive relationship between them.

**Figure 3: Graphs of both endogenous and control variables**



**Source: GFZB (2015), GSS (2015) and World Bank (2014)**

Figure 3 above is a graphical display of our four variables under consideration. From the four graphs, on the whole, it is apparent that Ghana's quarterly GDP as well as free zones exports

have been rising over the period of study. However, free zones investments and trade openness on the other hand have been generally inconsistent over the period.

## 5.2 Pre-estimation check - unit root test

According to Nelson and Plosser (1982), most macroeconomic data have unit roots, meaning they are non-stationary. Therefore in order to be sure about the stationarity or otherwise of the series, a pre-estimation test in the form of a unit root test is performed so as to avoid spurious regressions. This test is crucial in determining the strength of the estimates. A series is said to be stationary if it has a constant mean, a constant variance and a constant covariance for each given lag.

In order to test the stationarity or otherwise of the series, we perform the Augmented Dickey-Fuller (ADF) unit root test to ascertain whether each of the variables under consideration follows a unit root process or not. The null hypothesis for this test is that the series contains a unit root (meaning, it is not stationary), and the alternative hypothesis is that the series was generated by a stationary process (meaning, it is stationary). The results from the ADF test are displayed in table 5 below:

**Table 5: Augmented Dickey Fuller test for unit root (for each of the four variables)**

Variable	t-statistic	p-value
LOG_GDP	-0.8418	0.8004
LOG_FZEXP	-1.4012	0.5771
LOG_FZINV	-3.7643	0.6099
OPEN	-2.4946	0.1211

**Source: Computations from research data 2016**

For the ADF test, if the calculated ADF statistic is less than the McKinnon critical value, then the null hypothesis of the presence of unit root is rejected for the alternative, which means that the series is stationary in levels. However, if the calculated ADF statistic is greater than the McKinnon critical value, then the null hypothesis is not rejected, meaning that the series is non-stationary.

From table 5, (which is actually based on the Akaike Information Criterion for the optimal lag selection), it is obvious that each of our variables has a P-value greater than 0.05 which indicates the presence of unit roots. This means that these variables are non-stationary at the levels. We therefore cannot reject the null hypothesis of the presence of unit roots in our series. Non rejection of the null hypothesis implies conducting tests on the difference of the series, which means further differencing is conducted until stationarity is reached for the null hypothesis to be rejected. There is therefore the need to conduct a cointegration test to test for the long run relationship between the series (endogenous variables).

### **5.3 Johansen cointegration test**

A set of variables is said to be cointegrated if a linear combination of them is stationary, meaning there is long run equilibrium relationship between them. With the ADF tests above confirming the existence of unit roots in all the series, we conduct the Johansen (1988) cointegration test to ascertain the long run relationship between the variables under review (mainly the endogenous variables). The Johansen cointegration tests are based on Johansen's maximum likelihood (ML) estimator of the parameters of a cointegrating VECM. There is the need to determine the optimum lag before conducting the Johansen cointegration test. Table 6 therefore presents the lag

order selection based on the various selection criteria whereas Table 7 reports the results from the Johansen cointegration test based on the popular trace statistic.

**Table 6: Lag order selection for Johansen cointegration test**

Endogenous variables: LOG\_GDP LOG\_FZEXP  
LOG\_FZINV  
Exogenous variables: C OPEN  
Sample: 1998Q1 2015Q4

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-113.7422	NA	0.007559	3.628551	3.827611	3.707209
1	40.93365	285.9160	9.15e-05	-0.785868	-0.288219*	-0.589224*
2	46.70493	10.14346	0.000101	-0.688028	0.108210	-0.373397
3	64.84647	30.23589	7.72e-05	-0.965045	0.129783	-0.532426
4	74.03852	14.48445	7.75e-05	-0.970864	0.422552	-0.420259
5	88.69461	21.76207*	6.64e-05*	-1.142261*	0.549745	-0.473669
6	92.67941	5.554576	7.91e-05	-0.990285	1.000310	-0.203707

**Source: Computations from research data 2016**

From the above table, three out of the five selection criteria chose 5 as the ultimate lag length for the cointegration test and the study opted for that one instead of the lag 2 reported by the other two selection criteria as the lag 5 produced more desirable results from the cointegration test.

