UNIVERSITY OF CAPE COAST

FOREIGN DIRECT INVESTMENT AND EMPLOYMENT CREATION

IN GHANA: A PANEL DATA ANALYSIS FROM 1997-2012

FRANCIS AMANYO

2015

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GHANA: A PANEL DATA ANALYSIS FROM 1997-2012

FRANCIS AMANYO

DISSERTATION SUBMITTED TO THE DEPARTMENT OF

ACCOUNTING AND FINANCE, SCHOOL OF BUSINESS, UNIVERSITY

OF CAPE COAST IN PARTIAL FULFILLMENT OF THE

REQUIREMENTS FOR THE AWARD OF MASTER OF BUSINESS

ADMINISTRATION IN FINANCE

JANUARY, 2015

DECLARATION

Candidate's Declaration

I hereby declare that this Dissertation is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate Signature:……………………..   Date:……………………...

Name: Francis Amanyo

Supervisors' Declaration

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by the University of Cape Coast.

Principal Supervisor's Signature:………………….   Date:……………………...

Name: Dr.Anokye Mohammed Adam

ABSTRACT

This study examined the effect of foreign direct investment (FDI) on employment creation in Ghana using panel data covering the period 1997 to 2012. The study employed Pedroni co integration, Johansen panel test and the Granger No-causality test procedure suggested by Toda and Yamomanto to empirically examine the relationships and directional relationships between FDI and employment creation. The study employed two controlling variables namely exchange rate and GDP growth.

The study results reveal that foreign direct investment relates positively with employment creation. It was also revealed that there is a negative relationship between employment creation and exchange rate. GDP growth also relates positively with employment creation both in the long run and short run. Furthermore, there was no causality flowing from employment creation to FDI and Exchange rate. However unidirectional causality was established between GDP growth and employment creation.Based on the findings and conclusions, policy recommendations are worth noting that the negative relationship between exchange rate and employment growth means that high exchange rate may present deleterious effects to employment creation in the various sectors of Ghana's economy.

ACKNOWLEDGMENT

I am particularly grateful to my Supervisor, Dr. Anokye Mohammed Adam for

his patience, prompt attention, valuable suggestions and constructive

criticisms which helped to put this dissertation in shape.

My sincere gratitude goes to my lovely Amanyo family for the love, advice,

encouragement and financial support.

Special thanks go to my course mates for their invaluable contributions

relating to the estimation techniques used in this study.

Finally, I wish to express my appreciation to all individuals who contributed in

diverse ways towards the successful completion of this dissertation.

DEDICATION

I dedicate this work to my family.

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CHAPTER ONE

INTRODUCTION

Background

There are justifiably and optimistic expectations about the role of foreign direct investment on employment creation in developing countries. The growing interest in Foreign Direct Investment commonly known as FDI is not only as a result of globalization but also a consequence of the steady decline in official assistance and the debt crisis in the less developed countries (UNCTAD, 2003). In developing countries, FDI has been viewed as a major stimulus in boosting economic growth. Multinational Corporations (MNCs) have remained the major contributors in enhancing FDI. MNCs play vital role in the economic growth of developing countries, because these corporations use human and physical resources of such countries. In the year 2000, the 100 largest MNCs made up 4.3% of the world's Gross Domestic Product (GDP) by holding accumulated assets of US$ 6.3 trillion. In the same year, MNCs had combined foreign sales of US$ 2.4 trillion, hired 7.1 million employees for their foreign operations and also employed about 7 million people in their domestic operations (UNCTAD, 2002).

Foreign Direct Investment (FDI) is considered as important ingredient for economic development of a developing country. Countries that are lagging behind to attract FDI are now formulating and implementing new policies for attracting more investment. Industrial development is one of the pre-requisites

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for economic growth particularly in a developing country. Moving from the agrarian economy to industrial economy is imperative for economic development. Ghana is an example in this regard. In the age of globalization the need for exchanging ideas, views, capital and human resources are becoming a burning issue. Governments also try to create a conducive investment environment by introducing economic policies, incentives for investors, privatization and so on. Therefore, it is generally believed that the contribution of FDI cannot be ignored to enhance the economic growth of a country.

Over the years, the flows of foreign direct investments have increased substantially (Rojas-Romagosa & Lejour, 2006).This is as a result of the reduction in barriers to entry, considerable improvements in transportation and communication technologies, and direct policy measures implemented by many host countries' to attract FDI (Rojas-Romagosa&Lejour,2006). The almost universal belief in the growth enhancing effects of FDI demonstrated by the scramble of governments to attract foreign investments with all kinds of incentive packages, could be attributed to the ability of FDI's to deal with two major obstacles, namely, shortages of financial resources, and technology and skills. This consequently has resulted in FDI'S attracting the attention of policy makers in low-income countries in particular. As a result of this, host countries are witnessed offering favourable conditions such as tax and investment allowances, duty drawbacks, grants in aid and other favourable conditions to foreign firms than are granted to domestic firms (Haskel & Girma, 2002) in their anticipation that foreign investments inflows would bring significant positive externalities that domestic firms do not provide

(Yudaeva, Kozlov, Malentieva, & Ponomareva, 2003). The important issue here seen from the host countries perspective is how best to benefit from the Foreign Direct Investment inflows.

FDI's boost the economies of developing countries by adding to resources available for investment and capital formation. The activities of foreign direct investors enhance the transfer of technology, skills, innovative capacity, and organizational and managerial practices between countries. Furthermore, host countries benefit from access to international market networks through the activities of Foreign Direct Investors (Abdulai, 2004). Capital formation, employment generation, building strong economic links between industrialized countries and developing countries and generating both technological and performance enhancement in local firms are some of the additional benefits literature on the subject has identified. The FDI impact on the budget of most developing countries is undeniable and Ghana is not an exception. This is because the profits generated by the FDI in developing countries have positive effects on the tax revenue of the host countries (Erdal & Tatoglu, 2002; Ajayi, 2006).

In addition to the direct employment effects, FDI's also contribute indirectly to the process of employment creation. This is as a result of the purchases from suppliers, who in turn purchase from other suppliers, this chain in demand and supply subsequently contributes to the employment generation process (Jéquier, 1989; Lall, 1983).The indirect positive effects arising from inward FDI is also as a consequence of the following, subcontracting of business operations and activities, provision of transport services, the demand for other services like marketing facilities, government

infrastructure, construction expenditure and finally the reinvestment of funds received as a result of a takeover by a foreign entrant.

FDI is also important to the Ghanaian economy, over the past years, Ghana has been receiving FDI. The period from 1997 to 2003 recorded oscillating flows, decreasing from US$82 million in 1997 to US$56 million in 1998. In 1999 flows peaked at US$267 million before falling to US$115 million the following year due to change of government. Inflows further dropped to US$89 million and US$50 million respectively in 2001 and 2002. This drop was as a result of the attacks on the United States in September 2001. This recorded a drop of 41% in 2001 and 21% in 2002 (UNCTAD, 2003). Between 1994 and 2005, a total number of 1,884 projects registered by the GIPC were created 106,124 new jobs with over 45 percent emanating from manufacturing and agriculture (GIPC report, 2005).

The year 2003 saw a recovery in FDI inflows recording US$137 million. This figure was due to a massive boost in FDI with the merger of Ashanti Goldfields and AngloGold and the beginning of a $400 million gold mine investment by the US firm, Newmont (ISSER, 2004).FDI inflows recorded between 2004 to 2007 saw upsurges. The year 2004 recorded $206 million whilst 2005, 2006 and 2007 recorded $214 million, $2,368 million and $5,029 million respectively. Since the promotion and monitoring of FDI in Ghana are carried out by several agencies without proper coordination in arriving at a total figure, it is significant to note that the quality of FDI statistics in Ghana tend to be questionable.

The Ghana Investment Promotion Centre asserts that FDI has had some positive effect on total formal employment, as well as the quality and

skill levels of Ghanaian workers. The centre reports that about 74 % of enterprises registered since 1994 are in operation, and that FDI inflows registered between 1995-2002 cumulatively amounted to US$150 million. The peak for FDI inflows registered at GIPC was almost US$475 million in 1997.These FDI inflows have created a cumulative total of 76,350 jobs for the period 1995-2002 out of which 71,635 were for Ghanaians. The cumulative figure up to year 2000 was 60,276 Ghanaian jobs representing 0.7 percent of the economically active population from the 2000 census.

Notwithstanding the enumerated positive effect, negative external effects are inherent. These negative external effects arise when foreign entrants decide to replace suppliers of the host country with foreign suppliers. (Buckley & Artisien, 1987; Jéquier, 1989).

Statement of Problem

Foreign direct investment has been argued to play a vital role in accelerating economic growth in developing countries. Over the years, world saving as a proportion of world income has fallen. As a result, saving, real interest rate has declined and inflation rate has risen in the world. It is against this background that foreign direct investment (FDI) has appeared increasingly attractive to developing countries facing declining domestic investment and higher costs of foreign borrowing.

The government of Ghana has made several efforts to liberalize trade, enhance international competitiveness and promote foreign investment to enhance employment creation. (Antwi-Asare2005).This has been achieved through a number of mechanisms, including lowering tariffs, abolishing most

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important controls, privatization and reforming the regulatory environment (Pakes & Nel, 1998).

Despite all these mechanisms, the rate of employment creation in Ghana has been sluggish over the years, posting an overall growth rate of less than 4 per cent from 1999 to 2007, falling to 3.1 per cent in 2008 and 1.8 per cent in 2009 before a slight recovery of 4.6 per cent during the first quarter of 2010 (UNCTAD, 2010).Thus, the country faces daunting challenges as it competes with other emerging economies for foreign investment.

The employment response to foreign direct investment depends not only on the value of the investment and the number of projects, but also determined by the distribution of the investment (GIPC report, 2005). However, with a total labour force of about 8.3 million and unemployment rate of 10.4 percent in 2000 a total of 106,124 new jobs created from projects with a combined value of US$2,189.5 million over eleven years does not seem significant(GIPC report, 2005). In addition, 48.5 new jobs generated per million dollar project appear to suggest that the employment effect of FDI is low. Antwi-Asare (2005) finds a very little linear association between total FDI stock and employment in Ghana over the periods 1980-90 and 1991-2000. This seems to imply that the flow of FDI (even in larger volumes) is not a panacea of employment problems in the country. It rather depends on the sectors where the FDI flows into the employment impact of FDI would best be realized if it flows into sectors such as export trade, tourism, manufacturing, agriculture and building and construction rather than mining Antwi-Asare (2005). Thus, the economy stands to benefit from employment creation if

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investments are directed to these sectors which have proven greater potential for job creation.

Job creation is the single most important challenge that policymakers in Ghana face. Unemployment and underemployment particularly among the youth despite impressive economic growth over the years still remains very high (B&FT, 2013). An estimated 250,000 young men and women enter the Ghanaian labour market each year (B & FT, 2013). Out of this number, only about 5000 (2%) are employed by the formal sector. The remaining 98 percent are compelled to seek employment in the informal sector. Among the large pool of the unemployed in Ghana are graduates from the Universities and also other tertiary institutions. University graduates are unable to secure for themselves jobs after successful completion of their respective programmes of study. There are only 40,000 new jobs for the 66,500 graduates being churned out from the country's tertiary institutions each year, suggesting that 40% of fresh graduates face possible unemployment unless they create their own jobs. This means that in effect a minimum of 66,500 graduates join the search for jobs each year (Bress-Biney, 2013).

Among the potential solutions to the unemployment problem is the attraction of Foreign Direct Investment. The resultant employment effects of FDI may result from new start-ups, plant expansions and take over's or mergers and acquisition.

This study seeks to investigate the effect the effect of foreign direct investment and employment creation in Ghana.

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Objectives of the Study

The main objective of the study is to examine the effect of foreign direct investment on employment creation in Ghana. Specifically, the research seeks to:

1. examine the nature of FDI sectoral relationship from 1997-2012;

2. assess the long run relationship between employment creation and FDI in Ghana and;

3. assess the existence of causality between FDI, GDP and exchange rate and employment creation in Ghana.

Hypotheses

In tandem with the research objectives, the following hypotheses were formulated:

1. H0: There is no significant FDI sectoral relationship within the period 1997-2012.

    H1: There is a significant FDI sectoral relationship within the period 1997-2012.

2. H0: There is no significant long run relationship between employment creation and the influx of FDI in Ghana.

    H1: There is significant long run relationship between employment creation and the influx of FDI in Ghana.

3. Ho: There is no existence of causality between FDI, GDP, and exchange rate and employment in Ghana.

    H1: There is existence of causality between FDI, GDP, and exchange rate and employment in Ghana.

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Scope of the Study

The study uses panel data from the period 1997 to 2012 where the study specifies the employment model incorporating gross domestic investment, and exchange rate. The period of study (1997-2012) was chosen due to these reasons: adoption of economic liberalization, passage of the investment act, the free zone act and the availability of data for each of the variables considered over the study period. The extent of the analysis was limited to the macroeconomic determinants of foreign direct investments in Ghana and an examination of their relative importance to employment creation in Ghana. It specifically examined the effect of FDI on jobs created within the domestic and foreign firms in Ghana trying to identify the nature of the influence and the amount of job created as a result of FDI inflows over the period 1997 to 2012 in different sectors of the economy. The sectors herein shall include agriculture, manufacturing and services.

Significance of the Study

An understanding of foreign direct investment (FDI) impact on job creation is essential and crucial to the growth, development and stability of the economy as a whole. The study will inform policy makers to know whether or not FDI in Ghana contributes to a significant amount of job creation. The study provides relevant policy implications and guide policy makers in policy making with regards FDI and employment. The study also provides relevant implications for firms.

Organisation of the Study

The research report is organized in the following manner. Section one discusses the background and introduction, chapter two discusses the overview

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of FDI in Ghana and the existing literature on FDI and employment creation and knowledge about the topic. Chapter three describes the methodology and data analysis. Chapter four presents the estimation method and the empirical results and finally Chapter five concludes the report with recommendations to policy makers.

CHAPTER TWO

REVIEWOF RELATEDLITERATURE

Introduction

The aim of this chapter is to provide a review of literature both theoretically and empirically on foreign direct investment on employment creation in Ghana. The chapter is divided into two sections. The first part of the chapter discusses the main FDI theories, assessment of FDI theories and their linkage to employment creation. The second part of the chapter provides statistical evidence and trend of FDI influx into the Ghanaian economy, the volumes of employment FDI has created in the various sectors of the Ghanaian economy from 1997 to 2012.