**Table 7: Johansen cointegration test**

Series: LOG\_GDP LOG\_FZEXP LOG\_FZINV  
Lags interval (in first differences): 1 to 5  
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.233801	31.22390	29.79707	0.0340
At most 1	0.175762	13.64721	15.49471	0.0931
At most 2	0.013390	0.889685	3.841466	0.3456

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

**Source: Computations from research data 2016**

The null hypothesis under the Johansen cointegration test is that there is no cointegrating equation. From table 7 above, at rank 1, the trace statistic is less than its critical value and hence

we cannot reject the null hypothesis that there is one cointegrating relationship between GDP, free zones exports and free zones investments. The Johansen method for estimating  $r$  states that we should accept the first  $r$  for which the null hypothesis is not rejected as the actual  $r$  and hence we conclude that  $r = 1$  is our true estimate of the number of cointegrating equations between the three variables. In simple terms, this means that there exists a long run relationship between free zones exports and investments and our main dependent variable - GDP.

#### 5.4 Lag order selection for the two models

Before estimating the vector error correction model, there is again the need to determine the optimum lag length for each of our models. The following tables therefore present the lag order selection results from the various selection criteria:

**Table 8: Lag order selection criteria for model 1 (Impact of free zones exports on economic growth)**

Endogenous variables: LOG\_GDP LOG\_FZEXP

Exogenous variables: C OPEN

Sample: 1998Q1 2015Q4

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-71.37630	NA	0.033655	2.284130	2.416837	2.336569
1	74.58533	274.2309	0.000456	-2.017737	-1.752324*	-1.912860*
2	75.50606	1.674065	0.000501	-1.924426	-1.526307	-1.767110
3	82.14862	11.67479	0.000463	-2.004504	-1.473678	-1.794749
4	85.45156	5.605003	0.000474	-1.983381	-1.319849	-1.721188
5	96.14700	17.50162*	0.000388*	-2.186273*	-1.390035	-1.871641
6	97.80063	2.605714	0.000419	-2.115171	-1.186226	-1.748100

**Source: Computations from research data 2016**

From table 8 below, with the exception of the Schwarz Bayesian Criterion (SC) and the Hannan-Quinn Criterion, all the other selection criteria chose 5 as the optimum lag length. We therefore test-estimated our first model based on both lags 1 and 5 and based on the fact that more

significant and robust results were reported by lag 5, that lag was thus chosen as the ultimate lag length for our first model.

**Table 9: Lag order selection criteria for model 2 (Impact of free zones investments on economic growth)**

Endogenous variables: LOG\_GDP LOG\_FZINV

Exogenous variables: C OPEN

Sample: 1998Q1 2015Q4

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-113.7023	NA	0.121362	3.566737	3.699444	3.619176
1	2.124506	217.6140	0.004097	0.178045	0.443458*	0.282922*
2	7.375640	9.547516	0.003948	0.140132	0.538251	0.297448
3	12.79518	9.525257*	0.003787	0.097116	0.627941	0.306870
4	17.12069	7.340262	0.003758	0.087252	0.750783	0.349445
5	21.40002	7.002526	0.003740	0.078787	0.875025	0.393419
6	25.70976	6.791113	0.003723*	0.069401*	0.998346	0.436471

**Source: Computations from research data 2016**

For our second model, table 9 indicates that lags 1, 3 and 6 were chosen by the various selection criteria, and again based on a test estimation run for model 2, it was apparent that lag 6 was the best for that model.

## 5.5 Estimation of the vector error correction models (VECM)

After ascertaining the existence of cointegration among our endogenous variables and also determining the optimum lag length for each of our models, the study goes on to estimate our vector error correction models in the presence of trade openness as our control variable.

### 5.5.1 Model 1: Impact of free zones exports on economic growth in Ghana

In order to achieve the first objective of the study, we estimate the first model in which we want to examine the impact of free zones exports on GDP. Table 10 below presents the VECM estimates by Eviews 8 for our first model. With the model one, our coefficient of determination

(i.e. the R-square) indicates that about 56% and 15% of the variability in GDP and free zones exports are explained by the regressors where the two are respectively used as the dependent variables.