Overview of Foreign Direct Investment (FDI)

Foreign Direct Investment (FDI) is defined as investment made to acquire a lasting management interest in an enterprise operating in a country other than that of the investor and in general, foreign investment must be at least 10% ownership of an enterprise to be considered as FDI (Cicic, Patterson, & Shoham, 1999). Usually, FDIs are made by large Multi-National Firms (MNFs) through a merger or acquisition, Greenfield, Joint Ventures (JV) and partnerships. In theory, the foreign firms enter to new markets seeking efficiency, resources and markets.

UNCTAD (2008) defines Foreign direct investment (FDI) is an investment involving a long term relationship and reflects a lasting interest

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and control by a resident entity in one economy in an enterprise resident in an economy other than that of the foreign direct investor UNCTAD, 2008).The International Monetary Fund (IMF) also defines it as the case when an investor holds 10% or more on the equity of an enterprise abroad. Further, FDI is an investment by an organisation in a business in another country with the view to establishing production in the host country.

According to the balance of payment manual by the International Monetary Fund (1993), FDI refers to an investment made to acquire lasting interest in enterprises operating outside the investor's economy (IFC, 1993). FDI could be classified as an inflow or outflow. FDI inflow refers to the inward direct investment made by non-resident investors in the reporting economy whereas FDI outflow is the value of outward direct investment made by the resident of the reporting economy to external economies.

Theories of Foreign Direct Investment

International Trade Theory

International Trade theory explains the growth of transnational companies and their motivations for achieving foreign direct investment. The theory was developed by Buckley and Casson, in 1976 and then by Hennart, in 1982 and Casson, in 1983. Initially, the theory was launched by Coase in 1937 in a national context and Hymer in 1976 in an international context.

In explaining the reasons why countries trade, the theory of absolute advantage was propounded by Smith (1937). According to Smith (1937), free trade is essential if the wealth of a country is to increase. With free trade, a country should export the commodity that can be produced at lower cost and import the one produced at higher costs compared with other nations. The

drawback with this theory is that it fails to recognize the presence of foreign firms. Foreign investment was explained in its portfolio form as opposed to the direct form. The theory assumes perfect competition. Hence investors are able to take their savings where returns are highest and hence maximize profits. Yarbrough and Yarbrough (2002) report that though this theory has been criticised for only listing the conditions necessary for FDI without explaining its phenomenon, it has widely contributed to international production theory.

According to Hymer (1976) the MNF appears due to the market imperfections that led to a divergence from perfect competition in the final product market. Hymer has discussed the problem of information costs for foreign firms respected to local firms, different treatment of governments, currency risk (Eden and Miller, 2004). The result meant the same conclusion: transnational companies face some adjustment costs when the investments are made abroad. Hymer recognized that FDI is a firm-level strategy decision rather than a capital-market financial decision.

Industrial Organization Theory

Hymer (1960), use the portfolio investment theory to provide an explanation for FDI; he noted that firms have ownership specific advantages in the form of non-financial and intangible assets. These advantages include patents and technology, scale economies, managerial skills and product reputation (brand) that MNF would transfer across their subsidiaries. In this case the main motivation for FDI is that MNFs want to retain control of these assets by establishing foreign operations.

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Another related theory developed by Vernon (1966) established the product life cycle theory. The essential point here is that the MNF's main products' life cycle patterns determine foreign investment. The drawback of this theory is that it ignores host country conditions.

Product Life Cycle Theory

Product Life Cycle theory assumes that foreign companies have oligopolistic power in the host countries (Cockcroft and Riddell, 1991; Meier, 1994). It holds micro and macroeconomic factors responsible for the real life deviations from the perfect market model. According to this approach, firms choose an investment location because of its comparative advantage. Meier (1994) contributes to this theory by arguing that FDI may also be taken to gain control over inputs thus creating a barrier of entry to new competitors.

The Product Life Cycle theory makes emphasis on two main points. Firstly, the firms become Multinational firm due to their possession of competitive advantage and their ability to maximize their productivity by using this competitive advantage in another country. This however leads to the concept of ownership advantages as discussed by Dunning (1994). Secondly, the competitive structures of some industries would encourage firms to internationalize more than those in other countries.

Hymer's industrial organization theory of FDI hypothesizes that the rate of profit has a tendency to drop in industrialized countries. This is due to domestic competition, thus creating the propensity for firms in underdeveloped countries to engage in FDI. The theory considered tradable ownership advantages and the removal of competition as key requirements for an individual firm in a given industry to invest overseas and thus become an MNF.

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Hymer made four assumptions under the micro-level theory of FDI namely;

i.   In the post-war years, FDI was two-way between developed and developed countries. Other theories suggested that the flow of capital was one way from developed to underdeveloped countries.

ii.   A country was supposed to either engage in outward FDI or receive inward FDI only. Hymer observed that MNEs moved in both directions across national boundaries in industrialised countries. This implies that countries simultaneously receive inward FDI and engage in outward FDI.

iii. The level of FDI was found to vary between industries. This means that, if capital availability was the driver of FDI, then there should be no variation since all industries would be equally able and motivated to invest abroad.

iv.   Due to local financing of foreign subsidiaries, it was not practically plausible that capital moved from one country to another.

The Eclectic Paradigm

Dunning (1988) further postulated that Industrial Economics theory is captured by the focus on ownership factors (O), International Trade theory by locational factors (L), and the Internalisation theory (I) by market failure factors. Combining these theories, Dunning deduced that the OLI factors produce a more comprehensive understanding of FDI and foreign firms conduct. Dunning's paradigm has been developed basically to explain the behavior of Multinational firms (MNFs). For example, to explain why firms own foreign production facilities. However, it has been used widely to analyze preconditions of FDI inflows (Gastanaga, Nugent, and Pashamova, 1998).

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The electric device paradigm by Dunning (1998) provides a robust framework for analysing and explaining determinants of international production and how this varies between firms, industries and countries overtime. Dunning provides a framework of three sets of advantages explaining why and where MNEs would invest abroad. This is what Dunning refers to as the ownership, location and internalisation paradigm or the electric paradigm. In this context, investment could be natural seeking, market seeking, efficiency seeking or strategic asset seeking.

Ownership specific advantages, being superior to home country firms, may make foreign investors to crowd out domestic investment (Mizberg, 1996). The ownership advantages refer to firm specific features sometimes referred to as competitive advantage and this must be sufficient to compensate for the cost of setting up and operating a foreign value adding operation. On the other hand, the second strand of the electric paradigm is locational advantage. This is concerned with the "where" of production. These include the host country specific characteristics that can influence MNCs to locate an economic activity in the country. They include economic factors such as communication costs, investment incentives, tax regimes (Buckley and Casson, 1998).

New Trade Theory

According to Markusen and Maskus (2002) the distinction between horizontal and vertical is important in the study of FDI and MNFs. Horizontal FDI refers to a situation where a MNF replicates the same production over different locations (Markusen, 2002).Vertical FDIis associated with trade in goods among affiliates within the firm Yeaple (2003)

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Buckley and Casson (1998) argue that until the 1980s, FDI was just viewed as part of the theory of capital movements in factor proportions. They report that huge empirical evidence now holds that FDI not only comes from, but goes to high income capital rich countries and that has led to what is referred to as off-shoring.

Yarbrough and Yarbrough (2002) in an attempt to explain the spatial location of FDI assume that the decision of a Trans National Corporation on which province to locate investment depends on a set of characteristics of host province affecting firm's revenue or costs such as factor endowments, market size, income per capita, skilled labour and availability of public infrastructure among others.

Mankiw (2003) applying the Solow growth model, argues that private businesses invest in traditional types of capital some of which may include bulldozers and steel plants. Governments on the other hand invest in various types and form of public capital called infrastructure such as roads, bridges. Mankiw further argues that policy makers in their attempt to stimulate growth ought to confront the issue of the kind of capital the economy needs most.

Aiello, Lona, and Leonida, (2009) argue that other things being equal, a change in infrastructure expenditure influences the cost faced by the firm in adjusting its current capital stock to the target level. They further argue that this is a reasonable assumption, given that the adjustment costs depend not only on the firm's internal characteristics, but also on the external factors for example the provision of public infrastructure.

Bajona and Kehoe (2006) discussed explanations of multinational production based on neoclassical theories of capital movement and trade

within the Hecksher-ohlin framework. They however criticise this theories on the basis that they were founded on the assumption of existence of perfect factor and goods market and were therefore unable to provide satisfactory explanation of the nature and pattern of FDI. In the absence of market imperfections, these theories presumed that FDI would not take place. Nevertheless, they argue that the presence of risks in investing abroad must be compensated by distinct advantages in the choice of host country.

Assessment of the Theories of FDI and their Linkage to employment Creation

The employment effects of inward foreign direct investment may be conceptualized as having both direct and indirect effects. FDI's resultant employment effects may result from new start-ups, plant expansions, and take-overs or mergers and acquisitions (M&A). New start-ups refer to commencement of business by new entrants and existing ones into an already existing business in the same or different geographical locations. This is as a result of the provision of new markets, channels and access to technology etc. Plant expansions occur in the period in which there is an increase in economic activity. Plant expansions result in the increase in the firms' capacity to provide more products or services. This subsequently results in the demand for more office space and production requirements subsequently resulting in the demand for employees to work on new jobs.

The new trade theory comprises of vertical and horizontal form of FDI, the new trade theory is further subdivided into forward and backward linkage. This theory posits that Demand for labour is derived demand. If there will be demand for goods and services, then there will be demand for labour as well.

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FDI can have direct and indirect effect on employment. When foreign investors intend to invest in any country, they need the skilled and unskilled labour force in their production process. FDI is helping in employment creation through forward and backward linkage with domestic firms and multiplier effects on the local economy. In forward linkage, foreign investors are suppliers of local firms and create more ideas and employment in local firms. In backward linkage effect, foreign investors are the buyers of local firms, which create demand for local firms' product and local firms create the demand for labour. Aaron (1999) found that 26 million direct jobs and 41.6 million indirect jobs were created by FDI in developing countries in 1997. FDI is a source of capital accumulation in a country and enhances the new skills in labour force through training and development. So, labour can have a greater capacity to finding new jobs.

In addition to the direct employment effects, FDI's also contribute indirectly to the process of employment creation. This is as a result of the purchases from suppliers, who in turn purchase from other suppliers, this chain in demand and supply subsequently contributes to the employment generation process (Jéquier, 1989; Lall, 1983).The indirect positive effects arising from inward FDI is also as a consequence of the following, subcontracting of business operations and activities, provision of transport services, the demand for other services like marketing facilities, government infrastructure, construction expenditure and finally the reinvestment of funds received as a result of a takeover by a foreign entrant. Notwithstanding the enumerated positive effect, negative external effects are inherent. These negative external effects arise when foreign entrants decide to replace

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suppliers of the host country with foreign suppliers. (Buckley and Artisien, 1987; Jéquier, 1989).

Reasons for FDI Direction

A study by Chryssochoidis, Millar and Clegg (1997) identified five major reasons why foreign investors invest outside their home country. The first reason is the need to gain access to specific factors of production for example technical knowledge, material know how, patent or brand names and others owned by the host country. The second reason based on the theory of Raymond Vernon's (1967) product cycle hypothesis, is to gain access to cheap factors of production, for example, low cost labour. The third reason is international competitors buying stakes in each other. The fourth reason concerns access to customers in the host country market. Finally, the fifth reason relates to trade diversionary aspect of regional integration.

Investing in Ghana

Ghana has attracted the attention of several well-known international businesses, investing in all sectors of the economy. All these investors have come to Ghana because of the conducive social, political and economic environment. The Ghana Investment Promotion centre (GIPC) coordinates and monitors all investment activities and assists domestic and foreign investors.

Determinants of FDI in Ghana

In a study by Aryeetey, Barthel, Busee, Loehr and Osei (2008), stated that the most important factor that influences investor's choice of Ghana as an investment destination is the macroeconomic and political environment. In the study when firms were asked to name the most important factor that influences investment decisions, about 35% of the firms said it is the macroeconomic and

political environment . This result is consistent with the findings of Ahlquist (2006) who finds that FDI inflows tend to increase under more stable and democratic governments. The next most important factor among the firms interviewed is the market size and it's potential to grow, a variable identified by about 28 per cent of the firms engaged in the study. The next in that order is natural and physical resources of the country. Unsurprisingly, this is the most important factor considered for the mining companies.

There is not much literature to support the determinants of FDI in Ghana, especially in relation to the environment. Asante (1994) conducted an econometric analysis of the determinants of both private and public investments coming from both domestic and foreign sources. A combination of time series simultaneous equation model and quantitative cross sectional survey shows strong relationship between public and private sector investment. Credit however was a significant feature in private investment. The paper however did not isolate the determinants of FDI since it was looking at investment in general. In one of the earlier studies of the determinants of FDI in Africa and Ghana, Tsikata (1997) found the nature of government and political stability are major factors in determining FDI flows. A more recent look at the same issue Tsikata et al (2000) using both econometric analysis and the survey method provided the following results for Ghana: Democracy controlled regime has been detrimental to FDI flows

Political stability is statically insignificant and the survey outcome suggests it has little influence on FDI flows, Investment promotion strategy has a positive relationship with FDI in Ghana, and Infrastructure has little inhibiting effects on FDI flows, export orientation of the country significantly

affects FDI inflows, high interests and exchange rate variability are statistically insignificant with regards to FDI flows, The key determinants of FDI in Ghana are the investment incentives available and the availability of raw materials in the country and availability of cheap labour and lack of demand are not important obstacles to FDI flows.

Challenges Faced by Foreign Investors in Ghana

Foreign Direct Investment in Ghana and subsequently foreign investors in Ghana are faced with certain challenges that disrupt their smooth operation. Firms studied by (Aryeetey et al. 2008) identified land as being the most important obstacle that investors face. Some of the other factors that came up strongly include registering property, employing workers, getting credit and dealing with licenses. It is important to note that apart from access to land, power and past record of other mining companies, the remaining ten variables are the same as those used in the Doing Business Report produced by the World Bank. In the 2008 Doing Business Report, it was noted that the areas where significant improvements were made over the 2007-2008 period include registering property, getting credit, starting a business, trading across borders and enforcing contracts (World Bank 2008). Two of these areas (registering property and getting credit) still appear problematic from the survey.