**Table 10: Impact of free zones exports on economic growth**

Vector Error Correction Estimates

Sample (adjusted): 1999Q3 2015Q4

Included observations: 66 after adjustments

Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1			
LOG_GDP(-1)	1.000000			
LOG_FZEXP(-1)	-0.754030 (0.04554) [-16.5574]			
C	-7.828053			
Error Correction:	D(LOG_GDP)	p-value	D(LOG_FZEXP)	p-value
CointEq1	-0.331874 (0.06722) [-4.93713]	0.0000	0.114853 (0.12518) [ 0.91749]	0.3610
D(LOG_GDP(-1))	-0.009595 (0.11430) [-0.08395]	0.9333	0.037496 (0.21286) [ 0.17616]	0.8605
D(LOG_GDP(-2))	-0.160551 (0.10466) [-1.53402]	0.1280	-0.262846 (0.19491) [-1.34858]	0.1803
D(LOG_GDP(-3))	0.004817 (0.10737) [ 0.04486]	0.9643	0.229485 (0.19996) [ 1.14766]	0.2537
D(LOG_GDP(-4))	0.362101 (0.11245) [ 3.22010]	0.0017	-0.045770 (0.20941) [-0.21856]	0.8274
D(LOG_GDP(-5))	-0.015257 (0.12176) [-0.12530]	0.9005	-0.230334 (0.22675) [-1.01581]	0.3120
D(LOG_FZEXP(-1))	-0.101514 (0.08382) [-1.21105]	0.2286	0.133088 (0.15610) [ 0.85258]	0.3958
D(LOG_FZEXP(-2))	-0.096924 (0.07770) [-1.24742]	0.2150	-0.062092 (0.14470) [-0.42912]	0.6687

<b>Error Correction:</b>	<b>D(LOG_GDP)</b>	<b>p-value</b>	<b>D(LOG_FZEXP)</b>	<b>p-value</b>
D(LOG_FZEXP(-3))	-0.164503 (0.07660) [-2.14742]	0.0340	0.027168 (0.14266) [ 0.19044]	0.8493
D(LOG_FZEXP(-4))	-0.254027 (0.07910) [-3.21142]	0.0017	-0.107128 (0.14731) [-0.72724]	0.4687
D(LOG_FZEXP(-5))	-0.057227 (0.08612) [-0.66447]	0.5078	-0.111931 (0.16039) [-0.69789]	0.4868
C	0.460538 (0.11686) [ 3.94090]	0.0001	0.044698 (0.21763) [ 0.20539]	0.8377
OPEN	-0.018862 (0.00498) [-3.78959]	0.0003	0.000109 (0.00927) [ 0.01176]	0.9906
R-squared	0.561907		0.153487	
Adj. R-squared	0.462716		-0.038176	

**Source: Computations from research data 2016**

***Lagged GDP on current GDP***

From the first equation of our first model where GDP is used as the dependent variable, it is clear that lags 1, 2 and 5 of GDP negatively affect GDP although they are all insignificant. Lags 3 and 4 of GDP however have positive relationship with current GDP with lag 4 being statistically significant.

***Free zones exports on economic growth***

In the case of our main independent variable which is the free zones exports, all five lags of it have negative relationship with our dependent variable which is GDP with lags 3 and 4 being statistically significant. Although this negative finding sharply contradicts the popular export-led growth hypothesis (Balassa, 1978; Kavoussi, 1984; Krueger, 1978; Ram, 1987), and also

empirical researches by Frankel and Romer (1999), Vohra (2001), Balaguer and Cantavella-Jorda (2004), Subasat (2002), Amavilah and Phoenix (2002) and Ullah, Zaman, Farooq, and Javid (2009), it finds support in empirical papers such as Afzal and Hussain (2010), Furuoka and Munir (2010) and Dreger and Herzer (2013). This result however does not come as a surprise as most of the exports from the free zones are actually light industrial manufactures and low-grade processed primary products that do not command any high prices on the international market. Also, the free zones firms are heavily dependent on duty-free imports for their supplies to undertake their operations and this reduces the potential gains from the free zones exports. And in the words of De Armas and Jallab (2002), free zones have been poor in the generation of foreign exchange mainly from exports due to their high import composition.

#### ***Trade openness on economic growth***

For our control variable (trade openness) there is a statistically strong negative relationship with GDP which is actually significant at the 1% level of significance, meaning that as Ghana's trade openness which is a ratio of its exports and imports to GDP increases, its GDP falls. This finds support in similar findings by O'rourke (2000) and Yanikkaya (2003) who found that trade openness has a negative relationship with growth whilst contrasting empirical works by Bolaky and Freund (2004) and Wacziarg and Welch (2008) who found the opposite to be the case.

#### ***Impact of economic growth on free zones exports***

For our second equation where free zones exports are the dependent variable, whereas lags 1 and 3 of GDP have statistically insignificant positive relationship with free zones exports, lags 2, 4 and 5 on the other hand have negative relationship with free zones exports which are also statistically insignificant.

***Lagged free zones exports on current free zones exports***

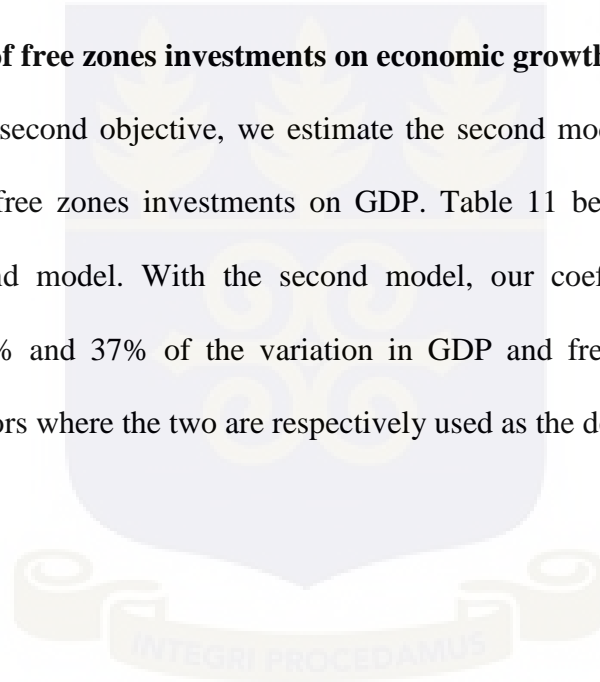
Also, with the exception of lags 1 and 3 of free zones exports which are positively related with current free zones exports, all the other lags of free zones exports are negatively related to free zones exports although they are all statistically insignificant.

***Trade openness on free zones exports***

Our control variable on the other hand has a positive but statistically insignificant relationship with free zones exports.

**5.5.2 Model 2: Impact of free zones investments on economic growth in Ghana**

In order to achieve our second objective, we estimate the second model in which we want to examine the impact of free zones investments on GDP. Table 11 below presents the VECM estimates for our second model. With the second model, our coefficient of determination indicates that about 40% and 37% of the variation in GDP and free zones investments are explained by the regressors where the two are respectively used as the dependent variables.



**Table 11: Impact of free zones investments on economic growth**

Vector Error Correction Estimates  
 Sample (adjusted): 1999Q4 2015Q4  
 Included observations: 65 after adjustments  
 Standard errors in ( ) & t-statistics in [ ]

CointegratingEq:	CointEq1			
LOG_GDP(-1)	1.000000			
LOG_FZINV(-1)	-1.927097			
	(0.35011)			
	[-5.50431]			
C	11.35666			
Error Correction:	D(LOG_GDP)	p-values	D(LOG_FZINV)	p-values
CointEq1	-0.061027 (0.03409) [-1.79028]	0.0764	0.353865 (0.14224) [ 2.48773]	0.0145
D(LOG_GDP(-1))	0.077342 (0.14661) [ 0.52752]	0.5990	0.035195 (0.61180) [ 0.05753]	0.9542
D(LOG_GDP(-2))	-0.157062 (0.14349) [-1.09459]	0.2763	0.540146 (0.59876) [ 0.90211]	0.3692
D(LOG_GDP(-3))	-0.063006 (0.13815) [-0.45608]	0.6493	-0.809088 (0.57646) [-1.40354]	0.1636
D(LOG_GDP(-4))	0.273287 (0.15513) [ 1.76163]	0.0812	-0.152332 (0.64735) [-0.23532]	0.8144
D(LOG_GDP(-5))	-0.140541 (0.15583) [-0.90192]	0.3693	0.138397 (0.65023) [ 0.21284]	0.8319
D(LOG_GDP(-6))	-0.143365 (0.15258) [-0.93960]	0.3497	-0.224742 (0.63670) [-0.35298]	0.7248
D(LOG_FZINV(-1))	-0.132566 (0.05789) [-2.29012]	0.0241	0.272871 (0.24155) [ 1.12967]	0.2613
D(LOG_FZINV(-2))	-0.067807 (0.05613) [-1.20809]	0.2299	0.117800 (0.23421) [ 0.50296]	0.6161
D(LOG_FZINV(-3))	-0.079176 (0.04588) [-1.72556]	0.0875	0.322438 (0.19147) [ 1.68403]	0.0953