Importance of FDI

Foreign Direct Investment (FDI) is of growing importance to global economic growth. The direct reasons why FDI should be encouraged and promoted in host countries are ;

Job Creation: FDI does not only create job for the foreign affiliates but also it does for other stakeholders and suppliers. The FDI market database estimates

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the jobs created through FDI recorded well over 4 million through green field and expansions in 2008.

Other indirect importance of FDI to host countries are as follows;

Export Market Access: FDI that are usually motivated by the market and production are more often export oriented. This export orientation leads to an opening or further opening of the host country to international trade.

Increased Domestic Investment: Through local linkages, FDI can have a significant impact on increasing investment in domestic companies (Diffield et al, 2003). Ghana, for instance, is discussing the likelihood of putting together legislation to encourage foreign organizations to source about 40% of their supplies locally. This shall aid in the integration of the foreign company in the local community thereby discouraging the foreign firm from relocating.

Access to Technology: FDI comes with the transfer of corresponding technology into the host country. FDI thus opens the host country to technology that otherwise will not have been available in the country. For example in the case of telecommunication in Ghana, fibre optics was virtually unknown until 2009 when telecom companies like Globacom and MainOne commenced projects aimed at introducing fibre optics in telecommunication industry.

Innovation: "FDI can be a key source of foreign exchange in countries with low savings or access to capital" (Kotler, 1990).

FDI and Job Creation

Proponents of FDI generally argue that FDI generates employment. However, Sornarajah (2004) points out that FDI does not always lead to meaningful employment creation. He argues that sometimes FDI is

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accompanied by massive layoffs, especially in the privatisation of public companies. Miberg (1996) cautions that the portion of FDI that expands employment is considered to be ¼ while 3/4 is considered contract employment.

Inflows of FDI in addition to introducing new industries and establishing new firms in host countries leads to increase employment in the host countries through the establishment of linkages with domestic firms resulting in the purchases of locally produced goods and services. In addition, FDI can make domestic firms more competitive and enable domestic firms expand production and employment by introducing new and better quality inputs to be used in production by domestic firms. However, FDI might on the other hand decrease employment in domestic firms. This is the case when foreign firms increase competition for domestic firms forcing domestic firms to exit the market or in other instances cause them to downsize their workforce (Karlsson, Lundin, Sjöholm, and He, 2007).

Spar (2003) observes that in an ideal situation, FDI is expected to generate new job opportunities either directly or indirectly by means of onward or rearward linkages with domestic firms. The multiplier effects are expected to be high in economies with regards to generation of domestic employment. According to Pilbeam and Corbridge (2006), every direct employment in a foreign company should result in 2 to 4 employment opportunities in domestic firms. Dupasquier and Osakwe (2005) note that foreign direct investment in African countries contribute to employment generation and have a positive impact on employment in developing countries. Among the benefits of FDI which includes increased capital and integration

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into global economic networks; it also increases employment among other things (Moses, Shawal&Shen, 2004).

Foreign Direct Investment Statistics in Ghana

Historical trends of FDI flows in Ghana are classified into three main phases since 1983(Tsikata, Asante, and Gyasi, 2000). The period 1983 to 1988 was characterised by sluggish inflows averaging about US$4 million per annum and the highest and lowest inflows in the period being US$6 million in 1985 and US$2 million in 1984 respectively. The period 1989 to 1992 recorded moderate inflows averaging about US$18 million per annum, the highest and lowest being US$22 million in 1992 and US$14.8 million in 1990 respectively. 1993 to 1996 saw a period of significant but oscillatory inflows, which peaked in 1994 at US$233 million, but fell by more than 5% the following year to US$107 million (Abdulai, 2004).

The period from 1997 to 2003 recorded oscillating flows, decreasing from US$82 million in 1997 to $56 million in 1998. In 1999 flows peaked at US$267 million before falling to $115 million the following year. Inflows further dropped to US$89 million and US$50 million respectively in 2001 and 2002. This drop was as a result of the attacks on the United States in September 2001. This recorded a drop of 41% in 2001 and 21% in 2002 (UNCTAD, 2003). The year 2003 saw a recovery in FDI inflows recording $137 million. This figure was due to a massive boost in FDI with the merger of Ashanti Goldfields and AngloGold and the beginning of a $400 million gold mine investment by the US firm, Newmont (ISSER, 2004).FDI inflows recorded in 2004 to 2007 saw upsurges. The year 2004 recorded $206 million whilst 2005, 2006 and 2007 recorded $214 million, $2,368 million and $5,029

million respectively. Since the promotion and monitoring of FDI in Ghana are carried out by several agencies without proper coordination in arriving at a total figure, it is significant to note that the quality of FDI statistics in Ghana tend to be questionable.

Abosi (2008), in his study on the determination of FDI in Ghana, makes the following analysis. From the time of Ghana's independence, successive governments have adopted and implemented a number of measures aimed at creating an enabling environment for both local and foreign investors. The research attributes the flows of FDI into the mining sub-sector and services sector in the 1980s and 1990s to the mining law and the privatization programme that took place in that era. The study further showed that this favourable flow of FDI continued well into the 2000s but Ghana still lags behind despite its immense potential.

Awudi (2002) also confirms that attractive mining policies contributed to the attraction of over US$2 billion between 1991 and 2001. This consequently led to the sector being the leading foreign exchange earner for Ghana contributing about 41% in total foreign exchange earnings for the country. However, he argues that there is the need to bridge the linkage gap that exists between the mining sector and other sectors of the economy of Ghana.

According to (GIPC) as reported by the Business and Financial Times (2013),FDI inflows into Ghana based on the value of the registered projects recorded US$4.9 billion in 2012, In a report by the acting Chief Executive Officer of the GIPC, Mrs Mawuena Tebrah, the centre recorded a total of 399 projects in the year. She however said that FDI inflow slowed in 2012 due to

investor uncertainty about Ghana's elections. This is characteristic of past elections years. In 2011 when Ghana's economy surged by 14.4 % due to oil, the value of FDI was US$6.82 billion and the centre registered 514 projects. Growth subsequently is expected to have slowed to 7.1% last year after the initial impact of the oil sector diminished.

According to the GIPC report as reported by Business and Financial Times (2013) China recorded the highest number of projects with 56 projects and topped the list of countries while Lebanon with total investments of US$1.49 billion was the largest source of investment in terms of value. Countries such as India, Nigeria, Britain, USA, Germany and Mauritius were among the top-ten investor countries by number of projects, according to the data. In terms of value, British Virgin Islands, Mauritius, USA, Netherlands, UAE and Canada were in the top-ten.

Mrs Tebrah was also of the view that the initial capital transferred by the investors was US$98.97million in 2012 ,as compared to US$213.29million in 2011. She also added that a total of 24,562 jobs were expected to be created from the projects registered last year. Expatriates benefitted from 2,370 of the jobs, while locals got the remainder.

"As Ghana marches on in its development agenda to move from a lower middle-income to middle-income status, there is need for us to continue policies and reforms that will result in attracting the appropriate kind and volumes of investments required to service the new status,"(B&FT,2013),she said. In the 2012/2013 Global Competitiveness Index published by the World Economic Forum, the country moved eleven places up from 114 to 103. And in October last year, the World Bank's annual Doing Business Report ranked

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Ghana fifth in sub-Saharan Africa and 63rd in the world for the ease of doing business.

In addition, the United Nations Conference on Trade and Development (UNCTAD)'s World Investment Report 2012 ranked Ghana fourth among the top destinations for investment in Africa and a top-five recipient of FDI into the continent in 2011

Regional Distribution of FDI Projects

In terms of the regional distribution of FDI, the greater Accra region continues to dominate. This is apparently due to the availability of social and other investment infrastructure compared to other regions. It accounts for about 79% of total investment projects. The Ashanti region follows with 7%. Western region accounts for 4.4% while Central, Eastern, Volta, Northern, BrongAhafo, Upper East and the Upper West accounts for 3.43%, 2.91%, 1.62%, 1.04%. 0.52%, 0.26% and 0.06% respectively.

Regional Distribution of Registered Projects

The table below shows the regional distribution of FDI into Ghana for the period 2006 to 2010.The essence of this table is to show the number of registered projects and how they were distributed to the various ten regions in Ghana under the period 2006-2010.Ghana is made up of ten regions. The table shows an estimated 85% of the projects were registered in the Greater Accra Region where the capital city is located. No projects were recorded in the Upper West Region in the period under review. The high percentage in the Greater Accra Region could be attributed to fact that it is the most populous region according to the 2010 census in Ghana by the Ghana Statistical Service and host Ghana's main airport. The three Northern Regions recorded a total of

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15 projects corresponding to 0.99%.The Ashanti Region came second with 62 projects and the Western Region came third also with 46 projects. The Eastern Region on the other hand placed fourth with 1.99% of the total number of projects.

Table 1: Regional Distribution of Registered Projects

REGION	2006	2007	2008	2009	2010	TOTAL	PERCENTAGE
AR	15	14	11	10	12	62	4.12
BR	0	2	6	6	3	17	1.13
CR	3	13	14	1	5	26	1.73
ER	4	7	6	6	7	30	1.99
GR	221	257	251	222	341	1292	85.85
NR	3	2	4	1	3	13	0.86
VR	2	6	6	1	2	17	1.13
WR	8	6	7	12	13	46	3.06
UE	0		1	1		2	0.13
TOTAL						1505	100

Source: GIPC working documents 2011

Sectoral Distribution of Registered Projects within the Regions

The BrongAhafo Region recorded 17 projects; 35% of which were in the Export Trading, Manufacturing recorded 24% and the Agriculture sector recorded 23%. In the Greater Accra Region, 1292 projects were recorded. 30% of this total was recorded in the Services sector, 24% in the General Trading with the Agriculture sector recording on 2% of the total projects.

The Ashanti Region recorded 67 projects; 27% of this total is in the Manufacturing, 18% in General trading and 15% in Export trading. The Agriculture projects in the region represent a total of 8%. The table below

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gives the details of the sectorial distribution of projects in Ghana in the period 2006 to 2010.

Table 2.Sectoral Distribution of Registered Projects within the Regions

REGION	AGRIC	BLD/CONST	EXPORT TRADE	GEN. TRADE	LIAISON	MFG	SERVICES	TOURISM
AR	5	4	9	11	4	17	7	5
BR	4	0	6	0	1	4	2	0
CR	4	3	0	0	0	5	5	9
ER	12	0	1	1	0	5	9	2
GR	27	113	43	312	47	274	384	92
NR	3	1	1	2	0	4	1	1
VR	8	0	2	0	0	5	2	0
WR	2	4	3	0	2	4	22	9
UE	0	0	0	0	0	0	2	0
TOTAL	65	125	65	326	54	318	434	118

Source: GIPC working documents 2011

Projects by Sectors: 2006 – 2010

The table below displays the projects by sectors resulting from the inflow of FDI. From the table it would be observed that the Services sector recorded the highest number of projects corresponding to 434, representing 28.84%. This was followed by the General trade with 326 projects representing 21.66%, Manufacturing with a total of 318 representing 21.11%, Building and Construction with 125, representing 7.84%, the Agriculture sector recorded 65 projects corresponding to 4.32%, Export and Trade with 65 projects corresponding to 4.32% and Liaison with a total of 54 projects corresponding to 3.59%.

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Table 3: Projects by Sectors: 2006 – 2010

SECTOR	2006	2007	2008	2009	2010	TOTAL	AVERAGE
AGRIC	6	15	16	13	15	65	13
BLD/CONST	20	32	24	19	30	125	25
EXPORT/TRADE	13	12	18	4	18	65	13
GEN. TRADE	49	67	73	52	85	326	65.2
LIAISON	18	10	10	5	11	54	10.8
MFG	63	87	49	59	60	318	63.6
SERVICES	68	52	84	87	143	434	86.8
TOURISM	19	32	22	21	24	118	23.6
TOTAL						1505	

Source: GIPC working documents 2011

Ownership Structure

As per the GIPC act 478, two ownership structures are recognised by the centre. They are a joint venture with a Ghanaian and wholly foreign owned. The ownership of the project is considered a joint venture only when there is/are Ghanaian partners. Wholly foreign owned companies consist of investors from other nations other than Ghana

Table 4.Ownership Structure of Registered Projects: 2006 To 2010

YEARS	JOINT VENTURE	CHANGE %	WHOLLY FOREIGN %	CHANGE %
2006	99		157	
2007	123	22.4	184	17.20
2008	99	(19.51)	197	7.07
2009	90	(9.09)	170	(13.71)
2010	136	51.11	250	47.06
TOTAL	547		958	

Figures in brackets are decrease in percentages.

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Source: GIPC working documents 2011

Table 5: Total Employment within the Sectors: 2006 To 2010

SECTOR	GHANAIANS	NON GHANAIANS
AGRICULTURE	194,667	373
BUILDINGAND CONSTRUCTION	56,707	14,380
EXPORT TRADE	1,587	380
GENERAL TRADING	9,042	1,262
LIAISON	637	139
MANUFACTURING	23,633	1,912
SERVICES	58,271	3,669
TOURISM	3,135	749
TOTAL	**347,679**	**22,864**

Source: GIPC working documents 2011

Empirical Review of FDI and Employment Creation

A large academic literature exists that focuses on FDI's effect on host economies. Feenstra and Hanson (1997) studied the impact of state level growth in FDI on skilled labour share of wages in Mexico using state level data from Mexico's industrial census for the period 1975 to 1988. They apply the Feenstra and Hanson (1996) model of trade and investment and found out that FDI is positively related with the relative demand for skilled labour.

FDI has had a great effect on employment particularly in China. In a study by Gao (2009), it was observed that the use of foreign capital continues to expand, enterprise employment is growing but the overall growth rate witnessed a downward trend from about 50% in the late 1980s to about 5% in

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the late 1990s.Gao (2009) concluded in his paper that this fall could be attributed to the continued rise in the capital/ labour ratio.