<b>Error Correction:</b>	<b>D(LOG_GDP)</b>	<b>p-values</b>	<b>D(LOG_FZINV)</b>	<b>p-values</b>
D(LOG_FZINV(-4))	-0.051509 (0.04660) [-1.10539]	0.2716	-0.044390 (0.19445) [-0.22829]	0.8199
D(LOG_FZINV(-5))	-0.075253 (0.03896) [-1.93174]	0.0562	0.097429 (0.16256) [ 0.59935]	0.5503
D(LOG_FZINV(-6))	-0.052348 (0.03851) [-1.35923]	0.1771	-0.120108 (0.16071) [-0.74737]	0.4566
C	0.185960 (0.11225) [ 1.65668]	0.1007	-0.024199 (0.46839) [-0.05166]	0.9589
OPEN	-0.006855 (0.00480) [-1.42890]	0.1562	0.001483 (0.02002) [ 0.07410]	0.9411
R-squared	0.400997		0.370023	
Adj. R-squared	0.233276		0.193630	

**Source: Computations from research data 2016**

### ***Lagged GDP on current GDP***

For our first equation in the second model, whereas lags 1 and 4 of GDP are positively related to current GDP, all remaining lags of GDP are negatively related to GDP. However, these relationships are all statistically insignificant.

### ***Free zones investments on economic growth***

Also, all six lags of free zones investments have negative relationship with GDP, with only lag 1 being statistically significant, meaning that as investments in the Ghanaian free zones surge, economic growth actually declines. This negative relationship between investments and GDP is in line with similar findings by Carkovic and Levine (2002), Durham (2004), Lipsey and Sjöholm (2005), as well as Uwubanmwun and Ajao (2012). The latter studied the determinants and impact of FDI in Nigeria, and attributed the situation to the fact that the effectiveness of

Foreign Direct Investment (FDI) is constrained by the level of infrastructural development and other macroeconomic variables. In the case of the free zones programme in Ghana, it is even more the case for the fact that although the zones may have generally superior infrastructure compared to the rest of the economy, impact of investments is not felt in the wider economy as the zones are delineated or even cut off from the rest of the economy with little or no direct interaction between the micro economy of the zones and the macro economy of the entire Ghanaian economy.

***Trade openness on economic growth***

Trade openness on the other hand has a negative relationship with GDP that is statistically insignificant.

***Impact of economic growth on free zones investments***

In our second equation, whereas lags 1, 2 and 5 of GDP positively affect free zones investments, lags 3, 4 and 6 have negative impact on our free zones variable although all of them are statistically insignificant.

***Lagged free zones investments on current free zones investments***

Also, apart from lags 4 and 6, all the other lags of free zones investments are positively related to current free zones investments although none of them is statistically significant.

***Trade openness on free zones investments***

Trade openness has a statistically insignificant positive relationship with free zones investments.

## **5.6 Robustness check after VECM estimation**

Having estimated the vector error correction models, it is crucial to undertake some post-estimation checks to be sure of the reliability of our parameter estimates. We therefore conduct the normality test of the residuals and also a check of the stability condition of the estimates.

### **5.6.1 Normality test**

It is imperative that the residuals in each of our regressions follow a normal distribution in order to generate reliable and consistent estimates so as to ensure that our models are not misspecified. If the residuals are not normally distributed the signs of our generated coefficients together with their significance could be doubtful. The normality test is conducted against a null hypothesis that the disturbances for each equation and for all equations jointly are normally distributed, and an alternative hypothesis that they are not normally distributed. If we reject the null hypothesis it means our models are not misspecified and the reverse is true for the null hypothesis. The Jaque-Bera test statistic, skewness statistic and the kurtosis statistic are hereby used in conducting the normality test. Whereas the Jaque-Bera results are based on the sum of the skewness statistic and the kurtosis statistic, the skewness and kurtosis results are based on their respective coefficients as reported in table 12 for our two specified models.