A study by Andersen and Hainaut (1998) to analyse the effect FDI has on employment in respect of outflows in source countries show that there is not enough evidence that FDI outflows leads to job losses in the source countries instead they found that domestic investments tends to decline in response to FDI outflows resulting in developing countries receiving only a small share of global outflows (Andersen and Hainaut 1998).The finding by Jayaraman and Singh (2007) provides evidence for estimating the marginal effect of the impact of FDI and GDP on employment. The study results revealed that both FDI and GDP did have a positive and statistically significant effect on Fiji's job creation.

Karlsson et al (2007) studied the effect of FDI on job creation in terms of manufacturing industries in China. This was based on firm level information in the Chinese manufacturing industry during the period 1998 to 2004. Their study was based on both direct and indirect employment and their results showed a better employment growth relationship between FDI and private domestic firms than non-private domestic firms. They concluded that FDI has contributed to job creation in the Chinese manufacturing sector.

Axarloglou and Pourmarakis (2007), on the other hand in their study analysed the effect of FDI inflows on local employment in manufacturing in some States of the United States in the period 1974 to 1994 and found changing effects from one industry to another. They established that FDI inflows have positive employment effects in a sub-group of industries such as printing and publishing, transportation equipment and instruments and a

negative effect in other sub-group industries such as leather and stone, clay and glass.

Wang and Zhang (2005) found that FDI directly increases employment and reduces employment by supplanting domestic investment and improving productivity levels indirectly. The combination of the two effects shows a positive significant impact of FDI on employment in china. The increase in FDI for each additional percentage point will bring about a 0.008 percentage point increase in actual employment.

Haaland and Wooton (1999) gave the economic justification of giving a subsidy to attract FDI. FDI increased demand for domestic inputs including labour. In the long-run, FDI could establish modern sector through agglomeration effects and help in industrial development and in generating employment. Mudambi (1999) claimed that region-specific FDI could play a role to increase employment in underdeveloped areas. Haaland and Wooton (2001) mentioned that foreign investors could initially volunteer jobs to get the benefit of a subsidy from the host country's government and subsequently could redundant the labour. Welfare effects of subsidy depended on government policies. If government reduced the amount of subsidies and raised the payments for redundancy, the welfare effects could be maximized. (Hanson, Gordon, Mataloni, Raymond, and Slaughter 2001) stated that the welfare effects of FDI on employment depended on the nature of FDI. Production-oriented FDI had a better impact on training and job creation than that of distribution-oriented FDI.

Sjöholm (2008) studied the relationship between FDI and technology in terms of indirect effect and found a clear linkage between employment and

technology. On the one hand, it was observed that the introduction of new technology may make Chinese firms more competitive which allows for growth resulting in the employment of more workers. However, new technology could on the other hand cause a decrease in demand for labour by substituting the low skilled employees with the fewer higher skilled employees. Hence change in technology policies will affect job creation.

Zhu (2005) argues that the imbalance in employment distribution in china region is an issue worth considering. He found that the indirect effect of FDI on china's employment is much larger than the direct effect. The regional employment differences Zhu noted were largely due to most FDI flowing to coastal cities. That makes employment shift from other areas to coastal cities (Zhu, 2005).

Many researchers have studied the effect of FDI by the analysis of panel data. To estimate dynamic labour demand functions for blue and white collar workers, Arellano and Bond (1991) refined a panel data analysis. Through a GMM estimator, they found FDI had a significantly positive though quantitatively modest impact on manufacturing employment in Mexico. It was also showed that there was a positive effect on blue collar employment. But it was diminished with the increase of skill intensity of manufacturing industries.

The empirical evidence from Pakistan, India and China showed that whatever other benefits may be derived from FDI, we should not expect to make any employment opportunities resulting directly in any of these three countries. Zia and Rizvi (2009) estimated the impulse response showed that the growth of elasticity of employment in Pakistan, India and China is extremely low and employment enhancing policies should be priorities.

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Alvrez and Gorg (2007) examined growth in employment at a plant level in Chilean manufacturing between the period 1990 and 2000. Results from their study suggest no major differences between employment growth in multinational and non-multinational firms. However they note that the results could be biased by a selection of only surviving plants.

The varying effects of FDI on host countries' economies have been considered in different aspects. A number of researches have emphasised the effect of FDI on economic growth, wage levels, technology spill over, foreign trade, employment structure and, of importance to this study, employment in the host country (Floyd 2003, Dicken 2007). With reference to employment, most researchers conclude that for host countries to enjoy higher positive employment effects, this could be achieved if the investment takes the form of Greenfield investment. On the other hand, if the foreign capital comes through mergers and acquisition, this results in a limited or even negative effect on employment (Dicken, 2007).

Moreover, it would be worth noting that firm ownership also is an important aspect of job creation. The main reason for insufficient job creation in china is as a result of the fact that state owned enterprises are easier to absorb workers than private sector. Foreign owned multinational and joint ventures belong to private sector, so the private domestic and foreign owned firms are relatively more likely to create jobs than state owned enterprises.

According to O'Connell, (1989) research shows that foreign investment accounts for less than one per cent of all new U.S jobs and in certain sectors of the economy, FDI may contribute to job losses. According to a number of recent studies based on government data, FDI accounts for no

more than 15,000 to 20,000 net new jobs annually largely because the great bulk of FDI activity involves the acquisition of existing companies not the so-called "greenfield" investment (O'Connell, 1989).

Causality between FDI, GDP, Exchange rate and Employment Creation

Generally, most of the previous empirical studies discovered that causality linkage between foreign direct investment (FDI), GDP growth, exchange rate and employment creation to be so mixed. With Some researchers indicating the unidirectional response while others indicating the bi-directional response and remaining group find no response at all among the four variables in questions.

The studies by (Dritsaki, Dritsaki and Adamopoulos 2004) on the analysis of how FDI, exchange rate economic growth and employment creation relate to each other in Greece for the years between of1960-2002 shows that there is existence of a long run equilibrium relationship among the variables analyzed using the co integration test while Granger causality results shows a causal relationship existed on those variables. (Miankhel, Thangavelu and Kalirajan 2009) did the causality test between FDI, exchange rate and GDP (economic growth) for Pakistan, India, Malaysia, Mexico, Thailand and chile. Their findings were different for all the six nations .Their findings specifically reveal that economic growth attracts FDI in India in the long run that while GDP influence export in Pakistan.

The study shows that Thailand had a bidirectional relationship between FDI and GDP implying that FDI leads to GDP and hence GDP attracts FDI. Dasgupta (2007) examined the long run impact of exchange rate, and FDI inflows on the outflows of FDI in India. His empirical results suggested the

presence of unidirectional causality running from the exchange rate and to FDI out flows. The results found no causality existed from FDI inflows to the outflows.

According to the study Meerza (2012) on the investigation of the causal linkage between trade FDI and economic growth of Bangladesh between 1973 to 2008.In his study he found that in the cointegration test there was a long run relationship on the variables being analyzed while he also found that economic growth influences both FDI and GDP growth and that there was the existence of a unidirectional causal relation between FDI and employment which runs from exchange rate to FDI.

An empirical study by Shimul and Siddiqua (2009) found no existence of the linkage of FDI and GDP for Bangladesh for a period between 1973-2007.

Mohammad (2009) using the methodology of Toda and Yamamoto examined the causal relationship between FDI and economic growth for a period between 1970 to 2005 and found no strong evidence of bi-directional causality between the two variables hence he suggested that FDI has an indirect effect on economic growth in Malaysia.

An empirical investigation of the study by Chow P. (1987) on the causal relationships between GDP growth and industrial development in eight newly industrializing countries found out that there is a strong bidirectional relationship.

Chakraborty and Basu (2002) Investigated on the relationship between economic growth and foreign direct investment (FDI) in India by employing the co integration and error correction model method and found out that there

is unidirectional relationship with causation running from GDP to FDI and not otherwise

In his study Athukorala (2003) on The Impact of FDI on Economic Growth in Sri Lanka showed that FDI inflows did not exert an independent influence on economic growth and the direction of causation was from GDP growth to FDI rather than FDI to GDP growth.

CHAPTER THREE

METHODOLOGY

Introduction

The chapter outlines the methodology applied to the study. Theoretical underpinnings reviewed in chapter two forms the basis for this analytical framework. The first part of this chapter specifies the data source, model specification, data and variable description and definition and analysis of variables. The final part of the chapter presents various tests for the estimation techniques including panel unit root test, pedroni co- integration test, and granger causality test. etc

Data source

The study employed secondary data. The heavy reliance on secondary data was because in relation to this study, a larger data set is sought which is difficult, expensive and almost impossible to collect on one's own. The reliance on secondary data thus saves time that would otherwise be spent on collecting data and helps to mitigate the problem of time and cost constraints. The study spanned for a period of 16years, from the year 1997 to 2012. Values of FDI from three sectors were obtained with their respective total number of employment they generated for the various years. To achieve the objectives set for the study, the three sectors under review were coded and re-ordered to give us 48 sample points for the study.

Model specification

The model was adopted from the work of Kontek (2007) for the purpose of this study; it was modified by including exchange rate.

$$EM{it} = \alpha + \beta\,(FDI)it + \delta(EXR)it + \varphi(GDP)it + \varepsilon t$$

Where, EM=Total employment level

FDI=Foreign direct investment

GDP=Gross Domestic investment

EXR=Exchange rate

β, δ and φ are the unknown parameters to be estimated. The dependent variable for this study is employment creation represented in the model as EM. Since the study is based on sectorial analysis considering the three sectors of the economy, the model can further be estimated for the various sectors as follows,

-Agriculture Sector

$$EM{agriit} = \alpha + \beta{agri}\,(FDI)it + \delta{agri}(EXR)it + \varphi{agri}(GDP)it + \varepsilon t$$

-Manufacturing sector

$$EM{manfit} = \alpha + \beta{manf}\,(FDI)it + \delta{manf}(EXR)it + \varphi{manf}(GDP)it + \varepsilon t$$

-Service Sector

$$EM\ ser{it} = \alpha + \beta\ ser\,(FDI)it + \delta ser(EXR)it + \varphi ser(GDP)it + \varepsilon t$$

Data and variables description

The study uses both quarterly and annual data from 1997 to 2012. The choice of data period is based on data availability because complete data set is available for all the variables. The data used include the foreign direct investment (FDI) which is defined as direct investment in Ghana by foreign investors, real output represented by Gross Domestic Product (GDP) series as a proxy for market size, government fiscal deficit, foreign debt, employment which is defined as active people working within the ages of 18-60 years.The nominal exchange rate which is the quarterly inter-bank exchange rates

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between cedi and US dollar. The data for the foreign direct investment are obtained from IFS (various issues), Ghana Investment Promotion Centre (GIPC) and UNCTAD STAT.

The data on the exchange rate variable are obtained from IFS (various issues) and quarterly Digest of Statistics of Ghana. The GDP is obtained from IFS (various issues).The data of total employment will be obtained from the WDI.

Other sources of information will be reviewed to augment the data requirement when those provided in the IFS, World Bank Year Books and African Economic journal were not up to date. These included The State of the Ghanaian Economy, published by ISSER, (Legon),-Macroeconomic Review of Ghana, published by CEPA. Ghana Investment Promotion Centre Quarterly Report, published by GIPC and Economic Surveys of Ghana by the Statistical Service. This helps to ensure good data quality.

Definition and Analysis of Variables

This section provides a discussion of variables and their justification in estimating FDI on employment creation. In employing measures on FDI on employment creation, the researcher used two controlling variables namely exchange rate and GDP. The justification for using these variables is that these variables are found to be significant in past Ghanaian studies pertaining to this research topic thus forming the basis for the base model (Fedderke & Romm, 2004) and (Moolman, Roos, Le roux, and Du toit,, 2006). The base model was then extended by adding variables for which there was available data.

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Gross Domestic Product

There exists a positive and statistically significant relation between the real per-capita GDP and FDI in the case of many countries but correlation coefficient between exports-GDP ratio and percentage FDI is found to be insignificant.The market size hypothesis is used as a proxy for GDP or GDP per capita. It has been noted in most studies that GDP is seen as a major determinant of FDI (Moore. 1993, Ekpo 1996) The reason behind this is that foreign firms invest abroad to capture markets especially in the event of declining markets at home. Significant improvement in Ghana's GDP is as a result of Economic Recovery Programme in Ghana.

Therefore this study deemed it necessary to include GDP as a proxy for market size in the FDI equation.

GDP is expected to be positively related with FDI. Hence, the larger the size of the domestic market the larger the inflow of FDI.

Foreign Direct Investment (FDI) affects real GDP in the positive way. An increase in FDI may result in an increase in RGDP. A decrease in FDI may lead to a fall in RGDP. Usually FDI and GDP oppose each other. This is because policies meant to increase FDI would act to suppress or decrease GDP (Borensztein, Gregorio and Lee 1998, and Khaliq and Nov, 2007).

Exchange rate

Exchange rates are expected to affect FDI in so far as they affect a firm's cash flow, which will have a resultant effect on employment creation. Exchange rates affect directly the marginal profitability through the export revenues of the firm (a direct valuation effect). Attractiveness of domestic assets to foreign investors, real depreciation of the local currency also

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affectinvestment and has effect on the real cost of capital and real output. Unanticipated devaluation affects the profitability of local firms by raising the price level and increasing the cost of imported intermediate inputs. Exchange rate volatility leads to high exchange risk, uncertainty and macroeconomic instability. A negative relationship between exchange rate and FDI is therefore anticipated. (Wang and Swain, 1995)

According to (Nyarko, Nketiah-Amponsah, and Barnor 2011). Exchange rate has no discernible effect on Ghana's FDI. This was possible by modelling the causal relationship between FDI inflows and exchange rate regimes over a 39 year period (1970-2008). Employing Ordinary Least Squares and the co-integration techniques, it was found to have the expected positive sign and to be a robust determinant of FDI in Ghana. Real exchange rate (REXCH) is used to measure the effect of exchange rate on FDI.

Data Analysis/Estimation Techniques

The study used correlation analysis to determine the nature of FDI sectoral relationship or association between the variables within the period 1997-2012. An estimate called the Pearson Product-Moment correlation coefficient and spearman Rho correlation coefficient was used to measure linear association between the variables and check the nature of association. A value of   near +1 or -1 shows a linear relationship. A value close to zero shows that the linear association between the variables is weak and when it is close to +1 the relationship is strong.

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Panel unit root test

In order to find out the long run relation between four variables the order of integration was first checked by applying the unit root tests given by Im-Pesaran-Shin (IPS). Then, after getting the order of the integration the Pedroni's test of co integration is applied. Finally, a Seemingly Unrelated Regression (SUR) test is applied to find out whether FDI has an impact upon employment in case of the various sectors of Ghanaian economy. The first step in determining a potentially co integrated relationship is to test whether the variables involved are stationary or non-stationary. If all the variables are stationary, traditional estimation methods can be used to estimate the (causal) relationship among variables. If, however at least one of the series is non-stationary more care is required. There are many tests available for testing unit root in panel data which are:

Fisher's (p) test (1932), Maddala and Wu (1999),The Levin-Lin (LL) tests (2002),The Im-Pesaran-Shin (IPS) test (2003). Although the Fisher test can be applied but the disadvantage is that the p-values have to be derived through Monte Carlo simulation. So, the study apply Im-Pesaran-Shin (IPS) test for unit root because it doesn't have only comparative advantage over all other tests but it is appropriate for the data as well. More over IPS test is the most powerful test as compared to the other panel unit root tests. Another reason for using IPS test is that it gives a balanced panel instead of different time series for different samples. In addition, the IPS test is the most cited unit root test in the literature. Another advantage of using the IPS test is that it is based on heterogeneity of the autoregressive parameters (there is a possibility

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of heterogeneity in the error variances and the serial correlation structure of the errors).

Cointegration Test

With confirmation on the integrated order of variables of interest, the question is that they might or might not have a common stochastic trend, or, they might or might not be cointegrated. This resolves this question by looking for a long-run relationship among the variables using the panel co integration technique. The available methods for panel data co integration are given as follows; Johansenco integration test (1988), Larsson, Lyhagen and Lothgrenco integration tests (2001), and Pedronico integration tests (1999)

Pedroni's test (1999) was applied to test for co integration in this study. This technique is a significant improvement over the conventional co integration tests applied on a single series. As explained in Pedroni (1999), conventional co integration tests usually suffer from unacceptable low power when applied on data series of restricted length. The Panel co integration technique addresses this issue by allowing one to pool information regarding common long-run relationships between a set of variables from individual members of a panel.

Granger Causality Test

Pedroni's heterogeneous panel co integration method tests only for the existence of long run relationships. The tests indicate the presence or absence of long run links between the variables, but do not indicate the direction of causality when the variables are co integrated. Causality is traditionally tested by the standard two-step EG causality procedure. However, in the panel settings, traditional estimation techniques will result in inconsistent parameter

estimates resulting from measurement errors and omitted variable problems. Therefore, the study apply the General Method of Moments (GMM) dynamic panel estimator as developed by Holtz-Eakin et. al. (1988, 1989) and Arellano and Bond (1991). The GMM method can help reduce the estimation bias often inherent in panel data estimation. It controls for problems often associated with cross-sectional estimators. These include unobserved problems associated with country-specific and time-specific effects, endogeneity in explanatory variables, and when lagged dependent variables are used as regressors.

In this research, co-integration tests will be carried by means of the methods first developed by Engle and Granger (1987). If the residuals are stationary in their levels, two non-stationary series in question are co-integrated, and vice versa.

Johansen and Juselius (1990) argue that the residual-based Engle and Granger (1987) co-integration test is inefficient and can lead to contradictory results, especially where there are more than two variables under consideration. They proposed a more satisfactory approach, which provides a unified framework for estimating and testing of co-integrating relations in the context of vector autoregressive (VAR) error correction model, hence Johansen and Juselius (1990) co-integration tests is applied. The Johansen-Juselius (1990) method will apply the maximum likelihood procedure to determine the presence of co-integrating vectors in non-stationary time series as a vector autoregressive (VAR).

CHAPTER FOUR

ANALYSIS, INTERPRETATION AND DISCUSSION OF RESULTS

Introduction

This chapter presents the analyses, interpretations and discussion of the results of the various empirical tests. The objective of this study is to examine foreign direct investment sectoral relationship, assess the long run relationship between FDI and employment creation and toascertain the existence of causality between the FDI, GDP exchange rate and the employment creation.This chapter, therefore, presents and discusses the results from the study, such as results of the descriptive statistics of the relevant variables, IM Pesaran, ADF chi-square and PP chi-square unit root tests, Pedroni residual and Johansen's fisher panel co integration approach to co integration, Vector error correction model for long run and short relationship and Toda-Yamamoto/granger non-casuality was also presented and discussed. These results are discussed in relation to the hypotheses of the study.

The nature of the FDI-Sectoral Relationship

The research question one examines the nature FDI-Sectoral Relationship from 1997-2012. To explore this relationship, a number of tests are presented. First, the descriptive statistics of the various variables used is presented. This is followed by correlation analysis using both Pearson and Rho-spearman rank correlation coefficients for robustness checks. Table 1-4 presents the descriptive statistics of the variable used.

Table 6 shows that over the period under study, employment growth in the Agriculture sector averaged 7.423%, manufacturing sector averaged 8.108 % and the service sector averaged 8.245%. The maximum growth rate of employment was 12.095% to the agriculture sector, 9.089% to the Manufacturing sector, 10.834% to the service sector whiles the minimum was 5.451% to the Agriculture sector, 7.401% to the Manufacturing sector, and 6.977% to the Service sector. This implies that the maximum rate of employment growth from the flow of foreign direct investment into the various three sectors of the Ghanaian economy was 12.095 % whiles the minimum was about 5.451%. Agriculture sector has kurtosis value of 5.724 and also positively skewed with value of 1.707 implying that FDI flow into the Agriculture sector has been on the rise leading to large volume of employment creation in that sector over the period 1997-2012.. Manufacturing sector also has kurtosis value of 2.385 and showing also positively skewed with value of 2.385 ,meaning FDI flow into the Manufacturing sector has been on the rise leading to large volume of employment creation in that sector over the period 1997-2012. The service sector also has kurtosis value of 5.540 and showing also positively skewed with value of 1.463, meaning FDI flow into the Service sector has been on the rise leading to large volume of employment creation in that sector over the period 1997-2012.

Table 6: Summary Statistics for employment

SECT.	MEAN	MEDI.	MAX	MIN	STD DEV	SKEW	KURT	OBS
AGRIC.	7.423	6.952	12.095	5.451	1.594	1.707	5.724	16
MANU	8.108	8.114	9.089	7.401	0.472	0.4018	2.385	16
SERV	8.245	8.173	10.834	6.977	0.895	1.463	5.540	16
ALL	7.925	7.875	12.095	5.451	1.126	1.062	6.148	48

[Note:Jarque-Bera significance at 1%],Jacque-Bera statistic= 1.843215

Source: conducted using Eview 8.0 package

Table 7, shows that over the period under study, the rate of flow of foreign direct investment into Ghana was on the average of 16.525% to the Agriculture sector. 17.971% to the Manufacturing sector and 17.913% to the Service sector .By a developing country standard, this figure is considered moderate, this might have accounted for moderate growth of GDP and foreign direct investment. The maximum growth rate of FDI was 20.049% to the agriculture sector, 22.282% to the Manufacturing sector, 20.159% to the service sector whiles the minimum was 14.022% to the Agriculture sector, 15.156% to the Manufacturing sector, and 15.319% to the Service sector. This implies that the maximum rate of foreign direct investment into the various three sectors of the Ghanaian economy was 22.282% whiles the minimum was about 14.022%.Agriculture sector has kurtosis value of 2.724 and also positively skewed with value of 0.755 implying that FDI flow into the Agriculture sector has been on the rise in that sector over the period 1997-2012. Manufacturing sector also has kurtosis value of 2.193 and showing also positively skewed with value of 0.602 ,meaning FDI flow into the Manufacturing sector has been on the rise in that sector over the period 1997-

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2012. The service sector also has kurtosis value of 2.184 and showing also

negatively skewed with value of

-0.135, meaning FDI flow into the Service sector has been very low over the

period 1997-2012.

Table 7: Summary Statistics for FDI

SECT.	MEAN	MEDI	MAX	MIN	STD DEV	SKEW	KURT	OBS
AGRIC.	16.525	15.816	20.049	14.022	1.676	0.755	2.724	16
MANU	17.971	17.319	22.282	15.156	2.262	0.602	2.193	16
SERV	17.913	17.657	20.159	15.319	1.549	-0.131	2.184	16
ALL	17.470	17.324	22.282	14.022	1.938	0.534	2.595	48

[Note Jacque-Bera statistic=4.894572,Jacque-Bera statistic =3.419858,p-value=0.384938]
Source: conducted using Eview 8.0 package

Table 8, shows that over the period under study, GDP growth averaged

17.925% to all the three sectors of the economy. The maximum GDP growth

rate was 12.095% to all the sectors, minimum was 5.451% to all the sectors.

The skewness of GDP growth of 1.062 to all the sectors implies that low levels of

GDP dominated high levels and moreover there was small volume of FDI influx

into the various sectors over the period 1997-2012.

Table 8: Summary Statistics for GDP

SECT.	MEAN	MEDI	MAX	MIN	STD DEV	SKEW	KURT	OBS
AGRIC								
.	7.423	6.952	12.095	5.451	1.594	1.707	5.724	16
MANU	8.108	8.114	9.089	7.401	0.472	0.4018	2.385	16
SERV	8.245	8.173	10.834	6.977	0.895	1.463	5.540	16
ALL	7.925	7.875	12.095	5.451	1.126	1.062	6.148	48

[Note:Jarque-Bera, significance at 1%],Jacque-Bera statistic=4.954311, *p*-value= 0.0087456

Source: conducted using Eview 8.0 package**.**

Table 9, shows that over the period under study, exchange rate averaged 4.681% to all the three sectors over this period. The average rate of inflation was very low and might have accounted for the high growth of GDP and foreign direct investment. The maximum exchange rate was 4.941% to all the sectors, whiles the minimum was 4.376% to all the sectors. The skewness of exchange rate was 0.025 to all the sectors implying that low levels of exchange rate dominated high levels and moreover there was large volume of FDI influx into the various sectors over the period 1997-2012.

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Table 9: Summary Statistics for Exchange

SECT.	MEAN	MED.	MAX	MIN	STD DEV	SKEW	KURT	OBS
AGRIC.	4.681	4.637	4.941	4.376	0.184	0.025	1.657	16
MANU	4.681	4.637	4.941	4.376	0.184	0.025	1.657	16
SERV	4.681	4.637	4.941	4.376	0.184	0.025	1.657	16
ALL	4.681	4.637	4.941	4.376	0.180	0.025	1.657	48

Source: conducted using Eview 8.0 package

Correlation Results

The essence of running the correlation results is to check nature of association. In so doing running Pearson correlation and spearman Rho correlation was appropriate since one act as robustness check on the other because the descriptive statistics presented in Tables 6, 7, 8 and 9 shows that most of the variables are skewed.

The results from these tests are shown in table 10, 11, 12 and 13, 14 respectively with detailed explanation of the co-efficient of both analyses.

The correlation coefficients signify the strength of association between a particular independent variable and foreign direct investments. The numerical strength of the coefficient represents strength in terms of magnitude while the sign (either positive or negative) indicates whether the two variables are directly or inversely related. The coefficients that are negative are inversely related, thus, an increase in one variable causes a decrease in the other variables. Those variables with positive coefficients tend to move in tandem with the dependent variable (EMP).

Correlation result for Agriculture sector

From Table 10, it can be deduced that, from the output generated that real exchange rates was the highest in terms of percentages. It was also the only relevant or significant variable amongst the three at the normal 5% significant level. The coefficient of 0.656 indicates a fairly strong association between exchange rates and FDI in Ghana, also there is a direct association between them. The coefficient of 0.395 indicates a strong association between exchange rates and employment in Ghana The variable GDP growth had a negative relationship with employment. However, employment also had an inverse association with FDI. Employment also had the weakest association with FDI in the agriculture sector, having a coefficient of -0.271.

Table 10: Correlation result for Agriculture sector

	FDI US $	EMPLOYMENT	REER	GDP % growth
FDI US $ p. corr	1	-.020	.656*	.570
Sig (2 tailed)		.950	.021	.053
N	12	12	12	12
EMPLOYMENT	-.020	1	.395	-.271
Sig (2 tailed)	.950		.203	.395
N	12	12	12	12
REER	.656*	.395	1	.570
Sig (2 tailed)	.021	.203		.053
N	12	12	12	12
GDP % growth	.570	-.271	.570	1
Sig (2 tailed)	.053	.395	.053	
N	12	12	12	12

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed). Source: conducted using SPSS 18.0 package

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From Table 11 below, it can be deduced from the results under Spearman's rho coefficients that the coefficient of 0.657 indicates a fairly strong association between exchange rates and employment in Ghana, also there is a direct association between them. The coefficient of 0.699 also indicates a fair strong association between FDI and employment in Ghana

The variable exchange rate also had a positive value relationship with employment with rho coefficient value of 0.580.

Table 11: Rho Correlations Results

	EMP	FDI US $	REER	GDP % growth
EMP Correlation Coefficient	1.000	.699[*]	.657[*]	.406
Sig (2-tailed)	.	.011	.020	.191
FDI US $				
Correlation Coefficient	.699[*]	1.000	.580[*]	.154
Sig (2-tailed)	.011	.	.048	.633
REER				
Correlation Coefficient	.657[*]	.580[*]	1.000	.524
Sig. (2-tailed)	.020	.048	.	.080
GDP % growth				
Correlation Coefficient	.406	.154	.524	1.000
Sig. (2-tailed)	.191	.633	.080	.