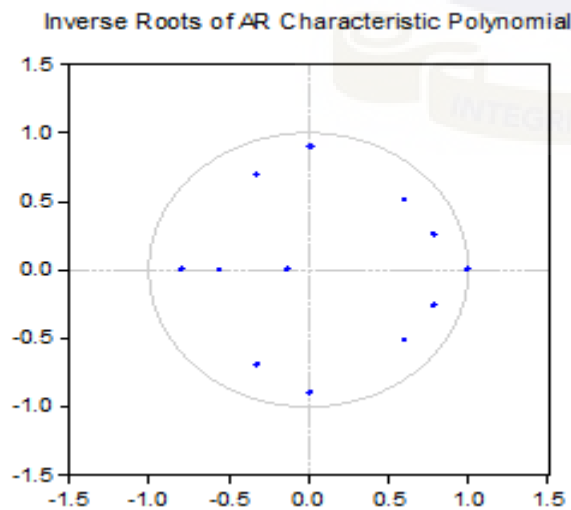
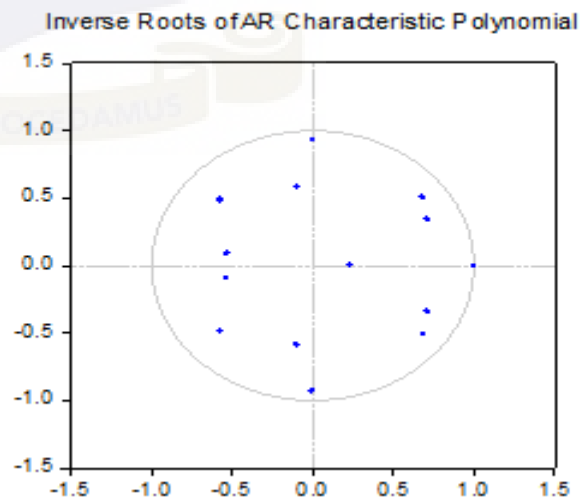
From table 12, it is clear that our two equations namely GDP and free zones exports are jointly significant at the 5% level of significance for each of the three test statistics. We therefore refuse to reject the null hypothesis that the disturbances are normally distributed and thus conclude that there is no problem of misspecification. The table also indicates that jointly, each of our test statistics has a P-value of less than 0.05, meaning that the disturbances in our second model are also normally distributed and hence the absence of model misspecification.

**Table 12: Normality test**

Models	Test Statistic	Chi-sq	df	Prob.
1	Skewness	13.048	2	0.002
	Kurtosis	18.901	2	0.000
	Jarque-Bera		4	0.000
2	Skewness	8.573	2	0.014
	Kurtosis	11.791	2	0.003
	Jarque-Bera		4	0.000

### 5.6.2 Model stability test

In order to have reliable estimates from the estimation of our VECM, there is the need for the model to be stable. It is therefore important to check the eigenvalue stability condition of each of the two models. We show the stability of the models by using the inverse roots of the autoregressive (AR) characteristic polynomial. The stability condition demands that the modulus of each eigenvalue of the matrix is less than one. Also, the roots of the AR polynomial of each variable must lie inside the unit circle. Figures 4 and 5 present the graphs of the eigenvalues of the matrix of each of the models estimated.

**Figure 4: Model 1 stability test****Figure 5: Model 2 stability test**

As depicted by figure 4, it is clear that model one which looks at the impact of free zones exports on GDP, has each modul of the eigenvalues being less than one and they all fall within the unit circle. Since all the inverse roots of the characteristic polynomial are all in the unit circle, it can be concluded safely that our first model is stable. Similar observation can also be made of figure 5 for our second model which looks at the impact of free zones investments on GDP, with all the inverse roots of characteristic polynomial being in the unit circle, meaning that our second model too is stable.

## **5.7 Conclusion**

This chapter has sought to present the results and an analysis of the findings of this research work. To be certain of the stationarity or otherwise of our series, a test of unit root was first conducted, and from the results, none of the variables was found to be stationary in levels, but rather, they were all integrated. With all the variables being unstationary, there was the need to check if our endogenous variables are cointegrated, so the Johansen cointegration test was performed and it came to light that GDP, free zones exports and free zones investments are cointegrated and this allowed us to go ahead with the use of the vector error correction model for this work. Also, the output from our VECM estimation are presented and analysed, as well as a test of normality and stability to ascertain the reliability and consistency of our results, with the two confirming the non-misspecification and stability of our models. This chapter is followed by the summary, conclusions and recommendations of this research work.

## CHAPTER SIX

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 6.1 Introduction

This final chapter summarises the entire work and draws conclusions while making appropriate recommendations on the free zones programme for policy makers, practitioners and future researchers. It concludes with a candid view of the study's limitations.