**. Correlation is significant at the 0.01 level (2-tailed).

Source: conducted using SPSS 18.0 package

Correlation Co-Efficient Result for Manufacturing Sector

From Table 12, it can be said that in the manufacturing sector, the regressors of only employment was relevant and it was at 99% confidence level. In this particular sector, the generated output suggests that all the independent variables move together with dependent variable. In other words each variable moves in the same direction as FDI in an event of a marginal change. The association between FDI and employment produced coefficient of 0.712, real exchange rates and GDP growth produced coefficients of 0.570, real exchange rate and FDI produced coefficient of 0.774 and GDP growth and FDI produced coefficient of 0.600 respectively. Also, GDP had a significant association with employment at 90% confidence level with a fairly strong coefficient of 0.164

Table 12: Correlation Co-Efficient Result for Manufacturing Sector

	EMPLOYMENT	FDI US $	REER	GDP % growth
EMPLOYMENT Pearson correlation	1	.712**	.343	.164
Sig (2 tailed)		.009	.276	.611
N	12	12	12	12
FDI US $ Pearson correlation	.712**	1	.774**	.600*
Sig (2 tailed)	.009		.003	.039
N	12	12	12	12
REER Pearson correlation	.343	.774**	1	.570
Sig (2 tailed)	.276	.003		.053
N	12	12	12	12
GDP % growth Pearson correlation	.164	.600*	.570	1
Sig (2 tailed)	.611	.039	.053	
N	12	12	12	12

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Source: conducted using SPSS18.0 package

From Table 13, the spearman's rho technique in the manufacturing sector generated very strong correlations compared to that of the agricultural sector with the least coefficient around 0.559. In this sector both FDI and real exchange rates were all significant at 99% confidence level. There were also significant correlations between the independent variables. FDI and real exchange a rate was produced a very strong association of 0.825. This implies that these variables could be in place of each other or they could have served the same purpose in our regression model. Also, FDI and GDP growth had a correlation of 0.776

Table 13: Rho Correlation Result for Manufacturing Sector

	EMP	FDI US $	REER	GDP % growth
EMP Correlation Coefficient	1.000	.881**	.839**	.559
Sig. (2-tailed)	.	.000	.001	.059
N	12	12	12	12
FDI US $ Correlation Coefficient	.881**	1.000	.825**	.776**
Sig. (2-tailed)	.000	.	.001	.003
N	12	12	12	12
REER Correlation Coefficient	.839**	.825**	1.000	.524
Sig. (2-tailed)	.001	.001	.	.080
N	12	12	12	12
GDP % growth Correlation coefficient	.559	.776**	.524	1.000
Sig (2 tailed)	.059	.003	.080	.
N	12	12	12	12

**. Correlation is significant at the 0.01 level (2-tailed).

Source: conducted using SPSS 18.0 package

Correlation Co-Efficient For Service Sector

From Table 14, it can be said that in the service sector all three

variables were significant; FDI and real exchange rate were both significant at

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99% confidence level while GDP growth was significant at the normal 95% confidence level as per their correlations with FDI. The connection between GDP and FDI in prior tables was also present and stronger with a much higher coefficient of 0.873. This provides further evidence of the identical nature of these variables.

Table 14: Correlation Co-Efficient For Service Sector

	EMP	FDI US $	REER	GDP % growth
EMP				
Correl. coefficient	1.000	.711**	.758**	.626
Sig (2 tailed)		.100	.004	.003
FDI US $				
Correl. coefficient	.711**	1.000	.428**	.873**
Sig (2 tailed)	0.100	.000	1.651	.000
REER				
Correl. coefficient	.758**	.428**	1.000	.570
Sig (2 tailed)	.004	.000	.	.080
GDP % growth				
Correl. coefficient	.004	.776**	.524	1.000
Sig (2 tailed)	.004	.165**	.534	
N	12	12	12	12

**. Correlation is significant at the 0.01 level (2-tailed).*. Correlation is significant at the 0.05 level (2-tailed). Source: conducted using SPSS 18.0 package.

Results from Table 15, indicates that the spearman's rho method for the service sector were identical to the Pearson correlation technique except for the fact that GDP growth was no longer significant.

Table 15: Rho Correlation Result for Service Sector

	EMPLOYMENT	FDI US $	REER	GDP % growth
EMPLOYMENT				
Correlation Coefficient	1.000	.811**	.727**	.266
Sig. (2-tailed)	.	.001	.007	.404
N	12	12	12	12
FDI US $				
Correlation Coefficient	.811**	1.000	.601*	.266
Sig. (2-tailed)	.001	.	.039	.404
N	12	12	12	12
REER				
Correlation Coefficient	.727**	.601*	1.000	.524
Sig. (2-tailed)	.007	.039	.	.080
N	12	12	12	12
GDP% Growth Correl. Coefficient	.266	.266	.524	1.000
Sig (2 tailed)	.404	.404	.080	.

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Source: conducted using SPSS 18.0 package

Long run relationship between employment creation and FDI

In order to find out the long run relation between employment creation, FDI, GDP and Exchange rate, firstly the order of integration is checked by applying the unit root tests given by Im-Pesaran-Shin (IPS). Then, after getting the order of the integration the Pedroni's Residual test of co-integration and Johansen Fisher Co-integration test are applied. Finally, vector error correction estimate (VECM) was applied in order to examine the short run and long run causality running from FDI, exchange rate and GDP to Employment creation with respect to the various sectors of Ghanaian economy.

Unit Root Test

Before applying the Johansen's panel approach and pedroni approach to co integration and Toda Yamamoto test of causality, unit root test was conducted in order to investigate the stationarity properties of the data. As a result, all the variables were examined by first inspecting their intercept and trends. It can be seen that, all the variables appear to exhibit behaviors of non-stationary series. However, checking these variables in their first differences, they exhibit some stationary behaviour. Additionally, the ImPesaran and Shin, ADF fisher chi-square and PP fisher chi-square tests were applied.

Table 16 below shows the results from the T statistics of the IPS test, ADF fisher chi-square and PP fisher chi-square tests against the critical values of the test. The critical values are taken from this test, while the number of lags is chosen on the Akaike Information Criteria (AIC). In order to capture this data behavior, the IPS test is conducted with an intercept and time trend. It

can be seen from the result that in case of all the variables FDI, GDP and employment, the t statistic value was bigger than the relevant critical value and therefore, so the null hypothesis of "no unit root" was rejected and concluded that all the three series has a unit root and are integrated series. In order to find the order of integration, the same test was conducted with the first difference for all three variables. Table 8 shows that the test statistic values for all three variables are smaller than the corresponding critical values. Therefore, it can be concluded that the all three series are stationary and has no unit root with the first difference. In other words all the three series are integrated of order. It can be concluded that all variables are I(1) using ImPesaran and Shin, ADF fisher chi-square and PP fisher chi-square tests. Therefore, in order to eliminate the possibility of spurious regression results, the first difference of the variables should be employed in the estimation process.

Table 16: Panel Unit Root Test Results

VARIABLES	LEVEL	T. STATISTICS	CONCLUSION	FIRST DIFFERENCE	T. STATISTICS	CONCLUSION
L EMPLOYMENT						
Im,Pesaran and Shin W-stat	-2.45	0.007	I(0)	0.000	-4.042	I(1)
ADF - Fisher Chi-square	0.15	9.351	I(0)	0.000	26.563	I(1)
PP - Fisher Chi-square	0.03	19.651	I(0)	0.000	80.152	I(1)
LGDP						
Im,Pesaran and Shin W-stat	0.47	-0.631	I(0)	0.000	-1.753	I(1)
ADF - Fisher Chi-square	0.63	4.337	I(0)	0.000	-12.492	I(1)
PP - Fisher Chi-square	0.67	3.998	I(0)	0.000	23.792	I(1)
L EXCHANGE RATE						
Im,Pesaran and Shin W-stat	0.75	0.700	I(0)	0.000	-2.760	I(1)
ADF - Fisher Chi-square	0.89	2.221	I(0)	0.000	18.532	I(1)
PP - Fisher Chi-square	0.00	18.304	I(0)	0.000	32.408	I(1)
LFDI						
Im,Pesaran and Shin W-stat	0.00	-1.814	I(0)	0.000	-5.196	I(1)
ADF - Fisher Chi-square	0.00	18.304	I(0)	0.000	-32.408	I(1)
PP - Fisher Chi-square	0.27	7.565	I(0)	0.000	30.791	I(1)

[Note: ** denote significance at 5%, critical values are from Mackinnon (1999)]
Source: conducted using Eviews 8.0 package

The results of Pedroni residual co integration result is presented in table 17 and the results of Johansen Fisher Co-integration test are presented in Tables 18 and 19, 20, 21 and 22.

Table 17.Pedroni Residual Co integration Test for the variables

Alternative hypothesis: common AR coefs. (within-stdimension	statistics	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	0.598	206	0.2749	0.576
Panel rho-Statistic	-0.282	0.388	-0.057	0.477
Panel PP-Statistic	-3.245	0.000	-5.7613	0.000
Panel ADF-Statistic	-3.067	0.001	-4.235	0.000

Alternative hypothesis: individual AR coefs. (between dimension)

	Statistic	Prob.
Group rho-Statistic	0.695191	0.7565
Group PP-Statistic	-9.476918	0.0000
Group ADF-Statistic	-5.551152	0.0000

Cross section specific results

Phillips-Peron results (non-parametric)

Source: conducted using Eviews 8.0 package

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Johansen Fisher Panel Co Integration Test

The unit root test was found that all the three series are not stationary and are integrated of order one I(1). In the second stage Johansen Fisher Co-integration test is used in order to find co-integration relationship between the FDI, GDP and employment. Johansen Fisher Co-integration test is conducted for the whole panel data as well as for each cross-section (sector of economy) of the data. Table 18 and 19 presents the Johansen Fisher test of co-integration results.

Table 18, shows that the hypothesis of "no co-integration" "At most 1 co-integration relationship, "At most 2 co-integration relationship, and "At most 3" "co-integration relationship" were tested and as presented in the table 18, Results for fisher statistics and Max-Eign test statistic were presented with their corresponding p-values against each test statistics. It can be seen that the null hypothesis of no co-integration can be rejected at none and at most 1 co-integration relationship, since the p value of the maxi-eign statistics and fisher statistic are less than 0.05, which is 0.000 and 0.000 respectively at none and 0.001 and 0.000 respectively. This confirms the existence of a stable long-run relationship among employment creation, FDI, GDP and exchange rate. At most 1 co-integration relationship and also null of no co integration for fisher statistics at most 2 can also be rejected .However p value of the maxi-eign statistics is more than 0.05, at most 2 and 3, and for fisher statistics at most 3 which are 0.064, 0.057 and 0.057, hence the null hypothesis of no co integration cannot be rejected. It can be concluded that the null hypothesis cannot be rejected because there exist at most 3 co integration vectors in the model

Table 18: Johansen Fisher Panel Co integration Test

Hypothesized No. of CE(s)	Fisher Stat.* (From trace stat.)	Prob.	Fisher Stat.*(from max-eign test)	Prob.
None	106.2	0.0000	91.25	0.0000
At most 1	35.55	0.0000	27.88	0.0001
At most 2	14.42	0.0253	11.89	0.0644
At most 3	12.22	0.0572	12.22	0.0572

* Probabilities are computed using asymptotic Chi-square distribution.

Sig value 0.05
Source: conducted using Eview 8.0 package
Results from Johansson fisher co integration test from the various sectors of the economy

Table 19 shows that the results for Trace statistics and Max-Eign test statistic at Hypothesis of no co integration can be rejected at the various three sectors since the p values are all less than 0.005 thus 0.000 for the agriculture, manufacturing and the service sector respectively. It can be seen that the null hypothesis of no co-integration can be rejected at none for all the three sectors of the economy.

At Hypothesis of at most 1 co integration relationship, the null hypothesis of no co integration at most 1 co integration equation can be rejected at 5% confidence interval of both test for Agriculture and manufacturing sector but cannot be reject for the service sector

At Hypothesis of at most 2 and 3 respectively co integration relationship, the null hypothesis of no co integration at most 2 co integration equation cannot be rejected at 5% confidence interval of both test for three sectors since the p value is greater than 0.05.

Table 19, below shows that the results for Trace statistics and Max-Eign test statistic at Hypothesis of no co integration can be rejected at the various three sectors since the p values are all less than 0.005 thus 0.000 for the agriculture, manufacturing and the service sector respectively. It can be seen that the null hypothesis of no co-integration can be rejected at none for all the three sectors of the economy.

At Hypothesis of at most 1 co integration relationship, the null hypothesis of no co integration at most 1 co integration equation can be rejected at 5% confidence interval of both test for Agriculture and manufacturing sector but cannot be reject for the service sector

At Hypothesis of at most 2 and 3 respectively co integration relationship, the null hypothesis of no co integration at most 2 co integration equation cannot be rejected at 5% confidence interval of both test for three sectors since the p value is greater than 0.05.

Results from Johansson fisher co integration test from the various sectors of the economy

Table 19: Hypothesis of no co integration

sectors	Trace Test stat	Prob.**	Max-Eign Test stats	Prob.**
Agric.	124.039	0.000	69.597	0.000
Manuf	94.390	0.000	60.656	0.000
Service	84.586	0.000	55.666	0.000

Source: conducted using Eviews 8.0 package

Table 20: Hypothesis of at most 1 cointegration relationship

sectors	Trace Test stat	Prob.**	Max-Eign Test stats	Prob.**
Agric.	54.4418	0.0000	38.4858	0.0001
Manuf	33.7341	0.0167	21.0225	0.0518
Service	28.9195	0.0629	16.5028	0.1968

Table 21: Hypothesis of at most 2 cointegration relationship

sectors	Trace Test stat	Prob.**	Max-Eign Test stats	Prob.**
Agric.	15.9560	0.0426	15.9523	0.0268
Manuf	12.7116	0.1258	7.2912	0.4553
Service	12.4167	0.1380	9.9629	0.2144

Table 22: Hypothesis of at most 3 cointegration relationship

sectors	Trace Test stat	Prob.**	Max-Eign Test stats	Prob.**
Agric.	0.0037	0.9503	0.0037	0.9503
Manuf	5.4203	0.0199	5.4203	0.0199
Service	2.4538	0.1172	2.4538	0.1172

**MacKinnon-Haug-Michelis (1999) p-values
 Significance value 0.05
Source: conducted using Eviews 8.0 package

Long Run Relationship

Once co integration has been established consequent upon which a unique long -run relationship exists among variables of interest, and then the long term relationships can be estimated from the model equations. In order to establish the long-run equation, Eview automatically normalises the first

variable in the VAR which is employment. This variable is also of considerable interest to the study.

The result in Table 23 in the Appendix shows that, the long run relationship between employment, FDI, GDP and exchange rate. Thus, there is long run relationship between employment, FDI, GDP and exchange rate. Figures in "()" represents standard errors (middle row figures) and figures in "[]" (third row figures) representing t-statistics.

Substituted Equation and Its Interpretation (Long run)

The results show that all independent variables are statistically significant since the t-statistic absolute values are of values above two with the exception of FDI

The substituted equation becomes:

$$LEMP = C + a_I LFDIit + a_{2LEXR}it + 3LGDP\text{it} + \varepsilon_t$$

as interpreted as;

$$LEMP = 1207.64 + 1.236968LFDI - 2.317359LEXR + 5.763330LGDP + \varepsilon_t$$

From the above normalized equation, it can be concluded that Foreign Direct Investment is positively related to Employment, which shows that it 1 unit increase in Foreign Direct Investment leads to 1.236968 units increase in employment level. This result is in line with the work of Sackey et al., (2012) and Antwi et al., (2013) who discovered that FDI positively impact employment growth in Ghana. Also work of Chukwakwa et al (2012) on Nigeria shows that FDI is influential on employment growth of the country.GDP per Capita is also positively related to employment level, this implies that 1 unit increase in GDP Per Capita leads to 5.763330 units of

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employment. While there exist negative relationship between Exchange rate and Employment, which implies that 1 unit increase in Exchange rate leads to 2.317359 units' reduction in employment level.

From the equation above, FDI is positively related to employment creation, this confirms the study conducted by (Abbas,Rizvi&Nishat,2009)which posits that the relation is statistically significant, due to the fact that foreign direct investment employment increase. FDI flows drawn to a developing country take advantage of cheaper labour costs.

A large income which is earn through illegal activities is not included in GDP so as a result higher employment causes GDP to reduce and vice versa. This results also give a confirmation of the research conducted by (Abbas,Rizvi&Nishat,2009).

A negative relationship between exchange rate and FDI is therefore anticipated Wang & Swain (1995), which was in confirmation with the study result. (Wang and Swain, 1995) further argued that Exchange rates are expected to affect FDI in so far as they affect a firm's cash flow, which will have a resultant effect on employment creation. Expected profitability and the attractiveness of domestic assets to foreign investors, real depreciation of the local currency affects investment through its effect on the real cost of capital and real output. Unanticipated devaluation affects the profitability of local firms by raising the price level and increasing the cost of imported intermediate inputs. Exchange rate volatility leads to high exchange risk, uncertainty and macroeconomic instability.

Short Run Relationship

Engle and Granger (1987) argued that when variables are co integrated, their dynamic relationship can be specified by an error correction representation in which an error correction term (ECT) computed from the long-run equation must be incorporated in order to capture both the short-run and long-run relationships. The error correction term indicates the speed of adjustment to long-run equilibrium in the dynamic model. In other words, its magnitude shows how quickly variables converge to equilibrium when they are disturbed. It is expected to be statistically significant with a negative sign. The negative sign implies that any shock that occurs in the short-run will be corrected in the long-run. The larger the error correction term in absolute value, the faster the convergence to equilibrium. Given that the variables are non-stationary but co integrated, estimation of the VECM, which included a first differenced VAR with one period, lagged error correction term yielded an over-parameterized model. To arrive at a more parsimonious model, insignificant variables were deleted using the rule of thumb against the t-ratios. The Vector Error Correction Model is used to estimate the short-run relationship between employment, FDI, GDP and exchange rate.

From the result the (See Appendix 19), the "CointEq1" coefficient is -0.0729 which shows the error correction term (ECM(-1)).The ECM(-1) figure shows that this relationship may not be highly stable in the long run.

The estimated coefficient of the ECM(–1) is suggesting that in the absence of changes in the independent variables, deviation of the model from the long term path is corrected by 7.2962% per period under study, which in this case, is monthly. This indicates that it will take about 13 months (100% ÷

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7.2962 = 13) for the employment to return to long-run equilibrium if there is a shock to the GDP, FDI, and exchange rate. This shows that the FDI is not a panacea to employment creation since the long run relationship is not a stable one. From the results the F-statistic of 2.354078 and, the R-squared of 67.37% also suggest that the overall significance of the model is good. This indicates that 67.37% of the variation has been accounted for and that only 32.63% of the variations were due to other factors.

Existence of causality between the variables and the employment creation.

Granger Non-Causality Testing/ Toda and Yamomanto Testing

To investigate the directional causality between employment creation, FDI, exchange rate and GDP, the study employs the Toda and Yamomanto (1995) causality testing approach instead of the traditional Granger causality test and the Johansen and Juslius (1990) alternative tests of non-causality. Although the traditional pair-wise Granger causality tests is more revealing than simple correlation coefficients, it abstracts from philosophical issues of causality by merely insisting on temporal precedence and predictive content as the necessary criteria for one variable to Granger cause' another. Another shortcoming of the Granger causality test is that it is based on the asymptotic theory and therefore critical values are only valid for stationary variables that are not bound together in the long run by a co-integrating relationship (Granger, 1988). This makes the causality test results somewhat weak and conditional on the absence of co integration between the relevant variables. Results of Granger non-causality are shown in Table 23.From the Wald tests in Table 23, rejection of the null implies a rejection of Granger non-causality thus supporting the premise that Granger causality exists.

For the time period under study, the results of Tables 24,25,26 show granger no causality between employment creation and the independent variables at a 95% confidence level. The results do show that there is uni-causality flowing from employment creation to GDP Thus employment creation granger-cause GDP. There is also uni-causality between FDI and GDP. Thus FDI granger causes GDP. However, the rest show no causality results. This result confirms the works of Loesse et al. (2010) which examined the linkage and directional causality between FDI and GDP growth of ten Sub-Saharan African countries using annual time series data from 1970 to 2007. They employed the Pesaran et al. (2001) approach to co integration and the Toda and Yamamoto (1995) causality test and realized a positive and significant long run relationship between FDI and GDP growth in Angola, Liberia, Kenya and South Africa.

However, they found a unidirectional causality running from FDI to GDP growth. (Loesse, Jacques & Esso, 2010) and (Ogiagah, Parker, &Shaib,2000) have the same opinion on the relationship between FDI and GDP growth

Granger Non Casuality Result/Toda Yamamota Result

Table 23: Dependent variable: Lemployment

Excluded	Chi-sq	df	Prob.
LEXCHANGE_RATE	5.850698	2	0.0536
LFDI	2.549935	2	0.2794
LGDP	3.469303	2	0.1765
All	8.911345	6	0.1786

Source: Fieldwork (2015

Table 24: Dependent variable: Lexchange rate

Excluded	Chi-sq	df	Prob.
LEMPLOYMENT	2.286712	2	0.3187
LFDI	4.848891	2	0.0885
LGDP	5.3992	2	0.0672
All	9.291097	6	0.1579

Source: Fieldwork (2015)

Table 25:.Dependent variable: LFDI

Excluded	Chi-sq	df	Prob.
LEMPLOYMENT	0.528927	2	0.7676
LEXCHANGE_RATE	1.827503	2	0.4010
LGDP	0.514577	2	0.7731
All	1.917625	6	0.9271

Source: Fieldwork (2015)

Table 26: Dependent variable: LGDP

Excluded	Chi-sq	df	Prob.
LEMPLOYMENT	12.25701	2	0.0022
LEXCHANGE_RATE	2.930085	2	0.2311
LFDI	15.81902	2	0.0004
All	44.54369	6	0.0000

Source: Fieldwork (2015)

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter provides a general synopsis and conclusion for the study, as well as policy implications of the study. Whereas the summary presents a brief overview of the objective, methodology and findings, the conclusions capture the overall outcomes regarding the findings of the study in light of the hypotheses. Recommendations also present specific remedies to be implemented by specific bodies.

Summary of the Study

This study therefore sought to investigate FDI on employment creation in Ghana using annual panel data over the period 1997 to 2012. To accomplish this, economic techniques; IM-Pesaran-Shin (IPS), ADF chi-square and PP-fisher chi-square panel unit root test were applied to find out the variables in order to find out the order of integration. Pedroni Residual co integration and Johansen panel test for co integration was applied to find the co integration relationship between the FDI inflow, exchange rate, GDP and employment. After finding the co integration relationship, Vector Error Correction Model (VECM) was applied to find out the long run and short run causality between the FDI inflow, GDP and employment. Causality test by (Toda and Yamomanto,1995) were engaged in estimating the aforementioned models.

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Exchange rate was computed as the first difference of the log real exchange rate. FDI was measured as the first difference of the log of net FDI inflows, GDP was also measured as the first difference of the log of real GDP growth and employment creation was computed as the first difference of the log real employment rate. The Bound test to co integration revealed that all the three independent variables; exchange rate, FDI and GDP converged to long run equilibrium path when they deviated from it in the short run. Exchange rate was found to negatively affect both FDI and GDP. However, FDI and GDP were found to be positively related. All relationships were statistically significant at the 5%. Finally, the Toda and Yamomanto causality test established that there is uni-causality flowing from employment creation to GDP Thus employment creation granger-cause GDP. There is also uni-causality between FDI and GDP. Thus FDI granger causes GDP. However, the rest show no causality results.

Conclusions of the Study

The first objective of the study was to ascertain the nature of Sectoral relationship of FDI in Ghana over the period 1997 to 2012, it was discovered from the descriptive statistics results that most of the variables are skewed meaning FDI flow into the various sectors has been on the rise leading to large volume of employment creation in the sectors over the period 1997-2012. The results of the Pearson correlation and spearman Rho correlation analysis also revealed that the correlation coefficients signify strong of nature   of association between the other variables and FDI.

The second objective of the study was to ascertain if there are long run relationships between exchange rate, FDI and employment creation in Ghana

over the period 1997 to 2012. It was discovered that there are significant relationships between exchange rate, FDI and employment creation in Ghana. The relationship between exchange rate and foreign direct investment is negative. Exchange rate is also negatively linked to employment growth, whilst FDI has a positive relation with employment creation. This establishes the fact that FDI and GDP converged to long run equilibrium path when they deviated from it in the short run. The third objective was to examine the causal links between exchange rate, FDI and employment creation. It was found out that there are unidirectional causal links between inflation, FDI and GDP. No directional causality was found from exchange rate to FDI and employment creation, suggesting that the past values of FDI do not significantly explain employment growth in Ghana.

Recommendations

Based on the above conclusions, the following policy recommendations are worth noting: First, the negative relationship between exchange rate and employment growth means that high exchange rate presents deleterious effects to employment creation in the various sectors of Ghana's economy. However, higher level of output growth is very crucial to ensure price stability in Ghana because of the unidirectional causality running from real GDP growth to inflation. Therefore, for the fight against inflation to be won, policies should be geared towards addressing the real economic factors that hinder GDP growth in Ghana.

Secondly, the inverse relationship between exchange rate and FDI signifies that high inflation deters FDI in Ghana. High FDI is central to low levels of exchange rate in Ghana. Therefore, both fiscal and monetary policies

geared towards encouraging FDI in Ghana would enable Ghana witness high and sustainable growth. A policy recommendation is to attract export-oriented FDI into the service sector and more especially agricultural sector of the economy since agriculture is the backbone of the Ghanaian economy. Government must also create the necessary environment to attract FDI into the economy. For instance, improvement in the transportation system and industry, provision of sustainable energy and water, waste management, improvement in communication technology, building and rehabilitation of ports and harbours must be encouraged since these facilities are important in attracting FDI into Ghana. It is therefore very important to pay increased attention to the overall role and the quality of growth as a vital determinant of FDI along with the quality of human capital.

Government should put in place appropriate measures to attract more FDI into Ghana. This is because based on the findings of the study this would increase employment in Ghana and reduce the unemployment problem. Consistent with the findings of Aryeetey et al (2008), policy makers should ensure Ghana has the best macroeconomic and political environment to enable the attraction of more FDI. Again consistent to the findings of Ahlquist (2006) who finds that FDI inflows tend to increase under more stable and democratic governments. Policy makers ought to ensure Ghana has this environment so as to boost investor confidence and attract more FDI. A very important factor worthy of consideration is to ensure that the economy has a potential for growth to attract more foreign investors. For Ghana to attract more FDI, policy makers ought to ensure that there is a right and appropriate investment strategy in place. This according to Tsikata et al (2000) has a positive relationship with

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FDI in Ghana. Finally, policy makers ought to ensure the availability of adequate investment incentives, cheap labour, demand and the availability of raw materials in the country.

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APPENDICES

Appendix 1: Summary Statistics for employment

SECT.	MEAN	MEDI.	MAX	MIN	STD DEV	SKEW	KURT	OBS
AGRIC.	7.423	6.952	12.095	5.451	1.594	1.707	5.724	16
MANU	8.108	8.114	9.089	7.401	0.472	0.4018	2.385	16
SERV	8.245	8.173	10.834	6.977	0.895	1.463	5.540	16
ALL	7.925	7.875	12.095	5.451	1.126	1.062	6.148	48

Appendix 2: Summary Statistics for FDI

SECT.	MEAN	MEDI	MAX	MIN	STD DEV	SKEW	KURT	OBS
AGRIC.	16.525	15.816	20.049	14.022	1.676	0.755	2.724	16
MANU	17.971	17.319	22.282	15.156	2.262	0.602	2.193	16
SERV	17.913	17.657	20.159	15.319	1.549	-0.131	2.184	16
ALL	17.470	17.324	22.282	14.022	1.938	0.534	2.595	48

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Appendix 3: Summary Statistics for GDP

SECT.	MEAN	MEDI	MAX	MIN	STD DEV	SKEW	KURT	OBS
AGRIC								
.	7.423	6.952	12.095	5.451	1.594	1.707	5.724	16
MANU	8.108	8.114	9.089	7.401	0.472	0.4018	2.385	16
SERV	8.245	8.173	10.834	6.977	0.895	1.463	5.540	16
ALL	7.925	7.875	12.095	5.451	1.126	1.062	6.148	48

[Note:Jarque-Bera, significance at 1%],Jacque-Bera statistic=4.954311,p-value= 0.0087456

Appendix 4: Summary Statistics for Exchange

SECT.	MEAN	MED.	MAX	MIN	STD DEV	SKEW	KURT	OBS
AGRIC.	4.681	4.637	4.941	4.376	0.184	0.025	1.657	16
MANU	4.681	4.637	4.941	4.376	0.184	0.025	1.657	16
SERV	4.681	4.637	4.941	4.376	0.184	0.025	1.657	16
ALL	4.681	4.637	4.941	4.376	0.180	0.025	1.657	48

Appendix 5: Correlation result for Agriculture sector

	FDI US $	EMPLOYMENT	REER	GDP % growth
FDI US $ p. corr	1	-.020	.656[*]	.570
Sig (2 tailed)		.950	.021	.053
N	12	12	12	12
EMPLOYMENT	-.020	1	.395	-.271
Sig (2 tailed)	.950		.203	.395
N	12	12	12	12
REER	.656[*]	.395	1	.570
Sig (2 tailed)	.021	.203		.053
N	12	12	12	12
GDP % growth	.570	-.271	.570	1
Sig (2 tailed)	.053	.395	.053	
N	12	12	12	12

Appendix 6 Rho Correlations Results

	EMP	FDI US $	REER	GDP % growth
EMP Correlation Coefficient	1.000	.699[*]	.657[*]	.406
Sig (2-tailed)	.	.011	.020	.191
FDI US $				
Correlation Coefficient	.699[*]	1.000	.580[*]	.154
Sig (2-tailed)	.011	.	.048	.633

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REER

Correlation Coefficient	.657[*]	.580[*]	1.000	.524
Sig. (2-tailed)	.020	.048	.	.080

GDP % growth

Correlation Coefficient	.406	.154	.524	1.000
Sig. (2-tailed)	.191	.633	.080	.