#### 6.2 Summary of findings

Many international institutions with the development of the poor regions of the world at the heart of their operations, and governments in the developing world have touted the free zones trade policy tool as a panacea to economic development. This is because the programme which is mainly associated with poor countries is said to come with both short term tangible and long term generally intangible benefits including increased exports, increased investments particularly Foreign Direct Investments, employment generation, transfer of technology, structural transformation of the economy among others. However, empirical studies have so far only concluded that the programme has generally been successful in countries in Asia and Latin America with only Mauritius boasting as the most successful implementer of the programme in Sub-Saharan Africa. In fact, so far, empirical papers such as De Armas and Jallab (2002); Graham (2004); Kinunda-Rutashobya (2003) and Cling et al. (2005) have found out that EPZs have positive impact on their host countries. However, papers especially on SSA by Engman et al. (2007); Farole (2011); Jenkins (2005) and Stein (2012) have all concluded that EPZs do not actually play any significant role in the economic development of poor countries.

The contrast in the results from the implementation of the programme may generally be attributed to such factors as sub-standard infrastructure, high levels of corruption, scarcity of skilled labour, frequent changes in policy and political instability, as well as the underdeveloped macroeconomic environment among others. Not surprisingly therefore, the free zones programme has received very limited research attention particularly in Africa with very few cross-country papers existing on the zones especially in SSA, with the lack of interest in EPZs also being attributed to the unavailability of data and the lack of faith in the programme by economists in its efficacy, simply because mostly firms in the zones receive vastly generous trade incentives from what pertains in the rest of the economy and hence the lack of impact on the wider economy. In the case of Ghana, so far only two papers by Cook (2000) and Angko (2014) exist, with the two papers mainly focusing on the export performances of the Ghana Free Zones Programme with inconclusive findings. This current paper therefore comes in handy to complement existing literature and also offer a more comprehensive view on the impact of the programme so far in Ghana.

In this regard, the paper sought to achieve two objectives of first of all evaluating the impact of exports from Ghana's free zones on economic growth, and secondly examining the impact of free zones investments on Ghana's economic growth.

In an attempt to achieve the stated objectives, the study made use of quantitative techniques to verify the impact of our two key free zones variables on GDP, with trade openness serving as our control or exogenous variable. The study specifically made use of the vector error correction model (VECM). The use of this technique follows the establishment of non-stationarity in our variables and the cointegration of all our three endogenous variables. The study made use of aggregate data covering all the firms under the free zones programme in Ghana.

The first key finding from the running of the empirical model is that, free zones exports are negatively related to economic growth in Ghana, meaning that as the national economy grows, exports from the free zones decrease. Although this result sharply contradicts the popular export-led growth hypothesis, it however finds support in works such as Afzal and Hussain (2010), Furuoka and Munir (2010) and Dreger and Herzer (2013). This however does not come as a surprise as most of the exports from the free zones are actually light industrial manufactures and low-grade processed primary products that do not command any high prices on the international market. Also, the free zones programme is heavily dependent on massive imports of raw materials and other intermediate goods in their operations as they make maximum use of the platform that enables them to freely import these goods without the payment of duties, and what this means is that, according to De Armas and Jallab (2002), gains from foreign exchange through these free zones exports are eroded.

Also trade openness has a statistically significant negative relationship with GDP and this comes as no surprise as a fall in GDP, actually causes the trade openness ratio to rise, and this finds support in existing literature such as O'rourke (2000), and Yanikkaya (2003).

Again, according to our results, free zones investments are negatively related to our main dependent variable (GDP) and this is similar to findings by earlier papers such as Carkovic et al. (2002), Durham (2004), Lipsey et al. (2005) and Ahmed et al. (2012) who found that Foreign Direct Investment has a negative impact on growth. In the case of the free zones in Ghana, the vast majority of investments are undertaken in the Tema enclave where they try to take advantage of superior infrastructure and because of this the impact of the investments is not felt in the wider economy. Also, trade openness has a statistically insignificant positive relationship with our two free zones variables.

### **6.3 Conclusion of study**

The literature on Export Processing Zones is characterised by arguments both for and against the use of this trade tool as a means of promoting economic growth especially in the developing world. And although economists generally have very little hope in the ability of EPZs to promote economic growth, governments in most poor countries still see it as a viable means to promote the growth of their economies. In this regard, most of these governments go to a great length to offer vastly generous trade incentives to the export-oriented firms to attract these firms into their respective countries usually at the expense of the public good.

However, because mostly free zones are treated as enclaves, impact of their operations is not normally felt in the wider economy. The results from this work therefore gives credence to this idea and largely confirms the fears of the economists, as it has been empirically proven in this paper that free zones exports and investments have not had any positive impact on the growth of the Ghanaian economy. That is, the free zones programme has not served its purpose or objective for its implementation in Ghana or it has not served our interest. It is therefore suggested that the Government of Ghana should scrap the programme since the free zones concept is actually recognised as a second best option not meant to be an everlasting policy for economic growth but only to play an initiating role in the economic growth agenda. The government should rather look at opening up the whole country especially in terms of infrastructure and other incentive provision for all firms so that production or economic activity can freely take place in every corner of the country to realise balanced and more sustainable growth of the economy.

#### **6.4 Limitations of the study**

Although EPZs provide both static and dynamic benefits, this paper has mainly focused on the static benefits which are the easily quantifiable outcomes of EPZs including exports and investments. This is mainly as a result of the inability of the researcher to access data on those variables from the Ghana Free Zones Board (GFZB), such as employment, foreign exchange, technology transfers, integration with the local economy and structural change. This situation is also as a result of the fact that this research spans only a period of one year which makes it extremely difficult to collect data on every variable of the zones' activities and assess them.

Also, although the research covers all firms operating under the Ghana Free Zones Programme, it is limited by the relatively short span of data which covers the period 1998 to 2015. This is however due to the fact that the free zones programme in Ghana started in the late 1996 for which reason the available data only cover the period stated above.

Finally, due to the limited data available and time constraint, the paper cannot measure in order to ascertain if the Ghanaian zones are being profitable in themselves, that is whether they are generating returns above the costs of their establishment as well as which industrial sector is more profitable in the Ghanaian context.

#### **6.5 Recommendations for policy, practice and future research**

The results from this empirical work have implications for policy makers and regulators of the free zones programme in Ghana as well as users of the free zones platform and future researchers.

In the case of policy makers and regulators of the Ghana Free Zones Programme, it is obvious from this study that the programme has not realised its intended purpose in terms of promoting the growth of the Ghanaian economy. We therefore recommend the scrapping of the programme by the government and instead urge the Ghana Government to see to the total liberalisation of the entire country in terms of infrastructure provision and other incentives given to all firms in the country for them to operate freely and fully in every part of the country to promote true economic growth. This also includes the formulation and implementation of sound fiscal and monetary policies to create the enabling environment for economic activity to take place. On the other hand, if the government insists on giving the programme a bit more time, taking into consideration the amount of resources and effort that have gone into it, we recommend that efforts should be made to attract especially more local firms into the zones since they invariably retain all their profits in the Ghanaian economy, because over-reliance on foreign investors is actually unlikely to maximise the full benefits from the operation of the zones. Government must also try and vary its incentives given to the free zones firms periodically whilst also ensuring that other inducements are given to the firms to entice them to use more local inputs in their operations.

For the free zones firms, it is again obvious that their operations have not impacted the Ghanaian economy and hence the need for them to ask themselves, if the concept is not to be scrapped, what is it that they are not doing right especially in the light of the massive incentives they receive from the government. However, if the government should decide to give them some more time for them to vary their operations or activities in order for their impact to be felt, there is first of all the need for them to diversify their operations into more technologically advanced sectors including high quality manufacturing on a large scale whilst ensuring higher productivity

to match with the superior incentives they are enjoying relative to the rest of the economy so as to be able to export more to the rest of the world rather than just focusing so much on the limited West African market, while also maximizing the use of the AGOA platform. The firms must also try and actually locate in other places of the Ghanaian economy instead of just sitting in the enclaves so as to take advantage of the comparative advantages offered by various places in the Ghanaian economy such as cheap source of raw materials. Trying to use more local raw materials will also cut down on the massive import bill borne by these firms and thereby increase their profits.

Finally, to the research community, the paper recommends more work on the free zones programme as it has received limited research attention especially in Sub-Saharan Africa, in order to truly ascertain the full impact of the programme on other regions of the world. Also, there is the need for more research on some other variables of the EPZ programme such as employment generation, technology transfer and structural transformation of the wider economy. Lastly, since most of the existing works on EPZs have been very qualitative, there is the need for the application of more quantitative frameworks to ascertain the potential of this trade policy tool on the economies of the implementing nations.

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