Appendix 7. Correlation Co-Efficient Result For Manufacturing Sector

	EMPLOYMENT	FDI US $	REER	GDP % growth
EMPLOYMENT				
Pearson correlation	1	.712[**]	.343	.164
Sig (2 tailed)		.009	.276	.611
N	12	12	12	12
FDI US $				
Pearson correlation	.712[**]	1	.774[**]	.600[*]
Sig (2 tailed)	.009		.003	.039
N	12	12	12	12
REER				
Pearson correlation	.343	.774[**]	1	.570
Sig (2 tailed)	.276	.003		.053
N	12	12	12	12
GDP % growth				
Pearson correlation	.164	.600[*]	.570	1
Sig (2 tailed)	.611	.039	.053	
N	12	12	12	12

Appendix 8 Rho Correlation Result for Manufacturing Sector

	EMP	FDI US $	REER	GDP % growth
EMP Correlation Coefficient	1.000	.881[**]	.839[**]	.559
Sig. (2-tailed)	.	.000	.001	.059
N	12	12	12	12
FDI US $ Correlation Coefficient	.881[**]	1.000	.825[**]	.776[**]
Sig. (2-tailed)	.000	.	.001	.003
N	12	12	12	12
REER Correlation Coefficient	.839[**]	.825[**]	1.000	.524
Sig. (2-tailed)	.001	.001	.	.080
N	12	12	12	12
GDP % growth Correlation coefficient	.559	.776[**]	.524	1.000
Sig (2 tailed)	.059	.003	.080	.
N	12	12	12	12

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Appendix 9: Correlation Co-Efficient For Service Sector

	EMP	FDI US $	REER	GDP % growth
EMP				
Correl. coefficient	1.000	.711[**]	.758[**]	.626
Sig (2 tailed)		.100	.004	.003
FDI US $				
Correl. coefficient	.711[**]	1.000	.428[**]	.873[**]
Sig (2 tailed)	0.100	.000	1.651	.000
REER				
Correl. coefficient	.758[**]	.428[**]	1.000	.570
Sig (2 tailed)	.004	.000	.	.080
GDP % growth				
Correl. coefficient	.004	.776[**]	.524	1.000
Sig (2 tailed)	.004	.165[**]	.534	
N	12	12	12	12

Appendix 10: Rho Correlation Result for Service Sector

	EMPLOYMENT	FDI US $	REER	GDP % growth
EMPLOYMENT				
Correlation Coefficient	1.000	.811**	.727**	.266
Sig. (2-tailed)	.	.001	.007	.404
N	12	12	12	12
FDI US $				
Correlation Coefficient	.811**	1.000	.601*	.266
Sig. (2-tailed)	.001	.	.039	.404
N	12	12	12	12
REER				
Correlation Coefficient	.727**	.601*	1.000	.524
Sig. (2-tailed)	.007	.039	.	.080
N	12	12	12	12
GDP% Growth				
Correl. Coefficient	.266	.266	.524	1.000
Sig (2 tailed)	.404	.404	.080	.

Appendix 11: Panel Unit Root Test Results

RIABLES	LEVEL	T. STATISTICS	CONCLUSION	FIRST DIFFERENCE	T. STATISTICS	CONCLUSION
PLOYMENT						
esaran and W-stat	-2.45	0.007	I(0)	0.000	-4.042	I(1)
- Fisher square	0.15	9.351	I(0)	0.000	26.563	I(1)
Fisher Chi-re	0.03	19.651	I(0)	0.000	80.152	I(1)
DP						
esaranand W-stat	0.47	-0.631	I(0)	0.000	-1.753	I(1)
- Fisher square	0.63	4.337	I(0)	0.000	-12.492	I(1)
Fisher Chi-re	0.67	3.998	I(0)	0.000	23.792	I(1)
XCHANGE E						
esaran and W-stat	0.75	0.700	I(0)	0.000	-2.760	I(1)
- Fisher square	0.89	2.221	I(0)	0.000	18.532	I(1)
Fisher Chi-re	0.00	18.304	I(0)	0.000	32.408	I(1)
I						
esaran and W-stat	0.00	-1.814	I(0)	0.000	-5.196	I(1)
- Fisher square	0.00	18.304	I(0)	0.000	-32.408	I(1)
Fisher Chi-re	0.27	7.565	I(0)	0.000	30.791	I(1)

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Appendix 12.Pedroni Residual Cointegration
Test
Series: EMPLOYMENT EXCHANGE_RATE FDI
GDP
Date: 10/26/14   Time: 13:43
Sample: 2000 2012
Included observations: 39
Cross-sections included: 3
Null Hypothesis: No cointegration
Trend assumption: No deterministic intercept or trend
User-specified lag length: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	1.207412	0.1136	1.062160	0.1441
Panel rho-Statistic	-0.240984	0.4048	-0.406055	0.3424
Panel PP-Statistic	-1.647200	0.0498	-2.797095	0.0026
Panel ADF-Statistic	-0.795673	0.2131	-2.215176	0.0134

Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	0.279041	0.6099
Group PP-Statistic	-4.642364	0.0000
Group ADF-Statistic	-3.206375	0.0007

Cross section specific results

Phillips-Peron results (non-parametric)

Cross ID	AR(1)	Variance	HAC	Bandwidth	Obs
AGRICULTU RE	0.069	1.81E+09	1.67E+09	2.00	12
MANUFACT URING	-0.322	1373407.	1122052.	2.00	12
SERVICE	-0.306	96098070	18462450	9.00	12

Augmented Dickey-Fuller results (parametric)

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Cross ID	AR(1)	Variance	Lag	Max lag	Obs
AGRICULTU RE	-0.064	1.93E+09	1	--	11
MANUFACT URING	-0.623	1320601.	1	--	11
SERVICE	-1.610	52717488	1	--	11

Appendix 13: Hypothesis of no co integration

Sectors	Trace Test stat	Prob.**	Max-Eign Test stats	Prob.**
Agric.	124.039	0.000	69.597	0.000
Manuf	94.390	0.000	60.656	0.000
Service	84.586	0.000	55.666	0.000

Appendix 14: Hypothesis of at most 1 cointegration relationship

Sectors	Trace Test stat	Prob.**	Max-Eign Test stats	Prob.**
Agric.	54.4418	0.0000	38.4858	0.0001
Manuf	33.7341	0.0167	21.0225	0.0518
Service	28.9195	0.0629	16.5028	0.1968

Appendix 15: Hypothesis of at most 2 cointegration relationship

Sectors	Trace Test stat	Prob.**	Max-Eign Test stats	Prob.**
Agric.	15.9560	0.0426	15.9523	0.0268
Manuf	12.7116	0.1258	7.2912	0.4553
Service	12.4167	0.1380	9.9629	0.2144

Appendix 16: Hypothesis of at most 3 cointegration relationship

Sectors	Trace Test stat	Prob.**	Max-Eign Test stats	Prob.**
Agric.	0.0037	0.9503	0.0037	0.9503
Manuf	5.4203	0.0199	5.4203	0.0199
Service	2.4538	0.1172	2.4538	0.1172

APPENDIX 18

Table 18: LONG RUN RELATIONSHIP RESULT

Vector Error Correction Estimates
Standard errors in ( ) & t-statistics in [ ]

CointegratingEq:	CointEq1
LEMPLOYMENT(-1)	1.000000
LEXCHANGE_RATE(-1)	-231.7359
	(32.3779)
	[-7.15721]
LGDP(-1)	5.763330
	(0.59677)
	[-9.65748]
LFDI(-1)	1.236968
	(2.31555)
	[-0.53420]
C	1207.624

APPENDIX 19. TABLE 19.
.SHORT RUN RELATIONSHIP
Error Correction:

	D(LEMPLOYMENT)	D(LEXCHANGE_RATE)	D(LGDP)	D(LFDI)
CointEq1	-0.072962	-0.001229	0.135065	-0.013079
	(0.00873)	(0.00050)	(0.02769)	(0.01005)
	[-1.28876]	[-2.43623]	[4.87709]	[-1.30194]
D(LEMPLOYMENT(-1))	-0.393274	-0.010134	-1.086072	-0.105574
	(0.17404)	(0.01006)	(0.55237)	(0.20036)
	[-2.25967]	[-1.00693]	[-1.96622]	[-0.52692]
D(LEMPLOYMENT(-2))	-0.538648	-0.009353	-1.002971	0.257360
	(0.18291)	(0.01058)	(0.58051)	(0.21057)
	[-2.94490]	[-0.88433]	[-1.72773]	[1.22220]
D(LEXCHANGE_RATE(-1))	1.657388	-0.454097	43.04975	-3.878600
	(4.31262)	(0.24938)	(13.6873)	(4.96483)
	[0.38431]	[-1.82092]	[3.14523]	[-0.78121]

D(LEXCHANGE _RATE(-2))	-2.190955	-0.459980	8.850831	-5.305845
	(2.79420)	(0.16157)	(8.86819)	(3.21678)
	[-0.78411]	[-2.84685]	[0.99804]	[-1.64943]
D(LGDP(-1))	-0.099836	-0.002754	0.028721	-0.002603
	(0.04344)	(0.00251)	(0.13788)	(0.05001)
	[-2.29805]	[-1.09609]	[0.20831]	[-0.05205]
D(LGDP(-2))	0.008108	-0.000956	0.213885	-0.034791
	(0.04041)	(0.00234)	(0.12825)	(0.04652)
	[0.20067]	[-0.40935]	[1.66778]	[-0.74789]
D(LFDI(-1))	0.059709	0.011800	0.570132	-0.055294
	(0.17081)	(0.00988)	(0.54211)	(0.19664)
	[0.34957]	[1.19465]	[1.05169]	[-0.28119]
D(LFDI(-2))	0.068720	-0.010272	0.573994	-0.368280
	(0.16741)	(0.00968)	(0.53131)	(0.19272)
	[0.41050]	[-1.06110]	[1.08034]	[-1.91094]
C	-0.084689	0.048644	-3.328717	0.604202
	(0.30081)	(0.01739)	(0.95470)	(0.34630)
	[-0.28154]	[2.79655]	[-3.48667]	[1.74473]
R-squared	0.769336	0.369710	0.634763	0.284156
Adj. R-squared	0.173612	0.174103	0.521414	0.061997
Sum sq. resids	42.32661	0.141529	426.3511	56.09711
S.E. equation	1.208113	0.069859	3.834288	1.390821
F-statistic	1.887029	1.890066	5.600056	1.279067
Log likelihood	-56.93476	54.22826	-101.9768	-62.42729
Akaike AIC	3.432552	-2.268116	5.742399	3.714220
Schwarz SC	3.859106	-1.841561	6.168953	4.140774
Mean dependent	0.019598	0.025301	-1.514459	0.295670
S.D. dependent	1.328972	0.076871	5.542485	1.436049

Determinant resid covariance (dof adj.)	0.079607
Determinant resid covariance	0.024338
Log likelihood	-148.8979
Akaike information criterion	9.892201
Schwarz criterion	11.76904

Table 20:.Dependent variable: Lemployment

Excluded	Chi-sq	Df	Prob.
LEXCHANGE_RATE	5.850698	2	0.0536
LFDI	2.549935	2	0.2794
LGDP	3.469303	2	0.1765
All	8.911345	6	0.1786

Table 21.Dependent variable: Lexchange rate

Excluded	Chi-sq	Df	Prob.
LEMPLOYMENT	2.286712	2	0.3187
LFDI	4.848891	2	0.0885
LGDP	5.3992	2	0.0672
All	9.291097	6	0.1579

Table 22:.Dependent variable: LFDI

Excluded	Chi-sq	Df	Prob.
LEMPLOYMENT	0.528927	2	0.7676
LEXCHANGE_RATE	1.827503	2	0.4010
LGDP	0.514577	2	0.7731
All	1.917625	6	0.9271

Table 23: Dependent variable: LGDP

Excluded	Chi-sq	Df	Prob.
LEMPLOYMENT	12.25701	2	0.0022
LEXCHANGE_RATE	2.930085	2	0.2311
LFDI	15.81902	2	0.0004
All	44.54369	6	0.0000

Granger Non Casuality Result/Toda Yamamota Result

Appendix 24:.Dependent variable: Lemployment

Excluded	Chi-sq	df	Prob.
LEXCHANGE_RATE	5.850698	2	0.0536
LFDI	2.549935	2	0.2794
LGDP	3.469303	2	0.1765
All	8.911345	6	0.1786

Appendix 25.Dependent variable: Lexchange rate

Excluded	Chi-sq	df	Prob.
LEMPLOYMENT	2.286712	2	0.3187
LFDI	4.848891	2	0.0885
LGDP	5.3992	2	0.0672
All	9.291097	6	0.1579

Appendix 26: Dependent variable: LFDI

Excluded	Chi-sq	df	Prob.
LEMPLOYMENT	0.528927	2	0.7676
LEXCHANGE_RATE	1.827503	2	0.4010
LGDP	0.514577	2	0.7731
All	1.917625	6	0.9271

Appendix 27: Dependent variable: LGDP

Excluded	Chi-sq	df	Prob.
LEMPLOYMENT	12.25701	2	0.0022
LEXCHANGE_RATE	2.930085	2	0.2311
LFDI	15.81902	2	0.0004
All	44.54369	6	0.0000